

[54] **QUICK CHANGE LABELING HEAD**

[75] Inventors: **Dean S. Kercher**, Woodstock;
Trygve R. Rod, Mundelein, both of Ill.

[73] Assignee: **Xerox Corporation**, Stamford, Conn.

[22] Filed: **Apr. 11, 1974**

[21] Appl. No.: **459,997**

Related U.S. Application Data

[62] Division of Ser. No. 372,877, June 25, 1973, Pat. No. 3,854,351, which is a division of Ser. No. 153,313, June 15, 1971, Pat. No. 3,774,489.

[52] **U.S. Cl.** **226/79**

[51] **Int. Cl.²** **B65H 17/38**

[58] **Field of Search** 226/74, 75, 79, 179

[56] **References Cited**

UNITED STATES PATENTS

2,095,293	10/1937	Sherman	226/79 X
2,650,090	8/1953	Davidson	226/79 X
3,687,347	8/1972	Rod et al.	226/74
3,693,856	9/1972	Funk	226/79 X

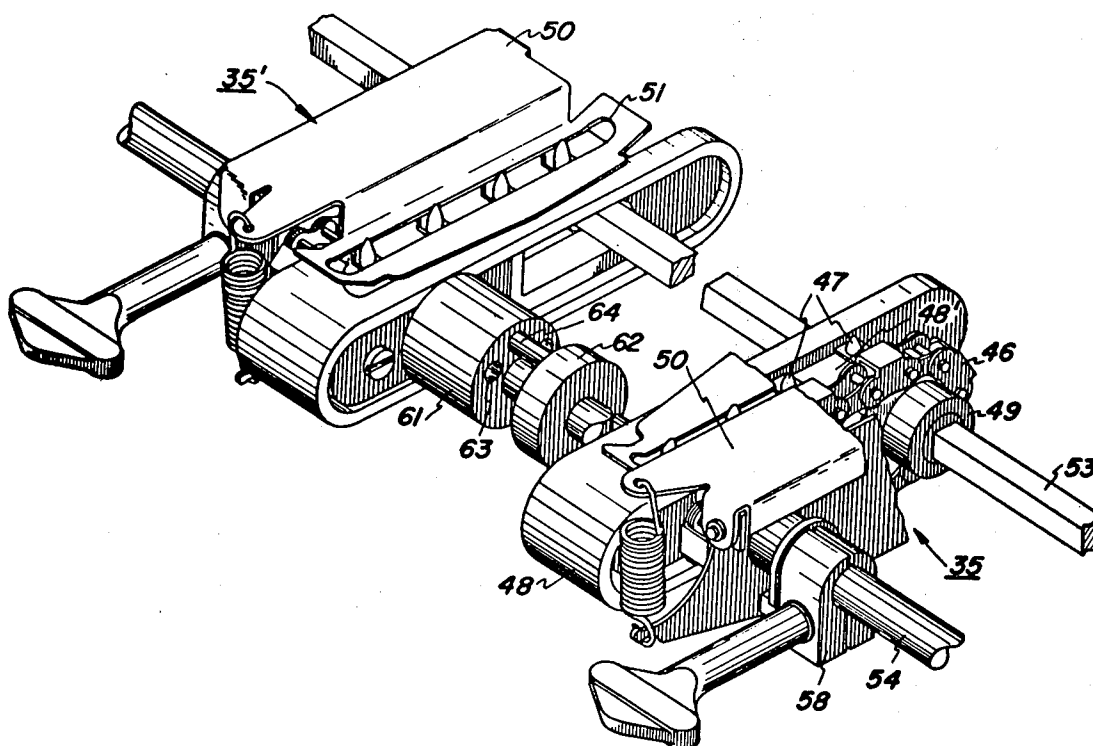
Primary Examiner—Richard A. Schacher

[57] **ABSTRACT**

A quick change head for article addressing machines

to facilitate changeover from one type label form to another. The head, which uses uncut label form material, includes a transfer wheel for transferring labels or information therefrom to the articles being addressed, a feeder pair cooperable with the form margins to advance the form, a trim knife pair to remove the form margins, a guillotine knife to divide the form into strips several labels long, and a combination strip feeder and knife mechanism to cut the strips into individual labels while feeding the labels to the transfer wheel. To accommodate different types and sizes of label forms, the form feeders and trim knives are arranged for adjusting movement relative to one another, and to facilitate quick yet accurate positioning of these elements, gaging means are provided for each. A quick change gear mechanism using preselected ratios permits the necessary speed change to be readily made in the form feeding and cutting components while a stroke gaging device is provided to enable the stroke of the strip feeder and knife mechanism to be accurately and quickly reset when changing from one form to another. To accommodate marginless type label forms, a conversion belt is provided bearing single row form feeder pins and foldable upon itself in an endless loop in driving engagement with the form feeder pair so that the form feeder pair are converted to a single feeder.

