CLASS 474, ENDLESS BELT POWER TRANSMISSION SYSTEMS OR COMPONENTS

SECTION I - CLASS DEFINITION

GENERAL STATEMENT OF CLASS SUBJECT MATTER

A. This is the generic class for a power transmission system wherein a power input pulley* is in driving engagement with a belt* for advancing the belt along an endless path of travel and wherein a power output pulley is engaged with the belt at a position along such endless path to be driven by the belt and supply power for driving a load; or for a component part or auxiliary device intended for use in such system and not provided for elsewhere.

B. This is also the generic class for structure, per se, in the form of a pulley*, guide roll* or other belt*-contacting structure for driving, guiding, tensioning, or shifting the belt, or for such structure in combination with a nominally claimed belt.

(1) Note. A nominal recitation of a load device in combination with and driven by the power transmission system defined in the Class Definition, paragraph A of the General Statement of Class Subject Matter, above, will not exclude a patent from being placed in this class.

SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS

A method or apparatus for manufacturing a device of this class is not found herein, but is found in an appropriate manufacturing class. See References to Other Classes, below.

A belt*, per se, is found in numerous classes as will be exemplified in the search and line notes below. Unless a line note is specifically provided in the SEARCH CLASS notes below, a patent claiming a belt, per se, is properly classified in this or another class providing for such belt if the sole disclosure is for subject matter provided for in such class, or in Class 428 depending on the line established between such class and Class 428. If there is disclosure for multiple intended uses for the belt, one of which is for a power transmission system as defined in the above paragraph A of the General Statement of Class Subject Matter, then the patent is properly classified in this class (474) unless there is at least one claim specific to the intended use in another class, in which instance classification is in the other class.

Class 198, Class 226, and Class 254 provide specifically for a device, per se, in the nature of a pulley*, guide roll*, or other device for advancing, guiding, or directing a cable or web of flexible or articulated material, which may be endless, along an intended path of travel. In Class 198, the intended use of such device is in connection with an endless conveyor. In Class 226, the intended use of such device is in connection with feeding of material of indefinite length to a station where an operation is to be performed on the material. In Class 254, the intended use of such device is in connection with a cable for applying a pushing or pulling force to an object to be moved. In each of these classes, line notes should be inspected as to the line between themselves or between other classes. However, the line between these other classes (198, 226, and 254) and this class (474) is as follows: (a) if the sole disclosure of the device, per se, mentioned above is for intended use in a system provided for in the Class Definition, paragraph A of the General Statement of Class Subject Matter of this class (474) or if the disclosure is unclear as to intended use but it is apparent that the device may be used in said system, classification is in this class (474); (b) if the sole disclosure of the device, per se, mentioned above is for intended use in connection with the kind of device identified above with regard to one of the other classes (198, 226, or 254), then classification is in such other classes; (c) if there is disclosure of multiple intended uses for the device, one of which is appropriate for the system provided for in the Class Definition, paragraph A of the General Statement of Class Subject Matter of this class (474), then classification is in this class unless there is at least one claim specific to the intended use in one of the other classes (198, 226, or 254), in which instance classification is in the other class.

This class was formed from patents in Class 74, subclasses 216.5-258 (inclusive), and in Class 74, subclasses 611 and 722. Regarding class superiority as between this class (474) and Class 74, all subclasses appearing in the Class 74 schedule above subclass 640 are superior to the class. Furthermore, a combination of a device of this subclass with a Class 74 device as may be found in Class 74, subclasses 650, 655, 661, 664, 670, 718, 720, 721, 745+, or 190-216.3 (inclusive) is considered superior to this class. This class is superior to all other subclasses in Class 74 indented under subclass 640 and to all other subclasses coordinate with Class 74, subclass 640, but lower in the Class 74 schedule than subclass 640.

Caveat. Other than the patents involved in the formation of this class as identified in above, no other subclasses in Class 74 or any other class were screened; and so, when appropriate other search areas in Class 74 and in the classes indentified in the Search Notes below should be given consideration.

SECTION III - REFERENCES TO OTHER CLASSES

SEE OR SEARCH CLASS:

15, Brushing, Scrubbing, and General Cleaning, particularly subclasses 256.5+ for a cleaning device mounted to act on a moving surface, and see (1) Note following the definition of subclass 92 of this class (474) for a statement of the line.

16, Miscellaneous Hardware (e.g., Bushing, Carpet Fastener, Caster, Door Closer, Panel Hanger, Attachable or Adjunct Handle, Hinge, Window Sash Balance, etc.), particularly subclasses 210+ for sash cord guide.

19, Textiles: Fiber Preparation, particularly subclasses 244+ for a fiber drafting apron in the form of an endless band; and subclasses 240+ for a variable speed device operating in connection with a fiber drafting roll.

24, Buckles, Buttons, Clasps, etc., particularly subclasses 31+ for a device for connecting opposite ends of a band to form a belt*. A connector, per se, is in Class 24, but a connector claimed in combination with belt structure is in this class (474).

29, Metal Working, particularly subclasses 892+ for a method of making a pulley* or guide roll* (See Lines With Other Classes and Within This Class, above.).

30, Cutlery, particularly subclasses 380 and 381+ for a hand-manipulable cutting implement in the form of an endless band or chain.

57, Textiles: Spinning, Twisting, and Twining, particularly subclass 21 for an aparatus for forming an endless band by a twisting or twining operation; subclasses 104+ for a belt* power transmission for driving a spinning, twisting, or twining mechanism; and subclass 201 for an endless band formed by a spinning, twisting, or twining operation.

59, Chain, Staple, and Horseshoe Making, for a method or apparatus for manufacturing a device found in Class 474. (See Lines With Other Classes and Within This Class, above.)

59, Chain, Staple, and Horseshoe Making, particularly subclasses 1+ for a method or apparatus for making a chain; and subclasses 78+ for a general purpose or ornamental chain.

72, Metal Deforming, subclass 409.15 for apparatus to apply a deformable metal belt clip.

74, Machine Element or Mechanism, appropriate subclasses for other power transmission systems and components, and see Lines With Other Classes, and Within This Class, above.

83, Cutting, particularly subclasses 788+ for cutting device in the form of an endless band or chain. Regarding Class 83 or any other cutting class, a patent claiming a belt*, per se, for carrying a cutting element is classified in this class (474) unless there is a claim reciting a cutting element, such as a cutting tip or blade which is to perform a cutting function.

104, Railways, subclasses 172.1+ and 173.1+ for chain or cable car propelling means.

105, Railway Rolling Stock, particularly subclasses 101+ for a rolling stock wheel or axle drive system in the form of a belt* and pulley* drive; and subclasses 105+ for a belt tightener for such a drive system.

106, Compositions: Coating or Plastic, particularly subclass 36 for a coating or plastic composition used to enhance friction grip such as on a pulley*.

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, particularly subclasses 137+ for a method of making a belt*, and see Lines With Other Classes and Within This Class, above.

162, Paper Making and Fiber Liberation, particularly subclasses 348+ for an endless band forming mold used in producing liquid laid fibrous products; subclass 257 for automatic control of transverse movement of such a forming mold; and subclass 273 for means to maintain a desired degree of tension in an endless forming surface.

180, Motor Vehicles, particularly subclasses 230, 231, 239, 241, 251, 350+, 357, 366, and 373 for a motor vehicle including an endless band for transmitting drive to the wheels.

184, Lubrication, appropriate subclasses for lubrication systems in general, and particularly subclasses 15.1+ for a chain or cable lubricator. If the structure of a belt*, pulley* or guide roll* is modified for the purpose of facilitating admission of lubricant, classification is in Class 474, but lubrication devices and systems are in Class 184.

185, Motors: Spring, Weight, or Animal Powered, particularly subclass 16 for a belt* intended to be driven by an animal treading on the belt.

187, Elevator, Industrial Lift Truck, or Stationary Lift for Vehicle, subclasses 251+ for means for raising or lowering an elevator car which includes a car supporting cable.

191, Electricity: Transmission to Vehicles, particularly subclasses 63+ for a trolley head mounted for rolling contact with an electric conductor.

198, Conveyors: Power-Driven, particularly subclasses 804+ for an endless conveyor, and see the line notes in Lines With Other Classes and Within This Class, above. See also a listing of the other classes having structure pertinent to an endless conveyor following the definition of subclass 804 in Class 198, and a listing of classes pertinent to belt* tighteners following the definition of subclass 813 in Class 198.

211, Supports: Racks, particularly subclasses 119.02+ for an endless cable clothesline with supporting and tightening structure.

226, Advancing Material of Indeterminate Length, appropriate subclasses for structure for driving or guiding material of indeterminate length, and see the line note in Lines With Other Classes and Within This Class, above.

242, Winding and Reeling, appropriate subclasses for a reel, spool, guide, or tensioning device used in connection with winding of flexible material.

248, Supports, particularly subclasses 646+ for a support for a movable machine wherein adjustability may provide a belt*-tensioning feature.

254, Implements or Apparatus for Applying Pushing or Pulling Force, appropriate subclasses for a drum or guide intended to be used in connection with a cable for applying a pulling or pushing force to an object to be moved, and see the lines notes in Lines With Other Classes and Within This Class, above.

280, Land Vehicles, particularly subclass 250 and 261 for a land vehicle having a belt or chain power transmission.

305, Wheel Substitutes for Land Vehicles, appropriate subclasses for an endless track intended for use as a wheel substitute on a land vehicle.

318, Electricity: Motive Power Systems, for electric motor control, and particularly subclasses 6+ for control of tension in material being driven; subclass 10 for control of forward or reverse of a device being driven; subclass 11 for control for variable speed of a device being driven; and subclass 15 for electric motor driven gearing including belt and pulley drive systems.

322, Electricity: Single Generator Systems, subclass 42 for control for a belt drive in such a system; and subclass 43 for control of belt slip.

384, Bearings, appropriate subclasses for bearings, per se, which may be used with a pully* or guide roll*.

399, Electrophotography, subclasses 162+ for photoconductive belt members and subclasses 297+ for transfer, particularly subclass 313 for roller or belt electrostatic transfer.

403, Joints and Connections, appropriate subclasses for connections, per se, and particularly subclasses 230+ for a connection between the side of a member and a rod extending transverse thereto.

428, Stock Material or Miscellaneous Articles, appropriate subclasses for stock material, and see the reference to Class 474 in the Class Definition of Class 428.

433, Dentistry, subclasses 105 and 110+ for dental apparatus including an endless belt transmission.

451, Abrading, subclasses 296+ for an abrading tool comprising an endless band; and subclass 311 for a tightener for an abrading band.

464, Rotary Shafts, Gudgeons, Housings, and Flexible Couplings for Rotary Shafts, particularly subclasses 51+ for a flexible connection between a shaft and a driven member.

475, Planetary Gear Transmission Systems or Components, for planetary gear transmissions combined with a device of Class 474.

477, Interrelated Power Delivery Controls, Including Engine Control, especially subclasses 44+ for interrelated engine and belt-type transmission control.

492, Roll or Roller, for a roll, per se, not elsewhere provided for, and see the search notes thereunder.

SECTION IV - GLOSSARY

The following Glossary will define certain terms used in the class and subclass definitions of this class so as to facilitate understanding and simplify such definitions.

BELT

A power transferring member forming an endless loop and constructed of flexible material or of articulated rigid links to permit the member to conform to a radius

of curvature of a pulley* drive face and intended, in use, to be driven in an endless path; and, by contact with the pulley drive face, to transmit power to or extract power from the pulley.

PULLEY

A device rotatable about an axis and having a drive face radially spaced from the axis of rotation for intended power transferring engagement with a belt* to drive the belt on its endless path or to extract power from the belt to drive an output load device.

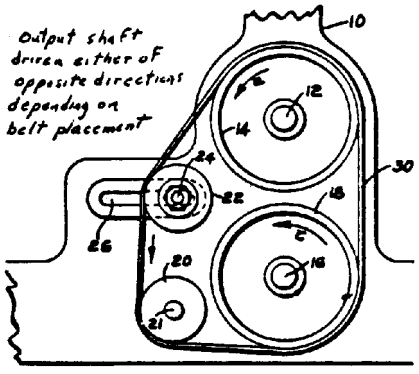
GUIDE ROLL

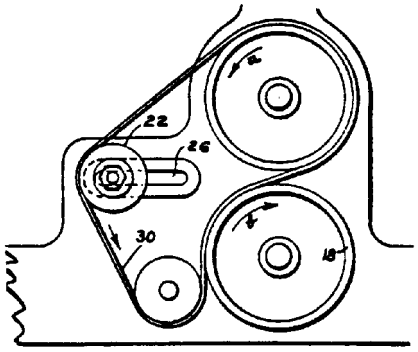
A device rotatable about an axis and having a belt*-contacting face radially spaced from the axis of rotation for intended engagement with the belt to aid in directing the belt along an intended path of travel. A guide roll, as distinguished from a pulley*, is not intended to provide driving power to, or extract power from, a belt.

SUBCLASSES

1 CONTROL FOR FORWARD AND REVERSE:

This subclass is indented under the class definition. Subject matter wherein mechanism is provided for changing the direction of rotation of an output load driving member from clockwise to counterclockwise or vice versa.





SEE OR SEARCH CLASS:

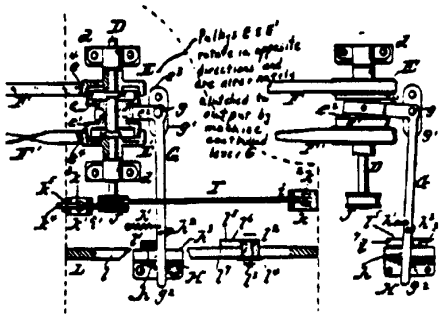
74, Machine Element or Mechanism, subclasses 37 and 89.2+ for mechanical movements for motion conversion using belt and pulley drive means, and appropriate subclass under 640+ for other gearing and gearing combination having reversing means.

318, Electricity: Motive Power Systems, subclass 10 for control of forward and reverse in a device being driven.

475, Planetary Gear Transmission Systems or Components, appropriate subclasses, for planetary gearing systems having reversing means.

2 Cyclical or sequential (e.g., machine controlled, etc.):

This subclass is indented under subclass 1. Subject matter wherein the mechanism functions to periodically change the direction of rotation of the load driving member according to a predetermined program without operator intervention.

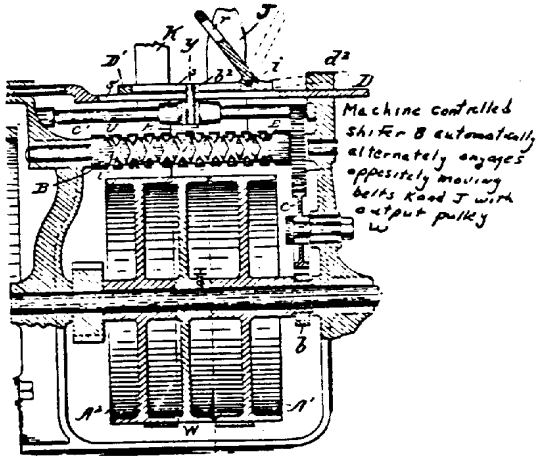


SEE OR SEARCH THIS CLASS, SUBCLASS:

71, for cyclical or sequential operation in a variable speed arrangement.

3 Including device for shifting belt laterally of its direction of run:

This subclass is indented under subclass 2. Subject matter wherein the mechanism includes a member for moving a belt* in either of opposite directions parallel to the longitudinal extent of the rotational axis of a pulley*.

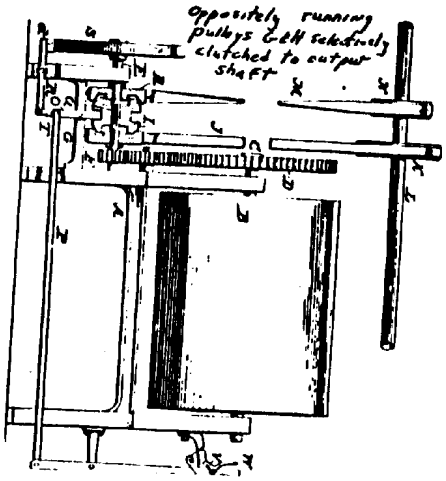


SEE OR SEARCH THIS CLASS, SUBCLASS:

6, 80+, 83, 102+, and 122+, for other structure involving lateral shift of a belt such as for reversing the direction of rotation of a load driving member, for causing a change in speed ratio, for removing a belt from a pulley, or for correcting belt training deviation.

4 Including separate belts for forward and reverse:

This subclass is indented under subclass 1. Subject matter wherein separate belts* are selectively engageable in power transmitting relationship between a power input member and the power output load driving member, one of the belts being engaged when it is desired to drive the load driving member clockwise, and the other of the belts being engaged when it is desired to drive the load driving member counterclockwise.



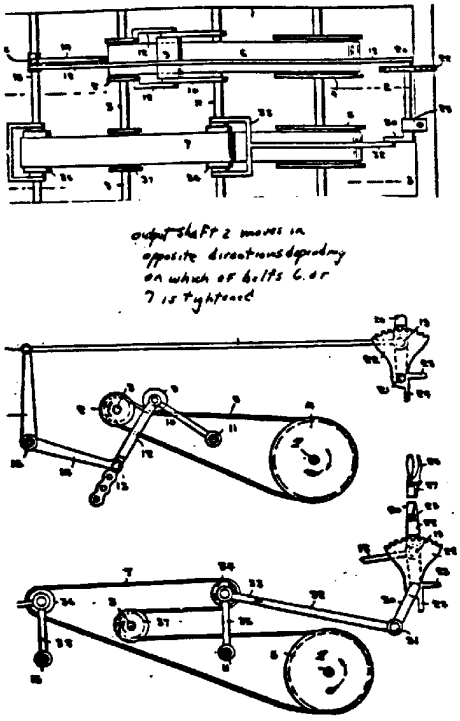
SEE OR SEARCH THIS CLASS, SUBCLASS:

73+, for a variable speed drive arrangement using plural belts.

84+, for a belt and pulley drive including a plurality of separate belts.

5 Belt selection by shifting or tightening belt:

This subclass is indented under subclass 4. Subject matter wherein selective engagement or disengagement of a belt* is accomplished by moving the belt into or from power transmitting engagement with a pulley*.



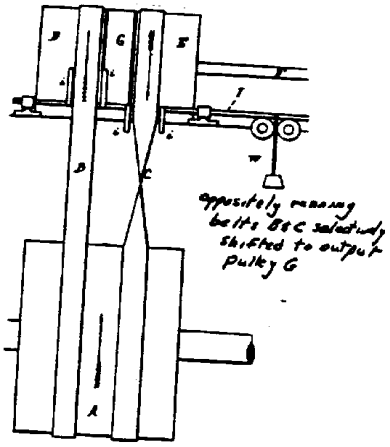
SEE OR SEARCH THIS CLASS, SUB-CLASS:

75, for a device for tightening a belt on a pulley associated with a variable speed drive.

101+, for a device for adjusting belt tension.

6 Including device for shifting belt laterally of its direction of run:

This subclass is indented under subclass 5. Subject matter wherein the mechanism includes a member for moving a belt* in either of opposite directions parallel to the longitudinal extent of the rotational axis of a pulley*.

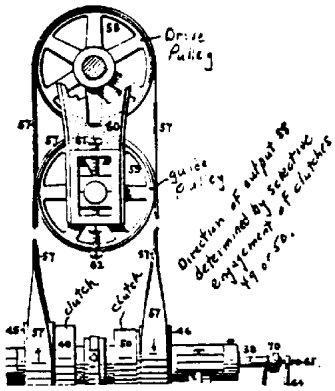


SEE OR SEARCH THIS CLASS, SUB-CLASS:

3, 80+, 83, 102+, and 122+, for other structure involving lateral shift of a belt such as for reversing the direction of rotation of a load driving member, for causing change in speed ratio, for removing a belt from a pulley, or for correcting belt training deviation.

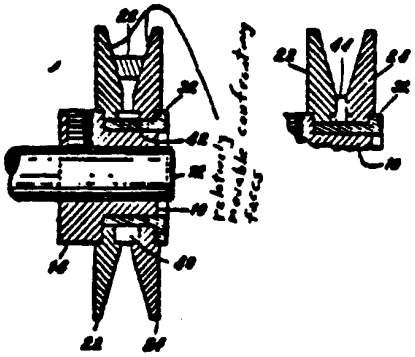
7 Including coaxial pulleys rotated in opposite directions by single endless belt simultaneously engaging both pulleys:

This subclass is indented under subclass 1. Subject matter including two pulleys* mounted for rotation about a common axis and wherein a single endless belt* is in driving engagement with both pulleys, the belt being so arranged relative to the pulleys that movement of the belt along its path of travel concurrently drives one pulley in a clockwise direction and the other pulley in a counterclockwise direction.



8 PULLEY WITH BELT-RECEIVING GROOVE FORMED BY DRIVE FACES ON RELATIVELY AXIALLY MOVABLE COAXIAL CONFRONTING MEMBERS (E.G., EXPANSIBLE CONE PULLEY, ETC.):

This subclass is indented under the class definition. Subject matter wherein a pulley* includes a pair of separate components having belt*-engaging surfaces facing each other for receiving a belt in the space between such surfaces, the components being mounted for relative adjustment toward and away from each other in directions generally parallel to the longitudinal extent of the axis of rotation of the pulley to increase or decrease the extent of gripping force exerted by the surfaces on the belt or to increase or decrease the effective diameter of the pulley.

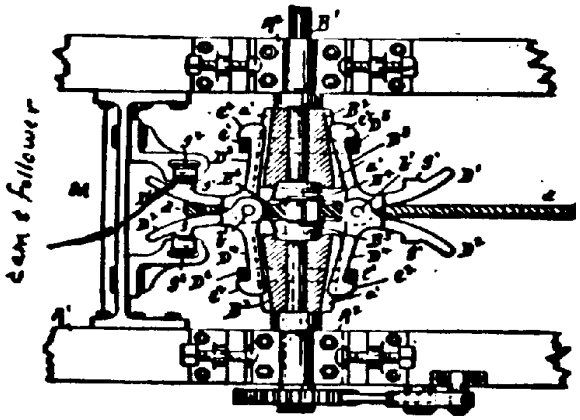


9 Members are gripping jaws actuated during each rotation of pulley:

This subclass is indented under subclass 8. Subject matter wherein during each full revolution of the pulley* there is a first period of time when opposed belt*-engaging surfaces are in driving engagement with the belt, and a second period of time when opposed belt-engaging surfaces are out of driving engagement with the belt, and wherein the components are mounted for relative cyclical movement accomplished by interaction with the belt or by an auxiliary device, whereby during the second period of time the belt-engaging surfaces are separated to facilitate exit and entrance of the belt from and to the space between the surfaces, and whereby the belt engaging surfaces have relative movement to a position toward each other during the first period of time to increase the engagement force of the surfaces with the belt.

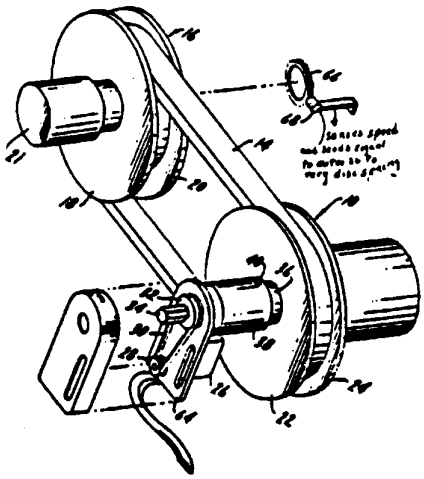
10 Via relatively rotating cam and follower:

This subclass is indented under subclass 9. zSubject matter including relatively rotating elements having actuating surfaces in rolling or sliding engagement with each other, said actuating surfaces being so contoured with respect to each other, and so associated with respect to one of said belt*-engaging components that relative rotation between such actuating surfaces is converted into said relative cyclical movement of said one of said belt-engaging components.



11 Speed responsive:

This subclass is indented under subclass 8. Subject matter including means for sensing velocity or change of velocity of a load device or of a member operating in a drive train to drive the load device; and, responsive to such sensed velocity or change of velocity, said means acts to alter the relative axial position of said components.

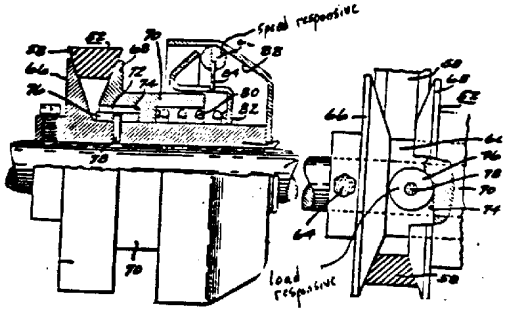


SEE OR SEARCH THIS CLASS, SUBCLASS:

50, and 70, for other arrangements using a speed responsive actuator in a belt and pulley drive system.

12 And load responsive:

This subclass is indented under subclass 11. Subject matter further including means for sensing resistance to movement or change in resistance to movement of a load device or of a member in a drive train to drive the load device; and, in response to such sensed resistance or change of resistance to movement, said means acts to alter the relative axial position of said components.

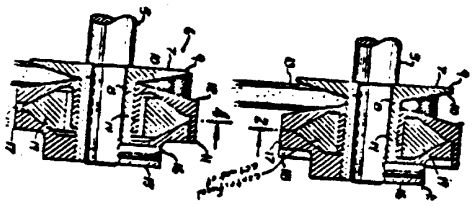


SEE OR SEARCH THIS CLASS, SUBCLASS:

17+, 50, 70, and 109, for other arrangements using a load responsive actuator in a belt and pulley drive system.

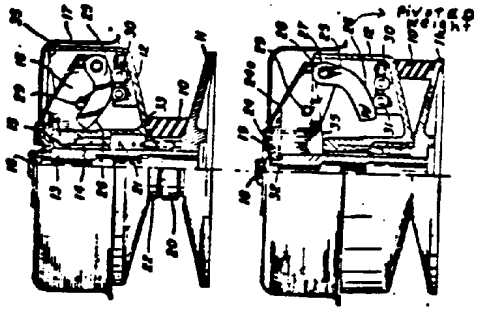
13 To centrifugal force:

This subclass is indented under subclass 11. Subject matter wherein the means for sensing the velocity or change of velocity is mounted for rotation with a rotatable member and includes a material or part movable outwardly by inertial force from the axis of rotation of the rotatable member.



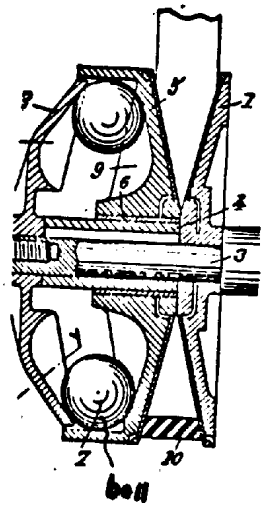
14 Via pivoted weight:

This subclass is indented under subclass 13. Subject matter wherein the part movable outwardly by inertial force comprises a device pivotal about a fixed axis.



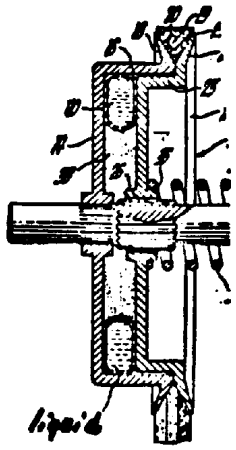
15 Via ball:

This subclass is indented under subclass 13. Subject matter wherein the part movable outwardly by inertial force comprises one or more spherically shaped devices.



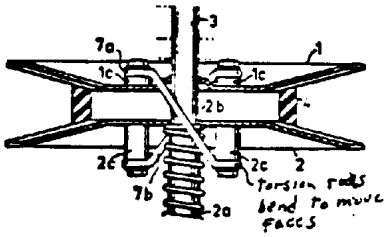
16 Via liquid:

This subclass is indented under subclass 13. Subject matter wherein the material movable outwardly by inertial force is a liquid.



17 Load responsive:

This subclass is indented under subclass 8. Subject matter including means for sensing resistance to movement or change in resistance to movement of a load device or of a member in a drive train to drive the load device; and, in response to such sensed resistance or change of resistance to movement, said means acts to alter the relative axial position of said components.



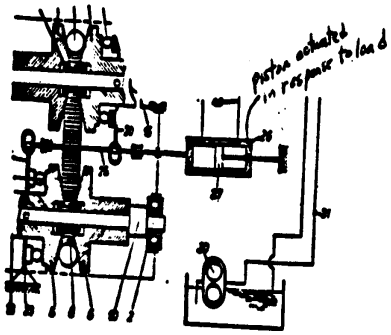
SEE OR SEARCH THIS CLASS, SUBCLASS:

12, for a combined speed and load responsive device for altering the relative axial position of coaxial confronting drive faces.

50, 70, and 109, for other arrangements using a load responsive actuator in a belt and pulley drive system.

18 With actuator driven by electrical or fluid motor:

This subclass is indented under subclass 17. Subject matter wherein the means for altering the relative axial position of the components is accomplished with the help of force derived from or transmitted via electrical energy or the exertion of force upon a fluid.



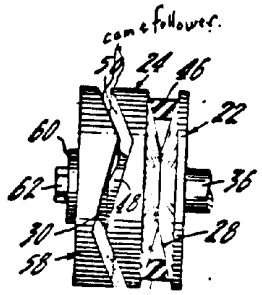
SEE OR SEARCH THIS CLASS, SUBCLASS:

28, 51, 103+, and 110, for other arrangements using an electrical or fluid motor as a drive for an actuator in a belt and pulley drive system.

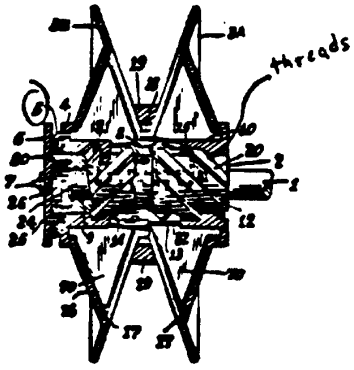
19 Via relatively rotating cam and follower:

This subclass is indented under subclass 17. Subject matter wherein the means responsive to the sensed resistance or change of resistance to movement includes relatively rotating ele-

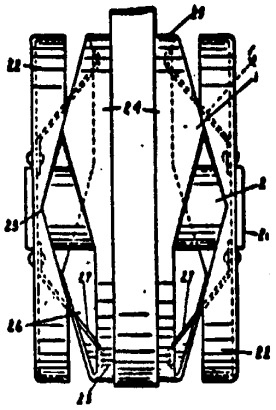
ments having actuating surfaces in rolling or sliding engagement with each other, said actuating surfaces being so contoured with respect to each other, and so associated with respect to one of said belt*-engaging components that relative rotation between such actuating surfaces is converted into axial movement of one of said belt-engaging components.



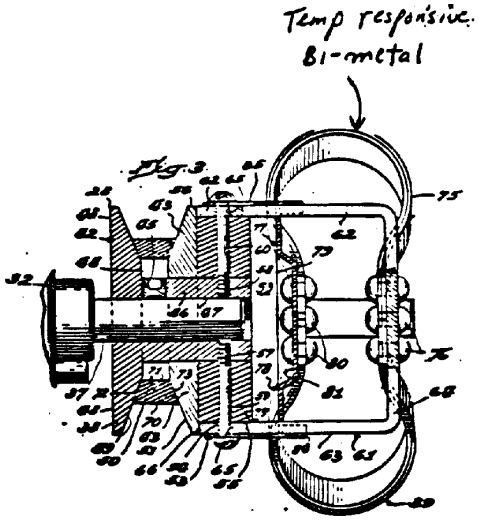
20 **Including interengaged threads:**
This subclass is indented under subclass 19. Subject matter wherein each of the relatively rotating elements is generally cylindrical in cross sectional configuration, a cylindrical wall of one of the elements having an external helical ridge forming an actuating surface, and a cylindrical wall of the other of the elements having an internal helical ridge forming a cooperating actuating surface; the two cylindrical elements being coaxially mounted with the external ridge of one interengaged with the internal ridge of the other so that relative rotation of the elements also causes relative axial movement of the elements and axial movement of a component associated with the axially moved element.



21 **Including plural separate cam and follower pairs for adjusting plural members:**
This subclass is indented under subclass 19. Subject matter including an additional pair of relatively rotating elements having actuating surfaces in rolling or sliding engagement with each other, the additional pair of actuating surfaces being so contoured with respect to each other, and so associated with respect to an additional belt*-engaging component that relative rotation between such additional pair of actuating surfaces is converted into axial movement of the additional belt-engaging component.



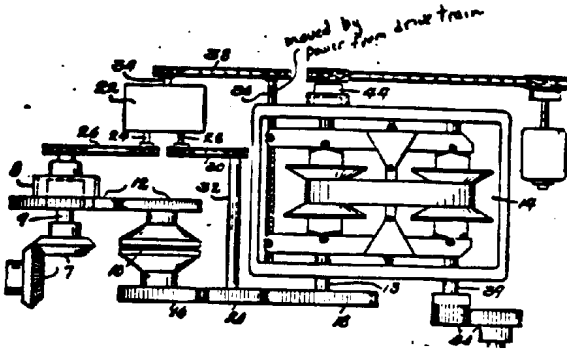
22 **Temperature responsive:**
This subclass is indented under subclass 8. Subject matter including means to sense a condition or change of condition as regards heat or coldness of a member operating in a pulley* drive train or in the environment surrounding the drive train; and, in response to such sensed condition, or change of condition, said means acts to alter the relative axial position of said components.



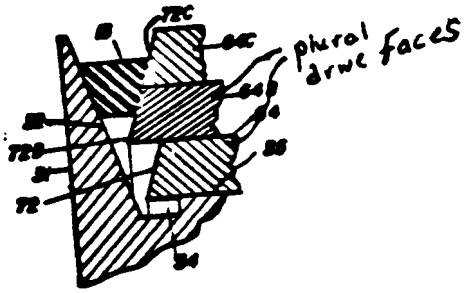
23 Adjusted by power from pulley drive train:
This subclass is indented under subclass 8. Subject matter wherein an auxiliary device is constantly rotated during rotation of the pulley* by the same source which causes rotation of the pulley, and such device supplies the force for relative adjustment of the pulley components.

