

CLASS 225, SEVERING BY TEARING OR BREAKING

SECTION I - CLASS DEFINITION

This class provides for devices for, and methods of, severing by manually forcing work against a fixed edge or by breaking or tearing, as more specifically defined below:

A. SEVERING BY MANUALLY FORCING WORK AGAINST A FIXED EDGE

This subject matter includes devices or processes accomplishing manual severing of indefinite length material such as strands or webs or of fixed length material such as sheets, cards, or tickets wherein a blade having a severing edge is provided and wherein the severing edge is fixed in position with respect to a portion of the work material during severance, the work itself is directly manually grasped on one side of the edge and forced against the edge to effect severance along that edge while at least some portion of the work on the opposite side of the edge is restrained from movement during severance to thereby prevent any portion of the work from being transported across the edge.

- (1) Note. Although the severing blade is not moved to effect severance, such blade may be moved or adjusted for any other purpose.
- (2) Note. This section of the class includes the combination of claimed means for performing an additional severing operation by a diverse type of severing instrumentality. For example, included is the combination of slitting a web longitudinally by moving the web past a relatively fixed cutting edge followed by severing the slit web laterally by means under the class definition (see subclass 7).
- (3) Note. Excluded from this section of the class are those devices wherein the work is manually twisted or tensioned to rupture or break along a pre-determined weakened line which is not registered with and co-extensive with a fixed edge disclosed as functioning to cooperate with the weakened line to effect severance of the work. For excluded subject matter, see subclasses 93+ and the "SEARCH CLASS" notes below to Classes for Special Receptacle or Package;

Winding, Tensioning, or Guiding,; and Supports: Cabinet Structure. See Search Notes below.

- (4) Note. This section of the class does not include claimed means for accomplishing any work-treating operation other than severing or claimed means which are ancillary to a nonsevering work-treating operation, on the same or different work from that treated by the fixed severing edge. For example, the combination of a severing device under the class definition with a means to apply a coating to the work is classified in the class for Coating Apparatus.
- (5) Note. This section of the class does not include claimed combinations of a severing device under the class definition with an art device elsewhere classified, except for diverse type cutters, as in (2) Note above, and for subclasses in this class specifically providing for combinations with timers, web or strand feed means, indicators, housings for work supply, brakes, clamps and guides. For example, the combination of a dental floss holder with means to manually sever the floss is found in the class for Toilet; or a holder for sticky tape for cleaning lint, etc., from surfaces combined with a severing edge is found in the class for Brushing, Scrubbing, and General Cleaning. See Search Notes below.

B. BREAKING OR TEARING

This subject matter includes devices or processes for breaking or tearing the work. For the purpose of this class breaking or tearing is defined as a failure by tension of the work at the point or line of separation, effected by moving one part of the work relative to another part or by causing internal stresses to be built up within the work-piece. The tension is applied by stretching, bending, twisting or applying thermal shock so as to stress and strain the work beyond its yield and failure point. This effectuation of the failure by means of the relative movement of the parts distinguishes breaking and tearing from other types of separating, e.g., where the separation is effected by moving a tool relative to the work (as e.g., through the work) which

may incidentally move the severed parts relative to each other.

- (1) Note. Where a breaking or tearing function is alleged or disclosed, the claimed structure must be such as to be capable of inducing in the work a force of tension. A structural limitation in the claim which precludes the induction of such force will direct classification of such claim on some more appropriate structural basis. For example, where a punch and die are claimed as having a close fit, or one tool of a pair is claimed in contact with the other tool or in closely spaced relation, such limitations would exclude the patent from this group of subclasses.
- (2) Note. This section of the class does not include claimed means for accomplishing any work treating operation other than severing. Merely incidental shaping or deformation of the product produced solely by the severing instrumentality in its severing motion will not be excluded; however, where the severing instrumentality is specially designed or modified so as to impose a desired shape on the product the patent will be classified elsewhere. For example, a device for breaking and bending sheet metal to a desired configuration will be classified in the class for Metal Deforming.
- (3) Note. Tension, as contemplated in this class, should extend over a substantial continuous area of the work, as contrasted with tension applied to extremely small, even if contiguous, local areas as in sawing wood, for example, or crushing brittle cellular material such as that disclosed in Patent No. 2, 781, 838.
- (4) Note. Where a work-contacting tool is utilized but there is no tension failure specifically alleged, the following guide lines should be applied to the disclosure:
 - a. If the work is tensioned across and against a fixed severing edge, whether sharp or dull, the patent will be placed in this class (225).
 - b. If a dull edged tool and supported work are moved relatively to one another to

cause tensioning and rupture of the work the patent will be placed in this class (225).

c. If a sharp-edged tool is moved into the work with the work support or holder at a substantial distance from the plane in which the blade moves but there is no clear teaching of a "slicing" cut (i.e., into and through the work and also with a component of force or motion transverse thereto, as in a "draw cut" or "progressive" cut) the patent will be placed in this class (225).

d. Where relatively flaccid work material is held in two spaced zones and a tool, whether sharp or dull, is relatively moved so as to first tension the work between the zones of support and then to cause rupture of the work along the localized line of stress at the blade edge, the patent will be classified in this class (225).

e. Where relatively stiff work is held or supported at one or both ends and a dull tool moves to engage the work in a zone spaced substantially from the support zone or zones, the patent will be classified in this class (225).

f. Where relatively stiff work is held or supported at an end zone or at two spaced zones and a sharp-edged tool is directed into the work in spaced relation to the zone or zones of support and the work is parted by movement of the tool therethrough rather than by stressing of the work beyond its yield point the patent will be classified in Class 83.

g. Where a severing tool has an edge which moves in contact with or in substantially close relation to the edge of a cooperating tool so as to sever the work therebetween, or where an edged tool is directed into work supported on a surface underlying the edge, the patent will be classified in Class 83 (or some other appropriate class).