3 Claims, 10 Drawing Figures



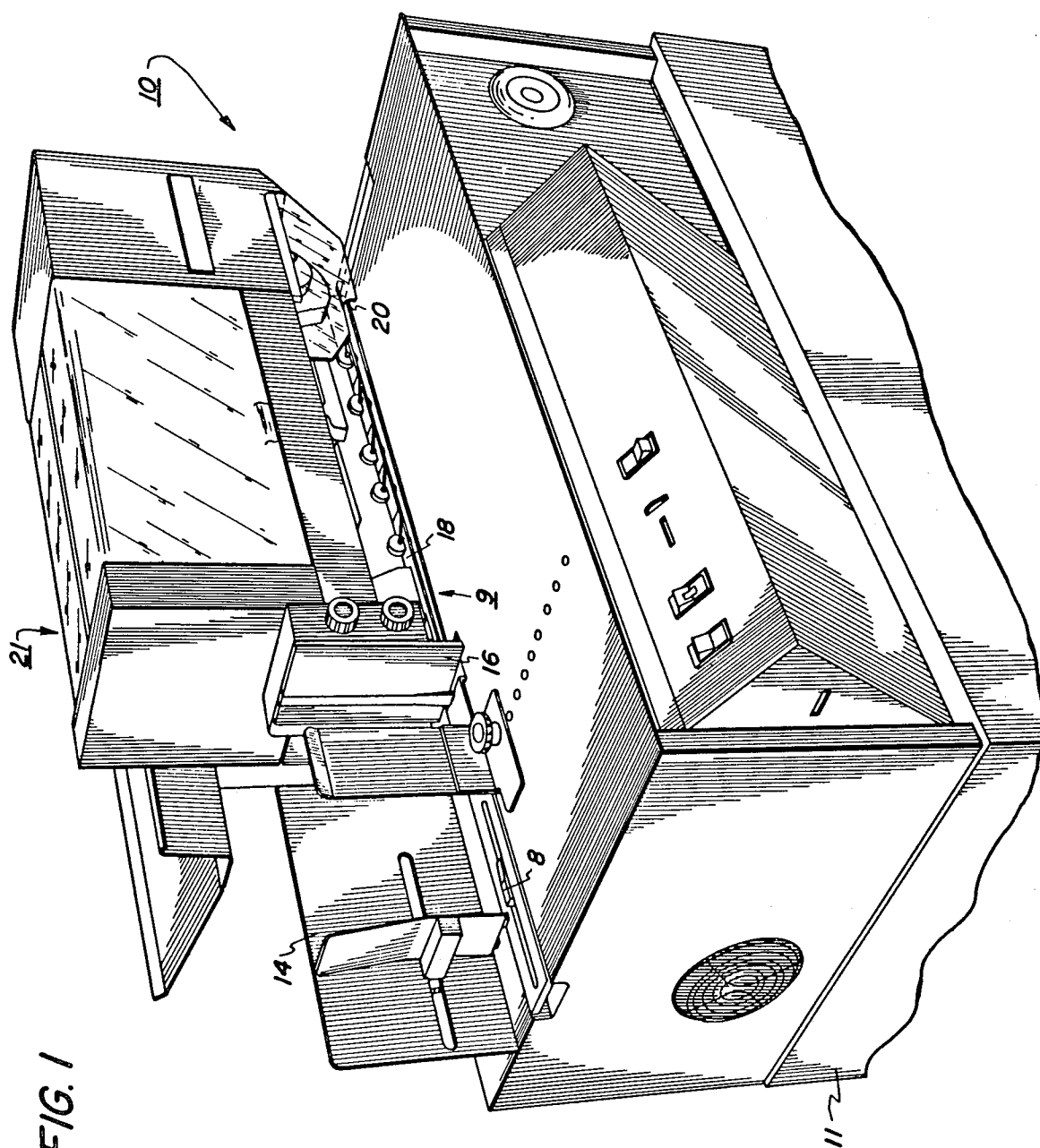


FIG. 2

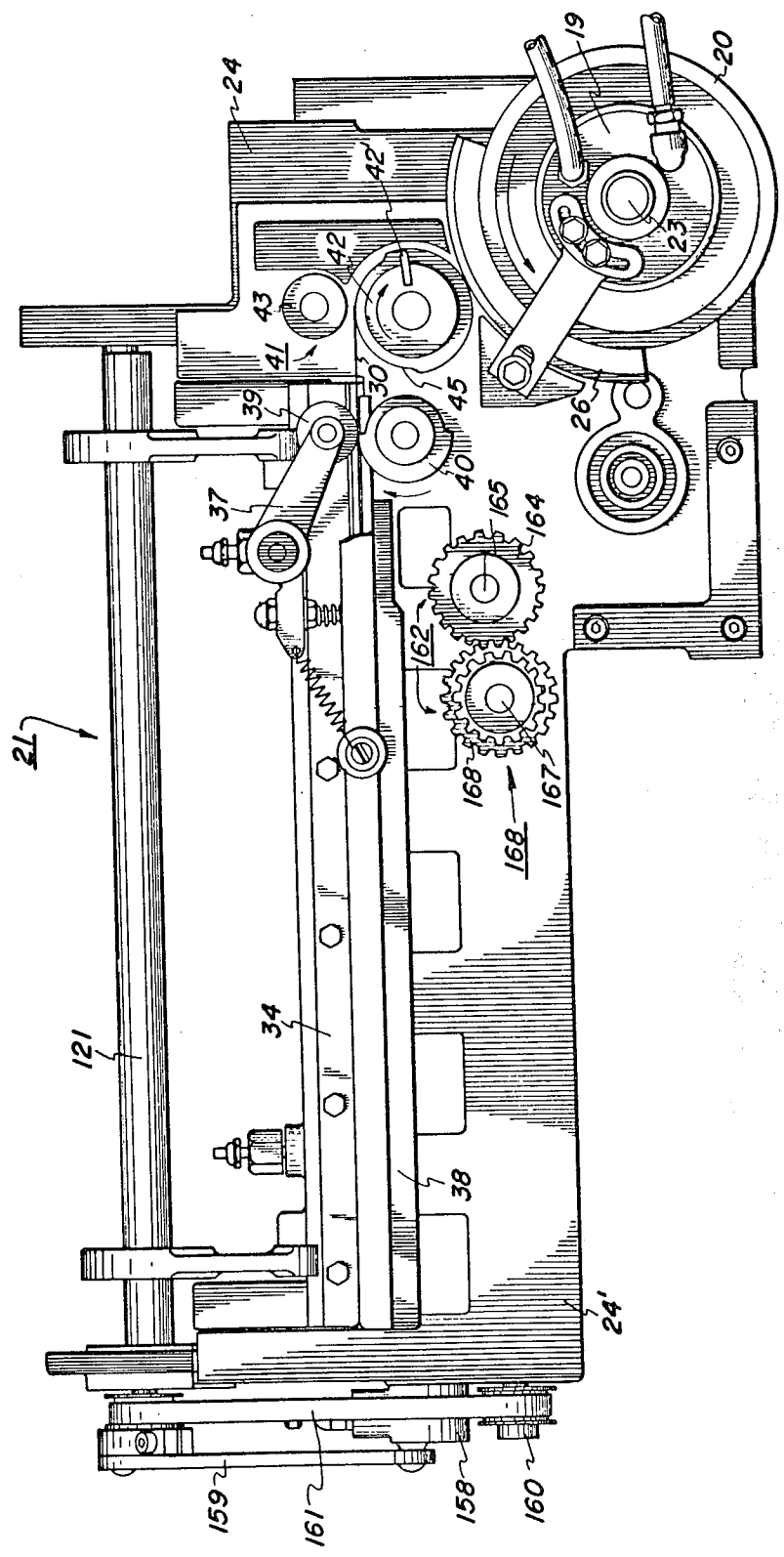
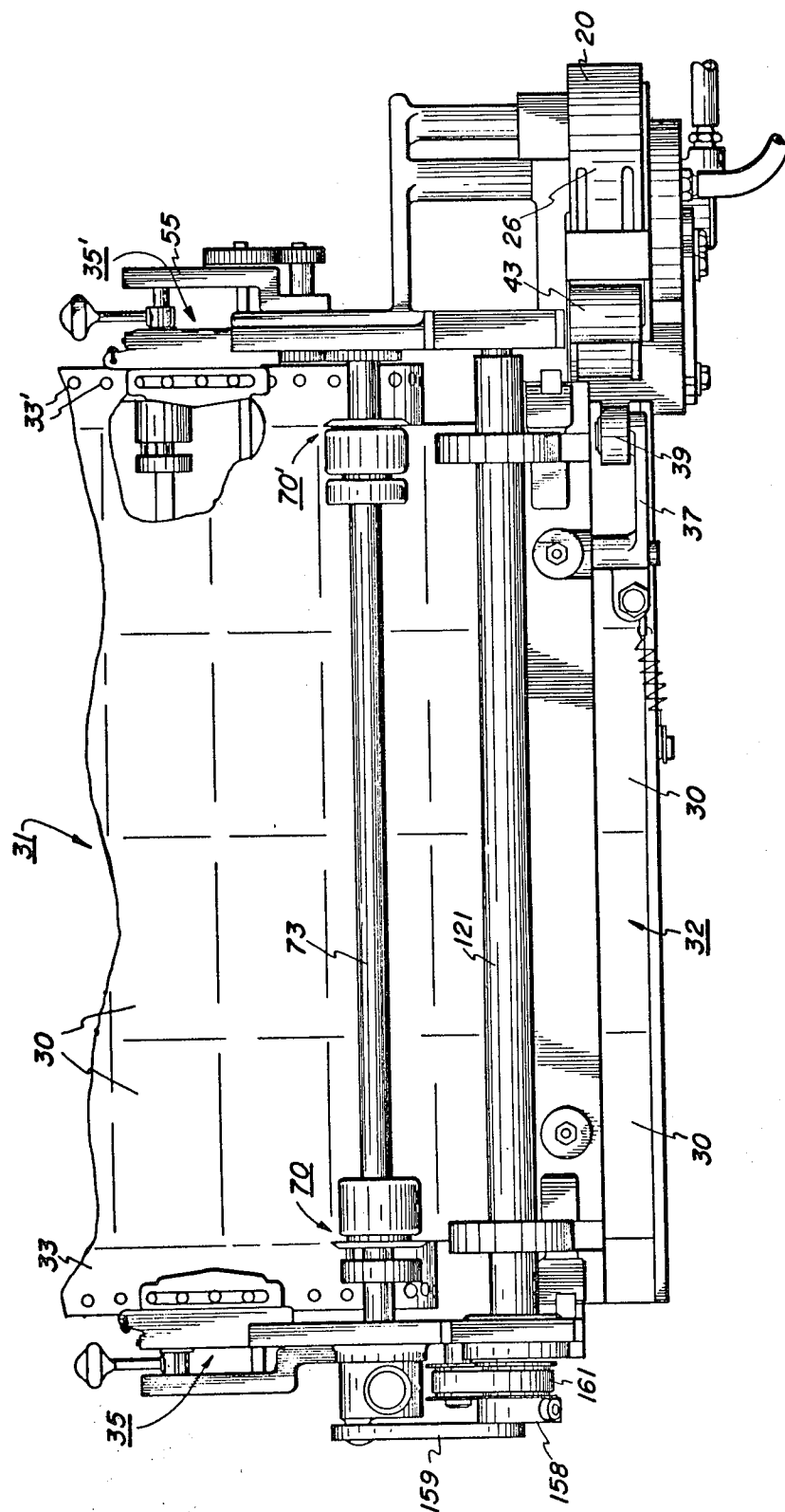


