

Oct. 15, 1963

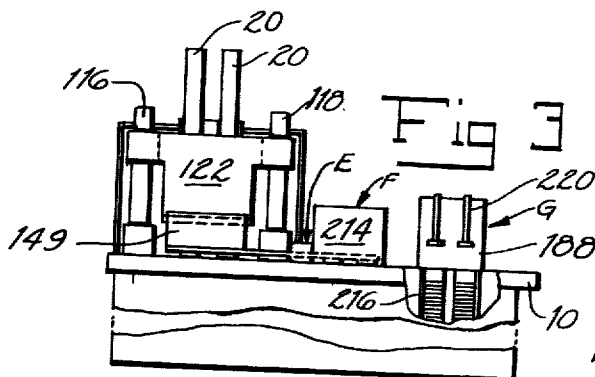
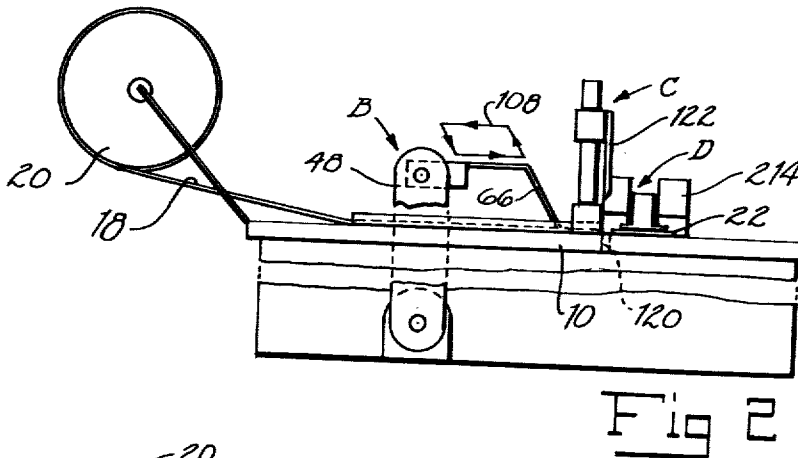
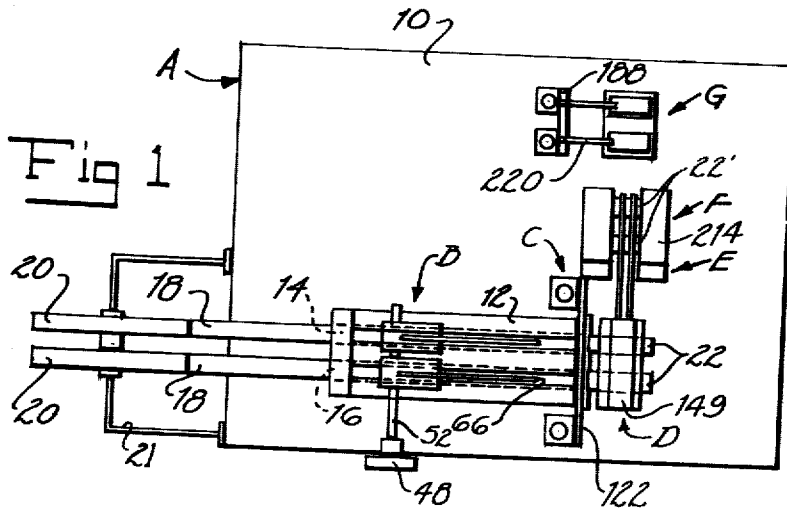
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3,106,809

WEB MATERIAL SEVERING, FOLDING AND PACKING DEVICE

Filed Feb. 24, 1961

6 Sheets-Sheet 1



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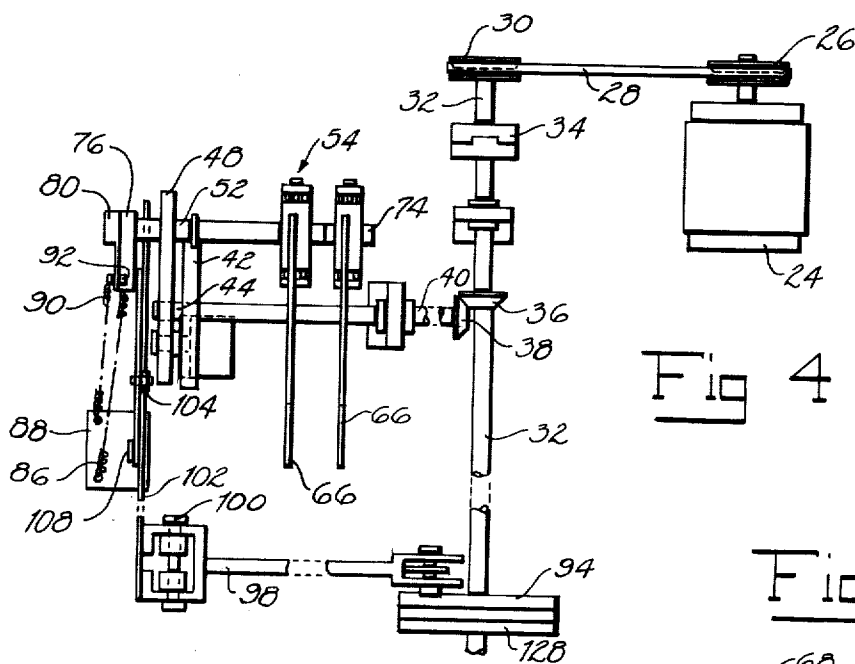


