CLASS 226, ADVANCING MATERIAL OF INDETERMINATE LENGTH

SECTION I - CLASS DEFINITION

In the class definition and in the subclass definitions, terms which are followed by an asterisk (*) will be found to be defined in the Glossary.

SUBJECT MATTER AND SCOPE OF THE CLASS

This is the residual class of inventions directed to a process or apparatus for handling indeterminate-length* material in one of the following ways: (1) moving such material in a direction generally along said length dimension, (2) sensing such material (which material is disclosed as moving as in (1) above) and imparting additional movement to, or otherwise controlling movement of, said material responsive to said sensing, (3) threading a new portion of such material into or through material moving apparatus of the type defined in (1) above, or (4) constraining such material through a certain path of movement relative to a disclosed material moving apparatus of the type defined in part (1) above, including insuring contact of the material with said apparatus.

Patents placed as originals in this class (226) usually disclose means to advance material to a material modifying machine or from such machine to a destination. The mere naming of the material modifying machine or of the destination, in a claim, will not serve to exclude a patent including such a claim from this class. See Lines With Other Classes, "Relationship to Specific Classes", for further notes to work treating classes which include feeding means.

This class (226) is intended as the repository for patents disclosing the feeding material to a station where an operation* is performed on the material. It is not intended as the locus for original placement of disclosures wherein the material being advanced is part of a machine, and that material will itself operate or help to operate on work.

SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS

With certain exceptions, stated in subclasses 11, 91+, and 125+, there are no means recited in the claims contacting the leading end nor the trailing end of the material, nor is the leading or trailing end of material utilized to effect movement thereof.

A. RELATIONSHIP TO SPECIFIC CLASSES

(1) The following classes (or subclasses within a class, where noted) have been screened for patents classifiable in this class (226) on the basis of the lines set out in applicable class references, in References to Other Classes, below: Class 83, Cutting; Class 140, Wireworking; Class 225, Severing by Tearing or Breaking; Class 254, Implements of Apparatus for Applying Pushing or Pulling Force); Class 312, Supports: Cabinet Structure, subclasses 34.1+; Class 400, Typewriting Machines, subclasses 611+.

Except as amplified below in this section the line between this class (226) and the above classes is as stated in the general relationships set forth in the following sections below:

Material-modifying Classes Which Include Feeding Of Indeterminate-length* Work; Other Classes Including Advancing Of Indeterminate-length* Material; Other Material Handling Classes; and Classes Which Include Subcombinations Utilizable In Advancing Indeterminate Length* Material.

Other classes listed in these sections may contain patents claiming feeder subcombinations in subclasses not investigated as of the date of this publication. Such feeder subcombination patents will remain as presently classified until screening of these subclasses has been accomplished. The lines formerly existing between this class (226) and the "other" classes referred to above have not been changed, except as noted in applicable class references under References to Other Classes, below.

(2) The relationship of Class 226 to classes that warrant specific mention are: See References To Other Classes below. Specifically see: Class 33; Class 198; Class 225; Class 242; Class 270; Class 271; Class 281; Class 312; Class 352; Class 414; Class 462; Class 474. See References to Other Classes, below.

(3) The relationship between this class (226) and other classes set out under the headings below (and their associated class references in References to Other Classes) have been arranged so that a relationship set out under the first appearing heading (Relationship to Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work) shall govern over a relationship set out in any of the later appearing headings in the event of any apparent discrepancy.

B. RELATIONSHIP TO MATERIAL-MODIFYING CLASSES WHICH INCLUDE FEEDING OF INDETERMINATE-LENGTH* WORK

The following considerations will govern the decision as to original placement of a patent in this class (226) or in one of the subject classes:

(1) This class (226) takes original patents directed to apparatus for feeding material in combination with means to modify, treat or operate on such material only if said means is recited as a named means or element, and only if said means is not claimed as moving or operating in timed or synchronous relationship to the operation of the feeding apparatus. For example, any one of the following recitations in a claim will not (in and of itself,) bar original placement in this class: "press", "cutter", "dryer", (or "drying chamber"), "recorder", "impression cylinder" "wrapping machine", or "transducer head". Claim language directed to a nominal combination expressed as an operation station (e.g., cutter, press, printer, etc.), spatially located with respect to a feeder also will not bar original placement in this class (226). However, the following recitations in a claim will be considered as details which will bar original placement in this class, and will be reason for placing a patent claiming such details in the appropriate treating class; "a rotary printing press", "a reciprocating cutter", "a heated drying chamber"; or operative structure such as "means to synchronize the operation of a cutter and a feed means", "means to stop tape feed as the recorder head is moved out of recording position". (It should be understood that the above words and phrases are exemplary, and that equivalent terms will be given the same effect where appropriate).

(2) This class does not take original patents claiming processes for feeding material in combination with any process for modifying material even though such modifying step is broadly recited (e.g., "and treating the material"). Patents reciting such combinations will be placed as originals in the appropriate class or subclass pertaining to the treating process on the basis of the material modifying step or steps.

The locus of patents disclosing web or strand feeding combinations classified in the subject classes is as follows: (These references are to be considered merely indicative of the art in the class, and should not be considered as exhaustive.)

Textile Arts -

See References to Other Classes, below. Specifically see: Class 8, Class 19, Class 26, Class 28, Class 38, Class 57, Class 66; Class 68; Class 87; Class 139; for specific class references related to this subject class.

Printing Communications and Analogous Arts -

See References to Other Classes, below. Specifically see: Class 101; Class 118; Class 178; Class 235; Class 281; Class 346; Class 360; Class 369; Class 400; Class 462.

Article Manufacturing Arts -

See References to Other Classes, below. Specifically see: Class 29, Class 53; Class 59; Class 72; Class 76; Class 131; Class 227; Class 413; Class 470; Class 493.

Material-Working or Material-Treating Arts -

See References to Other Classes, below. Specifically see: Class 19; Class 34; Class 65; Class 72; Class 83; Class 100; Class 112; Class 134; Class 140; Class 142; Class 144; Class 225; Class 261; Class 264; Class 266; Class 270; Class 408; Class 425; Class 432; Class 446; Class 451.

C. RELATIONSHIP TO OTHER CLASSES WHICH INCLUDE ADVANCING OF INDETERMINATE-LENGTH* MATERIAL

The subject classes referred to in this section include patents directed to the combination of advancing such material plus an operation other than a treatment of, or a working on, such material (i.e., the material is not changed during its movement). This class (226) will not take original patents disclosing the combination referred to above, if such material is disclosed as being an intimate part of the apparatus (or method of using the apparatus), or is claimed in combination with elements not performing a material advancing function. For example, a patent disclosing a cable, one or more sheaves, cable-moving means, and a load on the cable to be moved thereby, will be placed in an appropriate "pulling" class, listed in References to Other Classes on the basis that the cable and its mover are intimate parts of the pulling apparatus. Similarly, moving picture projecting apparatus (or method involving use of such apparatus) will be placed in one of the "viewing" classes listed in References to Other Classes on the basis of claimed projection lens plus film gate (comprising an optical system). The class lines between this class (226) and the subject classes (especially those classes listed in

References to Other Classes are more fully discussed in the section, Relationship to Specific Classes, in Lines With Other Classes.

The locus of patents disclosing combinations classified in the subject classes is as follows:

Pulling or Hoisting Arts -

See References to Other Classes, below. Specifically see: Class 15; Class 37; Class 43; Class 104; Class 166; Class 187; Class 212; Class 221; Class 254; Class 294; Class 474.

Viewing or Exhibiting or Analogous Arts -

See References to Other Classes, below. Specifically see: Class 40; Class 84; Class 178; Class 352; Class 355; Class 360; Class 369; Class 399.

Other Advancing of Indeterminate Length* Material -

See References to Other Classes, below. Specifically see: Class 219; Class 242; Class 270; Class 312; Class 314.

D. RELATIONSHIP TO OTHER MATERIAL HANDLING CLASSES

The subject classes referred to in this section include original patents directed to a moving means capable, as disclosed, of moving various types of material. This class (226) is the locus of inventions whose sole disclosed use is the advancing of indeterminate-length* material. Other appropriate classes referred to in this section will take patents wherein the disclosure is vague, or is specific to handling of various types of material. It should be noted that specific exceptions to this last-mentioned line are provided for in Relationship to Specific Causes.

For the locus of patents disclosing material handling combinations, see References to Other Classes, below. Specifically see: Class 193; Class 198; Class 221; Class 222; Class 271; Class 406; Class 414; Class 453.

E. RELATIONSHIP TO CLASSES WHICH INCLUDE SUBCOMBINATIONS UTILIZABLE IN ADVANCING INDETERMINATE LENGTH* MATERIAL

This class does not take original patents directed only to subcombinations of general utility in either this class (226) or other classes, which subcombinations are specifically provided for in other classes. Specific exceptions to this line may appear in Relationship to Specific Causes above. A patent, to be placed originally in this class, should claim more than the subcombination, that is, it should recite the means for, or a step of, advancing of material as the end result, and/or the cooperation of the subcombination with the material-advancer.

The locus of patents disclosing subcombinations which are utilizable in advancing indeterminate length* material, listed below in groups pertaining to common subject matter, is as follows:

Detection of Material Breaking or Exhaustion:

See References to Other Classes, below. Specifically see: Class 19; Class 34; Class 200; Class 242.

Other Detection of Material:

See References to Other Classes, below. Specifically see: Class 26; Class 28; Class 33; Class 57; Class 66; Class 72; Class73; Class 83; Class 118; Class 139; Class 192; Class 200; Class 242; Class250; Class 318; Class 340.

Driven Feed-Roll:

See References to Other Classes, below. Specifically see: Class 19; Class 72; Class 492.

Active, but Nondriven Means (e.g., a Roll, or a Pulley) for Guiding Material:

See References to Other Classes, below. Specifically see: Class 16; Class 68; Class 72; Class 100; Class 193.

Passive Means for Guiding Material:

See References to Other Classes, below. Specifically see: Class 16; Class 34; Class 43; Class 57; Class 72; Class 83; Class 112; Class 225; Class242; Class254; Class 289; Class 396; Class 400.

Material-Movement Retarding Element (e.g., a “Tensioner”):

See References to Other Classes, below. Specifically see: Class 28; Class Class 66; Class 72; Class 87; Class 112; Class 139; 188; Class 225; Class 242.

In general, the classes listed above fall into one of two categories; (a) those combination classes having therein subclasses pertaining specifically to subcombinations which are also subcombinations for this class (or per-

taining to combinations found in this class (226) excluded herefrom because of the combinational aspect of the class wherein the subclass is located), or (b) those classes which are of themselves subcombination classes, the devices of which are of general utility.

The classes referred to as falling within (a) above may be identified by their having been discussed or listed in the following sections:

Material-Modifying Classes Which Include Feeding of Indeterminate-length* Work;

Classes Which Include Advancing of Indeterminate-Length* Material; or

Other Material Handling Classes.

Thus the classes referred to as falling within (b) above may be identified by their being listed only in this section (i.e., Classes Which Include Subcombinations Utilizable in Advancing Indeterminate Length* Material).

LINE BETWEEN CLASS 26 AND CLASS 226

See Class 26, Textiles: Cloth Finishing, subclasses 71+ for structure for feeding a cloth web while simultaneously stretching or otherwise expanding the cloth. See, for example: subclass 71 (the principal subclass) for web feed means in series, each successively accelerated whereby stretchingly to tension the web (and compare this with Class 226, subclass 195); 74+ for web condition- responsive means to control the simultaneous feed and stretch operation (and compare with Class 226, subclasses 10+; particularly Class 226 subclasses 15+, since edge detection and registration control is frequently involved); and subclasses 97 and 99+ for means simultaneously to stretch and feed the cloth web by contact with orbitally traveling surface means.

LINE BETWEEN CLASS 242 AND CLASS 226

Class 226 currently provides for an "orbitally traveling material*-engaging surface(s)" in subclasses 168+ and "with means to retard material* movement (e.g., "tensioner")" in subclass 195 which conflict with Class 242 subclasses 147+, 157+, 410+, and subclasses 615+. Plans are underway to resolve this conflict by making Class 242 subclasses 147+, 157+, 410+ and 615+ the residual location for their respective features, with Class 226 subclasses 168+ and 195 being limited to their respective features combined with a material* feeder*. This has already been resolved for Class 226 subclass 196.1.)

LINE BETWEEN CLASSES 312, 226, AND 242

Class 226 will take an original patent claiming means for positively moving such indeterminate-length* strip provided that the supply roll and its mounting is not specifically recited. See the line between Class 242 and Class 226, above. A patent claiming a device wherein the strip is directly grasped to pull the strip out of the cabinet, will be placed as an original in Class 312.

LINE BETWEEN CLASS 462 AND CLASS 282

Class 462 includes patents directed to a casing having supported therein a manifold set (which is the name applied to a plurality of strips alternately interleaved with carbon strip) and a writing platen over which such material is trained. Placement of a patent in Class 282 will be on the basis of the environment, including the writing platen, or on the basis of claims directed to the manifold set.

LINE BETWEEN CLASS 474 AND CLASS 226

See particularly Lines With Other Classes and Within This Class in Class 474 for the line between Class 226 and Class 474.

SECTION III - REFERENCES TO OTHER CLASSES

SEE OR SEARCH CLASS:

8, Bleaching and Dyeing; Fluid Treatment and Chemical Modification of Textiles and Fibers, subclasses 151+. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Textile Arts, above).

15, Brushing, Scrubbing, and General Cleaning, subclasses 104.31+. (See above, "Pulling/ Hoisting Arts", Relationship to Other Classes for Advancing Indeterminate-Length* Material.)

16, Miscellaneous Hardware (e.g., Bushing, Carpet Fastener, Caster, Door Closer, Panel Hanger, Attachable or Adjunct Handle, Hinge, Window Sash Balance, etc.), subclasses 210+ includes sash cord guide means. (See above, "Active, but Nondriven Means," Relationship to Classes with Subcombinations for Advancing Material.)

16, Miscellaneous Hardware (e.g., Bushing, Carpet Fastener, Caster, Door Closer, Panel Hanger,

Attachable or Adjunct Handle, Hinge, Window Sash Balance, etc.), subclasses 2.1+ for a brushing or lining thimble for an opening or socket, or subclasses 108+ for a ferrule, ring, or thimble applied to the exterior opening of a rod, pipe, conduit, strand*, or other device. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

19, Textiles: Fiber Preparation, subclasses .2+, .48 and 204+. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Textile Arts, above).

19, Textiles: Fiber Preparation, subclasses 236+. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Material-Working or -Treating).

19, Textiles: Fiber Preparation, subclasses .25+. (See above, "Detection of Material Breaking, Exhaustion," Relationship to Classes With Subcombinations for Advancing Indeterminate Length* Material.)

19, Textiles: Fiber Preparation, subclass 143. (See above, "Driven Feed-Roll," Relationship to Classes with Subcombinations for Advancing Material.)

26, Textiles: Cloth Finishing, subclasses 71+ for structure for feeding a cloth web while simultaneously stretching or otherwise expanding the cloth. See Lines With Other Classes, "Line Between Class 26 and Class 226" above. (Also, see Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Textile Arts, above).

26, Textiles: Cloth Finishing, subclasses 51.4+ includes controlled weft-adjusting, subclass 51.5 includes a photo-electric scanner, and subclasses 74+ for apparatus for expanding; e.g., stretching (or spreading in subclasses 75+, thereunder) running length webs of cloth which include cloth-condition-responsive operation control. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

28, Textiles: Manufacturing, subclasses 185+ and 191. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Textile Arts, above).

28, Textiles: Manufacturing, subclasses 185 and 194 include tension control, subclass 189 includes a pivoted detector to control stopping of a fabric weaving machine. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

28, Textiles: Manufacturing, subclasses 185 and 194. (See above, "Material-Movement Retarding Element," Relationship to Classes with Subcombinations for Advancing Material.)

29, Metal Working, appropriate subclasses, for which see schedule. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Article Manufacturing).

33, Geometrical Instruments, includes in subclasses 732+ the feeding fabric or cord through a distance measuring device. Subclasses 740+ specifically provides for a stopping of the fabric or cord in response to predetermined rotation of a roll which is in contact with the fabric or cord. Thus, this class (226) will only take, as an original patent, one claiming a device in which a measuring element is moved by contact with another part of the device and not by contact with the material. (See Lines With Other Classes and Within This Class, above, A, (2)).