SECTION II - REFERENCES TO OTHER CLASSES

SEE OR SEARCH CLASS:

- 15, Brushing, Scrubbing, and General Cleaning, subclass 104.002 for sticky tape lint or dust collectors with tape severing means.
- 19, Textiles: Fiber Preparation, subclasses .35+ for processes and apparatus for breaking or tearing combined with textile handling or textile treating.
- 30, Cutlery, subclasses 126 and 127 for strand cutters combined with means to hold or guide the strand to be cut and wherein use the strand is severed by manipulating the blade rather than by manually forcing the strand against the edge as required in this class (225).
- 65, Glass Manufacturing, subclasses 112+ for a process of severing or perforating and treating a glass preform, and subclass 174 for glass-working or treating apparatus combined with severing, scoring or scribing means; see the "Search Notes" under each of these subclasses.
- 73, Measuring and Testing, subclass 835 for the tensile strength testing of materials by tearing.
- 83, Cutting, appropriate subclasses for processes or devices for severing material by penetrating the material with a solid tool or a fluid current operating against an edged tool.
- 99, Foods and Beverages: Apparatus, subclass 551 for removing a pit by a tongue, subclass 585 for skin removal by a pinching roller, subclass 587 for skin removal by pulling, subclasses 600+ for hulling or grain by tearing or abrading, subclasses 623+ for skin removal by abrading, and subclasses 637+ for a device that pulls or tears the stem from fruit.
- 112, Sewing, subclass 252 for sewing machine elements which cut threads at end of seam; see subclass 83 in this class (225) for sewing machine presser foot attachments for cutting threads by manually forcing the thread against a severing edge.
- 125, Stone Working, subclasses 23.01+ for stone splitting apparatus, and subclasses 40+ for apparatus for severing stone by a breaking operation.
- 132, Toilet, subclasses 324+ for dental floss holders with floss-supply container and severing means.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for apparatus and methods pertaining to severing and/or laminating of delaminating.
- 206, Special Receptacle or Package, subclass 39 for strip, ticket or stamp dispensing devices having no disclosed use of a severing edge, and see (3) Note above.
- 220, Receptacles, subclasses 277+ for rip strip can opening devices.
- 221, Article Dispensing, subclass 25 for article dispensing involving a progressively destroyed cellular magazine supply source, and subclass 26 for article dispensers which clamp a portion of the articles so that the portion to be removed must be torn from the retained portion.
- 223, Apparel Apparatus, subclasses 106+ for spool and sewing-implement holders which may include a cutter.
- 241, Solid Material Comminution or Disintegration, appropriate subclasses, for processes or devices for breaking material into smaller portions where there is no claimed provision for maintaining or determining the product shape or size, or where the material being worked upon is not disclosed as modified so as to determine a specific size or shape for the product.
- 242, Winding, Tensioning, or Guiding, subclasses 521 and 522+ for tearing or cutting combined with subsequent convolute winding, and subclasses 487.1+ for cutting a strand being wound, and subclass 911 for a cutter that may otherwise be appropriate for winding, tensioning, or guiding.
- 269, Work Holders, appropriate subclasses. Class 269 is the residual locus for patents to a device for clamping, supporting and/or holding an article (or articles) in position to be operated on or treated. See notes thereunder for other related loci.
- 281, Books, Strips, and Leaves, subclasses 6+ for strip holders providing a platen disclosed as a backing surface for writing and which may include a blade arranged for severing sheets from the strip by manually forcing the strip thereagainst.
- 312, Supports: Cabinet Structure, subclasses 34.1+ for continuous strip cabinet devices having no claimed severing edge against which the strip may be forced for severing purposes, and see (3) Note above.
- 452, Butchering, subclass 49 for sausage delinkers and subclass 125 for skinning by tearing.
- 462, Books, Strips, and Leaves for Manifolding, subclass 51 for device for feeding and severing strips utilized for manifolding.

SECTION III - GLOSSARY

BRAKE OR CLAMP

A means for applying friction directly or indirectly to the work, the means as disclosed being intended to slow, stop or prevent work motion.class 51 for device for feeding and severing strips utilized for manifolding.

WORK

A web, sheet, or strand (including tube, rod or bar) which is to be acted on.

WORK SUPPLY

A mass or quantity of work material in any regular or irregular arrangement.

WORK SUPPLY PACKAGE

Work supply in regular form such as a wound roll, a folded strip or a pack or stack of work material may include a core, a flanged core or other support to which the material is fixed

SUBCLASSES

1 This subclass is indented under the class definition. Processes of severing.

2 This subclass is indented under subclass 1. Processes which include a step of providing a line of lesser strength in the work, and then severing the work on a line which intersects or coincides with the line of lesser strength.

- (1) Note. The preliminary weakening may be of a type not classified, per se, in this class; as for example, perforating, milling, cutting by a torch or scoring. Such steps in combination with breaking or tearing steps have been classified here because such other step has been considered to effect a necessary or desirable preparation of the work for the breaking or tearing operation.

SEE OR SEARCH THIS CLASS, SUBCLASS:
96, for corresponding apparatus.

3 This subclass is indented under subclass 1. Process wherein the line of breaking or tearing occurs along a line parallel to the path of movement of the work feed.

SEE OR SEARCH THIS CLASS, SUBCLASS:

99, for apparatus for longitudinally separating work by a breaking or tearing operation by diverting the moving work into separate paths.

4 This subclass is indented under subclass 1. Processes wherein the line of breaking or tearing is generally across the direction of feed of the work and occurs during the feed thereof.

- (1) Note. Included here are methods of developing tensile stresses by relative acceleration of the feed velocity of a leading portion of the work.

