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(54) **LAMINATING AND ADHESIVE TRANSFER APPARATUS**

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(58) **Field of Search** ..... 156/229, 494, 156/495, 510, 522, 555, 580, 582, 583.1; 100/155 R, 176, 327; 242/156, 419.8, 419.9; 425/363; 492/47, 60

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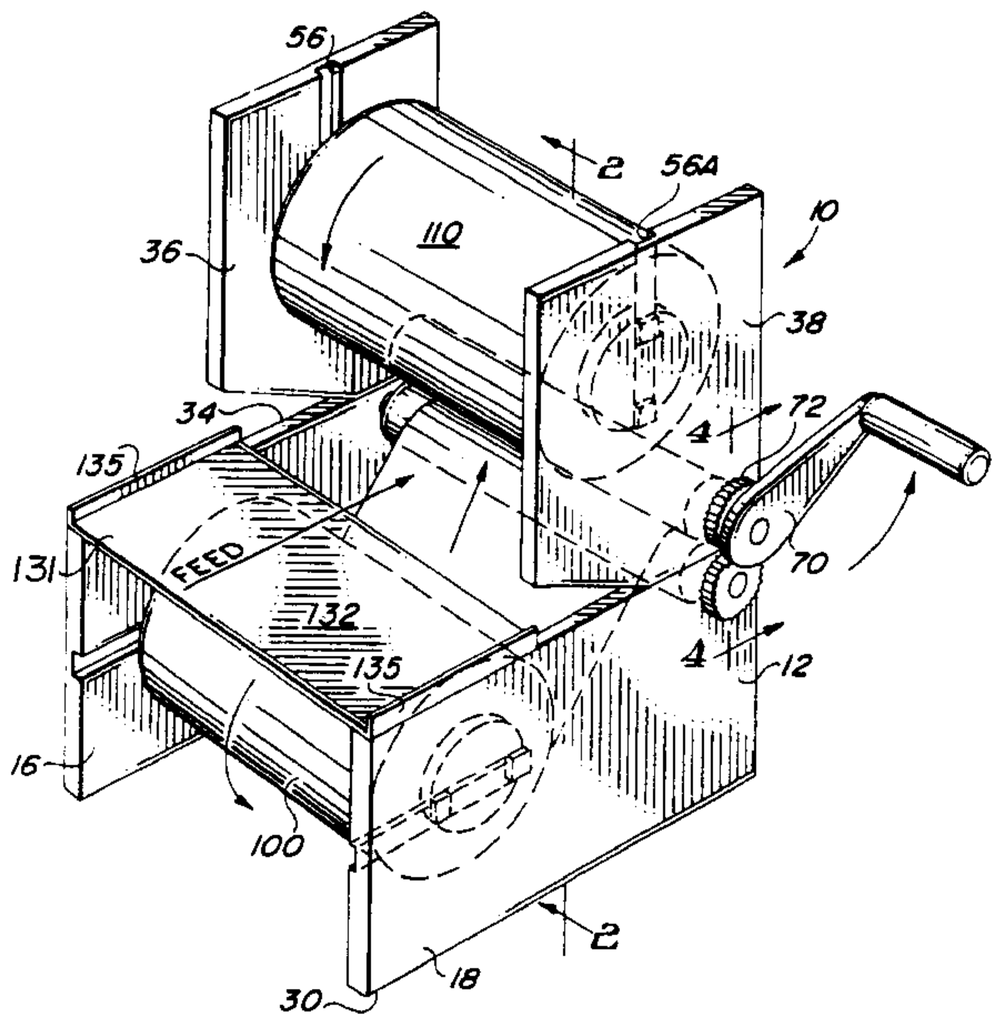
(57) **ABSTRACT**

A multi-purpose laminating and adhesive transfer apparatus having a frame supporting rotatably engaging nip rollers. The frame and has upper and lower feed rolls which may be a laminate, film or paper, or an adhesively coated film or a film having an affinity for adhesive. The upper and lower feed rolls containing the webs of laminating or adhesive transfer material have tensioning caps which can be adjusted to provide the proper tensioning to prevent the rollers from overrunning as they rotate. The tensioning caps are pre-set and provided to the user. A cutter blade is positioned at the discharge side of the nip rollers and may be actuated to sever the master at any desired location. The apparatus may be operated to apply lamination to either top or bottom surfaces of a substrate.

