United States Patent [19]

Seidl et al.

[11] **3,908,544**

[45] **Sept. 30, 1975**

[54] **LABEL, TICKET AND TAG PRINTER WITH INTERCHANGEABLE TAPE SUPPLY AND FEEDING MAGAZINE**

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[73] Assignee: **Avery Products Corporation**, San Marino, Calif.

[22] Filed: **July 9, 1973**

[21] Appl. No.: **377,830**

[52] **U.S. Cl.** **101/292**; 101/69

[51] **Int. Cl.**[2] **B41F 1/08**

[58] **Field of Search** 101/DIG. 19, 66, 69, 288, 101/291, 292, 226, 227

[56] **References Cited**

UNITED STATES PATENTS

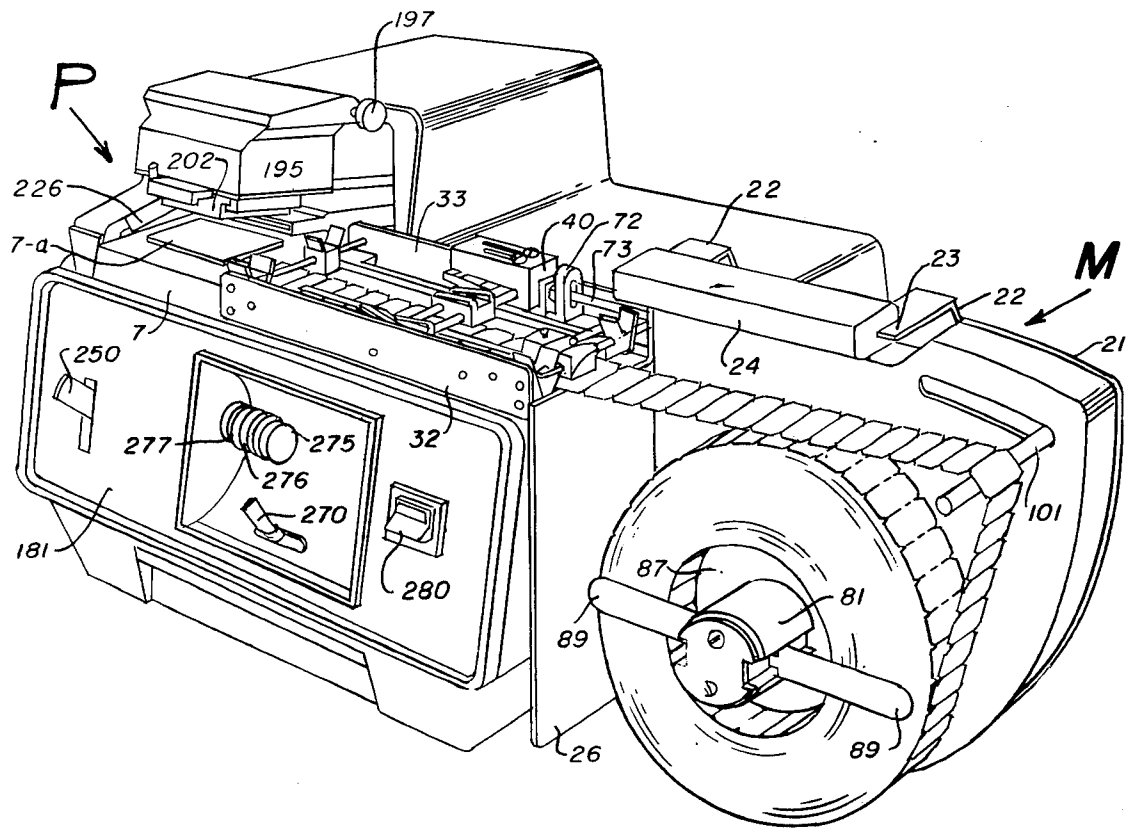
2,104,647	1/1938	Henry	101/291
2,176,690	10/1939	Rudie	101/292
3,060,850	10/1962	Dewyer	101/288
3,101,049	8/1963	Huppert	101/292
3,120,178	2/1964	Lamers	101/288 X
3,331,315	7/1967	Henry	101/288 X
3,425,346	2/1969	Voigt et al.	101/292
3,757,685	9/1973	Woodie et al.	101/66

Primary Examiner—Clifford D. Crowder
Assistant Examiner—Edward M. Coven
Attorney, Agent, or Firm—Leonard L. Kalish

[57] **ABSTRACT**

A label, ticket and tag printing and dispensing machine with readily detachable and attachable interchangeable tape supply and feeding magazines, for the optional and selective use of any one of several alternative pre-adjusted tape-feeding magazines, each loaded with a roll of a different size or kind of labels, tickets or tags, thereby to provide maximum and ready variability and range of tape-supply; with each of the several alternative magazines being individually pre-adjusted for the length and width and other characteristics of the label, ticket or tag and in relation to location of the print-impression of the printer. Each magazine holds a roll of labels, tickets or tags and includes a self-contained tape-feeder for intermittently feeding the tape from the roll in the magazine in label, ticket or tag lengths in timed relation to the printing sequence of the printer portion. The printer portion includes a tape-feeder cam or several alternative tape-feeder cams. The tape-feeder (forming a part of the magazine portion) has a cam-follower extending from the feeder-slide thereof into operative juxtaposition to the feeder-cam in the printer portion when the magazine portion is operatively connected with the printer portion.

11 Claims, 41 Drawing Figures



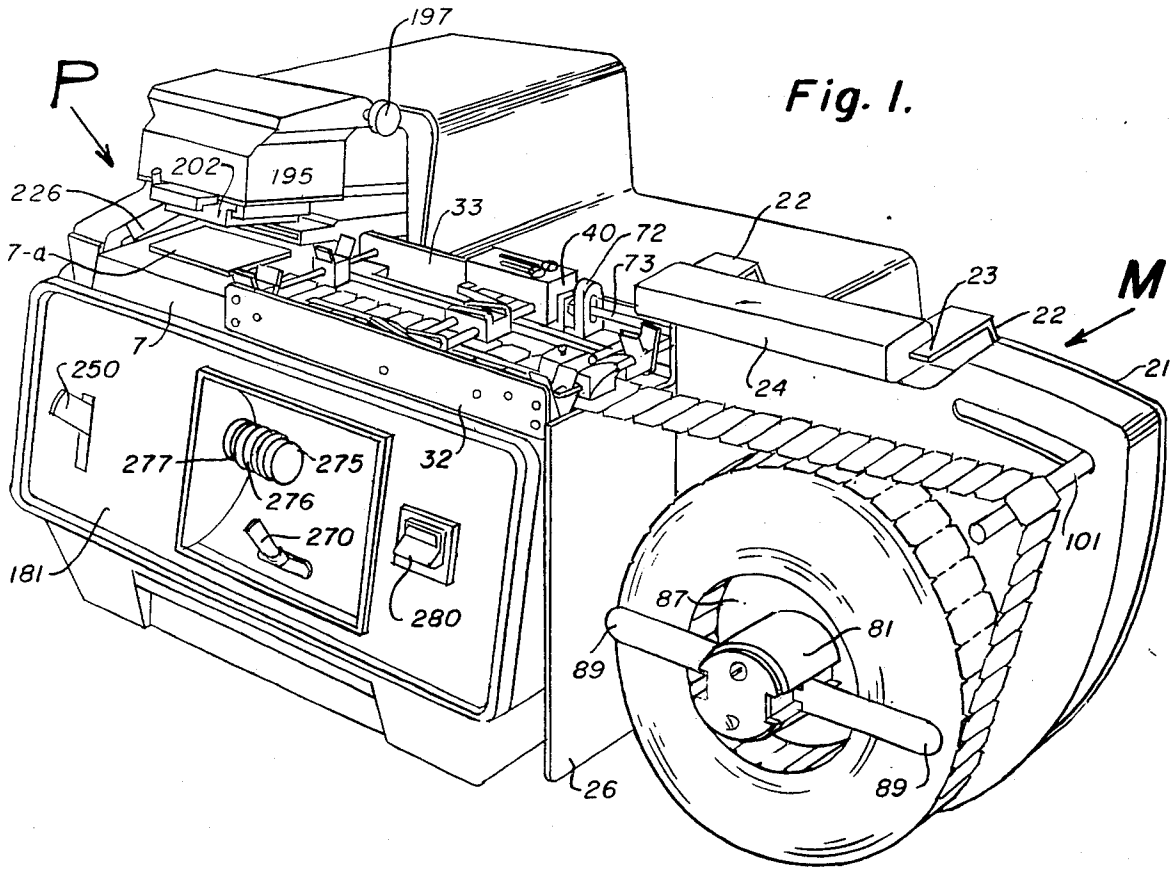

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Fig. 1.

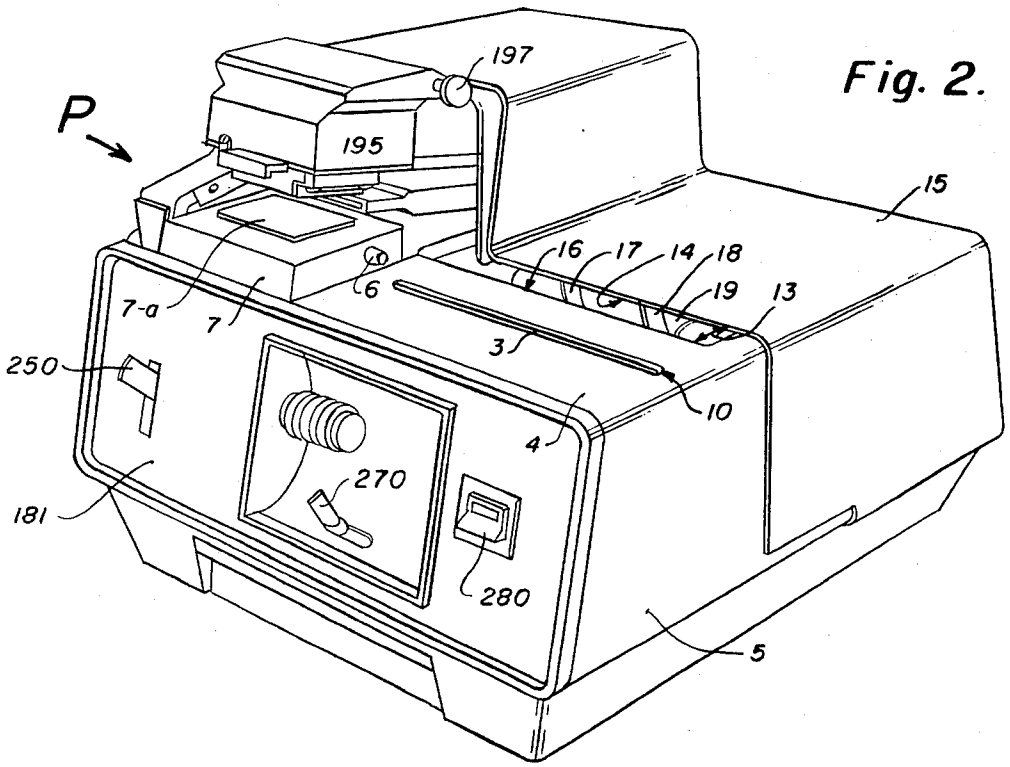
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Fig. 2.

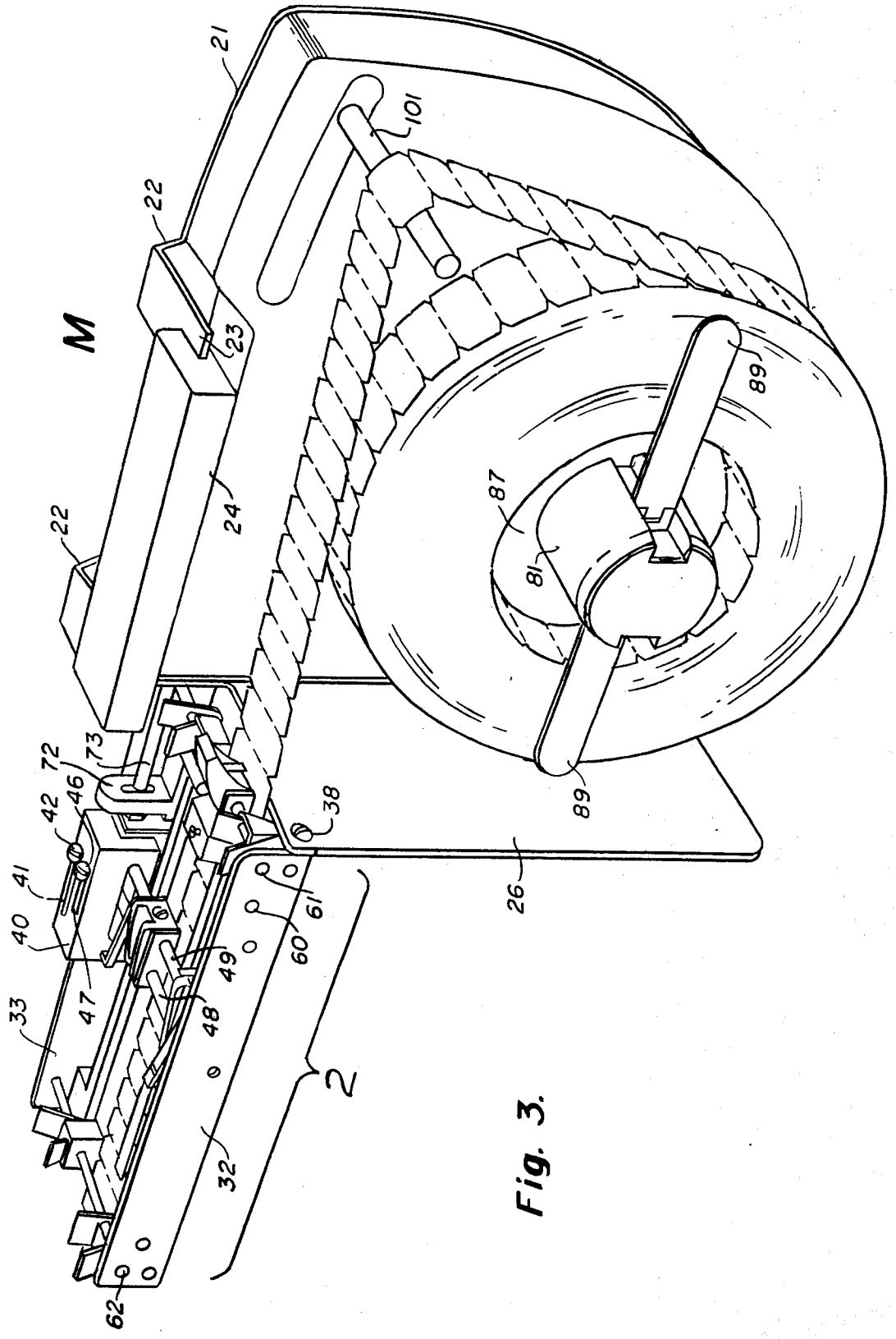
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Fig. 3.