33, Geometrical Instruments, subclass 133 includes work-driven means for measuring a length of material and stopping the movement of the material responsive to such measurement. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

34, Drying and Gas or Vapor Contact With Solids, subclasses 611+ and other appropriate subclasses. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Material-Working or -Treating).

34, Drying and Gas or Vapor Contact With Solids, subclass 525 includes control of heater by material tension and/or breaking. (See above, "Detection of Material Breaking, Exhaustion," Relationship to Classes With Subcombinations for Advancing Indeterminate Length* Material.)

34, Drying and Gas or Vapor Contact With Solids, subclass 242 includes a chamber seal. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

37, Excavating, subclasses 302, 303, 394+, and 398. (See above, "Pulling or Hoisting Arts",

Relationship to Other Classes for Advancing Indeterminate-Length* Material.)

38, Textiles: Ironing or Smoothing, subclasses 44+. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Textile Arts, above).

40, Card, Picture, or Sign Exhibiting, appropriate subclasses. (See above, "Viewing or Exhibiting Arts," Relationship to Other Classes for Advancing of Indeterminate-Length* Material.)

43, Fishing, Trapping, and Vermin Destroying, subclass 27.4. (See above, "Pulling or Hoisting Arts", Relationship to Other Classes for Advancing Indeterminate-Length* Material.)

43, Fishing, Trapping, and Vermin Destroying, subclass 24 for a line guide or tip for a fishing rod. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

53, Package Making, subclasses 64+ and 389. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Article Manufacturing).

57, Textiles: Spinning, Twisting, and Twining, subclasses 90, 91 and 326. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Textile Arts, above).

57, Textiles: Spinning, Twisting, and Twining, subclasses 80+. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

57, Textiles: Spinning, Twisting, and Twining, subclasses 352+ includes strand guarding or guiding structure. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

59, Chain, Staple, and Horseshoe Making, subclasses 24+. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Article Manufacturing).

65, Glass Manufacturing, subclasses 90+ for process of forming sheet glass including advancing material of indeterminate length, and subclasses 193+ for glass sheet drawing apparatus including sheet advancing means. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Material-Working or -Treating).

66, Textiles: Knitting, subclasses 125+ and 128+. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Textile Arts, above).

66, Textiles: Knitting, subclasses 158+. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

66, Textiles: Knitting, subclass 146. (See above, "Material-Movement Retarding Element," Relationship to Classes with Subcombinations for Advancing Material.)

68, Textiles: Fluid Treating Apparatus, subclasses 97+, 159+ and 244+. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Textile Arts, above).

68, Textiles: Fluid Treating Apparatus, subclass 126 includes a roll squeezer mounting. (See above, "Active, but Nondriven Means," Relationship to Classes with Subcombinations for Advancing Material.)

72, Metal Deforming, appropriate subclasses. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Article Manufacturing; and Material-Working or -Treating).

72, Metal Deforming, subclasses 10+. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

72, Metal Deforming, in appropriate subclasses involving the treatment of indeterminate length material, includes work feeding or guiding or tool adjusting means. (See above, "Driven Feed-Roll," Relationship to Classes with Subcombinations for Advancing Material.)

72, Metal Deforming, as indicated in the reference to this class (72) in the reference in Class 226 "Driven Feed Roll" above. (See above, "Active, but Nondriven Means," Relationship to Classes with Subcombinations for Advancing Material.)

72, Metal Deforming, as indicated in the reference to this class (72) in reference in Class 226 to "Driven Feed Roll" above. subclasses 250+ include means to handle or guide work in the type of rolling there provided for. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

72, Metal Deforming, subclasses 151, 183 and 205 include a method of or means for tensioning running length work in connection with a deflecting or rolling operation thereon. (See above, "Material-Movement Retarding Ele-

ment," Relationship to Classes with Subcombinations for Advancing Material.)

72, Metal Deforming, subclass 5. (See above, "Detection of Material Breaking, Exhaustion," Relationship to Classes With Subcombinations for Advancing Indeterminate Length* Material.)

73, Measuring and Testing, subclasses 37+ includes subjecting a specimen directly to fluid pressure (positive or negative), to determine properties of the specimen, and see especially subclass 37.7 where the specimen is sheet or filament material. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

76, Metal Tools and Implements, Making, subclasses 22+, 35+ and 75+. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Article Manufacturing).

83, Cutting, appropriate subclasses. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Material-Working or -Treating).

83, Cutting, includes material sensing to control work feed to a cutting operation, see appropriate subclasses therein. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

83, Cutting, subclasses 373 and 438+ include means to guide moving work. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

84, Music, subclasses 128+, 132 and 136+. (See above, "Viewing or Exhibiting Arts," Relationship to Other Classes for Advancing of Indeterminate-Length* Material.)

87, Textiles: Braiding, Netting, and Lace Making, subclasses 18+ and 20+. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Textile Arts, above).

87, Textiles: Braiding, Netting, and Lace Making, subclass 61. (See above, "Material-Movement Retarding Element," Relationship to Classes with Subcombinations for Advancing Material.)

100, Presses, subclasses 155+. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Material-Working or -Treating).

100, Presses, includes roll adjustment means in subclasses 168+ and roll pairs in subclass 176. (See above, "Active, but Nondriven Means," Relationship to Classes with Subcombinations for Advancing Material.)

101, Printing, appropriate subclasses (see Class 101 schedule). (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Printing and Communications, etc.)

104, Railways, subclasses 173+ and 202+. (See above, "Pulling or Hoisting Arts", Relationship to Other Classes for Advancing Indeterminate-Length* Material.)

112, Sewing, subclasses 47+ and 303+. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Material-Working or -Treating).

112, Sewing, subclasses 136+ for a work manipulating guide combined with a specified sewing process or apparatus, or subclass 302 for a thread guiding or handling means combined with a specified sewing process or apparatus. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

112, Sewing, subclasses 59, 97 and 254+. (See above, "Material-Movement Retarding Element," Relationship to Classes with Subcombinations for Advancing Material.)

118, Coating Apparatus, subclasses 672+, and other appropriate subclasses. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Printing and Communications, etc.).

118, Coating Apparatus, subclasses 672+ includes "automatic control", hence inherently provides a detector. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

131, Tobacco, subclasses 60+. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Article Manufacturing).

134, Cleaning and Liquid Contact With Solids, subclasses 9, 15, 64, and 122. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Material-Working or -Treating).

139, Textiles: Weaving, subclasses 97+. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Textile Arts, above).

139, Textiles: Weaving, includes weft-thread feeling mechanism in subclasses 269+ and 370.1+, warp-thread detecting in subclasses 354, 355+ and 368, and tension sensing to regulate speed of takeup in subclass 311. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

139, Textiles: Weaving, subclasses 212+ and 256+. (See above, "Material-Movement Retarding Element," Relationship to Classes with Subcombinations for Advancing Material.)

140, Wireworking, subclasses 59+. (See above, "Material-Working or Material-Treating Arts," Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

142, Wood Turning, subclass 54. (See above, Material-Working or Material-Treating Arts, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

144, Woodworking, subclass 245. (See above, "Material-Working or Material-Treating Arts," in Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

166, Wells, subclasses 77.1+. (See above, "Pulling or Hoisting Arts", Relationship to Other Classes for Advancing Indeterminate-Length* Material.)

178, Telegraphy, subclass 42. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Printing and Communications, etc.)

178, Telegraphy, subclass 42. (See above, "Viewing or Exhibiting Arts," Relationship to Other Classes for Advancing of Indeterminate-Length* Material.)

187, Elevator, Industrial Lift Truck, or Stationary Lift for Vehicle, subclasses 235, 251+, and 404+. (See above, "Pulling or Hoisting Arts", Relationship to Other Classes for Advancing Indeterminate-Length* Material.)

188, Brakes, includes a strand brake in subclasses 65.1+, a rod brake in subclass 67, and a strand-engaging, speed-responsive brake operator in subclass 188. (See above, "Material-Movement Retarding Element," Relationship to Classes with Subcombinations for Advancing Material.)

192, Clutches and Power-Stop Control, subclasses 125+ includes stop mechanism under control of material (e.g., indeterminate-length web). (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

193, Conveyors, Chutes, Skids, Guides, and Ways, appropriate subclasses. (For the locus of patents disclosing material handling combinations.)

193, Conveyors, Chutes, Skids, Guides, and Ways, subclasses 35+ includes a roller way. (See above, "Active, but Nondriven Means," Relationship to Classes with Subcombinations for Advancing Material.)

198, Conveyors: Power-Driven, includes some structures similar to those found in this class (226). The previous line between Class 198 and the web feeding class remains unchanged. Patents disclosing the feeding of material (i.e., to an operating station), will be placed in this class (226). Patents disclosing movement of material for the purpose of transporting such material will remain in Class 198. (See Lines With Other Classes above, A, (2).

198, Conveyors: Power-Driven, appropriate subclasses. (For the locus of patents disclosing material handling combinations.)

200, Electricity: Circuit Makers and Breakers, subclass 61.18. (See above, "Detection of Material Breaking, Exhaustion," Relationship to Classes With Subcombinations for Advancing Indeterminate Length* Material.)

200, Electricity: Circuit Makers and Breakers, subclasses 61.13+ includes electrical switch detector means actuated by running length material. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

212, Traversing Hoists, subclasses 76+. (See above, "Pulling or Hoisting Arts", Relationship to Other Classes for Advancing Indeterminate-Length* Material.)

219, Electric Heating, subclasses 155 and 156. (See above, "Other Advancing of Indeterminate Length* Material," Relationship to Other Classes with Advancing of Indeterminate-Length* Material.)

221, Article Dispensing, subclasses 71+. (See above, "Pulling or Hoisting Arts", Relationship to Other Classes for Advancing Indeterminate-Length* Material.)

221, Article Dispensing, subclasses 71+ and other appropriate subclasses. (For the locus of patents disclosing material handling combinations.)

222, Dispensing, appropriate subclasses, for the locus of patents disclosing material handling combinations.

225, Severing by Tearing or Breaking, includes the combination of material-moving or material-guiding means in combination with a tearing edge. Any recitation in a claim of such an edge is sufficient to cause placement of a patent including such a recitation originally in Class 225 and will bar placement of the patent in this class (226). (See Lines With Other Classes and Within This Class, above, A, (2)).

225, Severing by Tearing or Breaking, appropriate subclasses. (See above, "Material-Working or Material-Treating Arts," in Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

225, Severing by Tearing or Breaking, subclass 88 includes a guide for running length work. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

225, Severing by Tearing or Breaking, includes a brake or tensioner in subclasses 51+, 73+, 79, 82+, and 106. (See above, "Material-Movement Retarding Element," Relationship to Classes with Subcombinations for Advancing Material.)

227, Elongated-Member-Driving Apparatus, subclasses 80 and 82+. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Article Manufacturing).

235, Registers, subclass 60.51. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Printing and Communications, etc.).

242, Winding, Tensioning, or Guiding, for more than a nominal supply or take-up coil structure (e.g., a support for such a coil, a cooperative relationship between a tension or exhaust detector and reel driving or reel stopping means, etc.), subclasses 147+ a residual locus for a strand* tensioning device, subclasses 157+ a residual locus for a strand* guide, subclasses 377 for a reeling device with a spring motor having a particular guide structure, subclasses 410+ a residual locus for a tension control or brake, or 615+, a residual locus for a material* guide or guard. ((See Lines With Other Classes above, A, (2). Also see Lines With Other Classes and Within This Class, "Line Between Class 226 and Class 242" above).

242, Winding, Tensioning, or Guiding, (see above, "Other Advancing of Indeterminate Length* Material," Relationship to Other Classes with Advancing of Indeterminate-Length* Material.)

242, Winding, Tensioning, or Guiding, subclasses 473+, 480, 485.2+, 534+, and 563+. (See above, "Detection of Material Breaking, Exhaustion," Relationship to Classes With Subcombinations for Advancing Indeterminate Length* Material.)

242, Winding, Tension, or Guiding, includes detector or stop means for a helical winding machine in subclasses 472.9+, 479.9+, 484.8, and 484.9+ for a convolute winding machine in subclasses 534+, and in an unwinding machine in subclasses 563+. The tensioning means of subclasses 410+ tend to inherently include tension detecting means to enable the tension to be controlled. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

242, Winding, Tensioning, or Guiding, includes a guide or guard: in subclasses 326.4, 346+, and 348 combined with a film or tape cartridge; in subclasses 332+ with a tape or film threading arrangement leading to or from a coil; in subclasses 273+, 377, and 397+ combined with reel structure; in subclasses 548+ combined with a convolute winding machine; in subclass 566 combined with an unwinding machine, subclasses 615+ for running material, and subclasses 157+ for a strand guide, per se. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

242, Winding, Tensioning, or Guiding, subclasses 410+ and 147+. (See above, "Material-Movement Retarding Element," Relationship to Classes with Subcombinations for Advancing Material.)

250, Radiant Energy, subclass 548, includes means for detecting and controlling a web, strand, strip, or sheet, subclasses 555+ and 559.01+ include a coded record, web, strand, strip, or sheet in the optical system and photocell circuitry, subclasses 566+ include the detection of a coded record, web, strand, strip, or sheet. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

254, Implements or Apparatus for Applying Pushing or Pulling Force, subclasses 47+, 199+, and 264+. (See above, "Pulling or Hoisting Arts", Relationship to Other Classes for Advancing Indeterminate-Length* Material.)

254, Implements or Apparatus for Applying Pushing or Pulling Force, subclasses 389+ for devices or members for guiding load-pulling cable. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

261, Gas and Liquid Contact Apparatus, subclass 80. (See above, "Material-Working or Material-Treating Arts," in Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, appropriate subclasses. (See above, "Material-Working or Material-Treating Arts," in Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

266, Metallurgical Apparatus, subclasses 102+. (See above, "Material-Working or Material-Treating Arts," in Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

270, Sheet-Material Associating, includes movement of web material to a claimed web associating operation, in subclass 52. The mere naming of "an associating station", (or equivalent term) will not bar placement of an original patent in this class (226). However, claimed recitation of such station plus inherent associating structure (e.g., "turning bars", "guide bars", etc.), wherein it is clear that plural webs are directed to a common line of travel, will be reason for placing an original patent so claimed in Class 270. A patent claiming the movement of plural webs out of a common line of travel into plural lines of travel, or claiming a subcombination of plural guide bars disclosed as for the above-stated purpose, will be placed as an original in Class 270. (See Lines With Other Classes and Within This Class, above, A, (2).

270, Sheet-Material Associating, subclasses 5, 10+, 41+, 43+, and other appropriate subclasses. (See above, "Material-Working or Material-Treating Arts," in Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

270, Sheet-Material Associating, appropriate subclasses. (See above, "Other Advancing of Indeterminate Length* Material," Relationship to Other Classes with Advancing of Indeterminate-Length* Material.)

271, Sheet Feeding or Delivering, includes movement of sheets to an operation or from an operation. The line between Class 226 and Class 271 is based on disclosure of the material acted upon. Patents which clearly disclose feed or delivery of sheet-like articles only, will be placed in Class 271, even though such structure is capable of feeding web material. Original patents which clearly disclose movement of web material as well as sheets and claim means which is capable of moving either, will be placed in this class (226). (See Lines With Other Classes and Within This Class, section A (2) above.)

271, Sheet Feeding or Delivering, appropriate subclasses, for the locus of patents disclosing material handling combinations.

281, Books, Strips, and Leaves, includes patents directed to a casing having supported therein a roll of web material, and a writing platen over which such material is trained. Movement of such material may be as a result of direct contact of the operative's hand with the material or as a result of a roller manipulated by the operative; but the environment, especially the provision of a casing and a writing platen, will be reason for placing a patent claiming such features in Class 281. (See Lines With Other Classes and Within This Class, section A (2) above.)

281, Books, Strips, and Leaves, subclasses 8 and 11. (See Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Printing and Communications, etc.).