Fig 4

Fig 7

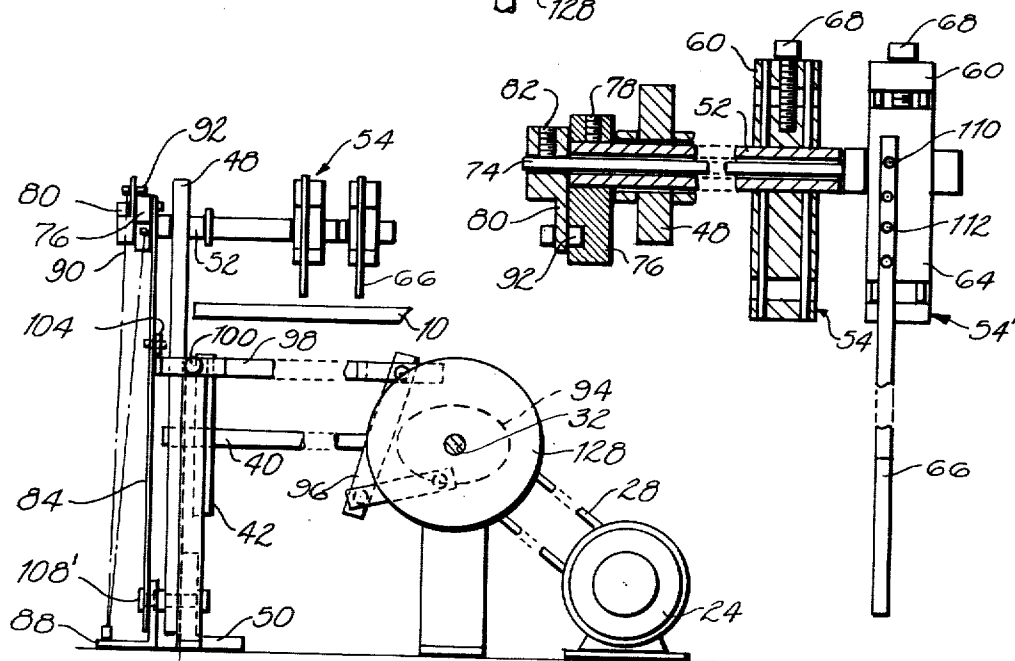


Fig 5

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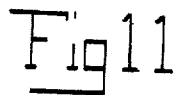
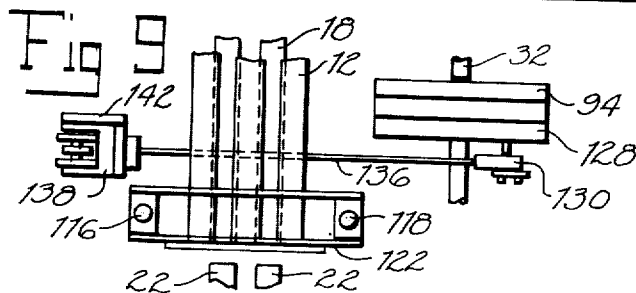
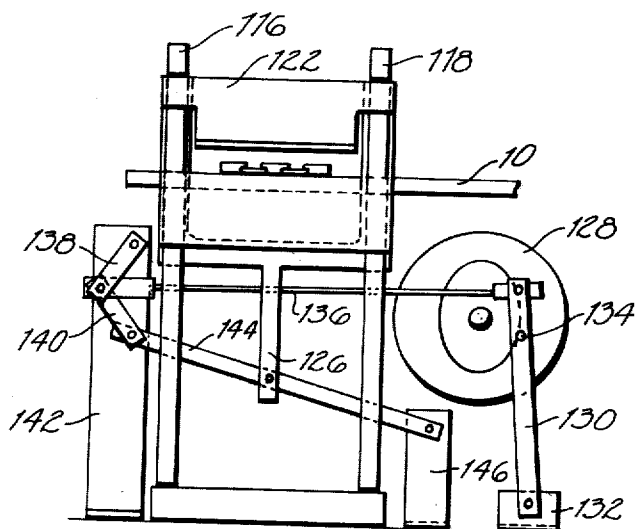
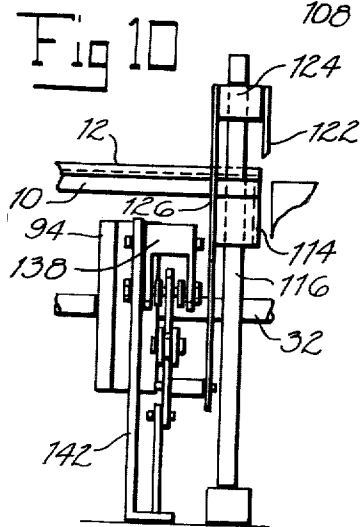
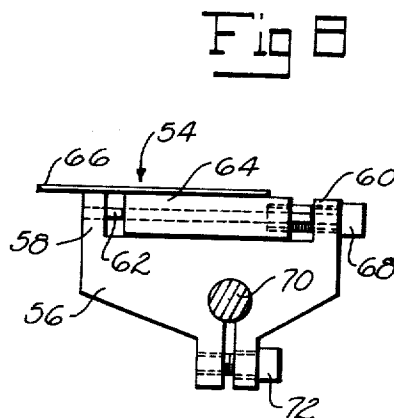
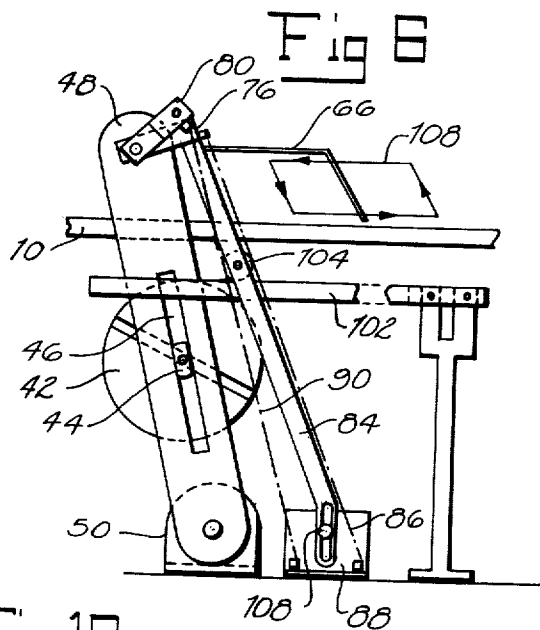
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WEB MATERIAL SEVERING, FOLDING AND PACKING DEVICE