FIG. 3



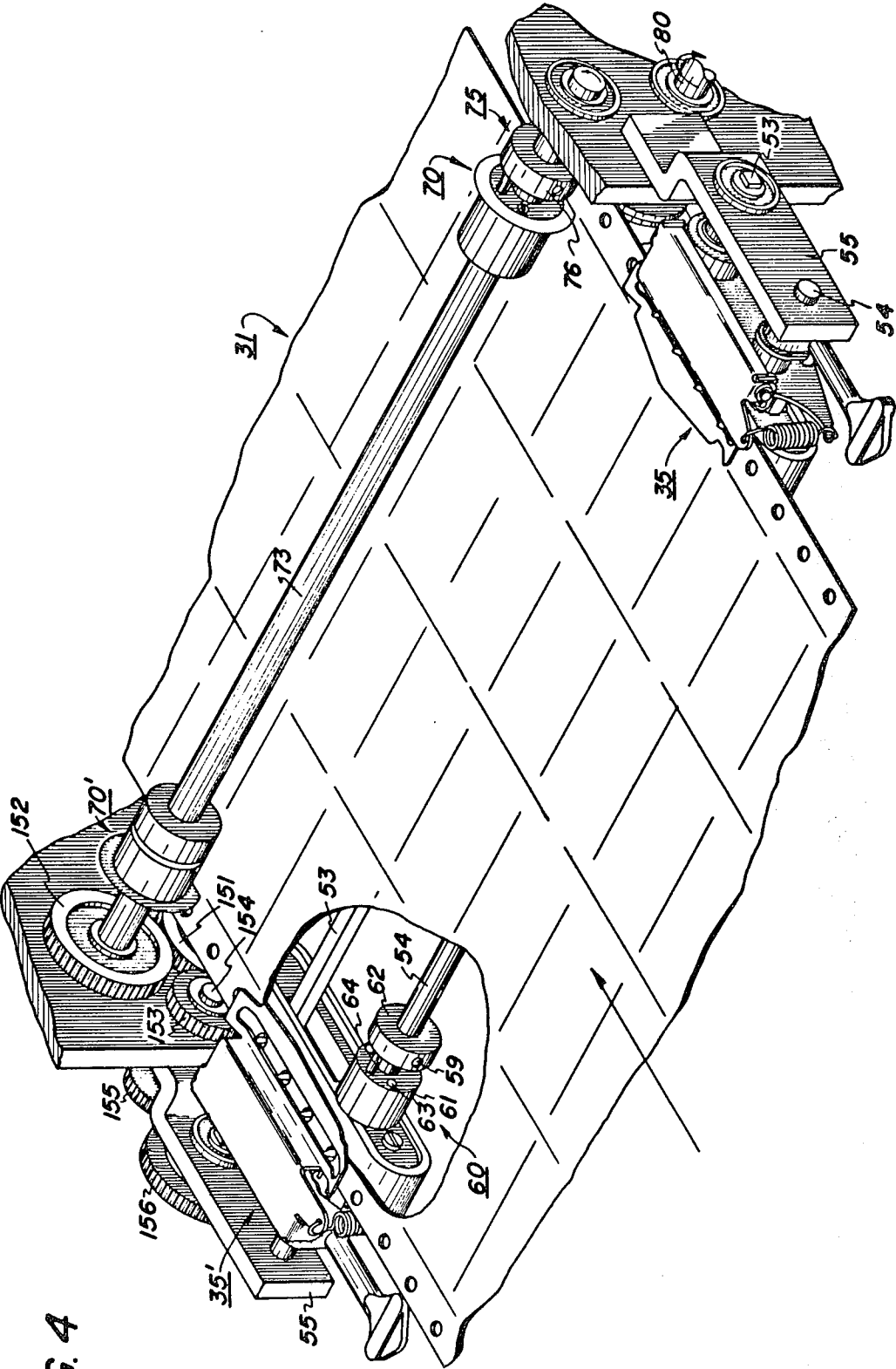


FIG. 4

FIG. 6

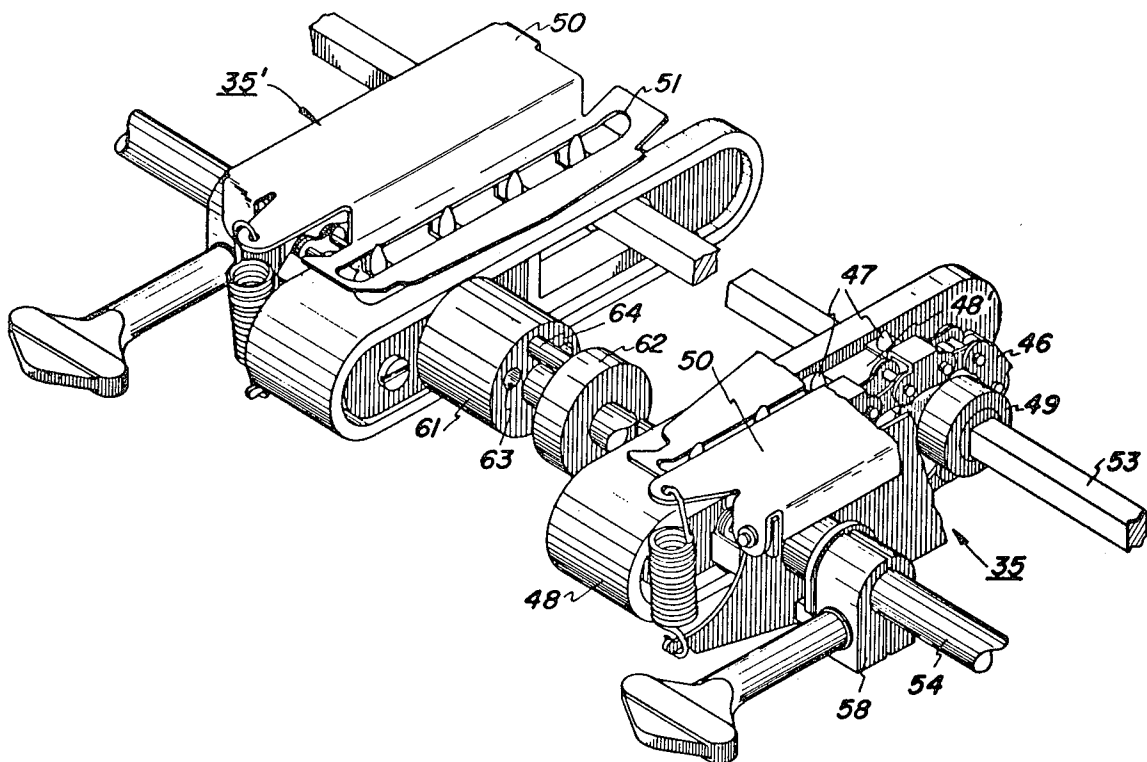


FIG. 5

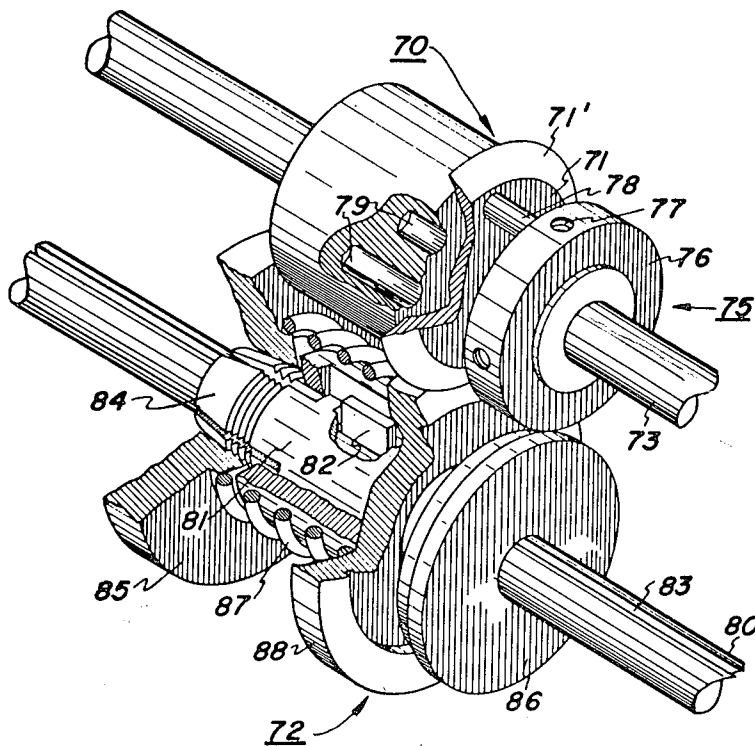