289, Knots and Knot Tying, subclass 15 includes a cord guide. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

294, Handling: Hand and Hoist-Line Implements, subclasses 74+ and 82.1+. (See above, "Pulling or Hoisting Arts", Relationship to Other Classes for Advancing Indeterminate-Length* Material.)

312, Supports: Cabinet Structure, includes continuous strip towel dispensers in subclasses 34.1+. See above, Lines With Other Classes, "Line Between Class 312, 226, and 242." (Also see Lines With Other Classes and Within This Class, section A (2) above.)

312, Supports: Cabinet Structure, subclasses 34.1+. (See above, "Other Advancing of Indetermi-

nate Length* Material," Relationship to Other Classes with Advancing of Indeterminate-Length* Material.)

314, Electric Lamp and Discharge Devices: Consumable Electrodes, subclasses 59, 68, and other appropriate subclasses. (See above, "Other Advancing of Indeterminate Length* Material," Relationship to Other Classes with Advancing of Indeterminate-Length* Material.)

318, Electricity: Motive Power Systems, subclasses 6+ include means to control an electric motor system in response to the tension in a run of material driven by such system. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

340, Communications: Electrical, subclasses 675+ include electric automatic web, film, or strip responsive indicating systems. (See above, "Other Detection of Material," Relationship to Classes with Subcombinations for Advancing Indeterminate Length* Material.)

346, Recorders, subclass 136. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Printing and Communications, etc.)

352, Optics: Motion Pictures, includes the combination of material moving means and an optical system. This class (226) will take an original patent claiming a device for moving material (e.g., a film) past a named "lens", "shutter", "gate", or equivalent motion picture means. However; the recitation in a claim of mechanism for operating such named element, or a plurality of such elements recited as to establish optical or mechanical cooperation between such elements as to make an optical system, will bar original placement in this class (226). For example a patent claiming "a gate and means for moving the gate" or " a gate and a lens" will be placed originally in Class 352. (Also see Lines With Other Classes and Within This Class, section A (2) above.)

352, Optics: Motion Pictures, subclasses 166+. (See above, "Viewing or Exhibiting Arts," Relationship to Other Classes for Advancing of Indeterminate-Length* Material.)

355, Photocopying, subclasses 97+ and 104+. (See above, "Viewing or Exhibiting Arts," Relationship to Other Classes for Advancing of Indeterminate-Length* Material.)

360, Dynamic Magnetic Information Storage or Retrieval, subclasses 88+ and other appropriate subclasses. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Printing and Communications, etc.)

360, Dynamic Magnetic Information Storage or Retrieval, subclasses 88+ and other appropriate subclasses. (See above, "Viewing or Exhibiting Arts," Relationship to Other Classes for Advancing of Indeterminate-Length* Material.)

369, Dynamic Information Storage or Retrieval, subclasses 258.1 through 271.1, particularly subclass 259. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Printing and Communications, etc.)

369, Dynamic Information Storage or Retrieval, subclasses 258.1-271.1, particularly subclass 259. (See above, "Viewing or Exhibiting Arts," Relationship to Other Classes for Advancing of Indeterminate-Length* Material.)

396, Photography, subclass 646 for photographic fluid treating apparatus which includes a film guide. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

399, Electrophotography, subclasses 16+ and 361+ for document handling. (See above, "Viewing or Exhibiting Arts," Relationship to Other Classes for Advancing of Indeterminate-Length* Material.)

400, Typewriting Machines, subclasses 223+ and 611+. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Printing and Communications, etc.).

400, Typewriting Machines, subclass 248 includes an ink ribbon guide. (See above, "Passive Means for Guiding Material," Relationship to Classes with Subcombinations for Advancing Material.)

406, Conveyors: Fluid Current, appropriate subclasses. (For the locus of patents disclosing material handling combinations.)

408, Cutting by Use of Rotating Axially Moving Tool, especially subclasses 67+ and 69+ for material advancing means combined with a tool of that class type. (See above, "Material-Working or Material-Treating Arts," in Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

413, Sheet Metal Container Making, subclass 42, 45+ and 56+. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Article Manufacturing).

414, Material or Article Handling, subclasses 14+ includes stock lead end pullers and stock-end face pushers. Patents disclosing lead end pulling of material have been placed in this class (226) when the purpose disclosed is for threading into a material moving means within a class definition. Where the lead end pulling is for feeding (to a work station), patents claiming such devices have been placed in Class 414. (See Lines With Other Classes and Within This Class, section A, (2), above.)

414, Material or Article Handling, appropriate subclasses. (For the locus of patents disclosing material handling combinations.)

425, Plastic Article or Earthenware Shaping or Treating: Apparatus, subclasses 66, 71, 83.1, 113, 224, and 377. (See above, "Material-Working or Material-Treating Arts," in Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

432, Heating, subclass 59 for a structure heating sheet, web or strand material by advancing it through a heating zone. (See above, "Material-Working or Material-Treating Arts," in Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

446, Amusement Devices: Toys, subclass 182 for means to feed a sheet through a toy film burster. (See above, "Material-Working or Material-Treating Arts," in Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

451, Abrading, subclasses 188+, 207, and 139 for an abrading machine with a roller work feed; subclasses 331+ for a work feeder, generally, for an abrading device. (See above, "Material-Working or Material-Treating Arts," in Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work.)

453, Coin Handling, appropriate subclasses. (For the locus of patents disclosing material handling combinations.)

462, Books, Strips, and Leaves, for manifolding includes patents directed to a casing having supported therein a manifold set (which is the name applied to a plurality of strips alternately interleaved with carbon strip) and a writing platen over which such material is trained. Also see Lines To Other Classes, above, "Line Between Class 462 and Class 282." (See Lines With Other Classes and Within This Class, section A, (2), above.)

462, Books, Strips, and Leaves, for manifolding appropriate subclasses. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Printing and Communications, etc.).

470, Threaded, Headed Fastener, or Washer Making: Process and Apparatus, appropriate subclasses. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Article Manufacturing).

474, Endless Belt Power Transmission Systems or Components, includes power transmission systems using an endless belt, and structure for driving, guiding, tensioning, or shifting a belt. (See Lines With Other Classes for the line between Class 474 and Class 226. (See Lines With Other Classes and Within This Class, above, A, (2)).

474, Endless Belt Power Transmission Systems or Components, appropriate subclasses. (See above, "Pulling or Hoisting Arts", Relationship to Other Classes for Advancing Indeterminate-Length* Material.)

492, Roll or Roller, for a roll, per se, not elsewhere provided for, and see the notes thereunder. (See above, "Driven Feed-Roll," Relationship to Classes with Subcombinations for Advancing Material.)

493, Manufacturing Container or Tube From Paper; or Other Manufacturing From a Sheet or Web, appropriate subclass. (See above, Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, Article Manufacturing).

720, Dynamic Optical Information Storage or Retrieval, subclasses 718 through 746 for optical storage medium structure.

SECTION IV - GLOSSARY

CARRIER

(n) As used in this class, a member on which a material engaging part is slidingly or rotatably (including pivotally) mounted, which member entirely supports the part against gravity while allowing relative movement between the member and the part. This term is applied only to that member of a device which is immediately connected to the material-engaging part. A member can be a complex of parts which move integrally together.

DISPENSER

(n) A device which moves material to an operative (e.g., a person who operates such device and who will use the material). (Compare with Feeder).

FEED

(v) To move material to an operation*.

(n) The act of moving material to an operation*.

FEEDER

(n) A device which moves material to an operation*. (Compare with Dispenser).

FEED-ROLL

A roll* which is disclosed as driven so as to impart motion to the material whereby the material is moved to an operation.

GRIPPER

(n) As used in this class, a movable device comprising a plurality of substantially opposed surface elements (commonly termed jaws) relatively movable toward and away from a common line or plane (to engage corresponding opposed areas on material) and hold such material frictionally to the elements, whereby additional movement imparted to the elements in a material advancing direction will also be imparted to the material.

INDETERMINATE LENGTH

An extent of material having the characteristic that the longitudinal dimension of the material is effectively infinite insofar as can be determined from the claimed structure for advancing such material. The term applies to an extent of material in which the distance between the ends is irrelevant to the manner of, or structure for, handling and/or moving such material. Thus, except for the lead-end threaders of subclass 91, the leading or trailing end of the material is not utilized by the claimed means for moving the material, nor recognized in a claimed method of moving. The term as used in this class also applies to material which is formed in a closed loop, (i.e., the leading end and the trailing end of definite length material have been joined together). However, the lead end may be used in stopping the material to effect intermittent advance as in subclasses 125+, and a trailing end (effected by a break or depletion of material) may be sensed to stop operation of the advancer.

LATERAL

As used in this class, the term refers to that direction simultaneously perpendicular to the longitudinal* direction of movement of a web* and parallel to the surface of the web.

LONGITUDINAL

As used in this class, the term refers to the direction along the length of the indeterminate-length* material.

MATERIAL

The work, stock, web, strand or other interconnected stuff which is being advanced.

OPERATION

(n) A performing of work or a doing of an act. Exemplary operations are: cutting, recording, viewing, dyeing.

RECESSED-ROLL

A roll* having a radially stepped periphery, the radially outward portion engaging material and the radially inward portion(s) not engaging the material.

ROLL

A shaft-mounted rotatable body, usually cylindrical, a portion of the periphery of which engages material. Although a roll is usually cylindrical, the term is used in this class to include a conical, truncated conical, or spherical body, a portion of the periphery of which engages the material to be moved.

ROLL-COUPLE

A group of at least two rolls*, material being disposed therebetween in simultaneous tangential and/or peripheral engagement with all rolls, the roll(s) on one side of the material counter-rotating relative to the roll(s) on the other side of such material. An example of a roll-couple comprising more than two elements, is a plurality of equal-diameter rolls co-axially mounted, all of which rolls are opposed by a single, parallel roll.

STRAND

Material having a cross-section (transverse of the longitudinal* dimension) of substantially similar width and depth dimensions (compare with Web). Exemplary strand materials are: rod, tube, cordage (i.e., rope, cable, etc.) chain, filaments, yarn, wire.

WEB

Material having a cross-section (transverse of the longitudinal* dimension) of relatively thin dimension perpendicular to a relatively wide dimension (compare with Strand). Thus, the material has two side edges defining its lateral* boundaries, and two surfaces defining its other cross-sectional boundaries. Exemplary web materials are: fabric, screening, strip.

SUBCLASSES

1 This subclass is indented under the class definition. Method.

(1) Note. See Lines With Other Classes and Within This Class, Relationship to Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, of the Class Definition for considerations relating to a feeding process in combination with a material modifying step or steps.

2 This subclass is indented under subclass 1. Method in which is recited the step of aligning material with respect to a predetermined point (fixed or movable) either (1) transversely* or (2) longitudinally* of the direction of feed of the material.

(1) Note. In patents wherein the material is disclosed as stopped during the operation it is clear, because of the fact of stopping, that there is a particular duration of time in which the material is aligned with a fixed point. However, the disclosed alignment of material is not limited to alignment of the material with respect only to a fixed point. In the event that continuously moving material is operated on during movement thereof, especially in such arts as printing or cutting, longitudinal registration involves alignment of a particular point or zone of the material with respect to a particular reference point or zone on the operating machine during only a particular instant of time, during which instant a moving operating element of the machine is also aligned with respect to the same reference point on the machine. Thus, the moving point of the material is in registry with the moving element of the machine. In those disclosures, wherein an index (e.g., a printed spot, a perforation, etc.) is provided on the material, longitudinal registration, as disclosed, involves sensing of the index, comparing the signal produced by the sensing with reference to the moving operating element, and correcting the speed of the material (or of the element) to effect the registration as defined. The operating element may be broadly recited in the claims of a patent placed originally in this class (see section Lines With Other Classes, Relationship to Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work). Patents disclosing structure to perform longitudinal registration are to be found in subclasses 27+ and structure to perform lateral registration are to be found in subclasses 15+.

(2) Note. Correction of material speed, not responsive to material indicia, but responsive to undesired speed changes, is related in concept to index-responsive speed correction, and patents disclosing structure to perform such speed correction are to be found in subclasses 24+ except subclasses 27+.

(3) Note. An original patent disclosing correction of the speed of the material and, alternatively, the speed of the operating element, and claiming correction of speed, without specifying in the claims which speed is corrected, is properly placed in this class (226) in this subclasses 2+ as processes or in the appropriate apparatus subclasses 24+. A patent which discloses correction of the speed of either the operating element station; or, a patent which discloses correction of the speed of the material and of the element station; will regardless of how claimed, be placed in the operating class such as Class 101 (Printing) or

Class 83 (Cutting), in appropriate subclasses.

SEE OR SEARCH THIS CLASS, SUBCLASS:

24+, for analogous apparatus and see (2) Note above.

3 This subclass is indented under subclass 2. Method in which the aligning is laterally* of the direction of movement of the material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

15+, for analogous apparatus.

4 This subclass is indented under subclass 1. Method in which is recited a step of feeding* by one feeder* and another step of feeding by another feeder.

SEE OR SEARCH THIS CLASS, SUBCLASS:

108+, for analogous apparatus.

5 This subclass is indented under subclass 1. Method in which is recited a step of removing material from a material mover.

(1) Note. Cross-reference copies of patents which disclose “stripper” apparatus have been placed herein so that a search may be started here for both method and apparatus.

SEE OR SEARCH THIS CLASS, SUBCLASS:

80, for apparatus to strip material from a material-advancing sprocket.

SEE OR SEARCH CLASS:

72, Metal Deforming, appropriate subclasses for a method or a means for handling work or product in a metal shaping apparatus.

83, Cutting, subclasses 111+ for a cutting device, provided with means to strip a product from a cutting tool.

225, Severing by Tearing or Breaking, subclass 24 for a stripper in combination with a stationary blade.

6 This subclass is indented under subclass 1. Methods in which is recited a step of moving material having variations in the shape, thickness or cross-section recurring therein along its direction length, by applying the moving force to said variations.

SEE OR SEARCH THIS CLASS, SUBCLASS:

52+, for analogous apparatus.

7 This subclass is indented under subclass 1. Method in which is recited a step of advancing material by the use of flowing substance (e.g., gas, liquid or discrete, finely divided particles), movement being imparted to said substance in the desired direction of advance and thereby moving the material by the substance impinging on the material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

95, for a device in which pneumatic pressure effects adherence of material to a material advancer.

97.1+, for analogous apparatus capable of performing the method of this subclass (7).

SEE OR SEARCH CLASS:

57, Textiles: Spinning, Twisting, and Twining, subclasses 279+ threading up apparatus or process that may use fluid current to advance the material*.

83, Cutting, subclasses 22 and 24 for analogous method in combination with severing means.

406, Conveyors: Fluid Current, for apparatus and methods conveying solid material or articles which are guided or supported to travel along a path by means of or with assistance of a fluid current.

8 This subclass is indented under subclass 1. Method in which is recited a step of moving material in (1) a step-by-step manner or (2) a manner to move an increment of material and stop such movement.

SEE OR SEARCH THIS CLASS, SUBCLASS:

120+, for analogous apparatus; and see search notes therein.

9 This subclass is indented under the class definition. Device provided with detection means for sensing a programme, and with mechanism, actuated by said detection means, for regulating a part which stops, or guides, or moves the material.

(1) Note. A patent claiming the control of an auxiliary programme tape itself as well as the control of indeterminate length material, in response to indicia on such tape, is placed in this subclass (9). A patent claiming control of the movement of only the programme tape itself, in response to such indicia, will be placed in subclasses 10+ below. A patent claiming movement of a control tape will be placed in this class in an appropriate subclass, even though there is disclosure (unclaimed) of mechanism which is controlled by such tape.

SEE OR SEARCH CLASS:

72, Metal Deforming, subclass 7 for similar apparatus combined with a metal-deforming means.

83, Cutting, subclasses 76.1+ for similar apparatus combined with cutting means.

234, Selective Cutting (e.g., Punching), subclasses 25+ for similar apparatus combined with selective cutting apparatus.

400, Typewriting Machines, appropriate subclasses for similar apparatus combined with a typewriter.

10 This subclass is indented under the class definition. Device provided with detection means for sensing a condition of the advancing material, which condition is related to the movement of said material, and with mechanism actuated by said detection means (i.e., “control means”) for regulating a part which stops, or guides, or moves the material.

