June 1, 1937. T. R. GAUTIER 2,082,733

GUMMED TAPE DISPENSER

Filed Nov. 29, 1933 8 Sheets-Sheet 1

Fig. 2.

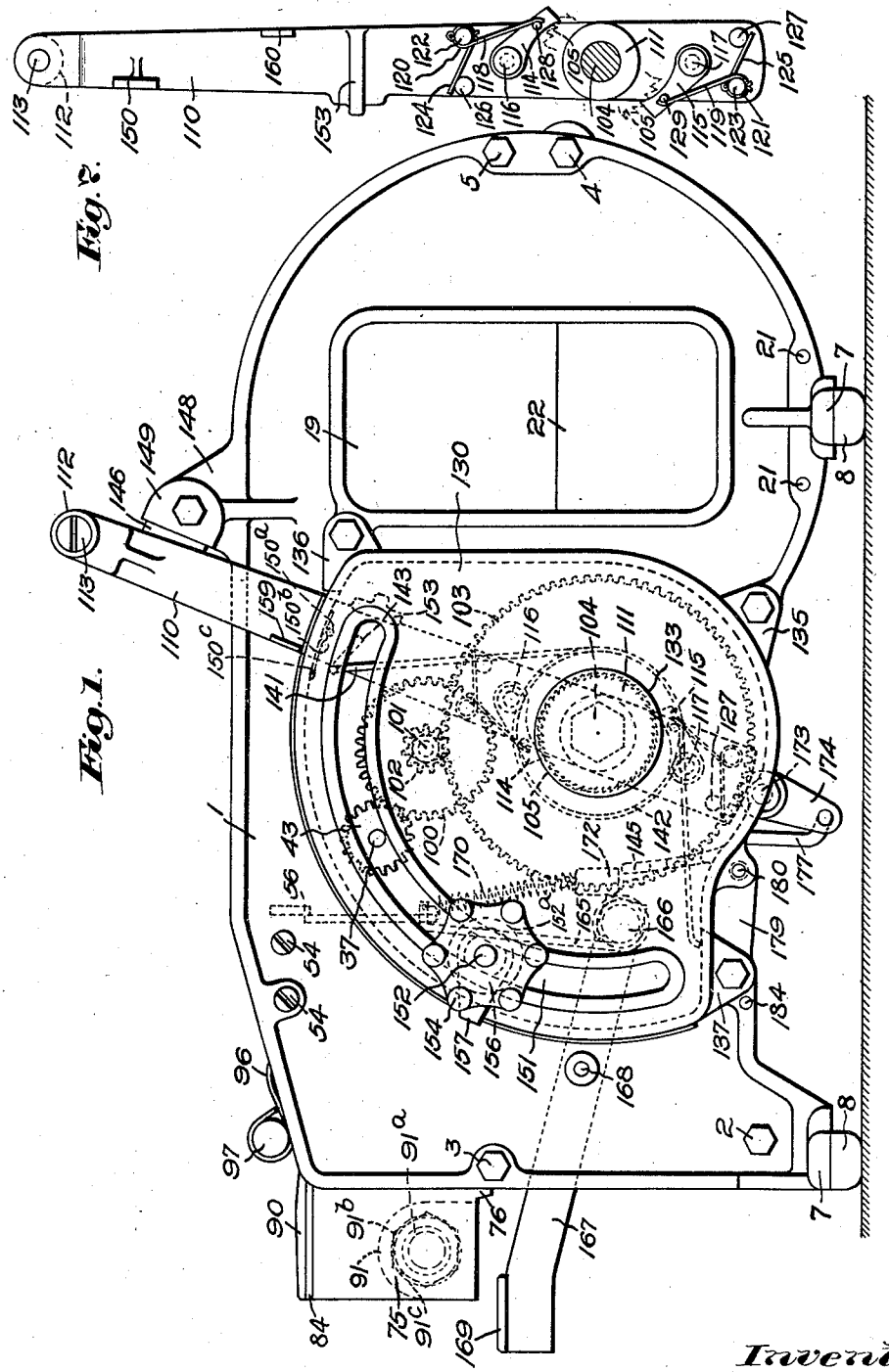


Fig. 1.

Inventor:
Trevor R. Gautier,
by Emery, Booth, Varney and Townsend
Attys.

June 1, 1937. T. R. GAUTIER 2,082,733

GUMMED TAPE DISPENSER

Filed Nov. 29, 1933 8 Sheets-Sheet 2

Fig. 2a.

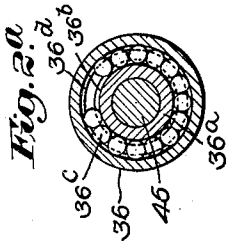
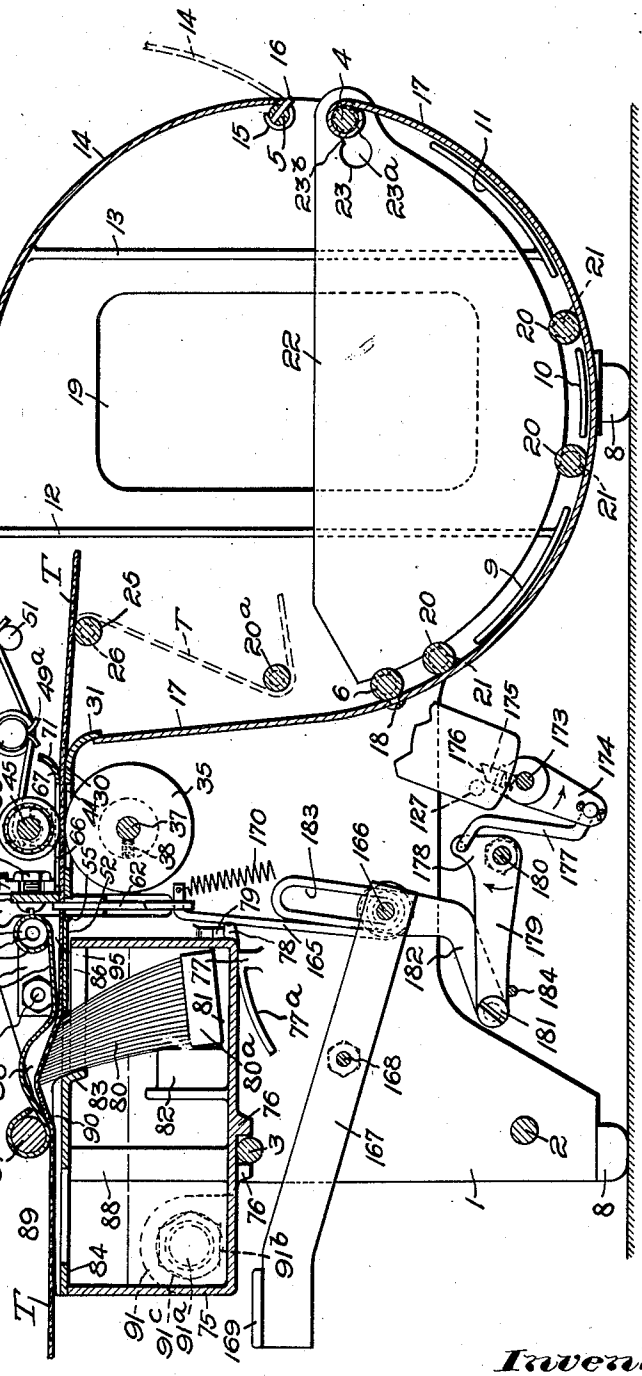


Fig. 2.



Inventor:
Trevor R. Gautier,
by Emery, Booth, Varney and Townsend
Attys

June 1, 1937. T. R. GAUTIER 2,082,733

GUMMED TAPE DISPENSER

Filed Nov. 29, 1933 8 Sheets-Sheet 3

Fig. 3.

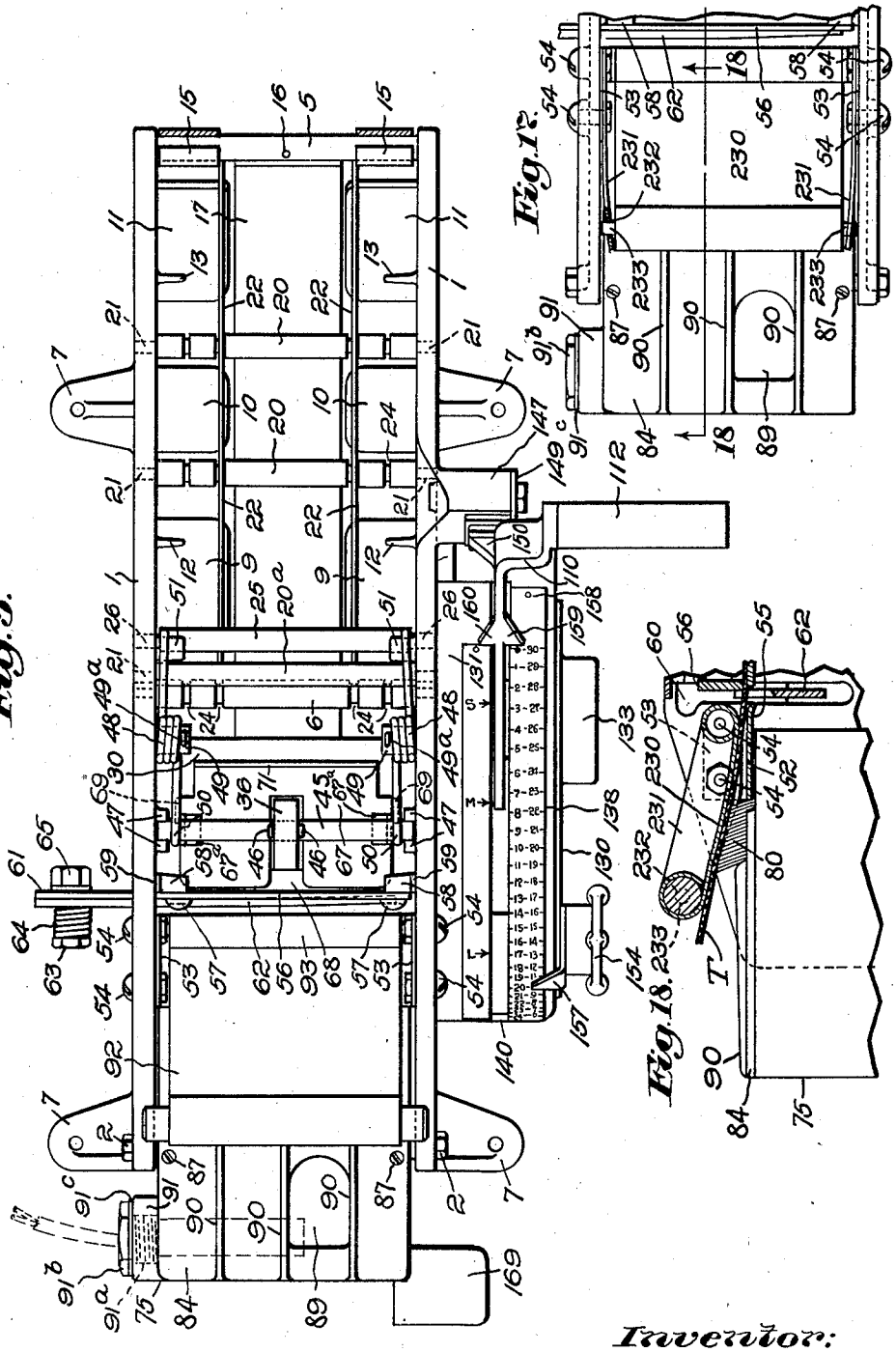


Fig. 17.