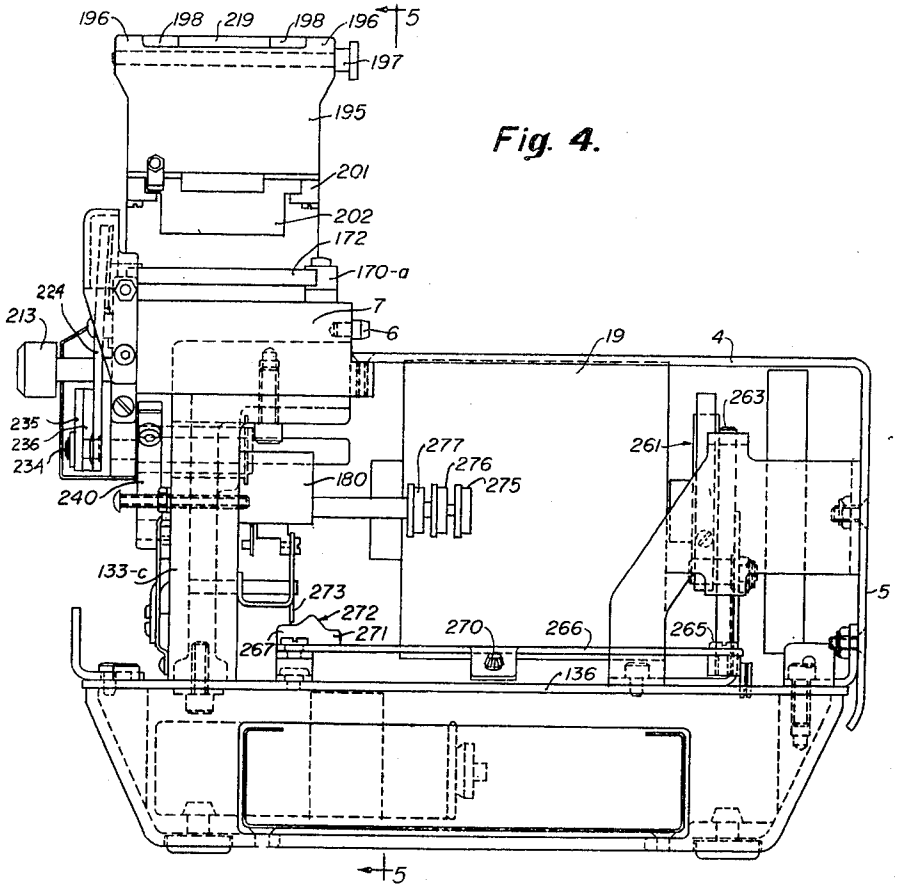
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Fig. 4.

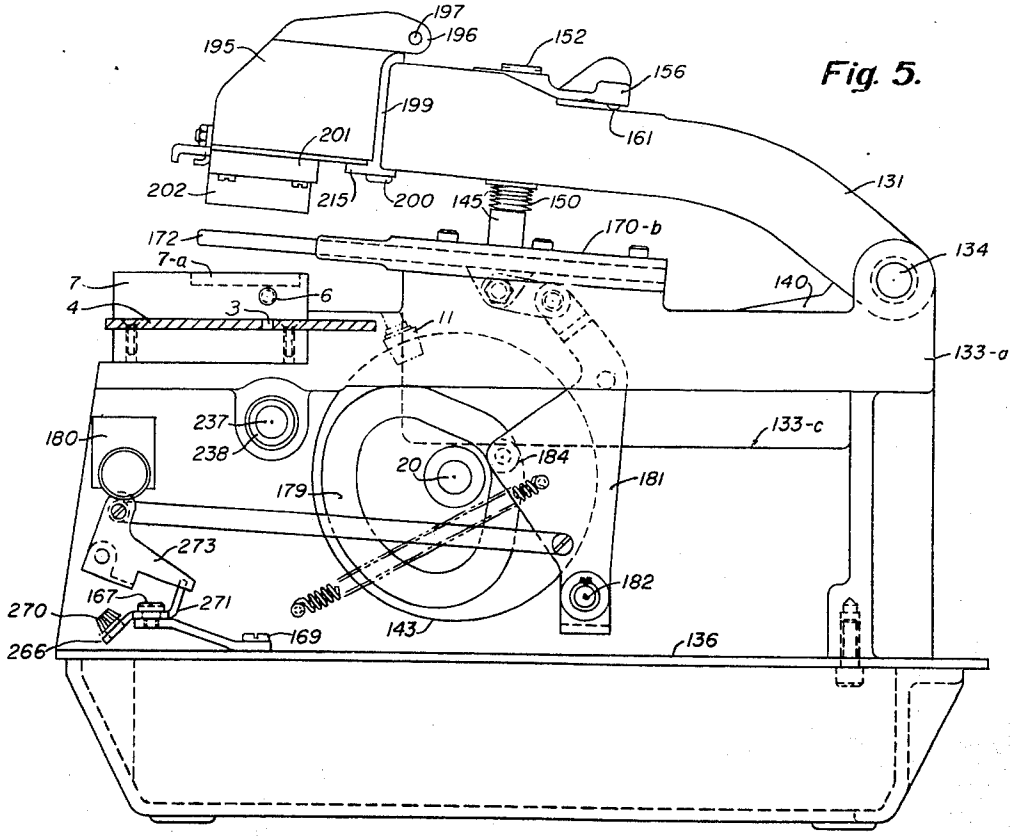
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Fig. 5.

Fig. 6.

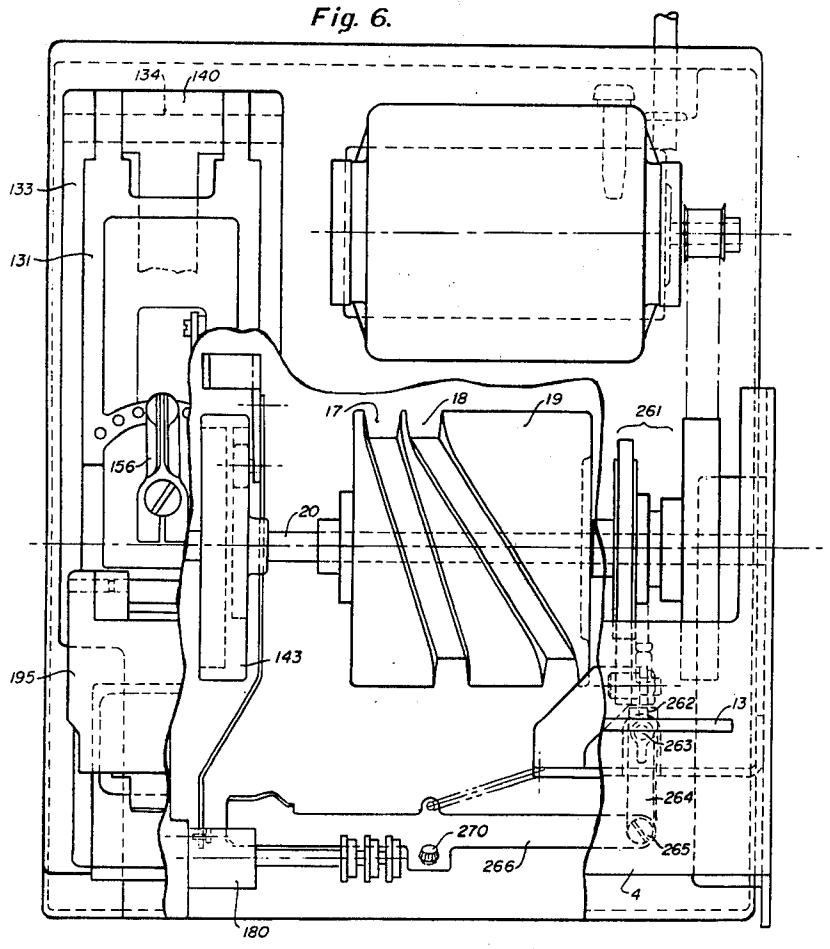
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Fig. 7.

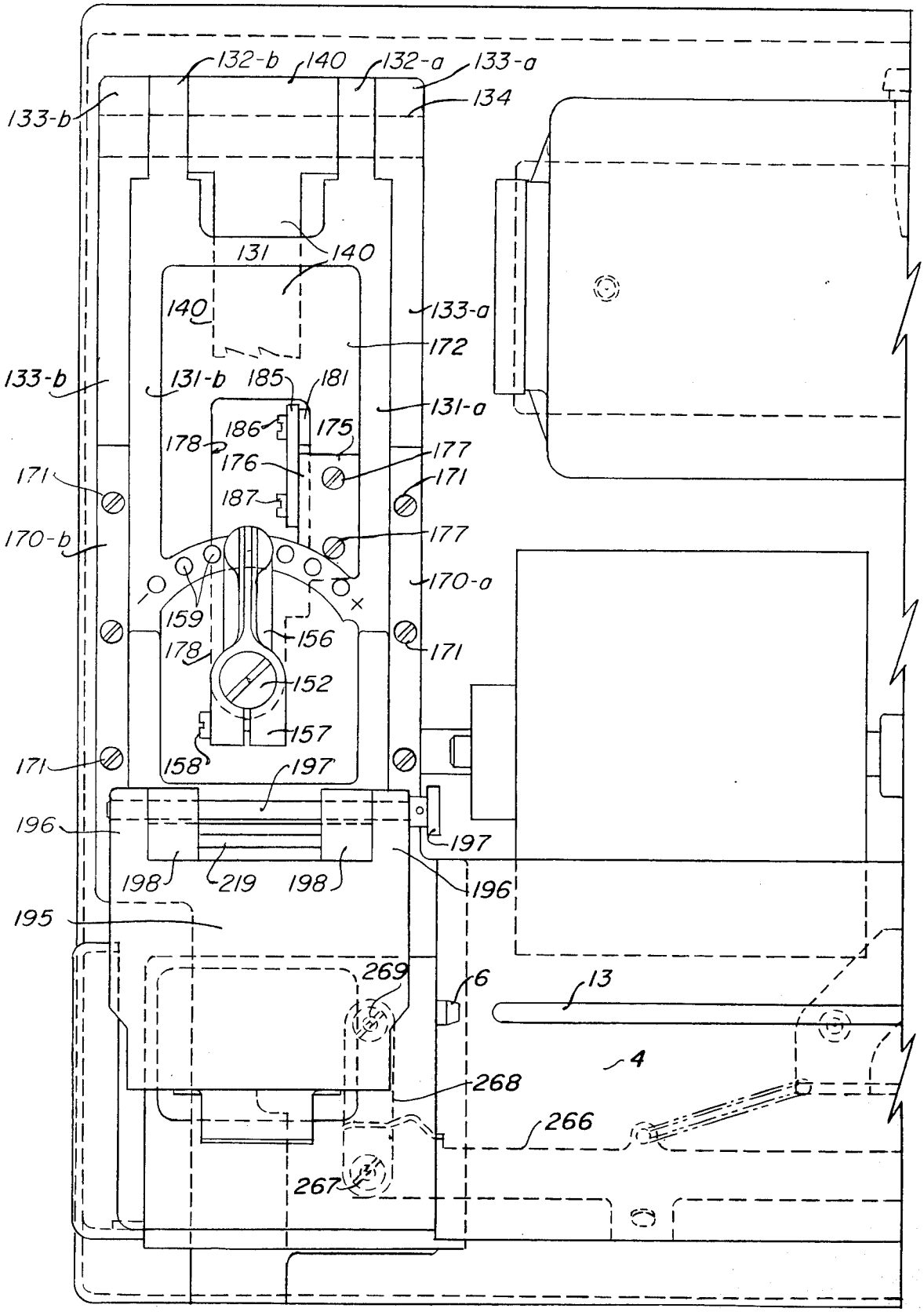
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Fig. 8.

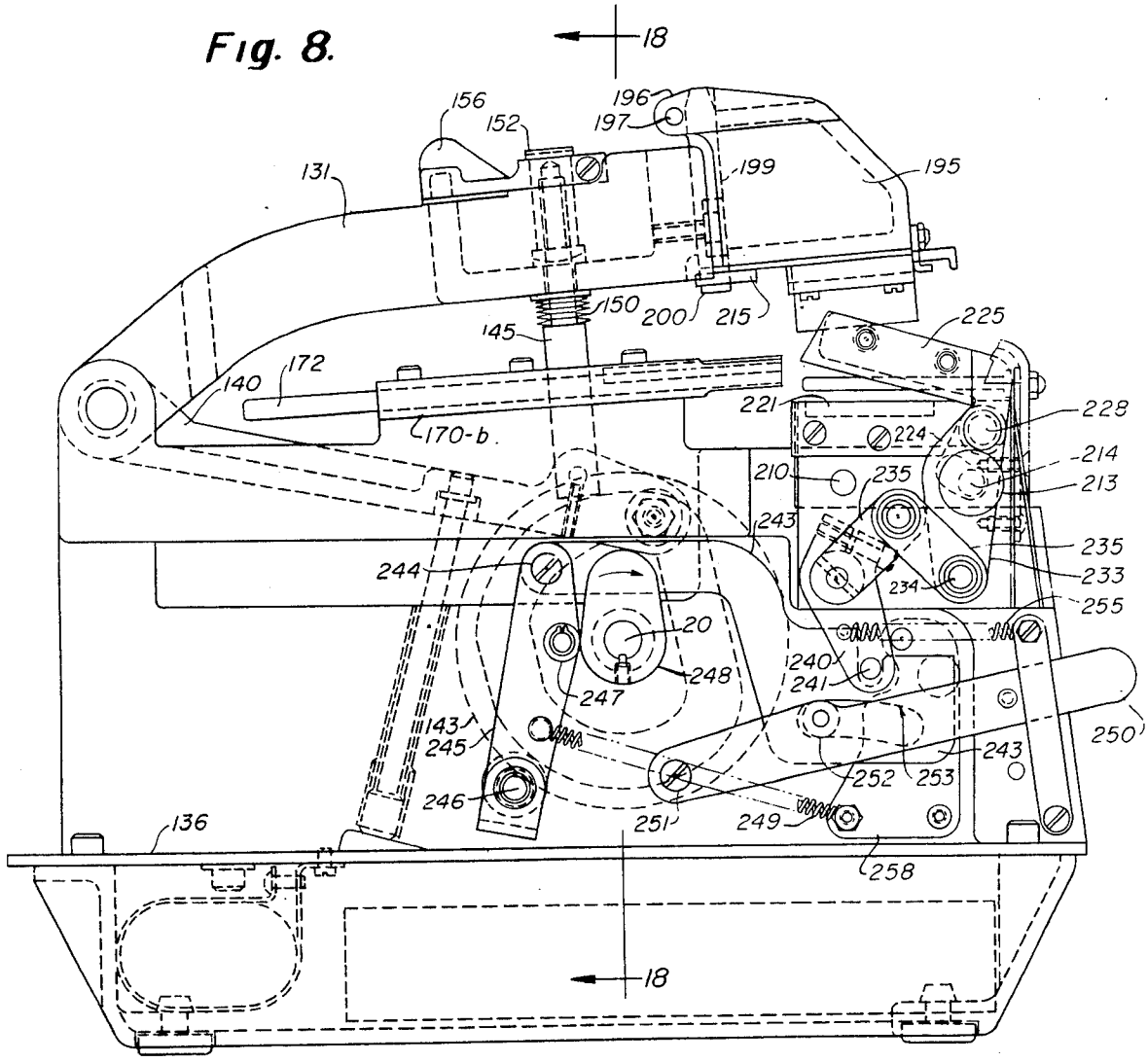
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Fig. 9.