(1) Note. The auxiliary device may be separated from the pulley or may be a component integrally connected to, or forming a part of, the pulley.

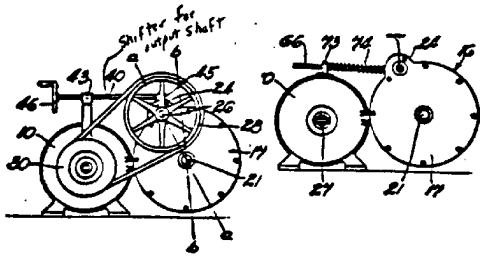
(2) Note. For a patent to be placed herein a human operator may selectively initiate the adjustment such as by selective clutch engagment, but the auxiliary device provides the sole actuating force. If a human operator provides the actuating force, even though such force may be multiplied as through levers, screws, etc., the patent is placed in subclasses below such as 29+ or 37+.



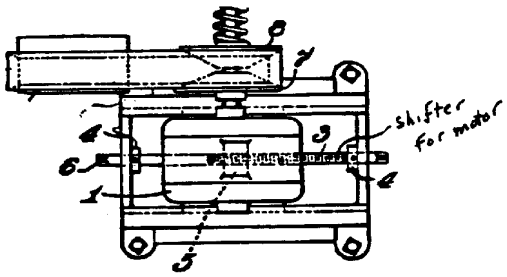
24 And member has plural, relatively axially movable drive faces:
This subclass is indented under subclass 8. Subject matter wherein at least one of the components is formed of a plurality of elements each having a belt-engaging surface, the elements of each component being adjustable with respect to each other in directions generally parallel to the longitudinal extent of the pulley* axis.



25 And pulley shiftable laterally of its axis of rotation:
This subclass is indented under subclass 8. Subject matter wherein a pulley* is mounted for movement in a direction perpendicular to the longitudinal extent of the pulley axis of rotation, the pulley which is so mounted either being the pulley having adjustable components or another pulley in the drive train.

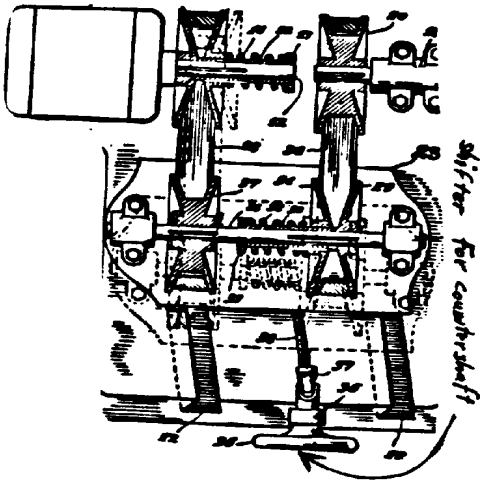


26 Mounted on laterally shiftable motor:
This subclass is indented under subclass 25. Subject matter wherein the pulley* is mounted on the shaft of a device which supplies the primary source of power for driving the pulley, said device with its shaft and pulley being movable in a direction perpendicular to the longitudinal extent of this shaft axis.



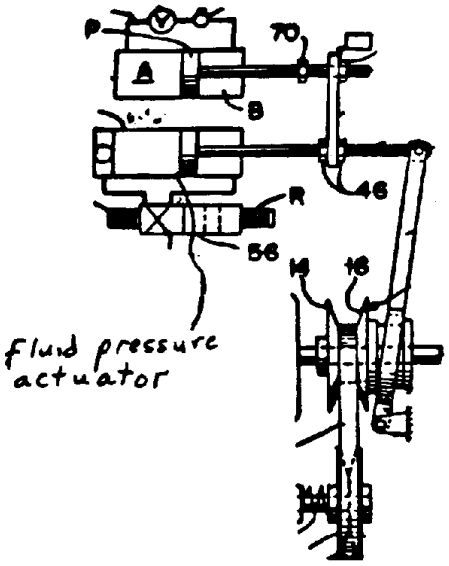
SEE OR SEARCH THIS CLASS, SUBCLASS:
114+, for an adjustable mounted motor which is movable such as for affecting the extent of drive traction between the belt and pulley.

27 Mounted on laterally shiftable countershaft:
This subclass is indented under subclass 25. Subject matter wherein first and second belts* in a drive train are arranged in series driving relationship via an intermediate shaft carrying first and second pulleys*, and wherein said intermediate shaft is mounted for movement in a direction perpendicular to the longitudinal extent of the axis of the intermediate shaft.



SEE OR SEARCH THIS CLASS, SUBCLASS:
89, for a device having plural belts in series driving relationship interconnected via a laterally shiftable countershaft.

28 Fluid pressure actuator for adjustment of member:
This subclass is indented under subclass 8. Subject matter wherein the relative adjustment of said belt*-engaging components is accomplished by energy derived from or transmitted via the exertion of force upon a fluid.

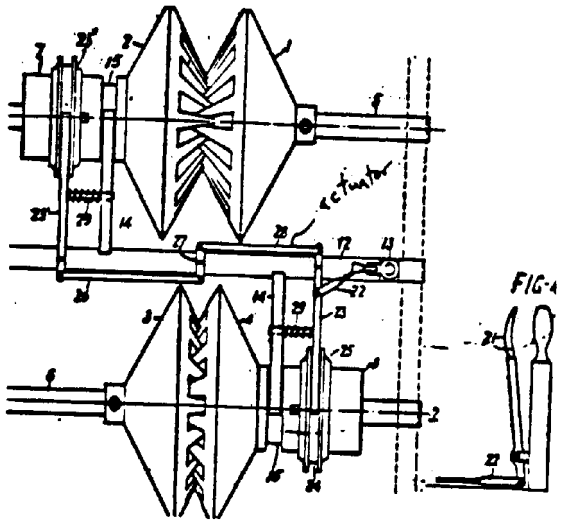


SEE OR SEARCH THIS CLASS, SUBCLASS:

18, 51, 103+, and 110, for other arrangements using an electrical or fluid motor as a drive for an actuator in a belt and pulley drive system.

29 Including actuator interconnecting plural pulleys on spaced shafts for simultaneous adjustment:

This subclass is indented under subclass 8. Subject matter wherein each of a pair of spaced shafts carries a pulley* having adjustable belt*-engaging components and wherein a common motion-inducing member is interlinked with each pulley to provide concurrent axial adjustment of at least one of the adjustable components on each of the pulleys.

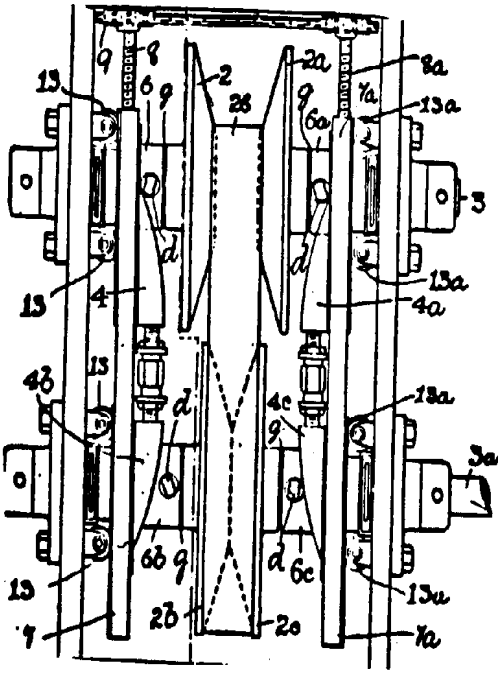


SEE OR SEARCH THIS CLASS, SUBCLASS:

52+, for mechanism for simultaneously adjusting plural pulleys of the kind provided for in subclasses 47+.

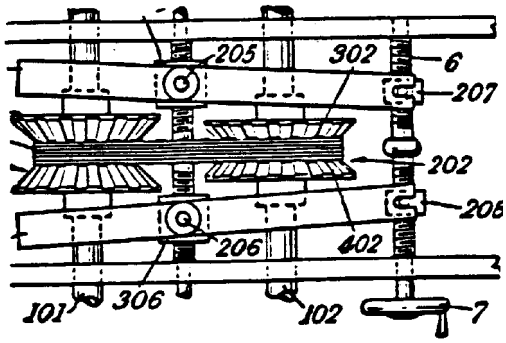
30 For axial adjustment of each member on each pulley:

This subclass is indented under subclass 29. Subject matter wherein the motion-inducing member is interlinked with the pulleys* to provide concurrent axial adjustment of each of the pair of belt*-engaging components on each of the pulleys.



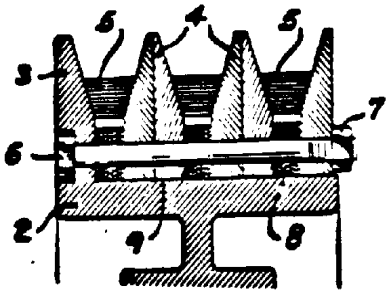
31 By dual lever mechanism:

This subclass is indented under subclass 30. Subject matter wherein the motion-inducing member includes a pair of arms each mounted for pivotal movement about its own axis; and wherein one of the arms is connected to one of the movable belt*-engaging components on each of the spaced pulleys*, and the other arm is connected to the other of the belt-engaging components on each of the spaced pulleys, so that simultaneous pivoting of the arms causes concurrent adjustment of each pair of belt-engaging components on each pulley.



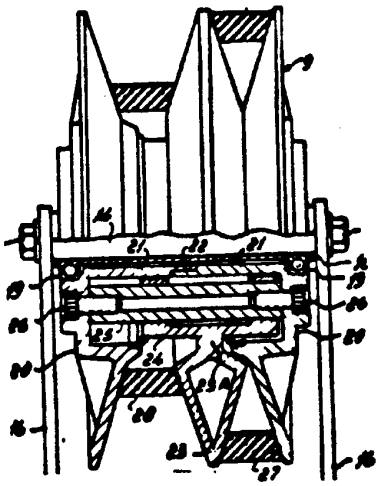
32 Plural members forming plural belt-receiving grooves on common axis:

This subclass is indented under subclass 8. Subject matter including at least three coaxial components having belt*engaging surfaces arranged at intervals to define at least two circumferentially extending belt-receiving spaces between such surfaces along the axis of rotation of the components.



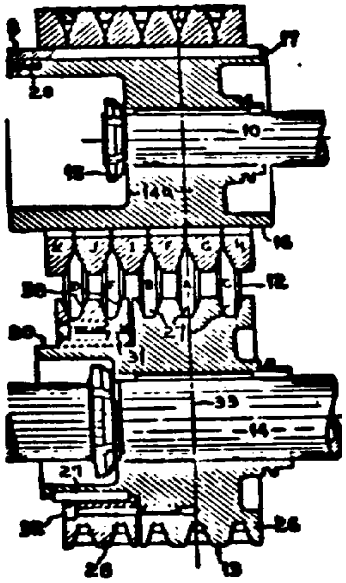
33 With member common to plural grooves:

This subclass is indented under subclass 32. Subject matter wherein at least one of the components has belt*-engaging surfaces on each of opposite sides thereof so as to form a wall for two adjacent belt-receiving spaces.



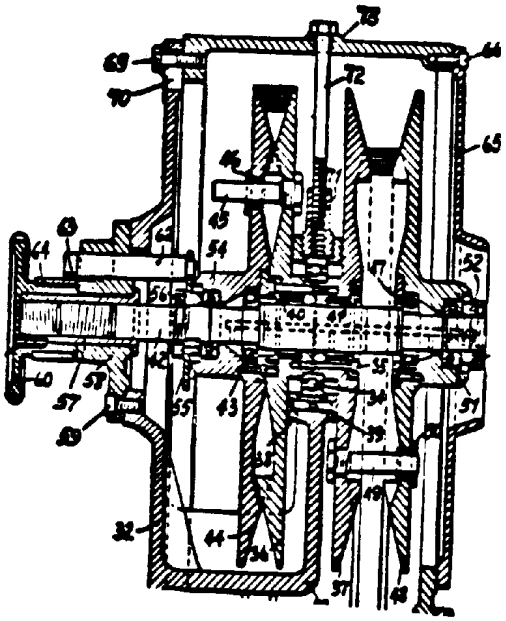
34 Plural members common to plural grooves:

This subclass is indented under subclass 33. Subject matter wherein at least two of the components each have belt*-engaging surfaces on each of opposite sides thereof.

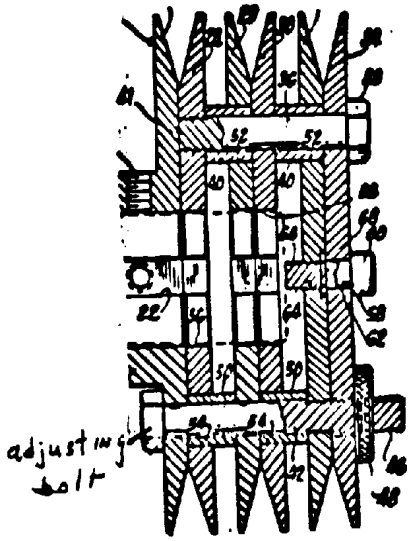


35 Axially spaced members simultaneously adjustable:

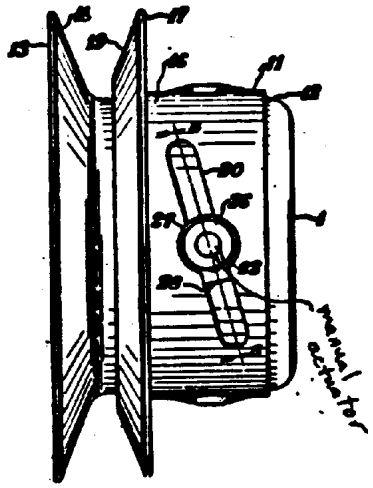
This subclass is indented under subclass 32. Subject matter wherein at least two of the components are mounted for concurrent movement in a direction parallel to the longitudinal extent of the axis of rotation.



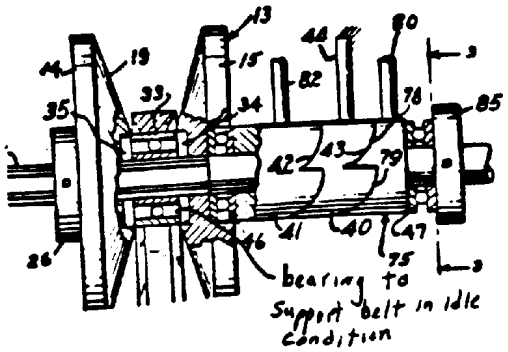
36 On bolt radially spaced from pulley axis:
This subclass is indented under subclass 35. Subject matter wherein means interconnecting said components includes one or more rodlike members extending in a direction generally parallel to the longitudinal extent of the axis of rotation and spaced radially from a shaft upon which the components are mounted.



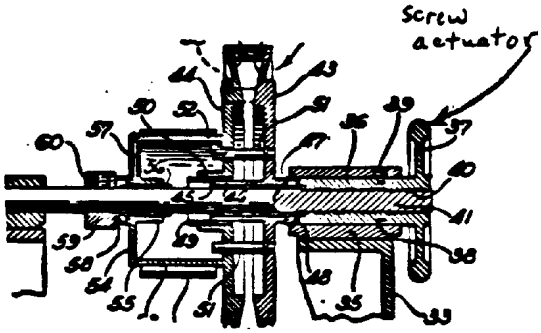
37 By manual actuator for one or both confronting members:
This subclass is indented under subclass 8. Subject matter having manually operated motion-inducing means for causing relative adjustment of said components toward and away from each other.



38 With neutral condition of drive:
This subclass is indented under subclass 37. Subject matter wherein said components are adjustable to a position where neither of the facing belt*-engaging surfaces are engaged with the belt, and wherein structure is provided separate from said components to facilitate supporting the belt to allow relative motion between the belt and the components.

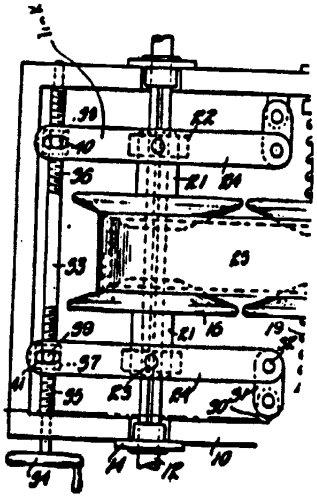


39 Screw actuated:
This subclass is indented under subclass 37. Subject matter wherein the motion-inducing means comprises two relatively rotatable members having interengaged helical threads, one of such members being fixed and the other rectilinearly movable in a direction parallel to the axis of rotation so that relative rotation between the members causes such rectilinear movement, and one of said members forming a part of or being interconnected to one of said adjustable components so that said rectilineal movement causes said relative adjustment of said components.



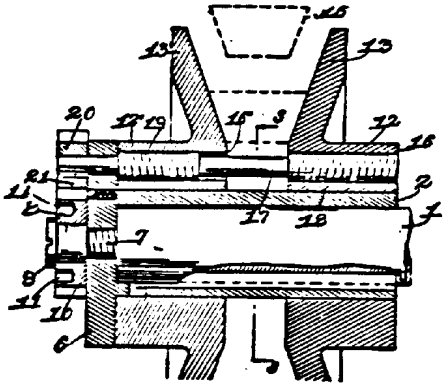
40 With additional linkage in actuator drive train:

This subclass is indented under subclass 39. Subject matter wherein rectilineal motion is transmitted from said rectilinearly movable member to said axially adjustable component via a pivotally mounted lever.



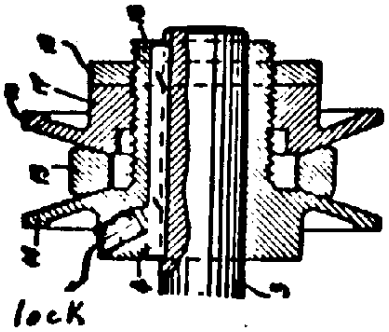
41 By opposite-handed screw threads engaging adjacent members:

This subclass is indented under subclass 39. Subject matter wherein each of the relatively axially adjustable components includes helical threads cooperating with helical threads of the relatively rotatable member, the helical threads being so arranged that relative rotation between the threaded members causes both components to move simultaneously axially toward each other or both to move simultaneously axially away from each other depending on the direction of rotation.



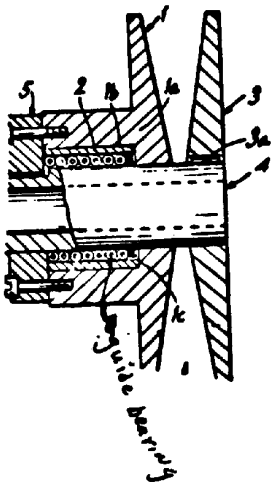
42 With means to positively lock members in adjusted position:

This subclass is indented under subclass 39. Subject matter including an auxiliary device actuatable between hold and release positions for preventing relative rotation between said relatively movable motion-inducing members when said device is actuated to a hold position and for permitting relative rotation between said relatively movable motion-inducing members when said device is in a release position.



43 Including lubrication or particular guide or bearing for movable member:

This subclass is indented under subclass 8. Subject matter wherein (1) structure is provided to facilitate lubrication of a surface of the movable component, or (23) wherein a separate device is mounted between the movable component and its support, (a) said separate device serving to guide movement of the movable component along a predetermined axial path relative to its support, or (b) said device comprises bearing structure facilitating relative movement between the movable component and its support.



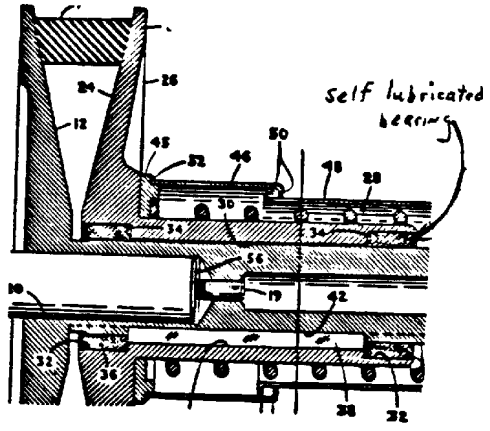
SEE OR SEARCH CLASS:

184, Lubrication, appropriate subclasses for lubrication in general; and see the reference to Class 184 under "SEARCH CLASS" in the class definition of Class 474 for a statement of the line between classes.

384, Bearings, appropriate subclasses for bearings, per se.

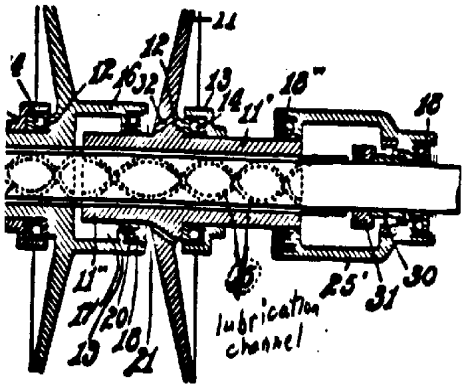
44 Self-lubricated bearing:

This subclass is indented under subclass 43. Subject matter wherein said device comprises a self-sustaining sleeve which inherently has a low coefficient of friction, or which has been impregnated with a lubricant.



45 With lubrication of support for movable member:

This subclass is indented under subclass 43. Subject matter wherein the structure is to facilitate injection of lubricant from an auxiliary source to a surface of the movable component.

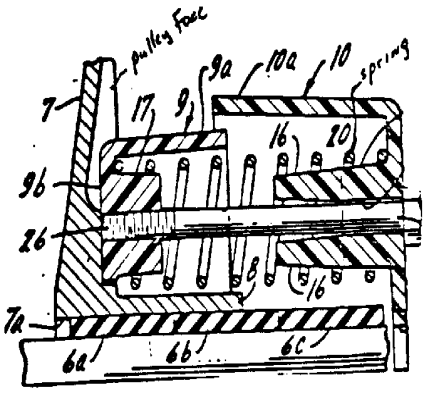


SEE OR SEARCH THIS CLASS, SUBCLASS:

91, for structure facilitating lubrication of a belt* or pulley*.

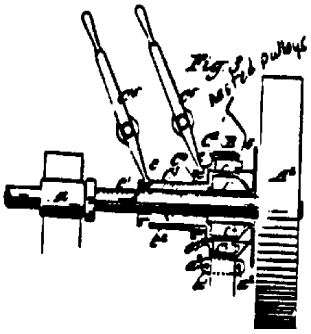
46 With spring device:

This subclass is indented under subclass 8. Subject matter wherein significance is attributed to the structure of an auxiliary resilient device which engages a movable one of said relatively adjustable to components to bias said movable component in a direction generally parallel to the longitudinal extent of the axis of rotation of the pulley*.



47 PULLEY WITH EXPANSIBLE RIM MEANS OR PULLEYS WITH ALTERNATELY USEABLE NESTABLE RIMS:

This subclass is indented under the class definition. Subject matter wherein a pulley* includes a belt*-engaging surface of surfaces adjustably movable in a direction radially outward of the axis of rotation of the pulley to increase the effective diameter of the pulley; or wherein plural alternately usable pulleys are arrangeable with respect to each other in a manner such that a common radial line from the axis of rotation passes first through the belt-engaging surface of the inactive pulley then through the belt-engaging surface of the active pulley.

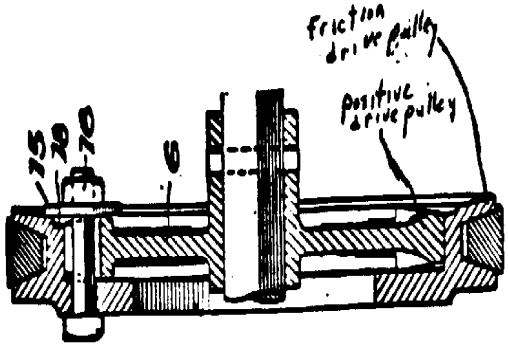


SEE OR SEARCH CLASS:

242, Winding, Tensioning, or Guiding, subclasses 571+ for expansible rim structure associated with winding or unwinding.

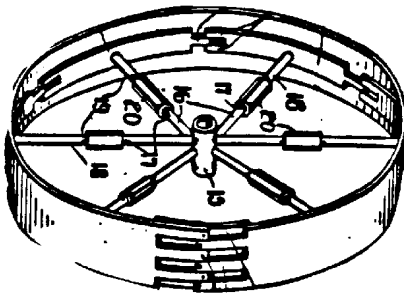
48 Nestable rims of diverse kind (e.g., one grooved and the other cylindrical, etc.):

This subclass is indented under subclass 47. Subject matter wherein at least two of plural alternately useable pulleys* are different kinds of pulleys, the different kinds being: (a) those having a cylindrical belt-engaging surface, (b) those having a circumferentially grooved belt-engaging surface, or (c) those having circumferentially spaced belt-engaging teeth.



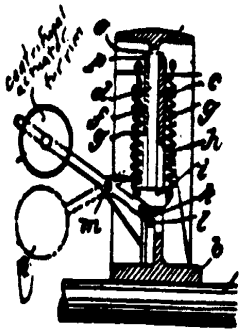
49 Structure for variably adjusting radius of rim section:

This subclass is indented under subclass 47. Subject matter including motion-inducing mechanism for moving the belt*-engaging surface or surfaces of the pulley* radially outward.



50 By actuator responsive to speed or load:

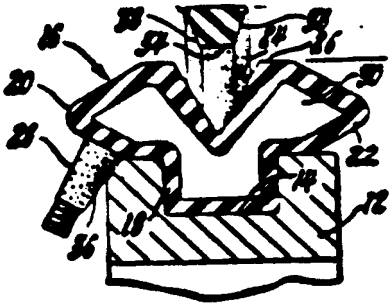
This subclass is indented under subclass 49. Subject matter including means for sensing a condition of velocity, change of velocity, resistance to movement, or change of resistance to movement of a load device or of a member operating in a drive train to drive the load device; and, in response to such sensed condition or change of condition, said means acts to actuate said motion-inducing mechanism.

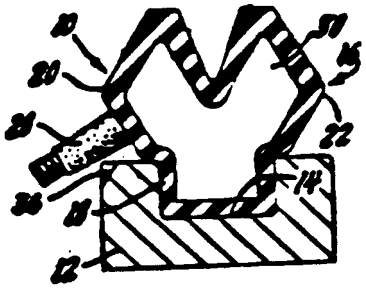


SEE OR SEARCH THIS CLASS, SUBCLASS:

11+, 17+, 70, and 109, for other arrangements using a load or speed responsive actuator in a belt and pulley drive system.

51 By fluid pressure actuator or inflatable rim:
This subclass is indented under subclass 49. Subject matter wherein the motion-inducing mechanism is actuated by energy derived from or transmitted via the exertion of force upon a fluid; or wherein the belt*-engaging surface is expandible by introduction of a fluid therein to increase the effective diameter of the pulley*.

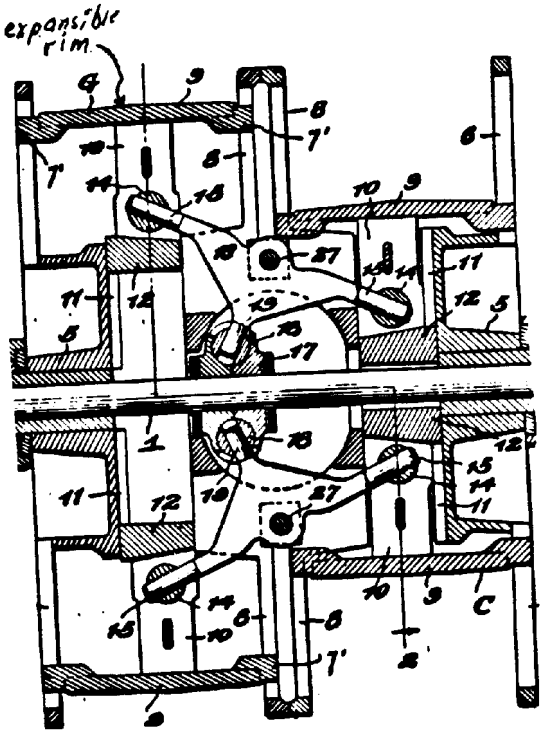




SEE OR SEARCH THIS CLASS, SUBCLASS:

18, 28, 103+, and 110, for other arrangements using an electrical or fluid motor as a drive for an actuator in a belt and pulley drive system.

52 Including means interconnecting plural pulleys for simultaneous adjustment:
This subclass is indented under subclass 49. Subject matter wherein plural pulleys* each include adjustable belt*-engaging surface or surfaces, and wherein mechanism is provided for concurrently adjusting the surface or surfaces of each of the pulleys to increase or decrease the effective diameter of the pulleys.

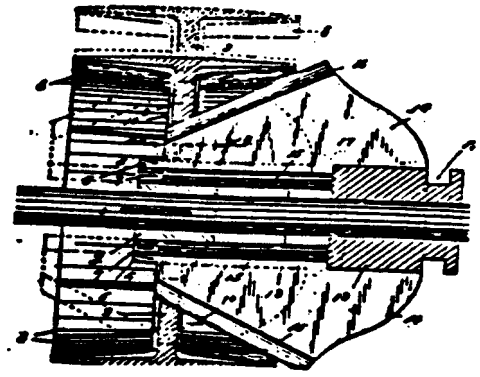


SEE OR SEARCH THIS CLASS, SUBCLASS:

29+, for mechanism for simultaneously adjusting plural pulleys of the kind provided for in subclasses 8+.

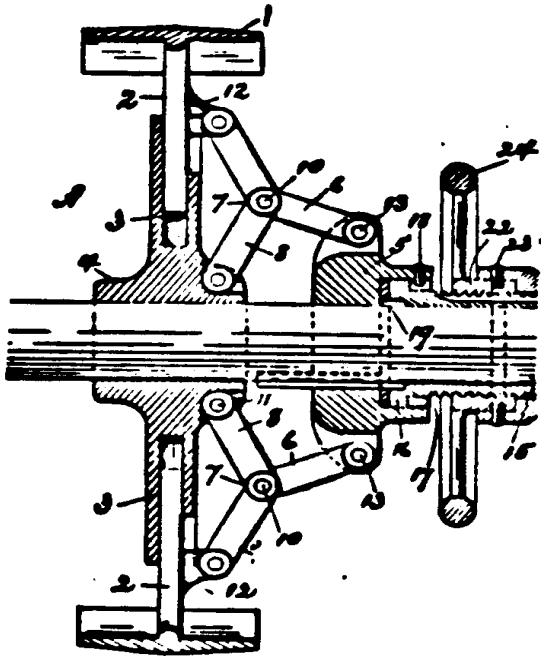
54 By actuator having collar concentric with, and movable axially on, pulley axis:
This subclass is indented under subclass 49. Subject matter wherein the motion-inducing mechanism includes a ringlike member posi-

tioned around the axis of rotation of the pulley* and movable in a direction parallel to the longitudinal extent of the pulley axis.



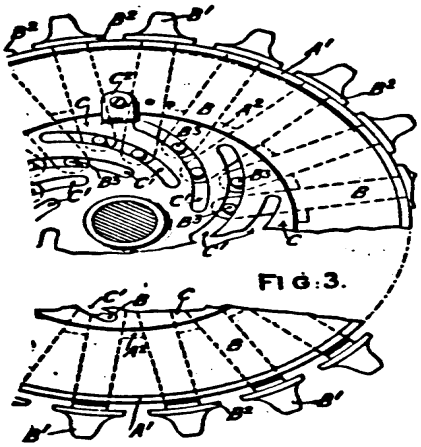
55 Collar interconnected with rim sections via pivoted link:

This subclass is indented under subclass 54. Subject matter wherein the ringlike member is connected to the adjustable movable belt*-engaging surfaces via pivotable connecting means.



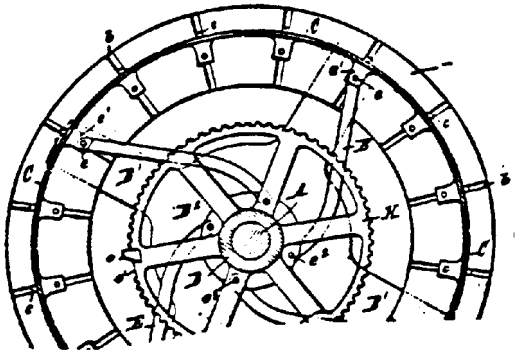
56 By actuator having collar concentric with, and rotatable in plane perpendicular to pulley axis:

This subclass is indented under subclass 49. Subject matter wherein the motion-inducing mechanism includes a ringlike member positioned around the axis of rotation of the pulley*, and rotatable around the pulley axis but fixed in regard to any movement in a direction parallel to the longitudinal extent of the pulley axis.



57 Collar interconnected with rim sections via pivoted link:

This subclass is indented under subclass 56. Subject matter wherein the ringlike member is connected to the adjustably movable belt*-engaging surfaces via pivotable connecting means.

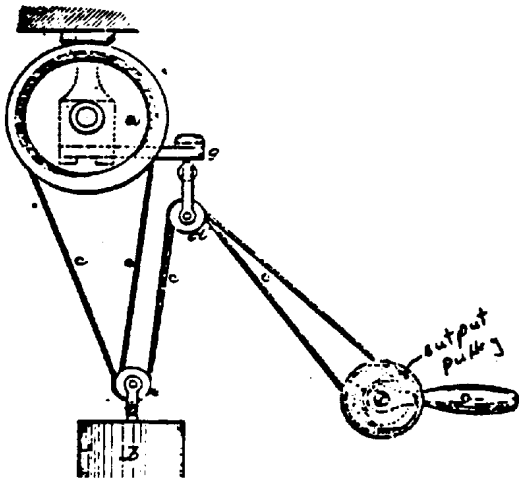


58 POWER OUTPUT PULLEY SELECTIVELY SHIFTABLE TO DIFFERENT

POWER OUTPUT LOCATIONS RELATIVE TO INPUT PULLEY:

This subclass is indented under the class definition. Subject matter which includes a final driven pulley* in a drive train supplied with power via a power input pulley and a belt* or belts, the final driven pulley supplying power to drive a load device and being movably supported in such a manner as to facilitate moving the pulley to provide output power at different locations relative to the power input pulley.