Fig. 18.

Inventor:
Trevor R. Gautier.
by Emery, Booth, Varney and Townsend
Attys.

June 1, 1937. T. R. GAUTIER 2,082,733

GUMMED TAPE DISPENSER

Filed Nov. 29, 1933 8 Sheets-Sheet 4

Fig. 5.

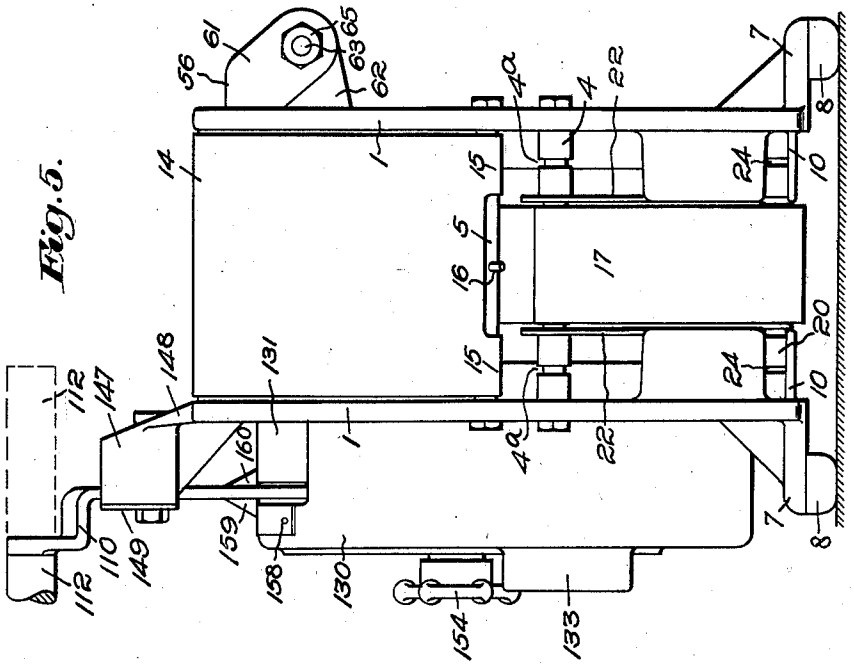
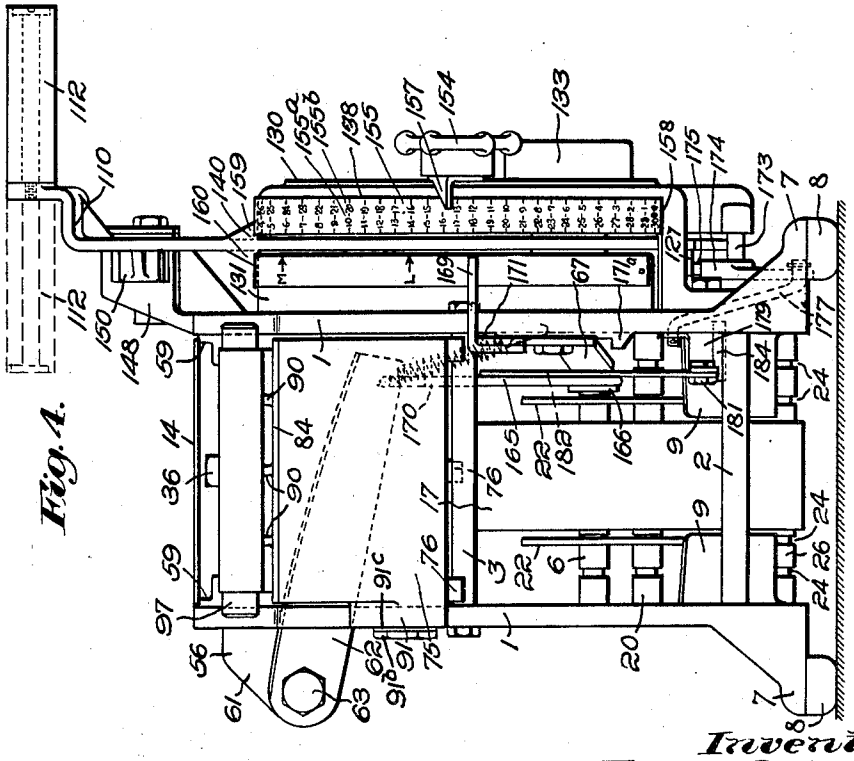


Fig. 4.



Inventor:
Trevor R. Gautier,
by Emery, Booth, Varney and Townsend
Attys.

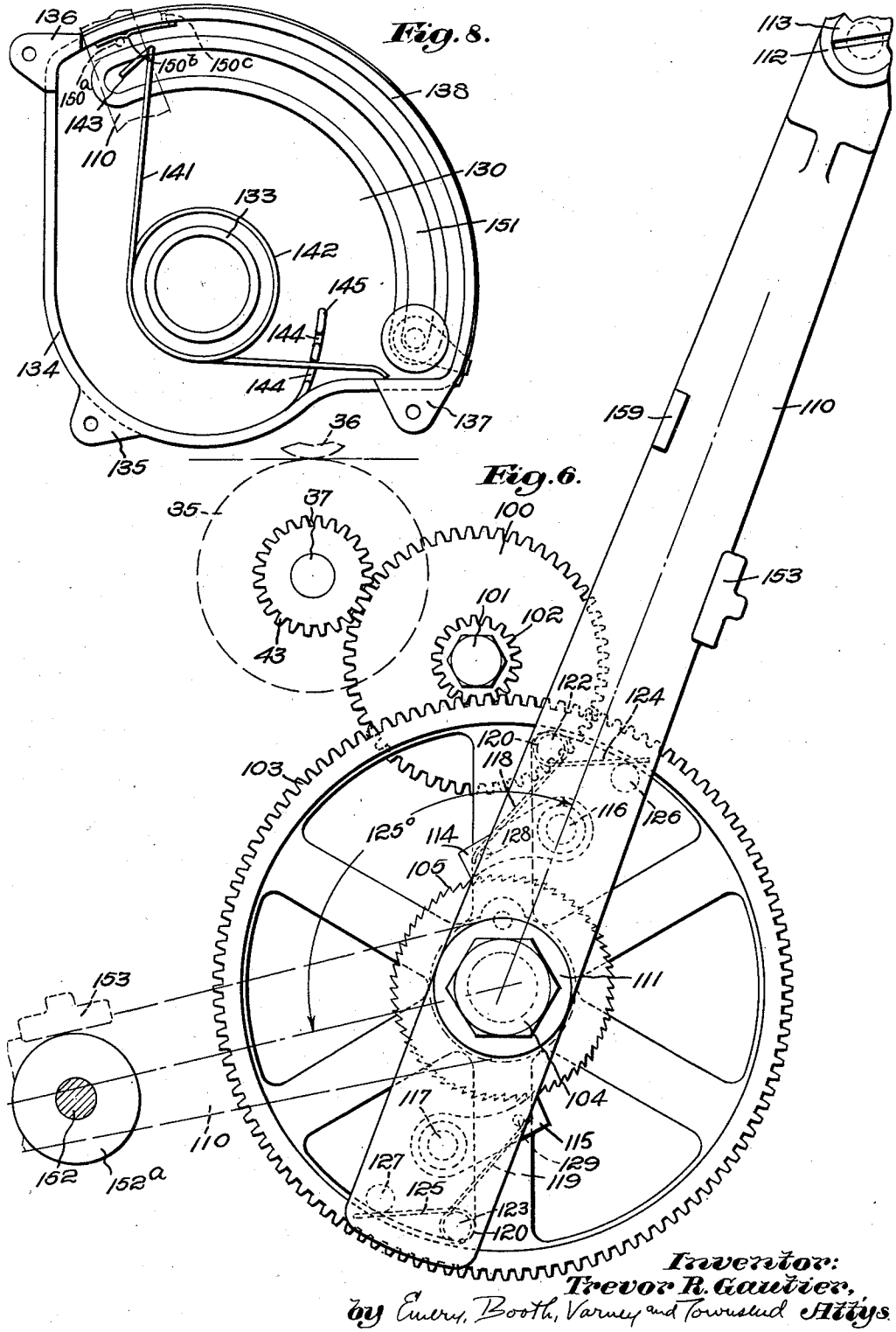
June 1, 1937. T. R. GAUTIER 2,082,733

GUMMED TAPE DISPENSER

Filed Nov. 29, 1933 8 Sheets-Sheet 5

Fig. 8.

Fig. 6.



Inventor:
Trevor R. Gautier.
by Emery, Booth, Varney and Townsend Attys.