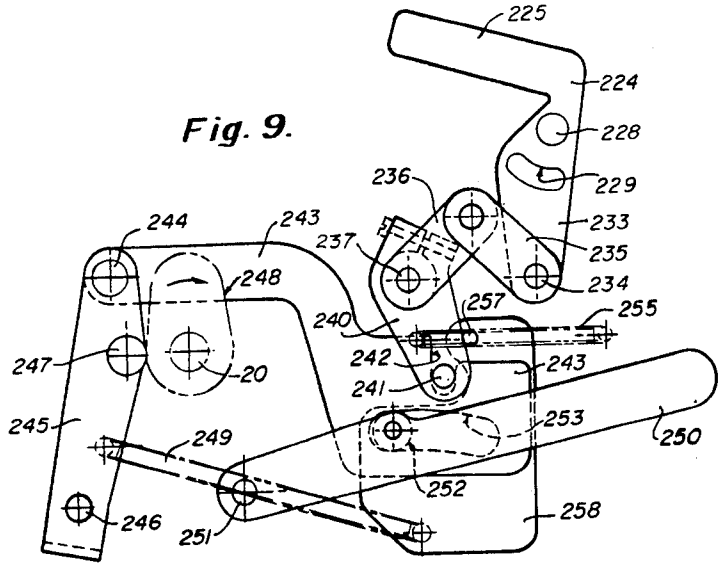
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Fig. 10

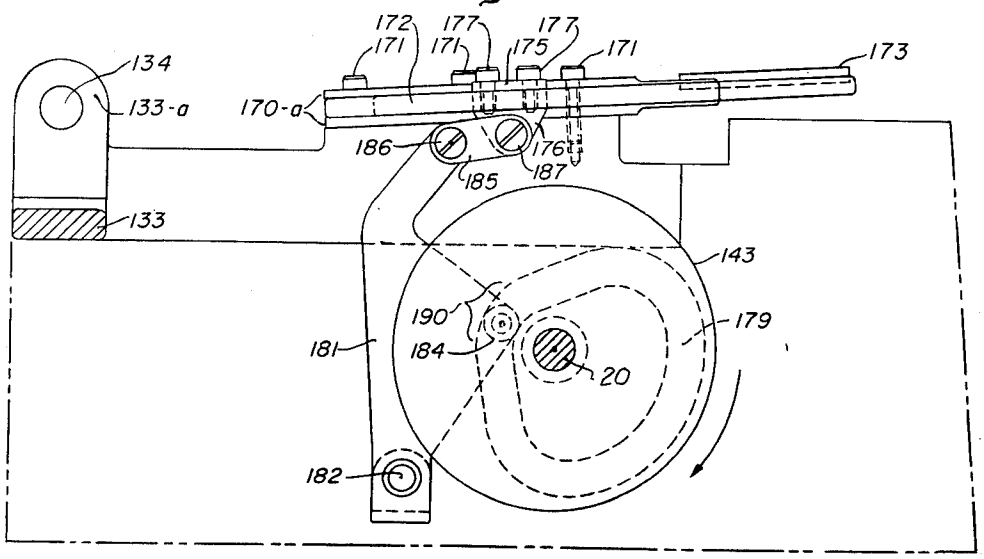
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Fig. 11.

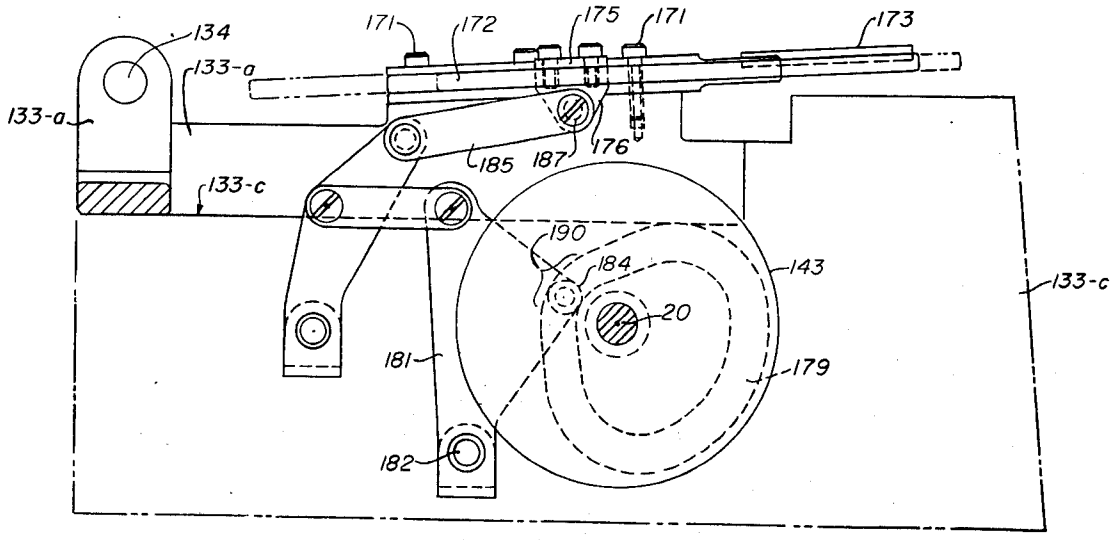
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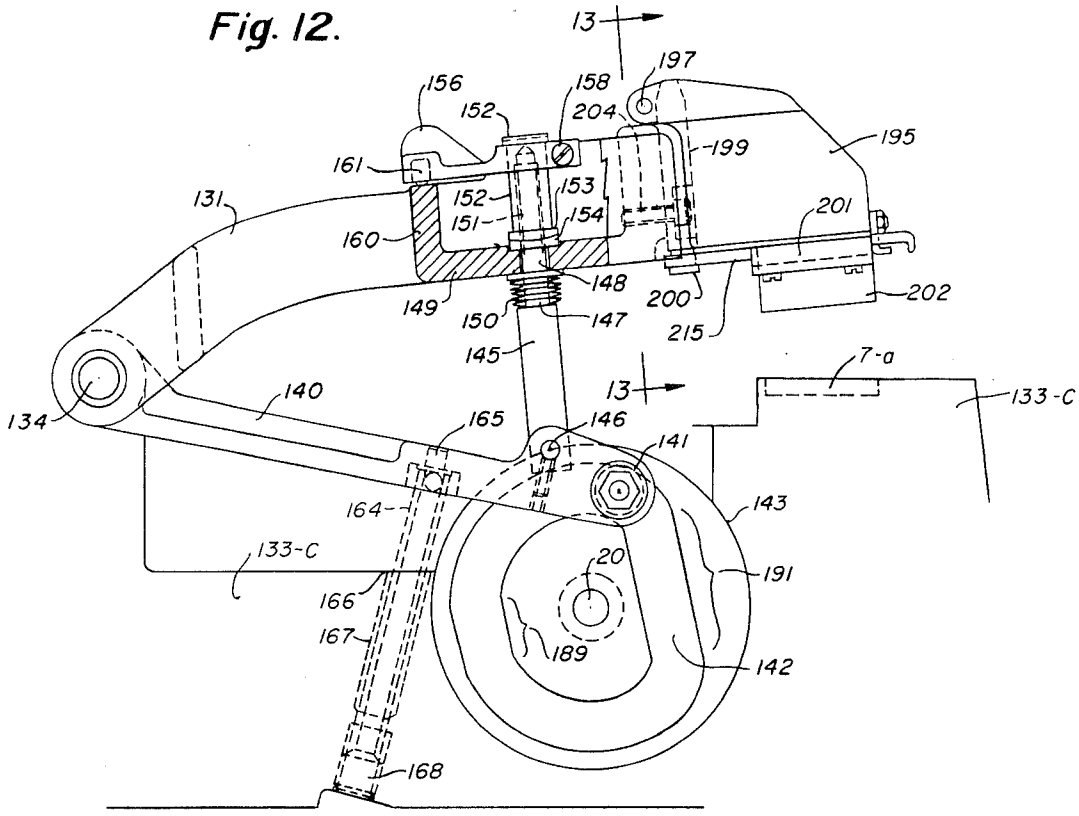
Fig. 12.



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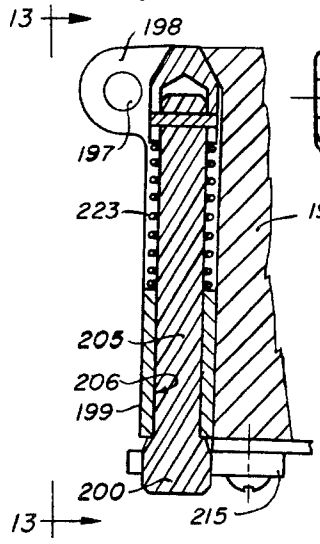

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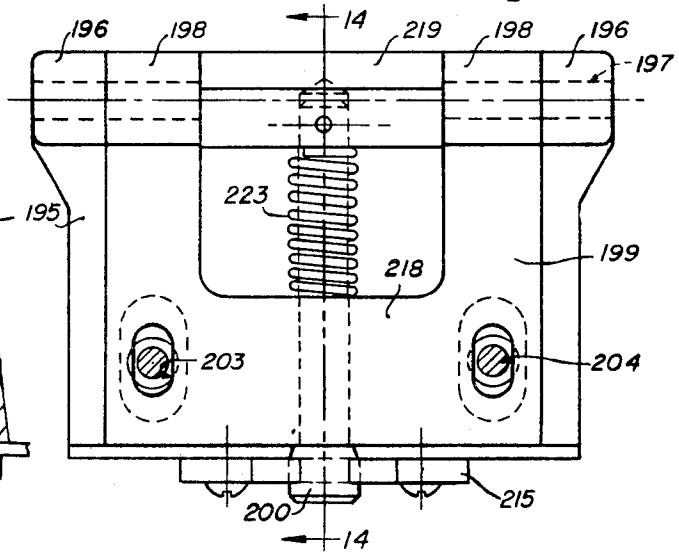
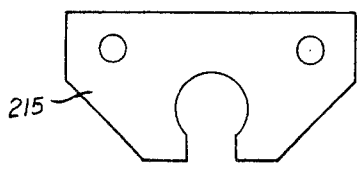


Fig. 13.A



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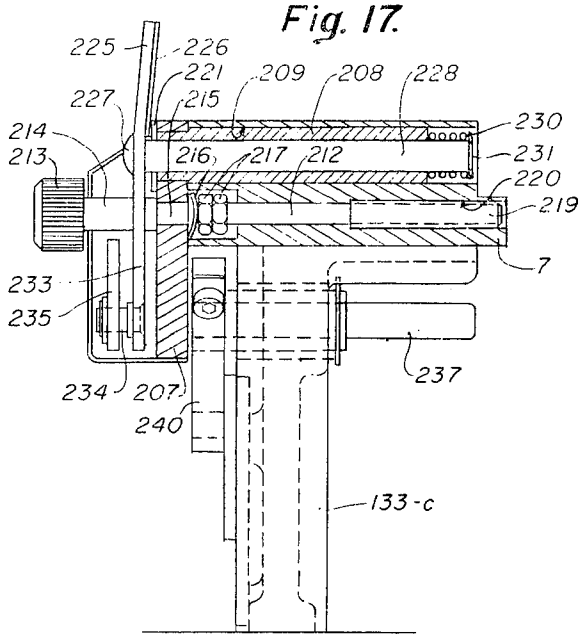

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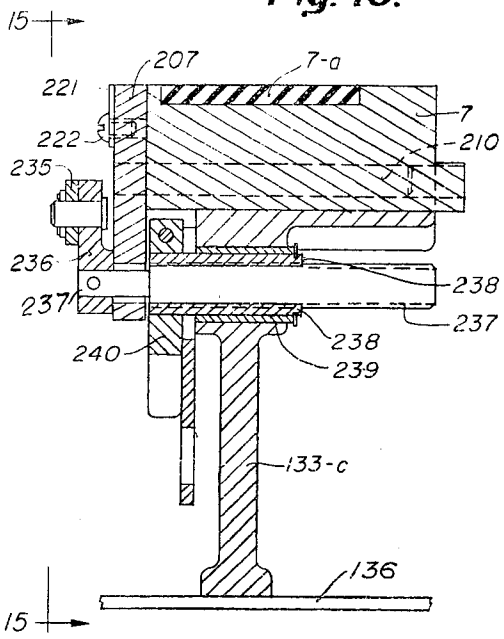

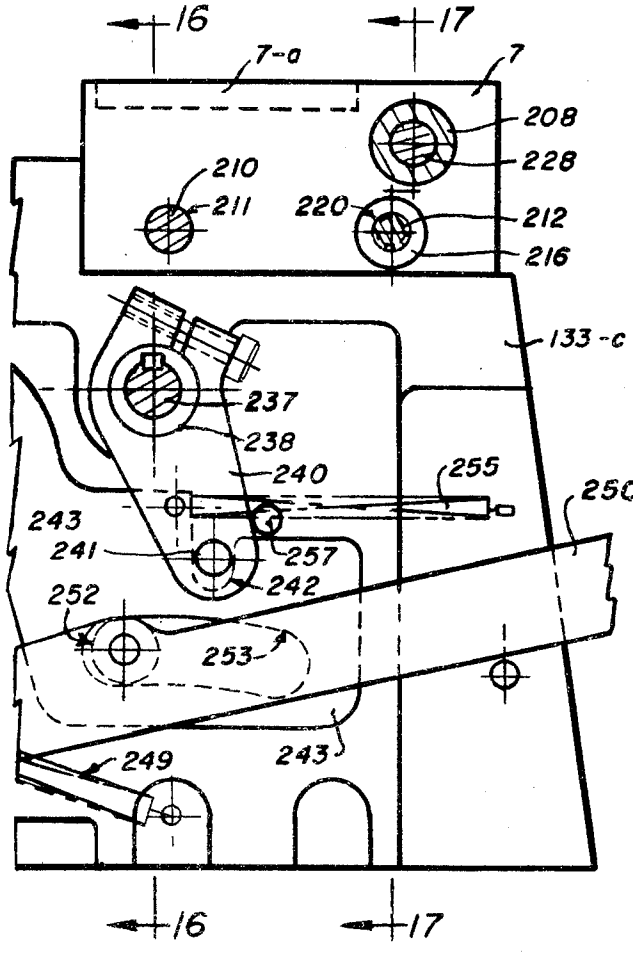

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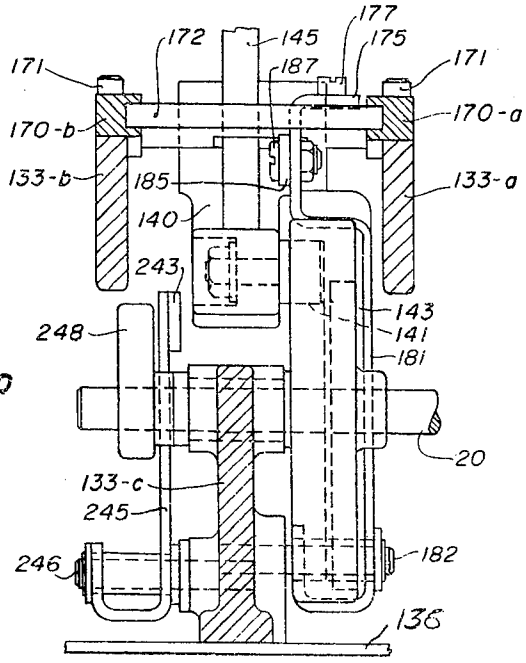