(1) Note. For a patent to be placed herein it must be the final output pulley and not only an intermediate pulley which is movable and the movement must be for the purpose of supplying output power at plural diverse locations and not merely to increase or decrease belt tension.



SEE OR SEARCH THIS CLASS, SUBCLASS:

27, and 89, for a movable shaft carrying an intermediate pulley in a drive train; and see (1) Note above.

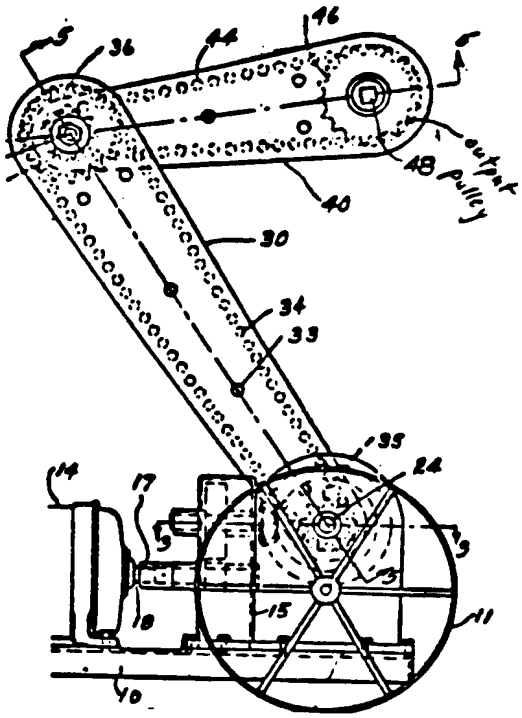
113+, for a pulley shiftable merely to increase or decrease belt tension, and see (1) Note above.

SEE OR SEARCH CLASS:

433, Dentistry, subclasses 105 and 110+ for dental apparatus including an endless belt power transmission.

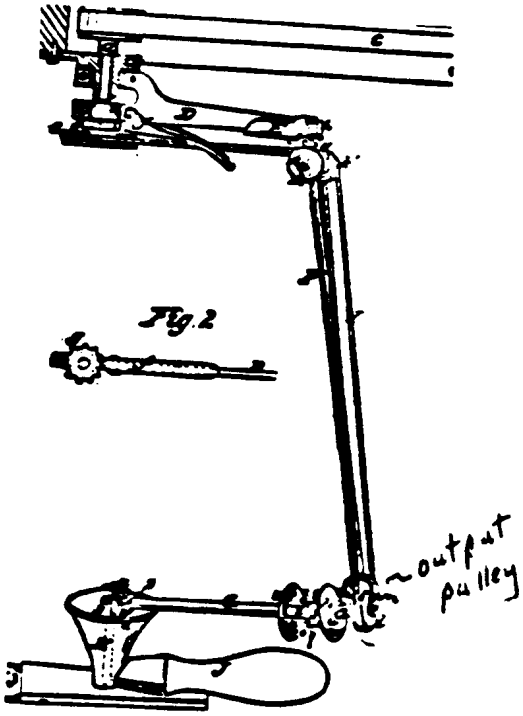
59 Pivotable about plural axes:

This subclass is indented under subclass 58. Subject matter wherein the final drive pulley* is mounted for pivotable movement about more than a single axis.



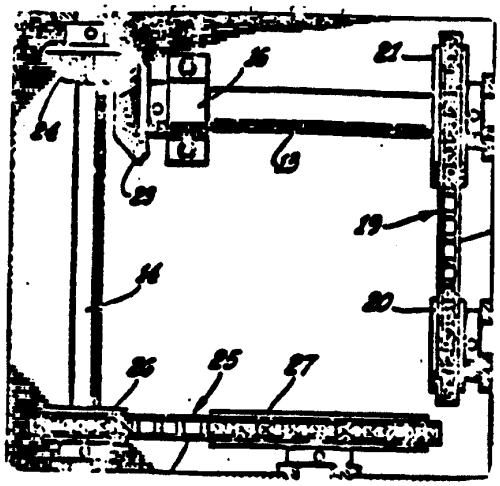
60 Nonparallel axes:

This subclass is indented under subclass 59. Subject matter wherein the plural axes about which the final drive pulley* is pivoted, are angularly related with respect to each other.



61 POWER INPUT AND OUTPUT PULLEYS ON NONPARALLEL AXES:

This subclass is indented under the class definition. Subject matter which includes a driven pulley* in a drive train supplied with power via a power input pulley and a belt* or belts, and wherein the axis about which the driven pulley rotates is disposed at an angle relative to the axis about which the power input pulley rotates.

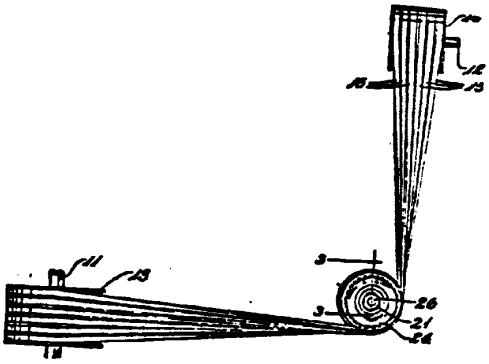


SEE OR SEARCH THIS CLASS, SUBCLASS:

58+, for structure wherein a power output pulley is selectively shiftable to different power-output locations relative to an input pulley whereby the axes of the pulleys may be angularly related.

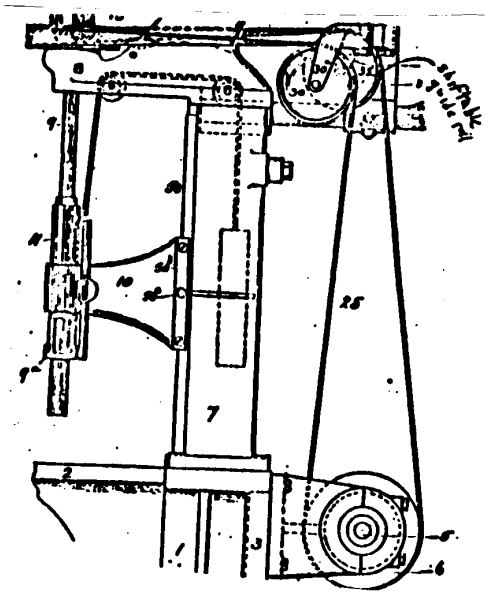
62 With common belt engaging both pulleys:

This subclass is indented under subclass 61. Subject matter wherein a single belt* is in driving engagement with both of the angularly related pulleys*.



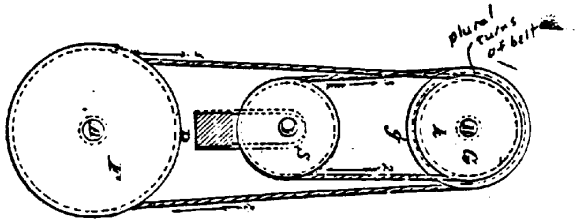
63 And shiftable guide roll engaging belt run:

This subclass is indented under subclass 62. Subject matter including a guide roll* for contacting the belt at a location between the pulleys*, and wherein said guide roll is movably mounted for adjustment of its position relative to the angularly related pulleys.



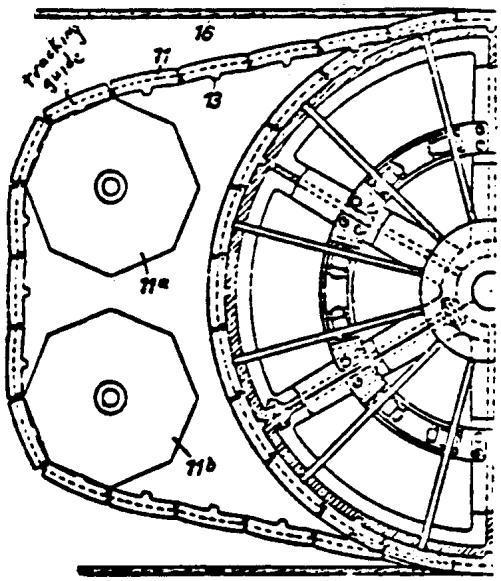
64 PLURAL TURNS OF SAME BELT ABOUT PULLEY AXIS:

This subclass is indented under the class definition. Subject matter including a belt* and a pulley* or a belt and plural coaxially mounted pulleys, wherein the belt has multiple turns about rotational axis of the pulley or coaxial pulleys.



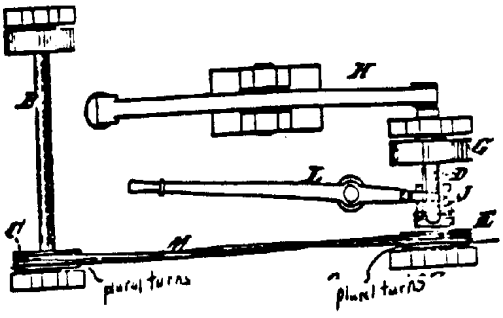
65 With flexible belt-tracking guide helically coiled about pulley:

This subclass is indented under subclass 64. Subject matter and further including an auxiliary endless member capable of conforming to the curvature of a pulley* drive face, and being helically wound about the pulley axis and positioned between the belt* and pulley drive face to cause the belt turns to follow an intended path circumferentially about the pulley.



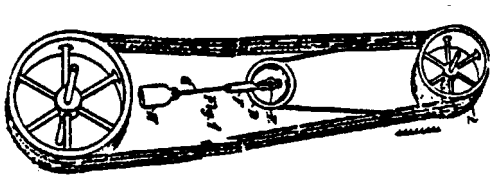
66 Plural turns of same belt about axis of each of laterally spaced pulleys:

This subclass is indented under subclass 64. Subject matter including an additional pulley* or coaxial pulleys mounted for rotation about an axis spaced in a direction perpendicular to the longitudinal extent of the axis of the first-mentioned pulley or pulleys, and wherein a single belt* has multiple turns extending about each of the spaced axes.



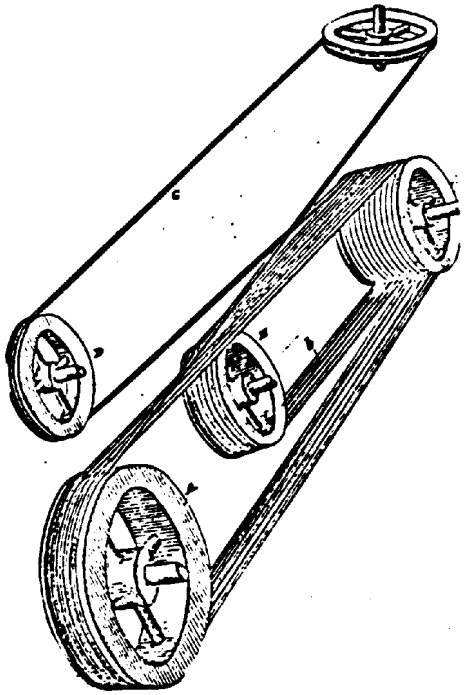
67 With guide roll:

This subclass is indented under subclass 66. Subject matter and further including a guide roll* for contacting the belt*.



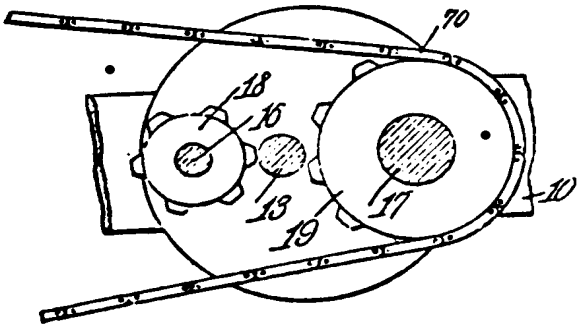
68 Plural guide rolls:

This subclass is indented under subclass 67. including an additional guide roll* mounted for rotation about an axis spaced from the axis of the first-mentioned guide roll.



69 CONTROL FOR VARIABLE INPUT TO OUTPUT SPEED-RATIO:

Subject matter under the class difinition wherein the mechanism is provided for changing the number or fractional number of revolutions made by an output load driving member for each revolution made by an input member, the output and input members being interconnected via a belt*.



SEE OR SEARCH THIS CLASS, SUBCLASS:

8+, for a variable speed device using a pulley with a belt-receiving groove formed by drive faces on relatively axially movable coaxial confronting members.

47+, for a variable speed device using a pulley with expansible rim means or pulleys with alternately useable nestable rims.

SEE OR SEARCH CLASS:

19, Textiles: Fiber Preparation, subclasses 240+ for speed changing in connection with a fiber drafting device.

57, Textiles: Spinning, Twisting, and Twining, subclass 93 for speed adjustment of a driving mechanism.

74, Machine Element or Mechanism, appropriate subclasses for other gearing and gearing combinations having control for variable speed.

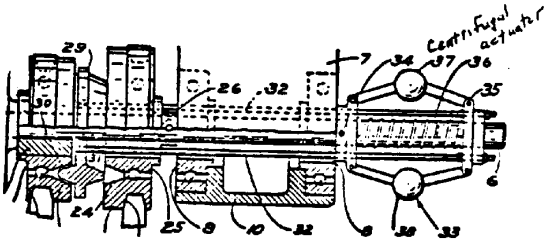
180, Motor Vehicles, subclass 230 for a two-wheeled vehicle with change speed means between the motor and driven wheel.

318, Electricity: Motive Power Systems, subclasses 6+ for control of variable speed in a device being driven.

70 Condition responsive (e.g., responsive to speed, load, etc.):

This subclass is indented under subclass 69. Subject matter including means which senses a condition or change of condition; and, in response thereto, said means acts to change the number or fractional number of revolutions

made by the output load driving member for each revolution of the input member.

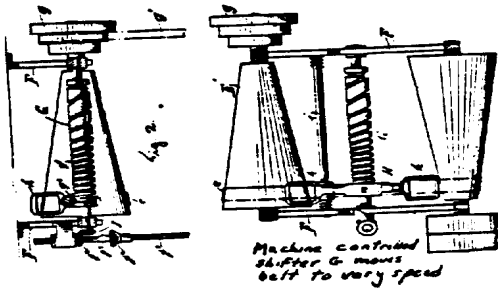


SEE OR SEARCH THIS CLASS, SUBCLASS:

11+, 17+, 50, and 109, for other arrangements using a load or speed responsive actuator in a belt and pulley drives system.

71 Cyclical or sequential (e.g., machine controlled, etc.):

This subclass is indented under subclass 69. Subject matter wherein the mechanism functions to periodically change the number of fractional number of revolutions made by the output load driving member for each revolution made by the input member according to a predetermined program without operator intervention.

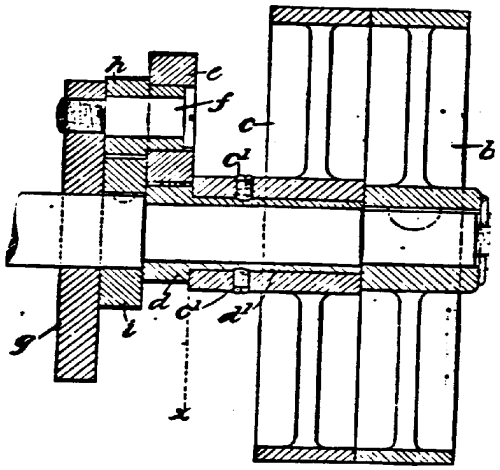


SEE OR SEARCH THIS CLASS, SUBCLASS:

2+, for cyclical or sequential operation in an arrangment for changing the direction of rotation of a load driving member.

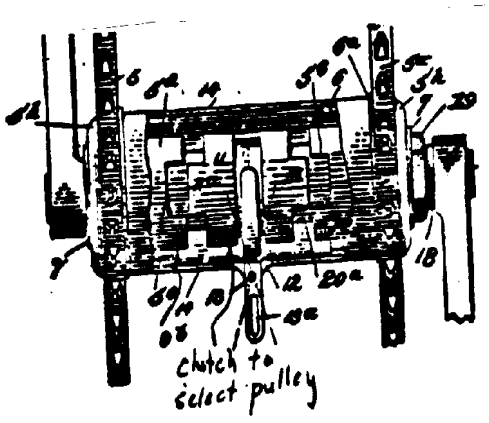
72 Including intermeshing gears in one drive train:

This subclass is indented under subclass 69. Subject matter wherein motion transmitting means between the input and output members includes cooperating wheellike members with intermeshing drive teeth, the cooperating wheel-like members being arranged in series or parallel drive relation with a belt* and pulley* drive.



73 Including separate belt on each of coaxial pulleys selectively engaged in drive train:

This subclass is indented under subclass 69. Subject matter including plural pulleys* mounted for rotation about a common axis, each of said pulleys having its own belt* in driving engagement therewith so that the belts provide parallel drive paths between the input and output members, and said mechanism including means permitting operator selection as to which drive path is active to drive the output member.



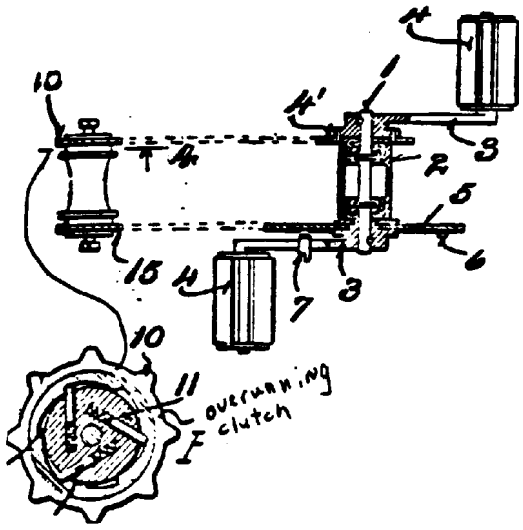
SEE OR SEARCH THIS CLASS, SUBCLASS:

4+, for a forward and reverse drive arrangement using plural belts.

84+, for a belt and pulley drive including a plurality of separate belts.

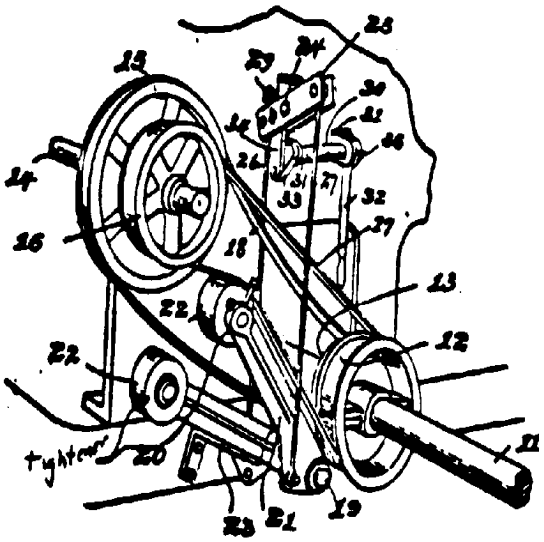
74 With overrunning clutch:

This subclass is indented under subclass 73. Subject matter which further includes structure for coupling together first and second motion-transmitting members in the drive train in such a manner that the second member is driven by the first member for concurrent movement at the same rotational speed in a particular direction; but which structure enables, without operator intervention, relative rotation between the first and second members when the second member is driven or tends to be driven by auxiliary force in the particular direction at a rotational speed greater than the speed imported to the first member in the particular direction.



75 Selection by tightening belt on selected pulley:

This subclass is indented under subclass 73. Subject matter wherein the operator selection means includes a device movable by the operator to increase the tension exerted on the belt* in the active drive path.



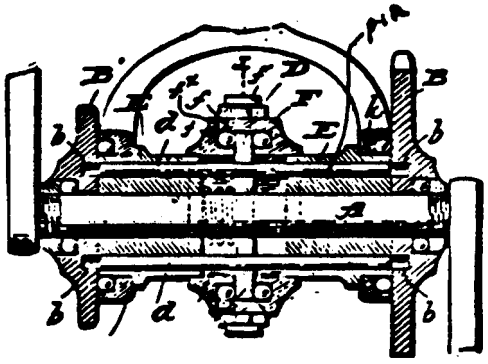
SEE OR SEARCH THIS CLASS, SUBCLASS:

5, for a device for tightening a belt on a selected pulley associated with a forward and reverse drive.

101+, for a device for adjusting belt tension.

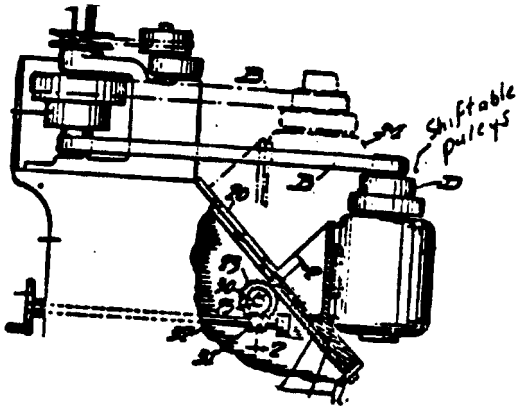
76 Selection by axially movable pin engaged in opening through selected pulley:

This subclass is indented under subclass 73. Subject matter wherein the operator selection means includes one or more rodlike elements shiftable in a direction parallel to the longitudinal extent of the axis of rotation of the pulleys*, and said pulleys include apertures for receiving said rod-like elements to couple a particular selected pulley in active driving engagement in the drive path.



77 Including coaxial pulleys shiftable axially to align selected pulley with drive belt:

This subclass is indented under subclass 69. Subject matter including plural pulleys* mounted for rotation about a common axis and wherein means is provided for moving the pulleys in a direction parallel to the longitudinal extent of the common axis to properly position a selected pulley in a drive path.

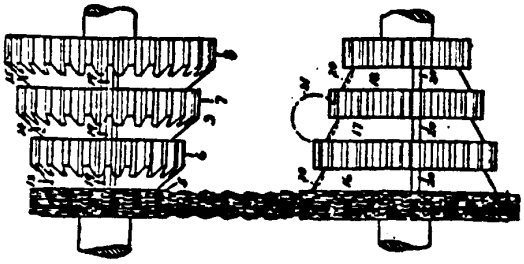


SEE OR SEARCH THIS CLASS, SUBCLASS:

113+, for a device for shifting a pulley such as to adjust belt tension or to cause engagement and disengagement of pulley with a belt.

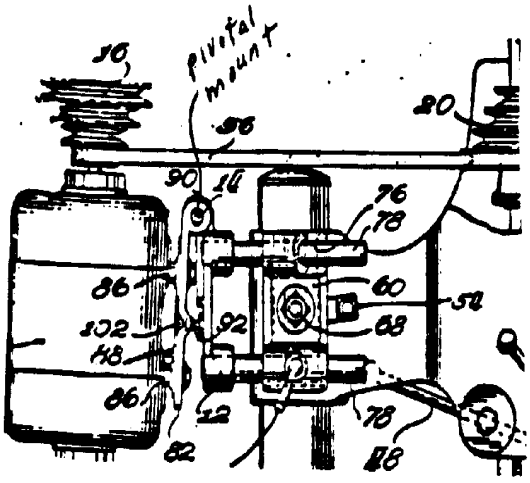
78 Including belt shiftable axially from one to another surface of stepped pulley or coaxial pulleys of different diameter:

This subclass is indented under subclass 69. Subject matter including a pulley* or plural coaxial pulleys mounted for rotation about an axis, said pulley or pulleys providing separate axially spaced belt* drive faces located different radial distances from the rotational axis; and further including a belt* mounted for movement in a direction parallel to the longitudinal extent of the rotational axis to permit selective placement of the belt on one or another of the separate axially spaced drive faces on the pulley or pulleys.



79 And pulley pivotally mounted to facilitate belt shift:

This subclass is indented under subclass 78. Subject matter wherein the pulley* or pulleys is/are mounted for pivotable movement in a direction generally perpendicular to the longitudinal extent of the axis of rotation of the pulley to facilitate selective placement of the belt*.

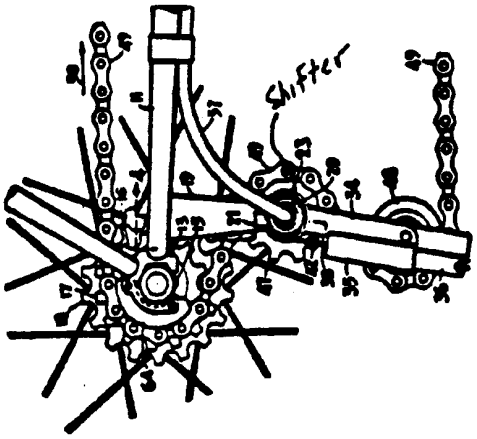


SEE OR SEARCH THIS CLASS, SUBCLASS:

113+, for a device for shifting a pulley such as to adjust belt tension or to cause engagement and disengagement of the pulley with a belt.

80 And including belt-shifter mechanism:

This subclass is indented under subclass 78. Subject matter and further including a device for moving the belt* in the direction parallel to the longitudinal extent of the axis of rotation of the pulley.



SEE OR SEARCH THIS CLASS, SUBCLASS:

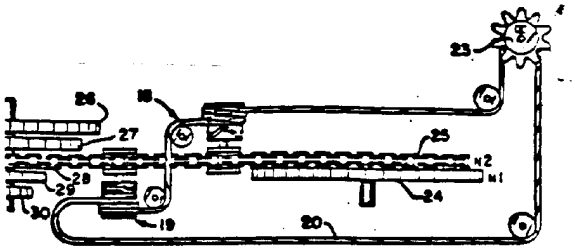
3, 6, 83, 102+, and 122+, for other structure involving lateral shift of a belt such as for reversing the direction of rotation of a load driving member, for causing a change in speed ratio, for removing a belt from a pulley or for correcting belt training deviation.

SEE OR SEARCH CLASS:

19, Textiles, Fiber Preparation, subclass 241 for belt shifting to accomplish speed change in a fiber drafting device.

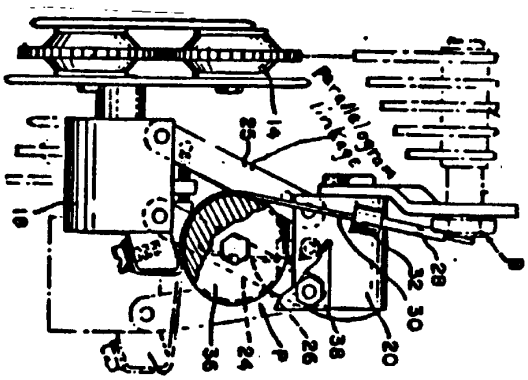
81 For shifting belt from both power input and power output pulleys:

This subclass is indented under subclass 80. Subject matter wherein the belt*-moving device includes structure for moving the belt along spaced parallel axes in a direction parallel to the longitudinal extent of the axes, one of the axes being the rotational axis of a pulley* or pulleys for the driving belt, and the other of the axes being the rotational axis of a pulley or pulleys driven by the belt.



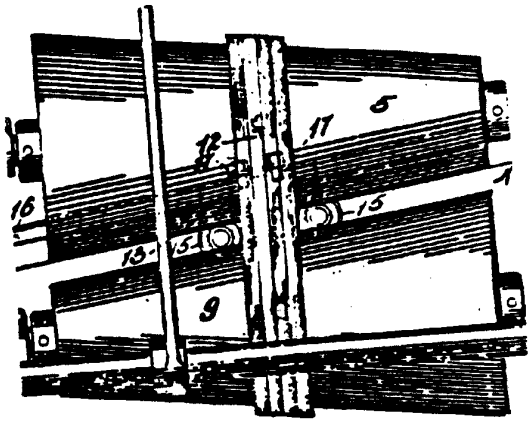
82 Shifter mechanism including parallelogram linkage:

This subclass is indented under subclass 80. Subject matter wherein the belt-moving device includes four arms pivotally interconnected to form a four-sided figure, and wherein opposite sides of the device remain parallel to each other when the device is actuated to move the belt*.



83 Including mechanism for shifting belt axially on spaced pulleys with tapering drive face:

This subclass is indented under subclass 69. Subject matter including separate pulleys* mounted for rotation about axes spaced from each other, the belt*-driving face of at least one of the pulleys being inclined at a substantially constant angle of inclination relative to the pulley axis; and further including a device for moving the belt in a direction parallel to the longitudinal extent of the axis of each pulley.

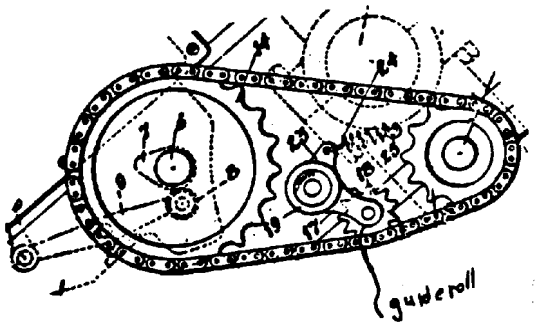


SEE OR SEARCH THIS CLASS, SUBCLASS:

3, 6, 80+, 102+, and 122+, for other structure involving lateral shift of a belt such as for reversing the direction of rotation of a load driving member, for causing a change in speed ratio, for removing a belt from a pulley or for correcting belt training deviation.

84 PLURAL BELTS OR PLURAL OUTPUT LOADS:

This subclass is indented under the class definition. Subject matter wherein power is extracted from plural locations in a belt* and pulley* drive to provide power for driving a plurality of devices; or wherein a belt and pulley drive includes a plurality of separate belts.



SEE OR SEARCH THIS CLASS, SUBCLASS:

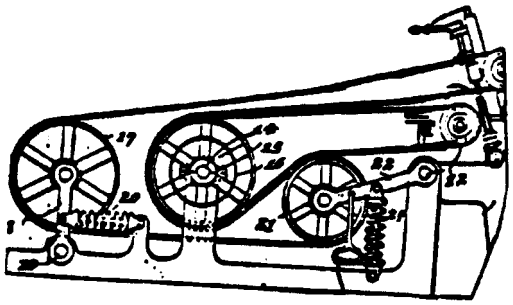
4+, for a forward and reverse drive arrangement with plural belts.

73+, for a variable speed drive arrangement using plural belts.

85 Plural belts having interengaged drive surfaces:

This subclass is indented under subclass 84. Subject matter wherein plural belts* have surface portions contacting each other so that one belt drives the other.

(1) Note. For a patent to be placed herein both belts must form a part of the power transmission path.



SEE OR SEARCH THIS CLASS, SUBCLASS:

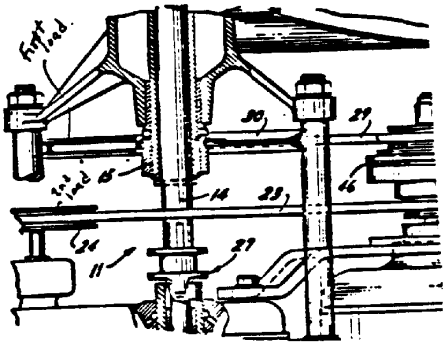
100, for an auxiliary endless band which functions to merely guide a belt* or to hold the belt in engagement with a pulley.

SEE OR SEARCH CLASS:

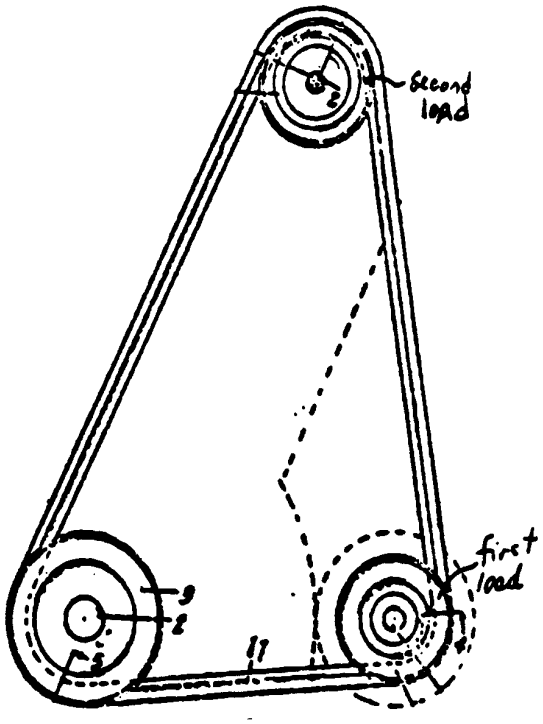
198, Conveyors, Power-Driven, subclass 833 for a conveyor belt engaged with the driving surface of a drive belt.

86 Plural output loads:

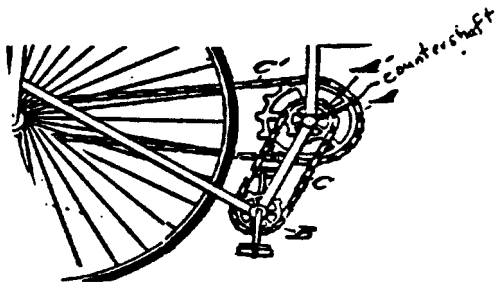
This subclass is indented under subclass 84. Subject matter wherein power is extracted from plural locations in a belt* and pulley* drive to provide power for driving a plurality of devices.



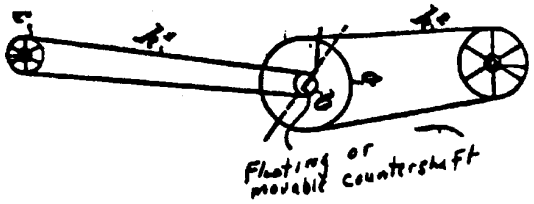
87 With common belt concurrently engaging input and plural output pulleys:
This subclass is indented under subclass 86. Subject matter wherein a belt* is driven by a power input pulley, and this same belt concurrently engages and drives plural output pulleys to provide power for driving a plurality of devices associated with the output pulleys.