38 Claims, 4 Drawing Sheets



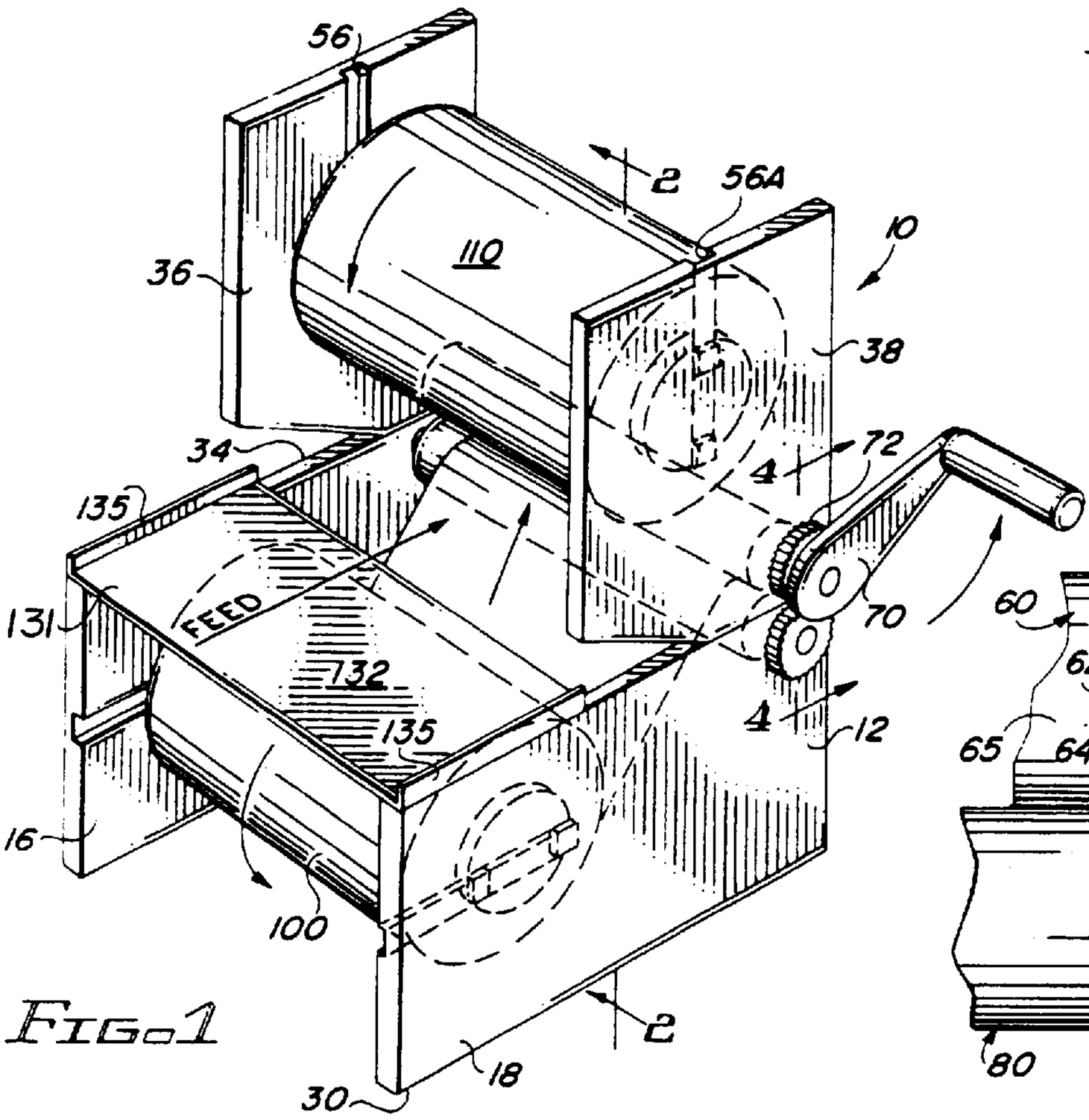


FIG-1

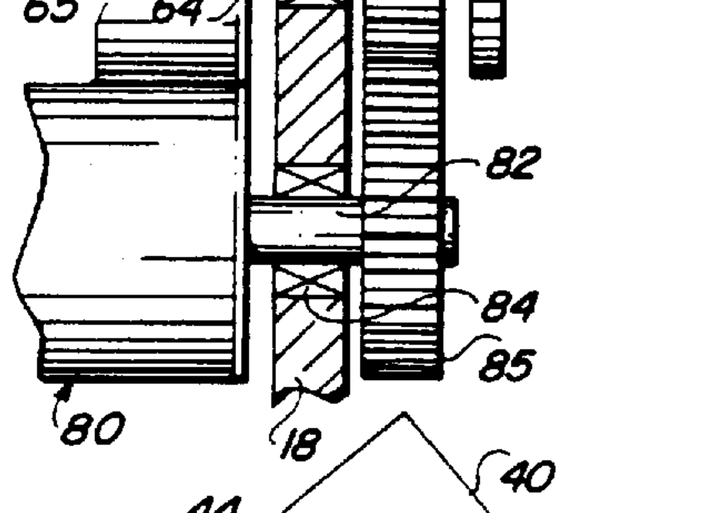


FIG-4

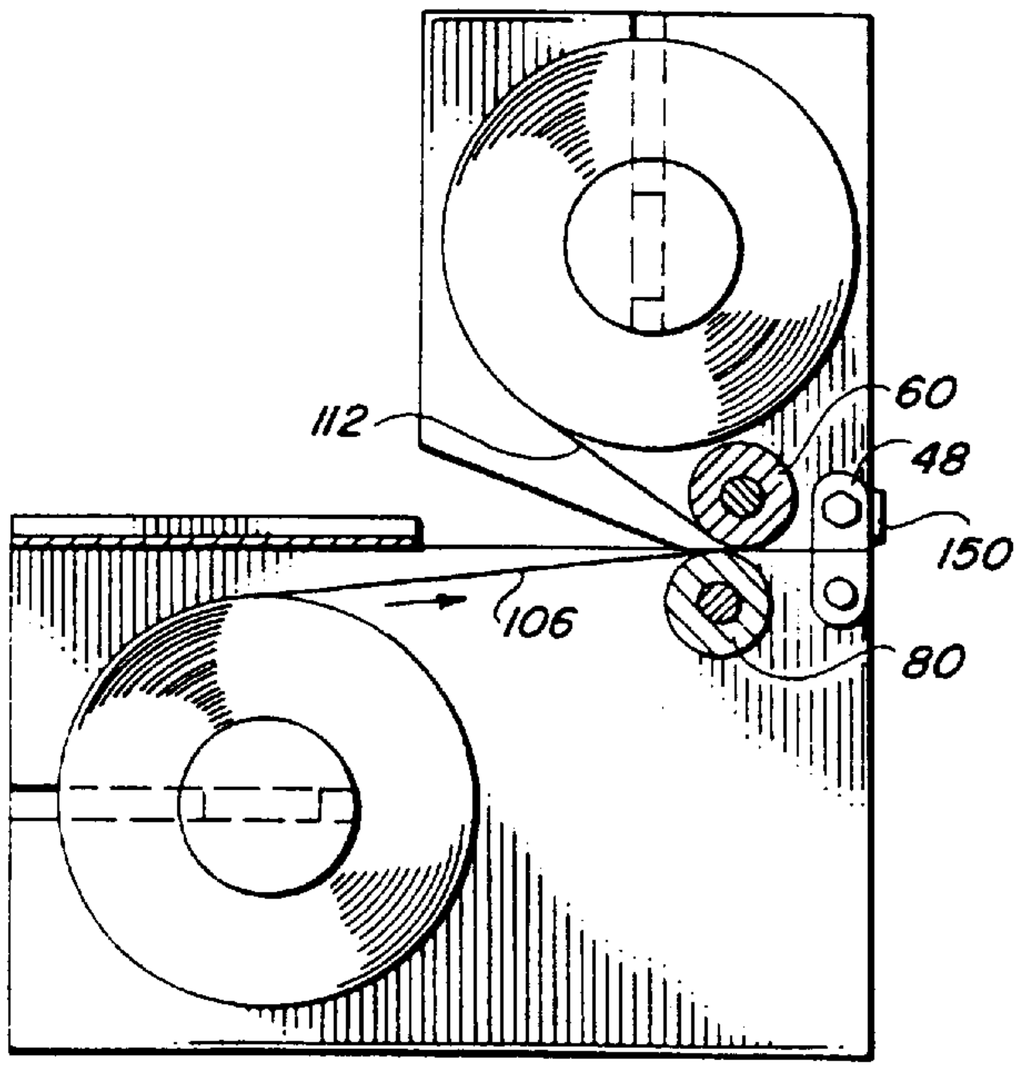


FIG-2

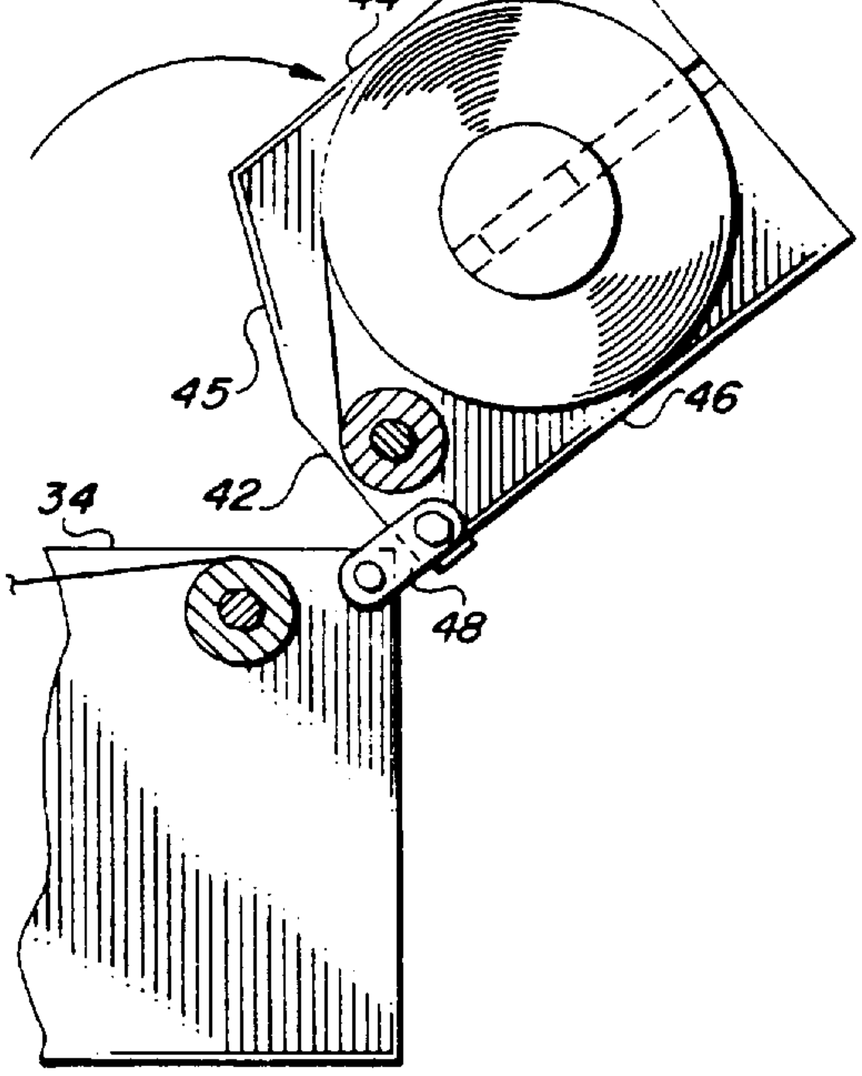


FIG-3

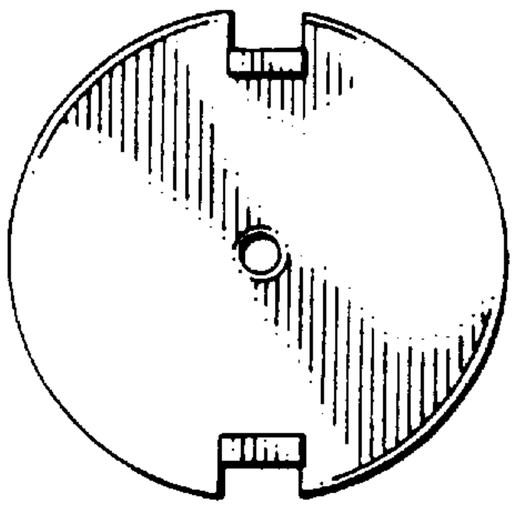


FIG-6

FIG-5

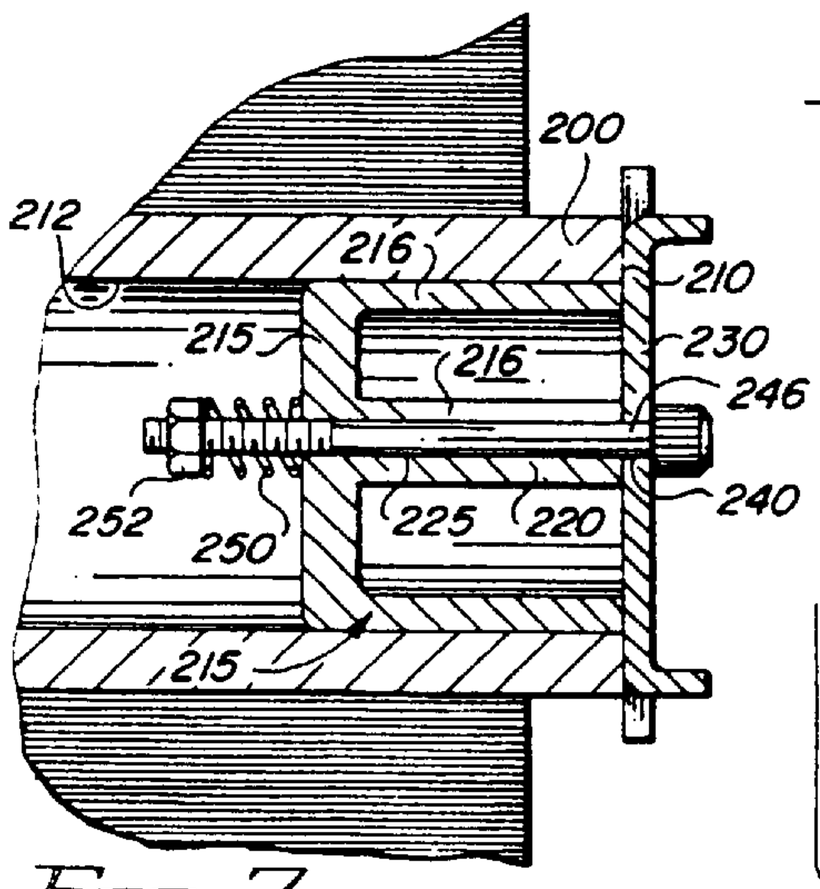


FIG-7

FIG-9

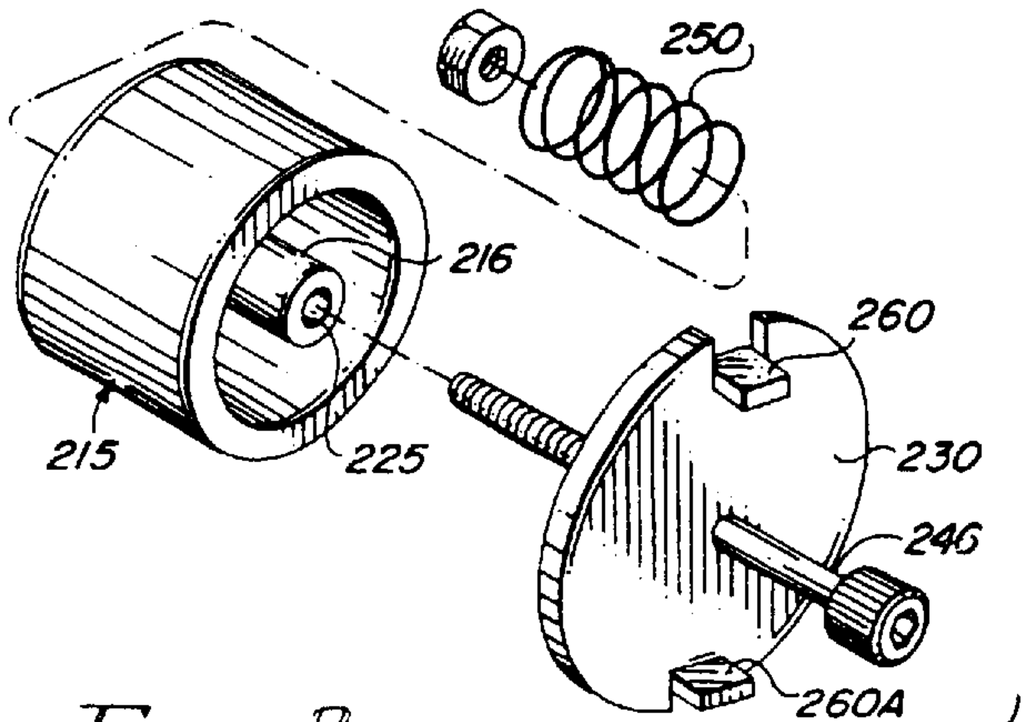


FIG-8

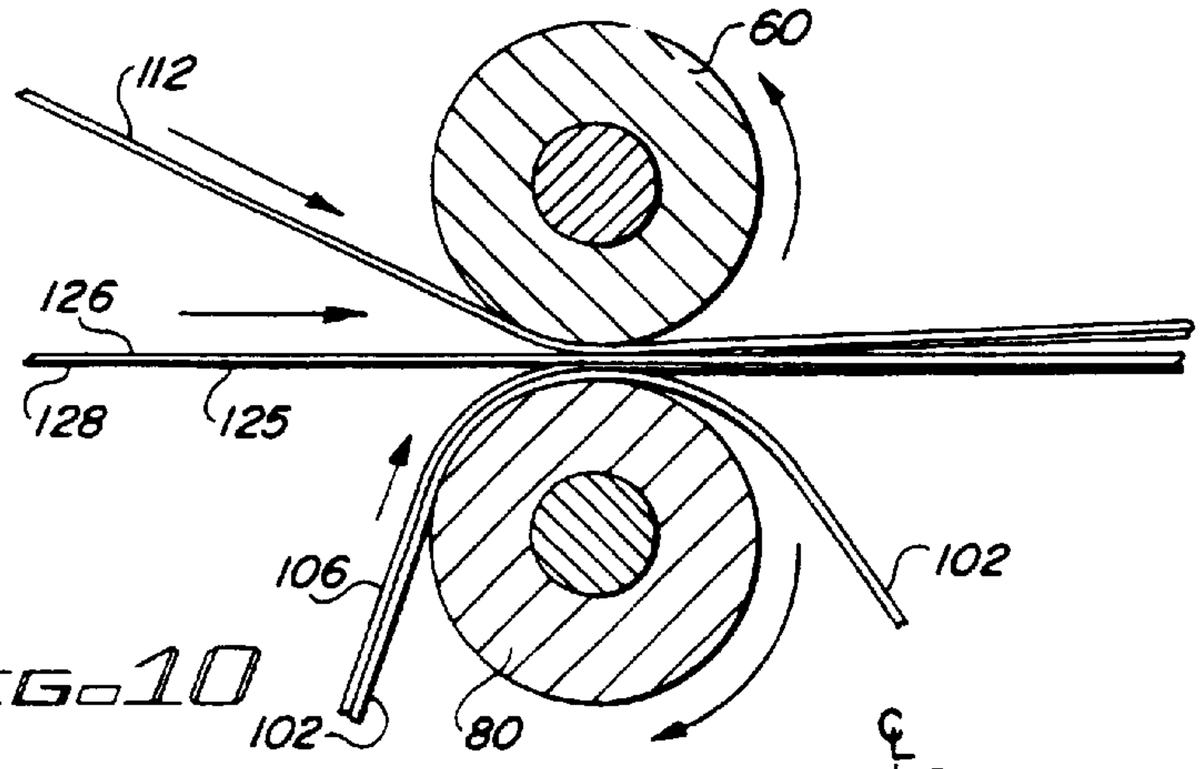


FIG-10

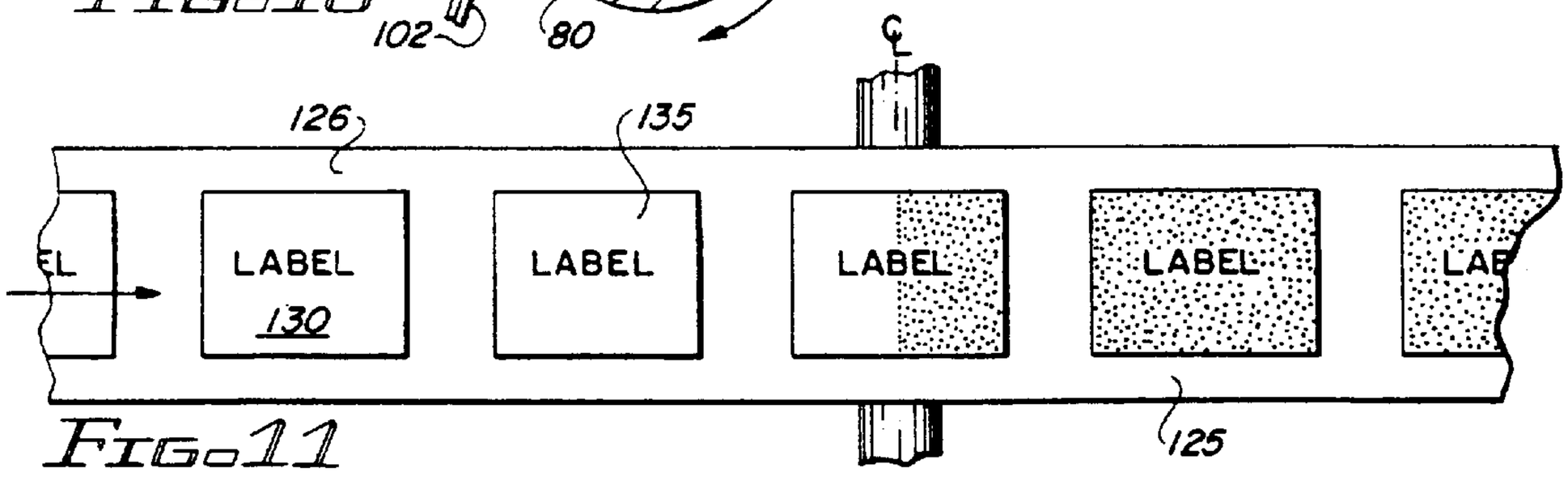


FIG-11

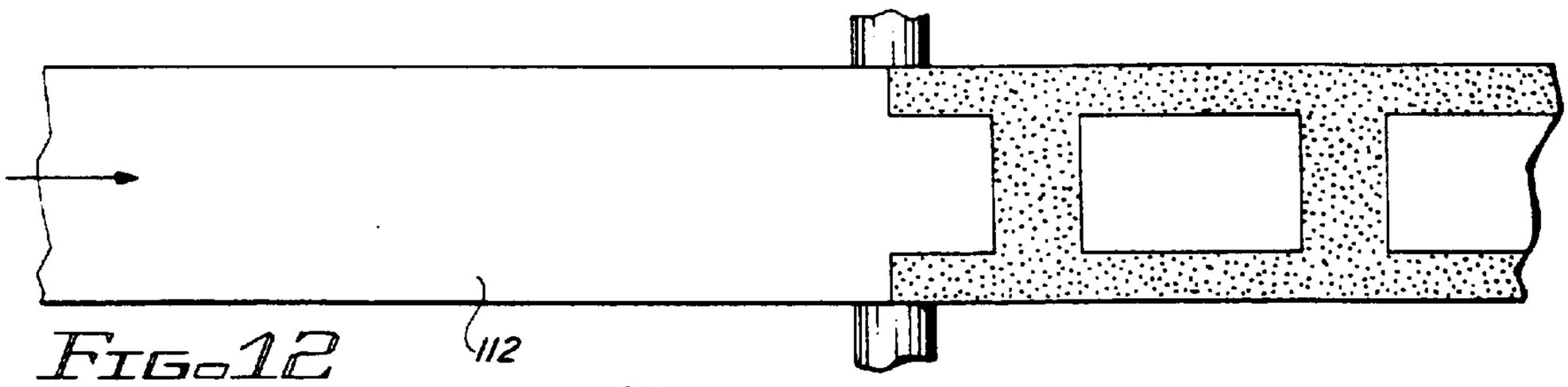


FIG-12

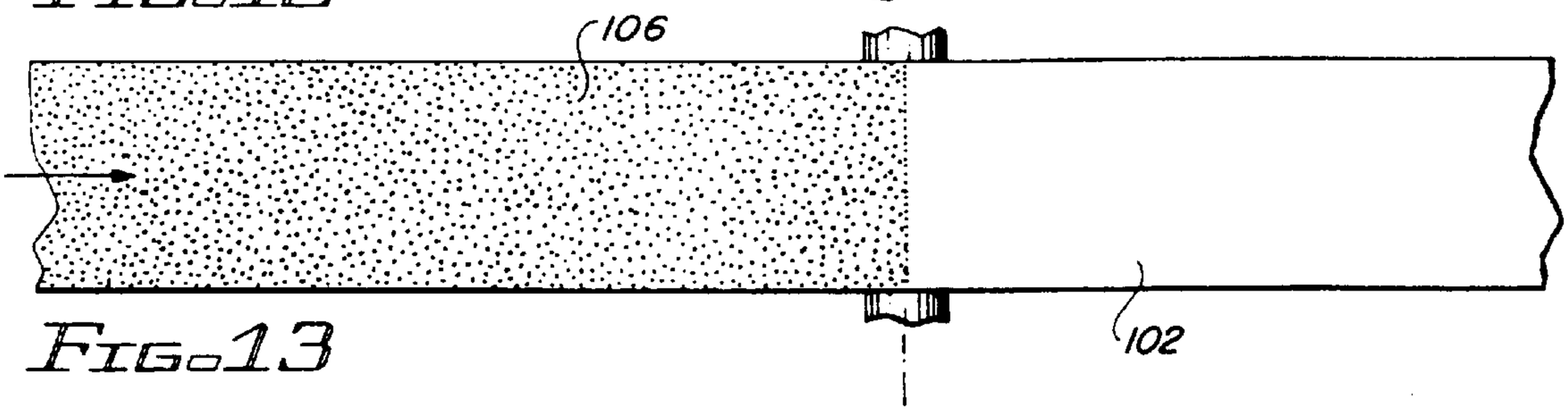


FIG-13

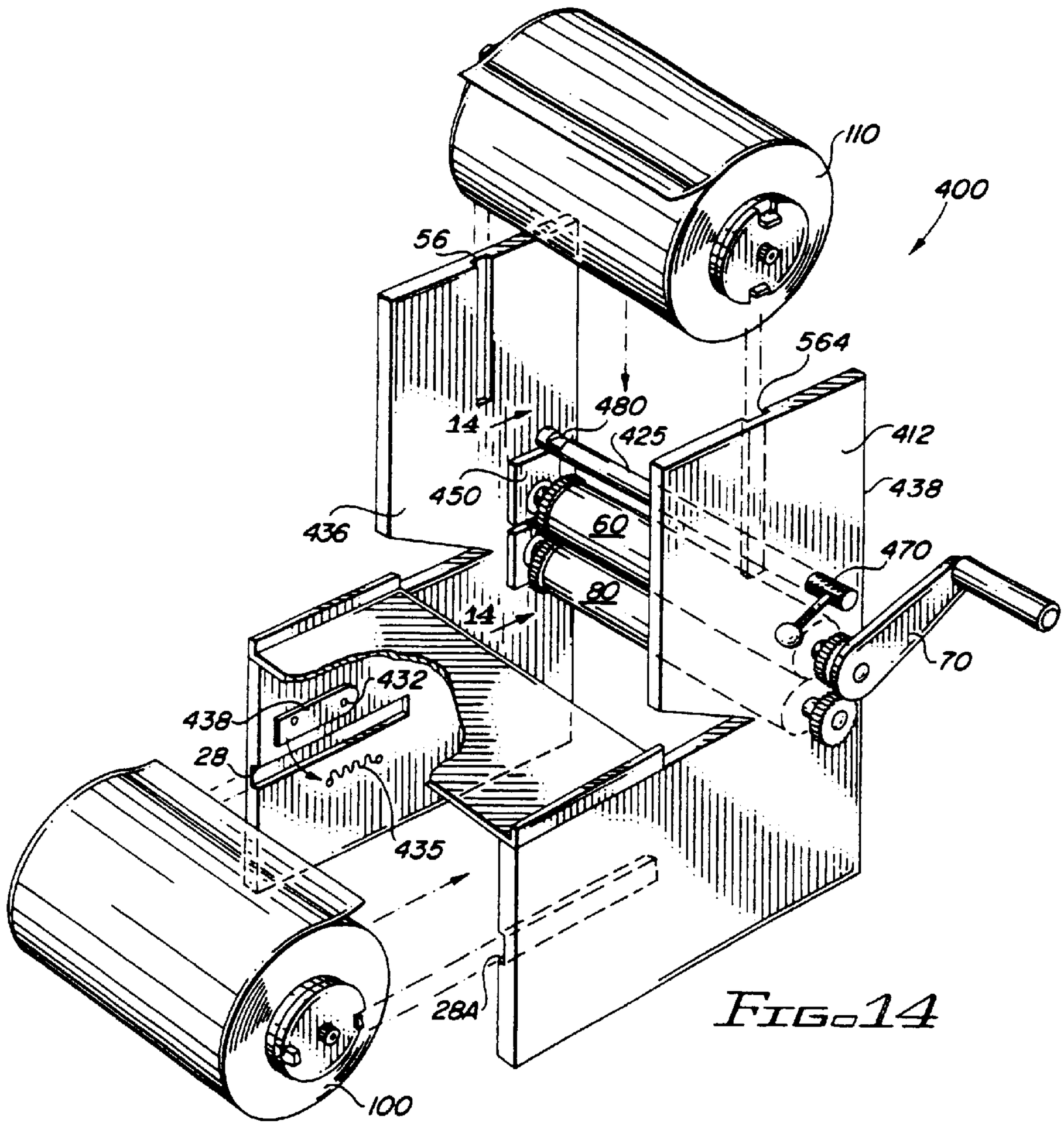

110
400
56
564
480
14
425
412
450
438
436
60
470
80
14
70
432
438
28
435
28A
100

FIG-14

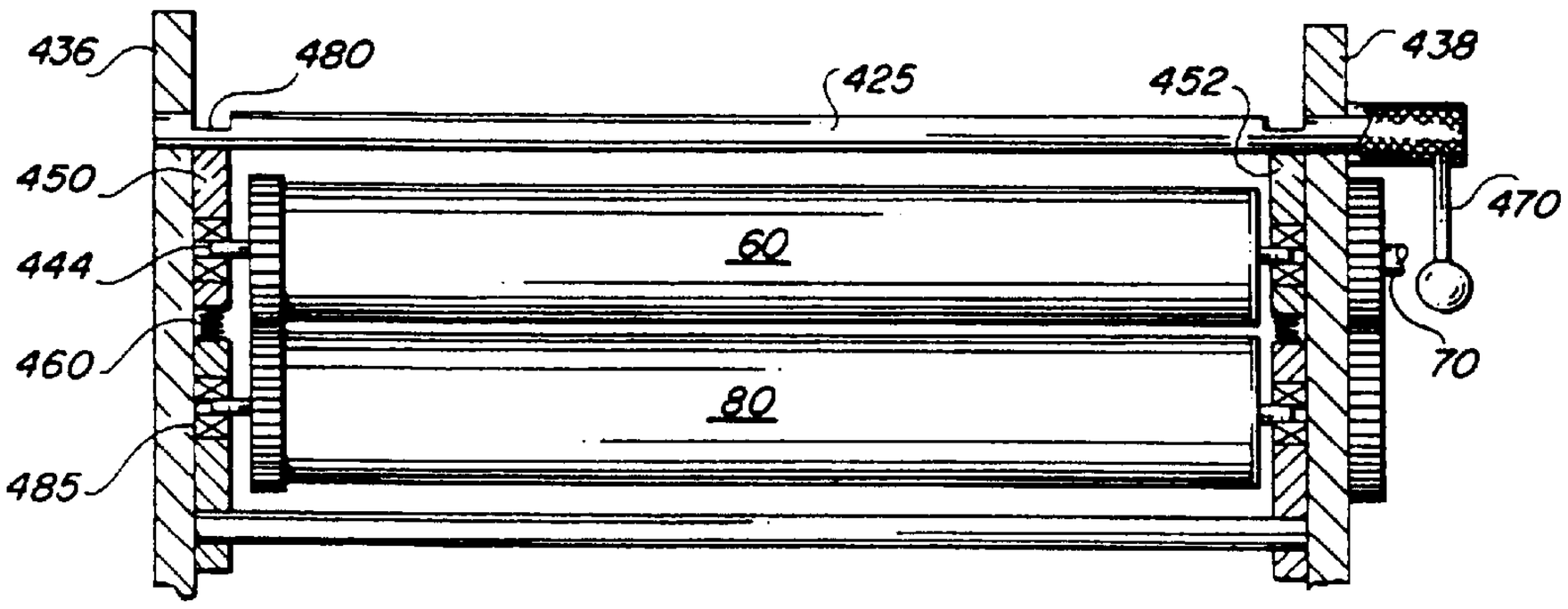

436
480
425
452
438
450
444
460
485
60
80
470
70

FIG-15

LAMINATING AND ADHESIVE TRANSFER APPARATUS

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

FIELD OF THE INVENTION

The present invention relates to a device which will laminate objects and which also will transfer adhesive to a substrate for purposes such as labeling.

BACKGROUND OF THE INVENTION

It is common practice to protect documents and other items by encasing them in clear plastic coverings. Various products, generally known as protectors are available for this purpose. Another common way of protecting documents is to laminate them. Lamination involves sealing the document or item between oppositely applied transparent films.

Another operation which is commonly applied to documents and papers is that of adhesive transfer. Adhesive transfer is practiced when it is desired, for example, to make labels or stickers. One manner of producing such stickers and labels is to print the stickers or labels on blanks provided for this purpose. The blanks