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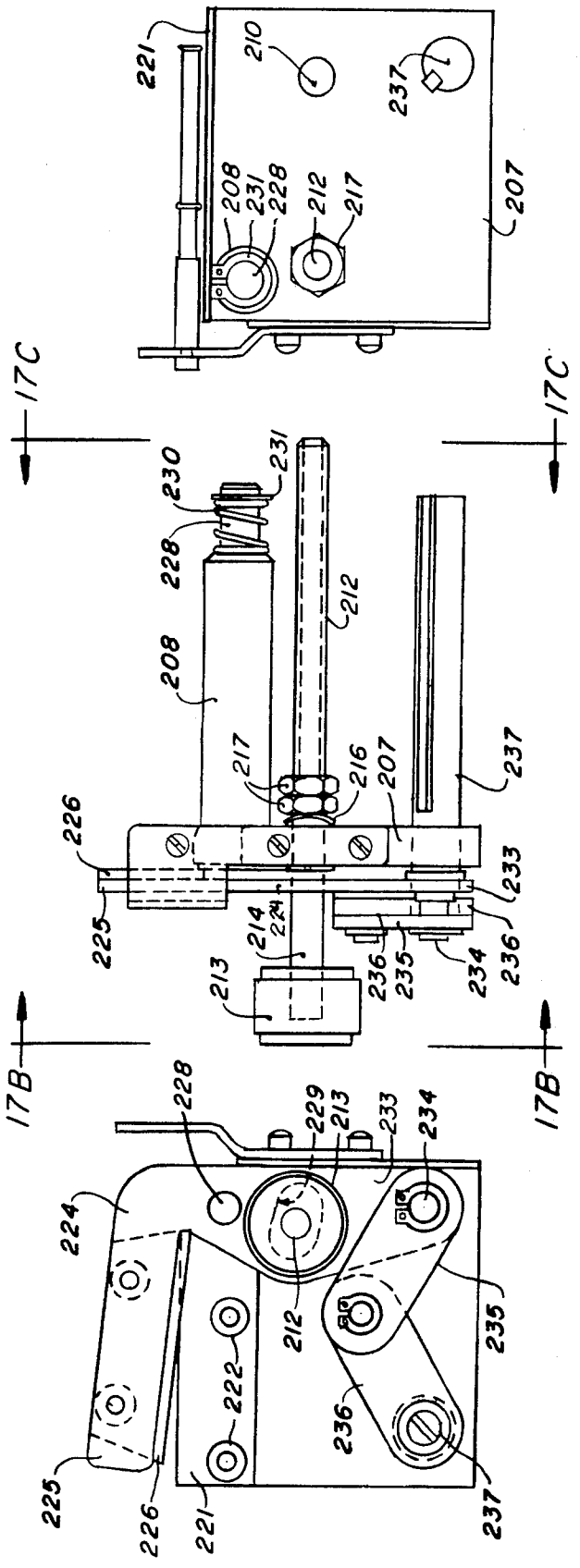


Fig. 17C.

Fig. 17A.

Fig. 17B.

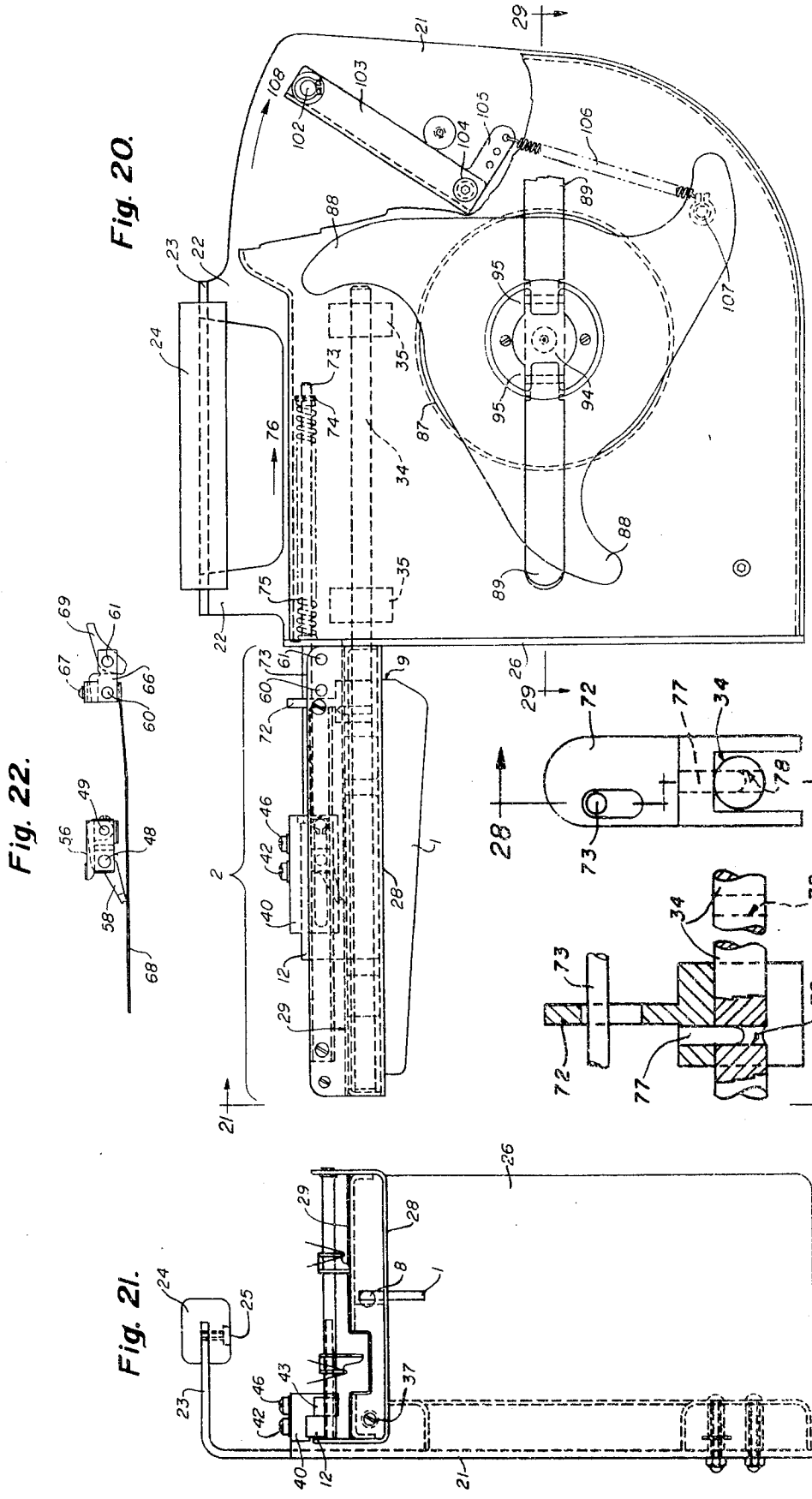


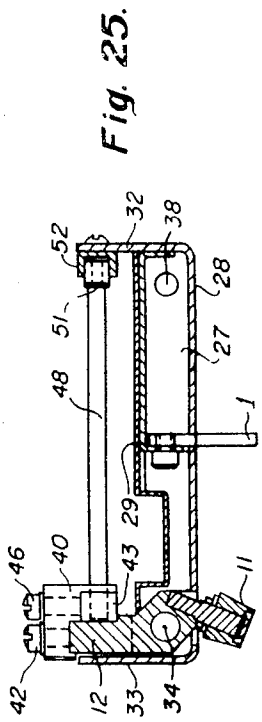
Fig. 20.

Fig. 22.

Fig. 21.

Fig. 28.

Fig. 27.



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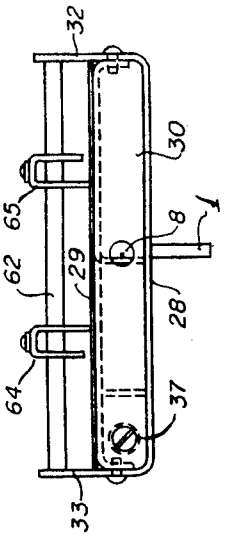

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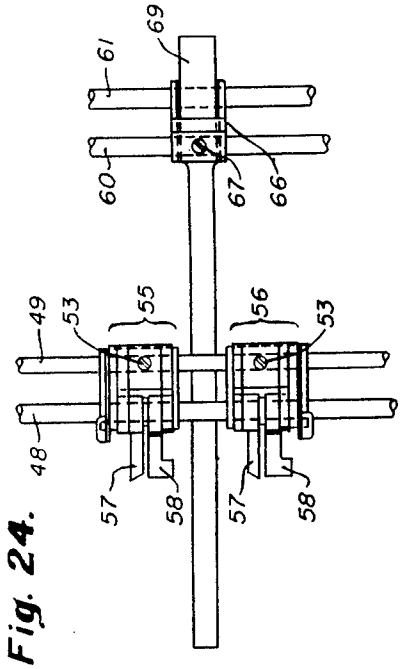

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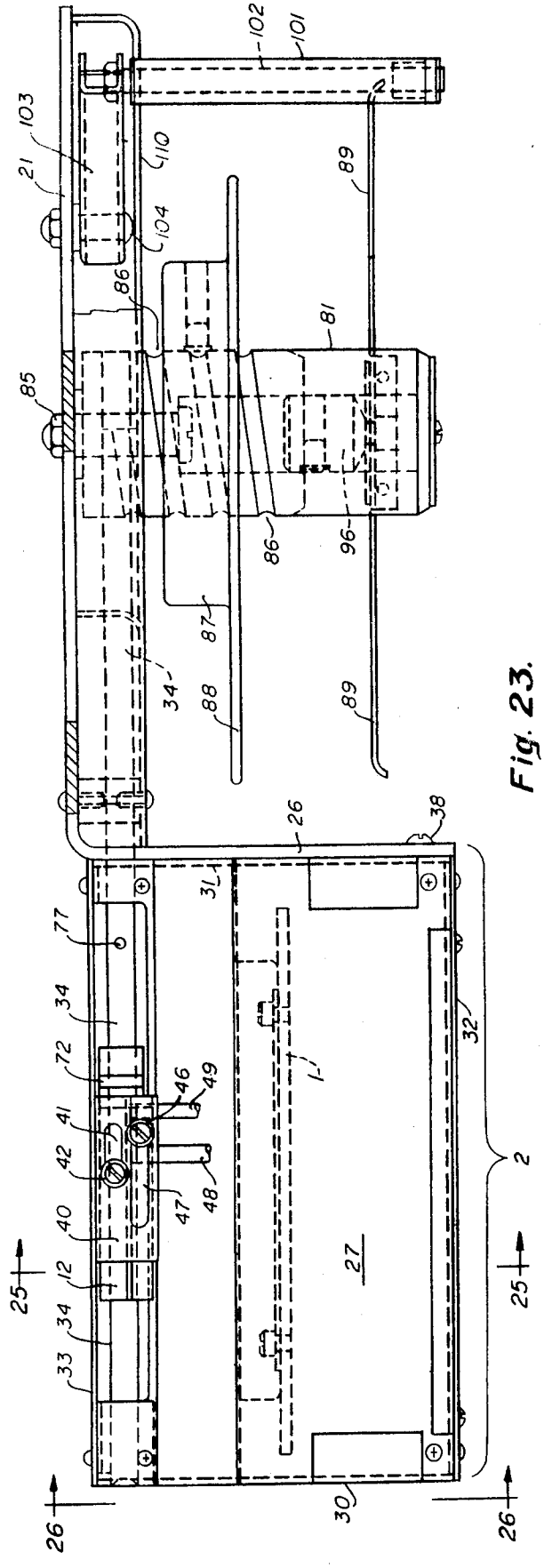

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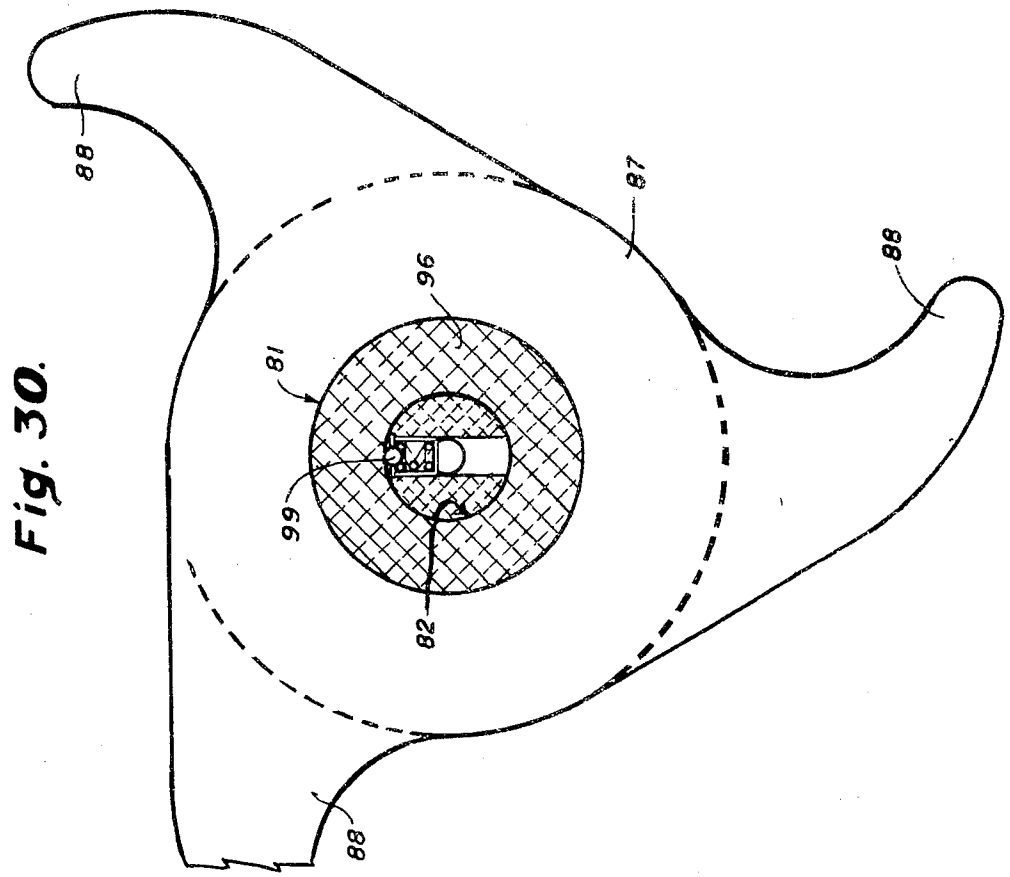
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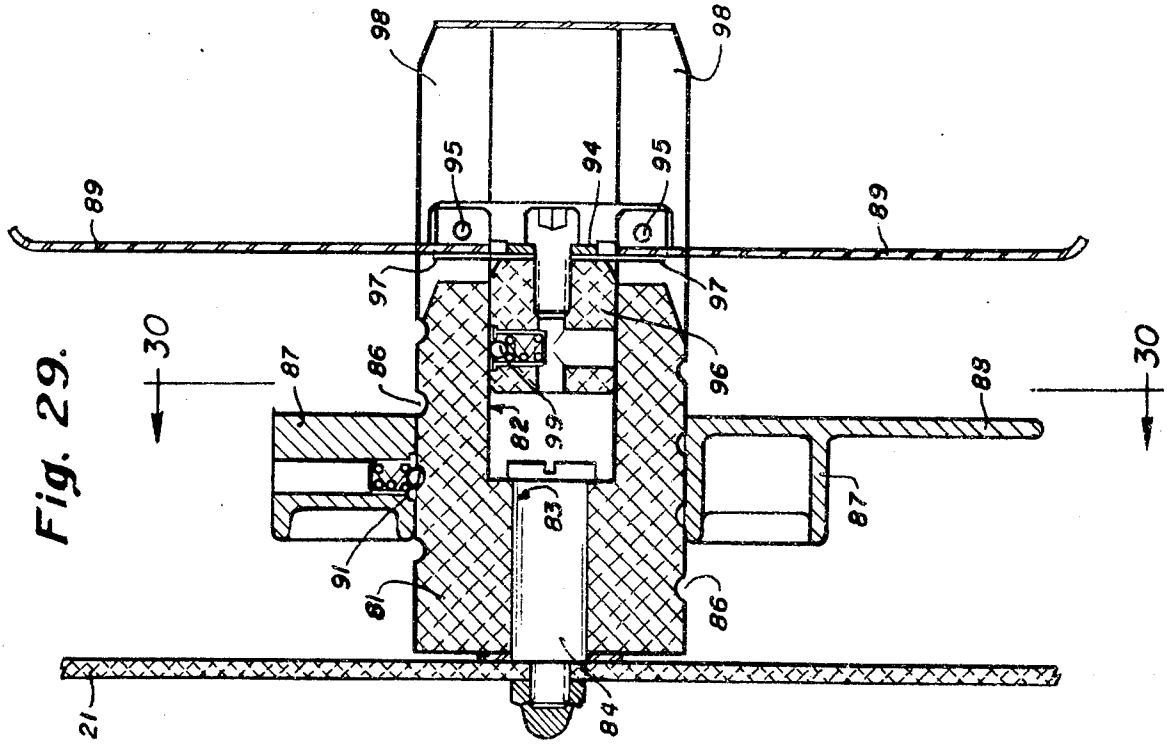
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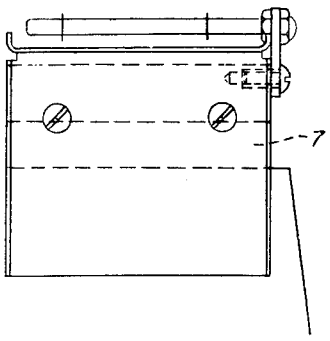
Fig. 29.