SEE OR SEARCH THIS CLASS, SUBCLASS:

100, for corresponding apparatus.

5 This subclass is indented under subclass 4. Processes wherein the line of separation proceeds to or from an edge of the traveling work.

6 This subclass is indented under the class definition. Devices under the section of the ... for Severing by Manually Forcing Work Against a Fixed Edge.

- (1) Note. This subclass is the residual or miscellaneous repository for devices coming within the part of the class definition for Severing by Manually Forcing Work Against a Fixed Edge but not classifiable in any of the subclasses indented hereunder.

7 This subclass is indented under subclass 6. Devices combined with additional means for separating work completely, thicknesswise.

SEE OR SEARCH THIS CLASS, SUBCLASS:

94, for breakers combined with nonbreaking cutters; except that where the non-breaking cutter is a tearing device the combination is in this subclass (7).

SEE OR SEARCH CLASS:

234, Selective Cutting (e.g., Punching), appropriate subclasses, and particularly subclass 131 for the combination of tearing or breaking means with selective cutting means.

- 8** This subclass is indented under subclass 6. A device including means to hold the work from moving toward the blade, means to deactivate said work-holding means, and means providing a predetermined time delay between the application of said holding means to the work and its subsequent deactivation.

SEE OR SEARCH CLASS:

226, Advancing Material of Indeterminate Length, subclass 131 for manual material movers having timed interlocks that prevent subsequent material movement for a predetermined period of time.

- 9** This subclass is indented under subclass 6. Devices in which the blade edge is so arranged as to produce a line of severance in the work which is oblique relative to an edge of the work.

- 10** This subclass is indented under subclass 6. A device having structure which as disclosed causes or permits a definitely determined linear length of work to be moved from the work supply past the severing blade for subsequent manipulation against the blade to sever such length.

(1) Note. With a wound supply package the predetermined length may be one which diminishes progressively as the package is reduced in diameter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

27+, for stacks or pads of individual work pieces held in contact with the severing blade and wherein the stack or pad as a whole may be moved relative to the blade edge to determine the line of severance; these are excluded from this and the indented subclasses because the work supply as a whole is moved.

SEE OR SEARCH CLASS:

226, Advancing Material of Indeterminate Length, subclass 120 for devices that advance a predetermined amount of material where severing is not claimed.

312, Supports: Cabinet Structure, subclasses 34.1+ for dispensing predetermined lengths from strip material in which there is no fixed severing edge or the severing edge is not claimed.

- 11** This subclass is indented under subclass 10. Devices having means for setting the device to feed out any desired one of a plurality of predetermined work lengths.

(1) Note. This is intended to include infinitely adjustable strip lengths as well as multi-step devices such as postage stamp strip dispensers.

- 12** This subclass is indented under subclass 10. A device in which the work is moved from the source of supply past the blade by manually grasping and pulling the lead-end of the work and in which means is provided for preventing further movement of the work after the predetermined length of work has been so moved.

- 13** This subclass is indented under subclass 12. A device in which the means for preventing further movement of the work is a member which extends into the path of movement of the work and engages either a transversely extending edge portion of the work or of an article attached to the work.

SEE OR SEARCH CLASS:

221, Article Dispensing, subclass 25 for article dispensing involving a progressively destroyed cellular magazine type supply source.

- 14** This subclass is indented under subclass 12. Devices having means which operates to place or expose a short leading end portion of the work in position for manual grasping and subsequent manual pull-out or feeding.

- 15** This subclass is indented under subclass 10. Devices in which the structure, as disclosed, causes or permits feed-out of a relatively short

- length sufficient for manual grasping so as to permit subsequent withdrawal of an addition indeterminate length of work.
- SEE OR SEARCH CLASS:
226, Advancing Material of Indeterminate Length, subclass 121 for devices that absorb energy from material to later be utilized in feeding out the lead end of the material, where severing of the material is not claimed.
- 16** This subclass is indented under subclass 10. Devices having hand-operated parts which directly function mechanically to transport the predetermined length of work so as to locate it in position for severing.
- (1) Note. Devices requiring manual operation of an electric switch or the like to control electrically-operated means for moving the work have not been placed herein.
- 17** This subclass is indented under subclass 6. Devices having visual means or indicia for measuring or identifying the material to be dispensed or denoting any characteristic thereof (e.g., width of supply material or length of material dispensed or remaining in the supply source or package).
- 18** This subclass is indented under subclass 17. A device in which the indicating means aids the operator in determining when a desired length of work extends past the blade.
- 19** This subclass is indented under subclass 6. A devices including a member disclosed as functioning for preventing or inhibiting inadvertent contact of the operator's hand (or any object) with the blade edge.
- 20** This subclass is indented under subclass 19. A device in which the guard is mounted so as to be capable of motion.
- 21** This subclass is indented under subclass 6. Devices in which an element of the device contacts the lead-end portion of the work and imparts motion thereto so as to separate the work from contact with the blade.
- (1) Note. Usually the work has an adhesive coating and the stripper functions to free the lead-end for the next succeeding feed-out operation.
- 22** This subclass is indented under subclass 21. Devices in which the blade is mounted so as to be capable of motion relative to the remainder of the device.
- (1) Note. The movement may or may not be related to the stripping function.
- 23** This subclass is indented under subclass 6. A device including means to impart motion to the work to transport at least a portion thereof in a path leading to the severing edge so as to locate it in position for co-action with the severing edge.
- (1) Note. Where a claimed work feed-out means is disclosed as functioning to supply a predetermined length, such means has been classified above in subclasses 10+.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
10+, for feed-out of predetermined lengths and see (1) Note, above.
28, for devices which have means to move the severed stub portion of a work piece in pad or stack arrangement.
- SEE OR SEARCH CLASS:
226, Advancing Material of Indeterminate Length, appropriate subclasses for methods of, and apparatus for, feeding material without utilizing the leading or trailing ends to effect movement of the material.
242, Winding, Tensioning, or Guiding, subclasses 521 and 522+ for tearing or cutting combined with subsequent convolute winding, and subclasses 487.1+ for cutting a strand being wound, and subclass 911 for a cutter that may otherwise be appropriate for winding, tensioning, or guiding.