generally have an adhesive backing and are secured to a liner from which they are peeled at the time of use. This manner of making labels or stickers is expensive and further is limiting in that the printed :material must be adapted to the physical size or confines of a label or sticker which is generally small in size.

Based on the foregoing, there exists a need for a multi-purpose machine which can both serve to apply laminates to documents and papers and which will also serve the purpose of adhesive transfer to materials of various sizes. For example, the apparatus of the present invention can apply clear plastic laminates to master substrates of various sizes and similarly can transfer adhesive to master substrates of various sizes and not limited by length. The adhesive transfer can be applied to either surface of the master as desired.

SUMMARY OF THE INVENTION

Briefly, in accordance with the present invention, a multi-purpose laminating and adhesive transfer device is provided which has a frame member with mounting means for receiving a first roll material such as a laminate or roll of film coated with releasable adhesive. A first nip roller extends transversely across the base. An upper frame member is pivotally secured to the base. The upper frame member has means for mounting or securing a roll of material such as a laminating film or a paper or film which has affinity for an adhesive. A second nip roller extends transversely across the upper frame member and, with the upper frame member positioned in the operative position relative to the base, the nip rollers engage or are closely proximate to one another. An actuator which may be powered or may be manual such as a hand crank is provided for driving or rotating at least one of the nip rollers. The upper frame member