Fig 32.



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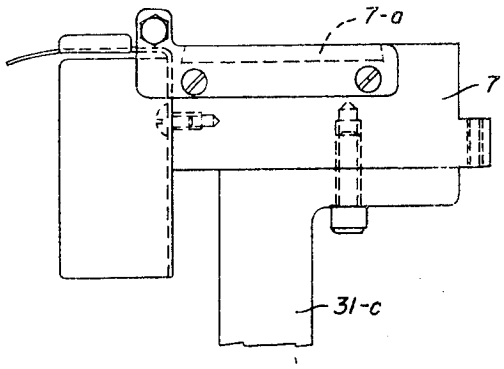

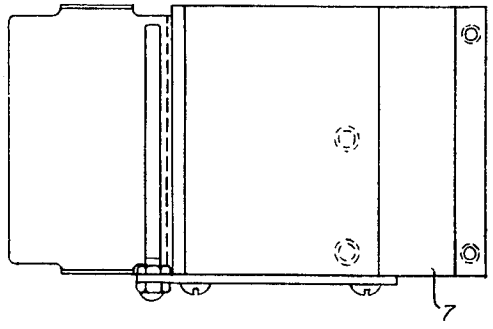

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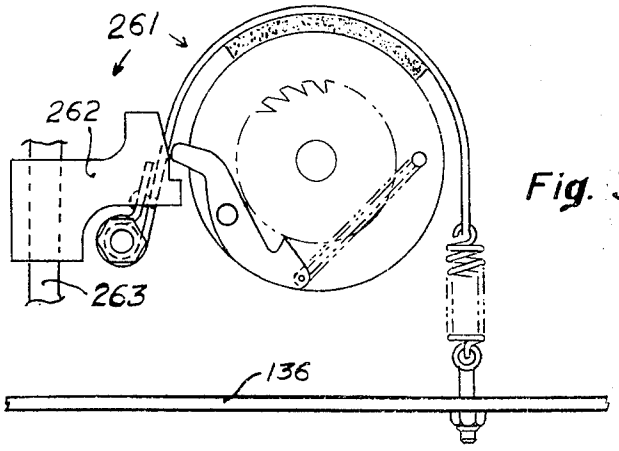

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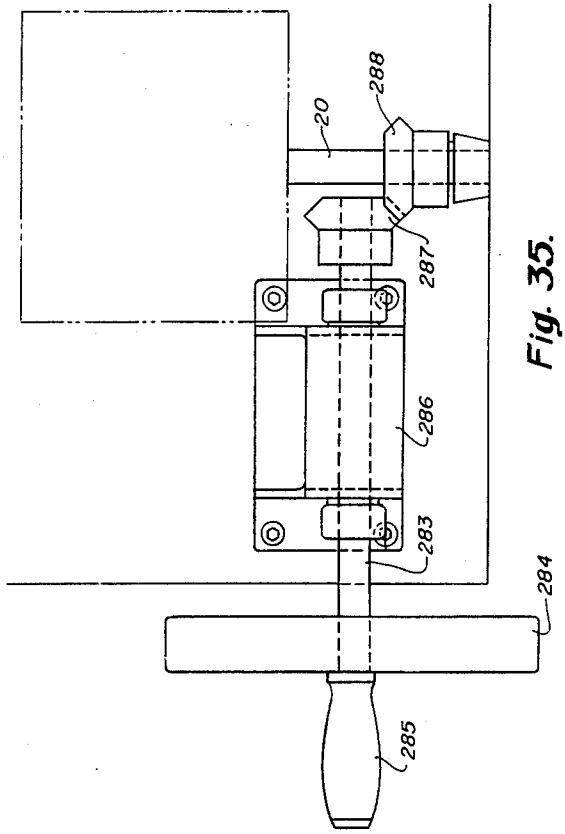

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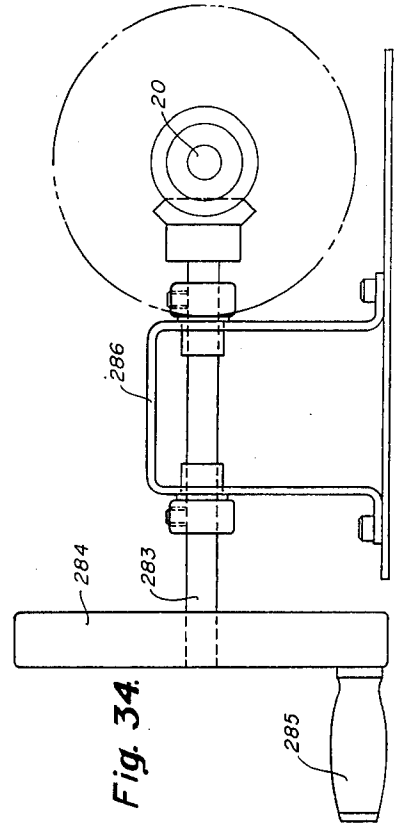

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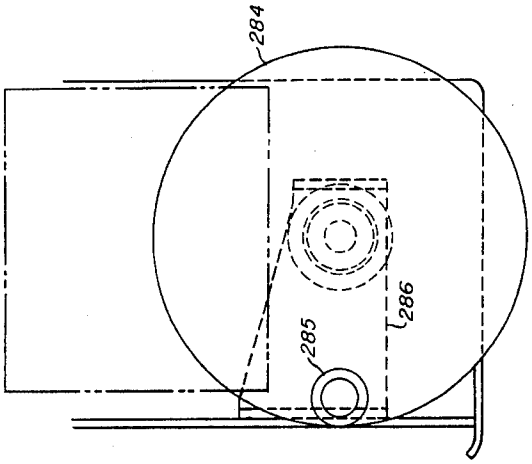

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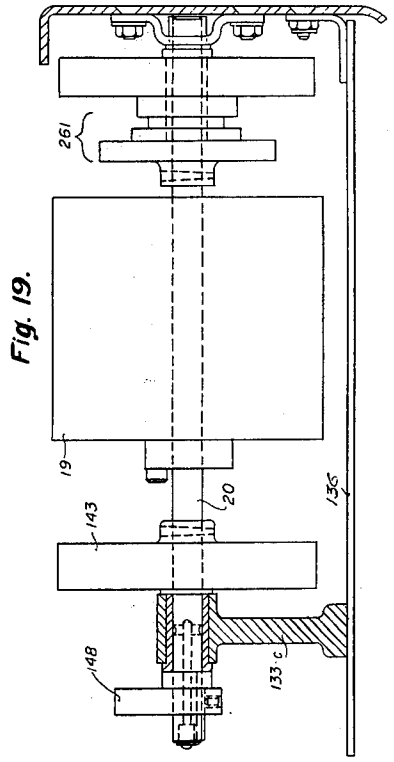

Fig. 19.

LABEL, TICKET AND TAG PRINTER WITH INTERCHANGEABLE TAPE SUPPLY AND FEEDING MAGAZINE

BRIEF SUMMARY AND OBJECTS OF THE INVENTION

In heretofore conventional label, ticket and tag printing and dispensing machines it is necessary to re-set the machine everytime a different length or width or kind of label, ticket or tag is to be printed, so as to accommodate the machine for the length and width of the label, ticket or tag and for any preprinted text thereon, and also for other variations, such as whether the tape is notched along its edge or edges or whether it has feed-openings midway of its width or whether tape has tag-strings or is without strings, and so on. The machine may also have to be re-adjusted or re-set for different size labels, tickets or tags with different pre-printing thereon, so as to locate the tape in relation to the type-chase or in relation to a band-printer-head or other printing elements, so that the imprinting effected by the machine will be in the proper location on the label, ticket or tag of the particular kind or characteristics then desired to be imprinted and dispensed.

Such re-setting or re-adjustment for different width and/or length and for each differently pre-printed label, ticket or tag is not only time-consuming but also requires a fair amount of skill for which the operator must be trained.

The magazine printer and dispenser of the present invention overcomes the aforementioned disadvantanges incident to the frequent change of length and width or other characteristics of the label, ticket or tag to be imprinted.

By the embodiment of present invention illustrated in the accompanying drawings, the roll of tape comprising the successive interconnected labels, tickets or tags (from which the individual label, ticket or tag is subsequently cut or otherwise detached) is loaded into the supply portion or magazine unit of the machine. As many magazine units may be provided for the same printing portion of the machine as there are different sizes and kinds of labels, tickets or tags to be imprinted from time to time. The printer portion and the magazine portion of the machine have quick-attachable and quick-detachable interconnecting means which are the same on all the magazines, so that whichever magazine is attached to the printer portion, the special relationship of the magazine portion to the printer portion will be exactly the same as that of any other magazine with a different label, ticket or tag supply therein.

Each magazine includes its own tape-guides for locating and confining the tape laterally in relation to the printer-head of the printer portion and also with its own intermittent tape-feeder for intermittently feeding predetermined or pre-selected lengths of the tape to correspond to the length of the label, ticket or tag to be cut or otherwise detached from the tape.

The present invention permits each of the several magazines to be kept loaded with a particular size and kind of label, ticket or tag, and with any particular pre-printing thereon, and permits the aforementioned adjustments to be made by one specially trained and skilled in making these adjustments, and permits the adjustments to remain intact for the entire roll of such labels, tickets or tags and indeed for successive rolls of the same size and kind of labels, tickets or tags to be loaded into the same magazine when the previous roll has been used up, no matter how often the particular magazine is detached from and re-attached to the printer portion, so that the operators of the machine need not be skilled in making such adjustments in the machine for the different sizes and kinds of labels, tickets or tags and so that the person skilled in making such adjustments is spared of the expenditure of his time and labor repetitively re-adjusting or re-setting the machine each time a different size or kind of label, ticket or tag is to be imprinted by the machine.

BRIEF DESCRIPTION OF THE FIGURES OF THE DRAWINGS

FIG. **1** represents a perspective view of a machine representing an embodiment of the present invention.

FIG. **2** represents a perspective view of the printer portion of said machine, with the magazine portion thereof removed, and ready to receive a magazine portion.

FIG. **3** represents a perspective view of the magazine portion of the machine, shown on a somewhat larger scale.

FIG. **4** represents a front elevational view of the printer portion of the machine, with the front covers removed therefrom.

FIG. **5** represents a vertical cross-sectional view generally on line **5—5** of FIG. **4.**

FIG. **6** represents a top plan view of the printing portion of the machine, with the upper magazine-supporting bed-plate and part of the printer-arm and printer-head broken away.

FIG. **7** represents a top plan view of the printer-arm and printer-head carried thereby.

FIG. **8** represents a left side elevational view of the printing portion of the machine, with the left cover removed therefrom.

FIG. **9** represents an elevational view of the cutter linkage shown in FIG. **8.**

FIG. **10** represents a left side elevational view of the inker-slide and its actuating means, including the driving cam-groove or race and the cam-follower lever and linkage between the latter and the slide.

FIG. **11** represents another left side elevational view of the inker-slide and its actuating mechanism, showing an alternate linkage between the cam-groove and the slide, for a greater slide-travel than that provided by the linkage shown in FIG. **10.**

FIG. **12** represents a left elevational view of the printer-arm and its actuating mechanisms, with a printer-head shown thereon adapted to receive a type-chase.

FIG. **13** represents a rear elevational view of printer-head-mounting member secured to the front end of the printer-arm, viewed on line **13—13** of FIG. **12,** and shown on a larger scale.

FIG. **14** represents a vertical cross-sectional view on line **14—14** of FIG. **13.**

FIG. **15** represents a vertical cross-sectional view of the print-impression block and of the cutter-assembly adjustably and detachably mounted thereto, taken on line **15—15** of FIG. **16.**

FIG. **16** represents a vertical cross-sectional view on line **16—16** of FIG. **15.**

FIG. **17** represents a vertical cross-sectional view on line **17—17** of FIG. **15.**

FIG. 17A represents a front elevational view of the cutter-assembly, detached from the print-impression block.

FIG. 17B represents a side elevational view of same, as viewed on line 17B—17B of FIG. 17A.

FIG. 17C represents a side elevational view of same, viewed on line 17C—17C of FIG. 17A.

FIG. 18 represents a vertical cross-sectional view on line 18—18 of FIG. 8.

FIG. 19 represents a front elevational view of the main shaft and of the cams and brake thereon.

FIG. 20 represents a front elevational view of the magazine portion of the machine.

FIG. 21 represents an end elevational view of the magazine portion, viewed on line 21—21 of FIG. 20.

FIG. 22 represents front elevation view of the feeder-finger block and of the tape-check block and of the flat hold-down spring forming parts of the tape-feeder of the magazine.