FIG. 7

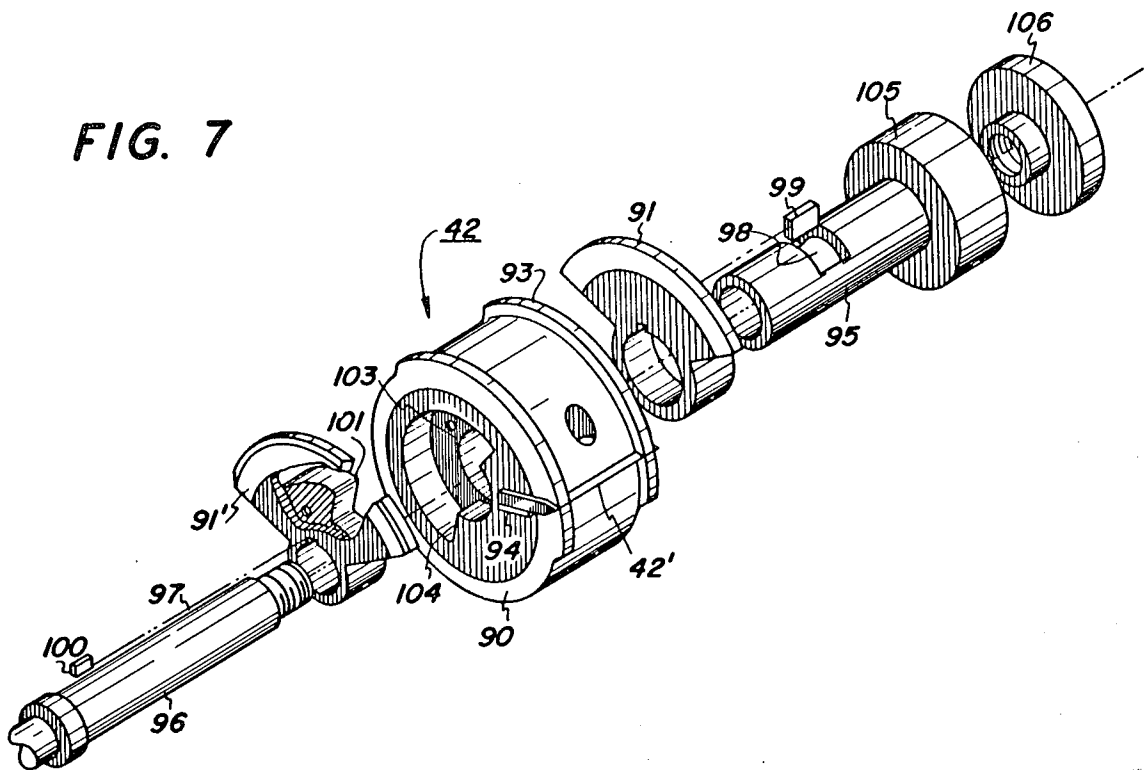


FIG. 10

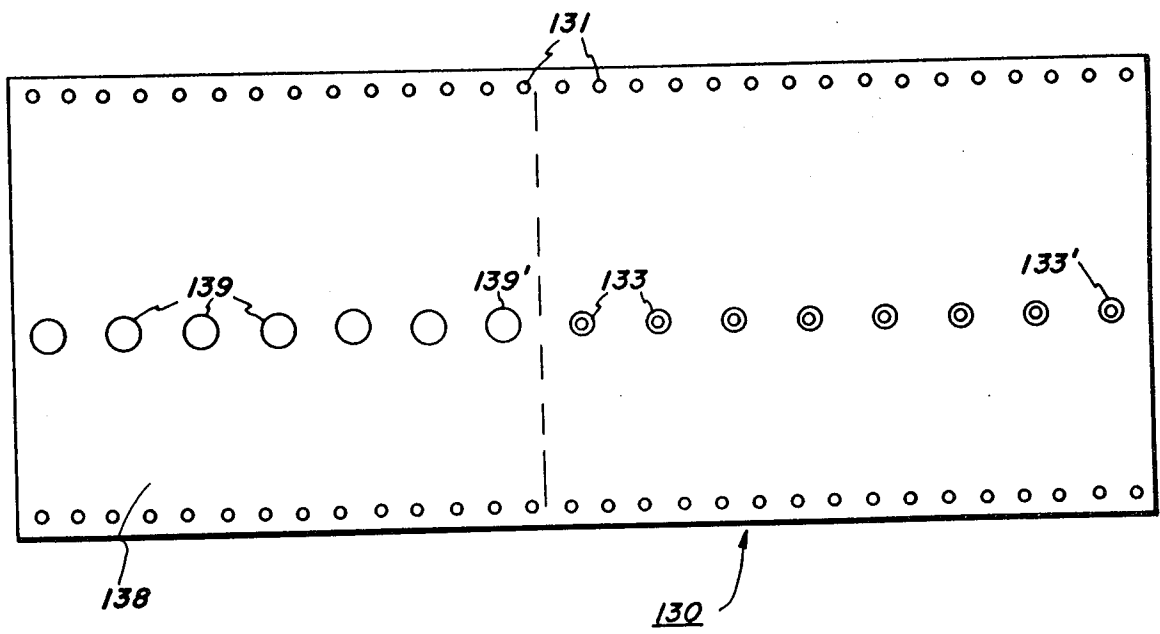
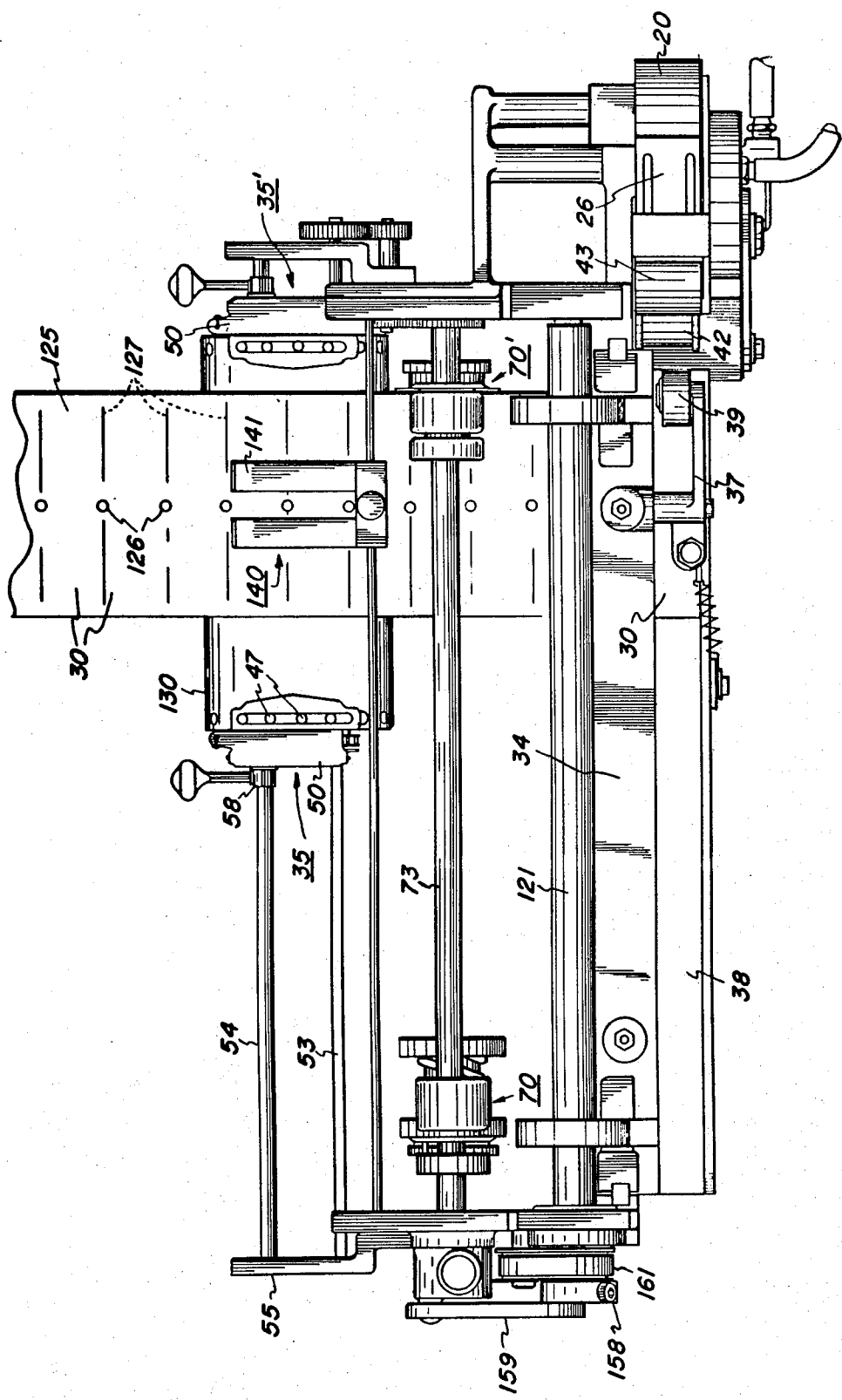