can be pivoted to an open position to facilitate loading of rolls of material in the base and upper frame member and to facilitate their insertion between the nip rollers. In an alternate embodiment, one of the nip rollers is mounted on a gibb plate so the rollers may be "opened".

The upper and lower rollers containing the webs of laminating or adhesive transfer material have tensioning

caps which can be adjusted to prevent the rollers from overrunning as they pay-out material. The tensioning caps may be pre-set by the material supplier or may be adjusted at the time of use.

A feed tray is mountable either to the base or the upper frame member for feeding the master to be processed. By way of example, the lower feed roll can be a flexible film with an adhesive and the upper feed roll a supply of film with has an affinity for adhesive. A pre-printed master such as a master consisting of labels repetitively printed on a sheet can be fed via the feed tray to the interface between the nip rollers. Adhesive will be transferred from the bottom web to the labels with excess adhesive being picked up by the top web. The labels are now provided with an adhesive and may be severed at a cutting edge provided at the rear of the device.

Accordingly, it is a primary and broad object of the present invention to provide a simple and efficient laminating and/or adhesive transfer device.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects, advantages and features of the present invention will be more fully understood from the following description, claims and drawings in which:

FIG. **1** is a perspective view of the transfer device of the present invention shown in an operative position;

FIG. **2** is a sectional view of the transfer device of the present invention shown in an operative position taken along line **2—2** of FIG. **1**;