June 1, 1937. T. R. GAUTIER 2,082,733

GUMMED TAPE DISPENSER

Filed Nov. 29, 1933 8 Sheets-Sheet 6

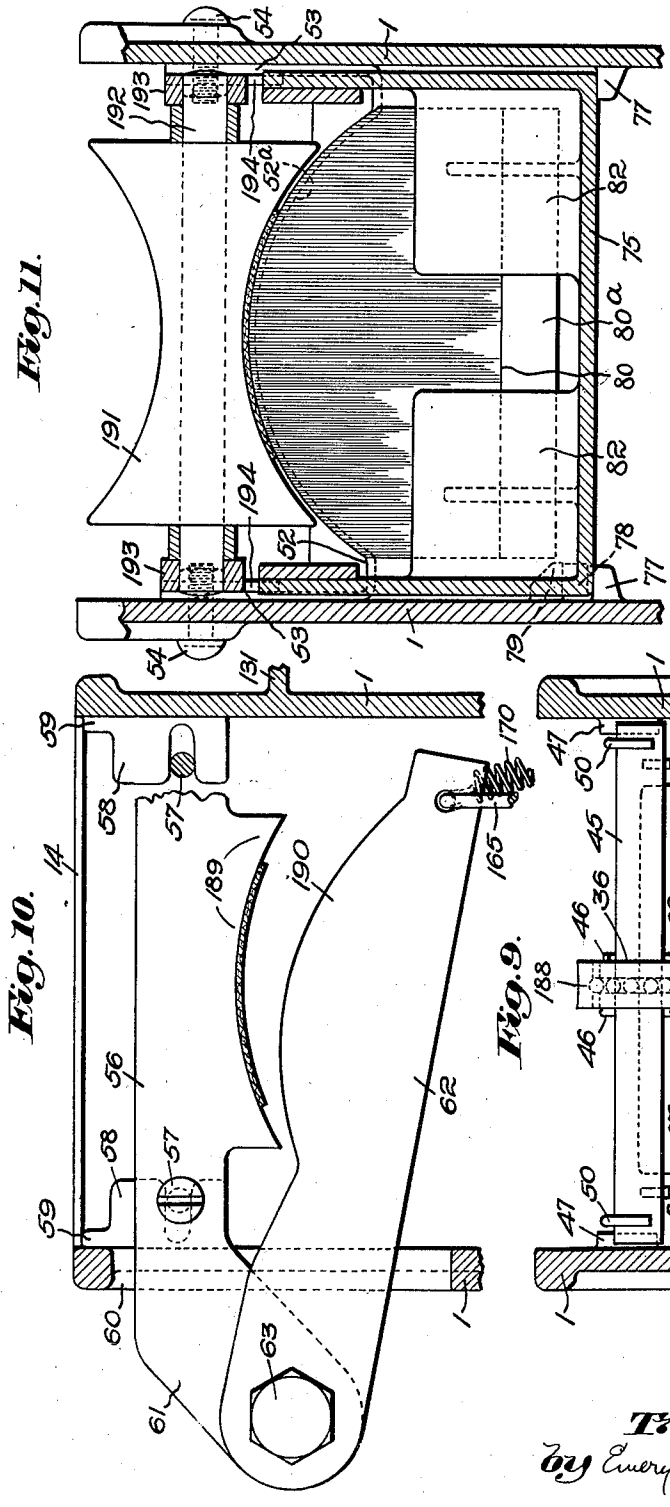


Fig. 11.

Fig. 10.

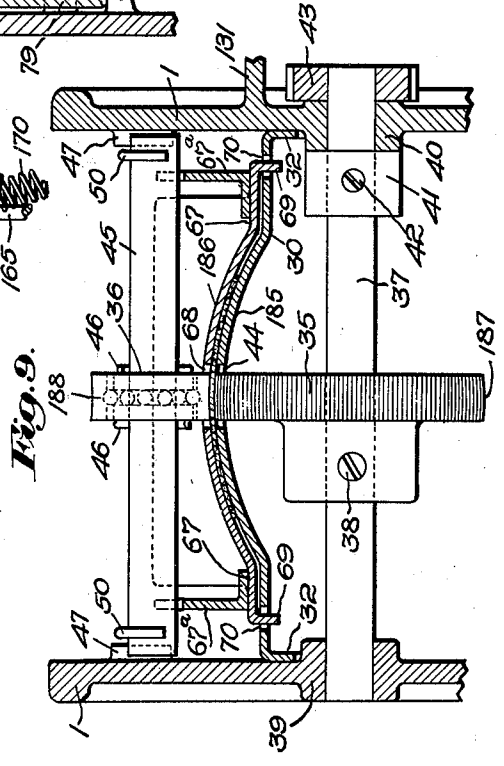


Fig. 9.

Inventor:
Trevor R. Gautier,
by Emery, Booth, Varney and Townsend
Attys.

June 1, 1937. T. R. GAUTIER 2,082,733

GUMMED TAPE DISPENSER

Filed Nov. 29, 1933 8 Sheets-Sheet 7

Fig. 12.

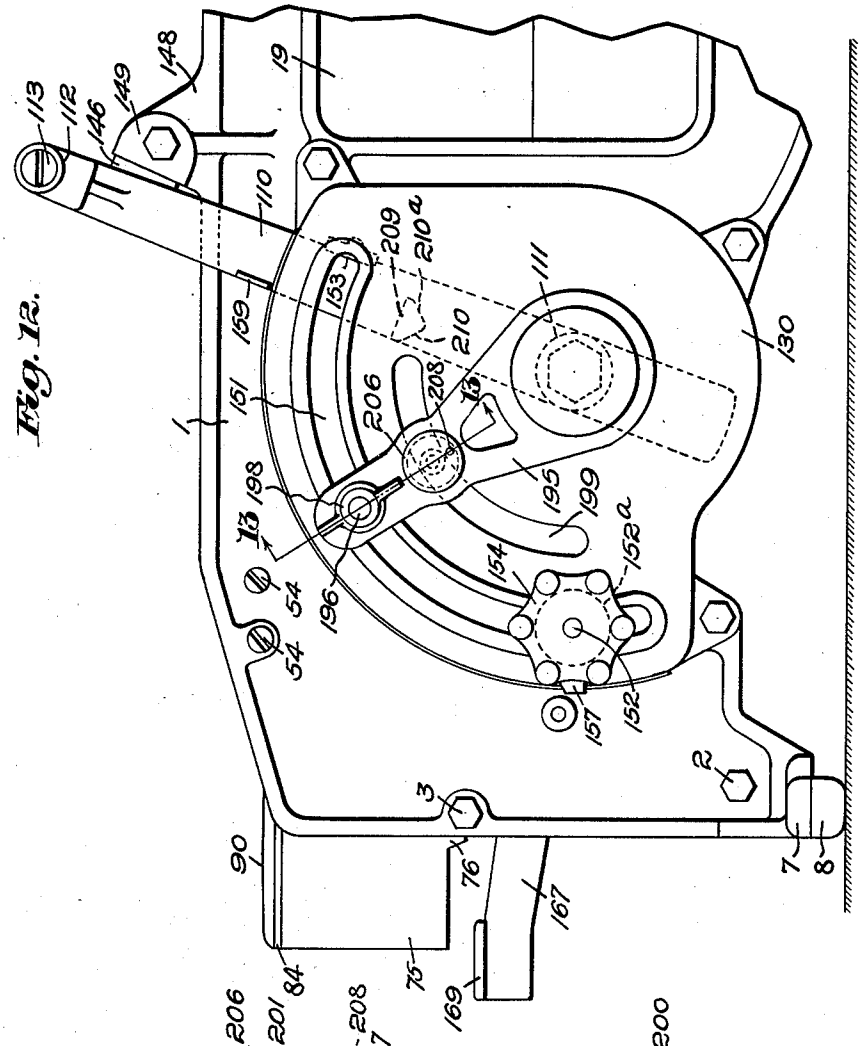


Fig. 13.

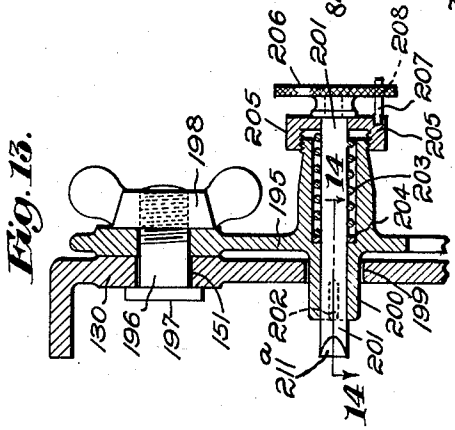
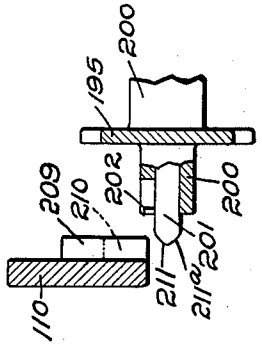


Fig. 14.



Trevor R. Gautier,
by Emery, Booth, Varney and Townsend
Attys

June 1, 1937. T. R. GAUTIER 2,082,733

GUMMED TAPE DISPENSER

Filed Nov. 29, 1933 8 Sheets-Sheet 8

Fig. 15.

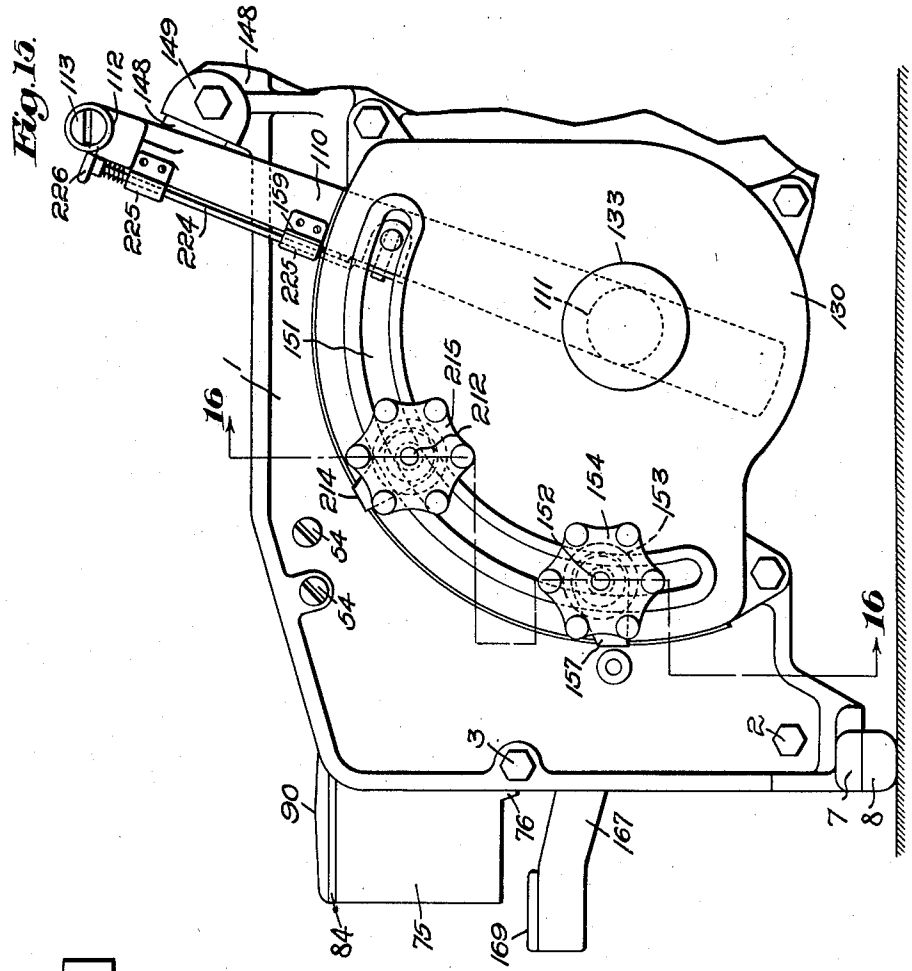
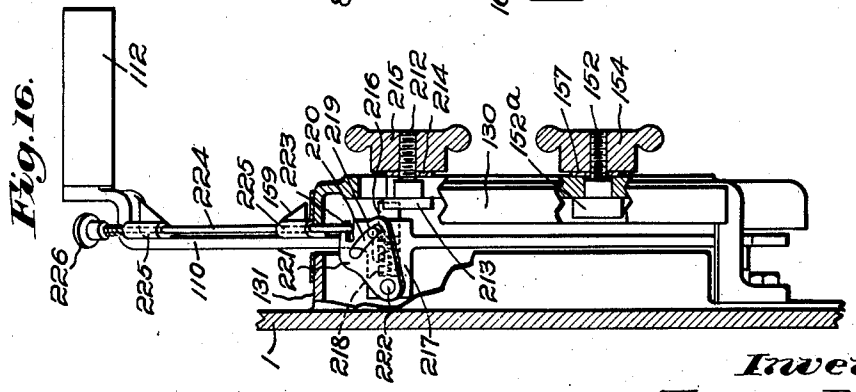


Fig. 16.