(1) Note. Conditions of the material within this definition include (but are not limited to) speed, path, position, marks or indicia and the presence or absence of the material.

(2) Note. For a listing of classes having analogous apparatus see Lines With Other Classes and Within This Class, Relationship to Classes Which Include Subcombinations Utilizable in Advancing Indeterminate Length* Material of this bulletin.

SEE OR SEARCH THIS CLASS, SUBCLASS:

2+, for an analogous process.

48+, for randomly actuated stopping means.

74, for web-condition responsive means to stop, start, or control the rate of feed operation.

75, for structure to detect and responsively adjust the web edge registration (compare with Class 226, subclasses 15+).

78, for web condition responsive nip control (compare with Class 226, subclass 35).

SEE OR SEARCH CLASS:

26, Textiles: Cloth Finishing, subclasses 74+ for structure for simultaneously feeding and stretching a web of cloth, including means responsive to a condition (e.g., location--compare with Class 226 subclasses 15+) to control the operation; see for example, subclasses:

53, Package Making, subclass 64 for control of cover feed in a package making machine.

57, Textiles: Spinning, Twisting, and Twining, subclasses 83+ and 326 for control of strand feeding in combination with spinning, twisting or twining apparatus.

72, Metal Deforming, subclasses 6+ for an analogous condition-responsive means controlling a metal-deforming means.

83, Cutting, particularly subclass 72 and 360+ for similar apparatus in combination with cutting means.

118, Coating Apparatus, subclasses 672+ for control of motion of work in coating apparatus.

139, Textiles: Weaving, subclasses 105+ and 309+ for control of feeding in warp manipulation apparatus and take-up control, respectively.

192, Clutches and Power-Stop Control, subclass 125 for material-responsive power-stops, and see notes thereto.

242, Winding, Tensioning, or Guiding, particularly subclasses 333+, 390+, 472.9+, 479.9+, 484.8, 484.9+, 514+, and 543+ for control means that regulate winding, tensioning or unwinding.

11 This subclass is indented under subclass 10. Device wherein the detector is caused to be in a first state by reason of the material being in the device, and is caused to be in a second state by reason of the material not being in the device, and is responsive to a change of state, from first to second, caused by rupture or exhaustion of the material.

(1) Note. Usually, the feed mechanism is prevented from being operated by the regulating means.

(2) Note. See Lines With Other Classes and Within This Class, Relationship to Classes Which Include Subcombinations Utilizable in Advancing Indeterminate Length* Material, for the locus of similar apparatus in other classes.

SEE OR SEARCH THIS CLASS, SUBCLASS:

44, for a patent disclosing dancer detectors which inherently are capable of performing this function, but whose function is stated to be that of detecting tautness rather than break or depletion.

SEE OR SEARCH CLASS:

242, Winding, Tensioning, or Guiding, particularly subclasses 333+, 390+, 473+, 480, 485.2+, 514+, and 543+ for control means that may respond to material breakage or depletion.

12 This subclass is indented under subclass 10. Device wherein the part regulated is a means to lead the material to and through a material moving means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

91+, for a threading device without claimed material-responsive control means.

SEE OR SEARCH CLASS:

242, Winding, Tensioning, or Guiding, subclasses 332+, 364.4, 532.7, and 562.1 for threading means associated with a winding or unwinding device.

13 This subclass is indented under subclass 10. Device wherein the part regulated is a rotating body which by its inertia moderates any tendency toward speed fluctuations in a material-moving member.

SEE OR SEARCH THIS CLASS, SUBCLASS:

60+, for fluctuation damping means without material-responsive control means.

14 This subclass is indented under subclass 10. Device wherein the part regulated is a festooner or part thereof.

(1) Note. See search class note below for a reference to a further discussion of the term “festooner”.

SEE OR SEARCH THIS CLASS, SUBCLASS:

104+, for festooner means; and notes thereto for a definition and further discussion of the term “festooner”.

15 This subclass is indented under subclass 10. Device wherein the control means acts to maintain the material in a predetermined longitudinal* path by moving, or preventing movement of, the material in a direction lateral* to the longitudinal* path of travel.

(1) Note. An example of patents placed herein, is one which discloses a roller

which is braked to put a sidewise-biasing drag on a web.

SEE OR SEARCH THIS CLASS, SUBCLASS:

3, for an analogous method.

SEE OR SEARCH CLASS:

26, Textiles: Cloth Finishing, subclasses 51.4+ and 74+ for similar apparatus in a napping or spreading machine.

198, Conveyors: Power-Driven, subclass 810 for condition responsive means for controlling lateral movement of an endless belt conveyor.

242, Winding, Tensioning, or Guiding, particularly subclasses 534.1 and 563.1 for lateral material control in a winding or unwinding device.

474, Endless Belt Power Transmission Systems or Components, particularly subclasses 102+ for a sensor to control operation of a shifter to correct belt training deviation.

16 This subclass is indented under subclass 15. Device wherein the longitudinal* travel of the material (in the direction of its length) is also regulated.

(1) Note. The longitudinal movement of the material may be regulated by starting, stopping, or varying the rate of such material advancement (see search note below.).

SEE OR SEARCH THIS CLASS, SUBCLASS:

24+, for control of longitudinal movement only in response to material detection means.

17 This subclass is indented under subclass 15. Device wherein the material which is moved is a web* and the control means comprises a pair of rollers* placed for engagement with longitudinal* areas of opposing web surfaces closely adjacent the side edges of the web.

(1) Note. For definition of surfaces and side edges, see definitions of “web” in the Glossary in the class definition.

(2) Note. The rollers are usually positioned angularly with respect to the longitudinal direction of web travel.

18 This subclass is indented under subclass 15. Device wherein the control means comprises a machine part which at least partially underlies and is in contact with the material; and is movable with respect to the longitudinal* direction of travel of the material.

(1) Note. An example of patents placed herein is a patent disclosing an oscillatory material-supporting bar which is moved angularly in response to the detection means whereby a sidewise bias on the material effects the necessary correction.

19 This subclass is indented under subclass 18. Device wherein the support is reciprocated laterally* of the material, whereby said material is shifted laterally.

20 This subclass is indented under subclass 19. Devices wherein the sensing means responds to light by varying its electrical characteristics or by generating an electric current.

SEE OR SEARCH CLASS:

250, Radiant Energy, subclass 548, includes means for detecting and controlling a web, strand, strip, or sheet, subclasses 555 and 559.01+ include a coded record, web, strand, strip, or sheet in the optical system and photocell circuitry, subclasses 566+ include the detection of a coded record, web, strand, strip, or sheet.

21 This subclass is indented under subclass 18. Device wherein the support is a roll* which is oscillatable about an axis perpendicular to the axis of rotation of the roll.

(1) Note. Typical patents placed in this subclass (21) disclose photocell detector means.

22 This subclass is indented under subclass 21. Device wherein the detection means senses changes in pressure of a gaseous fluid directed against the material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

23, for a material-responsive machine element control for a pneumatic pressure system.

SEE OR SEARCH CLASS:

73, Measuring and Testing, subclass 37.7 for a pneumatic detection means, per se.

137, Fluid Handling, subclasses 82+ for pressure modulating relays which may detect traveling material.

23 This subclass is indented under subclass 21. Device wherein the detection means comprises a machine part, other than the support, which abuts the material, whereby said part is moved if the material deviated laterally* from its desired longitudinal* direction.

24 This subclass is indented under subclass 10. Device wherein the control means acts to initiate, or maintain, or stop or otherwise vary the longitudinal* travel of the material.

(1) Note. For further discussion of regulation of longitudinal movement and registration see (1) Note of subclass 2.

SEE OR SEARCH THIS CLASS, SUBCLASS:

2, for an analogous method.

16, for control of lateral position combined with control of longitudinal movement.

SEE OR SEARCH CLASS:

28, Textiles: Manufacturing, subclasses 185+ and 194 for similar apparatus in warp preparing machines.

25 This subclass is indented under subclass 24. Device, wherein the detection means senses a blocking, jamming or excessive pulling of the material.

26 This subclass is indented under subclass 24. Device wherein the detection means senses the gravitational pull on a mass of temporarily stored material.

(1) Note. The patents placed herein usually disclose a material confining structure comprising a “J” box.

(2) Note. The term “mass” does not include a free running loop of material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

118.2+, for plural material-moving means having intermediate storage in a loop having a displaceable support.

SEE OR SEARCH CLASS:

68, Textiles: Fluid Treating Apparatus, appropriate subclasses, especially subclasses 177+ for similar apparatus in a textile treating machine.

242, Winding, Tensioning, or Guiding, particularly subclasses 333.5, 334.5, 413.2, 421.3, 534.2, and 563.2 for length or weight control system for a winding, tensioning, or unwinding device.

27 This subclass is indented under subclass 24. Device wherein the regulating means acts to longitudinally* align a particular point on the material with respect to a particular point in space at a particular instant of time.

(1) Note. For further elaboration of the term “registration”, see (1) Note to subclass 2.

(2) Note. In this subclass 27 are found patents for devices which overfeed and retract.

(3) Note. Some patents may disclose, but not claim, that an operating machine is changed in response to the signal produced by the detection means.

(4) Note. To register material, means must be provided to indicate the relative position of a reference point, hence, devices herein must disclose two “sensing” means, although the means to indicate the relative position of the reference point may be only a particular part of a machine which controls the material-detection means.

SEE OR SEARCH CLASS:
83, Cutting, subclasses 72+ for similar apparatus combined with cutting.
101, Printing, appropriate subclasses for similar apparatus combined with printing.

28 This subclass is indented under subclass 27. Device wherein the material neither starts nor stops for the purpose of registration, but is constantly traveling.

SEE OR SEARCH CLASS:
26, Textiles: Cloth Finishing, subclasses 74+ for edge detection and responsive registration correction means for structure which simultaneously advances and stretches cloth webs.

29 This subclass is indented under subclass 28. Device wherein the material is aligned by changing its velocity for a short duration of time.

(1) Note. Herein are, for example, patents to devices which slow the material by applying a braking or retarding force to slow the material.

SEE OR SEARCH THIS CLASS, SUBCLASS:
38, for similar apparatus not effecting registration.

30 This subclass is indented under subclass 29. Device wherein the material is caused to move by a feedroll*, and the velocity change of the material is effected by changing the rate of rotation of said feedroll.

31 This subclass is indented under subclass 30. Device wherein the change in the rate of rotation of the feedroll* is effected by an auxiliary motive means for the feedroll.

(1) Note. Exemplary patents herein are to a device with a feedroll driven by a main power source through differential gearing. The ancillary power source rotates normally stationary gear(s) momentarily to speed up or slow down the feedroll.

32 This subclass is indented under subclass 27. Device provided with an intermittent type material moving apparatus (as defined in subclass 120) and the regulating means aligns the material by adjusting the length of material moved in each increment of material movement.

(1) Note. Feed* stroke in the above title is considered to be either (1) the amount of rotation of feed rolls or (2) the length of forward travel of a reciprocating or oscillating gripper.

SEE OR SEARCH THIS CLASS, SUBCLASS:
139+, for adjustable intermittent feeder means without material-responsive control means.

33 This subclass is indented under subclass 27. Device provided with means which stops the travel of the material* in aligned position.

SEE OR SEARCH THIS CLASS, SUBCLASS:
125, for material stopping abutment for an intermittent material-mover.

34 This subclass is indented under subclass 24. Device wherein longitudinal travel of the material (effected by a material-moving force) is varied by adjusting the degree of moving force on the material, or by adjusting the duration of contact between the material and the apparatus for moving the material.

SEE OR SEARCH THIS CLASS, SUBCLASS:
176+, for similar apparatus in which the engagement is varied, but not in response to material condition.

SEE OR SEARCH CLASS:
57, Textiles: Spinning, Twisting, and Twining, subclass 84 for similar roll separating apparatus.

35 This subclass is indented under subclass 34. Device wherein the apparatus for moving material is shifted to an inactive location where at contact between the material and the apparatus is prevented.

SEE OR SEARCH CLASS:

26, Textiles: Cloth Finishing, subclass 78 for web condition (generally web edge location) responsive means to control the driving engagement of a feed roller pinch-pair which simultaneously advances and stretches a continuously moving cloth web.

36 This subclass is indented under subclass 24. Device wherein the travel of the material is varied by a secondary material moving means, which secondary means is normally out of contact with the material and is brought into contact with the material in response to the sensing means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

113+, for "bight former" means not condition-responsive.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclass 159 for loop forming structure in motion picture apparatus.

37 This subclass is indented under subclass 24. Device wherein the control means stops the material by a separable mechanism (such as a clutch) constituting part of a power transmission member between the material moving means and a power source.

SEE OR SEARCH CLASS:

192, Clutches and Power-Stop Control, appropriate subclasses for similar apparatus, per se.

38 This subclass is indented under subclass 24. Device wherein the movement of material is regulated by a member (such as a brake) which slows or stops the material travel.

SEE OR SEARCH CLASS:

188, Brakes, appropriate subclasses for similar apparatus, per se.

39 This subclass is indented under subclass 38. Device wherein the means to retard directly engages the material.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclass 184 for intermittent film arresting means used in motion picture apparatus.

40 This subclass is indented under subclass 24. Device wherein the movement of material is regulated by a changeable connection in a drive train between a power source and the material moving means, which connection changes the speed of the material moving means relative to that of the power source.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, appropriate subclasses for similar apparatus, per se.

41 This subclass is indented under subclass 40. Device wherein the changeable connection comprises a shaft-mounted pulley comprising two belt engaging tapered members, which members may be adjusted along the axis of the shaft.

42 This subclass is indented under subclass 24. Device wherein the movement of material is regulated by a motor, the rate of rotation of which may be adjusted.

43 This subclass is indented under subclass 42. Device wherein the motor speed is either increased from zero or decreased to zero whereby the material travel is initiated or halted.

44 This subclass is indented under subclass 24. Device wherein the detection means is an element in continuous contact with a surface of the material whereby any change in the path of travel of the material will be sensed.

SEE OR SEARCH THIS CLASS, SUBCLASS:

11, for similar structure wherein the function of the structure is disclosed or claimed as for detecting breaking or exhaustion of material.

SEE OR SEARCH CLASS:

72, Metal Deforming, subclasses 17+ for an analogous "dancer" means controlling metal-deforming means.

242, Winding, Tensioning, or Guiding, subclasses 324+, 410+, 520+, and 550+ for a material contacting control for regulating winding, tensioning, or unwinding.

45 This subclass is indented under subclass 10. Device in which the means to sense the path or position of the material is particularly recited in the claim, and is not otherwise classifiable.

(1) Note. The patents in this subclass are for devices which are detector subcombinations clearly disclosed as being used with means to control movement of the material within the class definition, not provided for in other classes. For example, a photocell detector not effecting material correcting means will be placed as an original in Class 250, Radiant Energy, especially since subclass 219, Web, strand or record in optical path (in Class 250) is specifically provided to take such a subcombination.

(2) Note. See Lines With Other Classes and Within This Class, Relationship to Classes Which Include Subcombinations Utilizable in Advancing Indeterminate Length* Material of this publication for other classes including material sensing material.

46 This subclass is indented under the class definition. Device provided with means to prevent motion of any part of the device in any manner (except said means itself) until said means is moved so as to allow movement of said any part.

SEE OR SEARCH CLASS:

83, Cutting, subclasses 399+ for interlock means in combination with cutting means.

47 This subclass is indented under subclass 46. Device provided with means to start said other part in motion simultaneously with the release of the interlock.

48 This subclass is indented under the class definition. Device provided with means to terminate operation of any or all parts of the device in response to a condition or signal or impulse the time of occurrence of which cannot be precisely predicted.

SEE OR SEARCH THIS CLASS, SUBCLASS:

10+, for stopping means actuated in response to detection of the material.

66, and 161, for devices which prevent material movement without stopping the movement of any part.

SEE OR SEARCH CLASS:

83, Cutting, subclasses 58+ for similar structure in combination with cutting means.

49 This subclass is indented under the class definition. Device provided with means to optionally advance material either in one longitudinal* direction or in an opposite longitudinal* direction.