FIG. 8



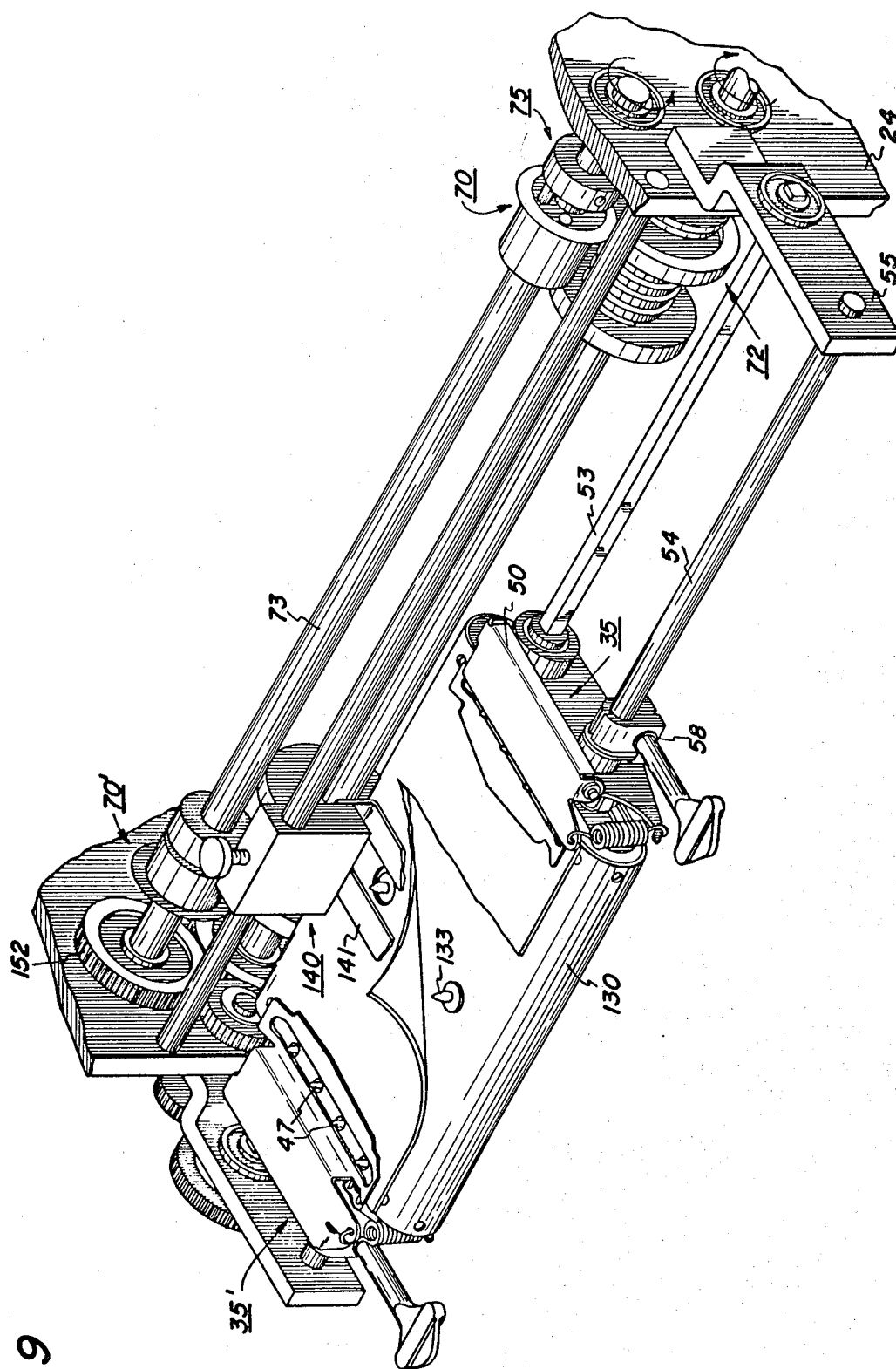


FIG. 9

QUICK CHANGE LABELING HEAD

This is a division of Application Ser. No. 372,877 filed June 25, 1973 and now U.S. Pat. No. 3,854,351. Application Ser. No. 372,877 is a division of Application Ser. No. 153,313 filed June 15, 1971 and now U.S. Pat. No. 3,774,489.

This invention relates to labeling heads for article addressing machines, and more particularly, to a quick change labeling head for article addressing machines.

Article addressing machines, which function to transfer address bearing labels or the address information therefrom to articles such as newspapers, are designed for use with uncut labels supplied in sheet or strip form. The uncut label sheet, which is generally referred to as a label form, usually consists of a computer printout. To accommodate the label form, the addressing machine labeling head incorporates both a form feeder and one or more form cutting knives, the latter serving to cut the form into individual labels for transfer to the articles being labeled.

However, the type of label form and size of label used with the addressing machine may vary from time to time necessitating resetting of the label feeding and cutting components of the labeling head. For example, a label form having a different number of label rows with attendant change in both form and label size may be used, it being understood that present day form arrangements include three, four, and five row configurations. In another instance, the form feeding disposition may change from perforated margin type to central row type as in the case of single row label form configurations. This latter necessitates a rather substantial alteration in the form feeding mechanism if this type of form is to be accommodated.

It is a principal object of the present invention to provide a new and improved labeling head for article addressing machines.

It is a further object of the present invention to provide an improved quick change labeling head for article addressing machines designed to permit the head to be quickly converted from one type label form to another.

It is an object of the present invention to provide a label form feeder for a labeling head incorporating automatic gauging means enabling the form feeder to be quickly and accurately positioned for various size label forms.

It is a further object of the present invention to provide a label form trim knife arrangement incorporating gauging means to enable the trim knives to be prepositioned quickly and accurately in accordance with the specific type of label form.

It is a further object of the present invention to provide an improved indexable gauge device for use in setting the label form feeders and margin trim knives for various type label forms.

This invention relates to a label transfer apparatus adapted for use with different label form arrangements, each of the label forms consisting of an endless sheet of uncut labels arranged in one or more longitudinally extending rows together with disposable margin portions to permit handling of the form, the label forms being adapted to differ from one another in size and label row arrangement, the combination of: form feeder means cooperable with the form margins to feed the form forward; knife means downstream of the form feeder means to remove the form margins in preparation for transfer of the labels thereon and gauge means

to locate the knife means when changing from one form to another, the gauge means including an indexable control member having locating stops corresponding to individual label forms whereby the knife means may be quickly and accurately repositioned when changing from one label form to another through the expediency of indexing the gauge means control member.