88 Plural belts in series via countershaft:
This subclass is indented under subclass 84. Subject matter wherein first and second belts* in a drive train are arranged in series driving relationship via an intermediate shaft carrying first and second pulleys* or carrying a single pulley having axially spaced belt-engaging surfaces.

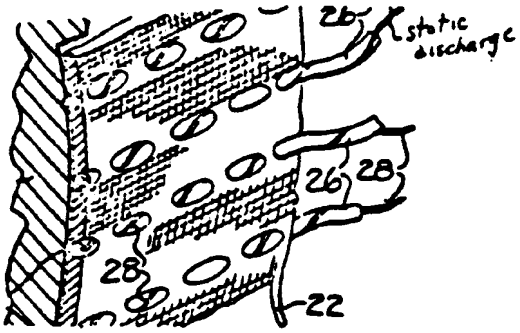


89 Countershaft laterally shiftable:
This subclass is indented under subclass 88. Subject matter wherein said intermediate shaft is mounted for movement in a direction perpendicular to the longitudinal extent to the axis of the intermediate shaft.



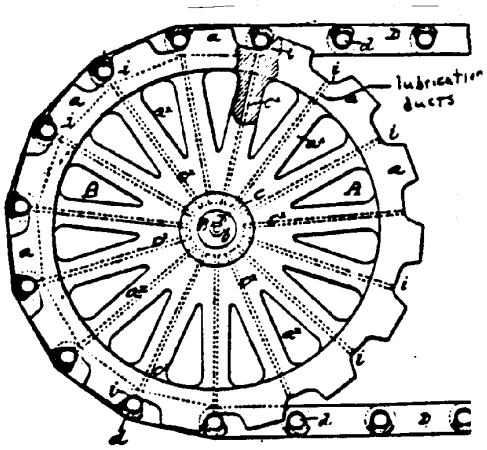
SEE OR SEARCH THIS CLASS, SUBCLASS:
27, for a laterally movable countershaft in a drive train having a pulley* or pulleys of the kind provided for in subclasses 8+.

90 STATIC ELECTRICITY ELIMINATOR:
This subclass is indented under the class definition. Subject matter wherein significance is attributed to structure for dissipating or preventing accumulation of electrical charges in a belt* or pulley*.



91 STRUCTURE FACILITATING LUBRICATION OF BELT, PULLEY, OR GUIDE ROLL:

This subclass is indented under the class definition. Subject matter wherein the sturcture of a belt*, pulley*, or guide roll* is provided to facilitate the admission of grease, oil, or other lubricant to the interface between relatively moving parts in the belt, pulley, or guide roll.



SEE OR SEARCH THIS CLASS, SUBCLASS:

45, for structure facilitating lubrication of a pulley of the kind provided for in subclasses 8+.

SEE OR SEARCH CLASS:

184, Lubrication, appropriate subclasses; and see the reference to Class 184 under "SEARCH CLASS" in the class definition of Class 474 for a statement of the line between the classes.

198, Conveyors: Power-Driven, subclasses 500+ for a lubrication feature associated with a conveyor.

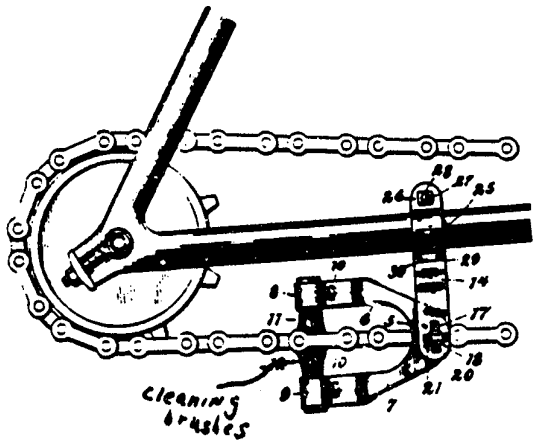
305, Wheel Substitutes for Land Vehicles, subclasses 117+ for a lubrication feature.

92 CLEANING DEVICE FOR BELT, PULLEY, OR GUIDE ROLL:

This subclass is indented under the class definition. Subject matter wherein significance is attributed to an auxiliary device mounted for association with a belt* and pulley* drive train for maintaining the cleanliness of the belt, pulley, or guide roll* during power transmission to a load device.

(1) Note. For a patent to be placed herein, the cleaning device must be particularly adapted to be associated with a drive train to provide cleaning during power transmission. If the device is of general utility and not particularly adapted to be mounted on an operating drive train, classification is in a class appropriate for cleaning of general utility such as Class 15 or 134.

(2) Note. If the structure merely provides an opening through the drive face of a pulley whereby accumulated foreign matter on the bottom of a belt may pass through the opening, classification is not herein, but is with appropiate pulley subcombination structure classified below.



SEE OR SEARCH THIS CLASS, SUBCLASS:

185+, for a pulley having a drive face formed of circumferentially spaced discrete elements so as to provide an opening through which foreign matter may pass, and see (2) Note above.

188+, for a pulley having grooves or openings in a cylindrical drive face, and see (2) Note above.

SEE OR SEARCH CLASS:

15, Brushing, Scrubbing, and General Cleaning, subclasses 256.5+ for a scraper, wiper, or brush for a moving surface.

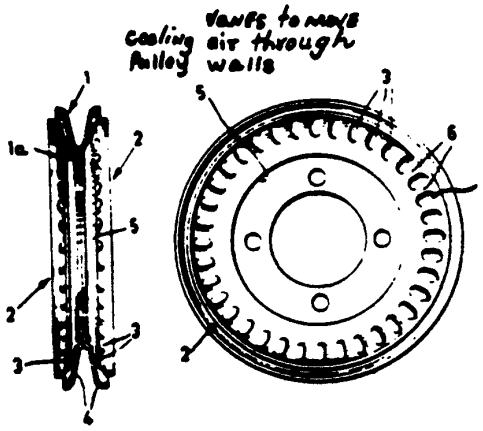
198, Conveyors: Power-Driven, subclasses 494+ for a cleaning device for a conveyor.

305, Wheel Substitutes for Land Vehicles, subclasses 100+ for a cleaning feature.

93 FLUID-IMPELLING MEANS (E.G., FOR COOLING, ETC.):

This subclass is indented under the class definition. Subject matter wherein significance is attributed to an auxillary device used in combination with a belt* and pulley* drive train, or to a particular surface configuration of a belt or pulley; which auxiliary device or particular surface configuration is for inducing the flow of a fluid, such as air, within, through, or around a belt or pulley.

(1) Note. For a patent to be classified herein, the structure must be for inducing the flow of a fluid such a with the use of flow-directing vanes. If the structure merely provides air-escape openings or grooves in a belt or pulley, classification is in an appropriate belt or pulley subcombination subclass below.



SEE OR SEARCH THIS CLASS, SUBCLASS:

185+, for a pulley having discrete circumferentially spaced drive faces, and see (1) Note above.

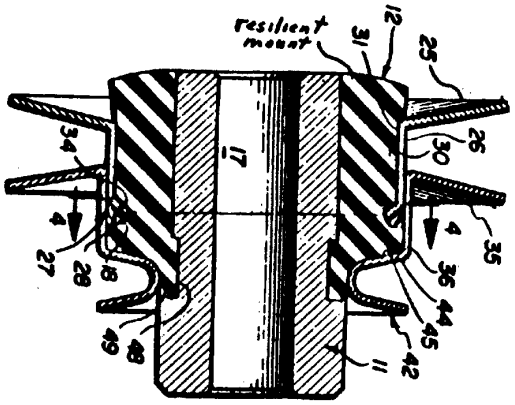
188+, for a pulley having grooves or openings in a cyclindrical drive face, and see (1) Note above.

249+, for a friction drive belt having non-driving grooves or depressions, and see (1) Note above.

94 RESILIENT CONNECTION BETWEEN PULLEY OR GUIDE-ROLL RIM AND MOUNT:

This subclass is indented under the class definition. Subject matter wherein a separate member connects the circumferential drive face fo a pulley* or guide roll* with its hub or supporting shaft, said member having an elastic property permitting limited relative movement between the pulley drive face and the hub or supporting shaft.

(1) Note. For a patent to be placed herein, the entire circumference of the rim providing the belt-engaging surface or surfaces must be connected via the separate resilient member to the hub or supporting shaft for such limited relative movement.



SEE OR SEARCH THIS CLASS, SUBCLASS:

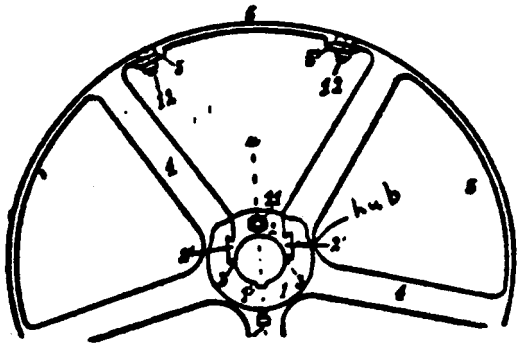
163, for positive drive pulley or guide roll having separate belt-engaging surfaces mounted for relative movement with respect to each other during operation.

SEE OR SEARCH CLASS:

464, Rotary Shafts, Gudgeons, Housings, and Flexible Couplings for Rotary Shafts, subclasses 51+ for a flexible connection between a shaft and driven member.

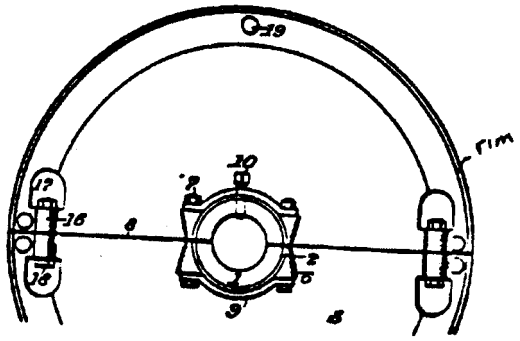
95 HUB FORMED IN SECTIONS AND SEPARABLE BY MOVING SECTIONS RADIALLY APART (E.G., SPLIT PULLEY TO FACILITATE INSTALLATION, ETC.):

This subclass is indented under the class definition. Subject matter wherein means defining an opening for receiving a drive or support shaft through the center of a pulley* is formed of discrete parts separable from each other by movement of said parts radially outward from the longitudinal axis of the shaft.



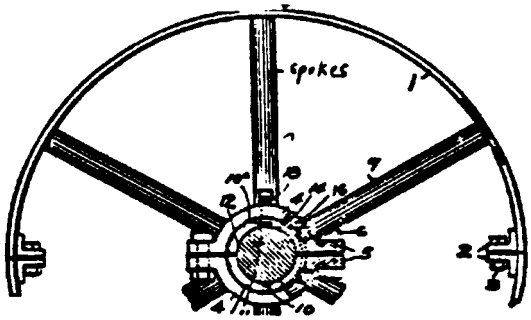
96 And severance lines for separable rim sections diametrically opposite each other:

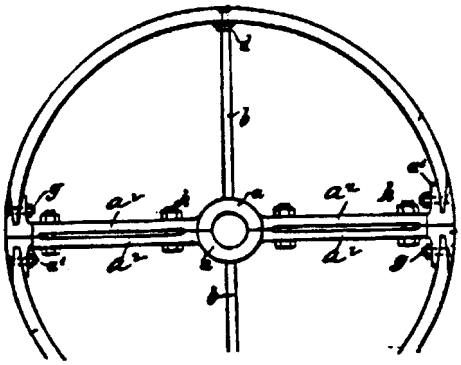
This subclass is indented under subclass 95. Subject matter wherein the pulley* has a belt*-engaging face formed of the discrete members separable from each other, the belt-engaging faces of each of the separable members extending 180 degrees about the circumference of the pulley face.



97 With spokes connecting hub section and rim section:

This subclass is indented under subclass 96. Subject matter wherein circumferentially spaced, radially extending arms interconnect the belt*-engaging members with the shaft-opening defining parts.



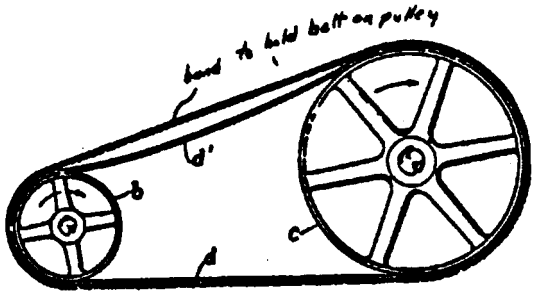


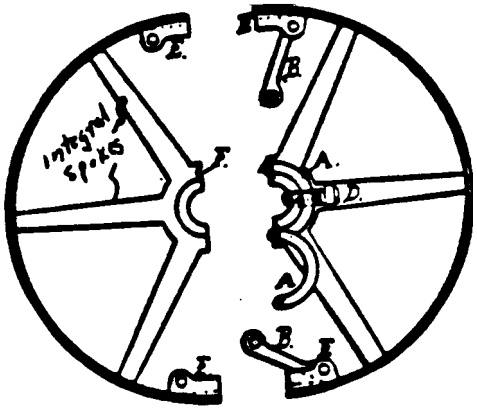
SEE OR SEARCH THIS CLASS, SUBCLASS:

195+, for a friction pulley including spokes connecting the hub and rim.

98 Plural integral spokes:

This subclass is indented under subclass 97. Subject matter wherein at least two of the circumferentially spaced arms are formed as a unitary member, inseparable from each other.





99 With discrete means connecting outer ends of integral spokes to rim:

This subclass is indented under subclass 98. Subject matter wherein significance is attributed to a separate connector device which is used to interconnect the radially outermost ends of the circumferentially spaced arms to the circumferentially extending belt*- engaging members.

100 AUXILIARY ENDLESS BAND FOR GUIDING BELT OR HOLDING BELT ENGAGED WITH PULLEY:

This subclass is indented under the class definition. Subject matter wherein a closed-loop flexible or articulated member is provided to engage a belt* and cause the belt to follow an intended path of travel or to press a belt between the closed-loop member and a pulley* drive face to assure proper engagement of the belt with the pulley drive face, said closed-loop member following a different closed-loop path than said belt, or being separably mounted in engagement with the exterior surface of the belt.

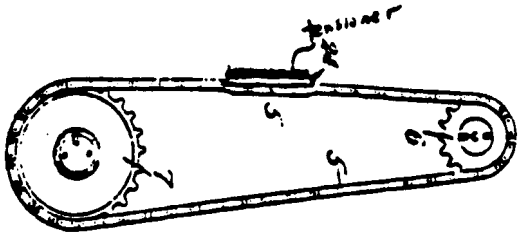
SEE OR SEARCH THIS CLASS, SUBCLASS:

85, for plural belts, each forming a part of power transmission path.

248+, for a friction drive belt having a link chain embedded therein a fixedly attached thereto.

101 MEANS FOR ADJUSTING BELT TENSION OR FOR SHIFTING BELT, PULLEY, OR GUIDE ROLL:

This subclass is indented under the class definition. Subject matter wherein the significance is attributed to: (a) a member other than a pulley* engageable with a belt*, and which is adjustable or relatively movable with respect to the belt in a direction which causes an increase or decrease in tensile stress in the belt or a take-up or any undesirable belt slack to maintain a desirable drive traction between the belt and pulley drive face; or (b) a device or structure for providing relative movement between a belt and pulley, to remove the belt from the pulley, to affect the extent of the drive traction between the belt and pulley, or to correct any deviation of the belt from a centered path of travel on the pulley.



SEE OR SEARCH THIS CLASS, SUBCLASS:

5, and 75, for devices for altering belt tension associated with forward and reverse drives or variable speed drives.

SEE OR SEARCH CLASS:

19, Textiles: Fiber Preparation, subclasses 250+ for tensioning a fiber drafting apron.

30, Cutlery, subclass 385 for means to adjust a guide pulley in a chain saw.

57, Textiles: Spinning, Twisting, and Twining, subclass 105 for a tensioner for a driving band.

83, Cutting, subclasses 814+ for means to tension an endless band or chain cutting device.

105, Railway Rolling Stock, subclasses 105+ for a belt tightener in a wheel or axle drive.

162, Paper Making and Fiber Liberation, subclass 273 for means to maintain tension in an endless forming surface.

180, Motor Vehicles, subclass 231 for tensioning a drive belt for a motor-driven two-wheeled vehicle and subclasses 351, 357, 366, and 373 for belt drives in vehicles that may include tensioning.

187, Elevator, Industrial Lift Truck, or Stationary Lift for Vehicle, subclasses 264+ for means for raising or lowering an elevator car which includes a car supporting cable and separate means engaging and maintaining the tension of the cable.

198, Conveyors: Power-Driven, subclasses 813+ for a tension adjuster for a conveyor belt; and see a listing of other areas of search following the definition of Class 198, subclass 813.

211, Supports: Racks, subclass 119.02 for an endless cable clothesline including supporting and tightening structure.

226, Advancing Material of Indeterminate Length, appropriate subclasses for a material tensioner associated with such material handling.

242, Winding, Tensioning, or Guiding, subclasses 410+ and 147+ for a tensioning device associated with winding, unwinding, or in general use for a running length of indefinite-length material.

248, Supports, subclasses 646+ for a support for a movable machine wherein adjustability may provide a belt-tensioning feature.

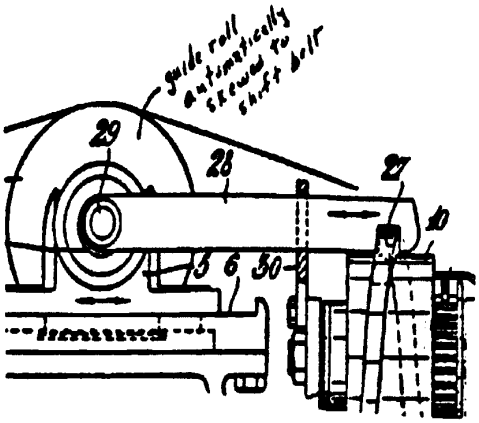
318, Electricity: Motive Power Systems, subclasses 6+ for control of tension in material being driven.

322, Electricity: Single Generator Systems, subclass 43 for control of belt slippage in a power generating mechanism.

433, Dentistry, subclass 111 for belt tensioner in an endless belt driving system for a dental apparatus.

451, Abrading, subclass 311 for a tightener for an abrading band.

102 **With sensor for controlling operation of shifter to correct belt training deviation:**
This subclass is indented under subclass 101. Subject matter provided with auxiliary means which detects deviation of a belt* from a desired path of travel on a pulley*; and, in repsonse to such detection, actuates said device for returning the belt to the desired path of travel.



SEE OR SEARCH THIS CLASS, SUBCLASS:

3, 6, 80+, 83, and 122+, for other structure involving lateral shift of a belt such as for reversing the direction of rotation of a load driving member, for causing a change in speed ratio, for removing a belt from a pulley or for correcting belt training deviation.

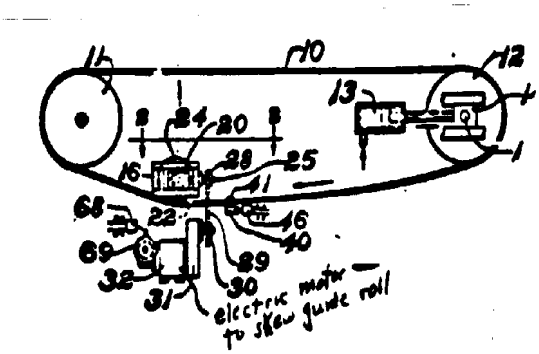
SEE OR SEARCH CLASS:

162, Paper Making and Fiber Liberation, subclass 257 for automatic control of transverse movement of an endless band forming mold.

198, Conveyors: Power-Driven, subclasses 806+ for automatic control of conveyor belt training deviation.

226, Advancing Material of Indeterminate Length, subclasses 15+ for automatic control of devices to position advancing material laterally.

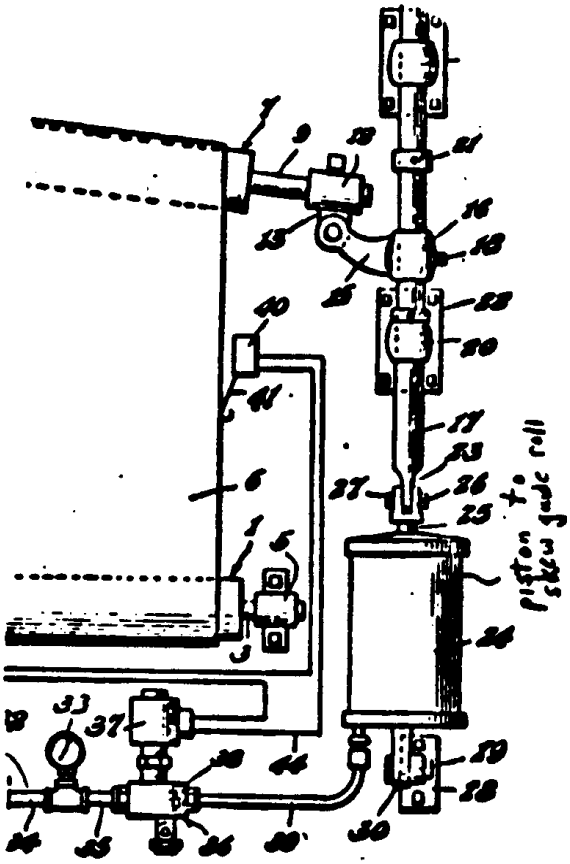
103 **Shifter driven by electrical or fluid motor:**
This subclass is indented under subclass 102. Subject matter wherein force for actuating said device is derived from or transmitted via electrical energy or the extertion of force upon a fluid.



SEE OR SEARCH THIS CLASS, SUBCLASS:

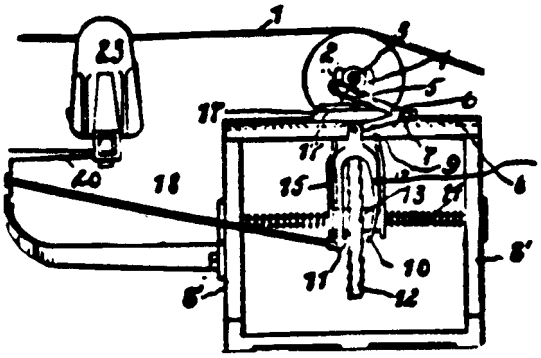
18, 28, 51, and 110, for other arrangements using an electrical or fluid motor as a drive for an actuator in a belt and pulley drive system.

104 **Fluid motor:**
This subclass is indented under subclass 103. Subject matter wherein force for actuating said device is derived from or transmitted via the exertion of force upon a fluid.



105 Sensor actuates pawl-and-ratchet mechanism to operate shifter:

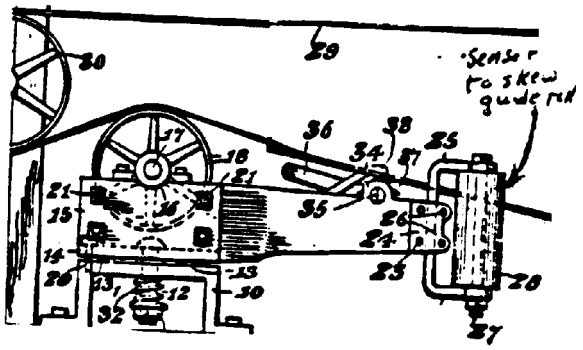
This subclass is indented under subclass 102. Subject matter wherein force for actuating said device is provided via a pawl-and-ratchet mechanism.



pawl & ratchet

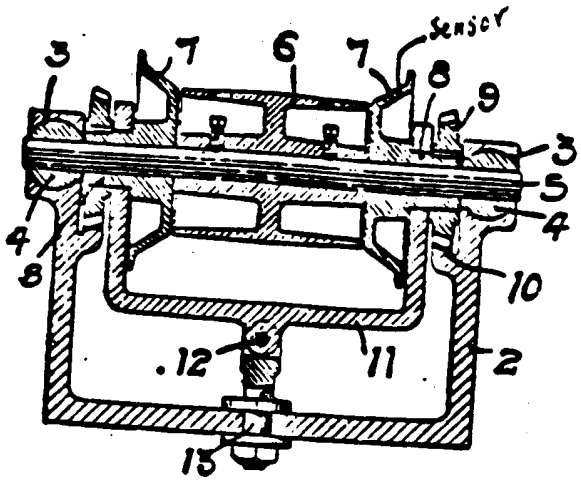
106 Sensor includes rotatable belt-engaging surface:

This subclass is indented under subclass 102. Subject matter wherein the means for detecting belt* deviation includes an element having a face for contacting the belt* when the belt has deviated from a desired path of travel, said element being rotated about its own axis of rotation when contacted by the moving belt.



107 Rotatable on same axis as shiftable guide roll or pulley:

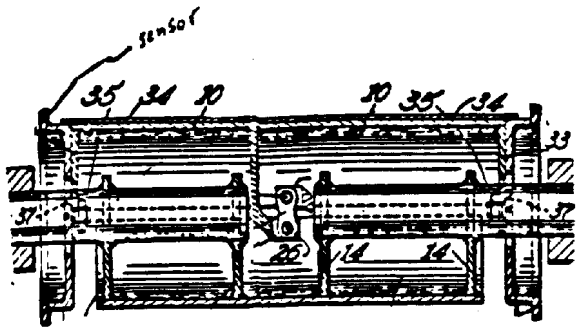
This subclass is indented under subclass 106. Subject matter wherein axis of rotation of the rotatable element is coaxial with the axis of rotation of a movable guide roll* or pulley*.



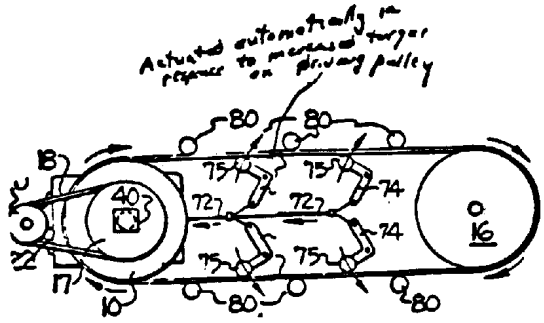
108 To initiate relative axial movement of belt-engaging surfaces of guide roll or pulley:

This subclass is indented under subclass 107. Subject matter wherein the guide roll* or pulley* includes belt*-engaging faces movable with respect to each other in a direction parallel

to the longitudinal extent of the axis of the guide roll or pulley, and wherein said rotation of said detector member causes relative movement of said belt-engaging faces to return the belt to a central path of travel.

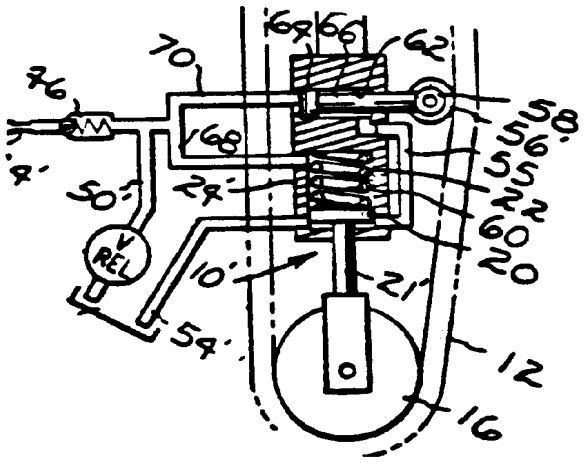


109 Load responsive tension adjuster or shifter:
This subclass is indented under subclass 101. Subject matter including means for sensing resistance to movement or change in resistance to movement of a load device or of a component in a drive train to drive the load device; and, in response to such sensed resistance or change of resistance to movement, said means acts to actuate said member or said device.



SEE OR SEARCH THIS CLASS, SUBCLASS:
11+, 17+, 50, and 70, for other arrangements using a load or speed responsive actuator in a belt and pulley drive system.

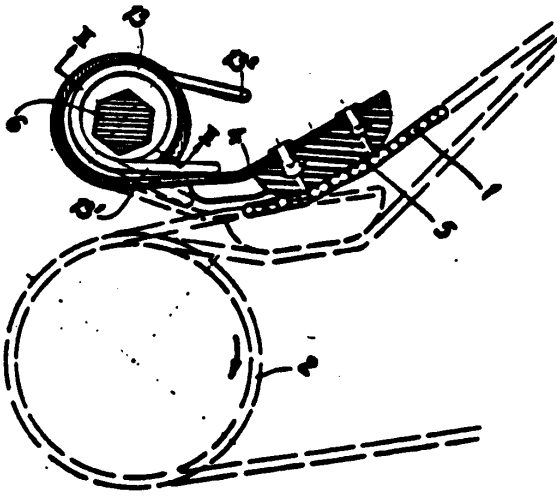
110 Tension adjuster or shifter driven by electrical or fluid motor:
This subclass is indented under subclass 101. Subject matter wherein force for actuating said device or said member is derived from or transmitted via electrical energy or the exertion of force upon a fluid.



SEE OR SEARCH THIS CLASS, SUBCLASS:
18, 28, 51, and 103+, for other arrangements using an electrical or fluid motor as a drive for an actuator in a belt and pulley drive system.

SEE OR SEARCH CLASS:
83, Cutting, subclass 819 for fluid means to bias a pulley to tension on endless band or chain cutting device.

111 Tension adjuster has surface in sliding contact with belt:
This subclass is indented under subclass 101. Subject matter wherein said member has a non-rotatable face portion for contacting the belt*, whereby the belt slides over the face portion.

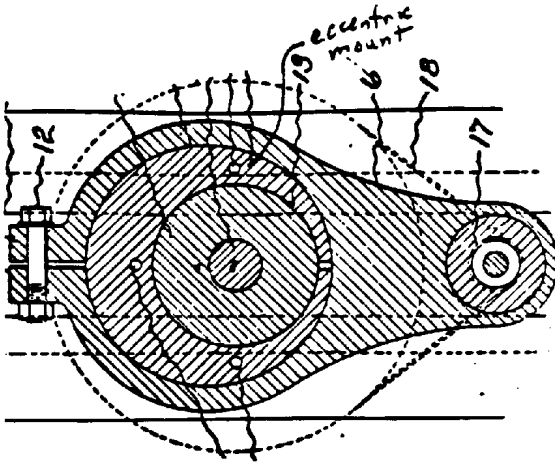


SEE OR SEARCH THIS CLASS, SUBCLASS:

140, for a belt guide having a surface in sliding contact with the belt.

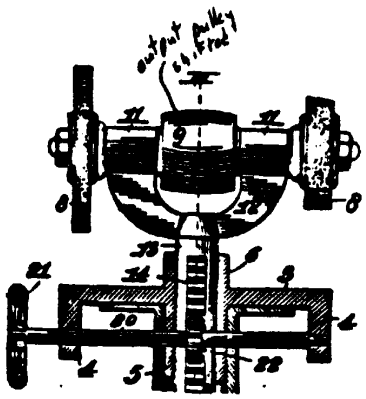
112 Pulley or guide roll has eccentric mount for shifting or tensioning movement:

This subclass is indented under subclass 101. Subject matter wherein a guide roll* or pulley* is mounted on a support which is rotatably adjustable about an axis located radially inwardly of the belt*-engaging drive face of the pulley or guide roll, the axis of rotation of the pulley or guide roll being parallel to, but spaced radially from, the axis of rotation of the adjustable support so that movement of the support about its axis causes a shift of the axis of rotation of the pulley or guide roll.



113 Pulley shifter:

This subclass is indented under subclass 101. Subject matter wherein said device is operatively associated with a pulley* for changing the position of the pulley relative to a belt*.

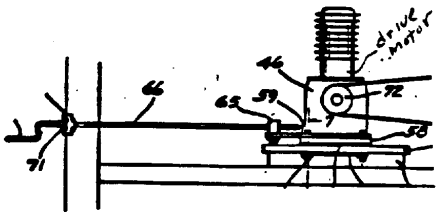


SEE OR SEARCH THIS CLASS, SUBCLASS:

77, and 79, for devices for shifting a pulley associated with a variable speed drive.

114 Pulley on shaft of adjustably mounted drive motor:

This subclass is indented under subclass 113. Subject matter wherein the pulley* is mounted on the drive shaft of a drive motor, and the motor is movably mounted to change the position of the pulley.



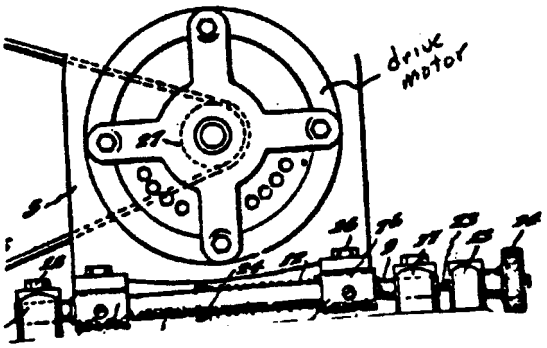
SEE OR SEARCH THIS CLASS, SUBCLASS:

26, for an adjustably mounted motor used in connection with a drive train including a pulley having a belt-receiving groove formed by drive faces on relatively axially movable coaxial confronting members.

SEE OR SEARCH CLASS:

105, Railway Rolling Stock, subclass 106 and 107 for an adjustably mounted motor for a belt tightener in a wheel or axle drive.

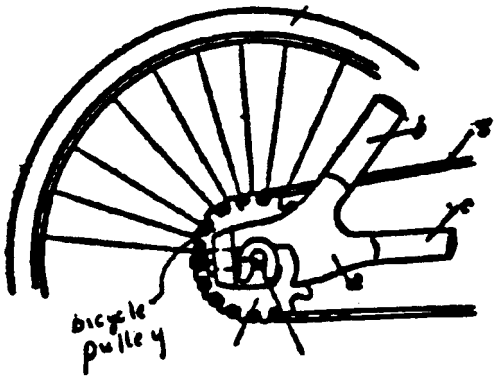
115 Spring biased in belt-tensioning direction:
This subclass is indented under subclass 114. Subject matter wherein resilient means is provided to bias the drive motor in a direction tending to increase tensile stress in the belt*.