(1) Note. The patents in this and indented subclasses disclose more than a mere retraction or retrograde movement such as is found in the patents of subclass 143 below. In this subclass (49) the patents disclose the totality of material-movement to be alternatively selectable either in one direction or the reverse direction, whereas the patents of subclass 143 disclose the normal operation of the device to be a two-stage advancing comprising (1) a forward movement of material beyond a point on the device and (2) a retraction movement of the material relative to the point whereby the totality of material-movement is in one direction only.

SEE OR SEARCH CLASS:

112, Sewing, appropriate subclasses, especially subclasses 316 and 317 for a reversible feed for a sewing machine.

352, Optics: Motion Pictures, subclass 124 for motion picture apparatus with provisions for film rewind, and subclass 173 for motion picture apparatus with selectively reversible film feed.

50 This subclass is indented under subclass 49. Device provided with at least two driven material-engaging advancing elements, only one or only another of which is selected for advancing engagement with the material at any one time.

(1) Note. The usual example of claimed subject matter placed herein involves a feed-roll-couple* comprising one driven roll* and one pressure roll engaging material on opposite sides thereof, and another feed-roll-couple separate from the first-mentioned couple. However, a patent claiming a first feed couple comprising a first driven roll cooperating with a pressure roll to feed material which is between the rolls and a second feed couple comprising a second driven roll cooperating with the same pressure roll, the pressure roll engaging with either the first or the second driven roll to move the material either in one direction or in an opposite direction, would also be placed herein since the common pressure roll is alternatively part of the first feed couple or the second feed couple.

(2) Note. Also included herein are exemplary patents disclosing two separate feedroll*, each rotated by its own drive shaft, in which one shaft is connected through a clutch to a power source or the other shaft is connected through another clutch to the same power source. The shafts are oppositely and alternatively driven through their respective clutches whereby the material is advanced in a forward or reverse direction. For other patents wherein the same roll is driven alternatively in opposite directions, see subclass 51.

51 This subclass is indented under subclass 49. Device provided with a material-engaging advancing means connectable to first means moving said advancing means in one direction, or to second means moving said advancing means in a second, reverse direction.

(1) Note. For patents wherein two feed rolls are alternatively and oppositely driven, see subclass 50, and see (2) Note to that subclass.

52 This subclass is indented under the class definition. Device including means (hereafter referred to, in the definitions of the indented subclasses, as a prong) to contact variations of indeterminate length* material, said variations recurring along the length-direction of said material.

(1) Note. In original patents placed in this and indented subclasses, the variations described above are usually perforations, holes, or notches in web material (the most common example being motion picture film), and the means contacting said variations comprises one or more claws, sprocket wheels, pin-belts, or other toothed members, the teeth of which enter into the perforations successively and are moved to feed the perforated web. For simplicity and brevity, the term “prong” (or “prongs”) will be used hereafter where appropriate to refer generally to a toothed member described above.

(2) Note. To be placed as an original in this or indented subclasses, a patent must (1) disclose the material as having a modified surface such as perforations, and (2) claim the prong (or prongs) or equivalent term (for an exemplary listing of which, see (1) Note above). A patent which claims a prong or its equivalent will be originally placed into these subclasses only if it is clear from the disclosure that material is moved (or stopped, as in subclasses 55+) thereby. However, since material such as perforated film is sometimes handled and fed as ordinary strand or web without using such perforations (e.g., motion picture film passing a sound head by friction drive means), mere recitation of perforated film will not of itself warrant original placement into these subclasses of a patent including such recitation.

SEE OR SEARCH THIS CLASS, SUBCLASS:
6, for analogous method.

116, for disclosure wherein a perforation is used to effect discontinuity in the contact between the feeder and the material, thus stopping movement of the material.

SEE OR SEARCH CLASS:

76, Metal Tools and Implements, Making, subclass 35 for similar apparatus in a saw making machine.

83, Cutting, subclass 423 for similar apparatus combined with cutting means.

242, Winding, Tensioning, or Guiding, for more than a nominal supply or take-up coil structure (e.g., a support for such a coil, a cooperative relationship between a tension or exhaust detector and reel driving or reel stopping means, etc.), subclass 354 for a particular linear feeder* (e.g., capstan or sprocket, etc.) spaced from the supply or take-up coil.

352, Optics: Motion Pictures, subclasses 191+ for motion picture drive apparatus with claw film feed.

400, Typewriting Machines, subclass 248.3 for similar apparatus combined with typewriting means.

53 This subclass is indented under subclass 52. Device in which the prong penetrates the material surface at points or areas of such surface which have not been previously modified, whereby the prong makes the recurrent variations.

(1) Note. The patents in this subclass are not to be confused with the patents of Class 83, Cutting. To be placed herein, the perforating or penetrating means must be disclosed solely as means facilitating feed and the perforations produced must be unused at any other time for any purpose. Furthermore, if the patent discloses a nonfeeding use for such perforations, placement of the original patent will be in Class 83 on the basis of the structure producing such perforations or in another class on the basis of the use for the perforations.

SEE OR SEARCH CLASS:

83, Cutting, appropriate subclasses, especially subclass 218 for similar apparatus wherein a nonfeeding use of the modifications produced is disclosed.

54 This subclass is indented under subclass 52. Device, provided with at least two prongs (or sets of such prongs) in which one or another of such prongs is optionally operable to contact the variations and move the material.

(1) Note. A “set” comprises a plurality of prongs all of which partake of the same movement. Included within the meaning of the term “set”, as used above, is a pinwheel assembly comprising two coaxial, equal-diameter sprockets, or a claw having at least two teeth spaced laterally* of the material, where in either case all the teeth of a set coact simultaneously in at least two laterally opposite marginal perforations in the same web to move said web. To be placed herein as an original, a patent disclosing such a set would also disclose and claim another sprocket of pitch diameter or lateral spacing or speed of movement different from the first-mentioned set, thereby, for example, to feed one web at a speed different than another even through the rotational speed of the sprocket remains unchanged, or to feed webs of different lateral widths, or such patent would disclose and claim another set of prongs (on the same claw described above, or on a different claw) wherein the speed of movement or the lateral spacing of the prongs comprising such other set, is different from that of the first-mentioned set.

SEE OR SEARCH THIS CLASS, SUBCLASS:

50, for selectively reversible feed means which may include prong structure.

55 This subclass is indented under subclass 52. Device in which said prong contacts the variations periodically to hold said material against motion in any of (1) a forward direction or (2) a rearward direction or (3) both directions.

(1) Note. The prong of the patent placed herein may produce movement of the material either forwardly or rearwardly of normal travel, by reason of the shape of the prong and/or movement thereof, as it engages the variation to effect registration of the material. However, such additional material movement is deemed to be incidental since no material movement takes place if the material is properly located when the prong engages the variation.

(2) Note. See (1) Note of subclass 2 for further discussion of "registration".

SEE OR SEARCH THIS CLASS, SUBCLASS:
2, for analogous method of registration; and see (2) Note above.
27+, for apparatus effecting material-responsive registration.

56 This subclass is indented under subclass 55. Device provided with means to volitionally incapacitate the prong whereby the prong cannot hold the material against motion.

(1) Note. The purpose of the disabling means is usually to remove temporarily any barrier to the threading of the perforated web through the feeder. For other means permitting threading see subclasses 91+.

SEE OR SEARCH THIS CLASS, SUBCLASS:
91+, and see (1) Note above.
161, for means to disable operation of an intermittent material-mover.

57 This subclass is indented under subclass 55. Device provided with means to drive the prong both into and out of engagement with the material modifications.

(1) Note. To be included herein a patent must claim a device provided with more than a biasing means (e.g., a spring) to move the prong into and out of engagement with the material.

58 This subclass is indented under subclass 55. Device provided with spring means to bias the prong into material engaging position.

59 This subclass is indented under subclass 52. Device provided with (1) supplementary material-engaging means for clamping the material, thereby to stop movement thereof, or (2) means for otherwise restraining the material against movement.

SEE OR SEARCH THIS CLASS, SUBCLASS:
195, for similar apparatus.

SEE OR SEARCH CLASS:
242, Winding, Tensioning, or Guiding, subclasses 410+ and 147+ for a tension control system for a running length of elongated material.

60 This subclass is indented under subclass 59. Device wherein the material retarding means operates to moderate or prevent sudden changes in the velocity of the moving material.

61 This subclass is indented under subclass 60. Device wherein the fluctuation damping means includes a rotatable body having a high inertial mass which body resists velocity changes.

SEE OR SEARCH THIS CLASS, SUBCLASS:
13, for a flywheel provided with material-responsive control means.

SEE OR SEARCH CLASS:
74, Machine Element or Mechanism, subclass 572.2 for a flywheel.

62 This subclass is indented under subclass 52. Device provided with either (1) only one prong, or (2) a plurality of prongs, all spaced longitudinally*, all mounted in fixed relationship with, or integral with, each other, and all acting as a single group; the prong of (1) or the prongs of (2) as a single group being given a compound motion involving (a) movement into contact with a variation in the material, (b) rectilinear or arcuate movement longitudinally* of the material while in contact therewith to move said material, (c) movement away from contact with the variation and (d) longitudinal move-

ment in a reverse direction while out of engagement, back to a starting position from which the movements are repeated.

(1) Note. Patents in this and indented subclasses are distinguished from patents in such subclasses 74+ and 76+ by the nature of the movement imparted to the prong(s). The patents placed in this and indented subclasses disclose a prong which is substantially constantly oriented with respect to the perforated material; that is, a free end of the prong always points toward the material. For patents disclosing prongs constantly oriented with respect to the material but which are not fixed with respect to each other as required by (2) of the definition of this subclass (62), see subclasses 75 and 81.

(2) Note. The patents placed in subclasses 74+ disclose a prong mounted on an endless belt, chain or the like traveling about two spaced, parallel, rotated shafts or driving sprockets. In some disclosures (of subclasses 74+) the prong may be relatively fixed to the belt to rotate, during one orbit of a prong, once about an axis through the prong and parallel to the shafts. In other disclosures the prong may be mounted on two chains such that it is oriented to always point towards the material, but no confusion should exist since the prong is mounted on an endless belt or chain.

(3) Note. The patents placed in subclasses 76+ disclose a rotated wheel or drum having prongs radially mounted thereon, such devices being so different in structure and operation as to be readily distinguishable from a claw. However, attention is specifically called to certain patents placed in subclass 81 (indented under subclass 80) in which a rotating disc is provided with a plurality of pins rotating oppositely with respect to the disc in a one-to-one ratio, whereby the prongs point always toward the material during feed thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:

75, and 81, for other prong means which may be constantly oriented, and see (1) Note above.

SEE OR SEARCH CLASS:

112, Sewing, appropriate subclasses, particularly subclass 323 for a four-motion feed disclosed with a sewing machine.

63 This subclass is indented under subclass 62. Device provided with at least two prongs (or sets of prongs), each mounted separately from the other(s), in which first one prong (or set) engages and moves the material and subsequently another prong (or set) engages and moves the material, in successive material-feeding movements of the separate prongs (or sets).

(1) Note. The term “set” is used herein in the same sense as in (1) Note of subclass 54.

64 This subclass is indented under subclass 62. Device provided with means volitionally to adjust or vary either (1) the distance, or (2) the route, traversed by the prong in its orbital to-and-fro movement.

(1) Note. The term “range”, as used in these subclasses is applied to the path of claw movement and not to the throw of the claw, i.e., the amplitude of claw movement. The mechanisms are sometimes referred to as “framers”.

(2) Note. The patents placed in this subclass (64) are to devices which only vary the extent of claw movement. For those devices which vary the range only, or the range and extent, see subclasses 65 and 66 indented hereunder.

65 This subclass is indented under subclass 64. Device wherein said means changes the route traversed by the prong without varying the distance traversed.

(1) Note. The patents placed herein may have additional means to adjust the extent to claw movement.

66 This subclass is indented under subclass 65. Device in which the range of claw movement is moved so as not to intercept the path of material, whereby material movement is stopped.

67 This subclass is indented under subclass 62. Device provided with a carrier* movable to-and-fro in a straight line or plane parallel to the direction of movement of the material, on which carrier the prong is mounted for movement into and out of engagement with the perforations in the material.

68 This subclass is indented under subclass 67. Device wherein the claw is oscillatable on the carrier*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

71, for a claw pivotable on a pivoted carrier.

69 This subclass is indented under subclass 62. Device provided with two carriers* on which carriers the prong (or prong set) is mounted for movement into and out of engagement with the material variations.

70 This subclass is indented under subclass 62. Device provided with a carrier* oscillatable on a stationary centerline of a spindle or axle, on which carrier the prong is mounted for movement into and out of engagement with the variations in the material.

71 This subclass is indented under subclass 70. Device in which the prong is oscillatable on the carrier*.

72 This subclass is indented under subclass 70. Device in which the prong is reciprocal relative to the carrier along a line passing through, and perpendicular to, the axis of the spindle on which the carrier* oscillates.

(1) Note. See (1) Note of subclass 73 for the differences between the structures of this subclass (72) and subclass 73.

73 This subclass is indented under subclass 62. Device provided with a stationary rod, in which device the prong is integral with, or fixed to, a slotted member having a compound movement combining both (1) a reciprocation along the slot radially of said rod and (2) oscillation about the rod.

(1) Note. The claw member of this subclass (73) is similar to that of subclass 72 and usually the motion is similar. The basic difference between the patents of the subclasses, lies in the joint between the claw member and the fixed stud or axis. In patents placed in this subclass (73) a slotted claw member slides directly on the fixed stud as the member oscillates about the stud. In some patents placed in subclass 72 a pivotable block is interposed between a slotted claw member and the fixed axis or stud; the slot of the claw member slides on the block, and the block oscillates about the axis.

74 This subclass is indented under subclass 52. Device including a continuous (i.e., closed-loop) member, which may comprise a concatenation of elemental parts which form or make up such a continuous (i.e., closed-loop) member, which member, in either case, is trained about a plurality of separated, noncoaxial pulleys or sprockets, and on which member one or more prongs is mounted for feeding movement therewith.

(1) Note. See (1) Note to subclass 62 for the differences between the structures of this subclass (74) and subclasses 62+ and 76+.

SEE OR SEARCH THIS CLASS, SUBCLASS:

170, for other endless-belt material-advancer.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclass 183 for motion picture apparatus with film feeding apparatus employing an endless belt.

75 This subclass is indented under subclass 74. Device provided with means to impart motion to the prong additional to its material-advancing movement.

(1) Note. The supplementary pin-movement described above may be to move the pin perpendicularly to the surface of the material whereby the pins enter into and retract from the variations in the material, or may be to move the pin transversely of the direction of movement thereof, parallel to the material surface, whereby to adjust for various width of, or lateral spacings of variations in, material.

SEE OR SEARCH THIS CLASS, SUBCLASS:
79, for laterally adjustable sprocket means.
81, for supplementary pin movement in a sprocket wheel.
179, for an axially movable roll.

76 This subclass is indented under subclass 52. Device provided with a member rotatable about an axis perpendicular to longitudinal* travel of the material, and said member provided with a prong(s) extending radially from said axis and, if a plurality of prongs is provided, spaced circumferentially around said member.

(1) Note. See (1) Note of subclass 62 for the differences between the structures of this subclass (76) and subclasses 62 and 74.

SEE OR SEARCH CLASS:
352, Optics: Motion Pictures, subclasses 187+ for motion picture apparatus with sprocket film feed.
474, Endless Belt Power Transmission Systems or Components, particularly subclasses 152+ for a positive drive pulley.

77 This subclass is indented under subclass 76. Device wherein the rotating sprocket moves material which comprises a plurality of interlinked or articulated members, e.g., a chain.

78 This subclass is indented under subclass 76. Device in which a first portion of material is engaged by one or more first prongs of a sprocket, a second portion of said material is free of [i.e., out of engagement with, and (as disclosed) usually in a loop about, a sound or projection head] said sprocket, and a third portion of said material is engaged by one or more second prongs of the same sprocket, said second prong(s) being peripherally separated (usually, as disclosed, by substantially 180° of arc) from said first prong(s) by prongs which are not in engagement with said second portion of material.

(1) Note. The patents placed herein disclose, and often broadly claim, the named operating station (e.g., a sound head, or a motion picture taking or projecting lens) which station operates on the free loop or bight of the material, and which station the sprocket feeds the material to, and takes the material away.