Inventor:
Trevor R. Gautier,
by Emery, Booth, Varney & Townsend
Attys

Patented June 1, 1937

2,082,733

UNITED STATES PATENT OFFICE

2,082,733

GUMMED TAPE DISPENSER

Trevor R. Gautier, Nashua, N. H., assignor to Nashua Gummed and Coated Paper Company, Nashua, N. H., a corporation of Massachusetts

Application November 29, 1933, Serial No. 700,235

22 Claims. (Cl. 91—14.5)

The present invention relates to means for dispensing gummed tape, as for package sealing, wrapping and similar purposes, and more particularly aims to provide an improved apparatus for the purpose stated, having ease and rapidity in operation and which enables the operator, such as a packer in a shipping room, readily to obtain any desired positive length of the tape or strip material, in moistened condition for application to a package, shipping container or the like. In various respects my present invention represents improvements over those of my Patent No. 1,540,724, dated June 2, 1925, and my Patent No. 1,568,506, dated January 5, 1926, various of its features being applicable to machines of the type of said patents, as well as to other tape dispensers.

In the drawings, illustrating by way of example certain embodiments of the invention,

Fig. 1 is a right side elevation of one form of machine in accordance with the invention;

Fig. 2 is a longitudinal vertical section through the machine of Fig 1;

Fig. 2a is an enlarged section showing the upper feed unit;

Fig. 3 is a plan, with the top cover cut away;

Figs. 4 and 5 are front and rear elevations respectively;

Fig. 6 is an enlarged elevation of the feeding means and its operating connections;

Fig. 7, on the sheet with Fig. 1, is a side elevation of the operating lever, as viewed from the inside;

Fig. 8 is an inside elevation of the housing or cover for the feed operating mechanism;

Figs. 9, 10 and 11 are vertical cross sectional views, upon a larger scale, of another form of feeding mechanism, severing means and moistening means of my invention, illustrated by way of example in connection with the machine of Figs. 1 to 8;

Fig. 12 is a view corresponding to a portion of Fig. 1, showing an additional length-governing means for the tape;

Fig. 13 is an enlarged section on the line 13—13 of Fig. 12;

Fig. 14 is a detail sectional view on the line 14—14 of Fig. 13 looking in the direction of the arrows;

Fig. 15 is an elevation corresponding to the fore portion of Fig. 1 and showing another form of length-controlling means for the tape;

Fig. 16 is a partial vertical section substantially on the line 16—16 of Fig. 15; and

Figs. 17 and 18 illustrate another form of tape guide means in association with the moistener, Fig. 18 being a section on the line 18—18 of Fig. 17.

Referring first to Figs. 1 to 8, the machine as a whole is housed in a suitable framing, herein including the generally similar but oppositely disposed side frames or castings 1, 1 removably connected by suitable cross members, including the bolts or tie rods 2 and 3 at the front of the machine, the similar members 4 and 5 at the rear, and an intermediate cross tie 6, Fig. 2. The frames are equipped with supporting feet 7, 7 desirably having underlying rubber pads or like cushioning devices 8.

At the rear portion of the machine the side frames 1 provide between them a well or chamber for the tape supply or roll, and in this connection the frames have at their lower rear portions the inwardly projecting arcuate flanges 9, 10 and 11, which together provide a flange element defining the outer bottom portion of the roll chamber. The frames also are formed internally with the vertical ribs 12, 13 extending substantially the full height of the frame sides, reinforcing the latter and assisting in positioning the tape supply.

The upper portion of the machine desirably is closed in by a readily openable cover, herein comprising the curved plate 14, see particularly Fig. 2, the rear end of which is turned over to form spaced bearings 15 received on the upper rear cross tie 5. Opening movement of the cover may be limited as by a stop or pin 16 on the cross tie 5 between the bearings 15 and adapted to engage the rear edge of the cover. The tape supply or roll chamber is further and substantially completely closed at its lower rear and also its forward portion by means of a removable closure strip 17, of a width to fill in the central longitudinal portion of the well between the opposed frame flanges 9, 10 and 11. The rear end of this closure strip is turned over for supporting engagement upon the lower rear cross tie 4 and extends from it in approximately semicircular form below the chamber and upwardly at the front of the latter where it may be removably held in position as by means of a screw 18 engaged with the intermediate cross tie 6. In order that the operator may be informed at all times as to the condition of the tape supply roll within the closed housing, without having to elevate the cover, the side frames are equipped with the inspection openings or windows 19 through either of which the tape roll may be viewed. The upper walls of the

windows also provide convenient engaging means for lifting the machine in moving it or adjusting its position.

The support for the tape roll within the housing herein comprises a series of roller bearings and guides **20**, three of which are seen in Figs. 2 and 3, extending substantially the full width between the side frames and having reduced end portions **21** for rotatably mounting them in the side frames. The tape roll, positioned upon and by these roller bearings, is thereby enabled to turn bodily to let off the tape with entire freedom and absence of drag or back lash, and additionally is retained in the desired central position longitudinally of its chamber.

While the machine of my present invention may be designed and proportioned to handle tape of various weights and widths, as here illustrated it is particularly intended for the service not only of the lighter weights of tape but also of relatively heavy tape, for example, sixty-pound weight, and in widths from the narrowest, including one inch, inch and a quarter, and inch and a half tape and up to the three-inch width, or in some cases, with wider spacing of the side frames, up to four inches or even greater. Adjustable guide means desirably is provided for aligning or centering the tape rolls of the different widths, and for this purpose I have shown a pair of guide plates **22**, Fig. 2, of general half-circular form, to conform to the lower portion of the tape well. These guide plates are adapted to be variously positioned transversely of the machine. They are slidably and adjustably associated at one or the other of their ends, herein at their rear portions, with one of the cross members, in this instance the lower cross tie **4**, as by means of the keyhole slots **23**, of which the larger circular portions **23a** are slidable along the cross tie **4**, while the narrower portions **23b** are receivable in annular grooves **4a** distributed along said bar. The lower and the forward portions of the guide plate **22** are similarly adjustably positioned as by seating in one or another of the series of annular grooves **24** on the roller bearings **20** and on the intermediate tie **6**, in alignment with those on the cross tie **4**. In Fig. 3 the guide plates **22** are shown in position for centering and guiding cooperation with a relatively narrow tape. They may readily be adjusted to conform to other widths of tape merely by lifting them and moving their rear ends upwardly and rearwardly to bring the portions **23a** of their slots **23** in line with the cross bar **4**, whereupon the guides may be shifted transversely of the machine.

The machine is adapted for use with rolls of tape wrapped either with the glued or gummed side in, or with the gummed side out. In the case of gum-in rolls, the roll is positioned in the housing so that the tape will lead upwardly at the rear of the roll, whence it is led forwardly over a guide roll **25** having end bearings **26** for rotatably supporting it between the side frames **1**, the tape passing over this guide roll with its gummed side down. A length of tape so guided is indicated at T in Fig. 2. In the case of a roll wrapped gummed side out the tape is brought off from the roll at the front of the roll chamber and is carried up to the rear of and thence forwardly over said guide roll **25**.

Desirably also I provide means for counteracting the tendency of the unreeling tape to curl, which tendency increases as the tape roll becomes smaller. For this purpose I have herein shown an anti-curl device in the form of a roller **20a**, rotatably supported in the frame at the forepart of the tape chamber. With small tape rolls, or when an initially larger roll becomes reduced in diameter, the operator threads the tape from the rear of the roll forwardly under the anti-curl member **20a**, then back over the latter and thence up over the guide roll **25**, in the manner indicated by the dotted line in Fig. 2. This forward and reverse flexing of the tape counteracts the coiled "set" of the tape sometimes resulting from its rolled condition, by bending it in the opposite direction, and hence the tape feeds from the machine in less curly condition, even with small or reduced diameter rolls.

From the guide roll **25** the tape passes forwardly over a platform or feed table **30**, Figs. 2, 3 and 9. This latter herein comprises a strip having a down turned rear edge as indicated at **31**, to aid in guiding or deflecting the tape into the proper plane, and is removably fixed in substantially horizontal position between the side frames as by means of down turned flanges **32** screwed or otherwise secured to them.

The strip or tape is adapted to be fed forwardly over the feed table **30** between and by means of a pair of pinch feed rolls or wheels, including the lower and herein larger feed roll **35** and the upper feed roll **36**. The lower feed roll, preferably having a knurled or roughened surface for engaging the gummed face of the tape, is rotatably supported substantially centrally between the side frames, on a shaft **37**, Figs. 1, 2, 6 and particularly Fig. 9, upon which it is removably fixed as by means of the set screw **38**. The shaft is rotatably supported in suitable bearings or bosses **39**, **40** on the respective side frames, wherein it is held in the axial direction as by means of a collar **41**, Fig. 9, adjustably positioned on the shaft as by the set screw **42**. At one end, externally of the adjacent side frame, herein at the right side of the machine, the shaft has fixed upon it a pinion **43** constituting one element of the train of gearing and operating connections for the feed mechanism, to be described.