FIG. **3** is a partial side view showing the device in an open or loading position;

FIG. **4** is a view taken along lines **4—4** of FIG. **1** with the feed rolls removed;

FIG. **5** is an exploded perspective view of the device;

FIG. **6** is an end view of a feed roller;

FIG. **7** is a sectional view taken along line **7—7** of FIG. **5**;

FIG. **8** is an exploded view showing the tensioning cap positioned at the end of a feed roll;

FIG. **9** is a partial rear perspective view showing the cut-off blade;

FIG. **10** is a view showing a master fed between the nip rollers;

FIG. **11** is a plan view of the feed master showing adhesive applied;

FIG. **12** is a plan view of the upper feed web showing pick up of excess adhesive thereon;

FIG. **13** shows the removal of adhesive from the lower web;

FIG. **14** is a perspective view of an alternate embodiment of the invention; and

FIG. **15** is a sectional view taken along line **15—15** of FIG. **14**.

Turning now to the drawings, particularly FIGS. **1** to **5**, the apparatus of the present invention is generally designated by the numeral **10** which includes a lower frame member or base **12** and an upper frame member **14**. The lower frame member consists of spaced-apart side plates **16** and **18** secured in spaced-apart relationship by transversely extending spacer rod **25**. The inner faces of the side plates are provided with horizontally extending grooves **28** and **28**A which provide mounting means to accommodate the insertion of feed rolls as will be explained hereafter. The side

plates are shown as rectangular having a bottom edge **30** which serves as a supporting surface or stand for the apparatus and a horizontal top edge **34**.