FIG. 23 represents a top plan view of the magazine portion of the machine.

FIG. 24 represents a fragmentary portion of the top plan view of the tape-feeder, showing the tape-feed bars and the laterally adjustable feeder-fingers thereon, and also showing the hold-down leaf-spring carried thereby.

FIG. 25 represents a vertical cross-sectional view on line 25—25 of FIG. 23, of a tape-feeder adapted for string-tags; taken through the center of the cam-follower roller of the tape-feed slider or shuttle.

FIG. 26 represents an end-view of a tape-feeder for labels, tickets and stringless tags, viewed on line 26—26 of FIG. 23.

FIG. 27 represents an end elevational view (on an enlarged scale) of the shuttle-locator.

FIG. 28 represents a cross-sectional view on line 28—28 of FIG. 27.

FIG. 29 represents an axial cross-section of the hub of the magazine, on line 29—29 of FIG. 20.

FIG. 30 represents a cross-sectional view of line 30—30 of FIG. 29.

FIG. 31 represents a front elevational view of the tape-payout or tape-delivery of the printer portion of the machine, but showing an alternative embodiment, namely, without any cutter or cutting mechanism.

FIG. 32 represents a side elevational view of the embodiment shown in FIG. 31.

FIG. 33 represents a top plan view of the embodiment shown in FIGS. 31 and 32.

FIG. 34 represents a right side elevational view of a modified form of machine-drive, for manually driving the machine.

FIG. 35 represents a top plan view of the same.

FIG. 36 represents a front elevational view of the same.

DESCRIPTION OF THE ILLUSTRATED EMBODIMENT OF THE INVENTION

The machine, shown in its entirety in FIG. 1, comprises two co-operative portions, namely, the printer portion P shown in FIG. 2 and the tape magazine-and-feeder portion M shown in FIG. 3 arranged to be co-operatively united with each other as shown in FIG. 1, in a quick-attachable and quick-detachable manner. Such union between the magazine portion and the printer portion is effected by means of the elongated vertical rib 1 extending downwardly from the bottom of the tape-bed (27) of the tape-feeder portion 2 of the magazine M (FIGS. 20 to 26, inclusive). The rib 1 snugly nests in the slot 3 in the magazine-supporting bed-plate 4 forming a part of the cover-like bracket 5 of the printer portion P and by means of the slightly tapered dowel-pin 6 carried by the impression-pad-block 7 (FIG. 2), which dowel-pin 6 enters and snugly nests in the hole 8 in the end of the tape-bed (27) of feeder portion 2 of the magazine M (FIGS. 21 and 26). The rear vertical edge 9 (FIG. 20) of the guide-rib 1 fits snugly against the outer end 10 of the slot 3 (FIG. 2), so that when the magazine M is applied to the printer P with the hole 8 telescoped onto the pin 6 and with the rib 1 allowed to drop into the slot 3, the magazine will be in its predetermined spacial relationship to the printer.

In such position, the cam-follower roller 11 (FIG. 25) carried by the tape-feed-slider 12 (FIG. 25 and 23) extends through the clearance 13 between the front edge 14 of the rear top cover 15 and the rear edge 16 of the front cover 4 and enters one of the two cam-grooves or races 17 and 18 in the drum-cam or barrel-cam 19 carried by the main shaft 20 of the machine (FIGS. 2 and 6).

The magazine M includes a back-frame-plate 21 having two upward extensions 22 interconnected by the integral horizontal cross-piece portion 23 disposed at a right-angle to extensions 22. The cross-piece 23 nests in a horizontal slot in the wooden or plastic handle 24 which is secured thereto by one or several screws 25 as indicated in FIGS. 20, 21, 3 and 1.

A downwardly extending flange-like frame plate 26 is generally at a right angle to the rear frame-plate 21 and is formed integrally therewith as indicated in FIGS. 23, 21 and 20. The frame-plate 26 extends forwardly in distance generally equal to the fore-and-aft dimension of the tape-feed mechanism 2 as shown in FIG. 23.

The feed-bed, designated generally by the numeral 27 (FIG. 23), comprises a lower horizontal plate 28 and a upper horizontal plate 29 and a left vertical end-plate 30 and a right vertical end-plate 31 and a front vertical plate 32 and a rear vertical plate 33.

A round guide-rod 34 extends through and neatly nests in corresponding holes in the rod-supporting blocks 35 and 36 which are secured to the frame-plate 21 by suitable screws or the like. The guide-rod 34 extends through the frame-plate 26 of the frame portion of the magazine M and also through the end-plate 31 of the tape-feed-bed 27 and extends to the left end-plate 30 (FIGS. 23 and 26), and is held thereto by the headed screw 37 whose head bears against the end-plate 30 and whose stem is threaded into a threaded axial hole in the end of the guide-rod 34. A headed screw 38 (FIG. 23) extends through the frame-member 26 of the magazine M and is threaded into the vertical end-plate 31 of the tape-feed-bed 27 or into a nut-like stamping within the tape-feed-bed 27 adjacent the inner face of the vertical end-plate 31 of the tape-feed-bed 27 (see FIGS. 20, 21, 23 and 25). The combination of the stationary guide-rod 34 and screws 37 and 38 hold the entire tape-feed-bed 27 in assembled relation to the magazine frame plates 22 and 26.

The slider or shuttle 12 (FIGS. 23, 25, 20, 21) has a horizontal hole therethrough, through which the guide-rod 34 extends with a neat sliding fit. An intermediate feed-finger-supporting block 40, having a longitudinal channel on the underside thereof, is adjustably secured

to top of the slider **12**, with the uppermost portion of said slider **12** nesting in said channel, as shown in FIGS. **25** and **21**. An elongated opening **41** is provided in the block **40**, through which the headed screw **42** extends, with its stem threaded into a corresponding vertical threaded hole in the slider **12**, thereby adjustably to secure the block **40** to the slider **12**. A steel block **43** is disposed alongside of the upper portion of the slider **12**, nested between the downwardly extended flange **44** of the block **40** and the slight shoulder **45** of the slider **12**. The block **43** is secured in the block **40** by means of the headed screw **46** which extends through the elongated opening **47** in the block **40** and is threaded into a vertical hole in the block **43**, thereby adjustably securing the block **43** to the block **40**. Parallel polished steel rods **48** and **49** are press-fitted into corresponding holes in the rod-block **43** (FIGS. **23, 24** and **25**) with their outer ends interconnected by the bridging plate **50**. The end of the rod **48** extends forwardly beyond the bridging plate **50** and has a roller **51** revolvably mounted thereon. The roller **51** extends into channel member **52** carried by the front plate **32** of the tape-feed-bed **27**, thereby to support the front ends of the finger-carrying rods **48** and **49** (FIGS. **24** and **25**).

A pair of finger-blocks **55** and **56**, with parallel holes therethrough corresponding to the rods **48** and **49**, are slidably mounted on said rods, with their positions thereon adjustable and set in their adjusted positions by set-screws **53**. Each of the finger-blocks **55** and **56** carries the two different kinds of tape-feed fingers **57** and **58**, namely, the diamond-ended fingers **57** and the flat-ended fingers **58**; each biased in a downwardly direction by means of leaf springs or other suitable springs. The fingers **57** are adapted to engage in the V-shaped notches along the edges of the tape (where such tape is provided with such notches), while the fingers **58** are adapted to engage in slots disposed intermediate the edges of the tape (where the tape is provided with such slots). In either case, one of the pair of fingers **57** or one of the pair of fingers **58** may be de-activated, by raising it into its inoperative position, with the aforementioned leaf spring folding it in its inoperative position by bearing against it suitable flat on the pivoted end of the finger.

The adjustments by means of the screw **42** in the slot **41** and further adjustment by means of the screw **46** in the slot **47** serve to adjust the fingers (**57** or **58**) so that at the end of the feed-stroke of the slider **12**, the leading edge of the label, ticket or tag will be at the appropriate imprinting position, for receiving the imprint from the type-chase or band type printer in proper relation to the label, ticket or tag and for cutting off such label, ticket or tag at the proper point (where the same are to be cut off by the cutter mechanism shown in FIGS. **8, 9, 15, 16** and **17**, as described hereinafter).

A pair of parallel horizontal guide-rods **60** and **61** extend between and are secured to the front and back vertical plates or flanges **32** and **33** of the tape-feeder bed **27** (FIGS. **20, 23** and **24**). A pair of tape-guides **64** and **65** are adjustably mounted on the rod **61** and are provided with set-screws for securing them in their desired positions along the edges of the tape, to determine the position of the tape in relation to the printing-head of the machine.

A spring-carriage **66** is adjustably mounted on the two rods **60** and **61** and its held in its adjusted position by a set screw **67**. The carriage **66** carries a flat leaf-spring **68** extending leftwardly thereof, parallel to the tape-pass and bearing down on top of the tape with sufficient pressure and over a sufficient length of the tape to keep the tape from buckling during the course of the feeding thereof. A tape-check **69** is pivotally mounted on the rod **61**, with a downwardly extending toe portions thereof urged against the upper surface of the tape by a spring and so arranged as to permit the tape to be advanced past the tape-check but as to prevent the tape from backing up in the reverse direction.

A shuttle-locator **72** is slidably mounted on the guide-rod **34**, to the right of the slider or shuttle **12** (FIGS. **20, 23, 27** and **28**) and has a locating pin **77** which is dropped into either one of the holes **78** and **79** in the rod **34**, according to whether the cam-follower-roller **11** of the shuttle **12** is to be in cam-race **17** or in cam-race **18** (FIG. **6**).

A shuttle-retracting rod **73** extends through the frame-plate **26** and through a vertical clearance slot **71** in the shuttle-locator **72**, and has its left end threaded into or otherwise anchored to the shuttle or slider **12**. A helical compression spring **75** is mounted on the shuttle-retracting rod **73** between the frame-plate **26** and a suitable spring-abutment **74** on the right-hand end of the rod **73** (as indicated in FIG. **20**) so as to urge the rod **73** in the direction of the arrow **76** (FIG. **20**). By this means, the shuttle **12** is moved in the direction of the arrow **76** against the shuttle-locator **72** whenever the machine is stopped by the de-activation of the clutch **261** (FIGS. **37, 4, 6** and **9**).

As the de-activation of the clutch **261** (FIGS. **37, 4, 6** and **9**) always stops the printer P (FIG. **2**) at the same point of its cycle, the cam-follower-roller **11** of the ticket-feed shuttle **12** will be so located that if any magazine M (FIG. **3**) is at any time removed from the printer and later re-applied thereto, the cam-follower-roller **11** will enter the same cam race as that in which it had been disposed prior to the removal of the magazine, as required by the ticket-length of the tape in the magazine. By raising the shuttle-locator **72** and dropping the pin **77** thereof into one of the holes **78** the cam-follower-roller **11** will be located for cam-groove **17**, while by dropping the pin **77** in the hole **79** the cam-follower-roller **11** will be located for the cam-groove **18**.

By way of illustration, the cam-groove **17** has a throw of 1–1/16 inches and the cam-groove **18** has a throw of 2–1/16 inches. The extra 1/16 inch in the throw of each cam-groove **17** and **18** is to provide an override above the respective maximum 1 inch and 2 inch tape-feed lengths, to insure the engagement of the notch or hole in the tape by the feed-fingers **57** or **58** when set for the maximum 1 inch or the 2 inch ticket-lengths, respectively.

By means of the screws **42** and **46**, the position of the finger-rod-carrying block **43** is so adjusted in relation to the print-impression pad or platten **205** of the printer (FIG. **2**) that the label, ticket or tag will be properly located in relation to the type-chase or band-printer carried by the printer-head **195** (FIGS. **1, 2, 4** and **5**).

The tape-feeder-fingers (**57** and **58**) ride freely over the upper surface of the label until they drop into and engage in the next notch or hole therein, and from that point on the fingers feed the tape an amount or length which is equal to the rest of the finger-travel from such engagement-point to the end of the finger-travel provided by the throw of the cam-race **17** or the cam-race **18**.

A separate type-chase may be provided for each tape supplying and feeding magazine M, so that by inserting the type-chase having type set therein corresponding to the particular magazine, no adjustment is necessary of the tape-feed-fingers or of the lateral tape-guides or of the cam-groove selector because all these adjustments or settings remain intact no matter how often the same magazine (and its corresponding type-chase) is removed from the re-applied to the printer portion P of the machine.

If a band-printer is mounted to the mounting-plate secured to the front end of the pivoted printer-arm **131** (in place of chase-carrying the printer-head **195**), it is only necessary to dial the various type-bands thereof according to the imprinting required for the particular label, ticket or tag for which the particular magazine is loaded, and such band-settings or the imprinting required for such magazine can be marked on casing, housing, frame or handle of the magazine.

A horizontal and generally cylindrical tape-roll-hub **81** is revolvably mounted to the back-frame-plate **21** of the magazine in the manner indicated in FIGS. **29, 23,** 20, 3. The hub **81** has a cylindrical hole **82** therein, and a smaller-diametered co-axial hole **83** extending from the inner end of the hole **82** through the rear end of the hub **81,** thereby providing a shoulder between set two holes or bores. A headed pivot **84** extends through the smaller diametered hole or bore **83,** with its head bearing against the shoulder between the two bores, and the threaded reduced-diameter rear end of the pivot **84** extends through the back-frame-plate **21** of the magazine and has a nut **85** threaded thereon, whereby the hub **81** is secured to the frame-plate **21.** The tape-roll-hub **81** is revolvable on the pivot **84** (FIG. **29**).