Other objects and advantages will be apparent from the ensuing description and drawings in which:

FIG. 1 is an isometric view of an article addressing machine incorporating the quick change labeling head of the present invention;

FIG. 2 is an enlarged side view in section of the quick change labeling head for the addressing machine shown in FIG. 1;

FIG. 3 is a top view of the quick change head shown in FIG. 2;

FIG. 4 is an enlarged isometric view showing the label form feeding and margin trim knife mechanisms for the quick change head shown in FIG. 2;

FIG. 5 is an enlarged isometric view showing details of the margin trim knife mechanism together with the locating gauge therefor;

FIG. 6 is an enlarged isometric view showing details of the label form feeders mechanism together with the locating gauge therefor;

FIG. 7 is an exploded view showing details of the rotary label knife for the labeling head shown in FIG. 2;

FIG. 8 is a top view showing the labeling head of FIG. 2 converted to feed marginless type label form;

FIG. 9 is an isometric view of the labeling head of FIG. 8 showing details of the form feeder mechanism for marginless label form; and

FIG. 10 is an enlarged top view of the form feeder conversion belt for use in feeding marginless label form.

Referring to the drawings, there is shown an addressing or labeling machine, designated generally by the numeral 10, incorporating the quick change head 21 of the present invention. Addressing machine 10 includes a table-like base or frame 11 having a suitable mechanism 9 for feeding articles 12 to be labeled to the labeling head 21. Article feeding mechanism 9 includes an article supply hopper 14 with a reciprocating feeder shuttle 8 and an article transport belt 18. An article limiting gate 16 at the exit to hopper 14 helps limit feeding of articles therefrom to one article at a time. Transport belt 18 is supported on base 11 such that the operating run thereof extends from a point just downstream of gate 16 along the top of frame 11 and under transfer wheel 20. Following transfer wheel 20, the then labeled articles may be discharged by transport belt 18 into a suitable article collector such as a take-away conveyor (not shown). A pressure roller (not shown) may be provided opposite transfer wheel 20 to support belt 18 at the transfer point. A suitable motor (not shown) is provided to operate the various components of the article feeding mechanism 9 as well as main drive shaft 23 of labeling head 21.

Labeling head 21 includes a suitable frame portion 24 having a wing-like extension 24' which carries the label feeding and cutting apparatus for supplying labels to transfer wheel 20 as will appear. The transfer wheel 20 is operatively supported above article transport belt 18 by shaft 23, shaft 23 in turn being suitably journaled in frame 24. Shaft 23 is driven at substantially the same speed as article transport belt 18, transfer wheel 20

turning in the direction indicated by the solid line arrow in FIG. 2. Wheel 20 carries one or more radially projecting shoes 26 for bringing individual labels 30 into physical contact with the articles 12 passing therebelow on transport belt 18.

Addressing machine 10 is designed for use with an uncut label supply or label form 31. The individual labels 30 may be arranged on form 31 in a single row such as shown in FIGS. 8 and 9 or in multiple rows as for example the 4-row arrangement shown in FIGS. 3-4. In multiple row arrangements, the side margins 33 of label form 31 are reserved for form feeding, the margins 33 being perforated at 33' for form feed tractors 35, 35' of labeling head 21 as will appear. Margins 33 are thereafter removed by trim knives 70, 70'. Where a single row label form or strip is used, as for example, strip 125 of FIG. 8, side margins 33 are normally dispensed with and a single row of feed perforations 126 are provided along the strip centerline and on the imaginary boundary line between adjoining labels. Where strip 125 is used, a different feeder mechanism is used as will appear herein.

As will be understood by those skilled in the art, the overall width of multiple row label forms such as form 31 changes slightly with changes in the number of label rows. The size, i.e. the width of side margins 33 however remains substantially the same. For example, in the case of a three row form, while the length of the individual labels is greater than labels 30 of form 31, the overall width of the three row form is less. In a five row form, both the length of the individual labels and the overall width of the form itself are slightly less than that of labels 30 and form 31. It will, therefore, be apparent that in changing from one label form to another, both the operational speed of the label feeding and cutting apparatus and the cutting stroke of the rotary knife 41 which serves to cut along the label length must be altered. In addition, the variation in number of label rows with resultant change in overall label form width requires relative repositioning of both form feed tractors 35, 35' and margin trim knives 70, 70'.

The label form cutting apparatus includes a guillotine 34 operatively supported for reciprocable movement on wing portion 24' of labeling head 21. Guillotine 34 functions to cut the form 31 transversely across between labels 30 to provide strips 32 of uncut labels equal in number to the number of label rows. Guillotine 34 is operated from eccentric shaft 121 which is driven from shaft 23 through change gear set 162 as will appear. The severed label strip 32 discharged from guillotine 34 rests on trackway 38 which extends alongside guillotine 34 toward transfer wheel 20.

A feed roll pair 39, 40 adjacent the downstream end of trackway 38 serves to advance the freshly cut label strip 32 along trackway 38 and into the nip of rotary knife 41. To prevent interference, roll 39 is supported from guillotine 34 through link 37. Feed rolls 39, 40 and rolls 42, 43 of the rotary knife 41 are positively driven from shaft 23 by suitable means (not shown).

Rotary knife 41 includes a knife blade 42' carried by knife roll 42. The cutting edge of blade 42' cooperates with the surface of adjoining anvil roll 43 to sever the label strip 32 therebetween. Rolls 42, 43 serve to advance label strip 32 forward one label length at a time, the nonfeeding portion of roll 42 being undercut at 45 to limit the strip feeding action to the label length. As

will appear, the feeding stroke of rotary knife 41 is adjustable to accommodate different size labels.

Cut labels 30 leaving rotary knife 41 are picked off by shoe 26 of transfer wheel 20, there being provided suitable vacuum holddown means (not shown) in shoe 26 effective to attract and temporarily hold the labels on the shoe periphery. The individual labels are brought by shoe 26 into transfer contact with the articles 12 moving along on article transport 18.

The vacuum supply to shoe 26 of wheel 20 is controlled by a vacuum distributing valve mechanism 19 in a manner known to those skilled in the art, valve 19 serving to admit vacuum to shoe 26 in time for shoe 26 to pick off the label discharged by the rotary knife assembly 41 and to terminate vacuum thereto on or subsequent to transfer of the label therefrom. In this connection, as will be understood by those skilled in the art, the address bearing labels 30 may be physically transferred to the articles 12 by use of a suitable adhesive. In this instance, the vacuum supply to shoe 26 may be terminated on transfer. Alternately, the address information only may be transferred and in this mode of operation, vacuum to shoe 26 is preferably sustained long enough to carry the used labels away from the transfer area.

To advance label form 31, form feed tractor pair 35, 35' are provided. As best seen in FIGS. 4 and 6, the tractors each comprise an endless chain 46 movable around an elongated frame member 48 and over a toothed drive wheel 49. Chain 46 supports spaced feed pins 47 along one side thereof, pins 47 riding on the surface section 48' of frame member 48. A spring biased clamp 50 is pivotally supported on frame member 48 adjacent chain 46, clamp 50 being adapted to overlay the upper, driving run of feed pins 47 to retain the perforated form margins 33 in driving engagement therewith. Longitudinally extending slot 51 in clamp 50 accommodates the upstanding pins 47.

The form feed tractor pair 35, 35' are supported on a pair of transversely extending shafts 53, 54 with shaft 53 comprising the driving shaft for the tractor pair 35, 35'. Shaft 53 is journaled in rear frame extensions 55 of the labeling head frame portion 24 and intermittently driven from anvil shaft 80 through internal gear set 151, 153, idler shaft 154, and external gear set 155, 156. Anvil shaft 80 is intermittently driven from eccentric drive shaft 121 for guillotine 34 through an adjustable ratchet 158 and eccentric drive link 159, ratchet 158 and link 159 serving to turn shaft 80 in one direction only through an arc determined by the setting of ratchet 158. Eccentric shaft 121 is in turn driven from head transfer shaft 160 through drive belt 161. As will appear, transfer shaft 160 is driven from labeling head drive shaft 23 through change gear set 162.

Shaft 53 is rectangular in cross section, the bore of drive wheel 49 of tractors 35, 35' having a complementary configuration to provide driving engagement therebetween while enabling tractors 35, 35' to be moved axially along shaft 53 for adjustment purposes. Shaft 54 which serves as a support or locating shaft for tractor pair 35, 35', is non-rotatably supported in rear frame extensions 55 in parallel relationship to driving shaft 53. A suitable bore in the tractor frame members 48 adjacent the front portion thereof slidably accommodates the support shaft 54, clamp 58 being provided to permit tractors 35, 35' to be releasably locked in position on support shaft 54.