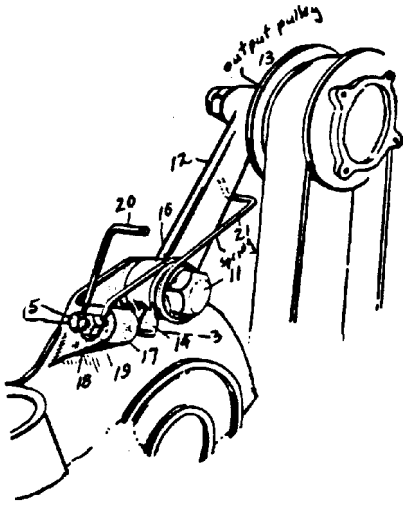
SEE OR SEARCH THIS CLASS, SUBCLASS:
117, 135, and 138, for other structure wherein a pulley or guide roll is spring biased in a belt-tensioning direction.

SEE OR SEARCH CLASS:
198, Conveyors: Power-Driven, subclass 814 for a spring-biased tensioner in a conveyor.

116 Pulley is vehicle drive pulley (e.g., bicycle sprocket, etc.):
This subclass is indented under subclass 113. Subject matter wherein the pulley* is a part of a drive train for propelling a vehicle.



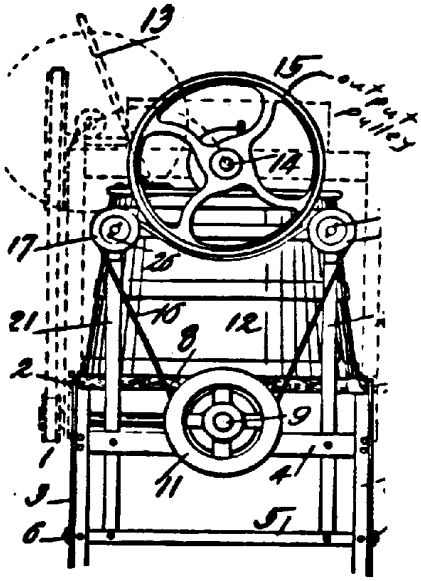
117 Spring biased in belt-tensioning direction:
This subclass is indented under subclass 113. Subject matter wherein resilient means is provided to bias the pulley* in a direction tending to increase tensile stress in the belt*.



SEE OR SEARCH THIS CLASS, SUBCLASS:
115, 135, and 138, for other structure wherein a pulley or guide roll is spring biased in a belt-tensioning direction.

SEE OR SEARCH CLASS:
198, Conveyors: Power-Driven, subclass 814 for a spring-biased tensioner in a conveyor.

118 Pulley shiftable into engagement with exterior of belt-surface:
This subclass is indented under subclass 113. Subject matter wherein a inner surface of a belt* defines an area within a closed loop, and said pulley* is located outside of said area and has a drive face shiftable into and out of contact with a surface of the belt opposite the inner surface.



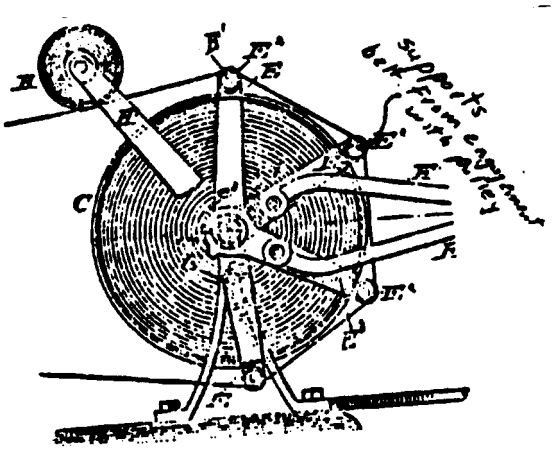
SEE OR SEARCH THIS CLASS, SUBCLASS:

121, for a device for selectively shifting a belt so that its exterior surface is engaged or disengaged with a pulley.

139, for structure wherein a pulley is engaged with the exterior surface of a belt.

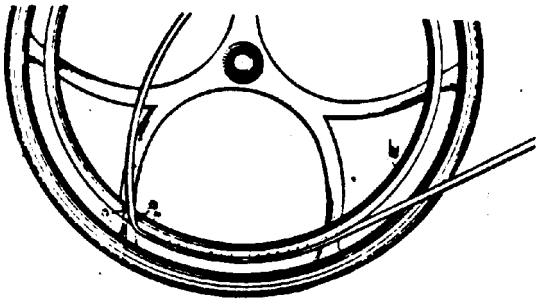
119 Belt shifter for shifting belt laterally or for selective engagement and supported disengagement of belt with pulley:

This subclass is indented under subclass 101. Subject matter wherein said device or structure is operatively associated with a belt* so as (a) to move the belt in a direction generally parallel to the axis of rotation of a pulley* about which the belt is entrained, or (b) to move the belt into and out of driving contact with the drive face of a pulley and support the disengaged belt completely removed from contact with the pulley face.



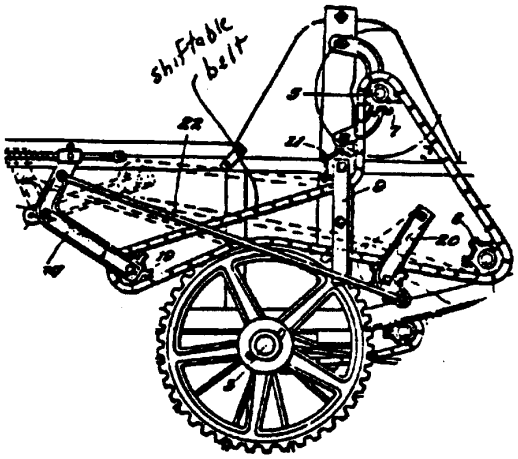
120 Pulley has slot in groove-forming flange facilitating belt installation or removal:

This subclass is indented under subclass 119. Subject matter wherein a pulley* face includes opposed surfaces defining a circumferential belt*-receiving groove, and wherein at least one of said surfaces has a portion removed therefrom to form a belt passageway to aid in mounting or removing the belt into or from the groove.



121 For shifting exterior surface of belt into engagement with pulley:

This subclass is indented under subclass 119. Subject matter wherein an inner surface of the belt* defines an area within a closed loop, and wherein said device is operatively associated with the belt to move the belt in a manner to engage or disengage a surface of the belt opposite the inner surface with the drive face of a pulley* located outside of the enclosed area.



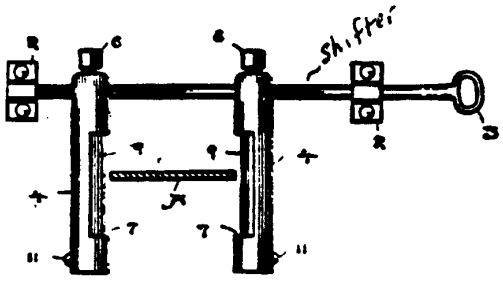
SEE OR SEARCH THIS CLASS, SUBCLASS:

118, for a device for selectively shifting a pulley into and out of engagement with the exterior surface of a belt.

139, for structure wherein a pulley is engaged with the exterior surface of a belt.

122 For shifting belt laterally:

This subclass is indented under subclass 119. Subject matter wherein said device is so operatively associated with the belt as to move the belt* in a direction generally parallel to the axis of rotation of a pulley* about which the belt is entrained.

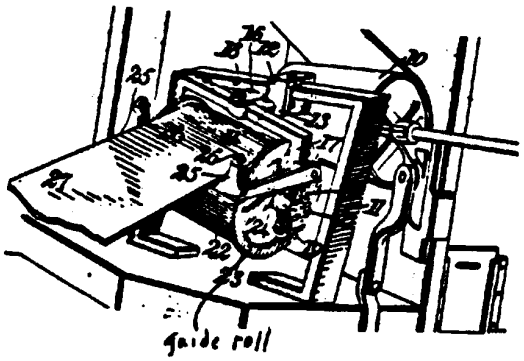


SEE OR SEARCH THIS CLASS, SUBCLASS:

3, 6, 80+, 83, and 102+, for other structure involving lateral shift of a belt such as for reversing the direction of rotation of a load driving member, for causing a change in speed ratio, for removing a belt from a pulley or for correcting belt training deviation.

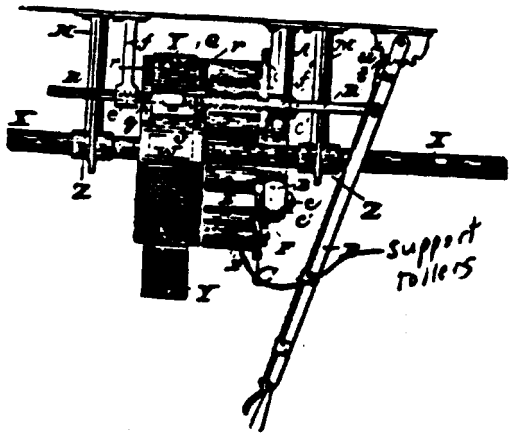
123 By adjusting axial inclination of belt guide roll:

This subclass is indented under subclass 122. Subject matter wherein a guide roll* rotatable about its own axis is engaged with the belt*, and wherein said belt movement is accomplished by adjusting the angular orientation of the axis of rotation of the guide roll relative to the path of travel of the belt.



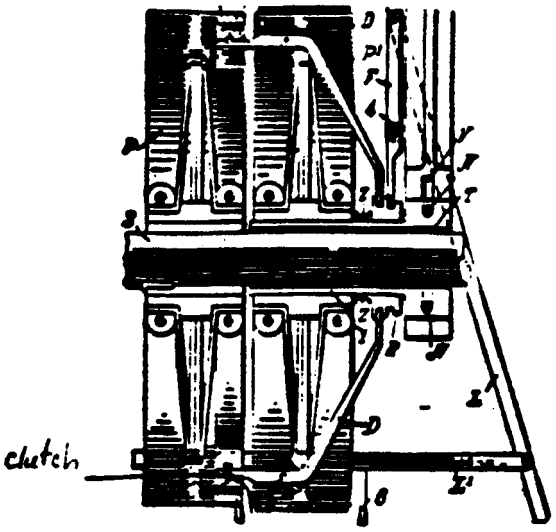
124 With idler support having circumferentially spaced rollers to receive shifted belt:

This subclass is indented under subclass 122. Subject matter provided with a belt* support axially aligned with a pulley* to receive a belt* which has been removed from the pulley, said support including a plurality of members rotatable about their own axis and radially spaced in arcuate array about a line forming a continuation of the pulley axis.



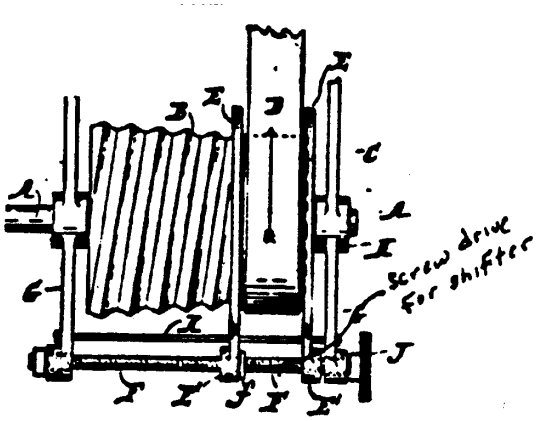
125 Including means for selectively clutching coaxial idler support to pulley:

This subclass is indented under subclass 122. Subject matter provided with a belt support axially aligned with a pulley* to receive a belt* which has been removed from the pulley, said support being mounted for rotation about an axis forming a continuation of the pulley axis; and said pulley and support including surfaces relatively movable between engaged and disengaged positions to cause the pulley and support to rotate as a unit when engaged or to permit independent rotation of the pulley and support when disengaged.



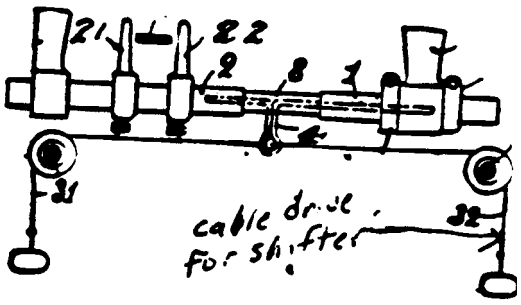
126 Shifter actuated by screw or gear drive:

This subclass is indented under subclass 122. Subject matter wherein motion is transmitted to the device for moving the belt* via relatively movable components having interengaged helical threads or intermeshing teeth.



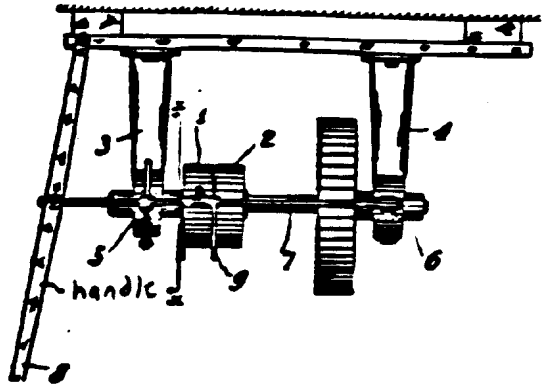
127 Shifter actuated by flexible cable:

This subclass is indented under subclass 122. Subject matter wherein motion is transmitted to the device for moving the belt* via a flexible, elongated ropelike member.



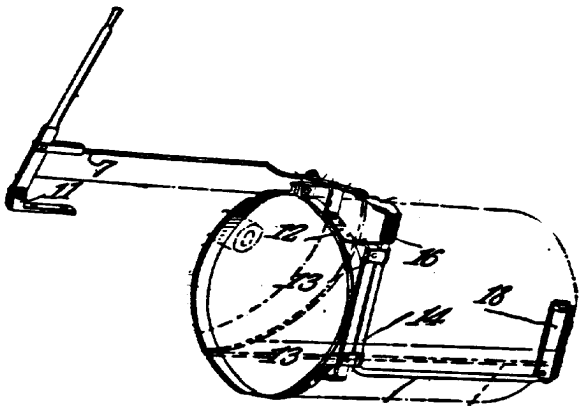
128 Shifter actuated by handle pivoted about fixed axis:

This subclass is indented under subclass 122. Subject matter wherein motion is transmitted to the device for moving the belt* via a lever intended to be grasped by an operator, said lever being mounted for pivotable movement about a fixed axis.



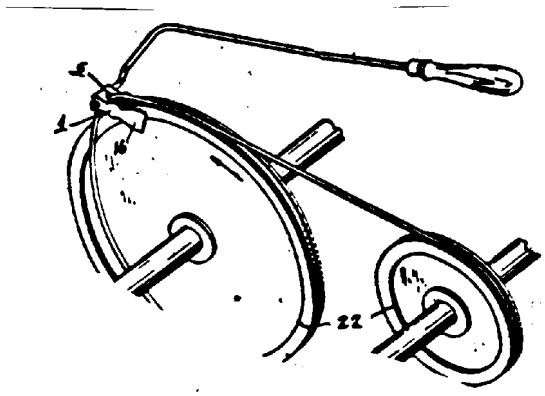
129 And connector link between handle and shifter pivotable about spaced fixed axis:

This subclass is indented under subclass 128. Subject matter and further including an additional component interconnecting said lever with the device for moving the belt*, said component being mounted for pivotable movement about an axis spaced from the pivotable axis of the lever.



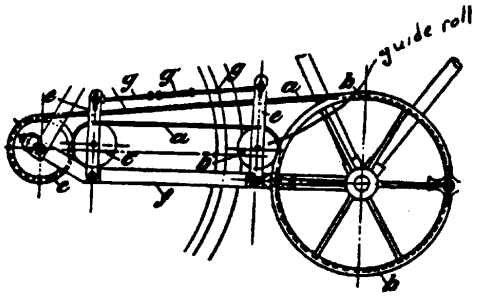
130 Portable hand tool for removing or installing belt:

This subclass is indented under subclass 119. Subject matter wherein said device is to facilitate the application or removal of the belt* to or from a pulley*, said device being of a size and nature as to be readily transportable by an operator to any of several locations where it is desired to apply or remove a belt from a pulley.



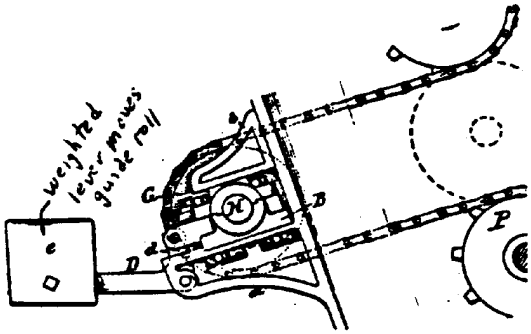
131 Guide roll forms belt-thickness gap with pulley:

This subclass is indented under subclass 101. Subject matter wherein said member is a guide roll*, said guide roll being adjustable or biased to a position where it is spaced from the drive face of a pulley* a distance no greater than the thickness of a belt* passing between the guide roll and pulley to urge the belt into firm driving engagement with the pulley.



132 Gravity actuated guide roll for tensioning belt:

This subclass is indented under subclass 101. Subject matter wherein said member is a guide roll* engaged with the belt*; and wherein the weight of the guide roll, or the weight of an auxiliary mass associated with the guide roll, causes the guide roll to be continually biased in a direction to increase the tensile stress in the belt or to take up any undesirable slack in the belt.

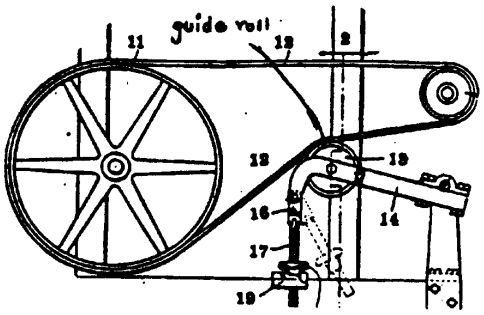


SEE OR SEARCH CLASS:

198, Conveyors: Power-Driven, subclass 815 for a counterweight actuated tensioner in a conveyor.

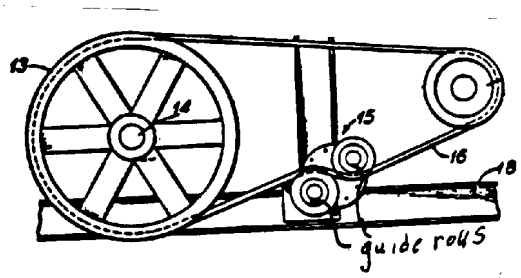
133 Guide roll mounted for movement of its axis along arcuate path to tension belt:

This subclass is indented under subclass 101. Subject matter wherein said member is a guide roll* engaged with the belt*; and wherein said guide roll is movably supported for movement of its axis in a curved path to cause the guide roll change the tensile stress in the belt or to take up any undesirable slack in the belt.



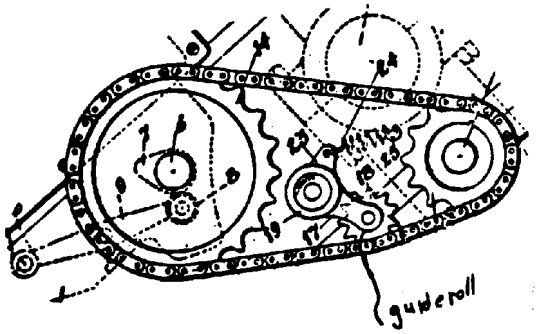
134 Plural guide rolls engaging single belt:

This subclass is indented under subclass 133. Subject matter wherein an additional guide roll* is engaged with the belt*.



135 Guide roll spring biased in belt-tensioning direction:

This subclass is indented under subclass 133. Subject matter wherein resilient means is provided to bias guideroll *in the direction tending to increase tensil stress in the belt. *



SEE OR SEARCH THIS CLASS, SUBCLASS:

115, 117, and 138, for other structure wherein a pulley or guide roll is spring biased in a belt-tensioning direction.

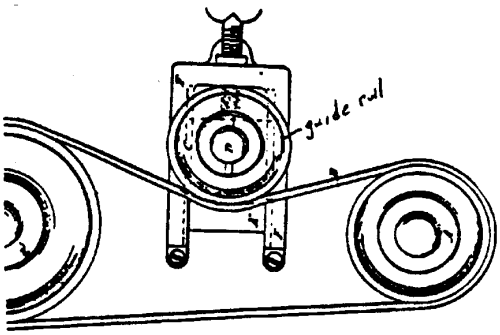
SEE OR SEARCH CLASS:

198, Conveyors: Power-Driven, subclass 814 for a spring biased tensioner in a conveyor.

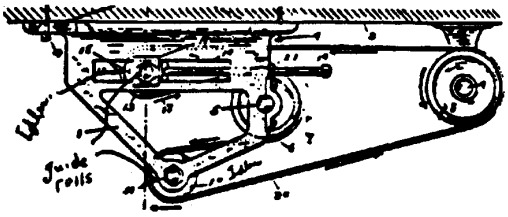
136 Guide roll mounted for movement of its axis along rectilinial path to tension belt:

This subclass is indented under subclass 101. Subject matter wherein said member is a guide roll * engaged with the belt *, and whererin said guide roll is moveably supported for movement of its axis in a straight-line path to

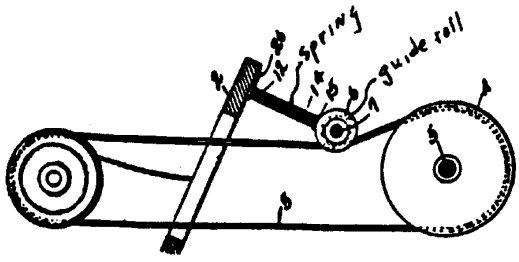
cause the guide roll to change the tensil stress in the belt or to take up any undesireable slack in the belt.



137 Plural guide rolls engaging single belt:
This subclass is indented under subclass 136. Subject matter wherein an additional guide roll* is engaged with the belt*.



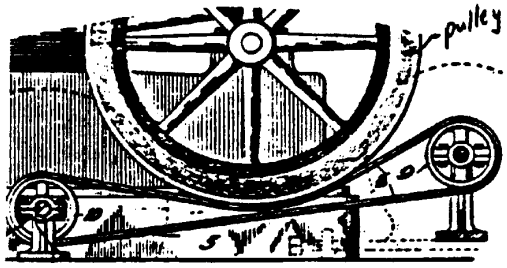
138 Guide roll spring biased in belt-tensioning direction:
This subclass is indented under subclass 136. Subject matter wherein resilient means is provided to bias the guide roll* in a direction tending to increase tensile stress in the belt*.



SEE OR SEARCH THIS CLASS, SUBCLASS:
115, 117, and 135, for other structure wherein a pulley or guide roll is spring biased in a belt-tensioning direction.

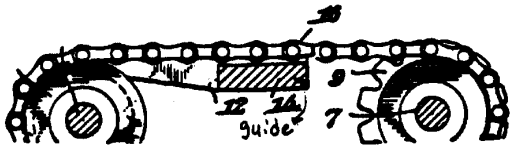
SEE OR SEARCH CLASS:
198, Conveyors: Power-Driven, subclass 814 for a spring-biased tensioner in a conveyor.

139 PULLEY ENGAGES EXTERIOR SURFACE OF BELT:
This subclass is indented under the class definition. Subject matter wherein an inner surface of a belt* defines an area within a closed loop; and wherein a pulley* is located outside of said area and has a drive face in contact with a surface of the belt opposite the inner surface.



SEE OR SEARCH THIS CLASS, SUBCLASS:
118, for a device for selectively shifting a pulley into and out of engagement with the exterior surface of a belt.
121, for a device for selectively shifting a belt so that its exterior surface is engaged or disengaged with a pulley.

140 BELT GUIDE HAS SURFACE IN SLIDING CONTACT WITH BELT:
This subclass is indented under the class definition. Subject matter including a member having a nonrotatable face portion engageable with a belt* for guiding the belt along an intended path of travel whereby the belt slides over the face portion of the member.



SEE OR SEARCH THIS CLASS, SUBCLASS:

111, for a belt tension adjusting device which has a surface in sliding contact with the belt.

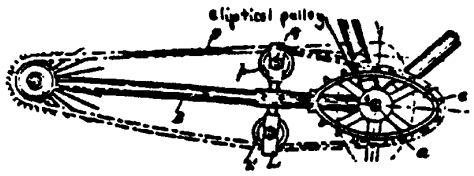
SEE OR SEARCH CLASS:

226, Advancing Material of Indeterminate Length, may include a nominal recitation of a supply or take-up coil (e.g., less than a support for such a coil or a cooperative relationship between a tension or exhaust detector and reel driving or reel stopping means, etc.), subclass 196.1 for a passive guide combined with a material feeder.

242, Winding, Tensioning, or Guiding, subclasses 615+ for a residual guide or guard that directs elongated flexible material that may be combined with more than nominal winding structure.

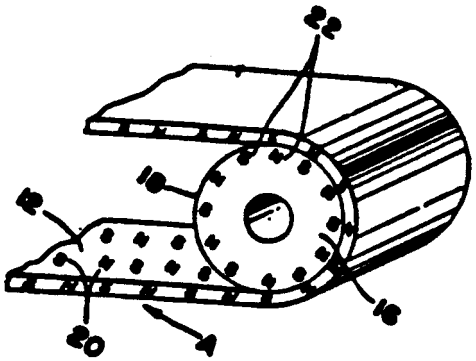
141 PULLEY HAVING CIRCUMFERENTIALLY SPACED PORTIONS OF DRIVE FACE SPACED UNEQUAL DISTANCES FROM PULLEY AXIS OF ROTATION (E.G., ELLIPTICAL PULLEY, ETC.):

This subclass is indented under the class definition. Subject matter wherein a first distance between the axis of rotation of a pulley* and a first point on the pulley where a belt* is drivingly engaged is less than a second distance between the axis of the pulley and a second circumferentially spaced point on the pulley periphery where the belt is drivingly engaged.



142 MAGNETIC ATTRACTION BETWEEN BELT AND PULLEY:

This subclass is indented under the class definition. Subject matter wherein the engagement between the pulley* and belt* is enhanced by magnetic force.

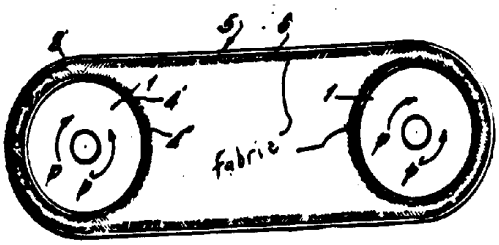


SEE OR SEARCH CLASS:

198, Conveyors: Power-Driven, subclass 805 for a conveyor belt moved by a magnetic force.

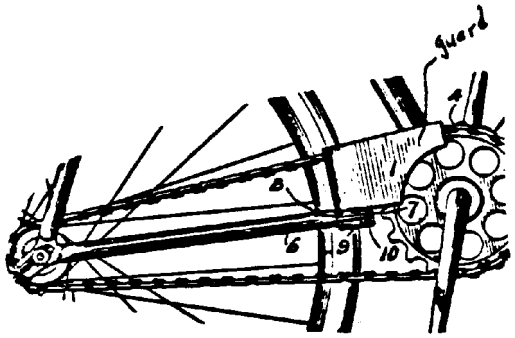
143 FABRIC DRIVE FACE ON BELT AND PULLEY:

This subclass is indented under the class definition. Subject matter wherein interengaging faces on a belt* and a pulley* are each of a material from interlaced or felted strands or fibers.



144 GUARD OR HOUSING FOR BELT OR PULLEY:

This subclass is indented under the class definition. Subject matter wherein a shield is associated with a belt* or pulley* to prevent injury or inadvertent contact with the belt or pulley or to protect the driven train from introduction of foreign matter.



SEE OR SEARCH CLASS:

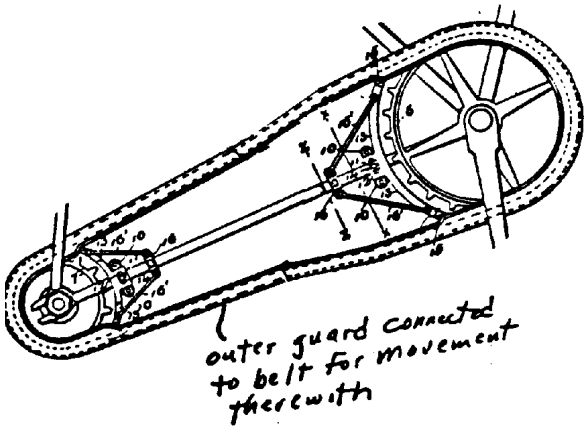
30, Cutlery, subclass 382 for guard means for a chain saw.

74, Machine Element or Mechanism, subclasses 606+ and 608+ for gear casings and guards.

83, Cutting, subclasses 397+, 478, 544+, and 814+ for guards associated with a cutting device.

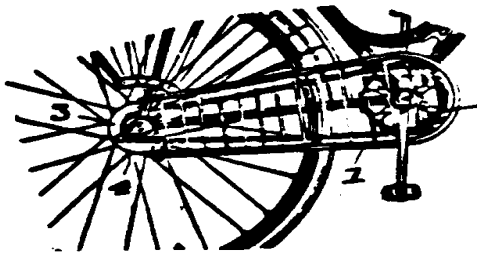
145 Connected to belt:

This subclass is indented under subclass 144. Subject matter wherein the shield is attached to a belt* for movement therewith.



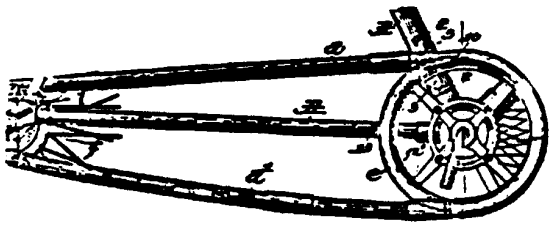
146 Extending along entire length of belt run:

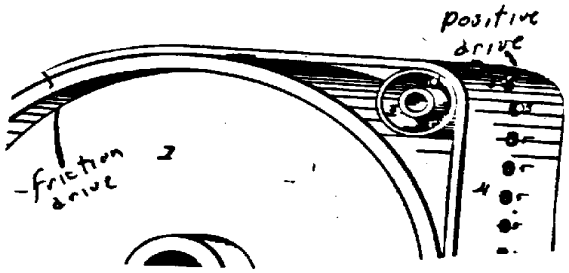
This subclass is indented under subclass 144. Subject matter wherein the shield has a longitudinal extent at least approximating the distance between a point where a belt* leaves a driving pulley* and a point where a belt engages a driven pulley.



147 Individual tubular housings for opposite belt runs:

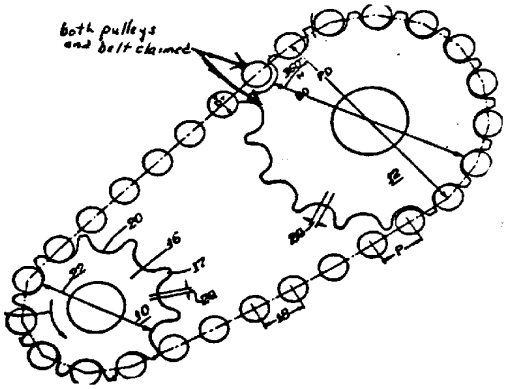
This subclass is indented under subclass 146. Subject matter wherein the shield comprises separate ductlike members, one of said ductlike members enclosing a belt* between a point where the belt leaves a driving pulley* and a point where the belt engages a driven pulley, and the other of said ductlike members enclosing the belt between a point where the belt leaves the driven pulley and a point where the belt engages the driving pulley.





148 SYSTEM INCLUDING SPACED PULLEYS INTERCONNECTED BY A BELT:

This subclass is indented under the class definition. Subject matter including a driving pulley*, a driven pulley and a belt* engaged with the driving and driven pulleys, whereby rotational power is transmitted from the driving to the driven pulley via the belt.

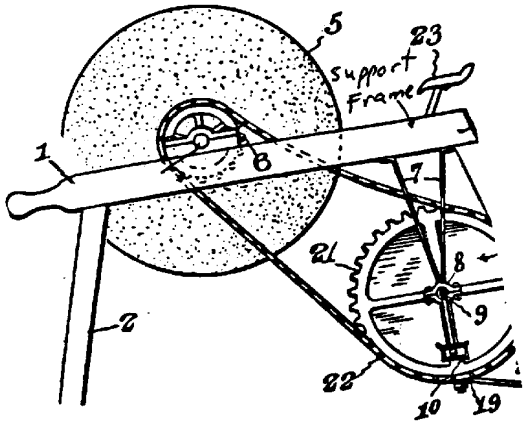


149 Positive drive pulley and friction drive pulley connected by same belt:

This subclass is indented under subclass 148. Subject matter wherein one of said pulleys* has a drive face formed by circumferentially spaced, radially extending teeth or ridges for driving engagement with radially extending surfaces correspondingly spaced along the length of the belt*, and the other of said pulleys has a drive face including a surface for driving engagement with the same belt by frictional contact with the belt.

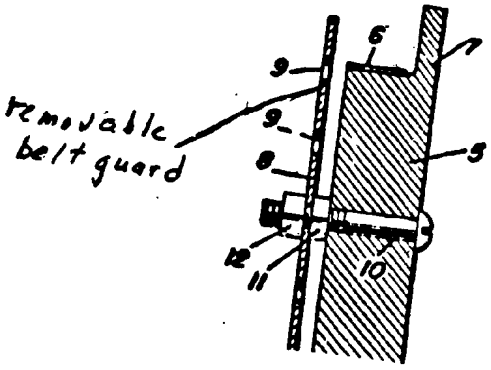
150 With frame or mount for system:

This subclass is indented under subclass 148. Subject matter wherein significance is attributed to means by which the pulleys* and belt* are supported.