79 This subclass is indented under subclass 76. Device wherein the sprocket(s) is (are) movable along the axis of rotation.

(1) Note. Included herein are patents disclosing structure for changing the axial distance between plural sprockets.

SEE OR SEARCH THIS CLASS, SUBCLASS:
75, for laterally adjustable pin belt means.
179, for an axially movable advancing roll.

80 This subclass is indented under subclass 76. Device provided with means to detach the material from the prong(s).

(1) Note. Included herein are patents disclosing a stationary member guiding the material away from a pin-wheel as well as a movable member contacting with and moving the material away from the pin-wheel.

SEE OR SEARCH THIS CLASS, SUBCLASS:
5, for method of “stripping”.

83, for means to permit disengagement of the material from the prong usually while the material is stationary.

81 This subclass is indented under subclass 80. Device wherein said means imparts a motion of the prong(s) additional to the feed movement thereof, the additional motion serving to disengage the prong(s) from the material.

(1) Note. Included herein are patents disclosing a prong (or prongs) always pointed toward the material, similar functionally, but not structurally, to the patents of subclasses 62+. See (1) Note to subclass 62.

SEE OR SEARCH THIS CLASS, SUBCLASS:
75, for supplementary movement of a chain or belt-carried pin.

82 This subclass is indented under subclass 76. Device provided with means closely adjacent the prong(s) or adjacent the sprocket to ensure engagement of the material with said prong(s).

83 This subclass is indented under subclass 82. Device in which said means is movable out of adjacency with prong(s) or the sprocket (or vice versa) thereby to permit the material to be put into, or taken out of, engagement with the prong(s).

SEE OR SEARCH THIS CLASS, SUBCLASS:
56+, 89+ and 91+, for other means to permit threading of material into feeder structure.
80+, for means to disengage material from prongs, usually while the material is moving.

84 This subclass is indented under subclass 83. Device in which said means comprises a roll*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
85, for a roller retainer which is not relatively displaceable from the sprocket.

85 This subclass is indented under subclass 82. Device in which said means comprises a roll*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
84, for a roller retainer which is relatively displaceable from the sprocket.

86 This subclass is indented under subclass 76. Device provided with means other than the sprocket periphery to hold material against the force of gravity.

87 This subclass is indented under subclass 52. Device in which the configuration or form or structure of the material engaging portion of the prong(s) or claw member is specifically recited in the claim(s).

88 This subclass is indented under the class definition. Device provided with means to bend the material laterally* within its elastic limit to facilitate the moving thereof.

(1) Note. To be placed here as an original, a patent must positively recite that the bending in some way significantly alters or enhances the operation of the advancer thereon. Thus, for example, a patent claim reciting a shaped roller or guideway which bends the material into an arcuate cross-section will be placed herein only if the purpose is stated to be for stiffening the material to make the material self-supporting.

(2) Note. Longitudinal bending is not considered to be significant for this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
104+, for a festooner that advances material in loop form.
113+, for a bight former using one of the material moving means to push or pull the material into a loop.
118.2+, for plural material-moving means having intermediate storage in a loop having a displaceable support.
192, for centering roll structure which may tend to bend the material laterally.

SEE OR SEARCH CLASS:
83, Cutting, subclass 176 for similar apparatus combined with cutting means.

89 This subclass is indented under the class definition. Device having means movable for the purpose of permitting the manual insertion of material into the advancing mechanism.

(1) Note. This subclass includes patents which merely claim the shiftable device without claiming the material moving means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

83+, for other devices having shiftable parts which could permit threading.

90 This subclass is indented under subclass 89. Device provided with a roll* which is movable to facilitate material loading.

SEE OR SEARCH THIS CLASS, SUBCLASS:

176+, for a shiftable roller not disclosed as for threading.

91 This subclass is indented under the class definition. Device characterized by means to lead or convey a lead-end of material to or through material moving mechanism.

(1) Note. The device must clearly be disclosed as being for the purpose of threading the lead-end of a new portion of material or of broken material to or through a material mover within the class definition. A device which pulls a lead-end of material through or to an operating station, such means being the primary feeding means provided, is found elsewhere. See Lines With Other Classes, Relationship to Specific Classes, of this publication.

(2) Note. For placement herein, a patent need only claim the threading device itself and need not claim it in combination with a material advancing means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

56, 83 and 89+, for other means permitting threading.

SEE OR SEARCH CLASS:

34, Drying and Gas or Vapor Contact With Solids, subclass 120 for threading means in a drying machine.

57, Textiles: Spinning, Twisting, and Twining, subclass 306 for combined twisting and waste or loose end collecting means; and subclass 353 for strand catching means.

242, Winding, Tensioning, or Guiding, subclasses 332+, 364.4, 532.7, and 562.1 for threading means associated with a winding or unwinding device.

352, Optics: Motion Pictures, subclass 158 for self-threading motion picture apparatus.

92 This subclass is indented under subclass 91. Device provided with means, usually a gripper*, to positively drag the forward edge of new or broken material to or through the material advancing means.

(1) Note. See (1) Note of subclass 91 and Lines With Other Classes, Relationship to Specific Classes, of this publication.

SEE OR SEARCH CLASS:

414, Material or Article Handling, subclasses 14+ for devices for pulling the lead end of stock material.

93 This subclass is indented under the class definition. Device wherein a force, other than a mere frictional force, is utilized to facilitate the grip of a material moving means on the material, the force being exerted in some manner other than (1) the weight of the material itself, or (2) an element opposite the advancing means, which element urges the material against the advancing means.

(1) Note. As indicated by the subclasses indented hereunder, these forces are electrostatic, pneumatic, or the adhesive nature of the material being moved. An example, of a patent left in this subclass (93) is one for a device which utilizes magnetism as the attracting force.

94 This subclass is indented under subclass 93. Device wherein the force utilized is of the type created by moving a dielectric through a high potential electric field.

95 This subclass is indented under subclass 93. Device wherein the force utilized is the thrust of gaseous fluid.

(1) Note. The patents herein are for devices which utilize air pressure to facilitate adherence of the material to the material advancer.

SEE OR SEARCH THIS CLASS, SUBCLASS:

97.1+, for apparatus using fluid current to advance the material.

SEE OR SEARCH CLASS:

242, Winding, Tensioning, or Guiding, subclasses 332.3, 417.1, 419.4, 538+, and 564.3+ for material feeding means or pneumatic structure for winding, tensioning, or unwinding elongated material.

96 This subclass is indented under subclass 93. Device wherein the force utilized is the sticky or tacky nature of the material moved.

97.1 BY FLUID CURRENT:

This subclass is indented under the class definition. Device comprising means to impinge a gas, liquid, or other fluent substance to move the material*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

7, for a process of using fluid current to move material*.

95, for pneumatic pressure means to make the material* adhere to the material*-advancer.

SEE OR SEARCH CLASS:

28, Textiles: Manufacturing, subclasses 271+ for a method or apparatus of thread surface texturing (e.g., crimping, etc.) by using a fluid jet.

34, Drying and Gas or Vapor Contact With Solids, subclasses 640+ for a fluid support or guide for a running length of a flexible sheet, web*, or strand* of treated material* contacted by gas or vapor circulation apparatus.

57, Textiles: Spinning, Twisting, and Twining, subclasses 279+ threading up apparatus or process that may use fluid current to advance the material*.

65, Glass Manufacturing, subclasses 182.1+ for a fluid support means for an article or preform.

83, Cutting, subclass 24 for a process of cutting and subsequent product handling by using fluid means, subclasses 98+ a fluid current handling means for product of cutting, or subclass 402 for fluid current means to convey work relative to a tool station.

242, Winding, Tensioning, or Guiding, for more than a nominal supply or take-up coil structure (e.g., a support for such a coil, a cooperative relationship between a tension or exhaust detector and reel driving or reel stopping means, etc.), subclass 332.3 unwinding and rewinding a machine convertible information carrier (e.g., magnetic tape or photos:graphic film. etc.) including a threading means using pneumatic assistance, or subclasses 615.11+ a residual locus for a material* fluid suspension guide or guard.

261, Gas and Liquid Contact Apparatus, subclass 80 for a contact device for a traveling strip.

406, Conveyors: Fluid Current, for apparatus and methods conveying solid material or articles which are guided or supported to travel along a path by means of or with assistance of a fluid current.

97.2 And web* storage:

This subclass is indented under subclass 97.1. Device and means to accumulate web* material*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

118.1+, for intermediate storage means between plural material*-moving means.

SEE OR SEARCH CLASS:

242, Winding, Tensioning, or Guiding, subclasses 331+ for an unwinding and rewinding a machine convertible information carrier (e.g., magnetic tape or photographic film, etc.) having intermediate storage (e.g., low inertia bin, etc.), subclasses 364+ for a unidirectional winding and unwinding coil that may involve storage or subclasses 417+ for a tension control brake supply controlled reserve loop former.

97.3 Floating web*:

This subclass is indented under subclass 97.1. Device including means to buoy or levitate the web*.

97.4 Vacuum jet for strand*:

This subclass is indented under subclass 97.1. Device wherein the device uses an enclosed flow path where a high velocity fluid flow imparts energy by entraining and frictionally contacting fluid within or adjacent to the enclosed flow path to create suction to move the strand*.

SEE OR SEARCH CLASS:

139, Textiles: Weaving, subclasses 435.1+ for weaving means where weft is inserted by fluid jet from nozzle.

254, Implements or Apparatus for Applying Pushing or Pulling Force, subclass 134.4 for a method or apparatus of placement of conductive wire by fluid pressure differential in conduit (e.g., parachute sacked through conduits, etc.).

100 This subclass is indented under the class definition. Device including means to sense a condition in the moving operation, and to cause the occurrence of some sign, mark, warning noise, or other manifestation of the condition in response to said sensing.

SEE OR SEARCH CLASS:

116, Signals and Indicators, appropriate subclasses for a mechanical signal or indicator.

340, Communications: Electrical, subclasses 500+ for electrical automatic condition responsive indicating systems.

101 This subclass is indented under the class definition. Device having means by which an adjustment, addition, removal or reassembly of one or more of the parts of the apparatus causes the apparatus to perform (1) the function of advancing material in a different manner or (2) some function other than to advance material, not provided for in some other class.

102 This subclass is indented under the class definition. Device having means, in addition to that structure falling within the definition of this class, (but specifically additional means for braking or slowing material movement) which additional means is not provided for in previous subclasses of this class.

(1) Note. In general, such additional means is a part of a work treatment device of another class, which part is not sufficient to cause placement of the patent in the work treatment class in accordance with Lines With Other Classes, Relationship to Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, of this publication.

(2) Note. Included herein are, for example, feeding combinations with means to absorb or minimize shock, jars or noise as the material is advanced, means to collect excess material following a break in the material, means to clean the advancing mechanism, and means to mount the device to make it portable.

SEE OR SEARCH THIS CLASS, SUBCLASS:

195, for structure to move material and means to brake or slow movement of said material.

104 This subclass is indented under the class definition. Device including at least one member (hereafter referred to, in the definition of the indented subclasses as girt) having an axis extending laterally* of the material to be moved, in which device as disclosed, (1) a plurality of such members receive and support a

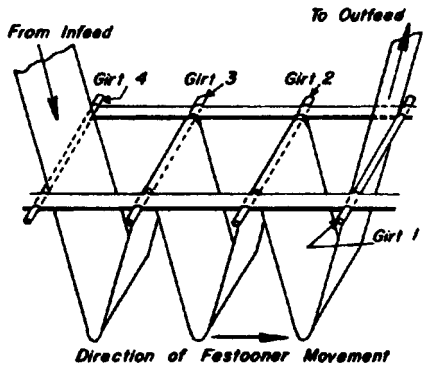
loop of indeterminate length* material, the material depending downwardly from supporting contact with one such member and then upwardly to supporting contact with another such member, (2) means are provided to give translatory movement to said member(s) in a direction simultaneously perpendicular to said axis and broadside to said loop, and (3) the material has substantially no movement relative to said member(s) during such translatory movement.

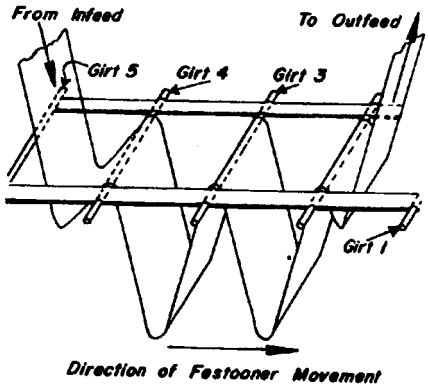
(1) Note. The terms bar, stick, rod, etc., are synonymous with the term "girt" in this art.

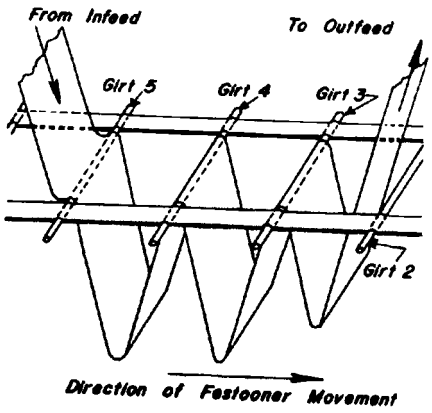
(2) Note. In usual operation, a portion of the material at a loading end of the festooner is draped or held relatively stationary over a girt, a succeeding portion of that material is advanced longitudinally, (generally in a vertical direction) until a quantity of material is looped between the girt and the loading (or infeed) means, a portion of that material is draped over a succeeding girt while all or some of the girts move bodily in a direction perpendicular to the axis of the girts and broadside to the loop thus formed (generally in a horizontal direction) and the material is removed from the individual girts as the girts advance.

(3) Note. To be placed in this group of subclasses a patent must claim the device in such terms that it is clear, or it can reasonably be inferred, that a definite loop is found between girts. Devices not clearly within this group may be found in subclass 170, endless conveyors.

(4) Note. The mere naming of a device as a "festooner" or equivalent phrase does not warrant placement of a patent with such a recitation in this group. The significant characteristic herein is the translatory movement of the girts broadside to the loops. Other devices, sometimes named as festooning machines, but in which the material moves in a sinuous path over and under rotated or rotatable rolls.







SEE OR SEARCH THIS CLASS, SUBCLASS:

14, for a festooner controlled by material-responsive means.

118.2+, for plural material-moving means having intermediate storage in a loop having a displaceable support.

170+, and see (3) Note above.

SEE OR SEARCH CLASS:

34, Drying and Gas or Vapor Contact With Solids, subclasses 645+ for similar apparatus in combination with drying means.

68, Textiles: Fluid Treating Apparatus, subclasses 159+ for similar apparatus in a textile treating machine.

118, Coating Apparatus, subclass 32 for similar apparatus in combination with a coating device.

242, Winding, Tensioning, or Guiding, for more than a nominal supply or take-up coil structure (e.g., a support for such a coil, a cooperative relationship between a tension or exhaust detector and reel driving or reel stopping means, etc.), subclasses 417+ for a tension control brake supply controlled reserve loop former.

105 This subclass is indented under subclass 104. Device provided with means to rotate or pivot the loop-supporting girt about the axis of the girt or about a line parallel to said axis, whereby the girt will contact another portion of the loop and have another orientation in relation to the girt-translating means.

(1) Note. The usual disclosed purpose of a device provided with such girt shifting means is to present all portions of the supported material to drying air. If a patent claims a source of drying air, such patent will be placed in Class 34 (see Lines With Other Classes, Relationship to Material-Modifying Classes Which Include Feeding of Indeterminate-Length* Work, of this publication).

(2) Note. The shifting herein described is the only other exception to the restriction (in the definition of subclass 104) that the material has no movement relative to the girt during translatory movement thereof.

106 This subclass is indented under subclass 104. Device provided with clamping means to retain material on a girt.

(1) Note. Usually, the clamping means functions primarily to start a festoon on a girt.

107 This subclass is indented under subclass 104. Device provided with means to move a girt from a stored location onto the girt-translating means.

(1) Note. The stored location referred to above is one at which the girts do not participate in the motion of the girt-conveyor.

108 This subclass is indented under the class definition. Device provided with more that one driven material-advancing means.