The feed table **30** as seen in Fig. 2 and also in Fig. 9, is slotted as indicated at **44**, herein at a point centrally between the side frames, to permit the engagement of the lower feed roll **35** with the under face of the tape, in cooperative feeding relation with the vertically opposite non-driven or upper feed roll **36**.

In accordance with my present invention the non-driven roll, herein the upper one, or the unit including the roll and its supporting shaft, is itself of novel construction and also particularly cooperates with the tape guiding, feeding and other structural features of the machine as a whole. As seen in Fig. 2, and in detail in Fig. 2*a*, this upper feed roll unit comprises a cross shaft **45**, bodily removable from the machine and yieldable toward and away from the lower roll in opposed pairs of guides or ribs **47**, **47** on the side frames **1**. Centrally on the shaft **45** is a collar **36a**, herein comprised as a separate element fitted on the shaft and held in position axially as by pins **46**, **46** at its sides. The collar **36a** is formed with an annular groove **36b** constituting an inner race or bearing for the circumferential series of balls **36c**. The feed roll proper **36** is an annular element or large apertured wheel having a groove **36d** at its inner face cooperating with the groove **36b** to complete the

ball-bearing race. The described construction for the upper feed roll unit provides a freely revoluble member for direct engagement with the tape but affording little or no resistance to the travel of the tape, being substantially frictionless in its bearing support. By reason of its freely rotating character the outer peripheral face of the roll or wheel 36 may be and preferably is smooth, as indicated in the drawings, so that in its engagement with the adjacent non-gummed face of the tape it does not objectionably mark or mar it, and hence does not deface any design, advertisement or printed matter on the tape. Moreover, as said tape-engaging roll or wheel 36 requires little or no lubrication, but can readily be lubricated as desired, there is substantially no wear of the parts, and the roll retains its axial alignment, without objectionable side play, in contrast with the previous solid wheels turning directly on their shaft, and which were lubricated with difficulty if at all. The described upper feed unit and its resultant advantages have been found an important contributing factor in the commercial success of the machine of my present invention.

For urging the upper roll 36 into feeding relation with the tape and with the lower feed roll, suitable spring means are provided, in this instance including a pair of springs 48, 48, Figs. 2 and 3, one at each end of the upper shaft 45 and hence affording a balanced tension upon the latter. Each spring comprises a coiled portion removably positioned on a boss 49 projecting inwardly from the corresponding side frame 1, upon which it may be held as by means of the removable cotter pin or the like 49a. One end portion 50 of each spring extends forwardly over the upper feed roll shaft 45 and may be positioned in an annular groove in the latter. The other end of each spring is extended rearwardly and is held under tension over another lug 51 at an appropriate point on the adjacent side frame 1.

In advance of the feed table or platform 30 is an extension or fore portion 52 thereof, Fig. 2, which may be formed integrally with it or, as illustrated, as a separate strip, in alignment with the main platform 30 and having side flanges 53 by which it is removably held between the side frames as by the pairs of bolts 54, 54 at the respective sides. This fore or auxiliary table 52 is spaced from the main table 30 and has at its rear edge the down turned cutting lip 55.

The severing or cut-off mechanism for the tape is located for operation in the space between the two platform portions 30 and 52. In the illustrated embodiments, referring particularly to Figs. 2, 3, 4 and 10, the severing means includes a fixed member or blade 56 extending transversely of and above the tape path. It is adjustably and removably mounted, so that its position may be bodily shifted transversely of the machine, herein by means of the screws or bolts 57 received in laterally open slots formed in ears 58 projecting inwardly from the respective side frames 1; see particularly Fig. 10, the construction in the other figures preferably being the same in this respect. It will be noted that the cover 14 previously referred to extends forwardly, in its closed position, to a point adjacent or in advance of the severing means and that the ears 58 just referred to are provided with lugs 59 serving as stops or positioning members for the cover, in cooperation with the upper ends of the vertical ribs 12, 13 at the inner faces of the rear portion of the side frames. The entire mechansm, up to and including the severing means, is thus closed in at the top by said cover 14.

At one side of the machine, herein the left, the fixed member or blade 56 of the severing means is extended outwardly beyond the side frame, through an aperture 60, Figs. 2 and 10, formed in the side frame and has a down turned portion as indicated at 61 for supporting the pivoted or swinging blade 62, in general parallelism with the fixed blade for shearing co operation with the edge of the latter but normally lying below the path of the tape. The movable blade 62 is pivoted on a pin 63 extending through and carried by the depending portion 61 of the fixed blade, and this pin is surrounded by a coil spring 64, Fig. 3, between the head of the pin and the fixed blade, whereby the movable blade is urged toward and biased with respect to the fixed one, to afford the desired progressive shearing action across the tape. The tension of the spring 64 may be regulated by means of the nut 65 at the opposite end of the pin.

In its travel past the feed rolls and the severing means the strip or tape is additionally guided and confined to the proper path by means of a floating deflector, plate or weight element 67, Figs. 2, 3 and 9. This deflector, which is desirably bodily removable, herein comprises a substantially rectangular plate having a central slotted formation 68 for straddling the feed rolls. It is loosely retained in operative position, with capacity for play both vertically and in the plane of the tape path, by means of down turned fingers 69 at its opposite sides received in oversized slots 70 in the feed table 30; see particularly Fig. 9. The rear edge of the deflector 67 has an up turned portion or lip 71, forming with the underlying table 30 a mouth for the reception and guiding of the tape as it passes forwardly from the guide roll 25. This deflector plate desirably is additionally confined, against accidental displacement from the machine, as by the pairs of upstanding ears 67a, 67a underlying and straddling the upper roll shaft 45 and so associated with it as to allow the desired freedom or play in the plate above referred to. The plate may readily be inserted or bodily removed by slightly lifting said spring-pressed floating shaft 45 of the upper feed roll.

Forwardly of the severing means, the tape is conducted past suitable moistening means such as a wick, roller, brush or other moistening device. In the present instance the machine is equipped with a reservoir or tank 75 which may be of cast aluminum or other rust-resisting material. It is readily removably supported upon the front upper cross tie 3, which is received between downwardly projecting positioning lugs 76 on the bottom of the reservoir. Near its rear end the reservoir is additionally supported from below by inwardly projecting lugs 77 on the respective side frames, see Fig. 11, and is held against vertical tilting as by means of a finger 78 projecting rearwardly at one side of the reservoir, herein the left, and engaged below a further lug 79 upon the adjacent side frame 1. The under face of the finger 78 may be inclined upwardly, in the manner of a cam, to assist in guiding the rear bottom portion of the reservoir above the lugs 77, when it is replaced after removal, and one or both the latter may have an associated cam-like guide 77a

further to guide the reservoir during insertion.

Within the reservoir at its rear portion, referring to Figs. 2 and 11, is a capillary moistening element 80, herein illustrated as a double or extra thick brush device having a butt or base 80a, either single or compounded of two or more ordinary sized brush butts placed together, said butt portion or portions being set at the desired angle on a positioning step as seen at 81 in Fig. 2. Other brush supports 82 transversely spaced at the front of the brush element assist in retaining it in the upright but slightly inclined position illustrated. The wick or brush extends upwardly into or somewhat above the path of the tape, for moistening engagement with the under face of the latter. Its upper portion or portions are engaged and operatively positioned between the front edge of the auxiliary feed platform 52 and a down turned lip 83 on the removable top cover plate 84 of the reservoir. The described capillary moistening element, illustrated as a brush of the hair or bristle type, is of sufficient thickness or extent in the direction of the tape path to afford adequate moistening of the tape even at the high rate of feed herein obtainable, as well as effecting a spreading or evening of the applied moisture as the tape passes over the front portion of the brush element, in a similar manner but to somewhat greater degree than with a less extensive brush element. While I have shown for this purpose a single brush of the desired thickness, that is, having its hairs or bristles all set in a common butt, either of one piece or built-up construction, it may be formed in separate or separable parts, as if two juxtaposed brushes, either contacting or spaced, and in some instances with a sponge rubber or other spacer of a capillary nature interposed.

The down turned lip or flange 83 of the reservoir cover plate 84, which extends across the front portion of the moistening element, is desirably carried rearwardly at the sides of the latter to provide positioning fingers 86 thus substantially enclosing and supporting the brush at the sides as well as at the front, these fingers serving also to position the cover correctly at its rear portion. The cover is removably held in place as by means of the screws 87, Fig. 3, received in underlying ribs or reinforcing portions 88, Fig. 2, upon the reservoir walls. A filling aperture may be formed in the reservoir cover as indicated at 89, while the main portion of the cover serves as a delivery table, receiving the moistened tape as it feeds forwardly over the moistening means and directing it to the user. In this connection it desirably is formed with parallel longitudinal ribs or raised formations 90, shown as of decreasing height toward the front of the reservoir, whereby friction and sticking of the moistened tape is avoided.

At a convenient point on the reservoir, herein at the left side, I desirably make provision for the seating of an electrical heater unit, for warming the water or other liquid in the reservoir. For the purpose I have shown the boss 91 having in it a threaded seat 91a closed by a removable plug 91b and packing 91c. By removing the plug, the reservoir is immediately ready for the reception of a standard or other heater unit, adapted to be threaded into and to close the seat 91a in the same manner as said plug. Such heater is indicated in dotted lines in Figs. 1 and 2.

To assist in guiding, moistening and delivering the tape, it is conducted beneath a front deflector or guide 92, Figs. 1 to 4. This element may be variously formed and mounted and in the embodiment of said figures comprises a normally stationary but removable plate extending from a position adjacent the severing blades forwardly to a delivery position in advance of the moistener element. It is removably held at its rear end where it is turned up, as indicated at 93, about a pin 94 having axial recesses at its ends for reception upon the inwardly extending ends of the rear screws 54 of the auxiliary platform 52 previously described. This front deflector or guide plate 92 includes a substantially flat rear portion, vertically spaced above the auxiliary platform to form with it a tape guiding throat 95. In front of said flat portion and in vertical line with the brush or brushes the plate is arched substantially as indicated at 96, to carry it out of deforming or objectionable pressing engagement upon the capillary moistener, particularly if the latter is a brush of the bristle type, while its fore end is curled over for the reception of a pin or weight 97. The latter desirably is projected laterally beyond the plate, see Figs. 3 and 4, so as to seat at its sides upon one or both side frames 1 thereby further positioning and locating the plate in operative stationary position.