- 24** This subclass is indented under subclass 23. A device including means to separate the work from a surface of the work-moving means.
- (1) Note. Either the work itself or some surface of the work-moving means may have adhesive characteristics, thus requiring separation means.
- 25** This subclass is indented under subclass 6. Devices which include structure providing an area adjacent the blade and in the path of movement of adhesively coated work to which area, as disclosed, the free-end portion of said work may remain temporarily adhered.
- (1) Note. Guide or feed rollers mounted for turning about a fixed axis are excluded from this subclass.
- (2) Note. These devices usually provide for anchoring the feed-out portion of the work to prevent retrograde movement or to facilitate manual grasping.
- (3) Note. Either the work or the surface may be adhesive.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
24, for means to strip work from work moving means; see (1) Note, above.
- 26** This subclass is indented under subclass 25. A device in which a finger notch, recess or aperture is provided in the paster surface to permit grasping of the work for detaching it from the paster surface.
- 27** This subclass is indented under subclass 6. Devices associated with means to retain a plurality of individual work pieces for successive application to the blade, said pieces being generally planar and usually identical in size and juxtaposed one against another and with or without means to bind the edges thereof.
- (1) Note. Devices for severing a single sheet or ticket, without a supply package or compartment, will be found in the appropriate subclass at the end of the schedule beginning with subclass 81.
- SEE OR SEARCH CLASS:
206, Special Receptacle or Package, subclass 39 for pocket cases specially constructed to hold tickets, cards, stamps, etc., and subclass 40.5 for ticket holders to be carried by the person and designed for ready dispensing of the tickets successively from the holder, where no fixed severing edge is claimed.
- 28** This subclass is indented under subclass 27. Devices provided with structure for manipulating the cut end of the remaining stub portion of a severed work piece to move it, at least temporarily, away from or retain it in spaced relation with the remaining uncut work pieces of the pad or stack.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
6, for devices having compartments for loose stubs.
- 29** This subclass is indented under subclass 27. Devices in which the configuration of the severing edge of the blade may be varied by rearrangement of relatively movable parts thereof.
- 30** This subclass is indented under subclass 29. Devices in which a protruding element is movable along the blade edge for producing a reentrant portion of the severed edge of the work at any desired location.
- 31** This subclass is indented under subclass 27. Device in which the blade structure may be manually moved bodily over the surface of the topmost work piece of the pad or stack to locate the blade in a selected severing position.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
29+, for devices in which parts of the blade structure are slidable relative to each other to provide for a changeable blade edge contour.
- 32** This subclass is indented under subclass 6. Devices associated with means for retaining an elongated strip of work material which, as disclosed, is arranged in juxtaposed successively

reversed folds and adapted to be unfolded and moved across the blade.

33 This subclass is indented under subclass 6. Devices including two or more distinct and spaced severing edges combined with one work supply and capable of use one after the other or independently of one another.

34 This subclass is indented under subclass 6. Devices having means to retain two or more distinct work supplies and including one or more blades.

(1) Note. A laminated web which is presented to the blade while still in adhered condition is considered a single supply source and is classified on some other appropriate feature.

(2) Note. This and the indented subclasses include devices having a plurality of individual webs rolled or folded together in face-contacting relation where (a) the juxtaposed webs are presented to a single blade, or (b) nonlaminated webs are separated and two or more are presented to the blade; excluded, however, are those devices where only one of the separated webs is presented to the blade.

SEE OR SEARCH THIS CLASS, SUBCLASS:

6, for devices excluded under (2) Note, above, and not classifiable in Class 242, Winding, Tensioning, or Guiding.

SEE OR SEARCH CLASS:

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for apparatus and methods pertaining to severing and delaminating, particularly subclasses 152, 247+, 344, and 584 for delaminating.

242, Winding, Tensioning, or Guiding, subclasses 521 and 522+ for tearing or cutting combined with subsequent convolute winding.

35 This subclass is indented under subclass 34. Devices wherein each of the work supplies, usually in package form, is mounted on a rotat-

able carrier means near or at the periphery thereof, there being a severing edge adjacent the carrier, the arrangement being such that the carrier may be rotated to selectively locate any one of the supplies in a position convenient to the severing edge.

36 This subclass is indented under subclass 34. Devices wherein a member having a severing edge thereon is connected to the supply holding means for motion relative thereto and this member may be moved so as to locate the severing edge in a position convenient to the work feed-out path from each supply source.

37 This subclass is indented under subclass 34. Devices provided with two or more distinct severing edges.

SEE OR SEARCH THIS CLASS, SUBCLASS:

33, for devices having plural distinct blades useable alternatively or sequentially on a single work supply.

38 This subclass is indented under subclass 37. Devices wherein each supply source is provided with an individual severing edge.

39 This subclass is indented under subclass 6. Devices in which the blade is attached to an enclosure which substantially covers the work supply on at least the top and four sides, as seen in its position of normal use.

(1) Note. A surface in or against which the device is intended to be attached so as to complete the enclosure may be considered as part of the housing to meet the above requirements.

(2) Note. The enclosure may have apertured, foraminous or reticulated wall structure.

SEE OR SEARCH CLASS:

206, Special Receptacle or Package, subclasses 438+ for a surgical package including a severing blade.