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6 Sheets-Sheet 3



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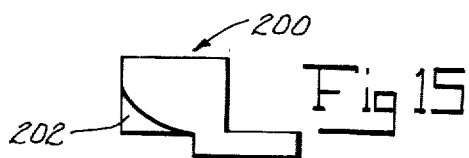
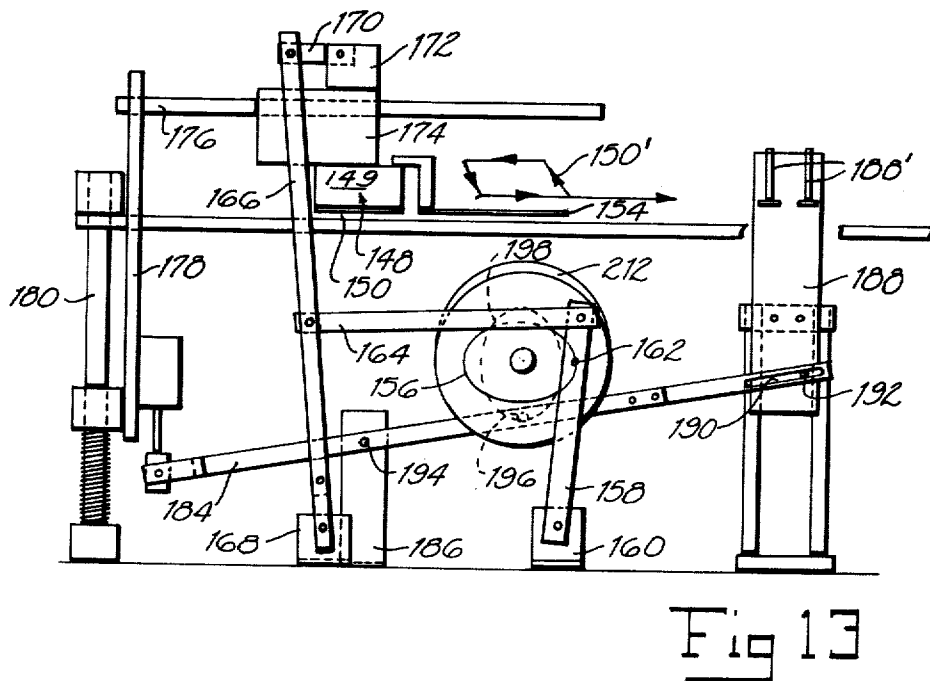
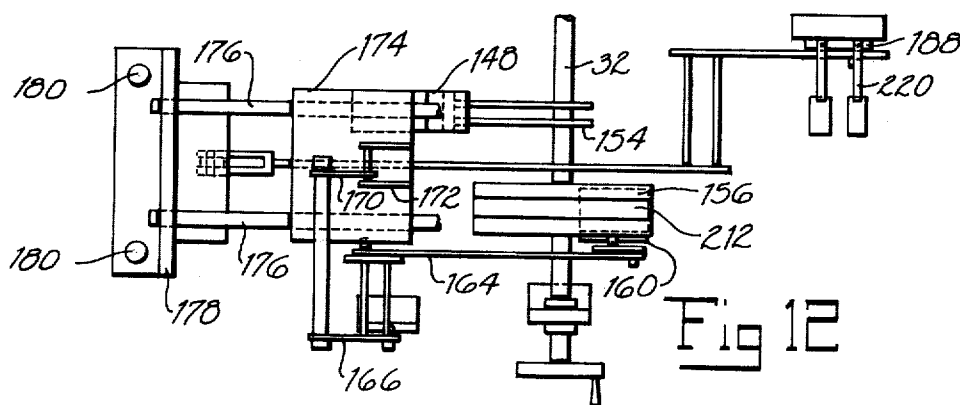
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WEB MATERIAL SEVERING, FOLDING AND PACKING DEVICE

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6 Sheets-Sheet 4



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WEB MATERIAL SEVERING, FOLDING AND PACKING DEVICE

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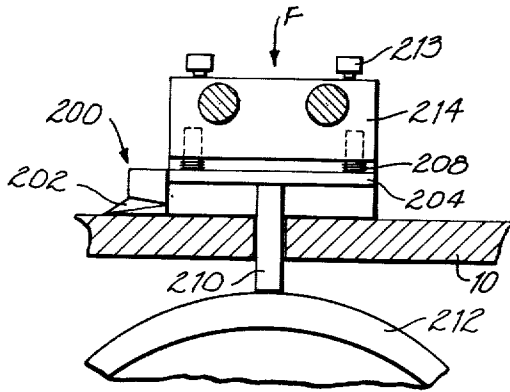


Fig 14

Fig 16

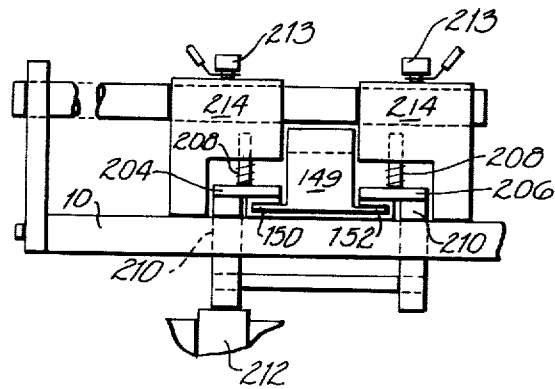


Fig 17

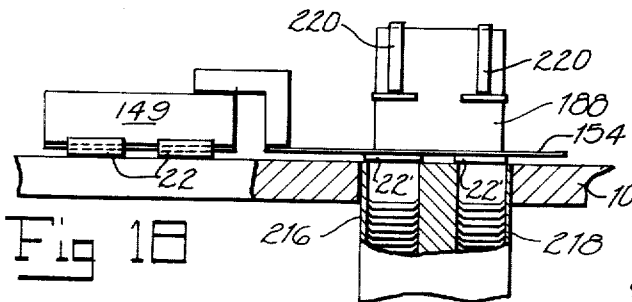
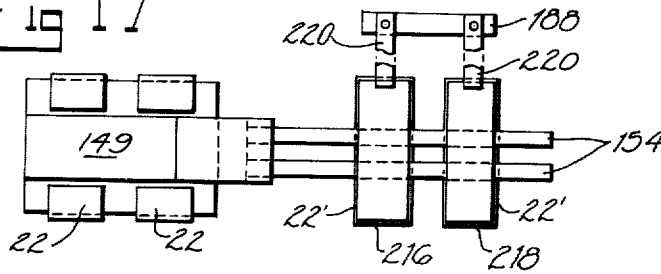