A spiral groove **86** is provided in the outer surface of the hub **81,** as indicated in FIG. **29.** A larger-diametered hub **87** has a bore therethrough which neatly fits over the hub **81.** The hub **87** is mounted on the hub **81** in either of two alternative ways. It can be mounted in the manner indicated in FIGS. **23** and **29,** with its flange-portion **88** disposed forwardly of the hub **87.** In this disposition or mounting of the hub **87,** a roll of tape having a small center opening or core-size is adapted neatly to fit over the smaller diameter of the hub **81,** is placed over the hub **81** with its back face against the flange-portions **88,** and with its front face retained by the pivotally-mounted and spring-biased and retainer-arms **89** described hereinafter. If the roll of tape has a central opening or hub-receiving opening of the diameter of the larger hub **87,** then the hub **87** is reversed on the hub **81,** so that the flange-portions **88** thereof are rearwardly of the hub **87,** and the roll of tape is mounted on the hub **87** (which is now forwardly of the flange **88** thereof), and such roll of tape is retained between the flange **87** and the spring-biased pivotally-mounted retainer-arms **89.**

The hub **87** has a suitable spring-urged detent or ball-like detent **91** mounted in a radial hole therein. Thus the ball and spring may be operatively mounted in a small tubular brass housing which is pressed-fitted into the radial hole in the hub. The detent-ball **91** rides in the spiral groove **86,** so that by turning the outer hub **87** in relation to the inner hub **81,** the larger-diametered outer hub **87** can be located anywhere along the smaller diametered inner hub **81** within the axial extent of the spiral groove **86.** This permits the accommodation of different widths of tape-rolls, and also permits the variation of the axial location of tape-roll so as to place it in operative alignment with the type in the type-chase or with the type faces of the band-printer carried by the printer-arm **131.** See FIGS. **23,** 29 and **30.**

The outer retainer-arms **89** are pivotally mounted to a retainer-block **94,** about the pivot pins **95.** The retainer block **94** is secured to a cylindrical plunger or plug **96** by means of a suitable co-axial screw **93,** and between the plug **96** and the block **94** a leaf-spring **97** is mounted, overlapping the flat on the pivoted ends of the retainer-arms **89,** thereby to retain said arms in their extended or operative position unless the arms are bent forwardly (against the force of the leaf-spring **97**) until the leaf-spring bears against the flat inner ends of the arms, in which position the spring **97** will keep the arms extended parallel to the axis of the hub **81.**

Diametrically opposite slots **98** are provided in the outer end of the hub **81,** to the point at which the outer end of the spiral-groove **86** terminates. These slots **98** are of a width less than the diameter of the bore **82** in the hub **81** and of such width as to accommodate the retainer-block **94.** The plug **96** has a radially-acting spring-loaded detent-ball **99** mounted therein, bearing against the inner surface of the bore **82** in the hub **81,** so as to retain the plug **96** and the outwardly-extended retainer-arms **89** in any desired axially-variable position, namely, in a position in which the retainer-arms bear suitable against the outer face of the tape-roll and confine it neatly between said arms and the flange **88** of the outer hub **87.** See FIGS. **20, 23, 29** and **30.**

A slack-roller **101** is rovolvably mounted upon a pivot **102** mounted to the upper end of the rocker-arm **103,** as indicated in FIGS. **20** and **23.** The rocker-arm **103** is pivoted at **104** to the rear frame-plate **21.** The lower arm **105** of the rocker-arm **103** is provided with a series of holes (FIG. **20**) into one of which the upper end of the helical tension spring **106** is anchored, with the lower end thereof anchored to any suitable spring-anchorage **107** carried by the rear frame-plate **21,** thereby to urge the slack-roller **101** in the direction of the arrow **108.** By looping the tape around the roller **101,** as it passes from the roll thereof on its way to the tape-feed-bed **27** (FIGS. **1, 20** and **23**) a suitable amount of slack is always provided in the tape, between the roll thereof and the feed-fingers (**57** or **58**), so that when the feed-fingers engage the tape and advance it, such advancement will not be opposed by the inertia of the entire tape-roll, but such advancement can be from the slack in the tape.

The printer-arm **131** (FIGS. **5, 7, 8** and **12**) includes two spaced-apart arm portions or webs **131-*a*** and **131-*b*,** and has the pivot-ears or portions **132-*a*** and **132-*b*** at the rear end thereof. The rear end (**132**) of the printer-arm **131** is pivotally mounted ot the top of the rear end of the printer-frame **133,** by means of the pivot **134** which extends through the rear-most pivot-portions **135-*a*** and **135-*b*** of said printer-frame **133.**

The printer-frame **133** includes two spaced-apart longitudinal frame portions **133-*a*** and **133-*b*** at the top thereof, and includes a lower base portion **133-*c*** secured to the base-plate **136.**

A printer-actuator arm **140** is also provided on the pivot **134** (on which the printer-arm is pivoted) and carries the cam-follower-roller **141** (FIGS. **12** and **18**) which rides in the cam-groove or cam-raceway **142** recessed into the left face of the cam-disc **143** carried by

and keyed (or otherwise locked) to the main shift **20.** A connector-rod **145** is operatively interposed between the printer-actuator-arm **140** and the printer-arm **131** as indicated in FIG. **12.** The lower end of the connector-rod **145** is pivoted to the actuator-arm **140** by the pivot **146,** while the upper reduced-diametered end **147** thereof extends through a clearance hole **148** in the horizontal web **149** of the printer-arm **131,** with a relatively stiff compression-spring **150** intervening the lower surface of the web **149** and the shoulder between the main body portion **145** and the reduced-diametered portion **147** of the connector-rod **145.** The upper portion **151** of the reduced-diametered upper extension **147** of the connector-rod **145** is threaded, and an internally threaded bushing **152** is threaded onto the extension **151.** The upper end of the bushing **152** is provided with a slot for receiving a screw-driver or the like, whereby the bushing can be turned for the impression-adjustment thereof in relation to the threaded portion **151** of the connector-rod **145.** The lower end of the bushing **152** rests and bears on the upper flat surface of the washer **153,** whose lower surface is convexly spherical. Such lower spherical surface of the washer **153** in turn rests on and nests in the concavely spherical surface of the lower washer **154.** The lower washer **154** in turn nests in a slight recess in the web **149** of the printer-arm (FIG. **12**). By this means, the slight changes in angularity between the connector-rod **145** and the printer-arm **131** are accomodated without any binding or stressing of the rod or the arm.

An impression-adjusting arm **156,** having a split-collar **157** embracing the bushing **152,** is adjustably secured to the upper end of the internally threaded bushing or sleeve **152** by means of screw **158.** The impression-adjusting arm **156** is so secured on the bushing **152** that the bushing is initially adjusted for the desired print-impression when the arm **156** is in the mid-point of its impression-adjusting sweep (FIGS. **12** and **7**).

A suitable number and suitably spaced-apart detent-engageable shallow recesses **159** are provided in the upper face of the arcuate web **160** (of the printer-arm **131**) which is concentric with the axis of the impression-adjusting-bushing **152** (FIG. **7**). The free end of the impression-adjusting arm **156** sweeps over the upper surface of the web **160** in close proximity thereto and carries a spring-loaded detent-ball **161** (FIG. **12**) of any suitable conventional type, for nesting in any one of the detent-receiving recesses **159,** thereby to maintain the impression-adjusting arm **156** in any one of its selected positions corresponding to the selected recess **159.** By turning the arm **156** in the direction of the plus mark in FIG. **7,** the print-impression is increased, and by turning the arm **156** in the opposite direction, namely, in the direction of the minus sign, the print-impression is decreased. By this means the print-impression may be adjusted to accommodate different thicknesses of the ticket, label or tag stock and also to accommodate different kinds of ink and for other variables involved in the printing.

A helical compression spring **164** is operatively interposed between the printer-actuator arm **140** and the lower printer-frame portion **133-*c***, in the manner indicated in FIGS. **8** and **12,** thereby to urge the cam-follower-roller **141** against the outer surface of the cam-raceway **142,** so as to eliminate any slack or play between the cam-groove or raceway **142** and the printer-actuator-arm **140.** The upper end of the spring **164** is held in place by the pilot **165** carried in a slight recess in the arm **140.** From the point **166** downwardly (FIG. **12**) the spring **164** extends through the cylindrical hole **167** in the lower portion **133-*c*** of the printer-frame **133,** in which hole it is confined (with only working clearance) to prevent the buckling thereof. The lower end of the spring **164** rests on a screw-plug **168** threaded with the lower end of the hole **167** and having a suitable recess for engagement by a screw-driver or an allen wrench, whereby it can be turned for adjusting or varying the amount of compression of the spring **164.**

To the two spaced apart parallel upper printer-arm members **131-*a*** and **131-*b*** (FIG. **7**) a pair of facing channel-cross-sectioned inker-guide members **170-*a*** and **170-*b*** are secured, by the screws **171.**

An inker-slide **172** has its opposite sides slidably nested in the guide-channels **170-*a*** and **170-*b*** and is reciprocally therein in a fore-and aft direction.

A suitable shallow recess is provided in the upper surface of the front end of the ink-slide **172,** and an upwardly-facing inking-pad **173** nested therein (FIGS. **10,** 11 and **7**).

A pivot-bracket **174,** including an upper horizontal portion **175** and a downwardly extending right-angular portion **176** (FIGS. **7** and **10**) is secured to the inker-slide **172** by means of screws **177.** The lower downwardly-extending bracket-portion **176** extends through the opening **178** in the inker-slide **172** (FIG. **7**) through the front end of which opening the connector-rod **145** extends.

In the right-side face of the cam-disc **143** a cam-groove or raceway **179** is provided (FIG. **10**) for actuating the inker-slide **172** and also for actuating the digital counter **180** (FIG. **5**).

A cam-follower lever **181** is pivotedly mounted at its lower end on the pivot **182** carried by the printer-frame **133-*c*** secured to the frame. The cam-follower-lever **181** carries a cam-follower roller **184** which rides in cam-raceway **179,** to oscillate the arm **181** in a fore-and-aft direction. In the embodiment shown in FIG. **10,** the upper end of the arm **181** is connected to the lower portion **176** of the pivot-bracket of the inker-slide by means of the link **185** pivoted at **186** and **187.** By this means the inking-pad **173** is projected forwardly into operative juxtaposition to type-chase or other printing means carried by the printer-arm **131,** just long enough for the type faces to make inking contact with the ink-pad **173** at the bottom of the downward inking stroke of the printer-arm **131** effected by the short inking-stroke portion **189** of the cam-raceway **142** (FIG. **12**); the inking raceway **179** and the raceway **142** being so angularly disposed in relation to each other that the inking portion **190** of the raceway **179** will maintain the inking-pad **173** in its inking position just long enough for the type faces to make contact therewith, and then the raceway **179** immediately returns the inking pad to its retracted position. Thereafter the print-impression portion **191** of the printing raceway **142** lowers the printer-arm and maintains it in the printing-impression position long enough to make a satisfactory print impression. Thereafter the printer-arm is raised again.

The printer-head **195** is provided with a pair of chase-guides for receiving type-carrying chase **202.** In the alternative, the printer-arm **131** may carry any other kind of variable type means, as, for instance, a band-printer head or the like. The printer-head **195** or

the band-printer is detachably mounted to the printer-arm **131** through the mounting block **199** shown in FIGS. **5, 12, 13, 13A** and **14** described hereinafter.

Block **7** is secured to the top of the front portion of the printer-frame member **133-*c*** for supporting the print-impression pad or platen **205** and for supporting the tape-cutter, as indicated in FIGS. **4, 5, 8, 15, 16, 17.** In a recess in the upper face of set block **7**, a print-impression pad **7-*a*** is nested, as indicated in FIG. **16.**

A cutter-assembly (shown in FIGS. **8** and **15–17**) is slidably mounted to the impression-block **7**, so that it can be adjustably moved laterally in relation to the block **7**, parallel to the direction of tape-travel, whereby its cut-off line may be variably spaced from the printing area or print-impression on the label, ticket or tag, according to the length of the latter and according to the location of the print-impression thereon in relation to the leading and trailing edges thereof. The cutter-assembly can also be completely removed without disturbing any of the cutter-actuating linkage; as when the labels, tickets or tags are to be separated by means other than cutting.

The cutter-assembly includes the laterally-movable vertical cutter-assembly block **207**, which is parallel to the left vertical face of the impression-block **7**, and can be spaced therefrom any suitable distance within the range of adjustment provided therefor, as described hereinafter in relation to FIGS. **15** to **17.**

The block **207** is adjustably supported by the knife-pivot-sleeve **208** which is slidably mounted in horizontal bore **209** in the impression-block **7** and also by the guide-rod **210** which is slidably mounted in a corresponding bore **211** in the block **7.** An adjustment-screw **212,** having an outer turn-knob **213** detachably secured thereto, extends through the cutter-assembly block **207**; with the block confined between the shoulder between the two differently diametered portions **212** and **214** thereof and the spring-washer **216** which is held in place by the locked nuts **217** on the threaded portion **212.** The screw **212** is threaded into a threaded opening **220** in the block **7**, so that by turning knob **213**, the cutter-assembly block **207** can be optionally moved towards or away from the print-impression-block **7** for variably locating the cut-off line of the knife in relation to the printed matter on the label, ticket or tag. The stationary knife **221** is secured to the left vertical face of the block **207** by means of the screws **222.**

The rocker-arm **224** (to the upper arm **225** of which the moveable cutter-blade or knife **226** is secured by screws), is riveted or otherwise fixedly secured to the outer end **227** of the knife-pivot **228,** as indicated in FIG. **17.** The knife-pivot **228** is journalled in the sleeve **208** which is slidably mounted in the bore **209** of the impression-block **7.** A helical compression spring **230** between a spring-anchorage ring **231** (on the inner end of knife-pivot **228**) and the inner end of the sleeve **208** serves to keep the movable knife **226** bearing against the stationary knife **221.**

The outer portion **214** of the adjustment-screw **212** extends through an arcuately elongated clearance-hole **229** (centered on the pivot **228**) in the lower arm **233** of the rocker-arm **224.**

The lower arm **233** of rocker-arm **224** carries a pivot **234** to which the link **235** is pivoted, as indicated in FIGS. **8, 9** and **16.** The other end of the link **235** is pivoted to the end of the arm **236** by the pivot **232.** The arm **236** is pinned or otherwise fixedly secured to the outer end of the cutter-drive shaft **237** which is slidably mounted in and keyed to the sleeve **238.** The sleeve **238** is journalled in the bearing-sleeve **239** mounted in the printer-frame-portion **133-*c***. The outer reduced-diametered end of the drive-shaft **237** passes through a clearance-hole in the vertical cutter-assembly block **207** (FIG. **16**).

An arm **240** is clampingly mounted on the outer end of the sleeve **238** by means of its split-collar **254** embracing the sleeve **238** and tightened thereon by a screw **259,** as indicated in FIGS. **8, 9, 15, 16** and **17.** The lower end of the arm **240** carries a pin **241** which is adapted to nest in the upwardly-open notch **242** when the latter is raised by the lever **250** with its position shown in FIGS. **8** and **9** and which becomes free of the link **243** when the latter is lowered by the lever **250.** The cutter-drive-link **243** has its rear end pivoted at **244** to the upper end of the cam-follower-lever **245,** whose lower end is pivoted at **246** to the printer-frame **133-*c***. The lever **245** carries the cam-follower-roller **247** which bears against the outer surface of the cutter-cam **248** on the main shaft **20** and is held in contact therewith by the spring **249** whose one end is secured to the lever **245** and whose other end is anchored to the frame. The front end of the cutter-drive-link to **243** is optionally raised or lowered by means of lever **250** which is pivoted to the frame at **251** and carrying a roller **252** which rides in the arcuate slot **253** in the drive-link **243.** By rising the outer end of the lever **250,** the drive-link **243** is raised so that the notch **242** thereof operatively inter-engages with the pin **241,** causing thereby the drive-link **243** to actuate the cutter-linkage (**240, 236, 235, 244**) and the movable knife (**226**). When the lever **250** is lowered, the notch **242** thereof is disengaged from the pin **241** and the cutter is rendered inoperative. The retracted position of knife is adjusted by adjusting the split-collar **254** (of arm **240**) on the sleeve **238.**

A tension spring **255** is operatively interposed between the arm **240** and the stationary spring-anchorage **256,** so as to pull the arm **240** against stop **257** carried by the adjustable plate **258,** whereby the position of the stop **257** may be adjusted so as to align the pin **241** with the notch **242.**

A conventional single-revolution clutch **261** (shown in FIGS. **4, 6, 19** and **37**) is mounted on the main shaft **20.** The trip-lever **262** of the clutch **261** is pivoted on the vertical pivot **263** and is operated through the forwardly-extending lever **264** thereof. To the pivot **265** on the outer end of the lever **264** the right-hand end of the cycle-bar **266** is pivoted. The left-hand end of the cycle-bar **266** is pivoted at **267** to the outer end of a support-lever **268** which is pivoted at **269,** thereby supporting the cycle-bar **266** for a straight-line lateral movement (the lengths of arms or levers **264** and **268** being equal).