From an inspection of Fig. 2 it will be noted that by reason of the described construction of the deflector or plate 92 the capillary element 80 stands normally out of engagement with, or in mere touching engagement with, the under face of the arched portion 96 of said deflector. As the tape is fed forwardly its under face passes over the moistening element in moistening relation with it and immediately in front of the latter the leading edge of the tape comes against and is downwardly deflected by the forward downwardly extending wall of the arched operation of the deflector. In this manner the tape is forced to bend and bear downwardly, as it passes over the brush or other moistener, with a predetermined pressure, depending on the shape and longitudinal extent of the arch 96, the angle of its front wall and the weight of the adjustable stop or pin 97, calculated to afford an efficient and even moistening of the tape, and avoiding such excess pressure between the moistener and tape as sometimes occurs by use of a weight resting directly on and supported by the moistener and tending to wipe off the adhesive rather than merely to moisten it.

The machine of my present invention is particularly adapted for the rapid delivery of lengths of tape including relatively long lengths, for example, up to say thirty inches by a single stroke or operation of the feed controlling lever, and for this purpose I have provided the novel construction and arrangement of feed mechanism now to be described. Referring particularly to Figs. 1, 3, 4 and 6 to 8, the shaft of the lower feed roll 35 carries the toothed pinion 43 previously referred to, said pinion being operatively positioned outside of the adjacent side frame. This pinion meshes with a larger intermediate gear 100 rotatable on a demountable stud 101 on the side frame, externally thereof, as apparent in Figs. 1, 3 and 6, and having fixed to or formed integrally with it a relatively small pinion 102. The latter pinion is in mesh with a large spider or ring gear 103 supported for free

rotation upon a demountable bearing pin or stud 104 threaded into a boss on the side frame. The hub of the large gear 103 has a squared portion upon which is received a ratchet disc 105, for turning as a unit with the gear. The described gearing and the lower feed roll are so proportioned and related, and the main gear 103 is of such size and pitch that approximately a one-third rotation of the latter will effect the feeding of a thirty inch length of tape, in contrast to the relatively short lengths heretofore obtainable by one full feed movement. For example, in the illustrated mechanism, assuming that the circumference of the driven, herein the lower, feed roll is six inches, which is substantially the largest practicable without unduly increasing the size and weight of the machine and while still retaining the capacity to serve accurate short lengths, the ratio through the gear train is such that approximately a one-third rotation of the large gear produces five rotations of the lower feed roll. Or, otherwise stated, the ratio between the large gear and the driven feed roll, whether it be the upper or lower roll which is driven, is one to fifteen, by reason of the marked step-up between the large gear 103 and the intermediate pinion 102 and the second but smaller step-up between the intermediate gear 101 and the pinion 43 on the feed roll shaft. Despite this relatively high gear ratio, and high speed afforded the feed rolls, heretofore deemed impracticable in a hand-operated machine, and whereby I obtain the desired rapidity of feed, the mechanism is nevertheless easy of operation, requiring the expenditure of little or no more energy than in previous slow feeding machines, and to that end I provide for a further mechanical advantage in the operating mechanism, now to be described, all without unduly increasing the size or weight of the operating parts.

The operating element proper, seen separately in Fig. 7, comprises a substantially straight lever 110 having a hub 111 rockably received upon the outer portion of the stud bearing 104 for the large gear 103. At its upper end the operating lever 110 is tapped for the reception of the operating handle 112, the handle proper being in the form of a roll loosely received on a screw-headed pin 113 threaded at its inner end. The handle may thus be assembled with the operating lever in either of the two positions indicated in full and dotted lines respectively in Figs. 4 and 5, as may be preferred by the operator or operators and to facilitate access from either or both sides of the machine.

The operating lever has a one-way or free-wheel connection with the large gear 103. Such one-way drive provision may be of any suitable type, such for example as a Horton clutch, and herein for the purpose I have shown a ratchet disc 105 and associated pawl means desirably and herein having a plural-point drive connection with the engaged element or disc, as seen in Figs. 1 and 7. Referring to said figures, the drive connections include one or more pawls, of which two are indicated, at 114 and 115, mounted for rocking movement on studs 116 and 117 respectively, at the inner face of the operating lever 110, and at equally spaced or substantially diametrically opposed points with respect to the lever hub. If more than two pawls are employed they are preferably equally spaced in a similar manner about the lever axis, the lever being broadened or forked, if necessary, to accommodate the additional pawl or pawls. The pawls are provided with actuating springs 118 and 119 having coiled portions 120 and 121 seated on the pins 122 and 123 on the lever and held in position as by the cotter pin indicated. The outer ends 124 and 125 of the respective springs are held under tension against other lugs 126, 127 on the control lever while their opposite ends engage over pins 128, 129 upon the respective pawls, thereby yieldingly urging the latter into engagement with the ratchet disc 105. The described pawl arrangement affords a balanced drive connection for the operating lever with substantial freedom from lost movement and if desired the two pawls may be disposed one slightly in advance of the other, for example, by the distance of one-half a tooth, still further eliminating lost motion.

The operating lever 110 desirably and as illustrated is of such length between its pivot 104 and the handle proper 112 as to afford a mechanical advantage of between three and four to one, but is so constructed and arranged with relation to the machine as a whole as to avoid objectionable projection beyond the latter at any point in its operation. It will be noted, for example, that the pivot point 104 of the operating lever, referring particularly to Fig. 1, is substantially mid-length of the machine and below mid-height, and that the lever, even in its extreme forward or down position, terminates substantially in the plane of the front of the reservoir, while in its rearmost position, as seen in Figs. 2 and 4, the lever extends above the machine only about one-third of its length and merely to an extent whereby it is readily and conveniently accessible to the hand of the operator.

The entire operating mechanism for the feed means including the gear train and the inner portion of the operating lever is enclosed by a demountable housing or cover 130, seen separately, as viewed from the inside, in Fig. 8, and externally in Figs. 1 and 3 to 5. This gear housing cooperates with and complements an arcuate flange or housing portion 131 cast or otherwise formed directly upon the right side frame 1, see particularly Figs. 3 and 4. The housing 130, which is of general quadrant shape, is formed with a hollow boss 133 adapted to enclose the hub of the operating lever in concentrically spaced relation, and with a rear wall or flange 134 carrying the attaching ears 135, 136, a third attaching ear 137 being formed on a lower front flange. The arcuate upper and front portion of the housing is also formed with an inturned flange 138, in alignment with the fixed flange 131 on the side frame but spaced from it, in the assembled position of the housing, sufficiently to provide the arcuate slot 140 for the swinging movement of the feed lever.

The housing or gear cover 130 also serves to support demountably the return spring 141 for the operating lever. This spring comprises a coiled intermediate portion 142 surrounding the hollow boss 133 previously mentioned. One end of the spring is hooked about the operating lever as indicated at 143, Fig. 8, see also Fig. 1, while the opposite end is tensioned by bearing against the lower flange of the cover or selectively, should greater tension be desired, by reception in one or another of the notches 144 in a rib 145 formed on the housing, whereby the tension of the lever return spring may be adjustably varied. When the cover plate or housing 130 is demounted the end of the spring previously engaged with the operating lever is re-

ceived against the adjacent rear flange of the cover so that the spring remains in position with respect to the cover and is thus more conveniently handled.

The rearward position of the operating lever is defined by suitable stop means, herein comprising a rubber or other buffer 146 replaceably held in a seat 147 on a bracket 148 on the right side frame, the buffer being retained in its seat as by a screw-held plate 149. For cooperation with the buffer, the lever 110 has a lateral projection or stop 150, in line with the buffer. I desirably also provide cooperating means for damping or checking possible rebound of the operating lever and for this purpose, see particularly Figs. 1 and 8, I have illustrated a lateral pin 150a on the lever and extending into the path of a nubbin 150b on a yieldable spring element 150c secured at one point upon a fixed part, herein on the inner face of the cover plate 130. Said nubbin or back stop element 150b and the pin 150a on the lever are so disposed with relation to the buffer or rear stop 146 for the return movement of the lever that the pin will just ride past the nubbin as the lever reaches the limit of its return movement, the nubbin immediately moving out in front of the pin to retain the lever substantially in its rearmost position. In this manner any possible damage to the elements of the one-way drive or ratchet mechanism, which might be occasioned by rebound of the lever, is avoided and the accuracy of operation of the machine, to feed desired lengths of tape, is increased, as otherwise a possible rebound of the lever might cause the feed of a short length of tape, unnoticed by the operator, which length would be added to that of the next feed operation and so produce a longer strip than elected by the operator.

As previously noted, the construction and arrangement is desirably such that approximately a one-third rotation of the large gear 103 and hence a swinging of the lever itself through a corresponding arc serves to feed out the maximum one-stroke length of tape, for example, thirty inches. In other words, the operating lever has a stroke of approximately one-third of a complete circumference, the full stroke being represented as 125° in Fig. 6. In some instances, particularly where the call is predominantly for maximum lengths of the tape, the forward and downward or maximum feed position of the lever may be determined by stopping engagement of the lever with the laterally projecting portion of the flange of the cover, at the bottom of lever slot 140. But in order that various selected intermediate lengths of tape may readily be obtained, by setting the mechanism for such lengths, I desirably provide adjustable stop means in association with the feed lever and herein operatively related to the gear housing or cover plate 130.

The latter accordingly is formed with an arcuate slot 151 in which is slidably positioned a stud 152 having an inner end or head 152a lying as a stop in the path of a finger or projection 153 on the operating lever. The outer end of this stud is threaded for the reception of a thumb or hand nut 154, preferably of the substantial and easily manipulated hexagonal or like construction illustrated, adapted to tighten the stop head 152a against the cover, to hold it adjustably at any selected position along the arcuate slot.

To assist the operator in arriving at known lengths of tape I may provide a scale 155, Figs. 3 and 4, calibrated in units of tape lengths, for example, inches, and the stud or stop may carry a pointer for cooperation with the scale. As illustrated such pointer is a separable element having a hub portion 156 received on the flattened portion of the stop or stud 152 which moves in the arcuate slot 151, and an indicating portion or pointer proper 157 extending over the graduated scale 155. The latter is shown as a separable strip removably secured, as by rivets or the like 158, on the arcuate flange of the cover plate, where it directly faces and may be readily viewed by the operator. Obviously also the scale whether graduated in inches or otherwise affords means whereby the operator may quickly determine at any instant during an actual feeding operation the particular length of tape which has been delivered past the severing means, and in this connection the leading edge or other part of the operating lever may be utilized as a pointer or indicator in connection with said index or scale 155, or the lever may conveniently be provided with a projection or pointer 159 directly overlying the scale and moving along the latter during the feeding operation. As illustrated, there may be provided in association with the scale 155 two series of indicia or numbers, series 155a having its zero end at the rear limit of the feed lever and the other series 155b reading oppositely, with its zero point at or adjacent the forward position of the feed lever.