Fig 18

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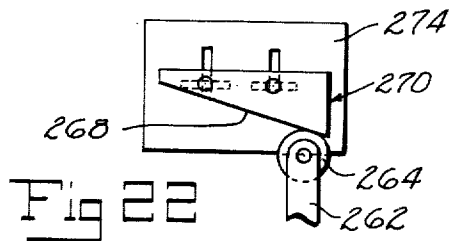
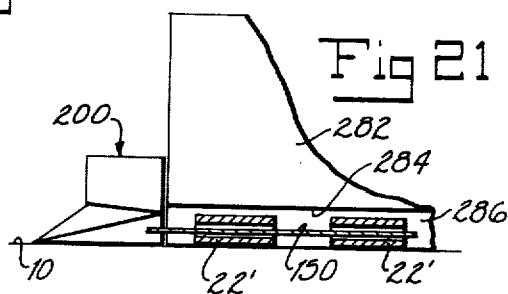
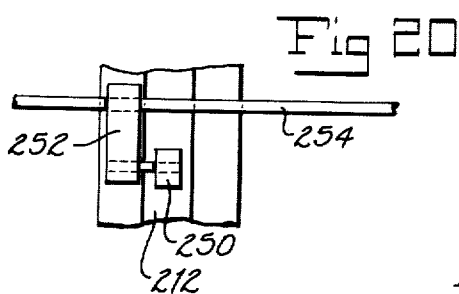
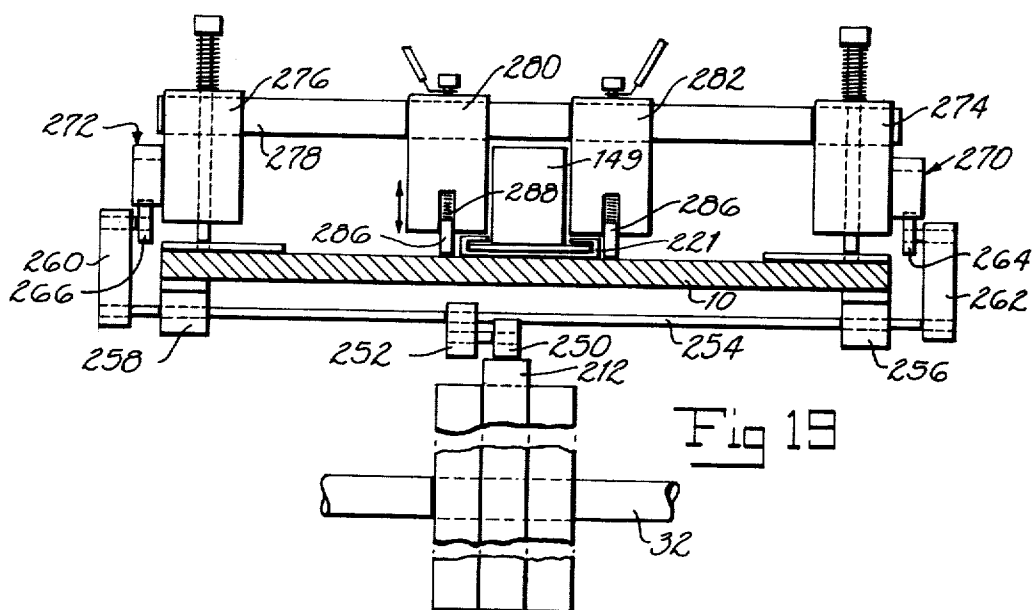
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WEB MATERIAL SEVERING, FOLDING AND PACKING DEVICE

Filed Feb. 24, 1961

6 Sheets-Sheet 6



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WEB MATERIAL SEVERING, FOLDING AND PACKING DEVICE

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Filed Feb. 24, 1961, Ser. No. 91,478
19 Claims. (Cl. 53—116)

The invention relates in general to an apparatus and method for cutting, forming and packing materials and in particular to a new and useful apparatus and method for severing a continuous web of strip material and feeding the severed length through means for forming the ends thereof and for thereafter packing the individual lengths in containers.

Prior to the present invention, machines such as those for operating upon envelope blanks, labels and other similar strip materials have been provided which include means for severing individual lengths of these materials from a continuously fed web and thereafter operating upon these lengths as they are fed to mechanism for stacking the finished items. In most devices of this kind, it is extremely difficult to obtain a high rate of blank feeding without causing misalignment of the strip materials and possible jamming of the operating mechanism. A further disadvantage in such equipment is that the machines operate at speeds which produce rapid wear of the moving parts and hence early obsolescence of the machinery. With machinery of this nature it is particularly desirable that the apparatus operate on as many individual units as possible so that the output of the machine may be increased.

The present invention is particularly directed to machines which are adapted to sever individual fabric material labels from a continuous strip of the material, to thereafter fold the labels and to insure that the folding operation is permanent by pressing and to pack each of the folded labels into a carton for shipment. It is essential in such a device that the operating parts be as simple as possible and be arranged in a manner in which all of the parts are accessible for adjustment and/or repair, if necessary. The cutting operation for severing a fabric material requires a very durable cutting blade system and in prior art machinery, great difficulty has been experienced in the wearing out of rotary-type knife blades which soon required replacement. A disadvantage in such construction was that the associated mechanism had to be removed in order to permit replacement of the operating knife to permit continued operation of the device.

A further disadvantage of the prior art devices, particularly those adapted for operating upon labels, was that the means for folding the labels was both complicated and not easily controllable and required expensive moving apparatus for effecting the proper fold and insuring that the portions were maintained in their folded condition.

In accordance with the present invention, there is provided a machine for continuously advancing one or more continuous lengths of strip material into association with a reciprocating knife mechanism arranged to cut one or more of the continuously fed strips and further including means for feeding the cut label units into as-

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sociation with folding and pressing mechanism and for thereafter advancing the pressed and folded labels into a carton or receptacle therefor.

A feature of this invention is that while the speed of the operating parts may be maintained relatively low, the output of the machine is remarkably increased due to the unusual feeding pattern arrangement which makes it possible to feed two or more continuous lengths of strip material for operation thereon simultaneously by the cutting, folding and packing mechanism.

In those instances where the machine is employed for operating on cloth material or fabric labels, it is essential that an operator continuously watch the cutting, folding and packing of the labels so that no labels which are incorrectly folded or cut are packed in the packing boxes. When attempts have been made to increase the speed of operation of these machines, it is difficult for the operator to keep up with the operation of the machine and, hence, it is not unusual that many defective labels are packed and, in some instances, a large run of defective labels is produced by the machine before the operator notices it. With the present invention, it is possible to thoroughly check each of the labels which is formed and to check the folding and pressing operations thereof. This is true even though a large quantity of labels is fed by the machine, since the increased output of the machine is effected through the feeding of labels through a plurality of feed lines and each of these feed lines may be easily observed.

A further feature of the invention is the arrangement of the operating parts within a small floor space area whereby feeding of the blanks which are cut away from the continuous strips of the material is made in a direction at an angle to the original feed direction of the continuous length of strip material. Such an arrangement, besides permitting the feeding of more than one strip at the same time, permits an arrangement of the parts within a relatively small space but with full accessibility for replacement if necessary.

In accordance with another feature of the invention, independently adjustable pusher means are provided for intermittently advancing one or more continuous lengths of strip material into association with a reciprocating knife mechanism. The construction of the pusher and the guide channels for the strip materials are such that two, three, four or even more continuous lengths of material may be fed simultaneously along parallel feed lines.