40 This subclass is indented under subclass 39. Housings including claimed structure which is disclosed as acting to seal the work exit passageway to prevent ingress of luminary rays or

- of liquids or gases into an otherwise sealed housing.
- (1) Note. These housings usually protect specially treated paper such as photos:graphic or litmus paper.
- SEE OR SEARCH CLASS:
34, Drying and Gas or Vapor Contact With Solids, subclass 242 for chamber seals and see the Notes thereto for completing the search for this subject matter.
- 41** This subclass is indented under subclass 39. Devices wherein the enclosure is provided with an opening or transparent wall for viewing the work or a portion thereof without opening the housing.
- 42** This subclass is indented under subclass 39. Devices in which the housing structure for attaching the housing to a supporting surface or within a recess.
- 43** This subclass is indented under subclass 39. Devices in which the blade is formed on or attached to a hinged cover for an opening in the container through which the supply package may be inserted.
- 44** This subclass is indented under subclass 39. A device in which the housing is formed of separate parts, at least portions of which are slidably nested one within another, whether permanently joined or separable.
- (1) Note. Housings having flanged pivoted covers are not considered to fall within the means of "telescoping".
- 45** This subclass is indented under subclass 44. A device in which the work supply is wound on a core having at least one flange and there is a tubular member, open at one or both ends, telescoping over the flange so as to completely enclose the work supply and is at least partially removed in order to provide access to the work.
- 46** This subclass is indented under subclass 39. Devices in which the work supply is in the form of a wound package and the housing has means to contact with the core or spindle of the package to thereby mount the package for rotation about its axis; or, alternatively, the interior of the housing is modified to supportingly engage the periphery of the package by any means other than merely a flat bottom wall intended to be horizontal in normal position of use.
- 47** This subclass is indented under subclass 46. Devices in which the housing has means to contact with the core or spindle of the package to thereby mount the package for rotation about its axis.
- 48** This subclass is indented under subclass 39. Devices in which the housing as set forth by the language of the claim(s) is made from one sheet of material cut and folded along lines such as to form an enclosure meeting the requirements of subclass 39.
- SEE OR SEARCH CLASS:
229, Envelopes, Wrappers, and Paperboard Boxes, subclasses 100+ for a folded, blank paperboard box.
- 49** This subclass is indented under subclass 48. Devices wherein the severing edge is integral with the material of the blank.
- (1) Note. A hardening agent may be used to coat or impregnate the severing edge area of a paper blank. However, an additive preformed edge is excluded from this subclass.
- 50** This subclass is indented under subclass 48. Devices wherein a cover-forming panel member of the housing is provided with means interengaging other parts of the housing to inhibit movement away from closed or folded position.
- 51** This subclass is indented under subclass 39. Devices which include a work contacting friction device.
- SEE OR SEARCH CLASS:
226, Advancing Material of Indeterminate Length, subclass 195 for devices for placing tension on material of indeterminate-length, where severing is not claimed.

52 This subclass is indented under subclass 51. Devices in which the exit passageway for the work is, or is capable of being made, sufficiently limited so as to frictionally engage the work, or there is a friction element applied to the running work immediately adjacent to or within the passageway.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 43, for housings in which the blade is on a pivoted closure which serves to clamp the work against a container wall during the severing operation.
- 44, for sectional telescoping housings having juxtaposed walls forming a restricted or restrictable work outlet.
- 48+, for folded single blank containers having overlapping or juxtaposed panels forming a work passageway therebetween, some of which disclose that the two panels can exert a braking force on the work.

53 This subclass is indented under subclass 39. Devices provided with an aperture which permits the work supply to be directly contacted by the thumb and/or finger for the purpose of moving a running length of the work toward or through an egress passageway.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 90, for additional types and arrangements of means to facilitate lead-end grasping.

54 This subclass is indented under subclass 39. Devices including means located interiorly of the housing between the supply source and the work exit passageway functioning to direct or control the path of the moving work.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 44, for sectional telescoping housings having juxtaposed walls forming a work passageway therebetween.
- 48+, for folded single blank containers having overlapping or juxtaposed panels forming a work passageway therebetween.

55 This subclass is indented under subclass 6. Devices in which the blade is attached to and carried by supporting structure which is separate and independent from the work supply source, and this assembly is hand-held and includes a guide member through which the work in running length form is threaded, thus maintaining the work and the blade carrier assembly in continuing association and permitting the carrier and the work to be manually moved relative to each other.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 27+, for blade carriers mounted on a pad or stack of tickets or the like.
- 56+, for blade carriers mounted on a wound work supply package.

SEE OR SEARCH CLASS:

- 30, Cutlery, subclass 127 for similar devices wherein it is clearly disclosed that the device is manipulated solely like a knife for cutting rather than the twine being itself gripped manually and forced against the blade; also, that subclass contains similar devices wherein the severing is accomplished by a cutting tool pair such as a shearing cutter.

56 This subclass is indented under subclass 6. Devices in which the blade is provided with mounting structure which structure is adapted to engage and be assembled with a wound work supply package.

- (1) Note. The normal mode of operation, as disclosed, is for the operator to hold the entire assembly of work and severing instrumentality in one hand while withdrawing a portion of work from the supply package with the other hand and forcing the work against the blade to sever it.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 25+, for such devices having a paster surface.
- 39+, for such devices having a housing substantially enclosing the supply package.