The upper frame member **14** includes a pair of spaced-apart side plates **36** and **38**. The side plates **36, 38** are shown as each having top and bottom edges **40** and **42** and front and rear edges **44, 46**, respectively. An angular surface **45** extends between the bottom edge and the front edge to facilitate access to the nip rollers for loading and unloading.

Plates **36, 38** are pivotally mounted to lower plates **16** and **18** by means of pivot link **48**. In the normal operative position, the bottom edge **42** of the upper side plates rests on the upper horizontal surface **34** of the lower side plates. In the open position, as shown in FIG. **3**, the upper frame member is rearwardly tilted about pivot **48** to a position in which the rear surface of the lower end plates engage the lower edge of the upper frame member to provide access for loading and unloading.

Feed material is secured in the upper frame member by inserting a feed roll into slots **56** and **56**A extending vertically in the inner surface of the opposite plates.

An upper nip roller **60** extends transversely between the side plates of the upper frame member positioned adjacent the lower edge **42** of the plates. The upper nip roller includes an axial shaft **62** which is rotatable in a suitable bearings or bushings **64**. A stop nut or cap, not shown, is provided at the left end of the shaft, as viewed in FIG. **1**.

The shaft is covered by a cylindrical roller member **65** of resilient material such as rubber. The shaft **62** projects exteriorly of the side plate **38** and is shown carrying a hand crank **70** for manually rotating the roller and shaft. Alternatively, the rollers may be powered by an electrical driven motor. A pinion gear **72** is secured to the shaft **62** adjacent the exterior surface of side plate **38**, as best seen in FIG. **4**.

A second nip roller **80** extends transversely between the lower side plates positioned parallel to the upper nip roller. The lower nip roller may be vertically aligned with the upper nip roller but preferably is forwardly displaced a small distance ahead of the upper nip roller as for example ¼" as seen in FIG. **2**. The lower nip roller has a shaft **82** which is rotatable in bearings or journals **84** in the side plates **16** and **18**. A pinion gear **85** is carried on the extension of shaft **82** at side plate **18**. When the upper frame is in its operative position, gear **85** will engage the upper pinion gear **72** so that actuation of the upper nip roller shaft by crank **70** or by other power means will impart rotation to both nip rollers.

As mentioned above, the device may be used as a laminator or as an adhesive transfer device. In the case of use as an adhesive transfer device, a lower feed roll **100** carrying a transferrable adhesive is secured in the lower frame member. Referring to FIGS. **10** to **13**, the feed roll includes a web **102** of flexible carrier material having release characteristics on the lower surface and an adhesive coating **106** on the other surface. With the roll in position, the end of the web **102** is extended over the lower roller **80** as shown in FIGS. **2** and **10**. An upper feed roll **110** is positioned in engagement with the slots **56** and **56**A in the interior surface of the upper side plates. The upper feed roll, in the case of adhesive transfer, will consist of a web **112** of material such as inexpensive paper or film having an affinity for adhesive. The end of the web **112** is extended between the nip rollers with the end of the web adhesively secured to the web of the master **125** in the lower roll.

The upper frame member is then rotated to a closed position bringing the nip rollers **60** and **80** into engagement or close proximity with the webs **102, 112** and master **125** compressed therebetween.

A feed tray **[130]** *131* which consists of a planar feeding surface **132** and opposite extending flanges **135, 135**A is suspended from the sides of the lower frame member. This is accomplished by engaging flanges **135** and **135**A with the respective upper edges of the side plates.

Referring to FIG. **9**, cutter bar **150** is shown which extends transversely between the lower side plates rearwardly of the nip rollers. The cutter bar **150** has a sharpened edge **152** which allows the operator to easily manually sever a master at any location as it is being processed when it emerges rearwardly from between the nip rollers.

Referring to FIGS. **10–13**, the master, which is designated by the numeral **125**, consists of a continuous sheet of material having an upper surface **126** and a lower surface **128**. The upper surface **126** is imprinted with indicia **131** forming a repetitive pattern of labels which have been pre-printed as desired, although the master can be any pre-printed documents or series of documents. The master is aligned on the feed tray with the free edge of the master positioned on the exposed adhesive surface **106** of the lower feed stock. The slight forward protrusion of the lower nip roller facilitates securing the master to this location.

The operator then actuates the machine by operating the crank which will rotate the upper nip roller **60** and by means of the inter-engaging pinion gears, cause rotation of the lower nip roller **80**. This rotation will advance the upper web **112**, lower web **106** and the master **125**. As the master proceeds between the nip rollers, the exposed adhesive **106** from the lower web will be transferred to the lower surface **128** of the master. The upper web will pick up any excess adhesive not transferred to the master, as for example areas outside the perimeter of the label areas **130**. The upper pick-up web should be wider than the adhesive web. The master may then be easily severed into individual labels by transversely severing the master at predetermined locations. The labels are shown as being on a continuous strip which has been pre-printed with the desired indicia **135**.

Note that the master can be oriented with either the printing or indicia facing upwardly or downwardly, depending on the user's requirements. For example, if the labels are to be applied to the inside of a window, the master would be in most cases fed into the applicator with the printing downwardly positioned so adhesive would be applied over the printing **130**. The apparatus can apply lamination to either the top or bottom surfaces of a substrate or adhesive to the top or bottom surfaces of a substrate or to both. The device can also perform combination operations of applying both a laminate and an adhesive to a substrate.

The characteristics of the lower web are such that the adhesive **106** is a non-aggressive adhesive loosely adhered to the surface of the web. Thus, the lower web serves as a peelable covering which can be stripped away at the time the master is to be used by adhesively applying the master to a surface.

One significant advantage of the device of the present invention is that the upper and lower feed rolls may be provided to the end user pre-wound and properly tensioned so as to not overrun during operation. The proper tensioning of the feed rolls is accomplished by means of a tensioning device as best seen in FIGS. **7** and **8**. In FIGS. **7** and **8**, one end of the feed roll core **200** is shown about which is wound the roll of web material and which is representative of either roll **100** or **110**. The core is a cylinder of cardboard or plastic having an end face **210**. Core **200** has an interior **212** which

receives end cap **215**. The cap may be of molded plastic or other similar material having an interior outer wall **216**. A boss **220** is concentrically formed in the cap with respect to the cylindrical wall **216**. Boss **220** defines an axial bore **225**. The cap **215** is positioned slightly inwardly of the end **210** of the core and may be adhesively secured in place to the interior wall **212** of the roll core.

A circular end plate **230** abuts the end of the core having a diameter slightly greater than the diameter of the core. The end plate has a central aperture **240** which receives the threaded shaft of bolt **246**. A spring **250** is interposed between the head of the bolt and the interior face of the cap **215**. A nut **252** engages the threaded end of the bolt. The head of the bolt **246** bears against the exposed surface of the end plate and the position of the nut determines the frictional resistance that exists between the interior surface of the end plate **230** and the end face **210** of the core of the roller. This tension is pre-adjusted by the manufacturer to provide the proper roll tension depending upon the type of material, size of the material, thickness of the material and other factors.

Mounting tabs **260** and **260**A project outwardly from the end plate and are engageable in the mounting slots provided on the interior surfaces of the upper and lower end plates of the applicator device.

Thus, it will be seen that inserting a supply of feed stock either in the upper or lower frames is easily accomplished. The existing or spent feed rolls are removed by sliding them outwardly to disengage the tabs from the slots. The new roll is inserted by aligning the mounting tabs with the slots and sliding the new feed roll into place.

The feed rolls may be supplied with various types of feed stock webs such as clear laminates, paper for removing excess adhesive or rolls of material having a loose adhesive coating and a release coating on the opposite surface.

FIGS. **14** and **15** show an alternate embodiment of the apparatus of the present invention which is generally designated by the numeral **400**. Elements which are the same or similar to elements described with respect to the preceding figures are identified by the same numerals. The apparatus of FIGS. **14** and **15** has a frame consisting of opposite side walls **436** and **438**. The side walls are again provided with vertically extending grooves **56**, **56**A and horizontally extending grooves **28**, **28**A which accommodate the insertion of feed rolls **110** and **100**, respectively. In this embodiment, the side walls of the frame are fixed and separation of nip rollers **60** and **80** is accomplished by means of a gibb plate arrangement as will be explained hereafter.