The reciprocating knife mechanism includes a guillotine-type blade which is removably mounted in a block which is freely accessible from the top of the machine in which the blade may be removed from the block for replacement or sharpening purposes after the blade has been in continuous use over a period of time.

A further feature of the invention is the novel feeding arrangement in which two or more feeding lines of web material are arranged to feed to the cutting off station and means are provided for feeding one or more cutoff label blanks in a direction at an angle to the web feeding advance for further operation on the label blank. The means for advancing the label blanks in the new direction of feed includes a slide mechanism comprising a novel block member having side flanges of slight depth which overlie the label blanks intermediate their width leaving marginal edges for folding purposes. An improved folding mechanism includes cam deflecting

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elements on each side of the feed path to deflect the corners of the labels upwardly as the slide mechanism is advanced over the side flanges and, thereafter, press feed marginal edges of the labels over the flange portion of the slide mechanism. Heating presses are arranged to reciprocate in the feed line and to press the material of the folded marginal edges of the labels to insure that the folds are maintained. Thereafter, novel means are effective to insert the labels in cartons which are provided at a stacking station. The packing mechanism includes means to push each of the labels in a number corresponding to the number of web feed lines into separate stacking locations for cartons.

Accordingly, it is an object of this invention to provide an improved device for advancing web material along one or more prescribed paths and severing the web material into individual lengths which lengths are advanced through means for folding and for stacking them in appropriate locations.

A further object of the invention is to provide a machine for cutting, folding and stacking labels.

A further object of the invention is to provide a device for feeding a plurality of continuous lengths of strip material into association with cutting means and for thereafter feeding the severed blanks of the material along an angle to the path of the web feed for the purpose of effecting prescribed operations on said blanks.

A further object of the invention is to provide an improved advancing mechanism for feeding a continuous web or strip of material.

A further object of the invention is to provide a folding mechanism for lengths of strip material including a flanged sliding block movable into engagement with a length of strip material for advancing it through a prescribed path and a folding cam arrangement disposed along the path arranged to fold the marginal edges of the length of strip material back upon the intermediate portion thereof.

A further object of the invention is to provide an improved folding and pressing arrangement for strip material including a heating element arranged to operate in conjunction with a folding cam arrangement for effecting crease folds on the strip material.

A further object of the invention is to provide an improved packer or stacking mechanism arranged to permit feeding of two or more individual strip lengths into vertical alignment with the stacking receptacle and including means for effecting the pushing of the labels through a slightly undersized opening into the receptacle thus arranged.

A further object of the invention is to provide a guillotine knife blade construction for severing sheet material into individual lengths and including a removable blade member therefor.

A further object of the invention is to provide a machine and associated mechanism by the characters described which are simple in design, rugged in construction and economical to manufacture.

The various features of novelty which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, its operating advantages and specific objects attained by its use, reference should be had to the accompanying drawings and descriptive matter in which there are illustrated and described preferred embodiment of the invention.

In the drawings:

FIG. 1 is a top plan view of a machine for cutting, folding, pressing and packing labels as constructed in accordance with the invention;

FIG. 2 is a side elevation of the machine indicated in FIG. 1;

FIG. 3 is a front end elevation of the machine indicated in FIG. 1;

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FIG. 4 is a partial top plan view of the pusher mechanism and motor drive therefor;

FIG. 5 is a somewhat schematic side elevation of the pusher mechanism for the label web feeding mechanism;

FIG. 6 is an end elevation of the mechanism indicated in FIG. 5;

FIG. 7 is a partial horizontal section and partial plan view of the pusher arm mounting arrangement;

FIG. 8 is a side elevation of one of the pusher arms;

FIG. 9 is a fragmentary top plan with portions of the table removed indicating the guillotine-type knife construction;

FIG. 10 is a side elevation of the guillotine knife and associated operating mechanism;

FIG. 11 is a front elevation of the mechanism indicated in FIG. 10;

FIG. 12 is a fragmentary top plan view of the mechanism for operating a slide arrangement for advancing the individual labels into association with folding and pressing mechanism;

FIG. 13 is an end elevation of the mechanism indicated in FIG. 12;

FIG. 14 is a partial section and partial end elevation of the heater and pressing element and associated operating mechanism;

FIG. 15 is an end elevation of the label folding cam;

FIG. 16 is a fragmentary side elevation indicating the heating elements and associated operating mechanism with the folded blocks disposed in position for pressing a label in its folded position;

FIG. 17 is a fragmentary top plan view of the label advancing block and the mechanism for packing the labels into receptacles;

FIG. 18 is a fragmentary side elevation of the mechanism indicated in FIG. 17;

FIG. 19 is a fragmentary elevation partly in section, of a pressing mechanism;

FIG. 20 is a fragmentary top plan of a crank arm and control shaft for the pressing mechanism;

FIG. 21 is a partial side elevation of the heating element and cam with the heating element in a raised position; and

FIG. 22 is a side elevation of the lifting block and adjustable wedge member.

Referring to the drawings in particular, the invention embodied therein includes a mounting base generally designated A in which there is provided the operating mechanism and drive for a machine for feeding a continuous strip of label material along two prescribed feed paths into association with means for cutting the labels into individual lengths and for progressing the lengths thus cut along a new feed path into association with mechanism for folding, pressing and packing the labels into containers. The mounting base is provided with a table top 10 on which is positioned guide channels 12 defining in this embodiment two separate feeding paths 14 and 16 for advancing continuous strips of label material 18 from reels of labels 20 which are rotatably mounted on a supporting bracket 21. The material 18 in the present embodiment is a fabric material having a series of imprinted labels connected together in a continuous strip length in the manner in which these labels are produced on the sewing machines therefor. It should be appreciated from the outset that the guide channels 12 may define paths for one, two or more of the continuous lengths of label material in accordance with the principles of the invention. If over two paths are provided with cutting mechanism, the number of packing receptacles and packers and the size of the slide mechanism and pusher arms associated therewith would be correspondingly increased.

The invention in general comprises a feeding mechanism generally designated B arranged to intermittently advance the continuous lengths 18 into association with a cutting mechanism generally designated C which cuts the lengths of material into individual labels or blanks 22. The labels 22 are advanced by a slide mechanism gen-

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erally designated D along a new feed path first into association with a folding cam generally designated E and then into association with a heating and pressing mechanism generally designated F and thereafter into alignment with a packing mechanism generally designated G. The packing mechanism G includes means to direct the folded and pressed labels into containers therefor.