As explained heretofore, the size of the label forms 31 changes with changes in number of label rows. This, in turn, alters the relative longitudinal position of margin perforations 33' requiring positional adjustment of one or both of tractor pair 35, 35' if proper alignment between perforations 33' and tractor feed pins 47 is to be sustained. Conveniently, one side of the label form 31 is chosen as a reference point and the margin trim knife for that side, in the exemplary arrangement shown in knife 70', preset in a relatively fixed position with the other trim knife 70 and both form feed tractors 35, 35' adjusted on changeover from one type label form to another as will appear.

To facilitate rapid yet accurate positioning of feed tractors 35, 35' for different type label forms, an automatic gauging mechanism 60 is provided for the feeder tractor 35' adjacent trim knife 70'. Gauging mechanism 60 includes a cylindrical spacer 61 adjacent the inside face of tractor frame member 48, spacer 61 having a suitable bore therethrough for slidably support thereof on shaft 54. A locating cylinder 62 is pre-positioned on shaft 54 in a relatively fixed position opposite spacer 61 as by set screw 59. Spacer 61 has a series of bores 63 in the side thereof facing cylinder 62, each bore 63 being of a predetermined depth corresponding to the various label forms types. Normally, and in the exemplary arrangement shown, cylinder 61 is provided with three bores 63 corresponding to three, four and five row type label forms.

Locating cylinder 62 has an axially projecting locating pin 64 dimensioned for insertion into a selected one of bores 63 to axially position the form feed tractor 35' relative to cylinder 62 and in correct operating alignment with the margin perforations 33' of the label form being processed.

As will be apparent, a change from one type label form to another with consequent change in disposition of margin perforations 33', is accommodated by loosening clamp 58 of tractor 35' and sliding tractor 35' together with spacer 61 axially away from locating cylinder 62 to withdraw locating pin 64 from mating engagement with spacer 61. Spacer 61 is then turned on shaft 54 until the desired bore 63 corresponding to the new label form is aligned with locating pin 64 and the spacer 61 together with tractor 35' slid axially back toward the stationary locating cylinder 62 until pin 64 bottoms in the selected bore 63. Following this, clamp 58 is reset to lock tractor 35' in the position selected.

With tractor 35' set in correct position by gauging mechanism 60 as described, the remaining feeder tractor 35 may be adjusted by eye, the clamp 58 therefor being first loosened to permit the tractor to be slid axially along shafts 53, 54. On alignment of the tractor with the margin perforations 33', the clamp 58 is retightened to lock the other feeder tractor 35 in adjusted position.

To remove the label form margins 33, trim knife pair 70, 70' are provided. As will appear, knife pair 70, 70' cooperate with anvils 72 therebelow to cut form 31 longitudinally along the margin boundaries. Referring particularly to FIGS. 4-5 of the drawings, trim knives 70 each comprise a disc-like part 71 supported on knife shaft 73, the peripheral portion of disc 71 being suitably machined to form a knife edge 71'. Knife shaft 73 is rotatably journaled in labeling head frame 24, shaft 73 being intermittently driven from anvil shaft 80 in the direction indicated by the solid line arrow in FIG. 4 through gear set 151, 152. One trim knife 70' is locked

on shaft 73 in preset position as by means of a set screw (not shown). The other knife 70 is supported on shaft 73 for rotation relative thereto.

To enable trim knife 70 to rapidly yet accurately adjust for different label form types, a knife gauge mechanism 75 is provided therefor. The gauge mechanism 75 includes a cylindrical-like stop 76 fixed on knife shaft 73 in preselected position as by means of set screws 77. Stop 76 has a drive pin 78 projecting therefrom axially toward trim knife 70. The side of knife 70 facing stop 76 has a number of locating bores 79 therein for receipt of drive pin 78, the depth of bores 79 matching the various type label forms to be accommodated. In the arrangement shown, three locating bores 79 corresponding to three, four, and five row type label forms are provided.

The anvils 72 are mounted on anvil shaft 80 suitably journaled in frame member 24 below knife shaft 73. Anvil shaft 80, which forms the drive input shaft for shafts 53, 73 as described heretofore, turns in a direction opposite to that of knife shaft 73. Anvils 72 each comprise a disc-like member 88 supported for limited axial sliding movement on a mounting cylinder 81. Cylinder 81 is in turn supported for axial sliding movement on anvil shaft 80, a lock-key 82 being provided and set in groove 83 in shaft 80 to rotatably couple both the mounting cylinder 81 and the anvil 72 to shaft 80.

The cone-shaped end 84 of mounting cylinder 81 is split and suitably threaded to accommodate a mating locking collar 85, collar 85 serving, when threaded onto cylinder end 84 to collapse the cylinder end portion radially inward into gripping engagement with anvil shaft 80 to thereby lock cylinder 81 in position on shaft 80.

The opposite end of mounting cylinder 81 has an enlarged diametrical portion forming a stop 86 designed to limit axial sliding movement of disc 88 therealong. A spring 87 is provided between locking collar 85 and disc 88, spring 87 biasing disc 88 toward stop 86. It will be understood that the side of anvil disc 88 rides against the inside edge of the trim knife 70, 70' associated therewith to generate the requisite shearing action therebetween, anvil spring 87 serving to maintain the knife and anvil surfaces in shearing contact. The bias imposed by anvil spring 87 on trim knife 70 also serves to retain trim knife 70 in mating relationship with stop collar 76 and drive pin 78 thereof in a selected one of the locating bores 79. In this manner, trim knife 70 is both held in preselected lateral position on knife shaft 73 and is rotatably coupled thereto through collar 76.

Where a change from one label form to another is made, the trim knife 70 may be backed off axially away from stop 76 against the bias of spring 87 to uncouple drive pin 78 from the locating bore 79 then in use. It is understood that the anvil 72 associated therewith accommodates axial displacement of knife 70, the anvil member sliding axially along mounting cylinder 81 against the bias of spring 87. Knife 70 may be then turned to bring the appropriate locating bore 79 opposite drive pin 78 following which knife 70 is released enabling spring 87, working through anvil member 88, to move knife 70 axially toward collar 76 and force drive pin 78 into the selected locating bore 79. Knife 70 is accordingly placed in correct axial position for the new label form and again recoupled through drive pin 78 with knife shaft 73.

As noted earlier, a change from one label form type to another normally entails a change in label length, necessitating resetting of rotary knife 41 if the correct length of label is to be cut from label strip 32. Referring now to FIG. 7 of the drawings, knife roll 42 comprises an interior cylinder 90 flanked by a pair of relatively thin circular sectors 91, 91'. Cylinder 90 includes radially extended feed segments in the form of raised edges 93, the arcuate extent of which is slightly greater than the smallest length label to be handled. The feed segment 93 together with any extension thereof formed by sectors 91, 91' cooperate with the surface of anvil roller 43 to form a nip for advancing label strip 32 under knife blade 42' and to transfer wheel 20. The knife blade 42' is carried by cylinder 90 in slot-like recess 94 closely adjacent the downstream end of feed segment 93 thereof.

Cylinder 90 is mounted on bushing 95 which in turn is rotatably mounted on a knife shaft 96. Knife shaft 96 is journaled in labeling head frame member 24 by suitable bearing means (not shown) and is driven from head drive shaft 23 through suitable gear means (not shown). Shaft 96 is slotted at 97 to provide a key way, there being an aperture 98 provided in bushing 95 to accommodate a key 99.

Sectors 91, 91' which have a radius substantially equal to the radius of cylinder feed segment 93, are mounted on bushing 95 and shaft 96 respectively, keys 99, 100 serving to rotatably couple sectors 91 with shaft 96.

Cylinder 90 has an arcuate recess 103 in one side thereof to accommodate drive lug 101 of sector 91'. Lug 101 serves to drivingly couple cylinder 90 with shaft 96 through sector 91' while permitting relative adjusting movement between cylinder 90 and sectors 91, 91' to vary the effective arcuate length of the composite feed segment formed by the periphery of sectors 91, 91' and the feed segment 93 of cylinder 90. It will be understood that the maximum and minimum label lengths to be accommodated are defined by the opposing sides 104 of recess 103. A suitable detent mechanism is provided to enable lug 101 to be set in an intermediate position accommodating a label length between maximum and minimum label lengths. In the exemplary arrangement shown, the intermediate position would correspond to a four row form. To facilitate adjustment of the rotary knife assembly, knurled hand wheels 105, 106 are provided on bushing 95 and shaft 96.