Since mounting slots **56**, **56**A are vertically disposed, the weight of the roller **110** will maintain the feed roll in the proper position. Preferably the feed rollers **100** and **110** are positioned as close to the nip rollers as possible to maintain accurate feeding and to minimize misalignment. It may be desirable to provide positive biasing means to urge feed roll **100** rightwardly as shown in FIG. **14**. To this end, a link **430** is pivotally secured at pivot point **432** to the interior of the side wall **436**. A similar link may be disposed on the interior side wall **438**. A spring **435** is disposed below the slot **28**. When the roll **100** is inserted, link **432** may be rotated downwardly as indicated by the arrow and engaged with spring **435** to apply a biasing force to the feed roll to maintain it in a secure position.

As indicated above, it is desirable that the nip rollers **60** and **80** be separated to provide access for purposes of loading the apparatus. In the prior embodiment, access was provided by a frame arrangement in which one portion of the frame is pivotal with respect to the other. In the embodiment of FIGS. **14** and **15**, the lower nip roller **80** extends between the interior side walls of the side plate and mounted at opposite ends at bearing arrangement **485**. The upper nip roller **60** is provided with opposite stub shafts **444** which are received in bearings in opposite gibb plates **450** and **452**. Gibb plates **450** and **452** are vertically slidable and are upwardly biased by springs **460**. In FIG. **15**, the rollers are shown in a closed position in which they are in contact or close engagement. The nip rollers are maintained in position by shaft **425** which is operated by nip engagement lever **470**. It will be seen that by rotating lever **470**, shaft **425** will be rotated bringing notches or grooves **480** into engagement with the upper end of the gibb plates **450**, **452**. This will allow the gibb plates and nip roller **60** to move upwardly separating from lower nip roller **80**. In the closed position, as shown in FIG. **15**, the shaft **425** is rotated into engagement with the gibb plates **450**, **452** to force the gibb plates and upper nip roller downwardly into engagement with the lower roller overcoming the bias of the springs **460**.

While the principles of the invention have been made clear in the illustrative embodiments set forth above, it will be obvious to those skilled in the art to make various modifications to the structure, arrangement, proportion, elements, materials and components used in the practice of the invention. To the extent that these various modifications do not depart from the spirit and scope of the appended claims, they are intended to be encompassed therein.

We claim:

1. An application and transfer device comprising:

[(a)**]** a frame **[**having opposite sides**]** *that provides first and second feed roll mounting structures*;

[(b)**]** a **[**first**]** nip roller **[**rotatably mounted and extending between said sides of said frame**]** *assembly comprising a pair of cooperating structures that cooperate to apply pressure to substrates fed therebetween, at least one of said cooperating structures being a rotatable nip roller*;

[(c) a first mounting means for mounting a feed roll to said frame;**]**

[(d) second nip roller rotatively mounted and extending between said sides of said frame adjacent said first nip roller;**]**

[(e) second mounting means for mounting a feed roll to said frame;**]**

[(f) actuating means for imparting rotation to at least one of said nip rollers;**]**

[(g)**]** first and second *removable* feed rolls **[**of material**]** each having a **[**generally cylindrical**]** core about which feed material is wound **[**and**]**, *said first and second feed rolls* being **[**supported for rotation in said respective first and second mounting means**]** *removably mounted to said first and second feed roll mounting structures, respectively, so as to allow the feed materials thereof to be unwound from their respective cores and fed in between the cooperating structures of said nip roller assembly, at least one of said feed materials carrying a layer of pressure-sensitive adhesive*; and

an actuator that selectively imparts rotation to at least said rotatable nip roller so that, when a master is fed in between said cooperating structures with said feed materials disposed on opposing sides of the master and the adhesive layer facing the master, a master processing operation can be performed by operating said actuator so as to impart rotation to said nip roller, thereby causing said cooperating structures to apply pressure to the feed materials and the master fed

therein so as to affect adhesive bonding between the master and the feed materials via the aforesaid layer of pressure-sensitive adhesive;

[(h)**]** *said feed rolls comprising* pre-tensioning **[**means associated with each of said cores for selectively establishing a predetermined resistance to rotation of the rolls of material to provide the proper application tension for unwinding the feed material wherein said pre-tensioning means includes a tensioning cap affixed to said cores, said caps having an end plate engaging the end of the associated core and said plate with securement means engageable in said mounting means and further including biasing means for applying a predetermined force biasing said end plate into engagement with the end of said roll core**]** *brakes that are constructed and arranged to cooperate with said frame when said feed rolls are removably mounted to said mounting structures such that said pre-tensioning brakes remain fixed while said cores are being rotated as a result of the feed materials being unwound so that said pre-tensioning brakes apply friction to said cores to resist rotation thereof;*

wherein the removable mounting of said feed rolls allows an operator to remove said feed rolls from said frame and thereafter removably mount replacement feed rolls to said frame.

2. The applicator and transfer device of claim **[1** including means for moving**]** *25, further comprising nip roller moving structure constructed and arranged to move* said nip rollers from a first position out of engagement into a second position into engagement with one another.

3. The applicator and transfer device of claim **[1]** *25,* wherein said first and second mounting **[**means comprises slot means**]** *structures are slots* located **[**in the**]** *on* opposite sides of **[**the**]** said frame*, the pre-tensioning brake of each said feed rolls having a projection that is removably received in an associated slot to ensure that said brake remains fixed when said feed rolls are removably mounted in said slots.*

4. The applicator and transfer device of claim **[1]** *25* further **[**including**]** *comprising a* feed tray **[**means polished**]** *positioned* adjacent said nip rollers *for guiding the master into said nip rollers.*

5. The applicator and transfer device of claim **4** further **[**including cut-off means**]** *comprising a substrate cutter* located adjacent the nip rollers opposite the feed tray*, said substrate cutter being constructed and arranged to cut substrates discharged from the nip roller assembly.*

6. The applicator and transfer device of claim **[1]** *25* wherein **[**the axis of**]** said nip rollers **[**are**]** *have* parallel **[**to one another**]** *axes* and wherein the axis of one of said nip rollers is **[**horizontally**]** displaced relative to the other nip roller *in a feeding direction of said applicator and transfer apparatus.*

7. The applicator and transfer device of claim **[1]** *3* further **[**including**]** *comprising* biasing **[**means for maintaining**]** *elements that retain* said feed rolls in their respective **[**mounting means**]** *slots.*

8. The applicator and transfer device of claim **2** wherein said **[**means for moving said nip rollers comprises**]** *nip roller moving structure is* a gibb plate.

9. The applicator and transfer device of claim **1** wherein said *feed* rolls are located immediately adjacent the associated nip roller.

10. An applicator and adhesive transfer device comprising:

[(a)**]** an upper frame member **[**having opposite sides**]** and a lower frame member **[**having opposite sides**]**, said upper frame member being pivotally connected to said lower frame member;

[(b)**]** a first nip roller **[**rotatively**]** *rotatably* mounted **[**and extending between the sides of**]** *to* said upper frame member;

[(c)**]** *a* first *feed roll* mounting **[**means**]** *structure* associated with the upper frame member;

[(d)**]** a second nip roller **[**rotatively**]** *rotatably* mounted **[**and extending between the sides of**]** *to* said lower frame member;

a second feed roll mounting structure associated with the lower frame member;

[(e) second mounting means associated with the said lower frame member;**]**

[(f)**]** first and second *removable feed* rolls **[**of feed material**]** each having a **[**generally cylindrical**]** core about which **[**the**]** feed material is wound **[**and**]***, said first and second feed rolls* being **[**supported for rotation in said respective first and second mounting means**]** *removably mounted to said first and second feed roll mounting structures, respectively, so as to allow the feed materials thereof to be unwound from their respective cores and fed in between said first and second nip rollers, at least one of said feed materials carrying a layer of pressure-sensitive adhesive*;

[(g)**]** *said feed rolls comprising* pre-tensioning **[**means integrally associated with each of said cores for selectively establishing a predetermined resistance to rotation of the rolls of feed material to provide the proper application tension for the feed material, said pre-tensioning means including a tensioning cap affixed to said associated core having an end plate engaging the associated core and said plate having with securement means engageable in said mounting means and further including biasing means for applying a predetermined force biasing said end plate into engagement with the associated core**]** *brakes that are constructed and arranged to cooperate with said frame when said feed rolls are removably mounted to said frame such that said pre-tensioning brakes remain fixed while said cores are being rotated as a result of the feed materials being unwound so that said pre-tensioning brakes apply friction to said cores to resist rotation thereof*; and

[(h) actuating means**]** *an actuator* for imparting rotation to at least one of said nip rollers *so that, when a master is fed in between said nip rollers with said feed materials disposed on opposing sides of the master and the adhesive layer facing the master, a master processing operation can be performed by operating said actuator so as to impart rotation to said nip roller, thereby causing said nip rollers to apply pressure to the feed materials and the master fed therein so as to affect adhesive bonding between the master and the feed materials via the aforesaid layer of pressure-sensitive adhesive;*

wherein the removable mounting of said feed rolls allows an operator to remove said feed rolls from said frame and thereafter removably mount replacement feed rolls to said frame.