In accordance with the invention, the machine is driven by a motor 24 (see FIG. 4) which drives through a pulley 26, belt 28 and pulley 30, a shaft 32, which is rotatably mounted in suitable bearings in the base A. The shaft is rotatably mounted on suitable bearings supported in the base A. The shaft is provided with suitable clutching means 34 for interrupting the driving operation in accordance with an electrical control (not shown) as desired. The shaft 32 further includes a beveled gear 36 which drives a similar beveled gear 38 affixed to a shaft 40 provided for operating the feeding mechanism B. The shaft 40 is rotatably mounted in suitable bearings within the base A and carries a sliding block cam mechanism 42 having a slide pin 44 disposed in a vertically elongated slot 46 of a connecting arm member 48 (see FIGS. 4 and 5).

The lower end of the connecting arm member 48 is pivoted on a bracket 50 to permit back and forth swinging movement thereof in accordance with the displacement of the sliding pin 44 in the slot 46 upon rotation of the cam 42. The upper end of the connecting arm member 48 carries a hollow shaft 52 which is rotatable in the connecting rod member and which carries a pusher arm assembly generally designated 54 (see FIGS. 4 to 8). When the connecting rod member is pivoted backwardly and forwardly, it shifts the pusher rod assembly 54 which is carried thereby along therewith.

The pusher rod assembly 54 includes, as best indicated in FIG. 8, a bracket or block portion 56 having upstanding ends 58 and 60 (FIG. 8) which carry guide rods 62 upon which is slidable a mounting block 64 which carries an angled or L-shaped pusher arm 66. For the purpose of adjusting the active stroke length of the pusher arm and therefore the precise feeding for the movement of the label material 18 by the movement of the pusher arms, the block 64 may be slid backwardly and forwardly between the upstanding portions 58 and 60 by turning a screw adjustment 68 which is threaded into the block 64 and causes displacement thereof upon rotation of said screw adjustment. The mounting bracket portion 56 of the pusher rod assembly 54 includes an opening 70 to accommodate the pusher spindle or shaft 52 and the pusher arm assembly may be securely affixed to the shaft 52 by means of a clamping screw 72.

In accordance with the invention, the shaft 52 is made hollow to accommodate a second shaft 74 (FIG. 7) which may also be made hollow in the event that more than one additional pusher rod assembly 54 may be provided. In the embodiment illustrated, a single additional pusher rod assembly 54' is affixed to the rod 74 which extends through the shaft 52. The longitudinal back and forth displacement of each of the pusher rod assemblies 54 and 54' is controlled by the connecting arm member 48 to move them both through the arc of movement of this end of the connecting rod member in respect to its pivot. In addition, the pusher rod assemblies 54, 54' are mounted for lifting and falling movement by means of mechanism to be described more fully hereinafter. To facilitate this operation, the hollow shaft 52 carries a crank arm extension 76 which is affixed thereto by a set screw 78 and the shaft 74 carries an extension 80 which is affixed to this shaft by a set screw 82. The rotative position of the pusher arm assemblies in respect to the connecting arm member 48 is determined by a positioning arm member 84 which is connected to the crank arm extension 76 (see in particular FIGS. 5 and 7). This positioning arm member 84 is moved by a mechanism to be described more fully hereinafter.

The crank arm extension 76 is biased by means of a

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spring 86 secured at its lower end to a base member 88 to urge the arm in a clockwise direction of rotation as viewed in FIG. 5. Similarly, the arm 80 is biased against the arm 76 by means of a spring 90 which urges a stop abutment 92 at the end of the arm against the surface of the arm 76.

As seen in FIG. 4, a cam 94 is affixed to the shaft 32 and is effective to move a follower linkage 96 for the purpose of periodically pivoting a lever arm member 98 (FIGS. 4 and 6) about a pivot 100 to cause the opposite end of the arm to cyclically kick or urge a positioning arm control member 102 upwardly and downwardly to effect similar movement of the positioning arm member 84 which has a roller 104 which bears on the positioning arm control member 102. The lower end of the positioning arm member 84 is pivotally mounted on the base member 86 on a bolt pivot 108' affixed thereto (see FIG. 5). The result of the operations of the mechanism is to give the end of the pusher arm the parallelogram motion indicated by the arrows 108 with a relatively slow forward motion for the purpose of advancing the material 18 into precise alignment with the cutting mechanism C and with a quick return movement.

The feeding mechanism B just described, which causes movement of the pusher mechanism assembly through the parallelogram path 108 indicated in FIGS. 2 and 6, causes precise advancing movement of each of the continuous strips of material 18 into association with the cutting mechanism generally designated C. It should be appreciated that the pusher arms 66 are detachably connected to the sliding block 64 by set screw 110 which may be secured in any one of a plurality of openings 112 guided on the pusher arm 66. This permits a coarse adjustment of the pusher arm 66 to set the final position of the end of the material which will be positioned below the cutting knife in the cutting mechanism C. It can be seen that if the pusher arm 66 is retracted somewhat, the material 18 will not be fed through as long a path. A fine adjustment is made by using the set screw 68 at the end of the upstanding portion 60.

Reference should be had to FIGS. 9 to 11 in which the details of the operation of the cutting mechanism are set forth. The cutting mechanism includes a stationary knife blade member or block 114 which is mounted on upstanding columns or posts 116 and 118 and is provided with a cutting edge which is disposed at the location of a separation 120 in the table 10 as indicated in FIG. 2. The cutting mechanism C includes a flat plate knife blade of a guillotine type 122 which is bolted or otherwise removably fastened to a block 124 which is connected to a yoke member 126 for the purpose of reciprocating the block 124 and its knife blade on the columns 116 and 118. Downward movement of the knife blade 122 past the stationary knife 114 effects the severance of the length of label material 18 into the individual labels 22, 22.

The reciprocation of the moving knife 122 is accomplished by means of a cam 128 formed as portion of the cam 94 (FIGS. 4, 10 and 11). For this purpose, a follower arm member 130 is pivotally connected on a support 132 at its lower end and carries a cam follower roller 134 which rides around on the cam 128 and causes articulation of a link member 136 which is pivotally connected to the follower member 130 at one end and is pivotally connected at its opposite end to a pair of pivotally mounted lever members, an upper one 138 being pivotally mounted on a support 142 and a lower one 140 being pivotally connected to a control lever 144. The control lever 144 is pivoted at its opposite end on a bracket 146 and is pivotally connected intermediate its length to the yoke 126. Rotation of the cam 128 causes movement of the arm 144 about its pivot to reciprocate the yoke 126 and effect the desired cutting movement of the blade 122.