- 57** This subclass is indented under subclass 56. Devices in which the work supply is a permanently tacky adhesive web and means is provided for breaking the adhesive bond between the leading end portion of the work and the body of the package.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
24, for strippers which separate adhesive web material from work moving means.
69, for lead-end strippers operative on nonadhesive webs.
- 58** This subclass is indented under subclass 56. Devices including means which surround and resiliently engage a major portion of the outer circumference of the package to hold the blade on the package.
- 59** This subclass is indented under subclass 56. Devices provided with means for association with a work supply fixedly mounted on a core which has a radially extending rim at or near at least one end thereof.
- 60** This subclass is indented under subclass 59. Devices wherein the blade is free to move peripherally with respect to the package but is confined against disassociation therefrom by engagement with ribs, grooves or beads on the flanges.
- 61** This subclass is indented under subclass 59. Devices wherein the spool has an axial through passage or axial recesses at its ends and the mounting structure engages the passage or the recesses to permit the spool to rotate on its axis.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
66, for work supply packages having a hollow core and mounted on bearing means engaging within the interior of the core.
- 62** This subclass is indented under subclass 59. Devices wherein a reentrant portion is provided on the periphery of the rim, and either this portion itself provides the severing edge or a separate severing edge is provided adjacent the portion whereby the work (usually of strand form) may be guided into contact with the severing edge.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
19, for blade edge guards.
- 63** This subclass is indented under subclass 59. Devices providing means to grip the free end of work in strand form, usually to prevent unwanted unwinding of the strand from the spool.
- SEE OR SEARCH CLASS:
242, Winding, Tensioning, or Guiding, subclasses 579+ and 125+ for means to attach an end of an elongated material to a winding take-up.
- 64** This subclass is indented under subclass 63. Devices in which the gripping element bears directly on a flange of the spool so as to grip the strand therebetween.
- 65** This subclass is indented under subclass 56. Devices in which the blade mounting structure includes means which resiliently clamps over both ends of the package or within the package core to hold the blade on the package.
- 66** This subclass is indented under subclass 56. Devices in which the work is wound on a hollow core and the mounting structure has means engaged in the core to permit the package to rotate thereabout.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
61, for such devices in which the work supply is wound on a hollow flanged spool.
- 67** This subclass is indented under subclass 6. Devices having means to rotatably support a wound web supply package and a blade arranged with its edge substantially parallel to the axis of the supported package so as to be constantly urged toward the outer decreasing periphery of the package.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
27+, for blades biased into contact with a pad or stack of work pieces.
- 68** This subclass is indented under subclass 67. Devices including means for temporarily retaining the blade out of contact with the supply roll.
- 69** This subclass is indented under subclass 67. Devices which include a guide element lying in close contact with the peripheral surface of the supply roll so as to engage under and deflect the lead-end edge portion of the work away from the surface.
- (1) Note. Devices which are manually threaded so as to continuously deflect the outermost layer of the wound package to form a running length are not considered to be "strippers" for this subclass but are merely guides; see, for example, subclasses 54 and 88.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
24, for strippers acting to separate work from a work-moving surface.
57, for lead-end strippers for tacky-adhesive-coated work in hand-held wound packages.
- 70** This subclass is indented under subclass 67. Devices wherein the means supporting the supply package against the force of gravity is able to move under the influence of gravity on the package and there is a mechanical interconnection with the means mounting the blade so that a component of the gravitational force on the package is transmitted to the blade mounting to urge the blade toward the package.
- 71** This subclass is indented under subclass 67. Devices wherein the blade or its supporting structure is constrained or permitted to follow a pre-determined path of movement which path is defined by an elongated track or slot or by a relatively movable rod and sleeve.
- (1) Note. Blades which are mounted to move about a pivot or to flex about a cantilever type anchorage are excluded from this subclass and will be found above.
- 72** This subclass is indented under subclass 6. Devices in which either feed-out motion of the work causes the claimed blade to move to the location in which (as disclosed) the severing operation takes place or the work is forced against a movably mounted blade and such contact moves the blade to the severing location.
- 73** This subclass is indented under subclass 72. Devices in which a braking force is initially applied to the work or increased at the same time as the blade is moved to severing position.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
10, for devices wherein there is a feed-out of a predetermined length of work.
- SEE OR SEARCH CLASS:
226, Advancing Material of Indeterminate Length, subclass 195 for devices for placing tension on material of indeterminate-length, where severing is not claimed.
- 74** This subclass is indented under subclass 73. Devices in which the brake or clamp is applied directly to the work after it has left the supply package.
- 75** This subclass is indented under subclass 74. Devices in which both jaws of a clamp are moved to grip the work therebetween.
- 76** This subclass is indented under subclass 6. Devices in which the blade is immovably attached to a support and a wound supply package is rotatably mounted on the support with its axis substantially parallel to the blade edge and is constantly urged to move toward the blade as the radius of the package is diminished.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
46, for housings in which the package is so supported as to be biased toward the blade by gravity.