(1) Note. Included in this and indented subclasses are patents for devices which have plural material movers which are simultaneously driven at the same speed by the same drive means, since the movers are deemed to be capable of moving material independently if separate drive means were provided.

(2) Note. A roll-couple* is not considered to be plural moving means since the two rolls* cooperate as one entity to produce movement of the material.

109 This subclass is indented under subclass 108. Device wherein the moving means direct (1) indeterminate-length* material along one of several different routes, or (2) several indeterminate-length materials along several different routes.

SEE OR SEARCH CLASS:

57, Textiles: Spinning, Twisting, and Twining, subclass 91 for similar means in spinning, twisting and twining apparatus.

110 This subclass is indented under subclass 109. Device wherein material is moved along only one path of the several provided, at any one time.

111 This subclass is indented under subclass 108. Device provided with means to adjust the rate of motion of one of the moving means without changing the velocity of the others.

112 This subclass is indented under subclass 108. Device wherein, during any instant of time, any one of the material moving means is moving all of the material whereby the travel of the material is maintained without interruption.

(1) Note. The patents placed herein are directed to devices which cause all of the material to move continuously with no storage of the material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

118.1+, for plural material-moving means having intermediate storage.

113 This subclass is indented under subclass 108. Device wherein one of the material moving means is a means to push or pull material into a loop.

SEE OR SEARCH CLASS:

83, Cutting, subclass 235 for similar apparatus combined with cutting means.

352, Optics: Motion Pictures, subclass 159 for loop forming means in a motion picture apparatus.

114 This subclass is indented under subclass 113. Device provided with means to mount the bight former for movement in an arcuate path.

115 This subclass is indented under subclass 108. Device wherein one of the material movers advances material discontinuously.

116 This subclass is indented under subclass 115. Device wherein one of the other movers advances material to the intermittent mover so that the latter may grasp the material and cause the material to continue to advance.

(1) Note. Exemplary patents placed herein disclose feeders for moving perforated web material, wherein movement is effected by peripheral contact of a feedroll with the surface* of the web and stopping is caused by a perforation underlying the feedroll so that peripheral contact is lost. Thereafter, to effect starting, a recessed roll coaxial with the feedroll engages a portion on the surface laterally spaced from the perforation as shown by Patent Number 1,648,483, or the recessed roll may be on an axis parallel to and spaced from axis of the feedroll as in Patent Number 1,415,721.

SEE OR SEARCH THIS CLASS, SUBCLASS:

55+, for disclosure wherein the material is positively engaged to stop the material.

117 This subclass is indented under subclass 115. Device wherein one of the other means advances material uninterruptedly.

SEE OR SEARCH THIS CLASS, SUBCLASS:

189, for orbitally traveling material*-engaging surface(s) to advance material* of indeterminate length* and plural spaced apart rolls* (e.g., guide rolls*, etc.).

SEE OR SEARCH CLASS:

34, Drying and Gas or Vapor Contact With Solids, subclasses 647+ for zigzag running lengths of treated flexible sheet, web*, or strand* material* contacted by circulating gas or vapor or subclass 657 for zigzag running lengths of treated flexible sheet, web* or strand* material*.

139, Textiles: Weaving, subclasses 435.1+ for weaving means where weft is inserted by fluid jet from nozzle; subclass 452 for measuring or storing weft for a weft manipulation method or apparatus.

254, Implements or Apparatus for Applying Pushing or Pulling Force, subclass 134.4 for a method or apparatus of placement of conductive wire by fluid pressure differential in conduit (e.g., parachute sacked through conduits, etc.).

118.3 Where support is upheld by the material* (e.g., dancer roller, etc.):
This subclass is indented under subclass 118.2. Device wherein the guide is supported by the material*.

118.4 In a container:
This subclass is indented under subclass 118.1. Device wherein the storage means is a receptacle having an entrance and exit for the material*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

200, for miscellaneous art that may include a container having other than plural feeding means.

SEE OR SEARCH CLASS:

400, Typewriter Machines, subclasses 196+ for storage of endless ribbon or cartridge therefor including interposed inking device (e.g., ribbon, etc.) for record medium.

118.5 Having conveying means within:
This subclass is indented under subclass 118.4. Device including means to propel the material* inside the container.

120 This subclass is indented under the class definition. Device having means for advancing material in a step-by-step manner, including advancing an increment of material and stopping movement of the material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

8, for an analogous method.

115+, for an intermittent mover cooperating with another material mover.

SEE OR SEARCH CLASS:

40, Cards, Picture, or Sign Exhibiting, subclasses 342+ for a copy holder including means to advance a web of copy intermittently; particularly, subclass 346 for such a copy holder including a cyclically acting actuator for rotary-pinch-pair advancing means.

53, Package Making, subclasses 235+ for apparatus for depositing strips or rods in preformed receptacles.

74, Machine Element or Mechanism, subclasses 111+ for an intermittent grip type mechanical movement and subclasses 144+ for grip units and features.

83, Cutting, subclasses 202+ for similar mechanism combined with cutting means.

198, Conveyors: Power-Driven, subclasses 750+ for a conveyor having to and fro movements which carry material a distance and then return for another hold on the same material.

221, Article Dispensing, appropriate subclasses for a device for dispensing or feeding articles from a source of supply to a point of use, and not otherwise provided for; and see the class definition of Class 221 for a statement of the class lines and for the disposition of other related article feeding disclosures.

225, Severing by Tearing or Breaking, subclasses 10+ for a device which feeds out a predetermined amount of material to a manual tearing edge.

227, Elongated-Member-Driving Apparatus, subclasses 82+ for a device for applying a member e.g., nail to work combined with means for forming the member and having means for feeding and cutting a blank from which the member is made.

242, Winding, Tensioning, or Guiding, for more than a nominal supply or take-up coil structure (e.g., a support for such a coil, a cooperative relationship between a tension or exhaust detector and reel driving or reel stopping means, etc.), subclass 354 for a particular linear feeder* (e.g., capstan or sprocket, etc.) spaced from the supply or take-up coil.

314, Electric Lamp and Discharge Devices: Consumable Electrodes, appropriate subclasses, especially subclasses 82 through 128 for an arc lamp or other similar electric discharge device which is provided with means for feeding an electrode (rod, bar, or tube) into position as the elec-

trode is consumed, where the feeding mechanism includes an intermittent grip mechanism.

401, Coating Implements With Material Supply, subclasses 65+ for an implement including means to feed a rod of solid coating material incrementally.

414, Material or Article Handling, subclasses 14+ for devices for moving stock by means of lead-end pullers or end face pushers.

470, Threaded, Headed Fastener, or Washer Making: Process and Apparatus, subclasses 162+ for feeding of work blanks of stock pieces not provided for in the several machining classes and yet so specialized to the functions of a machining class as to preclude classification in a general article feeding or dispensing class (221). See the reference to Class 221 hereinbelow.

121 This subclass is indented under subclass 120. Device wherein power absorbed from the movement of material itself is subsequently utilized in a later material-moving effort.

(1) Note. This subclass does not include patents disclosing a spring motor in which the spring is tensioned by means other than a movement of the material.

SEE OR SEARCH CLASS:

225, Severing by Tearing or Breaking, subclass 15 for similar apparatus combined with a tearing edge.

352, Optics: Motion Pictures, subclass 184 for motion picture apparatus where a film is fed by the action of a film buckle.

122 This subclass is indented under subclass 120. Device including means for changing the rate of travel of material during an increment of movement.

(1) Note. This subclass includes only those patents in which the claims specifically set forth the change of rate of travel during each step. It is obvious that in any intermittent feeder the material must accelerate from zero and decelerate to a halt, thus patents have not been placed in this subclass on that basis. The patents herein disclose devices which provide specific means which may, for instance, provide a slow acceleration to start the material, than a faster acceleration for some duration of time and then a deceleration to bring the material to a halt.

(2) Note. Exemplary of the patents herein is a device disclosing planet and sun gear train in which the planet gear is described as having hypotrochoidal motion.

123 This subclass is indented under subclass 120. Device whereby the material is advanced in recurring series of material movements, each series comprising a number of material movements which are different in extent, one from any of the others within the series.

124 This subclass is indented under subclass 120. Device provided with a continuously driven roll* mounted on a carriage, which carriage moves to and fro, (either rectilinearly or arcuately).

(1) Note. In the operation of the devices classified herein, the average speed of the carriage in retrograde direction (i.e., opposite to feed direction) approximates the peripheral speed of the roll in feed direction such that retrograde movement of the carriage nullifies the feed movement imparted by the roll, to effect interruption of material-advance.

125 This subclass is indented under subclass 120. Device in which material movement is stopped by engagement of an element with the leading edge of said material.

(1) Note. Included in this or indented subclasses are patents disclosing a constantly rotating feed roll and an abutment intermittently interposed in the feed path: the feeding operation of the device as an entity is thus interrupted.

SEE OR SEARCH THIS CLASS, SUBCLASS:

55+, for a device wherein a pin engages a perforation in material to prevent material movement.

SEE OR SEARCH CLASS:
225, Severing by Tearing or Breaking, subclass 81 for similar apparatus combined with a tearing edge.

126 This subclass is indented under subclass 125. Device wherein the abutment moves with the material in the direction of material advancement before stopping movement.

127 This subclass is indented under subclass 120. Device in which the advancing means (i.e., the mover) is powered by an operative (e.g., a person who operates the device).

128 This subclass is indented under subclass 127. Device having means for positively holding the advance material when the material is not being moved by the material-mover.

(1) Note. Exemplary patents placed herein disclose feed means for lathes in which the chuck grips the material when the feeder is not in operation.

SEE OR SEARCH CLASS:
82, Turning, subclasses 124+ for a work feeder combined with a lathe.
83, Cutting, subclass 282 for a similar device combined with cutting means.

129 This subclass is indented under subclass 127. Device having structure restricting the extent of movement of the material-mover.

(1) Note. It is clear that any material-advancer which fits the limitation that advance is intermittent must inherently provide for some limit on the increment of advance. To be placed in this and indented subclasses, a patent must disclose and claim more than inherent limit on advance, that is, it must specifically claim a limiting element in, or acting on, the drive train of a manually powered material mover.

130 This subclass is indented under subclass 129. Device provided with structure for moving the restricting means to an inoperative position, thereby allowing subsequent material advancement.

(1) Note. For example, (1) a limiting part which is moved out of a position wherein material advancer is limited or (2) an element on which such part is mounted for movement, are both considered to be means to disable operation of the limit means.

131 This subclass is indented under subclass 130. Device wherein the means to disengage the restricting means is moved after a predetermined interval of time after material-movement stops, whereby the material may be moved again only after said interval.

132 This subclass is indented under subclass 129. Device provided with at least two separate limiting means any one of which means may be chosen by an operative to control the extent of movement of the material in any increment.

133 This subclass is indented under subclass 129. Device provided with means for changing the position of the restricting means with respect to the material advancing structure.

(1) Note. Included herein is a patent disclosing a device having a reciprocal operating handle in which either the reverse (nonadvancing) or forward (advancing) movement of the lever is restricted by an adjustable stop.

SEE OR SEARCH THIS CLASS, SUBCLASS:
136, and 137+, for other adjustable material-mover.

134 This subclass is indented under subclass 120. Device in which the material is (1) started (from a rest position), (2) advanced through an extent of material-movement and (3) stopped (in a rest position), and in which further advance from said last-named position requires the intervention of a randomly operating agency or stimulus.

SEE OR SEARCH CLASS:
83, Cutting, subclasses 203+ for a unicyclic feeding and cutting device.

135 This subclass is indented under subclass 134. Device provided with two or more elements, any one of which elements may be actuated to effect a predetermined extent of material advance different from, or additive to, the extent(s) of advance effected by another (or other) elements(s) in the single cycle.

(1) Note. Included herein are patents disclosing a device in which one of a plurality of keys (similar to those on a typewriter keyboard) is moved, or a dial (similar to a telephone dial) is rotated, to actuate a switching relay circuit, in which the manipulation of a particular key or particular finger hole of the dial causes a predetermined extent of movement of the advancer.

136 This subclass is indented under subclass 134. Device provided with means for changing the extent of material advance during the cycle.

SEE OR SEARCH THIS CLASS, SUBCLASS:

133, for other means to vary increment of advance.

137, for adjustable material-advancing means for a disclosed operating station.

137 This subclass is indented under subclass 120. Device wherein a part, or parts, of an intermittent feeder* may be moved volitionally relative to other part(s) of the device, whereby the direction or increment of feed may be varied.

SEE OR SEARCH THIS CLASS, SUBCLASS:

132, 133, 135, and 136, for other means to adjust or select increments of material-advance.

138 This subclass is indented under subclass 137. Device having a moving portion of the feeder that strikes an element, which element is moved relative to the striking portion, causing actuation of the movable part one of said members (i.e., either the portion or the element), being manually movable into (or out of) a position whereat the striking engagement occurs.

139 This subclass is indented under subclass 137. Device wherein movement of the part(s) effects a change in the extent of material advanced during each step of operation.

140 This subclass is indented under subclass 139. Device provided with a recessed-roll* and means to modify the peripheral extent of the radially outward material-engaging portion of said recessed-roll.

141 This subclass is indented under subclass 139. Device provided with means to vary the extent of movement of the feeder while moving in contact with the material.

142 This subclass is indented under subclass 141. Device provided with a lever which is rotated or oscillated about an axis and is provided with a pivotal connection between the lever and a link to move the feeder*, the axis and the pivotal connection being a distance apart and provided with means for changing the distance between said axis and connection.

143 This subclass is indented under subclass 120. Device including means to retract at least a portion of the material.

(1) Note. Patents disclosing a device wherein the means which directly engages the material for causing forward movement thereof is separate and distinct from the means for causing retrograde movement thereof have been placed in plural material-moving means, above.

144 This subclass is indented under subclass 120. Device having means to preclude excess advancing movement of the material.

(1) Note. The device may include (1) means to brake the movement of the material by direct engagement therewith or (2) mover-blocking means to prevent excess advancing movement.

145 This subclass is indented under subclass 144. Device having means acting periodically to preclude excess material movement at the end of the advancing step.

146 This subclass is indented under subclass 144. Device provided with means to preclude reverse motion of the material.

SEE OR SEARCH THIS CLASS, SUBCLASS:
147, for other retrograde movement preventer.

147 This subclass is indented under subclass 120. Device provided with means to preclude reverse movement of the material.

(1) Note. The preventer is additional to the material-advancer and must be claimed as means (or equivalent term) which is clearly disclosed as prohibiting reverse movement of the material.

148 This subclass is indented under subclass 147. Device in which the preventing means comprises a roll* incapable of turning in a reverse direction.

SEE OR SEARCH THIS CLASS, SUBCLASS:
156, for a unidirectional (feed) roll not claimed as preventing retrograde motion.

149 This subclass is indented under subclass 147. Device wherein the preventing means is driven into holding engagement by an unyielding member.

150 This subclass is indented under subclass 149. Device wherein the preventing means is driven by means which derives its proximate actuating force from fluid-pressure or electricity.

151 This subclass is indented under subclass 147. Device wherein the preventing means is resiliently urged toward engagement.

152 This subclass is indented under subclass 120. Device wherein the material is advanced in a step-by-step manner by a roll*.

153 This subclass is indented under subclass 152. Device provided with a recessed-roll*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
116, for a recessed-roll combined with another material-mover.

SEE OR SEARCH CLASS:
83, Cutting, subclass 260 for a recessed-roll combined with cutting means.

154 This subclass is indented under subclass 152. Device provided with means for moving the roll* and material relatively, into and out of material-advancing engagement.

SEE OR SEARCH CLASS:
83, Cutting, appropriate subclasses, particularly subclasses 259+ for a similar device combined with cutting means.

155 This subclass is indented under subclass 154. Device wherein the roller* does not stop turning in the same direction.

156 This subclass is indented under subclass 152. Device wherein the roll* is incapable of turning in a reverse direction.

SEE OR SEARCH THIS CLASS, SUBCLASS:
148, for a unidirectional roll comprising a retrograde motion preventer.

157 This subclass is indented under subclass 156. Device provided with a peripherally toothed disc and oscillating pawl drivingly engaging the disc to move the roll*.