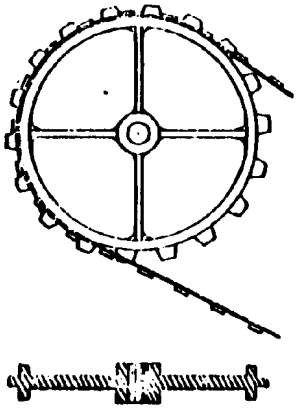
151 AUXILIARY MEMBER REMOVABLY ATTACHED TO PULLEY OR GUIDE ROLL FOR PREVENTING LATERAL DISPLACEMENT OF BELT:

This subclass is indented under the class definition. Subject matter wherein a device is provided for detachable mounting on a pulley* or guide roll* facilitating placement of a belt* on the pulley or guide roll when the device is detached and for preventing lateral displacement of the belt on the pulley or guide roll when the device is mounted on the pulley or guide roll.



152 POSITIVE DRIVE PULLEY OR GUIDE ROLL:

This subclass is indented under the class definition. Subject matter wherein a pulley or guide roll structure include a belt*-engaging drive face formed by circumferentially spaced, radially extending teeth or ridges intended for driving engagement with radially extending surfaces correspondingly spaced along the length of a belt.



SEE OR SEARCH CLASS:

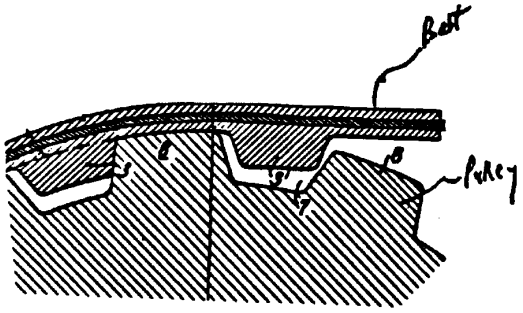
30, Cutlery, subclasses 384+ for a guide pulley in a chain saw.

198, Conveyors: Power-Driven, subclass 834 for a positive drive pulley for a conveyor.

226, Advancing Material of Indeterminate Length, subclasses 52+, and particularly subclasses 76+ for a rotating sprocket wheel to advance material.

153 With particular belt:

This subclass is indented under subclass 152. Subject matter also including structure of a belt* engageable with the pulley*.

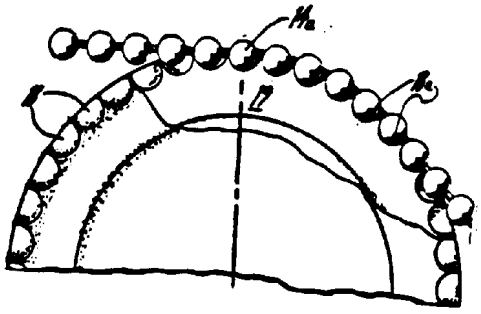


SEE OR SEARCH THIS CLASS, SUBCLASS:

202+, for positive drive belt, per se.

154 Belt has spherical or hemispherical drive faces:

This subclass is indented under subclass 153. Subject matter wherein spaced surfaces along the length of the belt* have an approximate shape of a ball or a hemisphere, said surfaces being received in corresponding recesses defined by the pulley* or guide roll* ridges for driving engagement between the ridges and said surfaces.



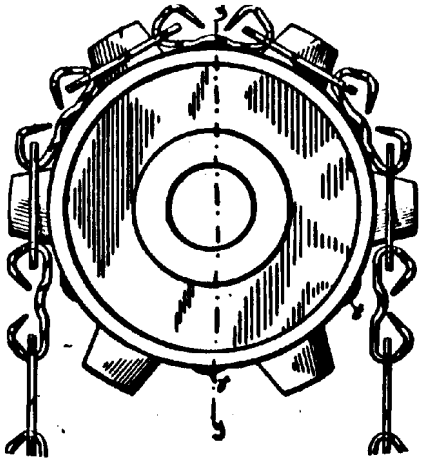
SEE OR SEARCH THIS CLASS, SUBCLASS:

203, for a belt, per se, having spherical or hemispherical drive faces.

155 Belt formed of rigid links:

This subclass is indented under subclass 153. Subject matter wherein the belt* is formed of inflexible components which are joined

together to permit relative movement of the components so that the belt is capable of conforming to circumferential curvature of a pulley* or guide roll* drive face.

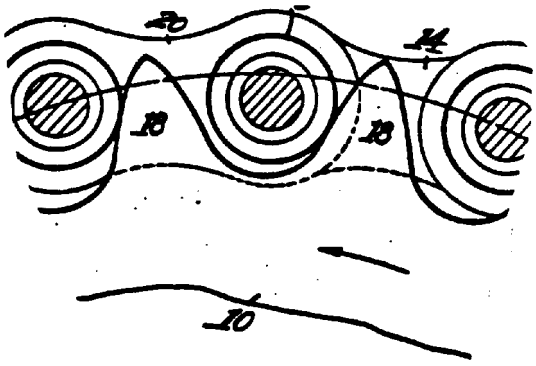


SEE OR SEARCH THIS CLASS, SUBCLASS:

206+, for a positive drive belt formed of rigid links.

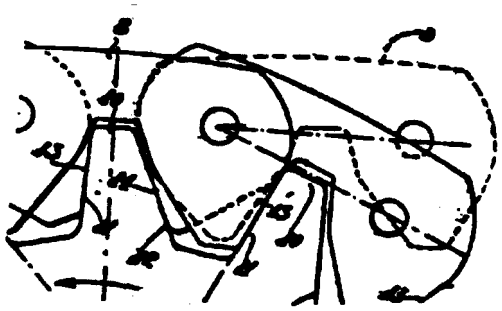
156 With sequential links pivoted about discrete pivot pin:

This subclass is indented under subclass 155. Subject matter wherein a separate rodlike member is inserted through aligned openings in contiguous ends of adjacent inflexible components, the longitudinal axis of said rodlike member providing a pivotable axis permitting relative movement of the inflexible components.



157 And each link has integral surfaces forming inwardly opening groove:

This subclass is indented under subclass 156. Subject matter wherein each of the inflexible components is a unitary member having side walls spaced from each other in the direction of the longitudinal extent of the belt*, said side walls being interconnected by a top wall to define a cavity opening inwardly toward the drive face of the pulley* or guide roll* to receive a pulley or guide roll ridge or tooth.

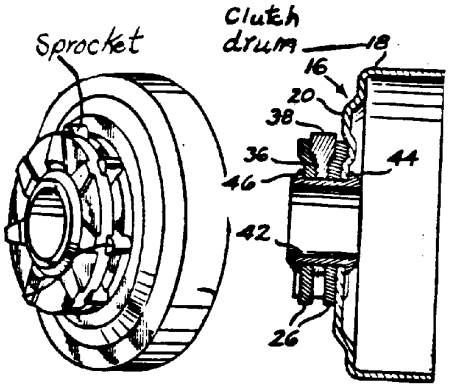


SEE OR SEARCH THIS CLASS, SUBCLASS:

212+, for a belt, per se, having integral surfaces forming an inwardly opening groove.

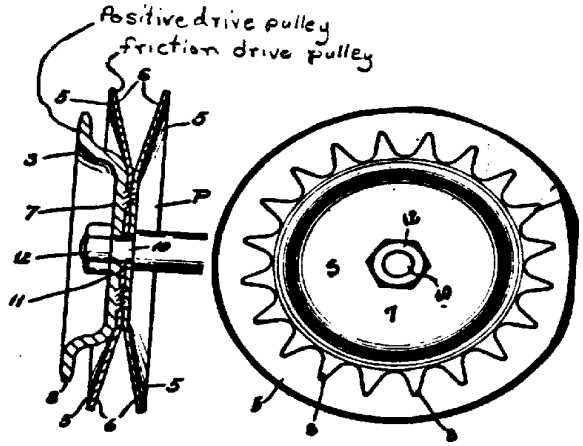
158 And additional coaxial surface for engaging same belt in shifted condition or for engaging auxiliary belt, brake, or clutch member:

This subclass is indented under subclass 152. Subject matter wherein, in addition to the belt*-engaging drive face on the pulley* or guide roll*, an additional operative face is provided, said additional operative face either being formed integral with the pulley or guide roll or on a separate member mounted coaxially with the pulley or guide roll, said additional operative face operating either: (a) to receive a belt which has been shifted from the pulley or guide roll drive face; or (b) to receive an additional belt; or (c) to receive a member intended to impede rotation of the pulley or guide roll; or (d) to receive a member for selectively or intermittently engaging or disengaging the pulley or guide roll with another device during operation of the pulley.



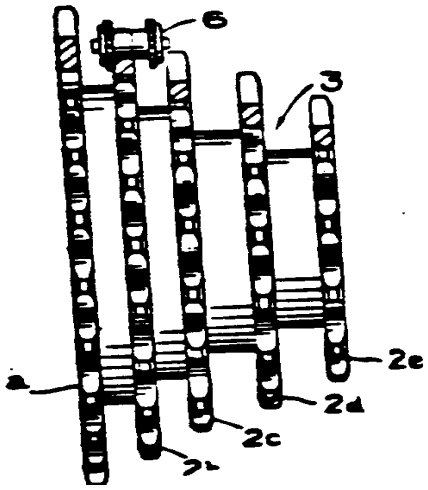
159 Coaxial surface is belt-engaging surface on friction drive pulley:

This subclass is indented under subclass 158. Subject matter wherein the additional operative face is a belt*-engaging face of a pulley for driving a belt by frictional contact between the belt and the drive face.



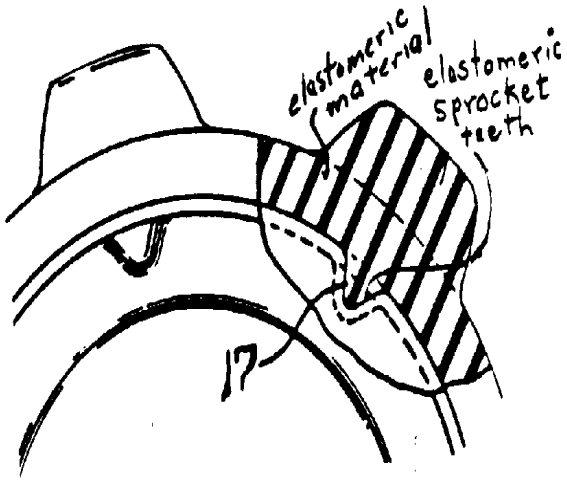
160 Coaxial surface is belt-engaging surface on positive drive pulley of different circumference:

This subclass is indented under subclass 158. Subject matter wherein the additional operative face is a belt*-engaging face of a second pulley* of the same kind, and wherein the distance from the axis of rotation to the drive face of one of the pulleys is different than the distance from the axis of rotation to the drive face of the other of the pulleys.



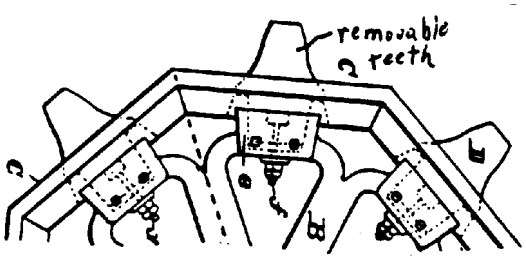
161 Having nonmetallic component:

This subclass is indented under subclass 152. Subject matter wherein the structure of the pulley* or guide roll* includes a part which is formed from material other than metal.



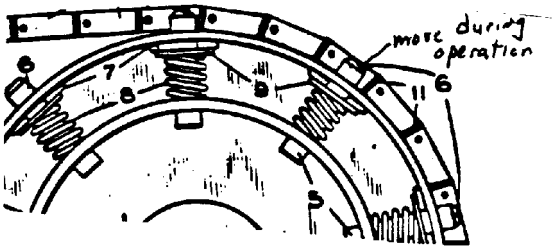
162 Having belt-engaging surfaces on discrete circumferentially spaced, relatively movable or replaceable members:

This subclass is indented under subclass 152. Subject matter wherein the belt*-engaging drive face of the pulley* or guide roll*, is formed of separate components spaced circumferentially from each other about the perimeter of the pulley or guide roll, said components being mounted for relative motion or being so mounted as to facilitate separate individual removal and installation of the components.



163 Movable with respect to each other during operation:

This subclass is indented under subclass 162. Subject matter wherein the components are mounted for relative motion with respect to each other while the pulley* or guide roll* is in driving engagement with a belt*.

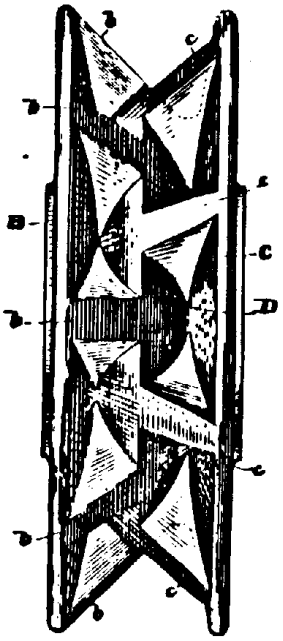


SEE OR SEARCH CLASS:

226, Advancing Material of Indeterminate Length, subclasses 62+ for a reciprocating or oscillating claw or finger associated with a device for advancing material.

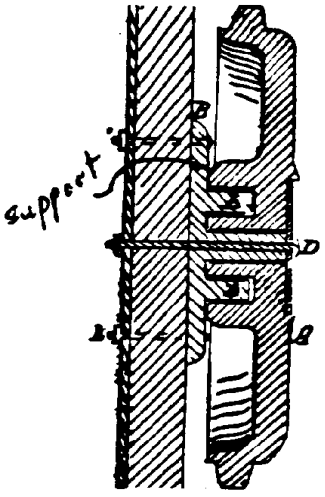
164 Having axially spaced sets of belt-engaging surfaces:

This subclass is indented under subclass 152. Subject matter wherein the drive face of the pulley* or guide roll* includes plural sets of circumferentially spaced, radially extending teeth or ridges intended for concurrent engagement with a common belt*, one of said sets being spaced from the other in a direction parallel to the longitudinal extent of the axis of rotation or the pulley or guide roll.



165 With stationary support for pulley or guide roll:

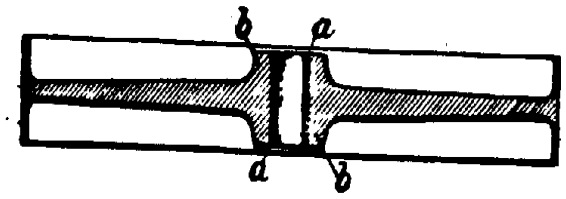
This subclass is indented under subclass 152. Subject matter wherein significance is attributed to stationary mounting means for the pulley* or guide roll*.



166 FRICTION DRIVE PULLEY OR GUIDE ROLL:

This subclass is indented under the class definition. Subject matter wherein pulley* or guide roll* structure includes a drive surface or drive

surfaces for driving engagement with a belt* by frictional contact with the belt.



SEE OR SEARCH CLASS:

16, Miscellaneous Hardware (e.g., Bushing, Carpet Fastener, Caster, Door Closer, Panel Hanger, Attachable or Adjunct Handle, Hinge, Window Sash Balance, etc.), subclasses 210+ for a sash cord guide.

30, Cutlery, subclasses 384+ for a guide pulley in a chain saw.

191, Electricity: Transmission to Vehicles, subclasses 63+ for a trolley wheel head mounted for rolling contact with a conductor.

198, Conveyors: Power-Driven, subclasses 835 and 842+ for a friction drive pulley or guide roll for a conveyor belt.

226, Advancing Material of Indeterminate Length, subclasses 168+ for orbitally traveling material-engaging surface to advance material.

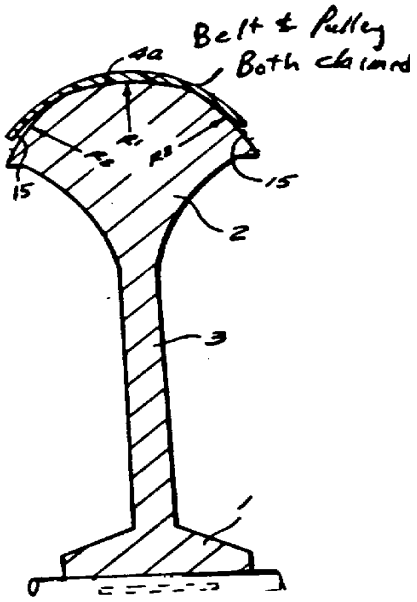
242, Winding, Tensioning, or Guiding, subclasses 600+ and 118+ for a winding drum or spool.

254, Implements or Apparatus for Applying a Pushing or Pulling Force, subclasses 264+ for a driving device which contacts and pulls on a cable; and subclasses 389+ for a device or member for contacting and guiding a moving cable.

492, Roll or Roller, for a roll, per se, not elsewhere provided for, and see the search notes thereunder.

167 With particular belt:

This subclass is indented under subclass 166. Subject matter also including structure of a belt* engageable with the pulley* or guide roll.



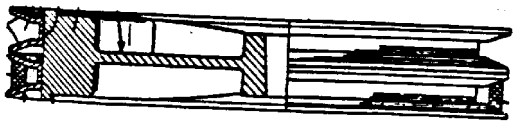
SEE OR SEARCH THIS CLASS, SUBCLASS:

237+, for a friction drive belt, per se.

168 Including plural, coaxial, circumferential belt-receiving grooves:

This subclass is indented under subclass 166. Subject matter wherein two or more pairs of belt*-engaging surfaces are provided for rotation about a common axis, each of said pairs including circumferentially extending surfaces facing each other in an axial direction to drivingly engage a belt received in the space defined by such surfaces.

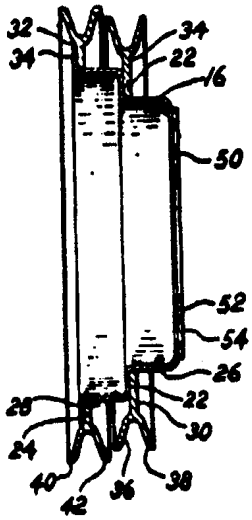
(1) Note. A pair or belt-engaging surfaces as defined above may be separate surfaces on distinct members or may be radially extending surface portions of a common surface.



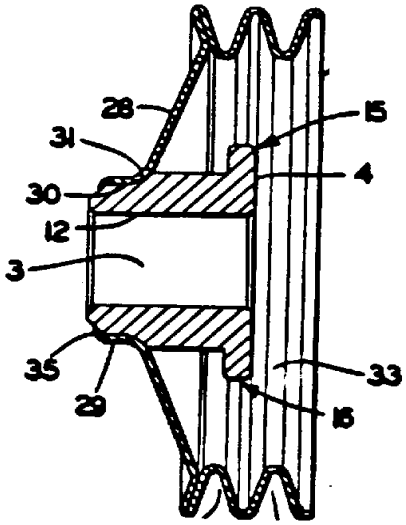
169 Plural grooves of different circumferences:

This subclass is indented under subclass 168. Subject matter wherein the distance from the axis of rotation to a radially innermost point where a belt* engages one pair of surfaces is

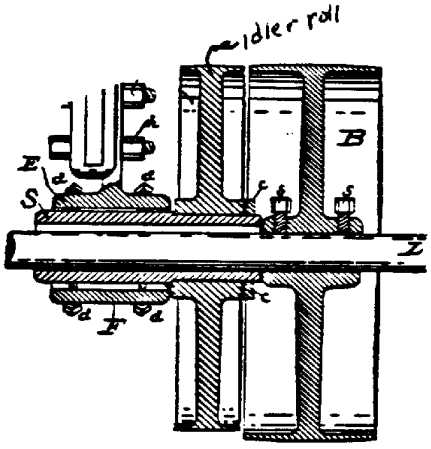
different than the distance from the axis of rotation to a radially innermost point where a belt engages another of the pairs of surfaces.



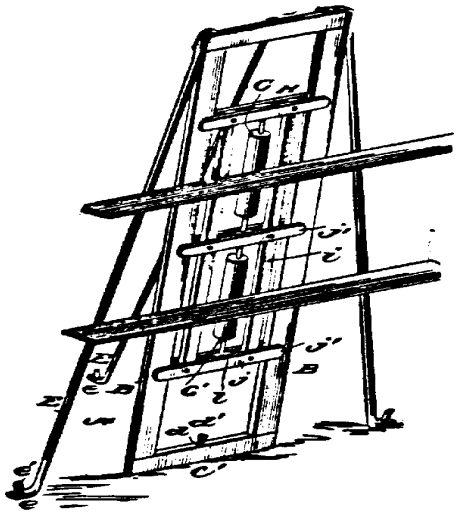
170 **Plural grooves formed in unitary member:** This subclass is indented under subclass 168. Subject matter wherein at least four of the surfaces forming two pairs of belt*-engaging surfaces are all integral parts of a common member.



171 **And additional coaxial surface for engaging same belt in shifted condition or for engaging auxiliary belt, brake, or clutch member:** This subclass is indented under subclass 166. Subject matter wherein, in addition to the belt*-engaging drive surface or drive surfaces on the pulley*, and additional operative face is provided, said additional operative face either being formed integral with the pulley or on a separate member mounted coaxially with the pulley, said additional operative face operating either: (a) to receive a belt which has been shifted from the pulley drive surface or surfaces, or (b) to receive an additional belt; or (c) to receive a member intended to impede rotation of the pulley; or (d) to receive a member for selectively or intermittently engaging or disengaging the pulley with another device during operation of the pulley.

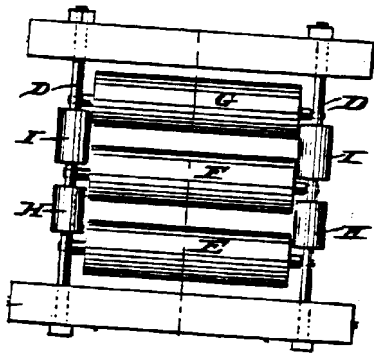


172 **Guide roll on axis perpendicular to top surface of belt for engaging side edge of belt:** This subclass is indented under subclass 166. Subject matter wherein a guide roll* is mounted for rotation about an axis extending at an angle of substantially ninety degrees to the plane of the outer surface of a belt*, said guide roll being positioned to contact a side edge of the belt.



173 And additional guide roll for engaging top or bottom surface of belt:

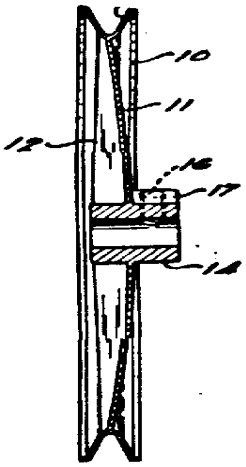
This subclass is indented under subclass 172. Subject matter wherein another guide roll* is mounted in position to contact one of the surfaces extending between opposite side edges of the belt*.



174 Pulley or guide roll including circumferential belt-receiving groove:

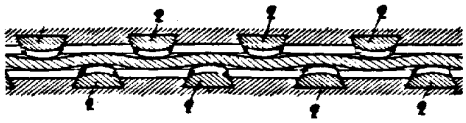
This subclass is indented under subclass 166. Subject matter wherein a pair of belt*-engaging surfaces are provided for rotation about a common axis, said pair including circumferentially extending surfaces facing each other in an axial direction to drivingly engage a belt received in the space defined by such surfaces.

(1) Note. A pair of belt-engaging surfaces, as defined above, may be separate surfaces on distinct members or may be radially extending surface portions of a common surface.



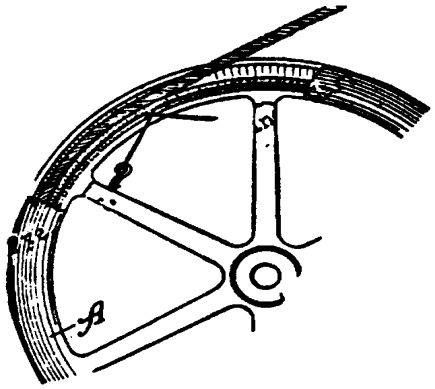
175 Groove formed by rugate or circumferentially spaced drive surfaces:

This subclass is indented under subclass 174. Subject matter wherein surfaces defining the belt*-receiving space are on separate components circumferentially spaced from each other, or wherein at least one of the surfaces defining the belt receiving spaces is roughened or includes alternating ridges and valleys to increase the extent of frictional grip on the belt.



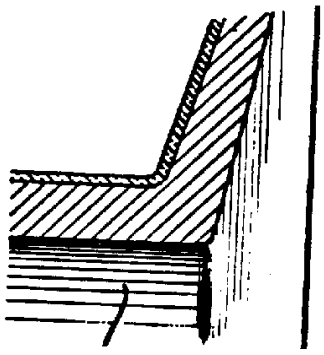
176 Groove formed by multiple, abutting, circumferentially connected members:

This subclass is indented under subclass 174. Subject matter wherein surfaces defining the belt*-receiving space are on separate components arranged circumferentially in sequence, and adjacent components abuting each other along a plane extending radially from the axis of rotation of the pulley* or guide roll*.



177 **And circumferentially continuous belt-engaging layer or insert of diverse material added on or between groove-forming flanges:**

This subclass is indented under subclass 174. Subject matter wherein a component which has been shaped or arranged to provide the belt*-receiving space includes an added coating on the component or an additional member inserted into the belt-receiving space, said coating or additional member being formed of a material different from the material from which the component is formed, and said added coating or additional member being for drivingly engaging the belt and extending uninterruptedly around the circumference of the pulley* or guide roll*.

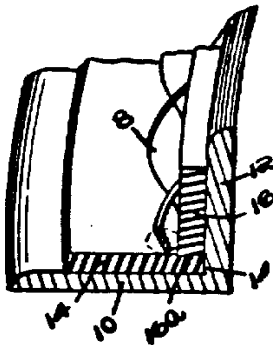


SEE OR SEARCH CLASS:

106, Compositions: Coating or Plastic, subclass 36 for a coating or plastic composition to enhance friction grip.

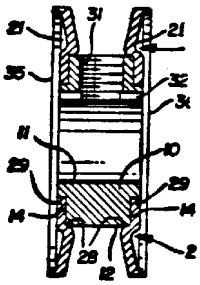
178 **Layer or insert of resilient material:**

This subclass is indented under subclass 177. Subject matter wherein the coating or additional member is formed of a material having an elastic property.



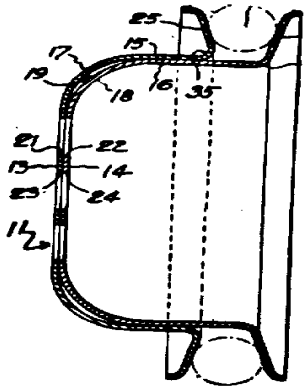
179 **Including connected discrete axially spaced groove-forming flanges:**

This subclass is indented under subclass 174. Subject matter wherein separate interconnected members have outer peripheral portions spaced axially apart and facing each other to provide the belt*-engaging surfaces.



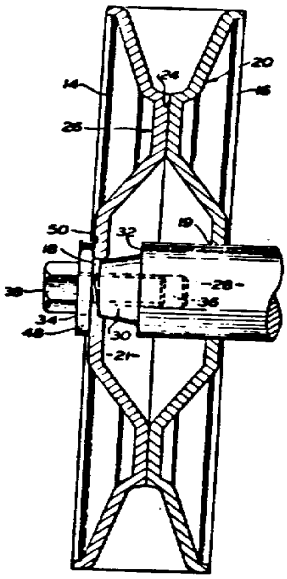
180 **Connected via nesting cylindrical or conical surfaces integral with the flanges:**

This subclass is indented under subclass 179. Subject matter wherein the separate members each has a conical or cylindrical portion formed integral with, and spaced radially inwardly from, the outer peripheral portion, the conical or cylindrical portion of one of the members being received within the conical or cylindrical portion of the other of the members.



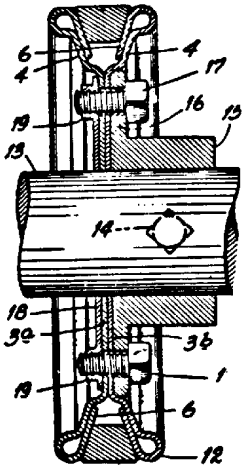
181 And abutting radial surfaces integral with the flanges:

This subclass is indented under subclass 179. Subject matter wherein the separate members each has a planar face formed integral with, and extending radially inwardly from, the outer peripherical portion, the planar face of one of the members being mounted in abutting relationship with the planar face of the other of the members.



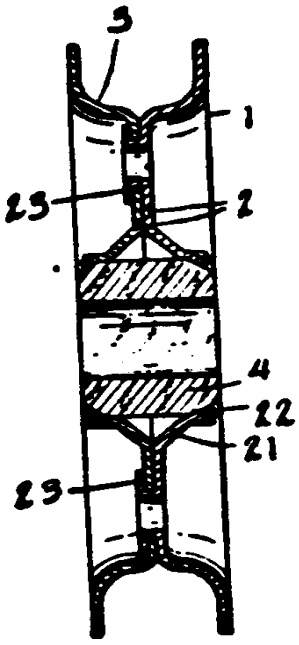
182 Including connector extending through opening in abutting surfaces:

This subclass is indented under subclass 181. Subject matter wherein the separate members are interconnected by a connector device which extends through an opening in one or both of the abutting planar faces of the members.



183 Connector comprises tang integral with one of the surfaces:

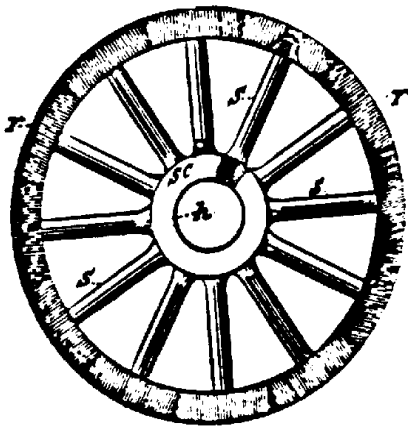
Subject matter under subclass l82 wherein the connector device comprises a tongue-like part formed integral with one of the planar faces and received into an opening in the other of the planar faces.



184 Pulley or guide roll having plural, discrete belt-engaging faces for engaging flat belt:

This subclass is indented under subclass 166. Subject matter wherein a belt*-engaging surface is provided on each of separate members, the belt-engaging surfaces being so arranged as

to provide a composite structure for intended engagement with a belt having a planar inwardly facing drive face.

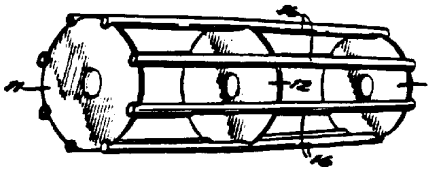


SEE OR SEARCH THIS CLASS, SUBCLASS:

95+, for a pulley having discrete rim sections and wherein a hub portion is also formed in sections movable radially apart from each other.

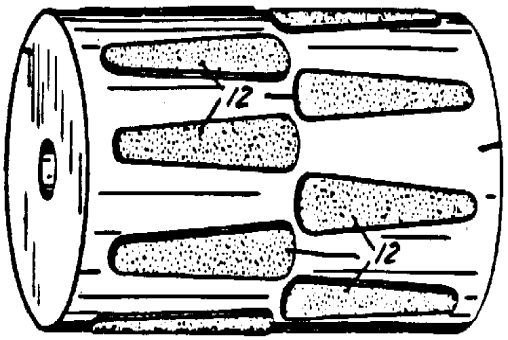
185 Circumferentially spaced faces:

Subject matter under subclass l84 wherein the belt*-engaging surfaces are spaced from each other in a direction extending circumferentially about the axis of rotation of the pulley* or guide roll.



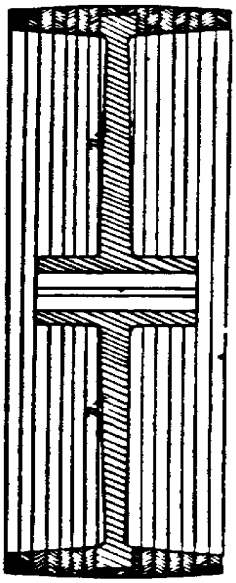
186 And axially spaced faces:

This subclass is indented under subclass 185. Subject matter wherein belt*-engaging surfaces are also spaced from each other in a direction parallel to the longitudinal extent of the axis of rotation of the pulley* or guide roll*.



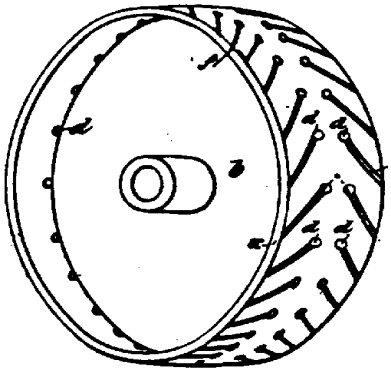
187 Each face has continuous circumferential periphery:

This subclass is indented under subclass 184. Subject matter wherein the belt*-engaging surface of each of the members extends for 360 degrees circumferentially about the axis of rotation of the pulley* or guide roll*.

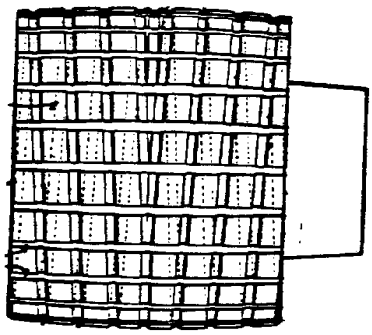


188 Including grooves or openings in cylindrical belt-engaging surface (e.g., for escape of air, etc.):

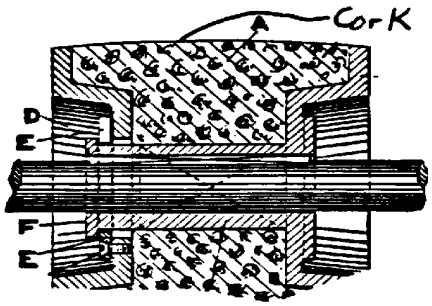
This subclass is indented under subclass 166. Subject matter wherein the drive surface is on a generally cylindrical unitary member, and wherein said drive surface has apertures or grooves formed therein and arranged in a pattern extending about the entire periphery of the member.