- 77** This subclass is indented under subclass 6. Devices in which the blade and a wound supply package are mounted on a common base and the blade is immovable relative to the base.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 39+, for devices where the wound package is supported in a housing.
 76, for devices in which the supply roll is bodily biased toward the fixed blade.
- 78** This subclass is indented under subclass 77. Devices having means for supporting them from the human body or from a garment or belt worn on the body.
- 79** This subclass is indented under subclass 77. A device in which a friction device directly engages a surface of the work supply package.
- SEE OR SEARCH CLASS:
 226, Advancing Material of Indeterminate Length, subclass 195 for devices for placing tension on material of indeterminate-length, where severing is not claimed.
- 80** This subclass is indented under subclass 77. Devices provided with passive means between the supply source and the blade acting to control or direct the path of movement of the work and in which there is a gap between the guide and the blade edge to permit manual grasping of the remaining free end portion of the work after a severing operation has taken place.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 21, for movable blade strippers which act as guides and provide access to the lead-end.
- 81** This subclass is indented under subclass 6. Devices provided with an obstacle located in or movable into the path of movement of the work, as it is brought into severing position, for engaging an edge of the work and preventing further movement thereof in at least one direction so as to locate some portion of the work in a desired position with respect to the blade.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 13, for devices having an abutment stop for predetermined length feed-out of work.
- SEE OR SEARCH CLASS:
 226, Advancing Material of Indeterminate Length, subclasses 125+ for work abutments where severing is not claimed.
- 82** This subclass is indented under subclass 6. Devices including a brake or clamp as defined in the Definition of Terms.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 51+, for a brake or tensioner combined with a housing for the work supply.
 67+, for devices in which the blade or holder is biased toward the supply package and carries a brake or tensioner acting directly on the package.
 79, for devices having a fixed blade and a support for a wound package combined with a brake applied to the package.
 85+, for devices in which the brake is spaced from the blade in order to provide a lead-end therebetween.
- SEE OR SEARCH CLASS:
 226, Advancing Material of Indeterminate Length, appropriate subclasses for methods of, and apparatus for, feeding material without utilizing the leading or trailing ends to effect movement of the material.
- 83** This subclass is indented under subclass 82. Devices which, as disclosed, are adapted to be mounted on the presser foot of a sewing machine.
- 84** This subclass is indented under subclass 82. Devices in which the brake or clamp is applied directly to the work after it has left the supply package.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 52, for housings having a restricted or restrictable outlet for braking or tensioning the running work.
- 55, for blade carriers bodily and slidably supported on running length work and including a brake or clamp.
- 63+, for strand clamps associated with blades mounted on hand-held wound spools.
- 74, for brakes continuously applied to running work in which the braking action is increased when the blade is moved to severing position.

- 85** This subclass is indented under subclass 84. Devices in which there is a gap between the brake and the blade edge to provide for manual grasping of the remaining free end portion of the work after a severing operation has taken place.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 63, for strand-holding spools having a severing device mounted thereon which includes a clamp for the free-end of the strand almost always spaced from the cutting edge to provide a readily grasped lead-end.

- 86** This subclass is indented under subclass 85. Devices in which the blade is moved by hand from its severing position in order to make the free-end of the work accessible for grasping.

- 87** This subclass is indented under subclass 82. Devices in which the brake or clamp is spring-biased away from its operative position and is brought to operative position by hand pressure.

- 88** This subclass is indented under subclass 6. Devices provided with passive means located between the supply source and the blade edge and acting to control or direct the path of movement of moving work.

- (1) Note. Many brakes, etc., having a guiding function.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 54, for housings having internal guides.
- 55, for blade carriers bodily and slidably supported on running length work and including a guide for the work.
- 80, for devices in which the guide is spaced from the blade in order to provide a lead-end therebetween.
- 82+, for brakes, etc., which may also have a guiding function.

- 89** This subclass is indented under subclass 6. Devices in which the blade is engaged by hand and moved toward or away from the position in which it serves its severing function.

- (1) Note. The blade may, for example, be movable to facilitate threading work through the device, or to permit grasping the work at the severing zone, or to store the blade in a nonuse position; or it may be selectively adjustable to a plurality of severing positions.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 30, for a notcher device slidable on a severing edge.
- 36, for a single movable blade which may be manually moved to be adjacent to any selected one of a plurality of work supplies.
- 43, for blades mounted on pivoted closures for supply package housings.
- 68, for blades continually biased toward wound web supply packages with a latch for the blade when manually moved to inoperative position.
- 72, for devices in which the blade is moved to severing position by the moving work, which work itself may be moved by hand.
- 86, for devices wherein the blade is moved by hand to gain access to the lead-end of the work, there being a claimed brake applied to the running work for immobilizing the work so that blade movement will expose the lead-end of work.
- 87, for devices in which the brake and blade are integral and spring biased away from operative position.

90 This subclass is indented under subclass 6. Devices in which means is provided which permits or assists the operator to grip the remaining cut end portion of the work after a severing operation for pulling the work past the blade edge for the next severing operation.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 14, for predetermined length feed-out stops for manually pulled work including means to aid initial grasping of lead-end.
- 15, for devices which feed-out a predetermined length of work merely to provide a lead-end for grasping.
- 26, for stationary paster surfaces having a finger access opening to facilitate grasping the lead-end.
- 53, for supply package housings having a finger access opening to facilitate work feed-out.
- 69, for movable blades continually biased toward the supply package and including means to separate the lead-end from the package.
- 72+, for blades which are movable to the severing position by the moving work, and in which the return movement of the blade makes the lead-end accessible for grasping.
- 85+, for devices in which the blade is spaced from a brake to provide a lead-end therebetween, including movable blades to facilitate grasping the lead-end.
- 88+, for guides which have means or are otherwise arranged to facilitate lead-end grasping.
- 89, for blades manually movable to gain access to the work at the severing zone.

91 This subclass is indented under subclass 6. Edged severing devices, per se, disclosed (a) as implements which are manually placed and held on the surface of work, (b) as elements to be mounted on supports or housings for work supplies or (c) in combination with supports for individual work pieces.

- (1) Note. Devices claiming the sub-combination of a blade and its mounting or

support means have been classified in appropriate subclasses above, based on their disclosed relationship with other elements or their mode of operation.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 43, for blade on pivoted container closure.
- 49, for blade unitary with single blank container.

92 This subclass is indented under subclass 91. Devices in which the configuration of the severing edge of the blade may be changed by rearrangement of relatively movable parts thereof.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 29+, for pad or stack holders having changeable-edge-contour blades.

93 This subclass is indented under the class definition. Devices under the ... for Breaking or Tearing.

- (1) Note. This subclass is the residual or miscellaneous repository for devices coming within the class definition for Breaking or Tearing but not classifiable in any of the subclasses indented hereunder.

SEE OR SEARCH CLASS:

- 81, Tools, subclass 3 for implements which cause rupture of work by repeated bending.
- 164, Metal Founding, subclass 263 for continuous casting and breaking apparatus.