SEE OR SEARCH CLASS:
74, Machine Element or Mechanism, appropriate subclasses, particularly subclasses 575+ for ratchet systems, per se.

158 This subclass is indented under subclass 120. Device wherein the intermittent material-mover is a material-advancing member which moves to-and-fro (either rectilinearly or arcuately), and engages the material at least while moving in the material-advancing direction.

SEE OR SEARCH CLASS:

198, Conveyors: Power-Driven, subclasses 750+ for a reciprocating conveyor of general utility.

414, Material or Article Handling, subclasses 14+ for means which pull the lead-end or push the end face of the material to a work modifying station.

159 This subclass is indented under subclass 158. Device wherein the material-advancer is mounted on a reciprocating or oscillating carrier, provided with means for resisting the movement of said carrier.

(1) Note. Exemplary of the patents herein is a patent disclosing a device comprising a gripper mounted on a carrier which carrier reciprocates on a slideway, and a brake or a slack take-up to constrain the carrier against undesired movements.

160 This subclass is indented under subclass 158. Device wherein the material-advancer is on a carrier*, which carrier is mounted for arcuate movement about an axis.

(1) Note. Included herein are patents wherein, (1) the arcuately moving carrier moves the material in a corresponding arcuate path, or (2) the arcuately moving carrier moves the material in a straight path.

161 This subclass is indented under subclass 158. Device with volitionally actuated means to prevent the material engaging means from advancingly engaging the material.

162 This subclass is indented under subclass 158. Device provided with means for driving a clamping portion of the material-mover into contact with the material.

(1) Note. In this and indented subclasses are patents for devices which clearly disclose that the material-advancing elements(s) move into and out of contact with the material. Thus, a patent disclosing a spring-biased gripping element will be placed herein only if it clearly discloses and claims means for moving the element out of material-engaging position.

SEE OR SEARCH THIS CLASS, SUBCLASS:

167, for a spring-biased gripper constantly in engagement with material.

SEE OR SEARCH CLASS:

401, Coating Implements With Material Supply, subclass 65 or 67, respectively for a coating implement of that class including a reciprocating chuck, or a pair of reciprocating chucks acting in alternation, for advancing a rod of solid coating material to compensate for attrition.

163 This subclass is indented under subclass 162. Device wherein the driving means includes a point on a pitman pivotally fastened to a point on, or integral with, the grip element.

(1) Note. Included within the meaning of the term “integral” as used above is a construction in which any part(s) between the grip element and the point thereon may be disconnected, removed or shifted, but which part(s) partakes of all movement imparted to said grip element during use thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:

165, for a device having a slidable connection between a link and a grip element.

164 This subclass is indented under subclass 163. Device wherein the same link also causes the grip element to move in a material-forwarding direction.

165 This subclass is indented under subclass 162. Device wherein the driving means includes a member having a face in sliding engagement with a surface on a sub-assembly integral with the grip element.

(1) Note. Included within the meaning of the term “integral” as used above is a construction in which any part(s) of the sub-assembly between the grip-element and said surface may be disconnected,

removed or shifted, but which part(s) partakes of all movement imparted to said grip element during use thereof.

166 This subclass is indented under subclass 165. Device wherein the same cam-surface also causes the grip element to move in a material-forwarding direction.

167 This subclass is indented under subclass 158. Device provided with means for resiliently urging a clamping portion of the material-mover into engagement with the material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

162+, for a device wherein a grip element is (1) spring-biased away from the material or (2) spring-biased toward material, but moved away from the material by some other means.

168 This subclass is indented under the class definition. Device having a circumambulating material contacting face, i.e., any given element of the face moves in a closed loop.

(1) Note. In this and indented subclasses are, for example, patents disclosing devices wherein endless belts and rollers engage and advance material.

(2) Note. A patent placed in this and indented subclasses may merely guide the material* relative to the advancing material* of the indeterminate length* apparatus.

SEE OR SEARCH THIS CLASS, SUBCLASS:

52+, for means engaging longitudinally spaced modifications in the material* where the prong means may move in a closed loop and engaging modifications in the material.

120+, for intermittent (interrupted) material*-mover where the gripper means may travel in a closed loop in which only a portion of the gripper travel effects intermittent material advance.

196.1, for a passive guide, for other than orbitally traveling material*-engaging surface(s), for the advancing material* of indeterminate length* apparatus.

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 roller guide for sash-cord.

242, Winding, Tensioning, or Guiding, for more than a nominal supply or take-up coil structure (e.g., a support for such a coil, a cooperative relationship between a tension or exhaust detector and reel driving or reel stopping means, etc.), subclass 354 for a particular linear feeder* (e.g., capstan or sprocket, etc.) spaced from the supply or take-up coil, subclasses 364+for a unidirectional winding and unwinding apparatus that may involve storage, subclass 548 for particular guide or guard for convolute winding of material*, subclass 566 for an unwinding apparatus having a particular guide or guard, or subclass 615.2 for a residual locus for a rotatable material* guide or guard.

169 This subclass is indented under subclass 168. Device wherein the surface is on a material-advancer, and provided with mechanism for momentarily applying power to the advance, additional to that power which normally causes movement of the advancer, in order to overcome the starting inertia of the advancer.

170 This subclass is indented under subclass 168. Device wherein the material-engaging surface is on, or part of, either an integral, or concatenated band; the member, in either case, being trained about a plurality of separated, noncoaxial pulleys or sprockets.

SEE OR SEARCH THIS CLASS, SUBCLASS:

74+, for prong on endless belt or chain.

171 This subclass is indented under subclass 170. Device provided with another material-engaging face wherein the material is disposed between the face of the endless member and said other face.

(1) Note. Included herein are patents disclosing devices wherein the other face is on, or a part of, a roll*.

(2) Note. The cooperating surface need not be orbitally traveling.

172 This subclass is indented under subclass 171. Device wherein the other face is also on, or part of, an endless member such as is defined in subclass 170, above.

173 This subclass is indented under subclass 170. Device provided with a gripper* or grippers supported on the endless member.

SEE OR SEARCH THIS CLASS, SUBCLASS:
162+, for a reciprocating material-advancing gripper.

174 This subclass is indented under subclass 168. Device provided with means for regulating or altering the material-advancing operation of the material-advancer.

(1) Note. Included in this and indented subclasses are patents disclosing devices wherein the control or adjustment is effected by an operative, as well as patents claiming a subcombination of control or adjustment means responsive to material condition.

SEE OR SEARCH THIS CLASS, SUBCLASS:
10+, for control means combined with means responsive to material-condition.
188, for drive means for a material-advancer not having claimed regulating means.

175 This subclass is indented under subclass 174. Device wherein the regulating means radially expands or contracts a roll*.

176 This subclass is indented under subclass 174. Device provided with at least two material-engaging surfaces, at least one of which is orbitally traveling, between which surfaces the material is disposed, and wherein the regulating means changes the space (i.e., “nip”) between said surfaces.

177 This subclass is indented under subclass 176. Device wherein the spacing between the surfaces is changeable to any distance (ranging from zero to that imposed by the limits of the device) in an unlimited number of small variations, whereby different thicknesses of material may be accommodated therebetween.

178 This subclass is indented under subclass 174. Device wherein the control means regulates the rate of movement of the material-advancing means.

SEE OR SEARCH THIS CLASS, SUBCLASS:
111, for plural material-movers, the speed of which is varied.

179 This subclass is indented under subclass 174. Device wherein the regulating means adjusts a roll* along its axis of rotation.

SEE OR SEARCH THIS CLASS, SUBCLASS:
75, and 79, for an axially movable sprocket for a pin-belt or perforated material.

180 This subclass is indented under subclass 174. Device wherein the regulating means pivots a roll* about an axis other than the axis of rotation of the roll.

181 This subclass is indented under subclass 168. Device including two instrumentalities, each having material engaging surfaces, between which surfaces the material is disposed, said instrumentalities, during engagement with the material, each being rotated-about an axis-in a material-advancing direction.

SEE OR SEARCH CLASS:
242, Winding, Tensioning, or Guiding, subclasses 352.4+, 354+, 418+, 535+, and 564.3+ for a winding, tensioning, or unwinding device that includes material feeding means.

182 This subclass is indented under subclass 181. Device wherein the material-contacting face of at least one of the instrumentalities lies in a

plane perpendicular to the axis of rotation of said instrumentality.

183 This subclass is indented under subclass 181. Device in which one instrumentality of the pinch-pair is a roll*, and is provided with means for retaining the material in contact with a portion of the periphery of said roll.

(1) Note. This contact is more than just tangential, or point or line, contact with the roll.

184 This subclass is indented under subclass 181. Device wherein either (1) at least one of the instrumentalities is a cone or truncated cone; or (2) the spacing between the material-engaging surfaces of the instrumentalities, as viewed in a plane common to both axes, varies, regularly along a line parallel to the axes and lying in said plane.

185 This subclass is indented under subclass 181. Device wherein at least one of the instrumentalities comprises a plurality of rolls*, which rolls are all of like radius and are all mounted on commonly aligned centers.

(1) Note. Patents placed herein include disclosures wherein the plurality of coaxial rolls are opposed by (1) a single roll or (2) another plurality of coaxial rolls.

186 This subclass is indented under subclass 181. Device wherein the material-contacting surfaces of the instrumentalities define an expansible or contractible nip or opening.

(1) Note. The devices of patents placed in this subclass (186) generally have surfaces which are resilient.

187 This subclass is indented under subclass 186. Device wherein the axis of at least one of the instrumentalities is biased toward the other instrumentality.

188 This subclass is indented under subclass 168. Device provided with powered means to move the material-engaging surface in the material-advancing direction.

SEE OR SEARCH CLASS:

40, Card, Picture, or Sign Exhibiting, subclass 343 for a copy holder including motor-driven orbitally-traveling means for advancing a charactered web.

189 This subclass is indented under subclass 168. Device provided with two or more separated rolls*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

108+, for plural material-moving means.

190 This subclass is indented under subclass 168. Device which, as claimed, includes a roll* or roll-support of specific structure.

SEE OR SEARCH CLASS:

26, Textiles: Cloth Finishing, subclasses 99+ for roll structure of such shape or surface configuration as to spread, and thereby expand, running length increments of a cloth web; see, too, subclass 97 for selvage engaging roll spreader (forwardly) angulated, relative to the running length direction.

191 This subclass is indented under subclass 190. Device including a roll* whose peripheral face may move toward and away from the center of the roll in a direction perpendicular to the axis of rotation of the roll.

192 This subclass is indented under subclass 191. Device wherein the face of the roll* may also move relative to the center of the roll in a direction parallel to the axis of rotation.

SEE OR SEARCH CLASS:

474, Endless Belt Power Transmission Systems or Components, particularly subclasses 101+ for means for tensioning a belt or shifting a pulley or guide roll.

193 This subclass is indented under subclass 190. Device including a roll* having uneven surface characteristics which (1) increase the coefficient of friction between the surface and the material, or, (2) has other means on the surface to hold and grip the material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

52+, for a device comprising a modified material engaging surface which engages modifications in material.

SEE OR SEARCH CLASS:

19, Textiles: Fiber Preparation, subclasses 258+ for the surface structure of a drawing roll for fiber-containing structures, such as slivers.

474, Endless Belt Power Transmission Systems or Components, appropriate subclasses for pulleys having surfaces for increasing frictional grip, and for pulleys with auxiliary gripping means.

194 This subclass is indented under subclass 190. Device including specific means for mounting the roll of rotation.

SEE OR SEARCH CLASS:

68, Textiles: Fluid Treating Apparatus, subclass 126 for a squeezer roll mounting.

195 This subclass is indented under the class definition. Device including means for moving material and with means for braking or slowing the material movement.

(1) Note. This subclass is the locus of patents claiming means at one location for moving material plus means at a second location for retarding such movement, whereby a pull is effected on such material between said locations. This subclass is not the locus of patents disclosing a "dancer" roll [i.e., a roll for tautening that slack, (i.e., tendency toward looseness) occurring in material suspended between two spaced material-supports]; for such a "dancer", see subclasses 27+ (and specifically subclass 44), 21, and 168+ (specifically subclasses 190+). The word "tensioner" has acquired a variety of meanings in all of the arts relating to advancing of indeterminate-length* material. Patents disclosing a means (often termed "tensioner") for retarding the advance of material moving to a work station may be found in the classes and subclasses referred to in Lines With Other Classes and Within This Class, Relationship to Classes Which Include Subcombinations Utilizable in Advancing Indeterminate Length* Material, in which classes "tensioner" may also mean a "dancer" as used herein.

SEE OR SEARCH THIS CLASS, SUBCLASS:

21, 27+, 44, and 168+, and see (1) Note above.

SEE OR SEARCH CLASS:

28, Textiles: Manufacturing, subclasses 240+ and see the notes thereto, for other method and apparatus for stretching (which may be accomplished by the same instrumentality that accomplished tensioning).

66, Textiles: Knitting, subclass 146 for feeding and tensioning apparatus in a knitting machine.

112, Sewing, subclasses 254+ for a tensioning device in a sewing machine.

225, Severing by Tearing or Breaking, appropriate subclasses, particularly subclasses 51+, 73+, and 82+ for similar apparatus combined with a tearing edge.

242, Winding, Tensioning, or Guiding, subclasses 410+ and 147+ for tensioning means for elongated material.

196.1 PASSIVE GUIDE:

This subclass is indented under the class definition. Device comprising means to direct or confine the material* acted upon or affected only by external force.

(1) Note. The mere support, or prevention of downward movement, of material* under the influence of gravity is not significant as a guiding function. An inclined plane or the like, (which is utilized not for mere support of the material*, but to conduct it, or facilitate its deflection, to a different level) has a guiding function.

(2) Note. The "passive guide", in this and indented subclasses, performs its function without the necessary application of power thereto; it directs, deflects, ori-

ents, etc., the material* without furnishing any propelling force in the general direction of material* movement.

SEE OR SEARCH THIS CLASS, SUBCLASS:

70+, for guide means retaining the material* in contact with a reciprocating or oscillating prong.

168+, for an orbitally traveling material*-engaging surface(s) that may merely guide the material* relative to the advancing material* of indeterminate length* apparatus.

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 2.1+ for a brushing or lining thimble for an opening or socket, or subclasses 108+ for a ferrule, ring, or thimble applied to the exterior opening of a rod, pipe, conduit, strand*, or other device.

40, Card, Picture, or Sign Exhibiting, subclasses 341+ for a copyholder where the copy is advanced relative to a static guide by manual force applied directly to the copy, or to guide or advance material* relative to a viewing locus; or an indicator (e.g., line guide or pointer) relative to the copy and a support therefor.

43, Fishing, Trapping, and Vermin Destroying, subclass 24 for a line guide or tip for a fishing rod.

83, Cutting, subclasses 438+ for passive guide means in a cutting device.

112, Sewing, subclasses 136+ for a work manipulating guide combined with a specified sewing process or apparatus, or subclass 302 for a thread guiding or handling means combined with a specified sewing process or apparatus.

193, Conveyors, Chutes, Skids, Guides, and Ways; in general, for devices limited to guiding material either vertically, horizontally, or at an inclination.

227, Elongated-Member-Driving Apparatus, subclass 150 for a guide to move a workpiece relative to the elongated-member-driving apparatus.

242, Winding, Tensioning, or Guiding, subclasses 157+ for a residual guide that directs a strand*, subclasses 346+ for a particular guide or guard for an unwinding and rewinding coil to coil machine convertible information carrier (e.g., magnetic tape or photos:graphic film, etc.) cartridge system, subclass 377 for a reeling device with a spring motor having a particular guide structure, subclass 548 for particular guide or guard for convolute winding of material*, subclass 566 for an unwinding apparatus having a particular guide or guard, or subclasses 615+ for a residual guide or guard that directs elongated flexible material* that may be combined with more than nominal winding structure.

254, Implements or Apparatus For Applying Pushing or Pulling Force, subclasses 389+ for a device or member for contacting and guiding moving cable.

396, Photography, subclass 646 for a film guide for a fluid treating apparatus.

474, Endless Belt Power Transmission Systems or Components, subclass 140 for a belt guide having a surface in sliding contact with belt.

200 This subclass is indented under the class definition. Device not provided for elsewhere.

END