After the individual labels 22 are cut away from the web of material 18, they are advanced by the slide mech-

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anism D along a new direction of feed which is, in this embodiment, at right angles to the direction of feed of the web material 18. The slide mechanism D includes means for moving a combination envelope advancing and folding block assembly generally designated 148 through a path substantially as indicated by the arrows 150' in FIG. 13. The combination envelope advancer and folding block 148 includes a block portion 149 having low laterally extending flanges 150 and 152 of slight dimension (see FIGS. 13 to 18, inclusive). The block 149 with flanges 150 and 152 are adapted to be centered over the labels 22 as they are cut and moved down onto the labels to contact and advance as many labels as have been cut (as determined by the number of paths 14 and 16 which have been set out) forwardly into association with the folding mechanism E. In addition, the forward end of the block 149 carries outwardly extending slide arm members 154 which extend outwardly in the direction of feed and engage labels 22', 22' which have been cut in the previous cycle of operation of the cutting mechanism C and advance them ahead of the labels 22 out of the folding mechanism E into association with the pressing mechanism F and the packer G while the labels 22 are advanced to the folding mechanism E (see FIGS. 1 and 13).

Referring to FIGS. 4, 12 and 13, it can be seen that the shaft 32 extends outwardly in a direction of the lower portion of the drawings of FIG. 4 and is provided with a series of cams including a cam 156 to operate the combination advancing and folding block 148. For this purpose, a lever member 158 is pivoted at its lower end to a stationary bracket 160 and is provided with a roller follower 162 which rides on the cam 156 to move a link member 164 secured at one end to the lever member 158 and at its opposite end to a shifting lever 166. The shifting lever 166 is pivotally connected at its lower end to a bracket 168 and at its upper end to an arm 170 which is pivotally connected to an upstanding portion 172 of a block member 174 which carries the combination advancing and folding block 148. The block 174 is slidable on guide rods 176 which is carried by a plate member 178 which is mounted for reciprocation on side columns 180. A compression spring 182 biases the plate 178 to an upward position. Reciprocation of the plate 178 is accomplished by means of a vertical displacement connecting arm member 184 which is pivoted intermediate its length on a pivot support 186 and is pivotally connected at its opposite end to a reciprocating packer block 188 having packing elements 188' corresponding in number to the number of labels cut per cycle. The connecting arm member includes a slot 190 in which a pivot pin 192 on the packing block member may move during reciprocation of the block member. The connecting arm member 184 is oscillated about its pivot 194 by means of a roller follower 196 thereon which is moved by a cam 198.

As can be seen most clearly in FIG. 13, plate member 178 is cyclically moved up and down and the advancing and folding block member 148 is slid backwardly and forwardly on the rods 176.

As best indicated in FIGS. 1, 14, 15 and 16, the label marginal edges extend outwardly on each side of the flange portions 150 and 152 of the block 149. A folding cam member generally designated 200 (FIGS. 14 and 15) is provided on each side of the path of movement of the labels and includes an upwardly curved portion 202 which deflects the forward edges of the labels upwardly as the combination advancing and folding block 148 is moved to overlie the labels and to move along the table to advance the labels therewith. The marginal edges of the labels are completely deflected over the tops of the flanges 150 and 152 and thereafter these flanges move together with the labels beneath resilient biasing plates 204 and 206 after they are lifted. The plates 204 and 206 are biased downwardly by springs 208. Pusher members

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210 are articulated by means of a cam 212 (FIGS. 13, 14 and 16) to move the presser plates 204 and 206 upwardly against the force of the spring 208 and to permit entry of the flange portions 150 and 152 and the folded labels therebeneath.

Heat is supplied through electrical power connected to terminals 213, 213 of a heating block 214 of the heating and pressing mechanism F. When the labels are positioned directly beneath the presser plates 204 and 206 the pusher elements 210 are moved downwardly by the cam 212 to permit the labels to be pressed in their folded position for the purpose of insuring a permanent crease.

As the combination advancing and folding block 148 is operating on the labels to effect the folding and pressing thereof, the forward slide arm members 154 are effective to direct (FIG. 18) foremost labels 22' into a position overlying openings of slightly smaller dimension in the table directly above packing cartons 216 and 218 arranged therebeneath. Since the labels are of a fabric material, they tend to be supported above the packing cartons but they are pushed into the cartons by means of reciprocating packing plunger members 220 which are connected to the packer mounting blocks 188 (FIG. 13) and reciprocate therewith down into the cartons 216 and 218 to effect packing of the labels therein.

In FIGS. 14 and 16, one embodiment of mechanism employed for effecting the pressing of labels is illustrated. In FIGS. 19 to 22, there is illustrated another preferred arrangement for effecting the pressing of the labels as they are advanced by the block member 149. This mechanism is advantageously operated from the cam 212 on the shaft 32 which is contacted by a roller follower 250 formed at the end of a crank arm 252 affixed to a control shaft 254. The control shaft 254 is mounted on depending bearing blocks 256 and 258 and is oscillated by the crank 252 acting on the cam 212. The shaft 254 is provided at each end with crank members 262 and 260 which have inclined roller portions 264 and 266, respectively, which act against an inclined lower edge 268 of a wedge-shaped member generally designated 270 and 272, respectively.

Each of the wedge-shaped members 270 and 272 is mounted on associated block members 274 and 276 and includes clamping means effecting such mounting which permits lateral and vertical adjustment. The block members 274 and 276 are carried at opposite ends of a rod 278 which carries heating block elements 280 and 282. The heating block element 280 overlies one side of the folded label 22' and the heating block 282 overlies the opposite side when the label is advanced therebeneath by the sliding block member 149. When this movement of the block member 149 takes place, the heating elements 280 and 282 are raised above the labels to present the bottom edges 284 thereof in alignment with the bottom folding edge of the cam 200. Thus, the top edge of the folded label is constrained downwardly in its folded position as it is moved from the cam underneath the heater. In addition, the ends of the labels are constrained against outward movement by a bar 286 which extends from the cam 200 to the stacking mechanism. The bars 286 are reciprocable within a slot 288 on the underface of the heating blocks 280 and 282.

Thus, the invention provides means for rapidly feeding a plurality of continuous strips of label material into association with mechanism for cutting, folding, pressing and stacking the cut labels at a rate of speed which is much greater than the commercial machines presently being manufactured. An important feature of the construction is that the operating mechanism itself may operate relatively slowly and the speed of operation of the machine may be accomplished by feeding more than one line of labels into association with the cutting, folding and pressing apparatus. The folding and pressing apparatus are provided with a minimum of reciprocating or moving parts and the labels are advanced into association therewith by the mechanism of a simple nature which is inex-

pensive and easy to operate and maintain. Two separate labels may be fed into association with packing mechanism for simultaneous packing into two or more receptacles.