189 Circumferentially extending grooves:
This subclass is indented under subclass 188. Subject matter wherein grooves in said drive surface extend for at least 360 degrees circumferentially about the axis of rotation of the pulley* or guide roll*.

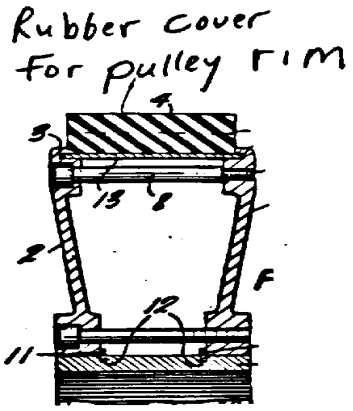


190 Including nonmetallic belt-engaging surface portion:
This subclass is indented under subclass 166. Subject matter wherein the surface intended for driving engagement with the belt* includes a material other than metal.

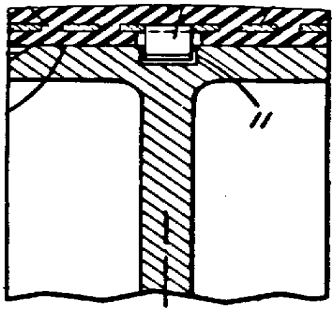


SEE OR SEARCH CLASS:
106, Compositions: Coating or Plastic, subclass 36 for a coating or plastic composition to enhance friction grip.

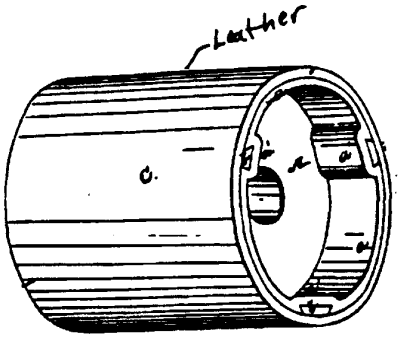
191 Rubber:
This subclass is indented under subclass 190. Subject matter wherein the surface intended for driving engagement with the belt* is formed of rubber.



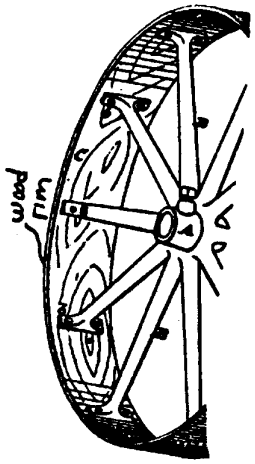
192 With embedded metal layer:
This subclass is indented under subclass 191. Subject matter wherein a component made of rubber which provides the driving surface has an additional metallic component embedded therein.



193 Leather:
This subclass is indented under subclass 190. Subject matter wherein the surface intended for driving engagement with the belt* is formed of leather.

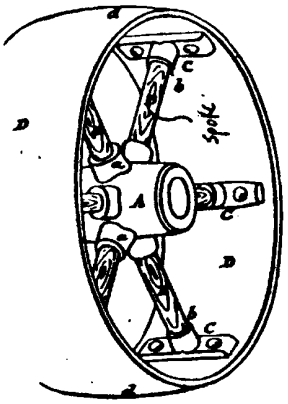


194 Wood or paper:
This subclass is indented under subclass 190. Subject matter wherein the surface intended for driving engagement with the belt* is formed of wood or paper.

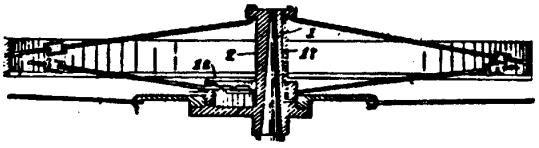


195 With spokes connecting rim to hub:
This subclass is indented under subclass 166. Subject matter wherein a set of circumferentially spaced, radially extending arms extend between and interconnect a component providing the belt*-engaging surface with component providing the means by which the pulley* or guide roll* is mounted on a drive or support shaft.

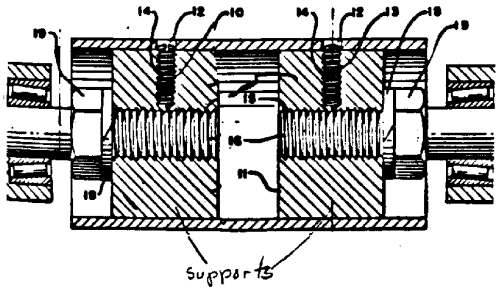
SEE OR SEARCH THIS CLASS, SUBCLASS:
97+, for a pulley including spokes connecting the hub and rim, and wherein the hub is formed in sections movable radially apart from each other.



196 Plural spoke sets axially spaced:
This subclass is indented under subclass 195. Subject matter including an additional set of circumferentially spaced, radially extending arms which extend between and interconnect a component providing the belt*-engaging surface with a component providing the means by which the pulley* or guide roll* is mounted on a drive or support shaft, the two sets of arms being spaced from each other in a direction parallel to the longitudinal extent of the axis of rotation of the pulley or guide roll.

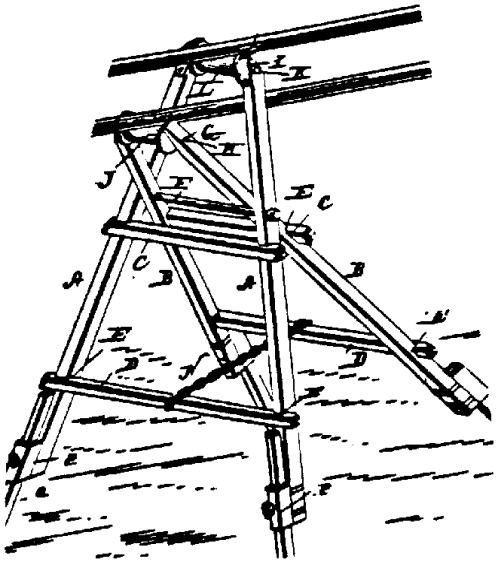


197 Cylindrical rim interconnected to axially spaced support members:
This subclass is indented under subclass 166. Subject matter wherein a component has a belt*-engaging surface which is generally cylindrical in shape, and wherein a pair of separate members are provided with aligned openings for receiving a drive or support shaft for the pulley* or guide roll*, said members including radially extending surfaces spaced from each other in a direction parallel to the longitudinal extent of the shaft axis, and said members being rigidly connected to said component to mount said component in radially spaced relation from said shaft.



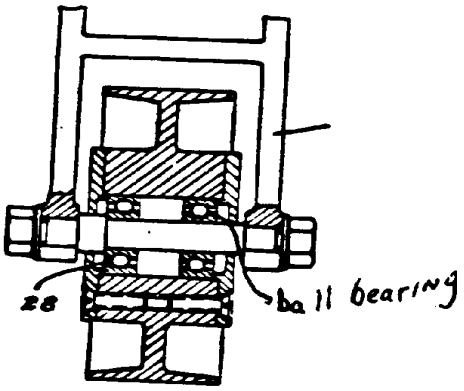
198 With stationary support for pulley or guide roll:

This subclass is indented under subclass 166. Subject matter including the structure of a member which is immobile during operation of the pulley* or guide roll*, and which serves to mount the pulley or guide roll in desired position for engaging the belt*.



199 And ball or roller bearing for mounting pulley or guide roll on support:

This subclass is indented under subclass 198. Subject matter wherein an antifriction device having balls or rollers is interposed between the pulley* or guide roll* and the mounting member.

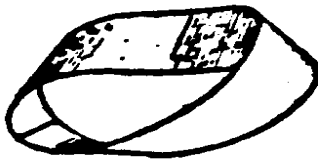


SEE OR SEARCH CLASS:

384, Bearings, appropriate subclasses for bearing or guide structure, per se.

200 MOBIOUS BELT:

This subclass is indented under the class definition. Subject matter wherein a belt* has a one-sided pulley*-engaging surface formed by holding a first end of an elongated band fixed, rotating the opposite end l80 degrees about an axis coincident with a centerline of the elongated band parallel to the long dimension thereof, and securing the opposite end to the first end.



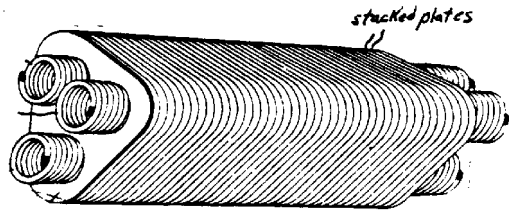
SEE OR SEARCH CLASS:

400, Typewriting Machines, subclass 195 for a mobius strip typewritter ribbon, and see (1) Note therein for an explanation of mobius.

201 BELT HAVING DRIVE SURFACES ON OPPOSITE SIDE EDGES OF STACKED PLATES HAVING PLANAR FACES PERPENDICULAR TO DIRECTION OF BELT MOVEMENT:

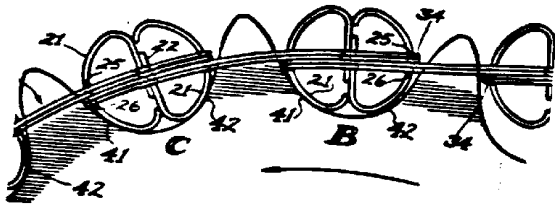
This subclass is indented under the class definition. Subject matter wherein a belt* is formed of a plurality of flat bodies; each of said bodies including narrow top, bottom and side edges defining oppositely facing planar surfaces with planar surfaces of adjacent bodies abutting

each other, said side edges being arranged for intended engagement with facing surfaces defining a circumferentially extending groove in a pulley*.



202 POSITIVE DRIVE BELT:

This subclass is indented under the class definition. Subject matter wherein belt* structure includes means defining distinct pulley*-engaging surfaces spaced along the length of the belt for intended driving engagement of such surfaces sequentially with radially extending teeth or ridges of the pulley correspondingly spaced about the circumference of the pulley.



SEE OR SEARCH THIS CLASS, SUBCLASS:

153, for a positive drive belt combined with a pulley.

SEE OR SEARCH CLASS:

30, Cutlery, subclasses 380 and 381+ for a band or chain saw.

83, Cutting, subclasses 788+ for an endless band or chain cutting device.

185, Motors: Spring, Weight, and Animal Powered, subclass 16 for a belt intended to be driven by an animal treading on the belt.

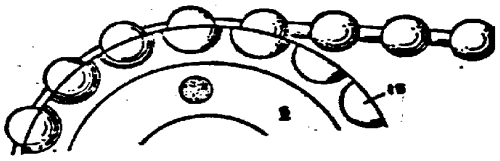
198, Conveyors: Power-Driven, subclasses 844.1+ for conveyor belt structure.

305, Wheel Substitutes for Land Vehicles, subclasses 157+ and 185+ for a track or tread.

451, Abrading, subclasses 296+ for an abrading tool comprising an endless band.

203 Drive surfaces on belt formed by spherical or hemispherical elements:

This subclass is indented under subclass 202. Subject matter wherein the pulley*-engaging surfaces on the belt have an approximate shape of a ball or hemisphere.

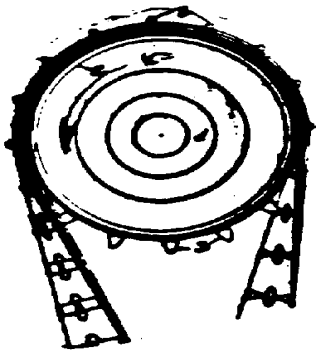


SEE OR SEARCH THIS CLASS, SUBCLASS:

154, for a belt having spherical or hemispherical elements combined with a pulley.

204 Drive surfaces on belt formed or interconnected by continuous flexible member:

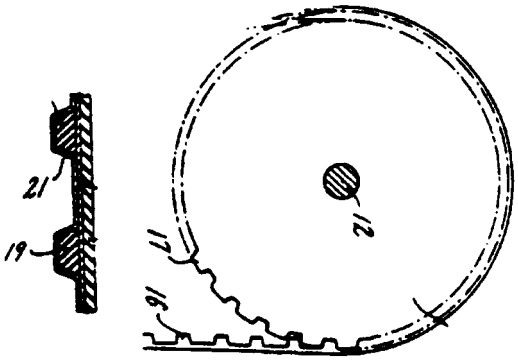
This subclass is indented under subclass 202. Subject matter wherein the pulley*-engaging surfaces are formed as an integral part of, or interconnected by, a unitary band which extends the entire length to the belt*, said band being formed of a pliant material to permit the band to conform to the circumferential curvature of the pulley*.



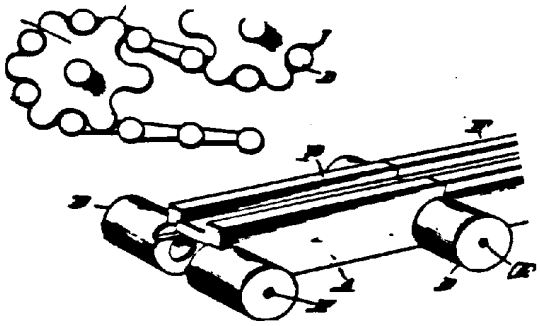
SEE OR SEARCH THIS CLASS, SUBCLASS:

249+, for a friction drive belt having grooves or openings therein such as for escape of air, flexibility, etc.

205 Drive surfaces on longitudinally spaced teeth formed integral with flexible member:
This subclass is indented under subclass 204. Subject matter wherein alternating ridges and grooves are formed along the length of said band as an integral part thereof, said ridges providing said pulley*-engaging surfaces.



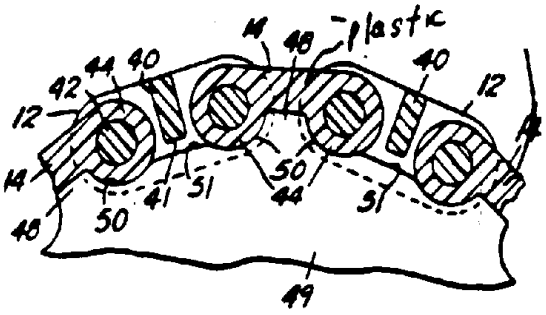
206 Belt formed of rigid links:
This subclass is indented under subclass 202. Subject matter wherein the belt* is formed of inflexible components which are joined together to permit relative movement of the components so that the belt is capable of conforming to curvature of a pulley* drive face.



SEE OR SEARCH THIS CLASS, SUBCLASS:
155+, for a belt formed of rigid links combined with a positive drive pulley.

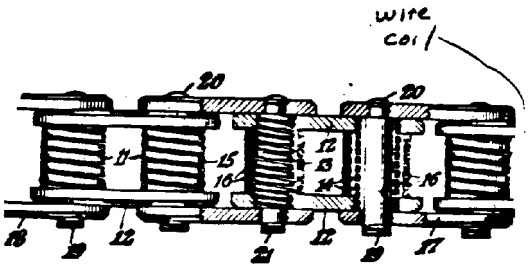
SEE OR SEARCH CLASS:
198, Conveyors: Power-Driven, subclasses 850+ for a conveyor belt formed of rigid links.

207 Including nonmetallic part:
This subclass is indented under subclass 206. Subject matter wherein the belt* includes a part formed of a material other than metal.

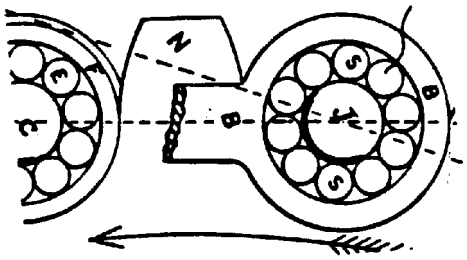


synthetic plastic material

208 Including wire member coiled about pivotal axis between links:
This subclass is indented under subclass 206. Subject matter including a part in the form of a thin strand helically wound about a transverse pivotal axis between longitudinally connected components forming the belt*.



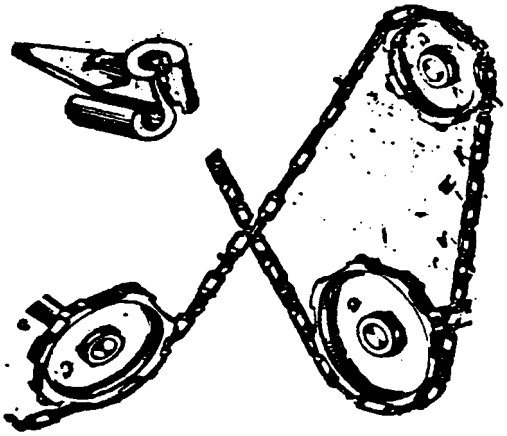
209 Including ball or roller bearing circumferentially spaced about pivotal axis between links:
This subclass is indented under subclass 206. Subject matter wherein a plurality of friction-reducing members in the form of balls or rollers are space circumferentially about the axis where longitudinally connected components are pivotally attached to each other.

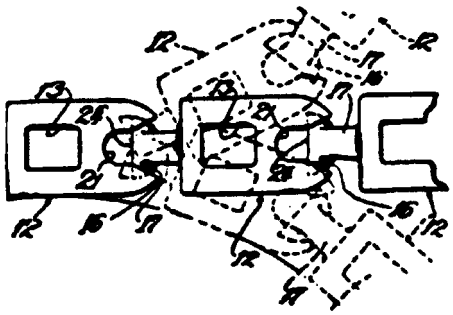


roller bearing

210 Links pivotable about diverse axes during operation (e.g., "universal" connection facilitating alignment with sprockets in diverse planes):

This subclass is indented under subclass 206. Subject matter wherein significance is attributed to a manner of interconnecting components to permit relative movement about more than one axis.



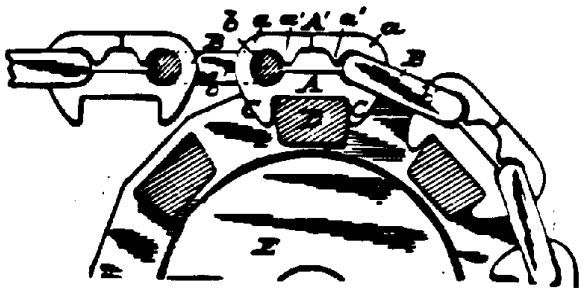


211 Ball-and-socket connection:

This subclass is indented under subclass 210. Subject matter wherein a component is provided with a part having a spherical or hemispherical surface received in a correspondingly shaped recess in an adjacent component to permit relative movement through nonparallel planes.

212 Link including integral surface forming inwardly opening groove (e.g., silent chain, etc.):

This subclass is indented under subclass 206. Subject matter wherein each of the inflexible components is a unitary member having side walls spaced from each other in the direction of the longitudinal extent of the belt*, said side walls being interconnected by a wall to define a cavity opening toward the drive face of the pulley* for receiving a pulley ridge or tooth.

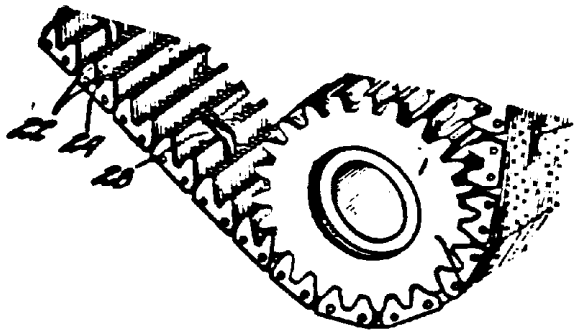


SEE OR SEARCH THIS CLASS, SUBCLASS:

157, for a belt of this kind combined with a positive drive pulley.

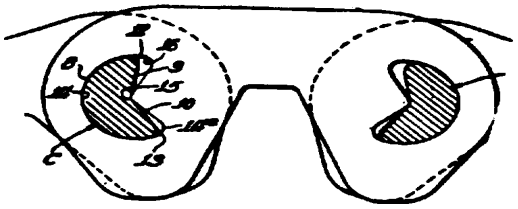
213 Plural links having laterally aligned groove-forming surfaces:

This subclass is indented under subclass 212. Subject matter wherein at least two of said components with said inwardly opening cavities are arranged with the surfaces defining the top and sidewalls aligned with each other in a direction traverse to the longitudinal extent of the belt*.



214 Connector or bearing member extending through or positioned in laterally aligned openings in adjacent links is noncircular in traverse cross section:

This subclass is indented under subclass 213. Subject matter wherein adjacent components are each provided with an opening, the openings being aligned with each other in a direction traverse to the longitudinal extent of the belt* for receiving a separate connector or bearing member extending longitudinally through or positioned in the aligned openings, and said connection or bearing member having an external surface which is noncircular in a cross section taken on a plane traverse to the longitudinal extent of the connector or bearing member.

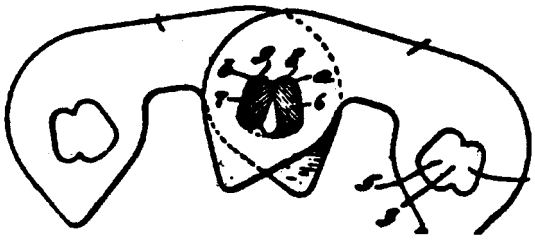


SEE OR SEARCH THIS CLASS, SUBCLASS:

229, for a connector for a belt of the kind provided in subclass 228, and wherein the connector is noncircular in traverse cross section.

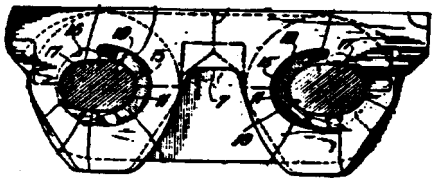
215 Multiple connector or bearing members extend through or positioned in common opening:

This subclass is indented under subclass 214. Subject matter wherein a plurality of separate connector or bearing members are arranged within a single opening.



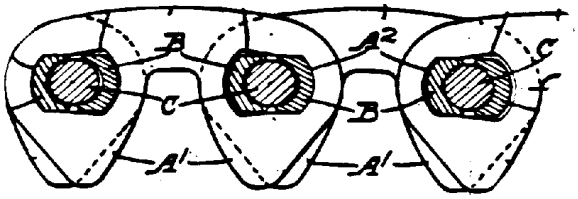
216 Concave surface of one connector or bearing member abuts convex surface of another connector or bearing member:

This subclass is indented under subclass 215. Subject matter wherein one of said connector or bearing members has an inwardly curving surface which abuts an outwardly curving surface connector or bearing member.

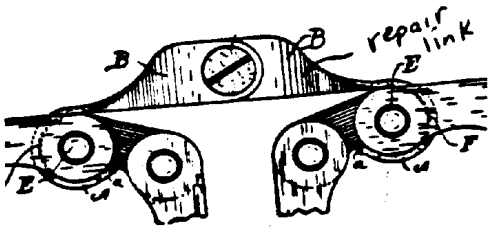


217 Plural connector or bearing members with concave surface abut covex surface or surfaces on another connector or bearing member:

This subclass is indented under subclass 216. Subject matter wherein two of said connector or bearing members have an inwardly curving surface which abuts an outwardly curving surface or surfaces on another connector or bearing member.

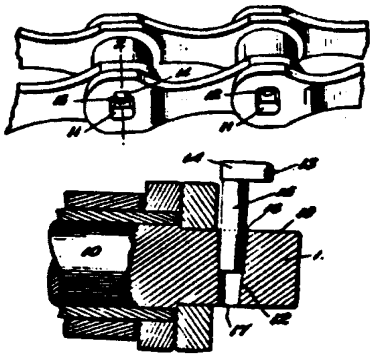


218 Including diverse member for interconnecting opposite ends to complete loop (e.g., repair link for broken chain, etc.):
This subclass is indented under subclass 206. Subject matter wherein a device is provided for interconnecting opposite ends of a plurality of sequentially longitudinally connected components to form a belt*, said device being different in structure than said components, and different in structure than other means interconnecting sequential components through the extent of the belt.

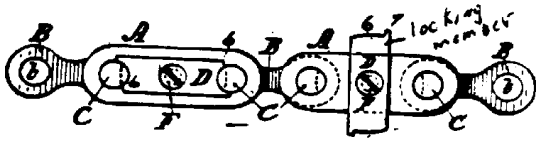


SEE OR SEARCH CLASS:
24, Buckles, Buttons, Clasps, etc., subclasses 31+ for a belt connector, per se .

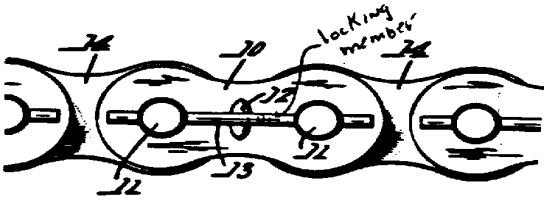
219 Including separate locking member for retaining link-connector in laterally aligned openings through adjacent links:
This subclass is indented under subclass 206. Subject matter wherein a retainer device is separably fastened to a laterally extending connector member for preventing inadvertent withdrawal of the connector member from a position within openings in longitudinally adjacent components, the openings being aligned in a lateral direction perpendicular to the longitudinal extent of the belt*.



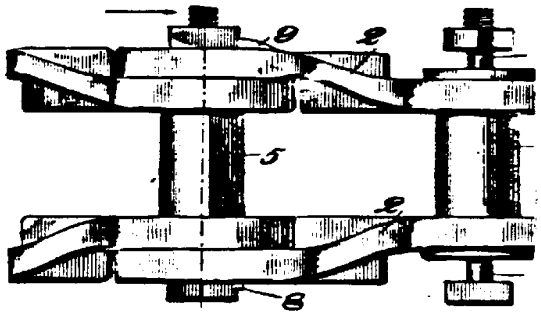
220 Common locking member retains longitudinally spaced connectors:
This subclass is indented under subclass 219. Subject matter wherein a single retaining device is fastened to at least two connector members spaced from each other in a direction parallel to the longitudinal extent of the belt*.

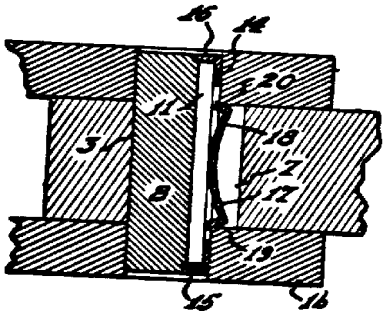


221 Strandlike locking member (e.g., wire, etc.):
This subclass is indented under subclass 220. Subject matter wherein the retaining device is in the form of a thin strand.



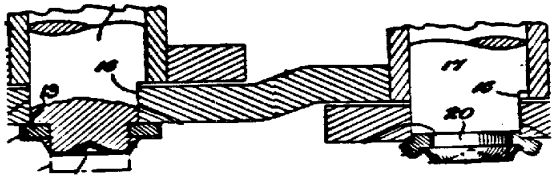
222 Threaded connection between connector and locking member:
This subclass is indented under subclass 219. Subject matter wherein the retaining device includes a surface with a helically extending ridge which cooperates with a corresponding helically extending ridge on the connector member.





223 Locking member received in annular groove extending entirely around circumference of connector:

This subclass is indented under subclass 219. Subject matter wherein the connector member has an outer surface provided with a groove extending 360 degrees about the longitudinal axis of the connector, and wherein said retaining device is received within said groove.



224 Locking member includes portion disposed within opening which receives connector:

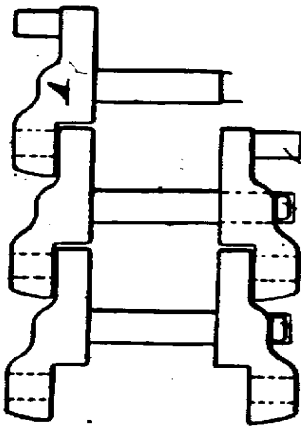
This subclass is indented under subclass 219. Subject matter wherein at least a portion of a surface on the retaining device extends within walls defining the opening or openings which receive the connector member.

225 Locking member extends through all aligned openings:

This subclass is indented under subclass 224. Subject matter wherein the retaining device extends substantially the entire length of a passageway defined by the aligned openings.

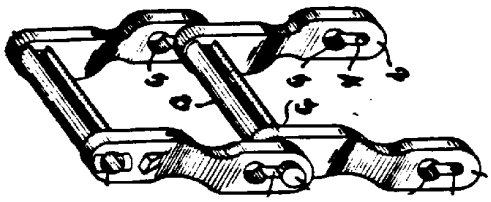
226 Link including discrete members forming laterally spaced sides of opening for pulley tooth:

This subclass is indented under subclass 206. Subject matter wherein a pulley*-tooth-receiving component is formed of separate parts spaced from each other in a direction transverse to the longitudinal extent of the belt* to define opposite sides of an opening intended to receive the tooth of the pulley.



227 With particular structure facilitating disassembly of adjacent links:

This subclass is indented under subclass 226. Subject matter wherein significance is attributed to structure which facilitates dismantling sequentially arranged components from each other.



SEE OR SEARCH THIS CLASS, SUBCLASS:

219+, for structure including sequential links interconnected by a separate connector pin, and wherein a separate locking member, which may be removable, is provided to retain the connector pin in place.

228 With discrete connector extending through laterally aligned apertures in adjacent links:

This subclass is indented under subclass 226. Subject matter wherein components forming the belt* each include means defining an aperture or apertures therein, the axis of said aperture or apertures being a line extending transversely perpendicular to the longitudinal extent of the belt, the aperture or apertures in one component being axially aligned with the aperture or apertures in an adjacent component, and said belt further including a separate connector member extending through the aligned apertures to interconnect adjacent components.

SEE OR SEARCH THIS CLASS, SUBCLASS:

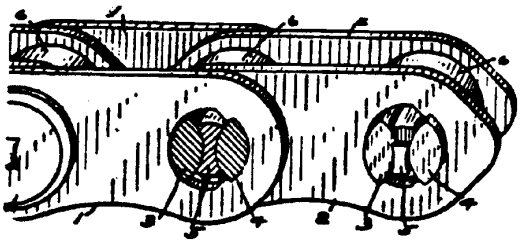
234, for a belt having links wherein opposite sides of an opening for a pulley tooth are formed as a unitary member, and having adjacent links interconnected by a connector pin or the like.

SEE OR SEARCH CLASS:

198, Conveyors: Power-Driven, subclasses 851+ for a conveyor link with a pin connecting adjacent links.

229 Connector has bearing surface which is noncircular in transverse cross section:

This subclass is indented under subclass 228. Subject matter wherein said connector member has an external surface which is noncircular in a cross section taken on a plane transverse to the longitudinal extent of the connector member, said external surface being arranged for relative oscillatory movement on a face of another member during operation of the belt.

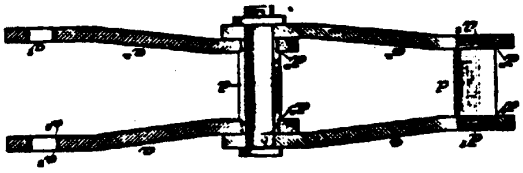


SEE OR SEARCH THIS CLASS, SUBCLASS:

214+, for a connector for a belt of the kind provided in subclass 213, and wherein the connector is noncircular in transverse cross section.

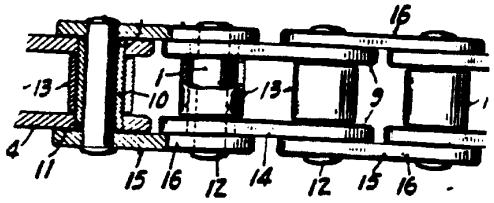
230 Connector connects sequential links each having discrete members forming laterally spaced sides:

This subclass is indented under subclass 228. Subject matter wherein sequential components are each formed of separate parts spaced from each other in a direction transverse to the longitudinal extent of the belt* to define an opening intended to receive the tooth of a pulley*, and wherein said connector member extends through axially aligned apertures in both of said sequential components to interconnect the components.



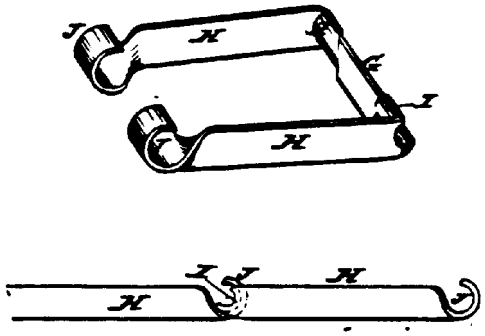
231 With sleeve rotatable with respect to each link for engaging pulley tooth:

This subclass is indented under subclass 230. Subject matter wherein a generally cylindrical member is positioned coaxially with and around said connector member, said cylindrical member being relatively movable with respect to each of said components to provide a surface for engaging the tooth of a pulley*.



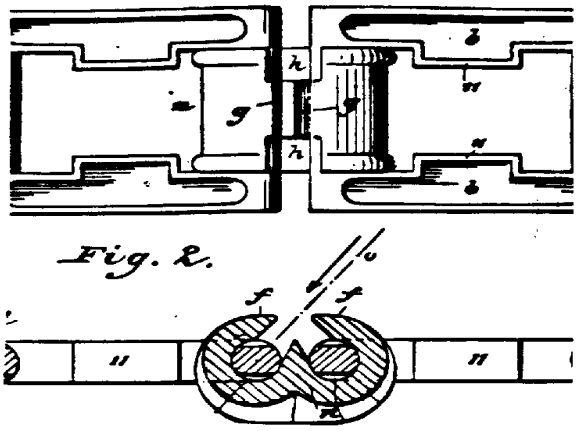
232 **Link including common member forming laterally spaced sides of opening for pulley tooth:**

This subclass is indented under subclass 206. Subject matter wherein a pulley*-tooth-receiving component includes surface portions facing each other in a direction transverse to the longitudinal extent of the belt* to provide opposite sides of a pulley-tooth-receiving opening, said surface portions being formed as integral parts of a unitary member.



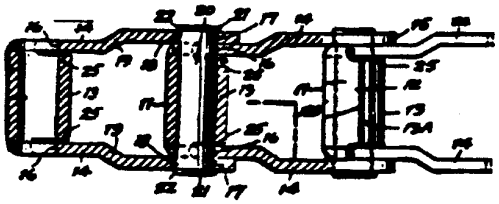
233 **With discrete member interconnecting sequential pulley-tooth-receiving links:**

This subclass is indented under subclass 232. Subject matter wherein a separately attached connector member is used to connect sequential components having openings for receiving a pulley* tooth.