As explained more fully in copending application Ser. No. 91,775, filed Nov. 23, 1970 in the name of Robert A. Davis, tightening of hand wheel 106 draws cylinder 90 and sectors 91, 91' axially together to hold drive lug 101 fixed in selected arcuate position in recess 103 with cylinder 90 and sectors 91, 91' coupled together for rotation in unison. Unthreading of wheel 106 enables member 90 and sectors 91 to be axially separated thereby permitting cylinder 90 to be rotated relative to sectors 91, 91' within the confines determined by the arcuate extent of recess 103. This relative rotation between member 90 and sectors 91, 91' increases or decreases the degree to which sectors 91, 91' overlap the feed surface 93 of cylinder 90 to thereby decrease or increase the effective arcuate length of the composite feed surface formed by the periphery of cylinder 90 and sectors 91, 91' and vary the length of label strip advanced under knife blade 42'.

The changeover from one type label form 18 to another normally necessitates that the operating speeds of guillotine 34, feeder tractors 35, 35' and trim knives 70, 70' be changed to accommodate the ensuing change in both label size and number of label rows. Referring particularly to FIG. 2 a change gear set 162 is provided for this purpose. Gear set 162 includes a drive gear 164 removably keyed onto stub shaft 165. Shaft 165 is journaled in labeling head frame member 24 and is driven through suitable gear means (not shown) from head drive shaft 23. A second stub shaft 167 is journaled in frame member 26 adjacent shaft 165, shaft 167 being drivingly connected through suitable gear means (not shown) with head transfer shaft 160. As described, transfer shaft 160 serves to drive eccentric shaft 121 of guillotine 34 as well as feeder tractor drive shaft 53, the knife shaft 73, and anvil shaft 80.

A gear cluster 168, the individual gears of which correspond to the various type label forms to be accommodated, i.e., three, four, and five row forms, is releasably keyed onto shaft 167, one of the gears 168' thereof being in meshing engagement with the drive gear 164 on the adjoining shaft 165 to provide the requisite operating speed for the label feeding and cutting apparatus.

When a change is made to another type label form, gear 164 is removed from shaft 165 and replaced with a different size gear corresponding to the new label form. The new drive gear meshes with a corresponding one of the gears in cluster 168 to provide the correct operating ratio for the label feeding and cutting apparatus commensurate with the new label form.

Single row label form does not normally have perforated feeding margins such as the margins 33 of form 18, there instead being a row of feeding perforations in the label form proper. The exemplary form or strip 125 shown in FIGS. 8 and 9 has feeding perforations 126 along the centerline thereof spaced apart in intervals of one label width and located astride the imaginary line 127 between adjoining labels 30.

Where label strip 125 is used, it will be understood that the only cutting operation required is that performed by the guillotine 34. The individual labels 30 cut off by guillotine 34 are advanced by feed roll pair 39, 40 into the nip of rolls 42, 43 of rotary knife 41. In this circumstance, the rotary knife 41 merely serves as a label feeder for transfer wheel 20. As will appear, when using labeling head 21 to handle strip 125, the strip 125 is disposed in operative relationship with pinch roll pair 39, 40. In addition, label form 125 requires an appropriate change in operating speeds of feeder tractors 35, 35' and guillotine 43, and to this end, an appropriate gear substitution is made in gear set 162 as described heretofore.

Referring particularly to FIGS. 8-10, where like numerals refer to like parts, to enable labeling head 21 to be quickly and accurately converted from use with margin type label forms such as form 18 to marginless label form such as strip 125, and back, there is provided a form feed conversion belt 130. Belt 130 is comprised of a suitable flexible material such as plastic and is of a length adequate to permit the belt 130 to be wrapped around feeder tractors 35, 35' and partially back upon itself to form a closed loop as will appear herein. The width of belt 130 is slightly greater than the widest label form 125 normally used.

Belt 130 is provided with a series of driving perforations 131 along each side thereof, the spacing and sizing of perforations 131 being chosen to meshingly accommodate feed pins 47 of feeder tractors 35, 35' as will appear. Belt 130 carries a series of projecting drive pins 133 in longitudinal alignment with one another and in the arrangement shown, slightly offset from the belt centerline. Pins 133 are spaced apart a distance corresponding to the distance between perforations 126 in label form 125. The number of drive pins 133 is optional so long as there is at least sufficient number of drive pins to form an uninterrupted chain around the circumference of feed tractors 35, 35'. The portion 138 of belt 130 extending beyond drive pins 133 has a series of holes 139 therethrough, the spacing of holes 139 corresponding to the spacing of drive pins 133. The size of holes 139 is slightly larger than the base diameter of drive pins 133.

Where it is desired to convert labeling head 21 to use with one row label form such as strip 125, the clamps 58 of feed tractors 35, 35' are released. Tractor 35' is set to a predetermined position adjacent the frame extension 55 proximate thereof and clamp 58 thereof reset. Tractor 35 is slid axially along shafts 53, 54 toward tractor 35 until the axis of tractor sprocket pins 47 is in substantial alignment with driving perforations 131 in belt 130, the other series of perforations 131 in belt 130 being in alignment with pins 47 of the first feeder tractor 35. It is understood that the set screw 59 of the tractor gauging mechanism 60 is released to permit locating cylinder 62 and spacer 63 of that mechanism to be moved along with tractor 35'. Clamp 58 may be then reset to lock tractor 35' in fixed position.

Belt 130 is looped around shafts 53, 54 and partially back on itself with drive pins 133 inserted into the holes 139 thereby forming an endless loop. It is understood that the first pin 133' is fitted within the first hole 139' and so on, all of the holes 139 being utilized for this purpose to prevent excess spacing between drive pins 133 on looping of belt 130. The looped belt 130 may be then engaged with tractors 35, 35', the driving perforations 131 therein interengaging with the tractor drive pins 47 along the driving or upper run thereof. Clamps 50, which are raised for this purpose, are thereafter closed.

It will be understood that belt 130 may be engaged with the drive belts 46 of tractors 35, 35' before or during looping of belt 130. And, to obviate unwinding of belt 130, the belt 130 is driven so that the overlapped portion 138 thereof forms the trailing edge (in the direction shown by the solid line arrow in FIG. 9).

With belt 130 positioned on feeder tractors 35, 35', the label strip 125 is threaded thereon, those drive pins 133 constituting the upper or driving run of belt 130 engaging with the feeding perforations 126 of strip 125. To assure continued engagement of label strip 125 with belt 130, clamp 140 is provided, clamp 140 being suitably supported on the labeling head 21 with spaced holddown fingers 141 thereof riding lightly or slightly above the label strip 125 opposite belt 130.

While the invention has been described with reference to the structure disclosed, it is not confined to the details set forth; but is intended to cover such modifications, or changes as may come within the scope of the following claims.

What is claimed is:

1. As a means to facilitate changeover of an addressing machine labeling head from one size label form to another size label form, said labeling head including a form feeder pair cooperable with the label form margins to feed said forms to said labeling head, the combination of:

means supporting at least one of said form feeders for adjusting movement relative to the other of said form feeders whereby to enable the relative spacing between said form feeder pair to be adjusted for the label form being handled;

locating means disposed adjacent said one form feeder in a preset locating position; and

indexable gauge means adjacent said locating means and engageable therewith to position said one form feeder relative to said locating means and thereby locate said one form feeder relative to the other form feeder, said gauge means having spacing surfaces of predetermined dimension at each index position thereof corresponding to different ones of said label forms for engagement with said locating means whereby to enable said one form feeder to be expeditiously set for the specific label form being handled.

2. The changeover means according to claim 1 including clamp means for releasably locking said one form feeder in adjusted position.

3. The changeover means according to claim 1 in which said locating means includes a spacer pin projecting toward said gauge means;

said gauge means spacing surfaces comprising a series of stepped openings therein opposite said locating means for receipt of said spacer pin so that disposition of said pin in a selected one of said gauge means openings positions said one form feeder for the label form associated with said opening.

* * * * *

55

60

65