11. The applicator and adhesive transfer device of claim **10** wherein said upper frame member **[**is pivotal**]** *pivots* between a non-actuated position *wherein said nip rollers are disengaged* and an actuated position in which the nip rollers are in engagement.

12. The applicator and adhesive transfer device of claim **[11]** *10* further including **[**gear means**]** *intermeshing gears*

associated with *each of* said first and second nip rollers [wherein] *such that* actuation of one nip roller will impart rotation to the other of said nip rollers.

13. The applicator and adhesive transfer device of claim **10** wherein said *feed roll* mounting [means comprises slot means in] *structures are slots located on opposing sides of each of* said upper and lower frame members [and further including first and second feed rolls each having engagement means engageable in said mounting means], *the pre-tensioning brake of each feed roll having a projection that is removably received in an associated slot to ensure that said brake remains fixed when said feed rolls are removably mounted in said slots.*

[**14**. The applicator and adhesive transfer device of claim **13** wherein said engagement means includes pre-tensioning means for controlling the pay-out of feed material from said rolls.]

[**15**. The applicator and adhesive transfer device of claim **10** wherein said core has an end plate engaging the opposite ends of said core with projection means engageable in said mpounting means and further including means for applying a predetermined force biasing said end plate into engagement with the ends of said roll core.]

16. The applicator and adhesive transfer device of claim **10** further including a feed tray [generally aligned with the inner face of the] *disposed adjacent said* nip rollers when said [nip rollers are in said second engaged position] *upper frame member is in said closed position and being configured to guide a master into said nip rollers.*

17. The applicator and adhesive transfer device of claim **10** further including [cut-off means] *a substrate cutter constructed and arranged to cut substrates discharged from between the nip rollers.*

18. The applicator and adhesive transfer device of claim **10** wherein *said nip rollers have parallel axes and* the axis of said [second] *one* nip roller is horizontally displaced from the axis of [said second] *the other* nip roller *in a feeding direction of said applicator and adhesive transfer device.*

19. The applicator and transfer device of claim 1, wherein the core of each feed roll comprises at least one end cap affixed at the axial end thereof and wherein said pre-tensioning brake of each feed roll comprises a brake plate that is secured to said core so as to apply friction to said core when said core is rotated relative to said brake plate during the unwinding of said feed material.

20. The applicator and transfer device of claim 17, further comprising a spring disposed between each brake plate and each end cap that applies a biasing force to keep said brake plate frictionally engaged with said core.

21. The applicator and transfer device of claim 18, further comprising a threaded screw associated with each spring, end cap, and brake plate that adjusts the amount of biasing force applied by said spring and hence the amount of frictional force applied to said core during unwinding of said feed material.

22. The applicator and adhesive transfer device of claim 10, wherein the core of each feed roll comprises at least one end cap affixed at the axial end thereof and wherein said pre-tensioning brake of each feed roll comprises a brake plate that is secured to said core so as to apply friction to said core when said core is rotated relative to said brake plate during the unwinding of said feed material.

23. The applicator and adhesive transfer device of claim 20, further comprising a spring disposed between each brake plate and each end cap that applies a biasing force to keep said brake plate frictionally engaged with said core.

24. The applicator and adhesive transfer device of claim 21, further comprising a threaded screw associated with each spring, end cap, and brake plate that adjusts the amount of biasing force applied by said spring and hence the amount of frictional force applied to said core during unwinding of said feed material.

25. An application and transfer device according to claim 1, wherein each of the cooperating structures of said nip roller assembly is a nip roller.

26. An apparatus for processing a master, said apparatus comprising:

a frame that provides a first feed roll mounting structure and a second feed roll mounting structure;

a first replaceable feed roll having a core about which a first supply of feed material is wound and a first pre-tensioning brake;

a second replaceable feed roll having a core about which a second supply of feed material is wound and a second pre-tensioning brake;

said first and second feed rolls being removably mounted to said first and second feed roll mounting structures, respectively, so that said first and second feed materials can be unwound therefrom, at least one of said feed materials carrying a layer of adhesive material;

a master processing assembly positioned with respect to said first and second feed roll mounting structures such that the master can be fed into said processing assembly with the feed materials being unwound from their respective feed rolls and disposed on opposing sides of the master and with the layer of adhesive material facing said master;

said master processing assembly being constructed and arranged to perform a master processing operation wherein said processing assembly causes adhesive bonding between the feed materials and the master being fed therein and then subsequently discharges the processed master and feed materials; and

an actuator that selectively affects operation of said master processing assembly so as to perform said master processing operation;

wherein said pre-tensioning brakes of said first and second feed rolls cooperate with said frame such that said pre-tensioning brakes remain fixed with respect to said frame while said cores are being rotated as a result of said feed material being unwound so that braking friction is created between said cores and said pre-tensioning brakes.

27. An apparatus according to claim 24, wherein said adhesive material is pressure-sensitive and wherein said master processing assembly is constructed and arranged to perform the master processing operation without the use of heat transfer by applying pressure to the feed materials and the master fed therein.

28. An apparatus according to claim 25, wherein said master processing assembly includes first and second cooperating structures that apply pressure to said feed materials and the master fed therein so as to perform said master processing operation.

29. An apparatus according to claim 26, wherein said first and second cooperating structures are first and second nip rollers.

30. An apparatus according to claim 24, wherein the core of each feed roll comprises at least one end cap affixed at the axial end thereof and wherein said pre-tensioning brake of each feed roll comprises a brake plate that is secured to said core so as to apply friction to said core when said core is rotated relative to said brake plate during the unwinding of said feed material.

31. An apparatus according to claim 28, further comprising a spring disposed between each brake plate and each end cap that applies a biasing force to keep said brake plate frictionally engaged with said core.

32. An apparatus according to claim 29, further comprising a threaded screw associated with each spring, end cap, and brake plate that adjusts the amount of biasing force applied by said spring and hence the amount of frictional force applied to said core during unwinding of said feed material.

33. An apparatus according to claim 24 wherein said first and second mounting structures are slots located on opposite sides of said frame, the pre-tensioning brake of each feed roll having a projection that is removably received in an associated slot to ensure that said brake remains fixed when said feed rolls are removably mounted in said slots.

34. An apparatus according to claim 24 further comprising a feed tray positioned adjacent said nip rollers for guiding the master into said nip rollers.

35. An apparatus according to claim 24, further comprising a substrate cutter located adjacent the nip rollers opposite the feed tray, said substrate cutter being constructed and arranged to cut substrates discharged from the nip roller assembly.

36. A feed roll assembly to be used in conjunction with an apparatus for performing a master processing operation, the apparatus comprising a frame that provides first and second feed roll mounting structures, a master processing assembly constructed and arranged to perform a master processing operation wherein said processing assembly causes adhesive bonding between adhesive carrying substrates fed therein, and an actuator that affects operation of the master processing assembly, said feed roll assembly comprising:

a first replaceable feed roll having a core about which a first supply of feed material is wound and a first pre-tensioning brake;

a second replaceable feed roll having a core about which a second supply of feed material is wound and a second pre-tensioning brake;

said first and second feed rolls being constructed and arranged to be removably mounted to the first and second feed roll mounting structures of the frame, respectively, so that their respective feed materials can be unwound therefrom, at least one of said feed materials carrying a layer of adhesive material;

said pre-tensioning brakes being constructed and arranged to cooperate with the apparatus frame when the feed rolls are removably mounted to the respective feed roll mounting structures thereof such that said brakes remain fixed with respect to the apparatus frame while said cores are being rotated as a result of said feed materials being unwound from said cores so that braking friction is created between said cores and said pre-tensioning brakes.

37. A feed roll assembly according to claim 34, wherein the layer of adhesive material is pressure-sensitive.

38. A feed roll assembly according to claim 34, wherein the core of each feed roll comprises at least one end cap affixed at the axial end thereof and wherein said pre-tensioning brake of each feed roll comprises a brake plate that is secured to said core so as to apply friction to said core when said core is rotated relative to said brake plate during the unwinding of said feed material.

39. A feed roll assembly according to claim 36, further comprising a spring disposed between each brake plate and each end cap that applies a biasing force to keep said brake plate frictionally engaged with said core.

40. A feed roll assembly according to claim 37, further comprising a threaded screw associated with each spring, end cap, and brake plate that adjusts the amount of biasing force applied by said spring and hence the amount of frictional force applied to said core during unwinding of said feed material.

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