234 **Connector member inserted through lateral opening in pulley-tooth-receiving links:**

This subclass is indented under subclass 233. Subject matter wherein a component having a pulley*-tooth-receiving opening is provided with an aperture extending through the component in a direction transverse to the longitudinal extent of the belt, and said connector member being received in said aperture.

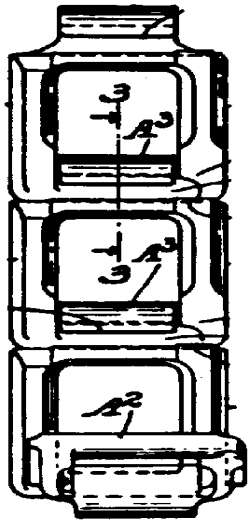


SEE OR SEARCH THIS CLASS, SUBCLASS:

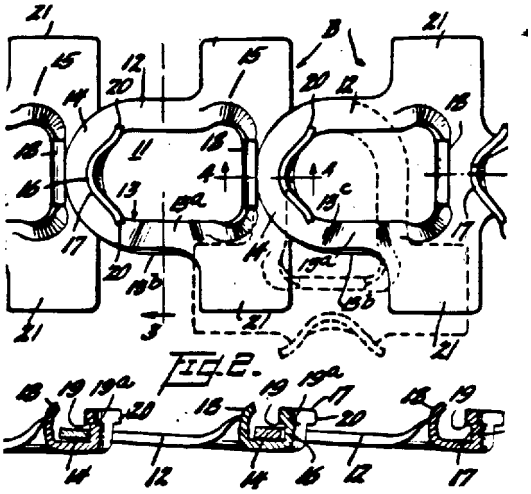
228+, for a belt having links formed of discrete side members forming an opening for a pulley tooth, and having adjacent links interconnected by a connector pin or the like.

235 **Common member surrounds opening for pulley tooth on all sides:**

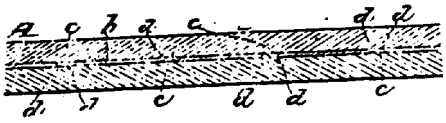
This subclass is indented under subclass 232. Subject matter wherein surface portions of a unitary member form an opening intended to completely surround the tooth of a pulley*.



236 Member formed of sheet metal:
This subclass is indented under subclass 235. Subject matter wherein the member is constructed from a web or sheet of metal having a relatively thin uniform dimension between relatively broad planar faces.



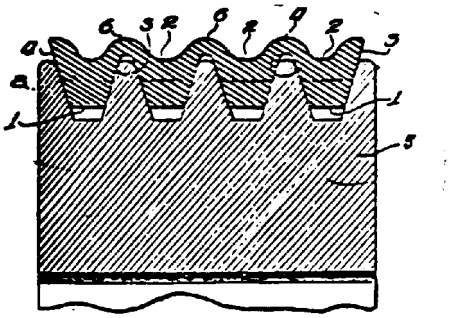
237 FRICTION DRIVE BELT:
This subclass is indented under the class definition. Subject matter wherein belt structure includes a drive surface or drive surfaces for driving engagement with a pulley* by frictional contact with the pulley.



SEE OR SEARCH THIS CLASS, SUBCLASS:
167, for a friction drive belt in combination with a friction drive pulley or guide roll.

SEE OR SEARCH CLASS:
19, Textiles: Fiber Preparation, subclasses 244+ for a fiber drafting apron in the form of an endless band.
30, Cutlery, subclasses 380 and 381+ for a band or chain saw.
57, Textiles: Spinning, Twisting, and Twining, subclass 201 for an endless band formed by a spinning, twisting, or twining operation.
83, Cutting, subclasses 788+ for an endless band or chain cutting device.
185, Motors: Spring, Weight, and Animal Powered, subclass 16 for a belt intended to be driven by an animal treading thereon.
198, Conveyors: Power-Driven, subclasses 844.1+ for a conveyor belt structure.
451, Abrading, subclasses 296+ for an abrading tool comprising an endless band.

238 Including plural interconnected and transversely spaced pairs of oppositely facing side-drive surfaces (e.g., plural "V-belts", etc.):
This subclass is indented under subclass 237. Subject matter wherein the belt* includes plural pairs of driving surfaces, each pair including surfaces facing in opposite directions for intended engagement within a circumferentially extending pulley* groove defined by spaced belt-engaging faces, first and second pairs of surfaces being interconnected with each other, and said second pair of surfaces being spaced from said first pair of surfaces in a direction parallel to the longitudinal extent of the axis of the pulley with which the belt is intended to be engaged.



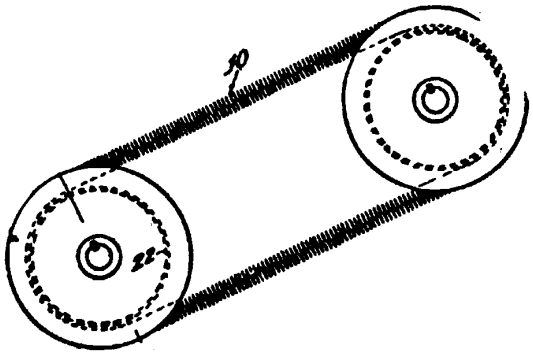
SEE OR SEARCH THIS CLASS, SUBCLASS:

242+, for a "V-belt" wherein longitudinally spaced drive faces are on separate members.

265, for a "V-belt".

239 Having drive surface on helically coiled wire or cord:

This subclass is indented under subclass 237. Subject matter wherein the drive surface is formed as an integral part of an elongated strand helically wound about an axis so that the external surface of the belt has sequential ridges formed by sequential turns of the helix.

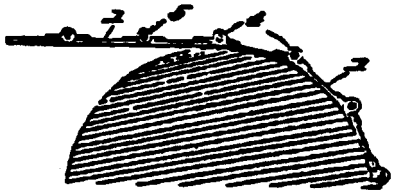


SEE OR SEARCH THIS CLASS, SUBCLASS:

272, for a belt having a drive surface formed of metal.

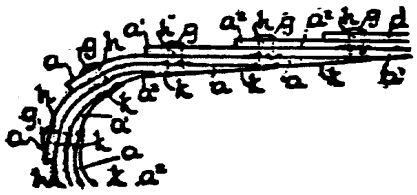
240 Including plural interconnected members each having a drive surface facing in a common direction:

This subclass is indented under subclass 237. Subject matter wherein plural drive surfaces are each formed as integral parts of separate components, said components being interconnected so that a drive surface on one component faces in the same direction as the drive surface on an adjacent component.



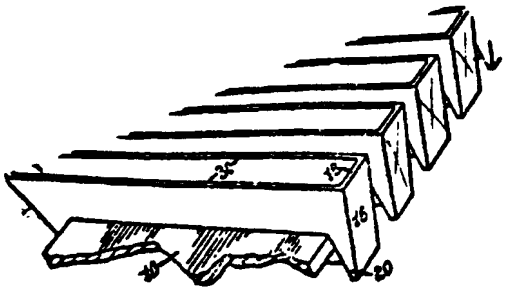
241 Forming imbricate structure:

This subclass is indented under subclass 240. Subject matter wherein the components are sequentially interconnected in shingled fashion with a first integral extension of each component overlapping one adjacent component on one side, and with a second integral extension of each component underlapping another adjacent component on the opposite side.



242 Belt has oppositely facing side drive surfaces (e.g., "V-belt", etc.):

This subclass is indented under subclass 240. Subject matter wherein said drive surfaces on said belt* are for intended engagement within a circumferentially extending pulley* groove defined by spaced belt-engaging faces, said belt including plural drive surfaces along one side thereof for intended engagement with a pulley face forming one side of the groove, and said belt also including plural drive surfaces along the opposite side thereof for intended engagement with a pulley face forming the other side of the groove.



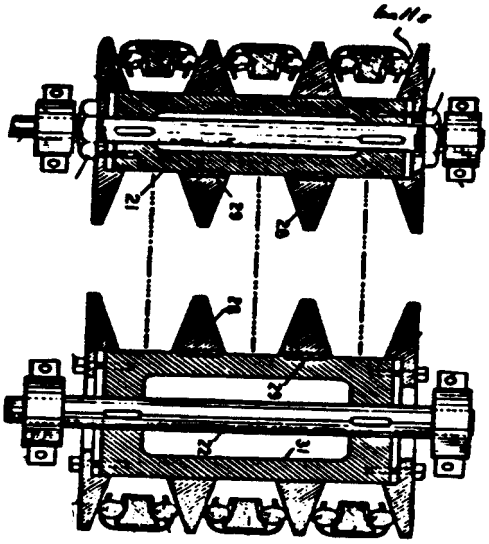
SEE OR SEARCH THIS CLASS, SUBCLASS:

238, for a belt structure including plural interconnected and transversely spaced "V-belts."

265, for a "V-belt".

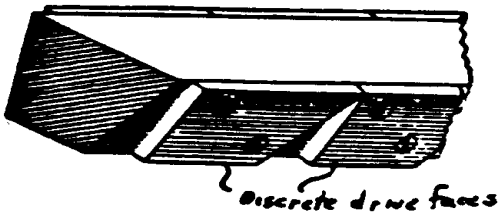
243 Surfaces on ball or roller elements:

This subclass is indented under subclass 242. Subject matter wherein said drive surfaces are on components in the form of balls or rollers rotatable about their own axis.



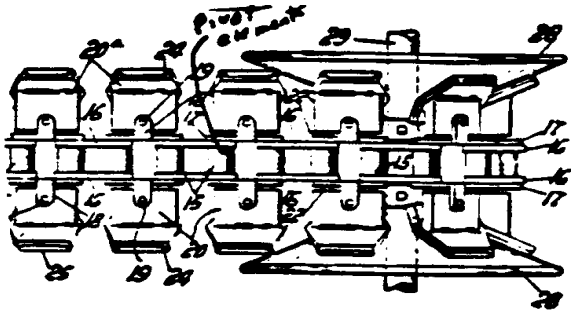
244 Oppositely facing surfaces are on pair of discrete elements:

This subclass is indented under subclass 242. Subject matter wherein a pair of said drive surfaces includes one surface formed as an integral surface of one component facing toward one side of said groove, and said pair includes another drive surface spaced directly across from said one surface in a direction parallel to the longitudinal extent of the pulley* axis and formed as integral surface of a separate component facing toward the other side of the groove.



245 And sequential pairs are interconnected longitudinally by distinct pivot elements:

This subclass is indented under subclass 244. Subject matter wherein first and second pairs of components are interconnected by means allowing said first and second pair to pivot relative to each other about an axis extending perpendicular to the longitudinal extent of the belt*.

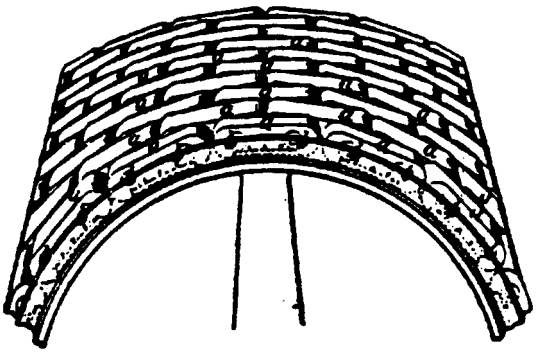


246 Plural, inwardly facing drive surfaces along the direction transverse to longitudinal extent of belt:

This subclass is indented under subclass 240. Subject matter wherein the drive surfaces together form the innermost face of a closed loop of the belt*, and wherein separate components are interconnected and disposed relative to each other in a direction perpendicular to the longitudinal extent of the belt.

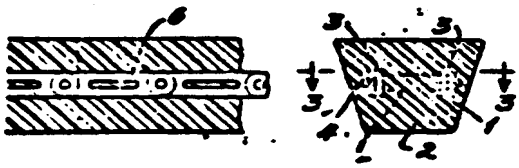
247 And plural, inwardly facing drive surfaces along the direction parallel to longitudinal extent of belt:

This subclass is indented under subclass 246. Subject matter wherein separate components are interconnected and also disposed relative to each other in a direction along the longitudinal extent of the belt*.



248 Including link-chain with coextensive continuous surface belt:

This subclass is indented under subclass 237. Subject matter wherein a drive surface is formed as an integral surface on a unitary component extending the entire length of the belt*, and wherein an elongated member formed of rigid pivotally connected links is embedded or fixedly connected to said component, said elongated member also extending the entire length of the belt.

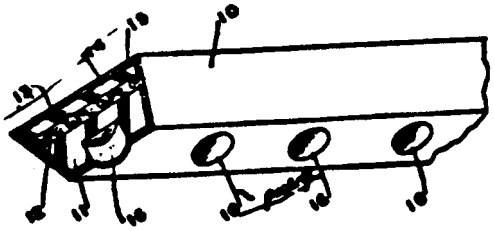


SEE OR SEARCH THIS CLASS, SUBCLASS:

100, for structure wherein an auxiliary endless band is removably mounted in engagement with the exterior surface of a belt to hold the belt in firm engagement with a pulley.

249 Including groove openings or pockets formed in belt surface and arranged along entire length of belt (e.g., for flexibility, air escape, etc.):

This subclass is indented under subclass 237. Subject matter wherein a component providing an otherwise imperforate exposed face of the belt* has a groove, plural grooves, apertures, or depressions formed in such exposed face and arranged in a pattern, or extending, along substantially the entire length of the belt.

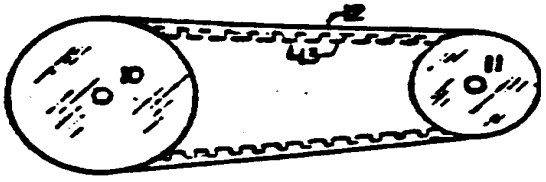


SEE OR SEARCH THIS CLASS, SUBCLASS:

204+, for a belt having grooves or openings for intended positive drive engagement with teeth or ridges or a pulley.

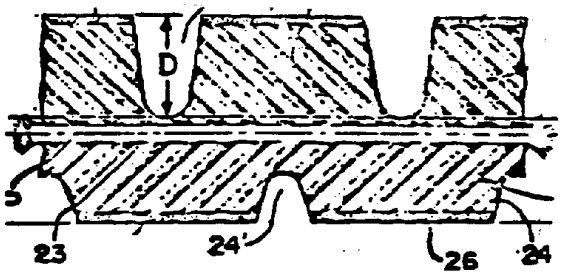
250 Grooves transversely extending on belt surface:

This subclass is indented under subclass 249. Subject matter wherein at least one exposed face of said component has plural grooves formed therein spaced along the length of the belt*, and said grooves extend in a direction substantially perpendicular to the longitudinal extent of the belt.



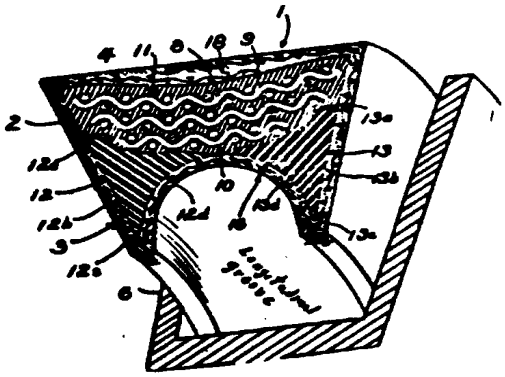
251 And additional groove on opposite surface:

This subclass is indented under subclass 250. Subject matter wherein a face on said component opposite from said one face also has a groove or grooves formed therein.



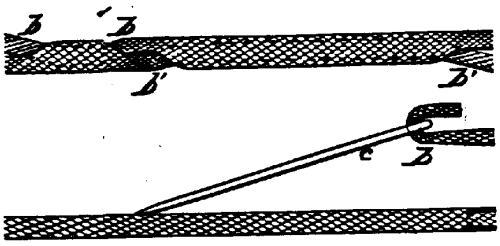
252 Groove continuous and longitudinally extending:

This subclass is indented under subclass 249. Subject matter wherein an exposed face of said component has a groove formed therein which extends substantially the entire length of the belt*.



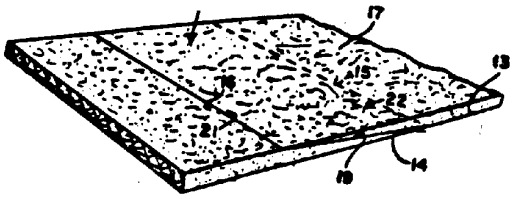
253 Including particular means connecting opposite ends to form loop:

This subclass is indented under subclass 237. Subject matter wherein the belt* is formed by interconnecting opposite ends of an elongated member, and wherein significance is attributed to the manner by which said opposite ends are interconnected.



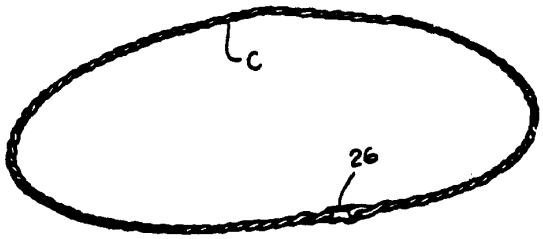
254 Connected by adhering surface on one end to surface on other end (e.g., by adhesive heat, seal, etc.):

This subclass is indented under subclass 253. Subject matter wherein the opposite ends are interconnected via a chemical bond.



255 Including discrete connector:

This subclass is indented under subclass 253. Subject matter wherein the opposite ends are interconnected via a separate connector component.

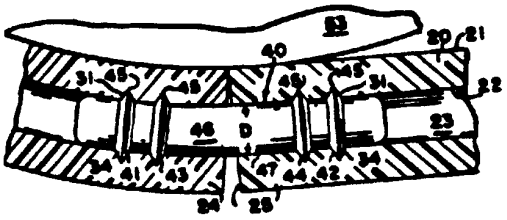


SEE OR SEARCH CLASS:

24, Buckles, Buttons, Clasps, etc., subclasses 31+ for a belt connector, per se.

256 Connector comprises element inserted into longitudinal openings in belt ends:

This subclass is indented under subclass 255. Subject matter wherein each end of the member includes walls defining an opening which has an axial extent parallel to the direction of the longitudinal extent of the member, said openings in said opposite ends being axially aligned with each other when the ends are brought together, and wherein said connector component comprises a device inserted into the aligned openings.

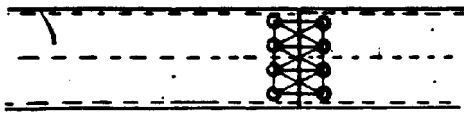


257 Connector comprises plate clamped externally of belt ends:

This subclass is indented under subclass 255. Subject matter wherein said connector component is in the form of a thin, flat device which overlaps and is interconnected with opposite ends of the member when the ends are brought together to form the loop.

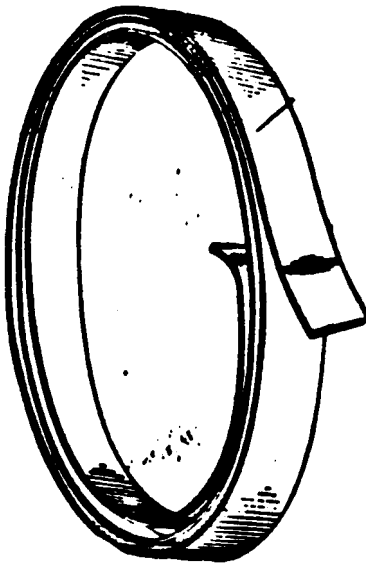
258 Connector comprises cord sewn through belt ends:

This subclass is indented under subclass 255. Subject matter wherein the connector component is the form of a separate strand which is interlaced through opposite ends of the member when the ends are brought together to form the loop.



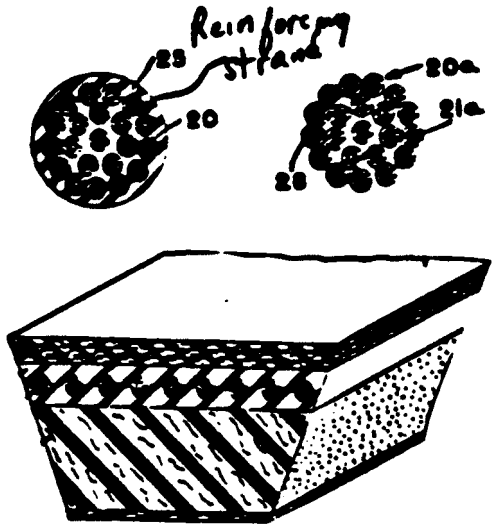
259 Drive surface on single sheet or web wound in plural, completely overlying convolutions:

This subclass is indented under subclass 237. Subject matter wherein the drive surface is formed as an integral surface on a thin, flat elongated piece of material, said material being wound or folded upon itself to include at least two complete wraps of the same piece of material about itself, and wherein the second wrap of the material completely covers the first wrap.



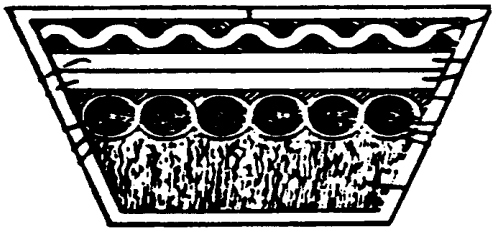
260 Including embedded elongated strand having multiple components or layers of diverse materials:

This subclass is indented under subclass 237. Subject matter wherein separate cordlike member embedded interiorly of the drive surfaces of the belt and extending through substantially the entire length of the belt, said cordlike member being formed of separate interwound filaments of different materials or being impregnated or coated, prior to being embedded in the belt, with a material different from the material forming the cordlike member.



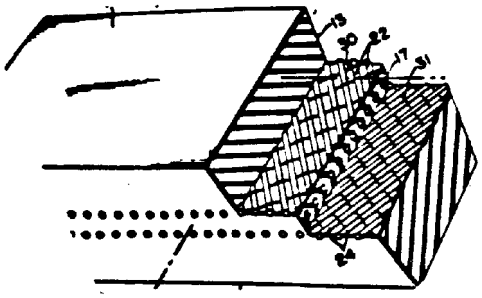
261 Including plural superposed layers each having strands particularly oriented relative to belt dimension:

This subclass is indented under subclass 237. Subject matter wherein the belt* includes a first group of plural cords arranged at a first level in the belt, and a second group of plural cords arranged at a second level in the belt, the second level being disposed relative to the first level in a direction toward the outermost periphery of the belt, and the cords in the first level being formed as a part of a separate web or as separate components from the cords in the second level, and wherein significance is attributed to the directional orientation of the cords in each group as related to a length, width, or thickness dimension of the belt.



262 Strand in the layers are oblique to longitudinal run of belt (e.g., plural layers of bias fabric, etc.):

This subclass is indented under subclass 261. Subject matter wherein the longitudinal centerline of the cords in each of the first and second layers is at an angle less than ninety degrees relative to the longitudinal centerline of the belt*.



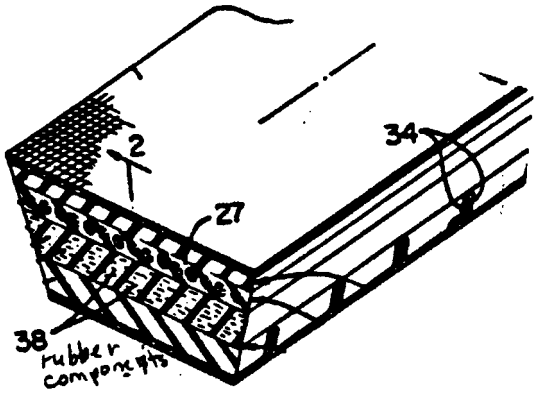
SEE OR SEARCH THIS CLASS, SUBCLASS:

266+, for a belt including at least one fabric layer.

263 Including discrete embedded fibers:

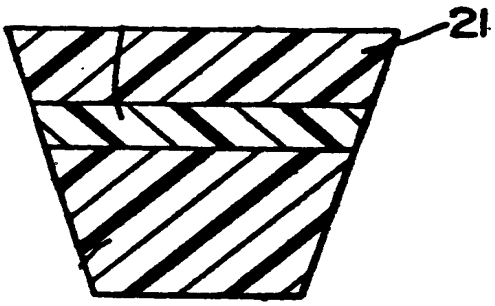
This subclass is indented under subclass 237. Subject matter wherein said belt* includes multiple, slender, flexible elements dispersed within a plastic or rubberlike material, said elements having a length shorter than a width or thickness dimension of said belt, and said elements being noninterlinked with each other prior to being dispersed in the plastic or rubberlike material.

(1) Note. Fibers which have been interlinked as by twisting, felting, etc., to form a structure longer than the length of the individual fibers, such as a cord or fabric, are not considered to be discrete fibers for purposes of this subclass.



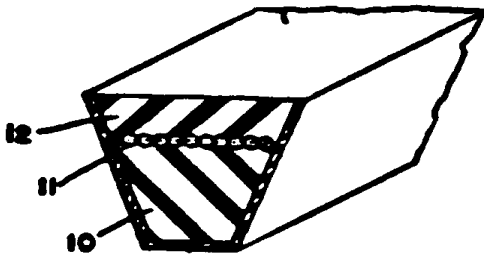
264 Including plural layers of different elastomeric materials:

This subclass is indented under subclass 237. Subject matter wherein the belt* includes at least two layers of material having an elastic, rubberlike property, the material in one of the layers being of different chemical composition than the material in the other of the layers.



265 Having trapezodial cross section (e.g., "V-belt", etc.):

This subclass is indented under subclass 237. Subject matter wherein a cross section of the belt*, taken on a plane perpendicular to the longitudinal extent of the belt, has the approximate shape of a trapezoid.



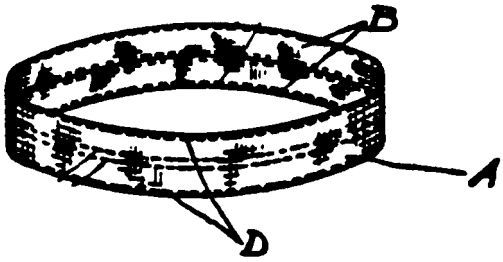
SEE OR SEARCH THIS CLASS, SUBCLASS:

238, for belt structure including plural interconnected and transversely spaced "V-belts".

242+, for a "V-belt" wherein longitudinally spaced drive faces are on separate members.

266 Including fabric web (e.g., knit, woven, etc.):

This subclass is indented under subclass 237. Subject matter wherein said belt* is formed from or includes a flat, elongated unitary piece of material, said material being formed of strands or fibers which have been knitted, woven, felted, or otherwise interlaced with each other to form said unitary piece of material.



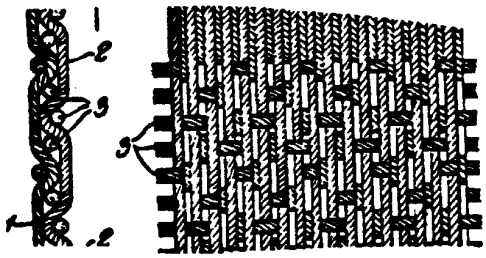
SEE OR SEARCH THIS CLASS, SUBCLASS:

262, for a belt including plural layers of bias fabric.

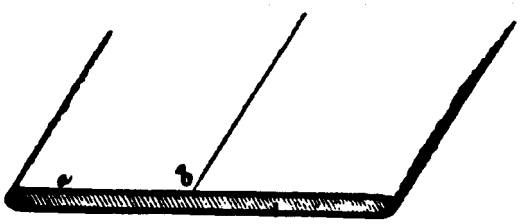
SEE OR SEARCH CLASS:

198, Conveyors: Power-Driven, subclasses 846+ for an endless conveyor formed of a fabric.

267 Fabric having particular knit or weave:
This subclass is indented under subclass 266. Subject matter wherein the material is formed from interlaced strands, and wherein significance is attributed to the manner in which such strands are arranged relative to each other.

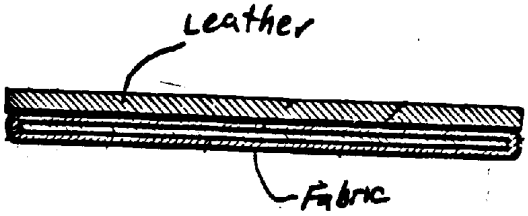


268 And additional coating, layer or reinforcement of diverse kind of material:
This subclass is indented under subclass 266. Subject matter wherein an additional material of different chemical construction than said elongated, unitary piece of material is coated or otherwise formed as a layer on said elongated, unitary piece of material.

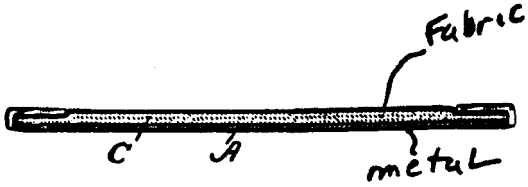


fabric coated with oil bar compound

269 Additional material is leather:
This subclass is indented under subclass 268. Subject matter wherein the additional material is leather.

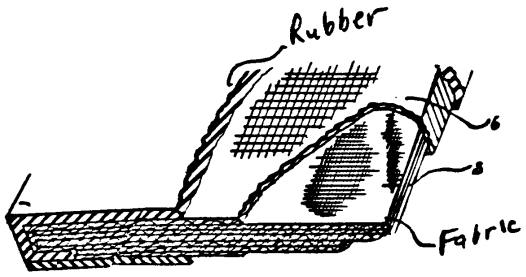


270 Additional material is metal:
This subclass is indented under subclass 268. Subject matter wherein the additional material is metal.



SEE OR SEARCH THIS CLASS, SUBCLASS:
272, for a belt having a drive surface formed of metal.

271 Additional material is rubber:
This subclass is indented under subclass 268. Subject matter wherein the additional material is rubber.



272 Including metallic drive face:
This subclass is indented under subclass 237. Subject matter wherein the drive surface is formed of metal.

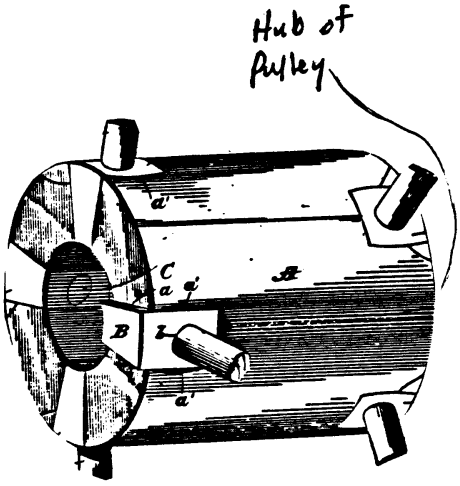
SEE OR SEARCH THIS CLASS, SUBCLASS:

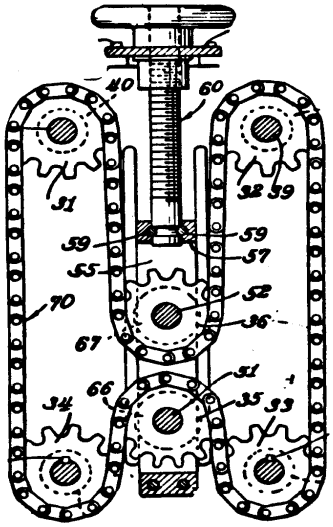
239, for a belt having a drive surface on a helically coiled metal wire.

270, for a belt including a fabric layer and a metal layer.

273 MISCELLANEOUS:

This subclass is indented under the class definition. Subject matter not provided for in the previous subclasses.





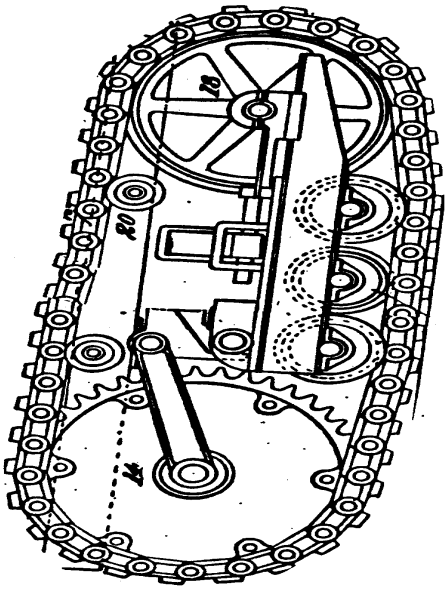
901 PULLEY OR GUIDE ROLL FOR TRACK OF ENDLESS TRACK VEHICLE:

A pulley* or guide roll* intended to be used to drive or to guide a flexible or articulated endless member used as a wheel substitute for a land vehicle.

CROSS-REFERENCE ART COLLECTIONS

900 PHASE VARIATOR:

Structure wherein at rest or during operation a point on the periphery of a drive pulley* has a first positional relationship with respect to a point on the periphery of a driven pulley, and wherein means is provided for changing the positional relationship from said first positional relationship to a second positional relationship without changing effective drive circumference of either pulley.



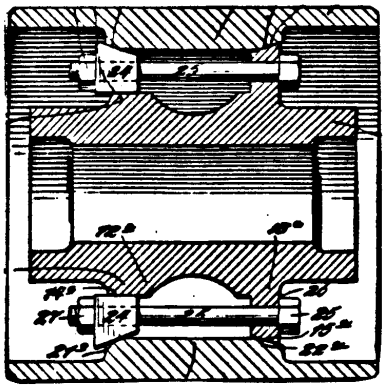
902 PARTICULAR CONNECTION BETWEEN RIM AND HUB:

Structure wherein significance is attributed to the manner in which a belt*-engaging component of a pulley* or guide roll* is interconnected to a component having an opening for receiving a drive or support shaft.

SEE OR SEARCH CLASS:

403, Joints and Connections, appropriate subclasses for connections, per se, and particularly subclasses 230+ for a connection between the side of a member and a rod extending transversely thereto.

END



903 PARTICULAR CONNECTION BETWEEN HUB AND SHAFT:

Structure wherein significance is attributed to the manner of interconnecting a drive or support shaft with a component of a pulley* or guide roll receiving such shaft.