While specific embodiments of the invention have been shown and described in detail to illustrate the application of the invention principles, it will be understood that the invention may be embodied otherwise without departing from such principles.

What is claimed is:

1. A strip cutting and forming device comprising table means, means for feeding continuous lengths of material along at least two substantially parallel path on said table means, reciprocating knife means disposed along said paths and operable in timed relationship to said feeding means to sever said material into individual lengths in a number of lengths corresponding to the number of said paths, and slide advancing means including a member movable to overlie portions of all of said severed lengths and to contact simultaneously all of said severed lengths and move them on said table means in a new direction of feed.
2. A strip cutting and forming device according to claim 1, including folding and pressing means disposed along the path of movement of said individual lengths to effect folding and pressing thereof as such lengths are advanced.
3. A label cutting, folding and pressing machine comprising means for feeding a continuous length of interconnected labels along a prescribed feed path, knife means disposed in said feed path arranged to operate in timed relationship to said feed means to separate individual labels from said continuous strip, means movable along a new feed path at an angle from said feed path including a member movable to overlie said individual labels as they are cut and to contact and to advance said labels through said new feed path, and folding and pressing means disposed along said feed path to fold and press said labels as they are advanced.
4. A label cutting, folding and pressing machine according to claim 3, wherein said folding and pressing means include at least one cam disposed along the path of movement of said labels and arranged to deflect at least one marginal edge thereof upwardly and to fold it over the intermediate portion of said labels.
5. A label cutting, folding and pressing machine according to claim 3, wherein said folding and pressing means include heating means and a reciprocable plate member heated by said heating means, means to reciprocate said plate member, said labels being fed beneath said plate member when it is in an upward position and being pressed thereby when said plate member is reciprocated downwardly.
6. A label cutting, folding and pressing machine according to claim 3, including a packing station defined below the new feed path of said labels, an opening defined along the line of said feed path for admitting said labels to said packing station, said sliding mechanism being effective to advance said labels to said opening, and reciprocating means operable on said labels to deflect them downwardly to said packing station.
7. A strip cutting and forming device comprising means for feeding continuous lengths of material along at least two substantially parallel paths, reciprocating knife means disposed along said paths and operable in timed relationship to said feeding means to sever said material into individual lengths corresponding to the number of said paths, slide advancing means to contact simultaneously all of said severed lengths and move them in a new direction of feed, receptacle means disposed below the path of movement of said individual strips, said strips being movable by said slide advancing means into alignment with said receptacle means, and packing means including a member reciprocable downwardly over said individual lengths to push said lengths into said receptacle means.
8. A label cutting and forming device comprising a

feed surface means for feeding continuous lengths of interconnected labels along first and second feed paths defined on said feed surface, knife means disposed across said first and second feed paths and operable in timed relationship to said feeding means to sever individual labels from said strips, and slide means movable through a third feed path at an angle to said first and second feed paths and arranged to move downwardly to overlie and contact said labels as they are cut and to slide said labels on said surface and move them through said third feed path.

9. A label cutting and forming device according to claim 8, including means to fold at least one edge of said labels as they are moved through said second feed path.

10. A label cutting and forming device according to claim 8, including means to press said labels as they are moved through said second feed path.

11. A label cutting and forming device according to claim 8, including a packing station disposed at substantially right angles to said first feed path, and means for projecting each label in succession into said packing station.

12. A feed mechanism for a continuous length of strip material comprising a pusher mechanism, including a connecting arm member pivotally mounted at its one end, means to oscillate said connecting arm member about its mounting, a shaft pivotally mounted at the opposite end of said connecting arm member, a pusher arm assembly mounted on said shaft, and means to rotate said shaft with said pusher arm as said connecting arm member is oscillated.

13. A feed mechanism according to claim 12, wherein said shaft is hollow, a second shaft rotatable in said hollow shaft and extending outwardly from an end thereof, and a second pusher rod assembly mounted on said second shaft, said second pusher rod assembly being connected to said pusher rod assembly for rotation therewith.

14. A feeding mechanism according to claim 12, wherein said pusher rod assembly includes an angled pusher rod member for engaging said strip material, and a mounting block portion connected to said shaft, said pusher rod member being adjustably positioned in relation to said mounting block member.

15. A label folding device comprising a table for feeding a label therealong, a movable block member having at least one laterally extending flange of relatively slight depth, said block member adapted to move to overlie a label on said table with a marginal edge of the label projecting beyond the sides of the flange thereof, and means for moving said block member downwardly onto said label and for advancing said label, and cam means disposed along the path of advancing movement for deflecting the edge of said label over the flange of said block member.

16. A label folding device according to claim 15, including means for pressing the folded label over said flange.

17. A device for pressing labels, envelopes and the like, comprising a heating block having a cut out portion adjacent the bottom end thereof, a pressing plate member disposed in said cut out portion and reciprocable therein, means to bias said plate member downwardly, and means to reciprocate said plate member to permit labels to be advanced into said cut out portion and pressed by downward movement of said plate member.

18. A device for pressing a length of material comprising a plate member adapted to overlie the intermediate portion of said material and to advance it along a prescribed feed path, means for moving said plate member to move said material through said prescribed feed path, a heating block, means to reciprocate said heating block upwardly and downwardly over the path of movement of said plate member, and means to guide the ends of said materials over said plate member and below said heating block during the upward reciprocation of said heat-

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ing block whereby upon downward reciprocation said material is pressed.

19. A material pressing device according to claim 18, wherein said plate member is moved over said length of material intermediate the length thereof leaving exposed marginal edges on each side, two heating blocks reciprocable one over each side of said plate member, separate means for guiding each of said label edges below said respective heating blocks, supporting bar means for each of said heating blocks extending laterally on each side of said plate member, and means connecting each end of said supporting bar means to reciprocate said sup-

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porting bar means to effect reciprocation of said heating blocks.

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Disclaimer

3,106,809.—*Frederick F. Forthmann, Jr.*, Washington Township, Bergen County, N.J. WEB MATERIAL SEVERING, FOLDING AND PACKING DEVICE. Patent dated Oct. 15, 1963. Disclaimer filed Aug. 4, 1964, by the inventor.

Hereby enters this disclaimer to claims 3 and 4 of said patent.
[*Official Gazette November 3, 1964.*]