The cycle-bar carries a knob **270,** by which the clutch **261** may be operated manually, by moving the knob **270** momentarily to the left, thereby obtaining a single lable, ticket or tag. By manually keeping the knob **270** to the left, any number of labels, tickets or tags can be delivered.

The cycle-bar **266** has a vertical cam-plate **271** at the left end thereof. The right-hand edge **272** of the cam-plate is adapted to be engaged by the trip-lever **273** of the counter **180** whenever the counter is set for a desired number of labels, tickets or tags, until the selected

number thereof has been printed and paid out by the machine. In order to govern or control the clutch by means of the counter **180,** the counter is set by means of its units dial **275,** its tens dial **276** and its hundreds dial **277** to the desired count, and then the cycle-bar **266** is moved manually to the left until the trip-lever **273** of the counter **180** rides up over the left-hand edge of the cam-plate **271** and drops onto the right-hand edge **272** thereof and thereby keeps the cycle-bar from moving to the right until the desired count has been reached.

The printer-head **195** is pivoted on a removeable pivot-pin **197** which extends through the rearwardly extending pivot-ears **196** of the printer-head at **195** and through the similarly rearwardly extending pivot-ears **198** of the printer-head-mounting member **199.** The printer-head-mounting member **199** is secured to the front vertical face of the printer-arm **131** by means of the headed screws **204** which extends through vertically elongated slots in the member **199,** so that the member may be vertically adjusted in relation to the printer-arm **131.** The heads of the screws **204** nest in correspondingly elongated recesses surrounding the screw-holes, as indicated in FIGS. **8, 12** and **13.**

A latch-plunger or rod **205** is slidably mounted in a vertical hole **206** in the central portion **218** of the printing-head-mounting member **199,** and has a press-bar **219** secured to its upper end. A compression spring **223** is mounted on the latch-rod **205** between the press-bar **219** and the upper surface of the central portion **218** of the printer-head-mounting member **199.** A latching-head **200** is provided on the lower end of the latch-rod **205.**

A latch-plate or keeper-plate **215** is secured to the bottom of the printer-head **195** by screws (as indicated in FIGS. **8, 12, 13** and **14**). The keeper-plate **215** has a keyhole-shape opening therein as indicated in FIG. **13A.** The rear straight portion of the keyhole is open rearwardly and is of a width just sufficient to permit the main body of the latch-rod **205** to pass through it, while the front circular portion of the keyhole is just sufficiently large to permit the round head **200** of the latch-rod **205** to nest therein with a neat fit. By nesting the head **200** in the front round part of the keyhole, the lower portion of the printer-head **195** is firmly latched to the lower portion of the mounting member **199** while the upper portion of the printer-head **195** is retained on the pivot **197.** To detach the printer-head **195,** it is only necessary to depress the bar **219** sufficiently to place the head **200** of the latch-rod **205** below the latch-plate **215,** whereupon the printer-head **195** can be swung outwardly or forwardly (about the pivot **197**). While so swung forwardly, the pivot **197** is pulled out, thereby completely detaching the printer-head **195** from the mounting member **199.** By the reverse sequence of operations, the printer-head **195** can be re-attached to the mounting member **199.** A band printer head may be similarly mounted to the mounting member **199** for ready attachment to and detachment from the printer-arm **131.**

FIG. **34, 35** and **36** illustrate a modified embodiment or variant use of the machine of the present, in which the machine can be operated mutually. In such case the start-and-stop switch **280** is removed from the front-panel **281,** and through the empty switch-mounting hole in the front panel **281** the operating-shaft **283** is extended. A hand-wheel **284,** having a handle **285** thereon is mounted on the outer end of the mutually-operating shaft **283,** in front of the front panel **281.** The shaft **283** is journaled in the bracket **286,** and on its inner end a beveled gear **287** is mounted, which meshes with a corresponding beveled gear **288** mounted on the mainshaft **20.**

While in the following claims reference is made only to a ticket or to tickets, it should be understood that by such reference it is intended to also encompass labels and tags.

We claim:

1. A ticket printing machine including

(P) a unitary printer portion and

(M) a readily attachable and detachable unitary ticket-feeder magazine portion, and

(Q) means for permitting the quick interconnection of the printer portion and the ticket-feeder magazine portion in operative juxtaposition to each other and for permitting the quick disconnection of said portions from each other,

said printer portion (P) including

(P-1) a print-impression platen and

(P-2) a printer-head in operative, juxtaposition thereto for carrying type, and

(P-3) cyclical ticket-feeder drive-means adapted for operative engagement with the below-mentioned driven member (M-5),

said ticket-feeder magazine (M) including

(M-1) a ticket-supply holder and

(M-2) a ticket-feeder arranged intermittently to feed successive tickets from said ticket-supply-holder to said print-impression platen, and

(M-3) means for longitudinally adjusting said ticket-feeder so as to locate the successive tickets fed thereby in operative juxtaposition to the type carried by said printer-head, and

(M-4) lateral-guiding means and means for permitting the lateral adjustment thereof for laterally locating the tickets in operative alignment with the type carried by said printer-head, and

(M-5) a driven member associated with said ticket-feeder and arranged for operative engagement with the aforementioned ticket-feeder drive-means (P-3) when the ticket-feeder magazine portion is operatively interconnected with the printer portion.

2. A ticket printing machine including

(P) a unitary printer portion and

(M) a readily attachable and detachable unitary ticket-tape-feeder magazine portion, and

(Q) means for permitting the quick interconnection of the printer portion and the ticket-feeder magazine portion in operative juxtaposition to each other and for permitting the quick disconnection of said portions from each other,

said printer portion (P) including

(P-1) a print-impression platen and

(P-2) a printer-head in operative juxtaposition thereto for carrying type, and

(P-3) cyclical tape-feeder drive-means adapted for operative engagement with the below-mentioned driven member (M-5),

said tape-feeder magazine (M) including

(M-1) a ticket-tape holder and

(M-2) a tape-feeder arranged intermittently to feed successive ticket-lengths of the tape from the roll thereof to said print-impression platen, and said

tape in operative juxtaposition to the type carried by said printer-head, and

(M-4) lateral tape-guiding means and means for permitting the lateral adjustment thereof for laterally locating the tape in operative alignment with the type carried by said printer-head, and

(M-5) a driven member with said tape-feeder and arranged for operative engagement with the aforementioned tape-feeder drive-means (P-3) when the tape-feeder magazine portion is operatively interconnected with the printer portion.

3. A ticket printing machine according to claim 2, including a tape-cutter having a stationary knife and a movable knife and means for cyclically actuating the movable knife in synchronism with the cyclical tape-feed drive-means, said tape-cutter being adjustable in a direction parallel with the tape-travel path for varying the distance of the cut-off line in relation to the print-impression platen.

4. A ticket printing machine including

(P) a unitary printer portion and

(M) a readily attachable and detachable unitary ticket-feeder magazine portion, and

(Q) means for permitting the quick interconnection of the printer portion and the ticket-feeder magazine portion in operative juxtaposition to each other and for permitting the quick disconnection of said portions from each other,

said printer portion (P) including

(P-1) a print-impression platen and

(P-2) a printer-head in operative juxtaposition thereto for carrying type, and

(P-3) cyclical ticket-feeder drive-means adapted optionally to impart any one of several different lengths of feeder-motion to the below-mentioned driven member (M-5),

said ticket-feeder magazine (M) including

(M-1) a ticket-supply holder and

(M-2) a ticket-feeder arranged intermittently to feed successive tickets in a rectilinear path from said ticket-supply-holder to said print-impression platen, and

(M-3) means for longitudinally adjusting said ticket-feeder for different ticket-lengths so as to enable it to locate tickets of different lengths in operative juxtaposition to the type carried by said printer-head, and

(M-4) lateral ticket-guiding means and means for permitting the lateral adjustment thereof for laterally locating the tickets in operative alignment with the type carried by said printer-head, and

(M-5) a driven member associated with said ticket-feeder and arranged for alternative operative engagements with the aforementioned ticket-feeder drive-means (P-3) for alternative lengths of feeder-motions when the ticket-feeder magazine portion is operatively interconnected with the printer portion.

5. A ticket printing machine including

(P) a unitary printer portion and

(M) a readily attachable and detachable unitary ticket-tape-feeder magazine portion, and

(Q) means for permitting the quick interconnection of the printer portion and the ticket-feeder magazine portion in operative juxtaposition to each other and for permitting the quick disconnection of said portions from each other,

said printer portion (P) including

(P-1) a print-impression platen and

(P-2) a printer-head in operative juxtaposition thereto for carrying type, and

(P-3) cyclical tape-feeder drive-means adapted optionally to impart any one of several different lengths of feeder-motion to the below-mentioned driven member (M-5),

said tape-feeder magagine (M) including

(M-1) a ticket-tape holder and

(M-2) a tape-feeder arranged intermittently to feed successive ticket-lengths of tape from the roll in said ticket-tape-roll holder to said print-impression platen, and

(M-3) means for longitudinally adjusting said tape-feeder for different ticket-lengths of tape, so as to enable it to locate tickets of different lengths in operative juxtaposition to the type carried by said printer-head, and

(M-4) lateral tape-guiding means and means for permitting the lateral adjustment thereof for laterally locating the tape in operative alignment with the type carried by said printer-head, and

(M-5) a driven member associated with said tape-feeder and arranged for allternative operative engagements with the aforementioned tape-feeder drive-means (P-3) for alternative lengths of feeder-motions when the tape-feeder magazine portion is operatively interconnected with the printer portion.

6. A ticket printing machine according to claim 5, including a tape-cutter having a stationary knife and a movable knife and means for cyclically actuating the movable knife in synchronism with the cyclical tape-feed drive-means, said tape-cutter being adjustable in a direction parallel with the tape-travel path for varying the distance of the cut-off line in relation to the print-impression platen.

7. A ticket printing machine including

(P) a unitary printer portion and

(M) a readily attachable and detachable unitary ticket-feeder magazine portion, and

said printer portion (P) including

(P-1) a print-impression platen

(P-2) a printer-head in operative juxtaposition thereto for carrying type, and means for cyclically moving said printer-head through successive printing strokes thereof,

(P-3) cyclical ticket-feeder drive-means synchronized with the strokes of the printer-head and adapted for operative engagement with the below-mentioned driven member (M-5) and for imparting feeder-motion to the below-mentioned ticket-feeder (M-2), and

(P-4) means for supporting the below-mentioned ticket-feeder (M-2),

said ticket-feeder magazine (M) including

(M-1) a ticket-supply holder and

(M-2) a ticket-feeder extending laterally from said holder and resting on said support (P-4) and arranged to intermittently feed successive tickets from said ticket-supply-holder to said print-impression platen, and

(M-3) means for longitudinally adjusting said ticket-feeder so as to locate the successive tickets fed thereby in operative juxtaposition to the type carried by said printer-head, and

(M-4) lateral ticket-guiding means and means for permitting the lateral adjustment thereof for laterally locating the tickets in operative alignment with the type carried by said printer-head, and

(M-5) a driven member associated with said ticket-feeder and arranged for operative engagement with the aforementioned ticket-feeder drive-means (P-3) when the ticket-feeder magazine portion is operatively interconnected with the printer portion, and

quick-connect and quick-disconnect means for holding said ticket-feeder (M-2) to the aforementioned support (P-4) and for preventing its horizontal displacement thereon.

8. A ticket printing machine including

(P) a unitary printer portion and

(M) a readily attachable and detachable unitary ticket-tape-feeder magazine portion,

said printer portion (P) including

(P-1) a print-impression platen and

(P-2) a printer-head in operative juxtaposition thereto for carrying type, and

(P-3) cyclical tape-feeder drive-means adapted for operative engagement with the below-mentioned driven member (M-5) and for imparting feeder-motion to the below-mentioned tape-feeder (M-2), and

(P-4) means for supporting the below-mentioned tape-feeder (M-2),

said tape-feeder magazine (M) including

(M-1) a ticket-tape holder and

(M-2) a tape-feeder extending outwardly from said tape holder and resting on said support (P-4) and arranged to intermittently feed successive ticket-lengths of the tape from said tape-roll holder to said print-impression platen, and

(M-5) a driven member associated with said tape-feeder and arranged for operative engagement with the aforementioned tape-feeder drive-means (P-3) when the tape-feeder magazine portion is operatively interconnected with the printer portion, and

quick-connect and quick-disconnect means for holding said ticket-feeder (M-2) to the aforementioned support (P-4) and for preventing its horizontal displacement thereon.

9. A ticket printing machine according to claim **8,** including a tape-cutter having a stationary knife and a movable knife and means for cyclically actuating the movable knife in synchronism with the cyclical tape-feed drive-means, said tape-cutter being adjustable in a direction parallel with the tape-travel path for varying the distance of the cut-off line in relation to the print-impression platen.

10. A unitary ticket-printer adapted to have any one of several interchangeable and quick-attachable and quick-detachable unitary ticket-supply-and-feeder magazines optionally mounted thereto and demounted therefrom, which magazines include a ticket-feeder driven-member arranged to be operatively interengaged with the below-mentioned ticket-feed driving means of the ticket-printer, said ticket-printer including a print-impression platen, a printer-head in operative juxtaposition thereto for carrying type, and means for cycling said printer-head through printing cycles, said ticket-printer further including ticket-feed driving-means synchronized with the printing cycle thereof and arranged to actuate the ticket-feeder of such magazine when the magazine is operatively mounted to the ticket-printer; said ticket-printer including means for quick-attachable and quick-detachable engagement with one of said magazines.

11. A ticket-printer according to claim **10,** including means to support the magazine by having the tape-feeder thereof rest thereon, and quick-connect and quick-disconnect means for holding such tape-feeder to said support and for preventing its horizontal displacement thereon.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 3,908,544

DATED : September 30, 1975

INVENTOR(S) : Maximilian R. Seidl, Joachim Seidl & Walton M. Henry

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Claim 2: A ticket printing machine including
(P) a unitary printer portion and
(M) a readily attachable and detachable unitary ticket-tape-feeder magazine portion, and
(Q) means for permitting the quick interconnection of the printer portion and the ticket-feeder magazine portion in operative juxtaposition to each other and for permitting the quick disconnection of said portions from each other,
said printer portion (P) including
(P-1) a print-impression platen and
(P-2) a printer-head in operative juxtaposition thereto for carrying type, and
(P-3) cyclical tape-feeder drive-means adapted for operative engagement with the below-mentioned driven member (M-5),
said tape-feeder magazine (M) including
(M-1) a ticket-tape holder and
(M-2) a tape-feeder arranged intermittently to feed successive ticket-lengths of the tape from the roll thereof to said print-impression platen, and said tape in operative juxtaposition to the type carried by said printer-head, and
(M-4) lateral tape-guiding means and means for permitting the lateral adjustment thereof for laterally locating the tape in operative alignment with the type carried by said printer-head, and
(M-5) a driven member associated with said tape-feeder and arranged for operative engagement with the aforementioned tape-feeder drive-means (P-3) when the tape-feeder magazine portion is operatively interconnected with the printer portion.

Signed and Sealed this

thirteenth Day of *April 1976*

[SEAL]

Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents and Trademarks