As a still further aid to the operator in arriving at desired different lengths of tape, the arcuate flange 131 on the side frame may also be constituted as a scale or length indicator in cooperation with the lever or a portion thereof, or with a special pointer 160 on the lever and in this instance disposed oppositely to the pointer 159 previously mentioned, so that pointer and scale means is provided at both sides of the lever. That at the inside face of the lever is particularly adapted for cooperation with marks which an individual operator may wish to place along the arcuate flange as a scale, for which purpose the latter may be provided with a removable strip or other surface 161 adapted for making. For example, if handling a number of packages of standardized form and size, an operator will have repeated calls for strips of say three different but standard lengths. On determining what such lengths are, he may mark the inner scale accordingly, with some special marking, such as "L," "M," "S," for "long," "medium," and "short," or others selected to suit the circumstances, thus calibrating the inner scale to suit his individual requirements.

The manner of threading or loading the machine for use will be apparent from the foregoing description. It is necessary merely to open the cover 14 and drop a roll of tape into the well or tape chamber, bringing the loose or leading end of the tape up from the back of the roll, glue side down in the case of rolls wrapped glue side in, or up at the front of the roll in instances where the glue is at the outside in the roll. In either instance the tape is passed forwardly over the upper guide roll 25, with the glue side down, and is inserted under the rear floating deflector 67, up to the pinch rolls. A forward pull on the operating lever 110 will then cause the tape to feed through, past the severing and moistening means and over the delivery table to the user.

When a desired length of tape has been fed and moistened, it is cut off, between the moistener and the feed means, by the knife or severing means already described. In accordance with my present invention I desirably provide alternate means for operating the cut-off knife, whereby this operation may be controlled, preferably at the front of the machine at the will of the operator, or may be effected automatically by the return of the operating lever 110 to its normal rearward or rest position.

As best seen in Figs. 1, 2, 4, and 10, a depending link 165 is engaged with the movable blade 62 near its free end, as by removably hooking the same through an aperture in the blade. The lower end of the link 165 is looped about a button 166 at the inner end of a cut-off lever 167 which is demountably pivoted as at 168 upon the adjacent side frame 1. This lever is extended forwardly of the side frames to a point convenient to the hand of the operator and is provided with an operating piece 169 whereby it may readily be depressed. The movable knife 62 is normally held down, and the operating end of the cut-off lever consequently up, by means of a coil spring 170 the upper end of which is removably engaged or hooked over the inner end of the link 165 while its lower end is anchored upon the side frame, as by hooking engagement with the edge of an aperture 172 formed in the latter for the purpose, desirably somewhat to the rear of the plane of the knives, to assist in tensioning the swinging blade transversely.

The construction and arrangement of this cut-off lever 167, in relation to the feed lever 110, is desirably such that as the operator completes a forward or feeding stroke of the latter his hand comes directly transversely opposite the operating piece 169 of the cut-off lever and sufficiently close so that the latter may be engaged and depressed, by the operator's thumb or other portion of his hand, without shifting his hand from the feed lever handle, but substantially as a continuation of the tape feeding movement of his hand or arm. The upper and lower limits of swinging movement of the cut-off lever are determined by suitable stops such as the upper and lower lugs 171 and 171a, Fig. 4, on the adjacent side frame.

Either as an alternative or as an additional control for the severing means I may provide the automatic operating mechanism seen in Figs. 1, 2 and 4. For this purpose the gear housing or cover plate 130 has pivoted as at 173 a rock arm 174 having a depending portion and a short upper portion in which is seated a spring-pressed plunger 175 having an inclined upper face or cam surface as indicated at 176 in position to cooperate with the inner portion of the forward stud 127 at the bottom of the operating lever, previously referred to. The lower end of the rock arm 174 is pivotally connected as by a link 177 with the rear arm 178 of a bell crank 179 pivoted at 180 on the side frame or on an ear depending from it. The front arm of the bell crank 179 is in turn pivotally connected at 181 with the lower end of a lever 182 the upper portion of which is slotted as indicated at 183 for reception of the shank of the button 166 on the cut-off lever 167. This slotted or lost-motion connection of the lever 182 with the cut-off lever permits the latter to be operated independently of the automatic cut-off means, whereby the tape may be cut off at any time, at the will of the operator, so long as the feed means is stationary, and irrespective of the particular position of the feed lever at the time.

In Fig. 2 the lower end of the feed lever is shown in its normal rearward or rest position. Assume now that it is pulled forward to feed a length of tape, its lower end accordingly moving counter-clockwise or to the right in Fig. 2, the plunger 175 of the rock arm 174 is at this time depressed by the pin 127 on the operating lever, the pin moving to the rear of the plunger. When the feed lever is subsequently released for return by its spring 141, at the end of a feed stroke, whatever the length of such stroke, the bottom end of the lever again swings forwardly, to the left in Fig. 2, bringing the pin 127 into engagement with the rear face of the plunger 175 and accordingly tilting the rock arm 174 in the counter-clockwise direction, as indicated by the arrow upon it, and through the link connector 177 rocking the bell crank 179 in the opposite direction, as also shown by an arrow. Accordingly the lever 182 is elevated. As the shank of the button 166 stands in the bottom of the slot 183 in said lever, the link 165 connecting with the moving blade is likewise lifted, elevating the knife against the pull of the relatively weak spring 170 and severing the tape. In thus operating the knife, the feed lever turns the rock arm 174 sufficiently to permit the plunger 175 again to pass to the rear of the pin 127, into the starting position as illustrated in Fig. 2. The down or rest position of the bell crank 179 and associated parts, to which they are urged by the knife spring 170, is limited as by the stop pin 184 upon the side frame.

In Figs. 9, 10 and 11 I have illustrated in connection with the machine of Figs. 1 to 8 already described a further novel construction for the tape feeding, guiding, severing and moistening means. The mechanism shown in these figures is adapted to be employed directly in the machine of the construction already described or in other similar manner either as a preferred or modified embodiment, similar reference numerals indicating similar parts as already described. Referring to said Figs. 9 to 11, I have determined from extensive experiments that the tape or strip material, generally paper such as a kraft or manila paper, may be dispensed more rapidly and efficiently and may be more easily handled, in substantially straight non-curling lengths, by bowing or arcing it transversely. This arcing or bowing of the tape I find to be more effective if carried through all or a majority of the operations of dispensing it. Accordingly in Figs. 9 to 11 I have shown specially constructed guiding, feeding, severing and moistening means for accomplishing this purpose. With reference to said figures generally it will be noted that all parts which have engagement directly with the tape are formed upon an arc, of uniform radius with respect to all the parts, and having its highest point substantially in the longitudinal median line of the tape path. Considering first Fig. 9, the main feed platform 30 is formed with the longitudinal central arch 185, and the rear floating deflector plate 67 is correspondingly curved or arched, as indicated at 186. This arcuate formation is desirably carried through the entire length of the feed platform and guide means including the auxiliary front platform 52, beginning at the rear edge of the main platform, so that the tape immediately as it passes forwardly over the

roll 25 and beneath the rear deflector 67 begins to receive its bowed or arched form. In keeping with this construction the peripheral surfaces of the lower and the upper feed rolls 35, 36 are made respectively convex and concave in the manner as indicated in Fig. 9 at 187 and 188.

Beyond the feeding and guiding means the arched tape passes beneath the similarly arched or concave portion 183 of the fixed blade 56. The movable lower blade 62 likewise has its shearing edge 190 formed upon a substantially similar arc but of sufficiently modified or slightly flattened contour, toward the free end of the blade, to retain the desired progressive shearing or cutting action across the tape. That is, the cutting action is progressively across and along the desired arc, in a shearing manner and without tendency to flatten the tape.

From the severing means of Fig. 10 the tape passes over the front portion 52 of the platform, arched as at 52^a, Fig. 11, to and past the moistening means, including, in Fig. 11, the capillary wick or brush 80 the upper edge of which is also curved upon a similar arc as already described, so that the free ends of its hairs or bristles are adapted to have moistening engagement with the under face of the tape while the same retains its bowed or curved condition. For guiding the tape over the moistener or brush I may provide a plate or deflector similar to the member 92 illustrated in Figs. 1 to 8 but upwardly curved transversely in conformity with the curvature of the brush, or, as seen in Fig. 11, I may employ a tape guiding and depressing roller 191 of hour-glass or concave shape conforming to the curvature of the brush. Said roller is carried on a spindle 192 bearing in blocks 193 floating between suitable guides 194 on the side flanges 53 of the front platform 52, or in some cases rear extensions of said blocks may be supported on the attaching screws 54 for optional floating or fixed positioning of the roller 191.

Referring now to Figs. 12 to 14, I have there illustrated other means for determining the lengths of tape to be dispensed. Parts not otherwise referred to may be assumed to be the same as in Figs. 1 to 8. Under some working conditions it is found desirable to be able to dispense either of two predetermined or set lengths of tape, either alternately or first a number of pieces of one length and then one or more pieces of the other length. In such cases a plural stop and signaling arrangement for obtaining different positive predetermined lengths of tape may be employed, as illustrated for example in Figs. 12 to 14. As there shown, a supplemental stop or signaling arm 195 is loosely pivoted on the boss 133 of the gear cover 130. This stop or signaling arm is normally stationary but may be swung to various adjusted positions corresponding to the desired less-than-one-stroke length of tape, or corresponding to a required overlength; for example, if a forty inch piece is wanted, the full-stroke feed being thirty inches, the arm may be set to mark a back stroke of the feed lever equivalent to ten inches of tape, and then, after making one full-length forward stroke, and without operating the cut-off lever 167, the operator will allow the feed lever to make only said partial back stroke, to the indicated ten inch point, from which he will again move the lever forward to complete the feeding of the forty inch length of tape, which may then be cut off either by operating the cut-off lever 167 or automatically by permitting a full return of the feed lever. The arm is of a length to extend over the outer arcuate guide slot 151 for the main stop 152^a in the cover plate. In line with said slot the arm 195 carries a pin 196 having a headed portion 197 at its inner end and threaded at its outer end for reception of a wing nut 198 whereby the arm as a whole may be fixedly secured in the desired position of adjustment. A supplemental arcuate slot 199 is concentrically formed in the cover plate for the sliding reception of a boss 200 on the arm. Within said boss is housed a spring-pressed plunger 201, having a pin-and-slot connection 202 with the boss to hold the plunger against rotating. The plunger is normally urged inwardly by the coil spring 203, bearing between a collar 204 on the plunger and a cap 205 adjustably threaded on the outer end of the boss 200. A knurled head or finger piece 206 is mounted at the outer end of the plunger, for pulling it out, it desirably being rotatable with respect to the plunger itself. A pin 207 projects out from the cap, of a length to hold out the plunger by engagement with the inner face of the head 206, the latter having an aperture 208 adapted to come opposite and receive the pin 207, to let in the plunger.