93.5 This subclass is indented under subclass 93. Device which includes means to perform the operation of this class by abruptly changing the temperature of a portion of the work.

- (1) Note. Device herein breaks the work, at least in part, by causing internal stresses to be built up within the workpiece along the line at which severance is to occur.
- (2) Note. Many of the devices herein sever very brittle material such as glass.

- 94** This subclass is indented under subclass 93. Devices which include a tool which partially or completely severs so separates by an operation which is not a breaking operation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 7, for devices in which the nonbreaking cutter is a fixed edge against which the work is manually forced.

- 95** This subclass is indented under subclass 94. Devices comprising two tools, one being keen-edged and one being relatively blunt, and mechanism to (1) initially engage the work with the keen-edged tool to start a cut along a line of separation, (2) remove the keen-edged tool and move the blunt tool into the cut, and (3) cause the relative movement of the blunt tool and work to finish the separation.

- 96** This subclass is indented under subclass 94. Devices in which a nonbreaking tool partially separates the product from the work, as by perforating or scoring, or otherwise provides a line of lesser strength, which line intersects or coincides with a line of separation effected by the breaking means.

- (1) Note. The preliminary weakener may be of a type not classified, per se, in this class; as for example, a cutting torch, a milling tool or a scoring device. Such tools in combination with a breaking device have been classified here because such other tool has been considered to effect a necessary or desirable preparation of the work for the breaking operation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 2, for corresponding methods.
95, for devices which initially contact the work with a sharp tool to begin a line of separation and complete a severance by a dull tool, which dull tool may be a breaking tool.

- 96.5** This subclass is indented under subclass 96. Devices wherein the breaking means includes means to apply pressure to a workpiece in a zone offset from a line of separation in order to

rotate one portion of the workpiece with respect to another about the said line.

- (1) Note. Included herein are patents to apparatus for scoring and breaking glass.

SEE OR SEARCH CLASS:

- 83, Cutting, subclasses 879+ for machines for, and processes of scoring material. See the collection of "Search Notes" under subclass 879 for other classes providing for scoring of material.

- 97** This subclass is indented under subclass 93. Devices which include more than one breaking or tearing tool.

- (1) Note. The patents collected here have either (a) plural tools which contact separate parts of the work to break the work in a plurality of places, or (b) plural tools which break the work on the same line of separation in a series of operations.

- 98** This subclass is indented under subclass 93. Devices in which the work is continuously fed to the breaking means, which means changes the direction of work movement and thereby effects separation.

- (1) Note. The work is usually weakened, as by scoring, transverse to the direction of feed, and the separation is effected along these weakened lines.

- 99** This subclass is indented under subclass 98. Devices which include means to direct different parts of the moving work in different directions to thereby break or tear the work at the point where the direction changes.

- 100** This subclass is indented under subclass 93. Devices in which means are provided to grip the work on opposite sides of the portion which is to be severed, comprising two sets of gripping elements; and in which each set of elements is caused to impart movement to the work in a different direction or at a different speed than the movement imparted to the work by the other set of elements, so as to stress the work beyond its yield point and thereby sever it between said two sets of elements.

- (1) Note. Included in this subclass are patents wherein the work is moved in a single direction by a plurality of feed roll pairs, which pairs are driven at different speeds to stress the work between the pairs of rolls.

SEE OR SEARCH CLASS:

- 72, Metal Deforming, subclass 205 for a rolling-mill which includes means to tension the work, subclasses 274+ for a drawing apparatus which pulls work through a die, subclass 302 for the stretching of work between and by means to end clamps, subclass 392 for means to stretch work by relatively receding work-engaging tool faces, and subclass 395 for means to stretch flat work by using paired coplanar tool-faces engaging the work face and moving in opposite directions.
- 73, Measuring and Testing, subclasses 826+ and 856+ for gripping devices for determining tensile strength of material.

- 101** This subclass is indented under subclass 100. Devices wherein each set of gripping elements comprises a pair of closable jaws.

SEE OR SEARCH CLASS:

- 24, Buckles, Buttons, Clasps, etc., appropriate subclasses for a single clamp disclosed for use in breaking or tearing.

- 102** This subclass is indented under subclass 93. Devices which have means for holding immobile a portion of the work and rotating an adjacent portion about a generally longitudinal axis of the work to effect severing by a torsional force.

SEE OR SEARCH CLASS:

- 83, Cutting, subclass 199 for similar devices which sever by applying a rotary shearing force to the work.

- 103** This subclass is indented under subclass 93. Devices which include a work contacting tool which applies stress to the work at the desired line of severance, as by bending the work about such line, and means to move the tool into con-

tact with the work, either at such line or remote therefrom.

SEE OR SEARCH CLASS:

- 144, Woodworking, subclasses 193.1+ for a device for splitting wood by means of a wedge.

- 104** This subclass is indented under subclass 103. Devices which include two rests with an interval therebetween, against which rests the work is placed, and in which the tool is moved to contact the work between the said rests.

- 105** This subclass is indented under subclass 104. Devices in which the spaced supports are provided with means to grip and hold the work while the tool is contacting the work.

- 106** This subclass is indented under subclass 93. Devices wherein there is provided a device which contacts a portion of the work to (a) prevent movement of the contacted portion or (b) constrains the work for movement in a particular path, so that when the work is pulled a stress will be created which will effect a severance of the work at a weakened portion.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 100+, for devices to restrain a portion of a web and pull another portion of the web to break or tear the web between the restrained and pulled portions.

SEE OR SEARCH CLASS:

- 226, Advancing Material of Indeterminate Length, subclass 195 for means to place tension on material of indeterminate-length, where severing is not claimed.
- 242, Winding, Tensioning, or Guiding, subclasses 410+ for means; e.g., a brake, to apply tension to an elongated material.

END