For cooperation with the spring-pressed plunger 201 the feed lever 110 is formed with the supplemental abutment 209 one or both faces of which are beveled as indicated at 210, 210^a for cooperation with the corresponding beveled face or faces 211, 211^a, of the plunger.

Assume now that the supplemental arm 195 has been set in some such position as shown in Fig. 12, and that first a relatively long length of tape is desired, for example, corresponding to the position of the main stop 152^a as seen in Fig. 12. As the feeding lever is drawn forwardly the cam formation 210 of the supplemental abutment 209 on the feed lever engages the beveled face 211 of the plunger and cams the latter outwardly, so permitting the feed lever to pass forwardly beyond it, until halted by the main stop 152^a. The length of tape thus fed may be cut off, by depressing the lever 167, or an additional length may first be fed out. The plunger 201 meanwhile has snapped back into its position of Fig. 13, in which it may limit or retard the subsequent return movement of the feed lever, although by reason of the double beveled or cam construction of the plunger and the abutment 209, the lever may intentionally be forced back to full return position when desired, it being understood that the spring pressure of the plunger is adjusted so that the plunger retards the lever or affords a signal during its movement in one or the opposite direction, in the manner of a telltale, but permits the operator to pass the plunger by a continued pressure on the lever. The telltale or plunger 201 accordingly may be used as a means or signal for limiting a forward stroke of the feed lever, from a position rearwardly of the plunger, or for limiting a rearward stroke of the feed lever, from a position forwardly of the plunger. The scale 155^b previously described, in which the graduations read from zero at the bottom or front of the machine, increasing rearwardly, may be utilized in connection with the positioning of the stop arm 195. If it is desired to deliver successively more than one of the greater lengths of tape, the plunger 201 may readily be passed as above described, to permit the full return of the feed

lever, or should it be desirable to render the supplemental plunger inoperative for any period of time it is merely drawn out and its head **206** rotated to carry the aperture **208** out of line with the pin **207**, the outer end of which thus holds the plunger out until again released by bringing said aperture again opposite the pin and permitting the plunger to spring in. It will be understood one or more additional arms **195** of Fig. 12, together with the associated parts, may be provided when desired.

In Figs. 15 and 16 I have illustrated other means for obtaining two or any desired plurality of predetermined or set positive lengths of tape, with capacity for shifting rapidly from any one length to another, in no usual or ordered sequence, which means may be employed either as a substitute for or together with the length-determining mechanism of any of the previous figures. Referring to said Figs. 15 and 16, the initial or main stop and index element **152–157**, as fully described in connection with Figs. 1 to 8, is there shown together with one additional stop and pointer unit, comprising a pin **212**, its head for stop **213**, pointer **214** and tightening nut **215**, all of similar construction as said parts **152** to **157**. It will be understood that any desired number of such stops may be provided within the structural limits of the mechanism. In this instance the cooperating stop element upon the feed lever **110**, corresponding to the stop element **153** of Figs. 1 to 8, is movably mounted, so that it may be rendered inoperative at any desired time. It comprises, see particularly Fig. 16, a slidable plunger **216** in a housing or boss **217** on the lever. Said plunger is normally urged outwardly, to the right in Fig. 16, as by means of the coil spring **218**. A pin **219** projects from the plunger, through a corresponding slot in the housing, and is engaged in an arcuate slot **220** in a dog **221** pivoted as at **222** on the housing. The upper portion of said dog has a hook **223** engaging the lower end of a vertical push rod **24** slidably held, in general parallelism with the feed lever, in guides **225** on the latter. The push rod is extended upwardly to a point conveniently adjacent the handle **112** of the feed lever, where it is provided with a head or finger piece **2226** which is easily engageable by the thumb or other operation of the operator's hand while holding the feed lever handle. The push rod is normally held up in raised position as by means of the coil spring **227** between the head of the rod and the upper guide **225**.

By merely depressing the push rod **224** the dog **221** is swung down, withdrawing the plunger **216** into its housing and out of the path of the supplemental stop **213** and of the others, if more than one is provided. As seen in Fig. 16 the lower or main stop **152a** extends inwardly farther than the supplemental stop **213**, and any additional stop may be of a corresponding graduated length, so that by depressing the push rod **224** to different extents the plunger may be withdrawn from active engagement with all of the stops or merely as to selected ones. Thus the operator is enabled to pass any stop at any instant he may desire to do so, readily shifting from one length of tape feed to another, or disregarding the stops entirely and feeding out measured lengths of tape by watching the progress of the lever or its pointers **159** or **160** along one or another of the scales and halting the feed at the length he wishes.

In Figs. 17 and 18 is illustrated a further construction for the tape guiding or deflector means at the front of the machine, in association with the moistener. Parts not otherwise referred to in said figures may be considered to be the same as in preceding figures.

In this instance said deflector element comprises a plate **230** having a substantially flat under face. It is pivotally mounted at its rear portion, as upon the rear pair of screws **54** or inward extensions thereof, whereby it may be swung back out of operative position to expose the underlying brush or moistener **80**. The deflector element or guide **230** has a normal or operative position in which it is fixed, with its under face contacting or substantially contacting the moistener. It is readily releasably held in said fixed position, herein by means of a pair of resilient or spring fingers **231** fixed at the sides of the plate, herein upon the side frames, by means of the fore pairs of screws **54**. Said fingers have recesses or apertures **232** for the reception of laterally projecting pins **233** on the plate **230**. In this manner the guide or plate **230** may be freed for swinging back, by flexing the spring fingers outwardly till they clear said pins **233**. When swung down again the fingers snap back, inwardly, to engage the pins through the apertures **232**, again fixing the plate in position to guide the tape over and past the brush or moisture in moistening relation with it.

Other constructions of tape guiding and moistening means capable of use in connection with machines of my present invention are disclosed and claimed in my Patents Nos. 1,732,637, 1,732,638 and 1,732,639, dated October 22, 1929.

Certain subject matter disclosed but not claimed herein is claimed in divisional or continuing applications, three of which have matured into patents as follows: Patent No. 2,035,376, granted March 24, 1936 covering certain moistening means as illustrated for example in Fig. 18 hereof, and Patent Nos. 2,066,617 and 2,066,618, granted Jaunary 5, 1937 and covering selective feed-length control means as illustrated for example in Figs. 15–16, and Figs. 12 to 14 hereof.

My invention is not limited to the particular illustrative embodiments herein shown and described, its scope being set forth in the appended claims.

I claim:

1. In a gummed tape serving machine of the type having spaced side frames providing a tape roll chamber between their rear portions and having tape guiding, feeding, severing and moistening means between said frames, in advance of the roll chamber, a feed lever pivoted on one side frame for swinging movement in a vertical plane adjacent said frame, operating connections between the lever and the tape feeding means, and a laterally projecting hand grip at the outer end of said lever and detachably connected therewith for positioning optionally at one or the other side of the lever so as to be conveniently grasped by an operator or operators at one or the other side of the machine.

2. In a machine of the class described, in combination, a frame including a tape roll support, guide means providing a path for the tape from said support, opposed rotary feed members for advancing the tape, an operating lever having feeding and return movements, connections between the lever and said feed members, spring means for returning the lever, a stop element

to limit the lever return movement, and means cooperable with the lever to hold it against objectionable rebound from its returned position.

3. In a machine of the class described, in combination, a frame including a tape roll support, guide means providing a path for the tape from said support, said means including an upper guide roller, tape feed wheels for advancing the tape along its path, and a tape-engaging element rotatably supported on the frame intermediate the roll support and said feed wheels, at a point below but in advance of said upper guide roller, said element adapted to flex the tape reversely during its passage to said guide roller, thereby to counteract curling tendency in the tape.

4. In a gummed tape serving machine, in combination, a main frame including side frames, a tape roll support and tape guide means, opposed tape feeding rolls rotatably supported between the side frames, one roll being fixed on a shaft equipped with a drive pinion, drive gears for said pinion, a feed lever pivotally mounted outside the frames and coaxially with the end gear, one-way drive connections between said gear and the feed lever, a stationary demountable housing enclosing said end gear and the inner portion of the feed lever and formed to provide a channel for the travel of the outer portion of the feed lever, a pair of arcuate flange members along the feed lever channel, one at each side thereof and disposed concentrically with the lever pivot, a scale element on the exposed upper face of each flange member, and pointer means at the opposite sides of the feed lever and cooperable respectively with said scale elements for use in controlling the tape feed.

5. In a gummed tape serving machine, in combination, a main frame including side frames, a tape roll support and tape guide means, opposed tape feeding rolls rotatably supported between the side frames, one roll being fixed on a shaft equipped with a drive pinion, drive gears for said pinion, a feed lever pivotally mounted outside the frames and coaxially with the end gear, one-way drive connections between said gear and the feed lever, said lever, gearing and drive connections positioned at the outer face of one of the side frames, an upwardly and forwardly facing quadrant-shaped laterally projecting flange formed integrally upon said face of said side frame and concentrically with the feed lever pivot, said flange partially surrounding said gearing and drive mechanism, and a similarly shaped housing plate demountably received on and secured to the frame in fixed position covering said gearing and drive mechanism, said housing plate having an integral inwardly projecting peripheral flange having its upper and front portions aligning with but laterally spaced from the flange member of the frame to provide a feed lever operating channel between them, the remaining portions of said plate and its flange completing a stationary housing for said gearing, drive connections and the inner portion of the feed lever, said flanges adapted to support index means for cooperation with pointer means moving with the feed lever.

6. In a machine for dispensing moistened gummed tape particularly for package sealing purposes, in combination, a frame, supporting means on the frame for a tape roll, tape feeding means including an operating lever having forward and rearward limits of movement and having a tape feeding movement in one direction and a return movement in the opposite direction, means to moisten the tape as fed, means to sever a length of tape fed from the supply, and measuring means for the tape coordinated with said feeding, moistening and severing means, said measuring means comprising an indexed scale element provided with a plurality of series of figures, one series increasing in value from a minimum adjacent the rear feeding limit of the operating lever and the other series increasing in value from the same minimum adjacent the forward feeding limit of the operating lever, whereby any given length of tape between the maximum and minimum obtainable by one feeding movement of the operating lever may be measured optionally in association with movement of the operating lever in the feeding direction or in the return direction.

7. In a gummed tape serving machine, in combination with a frame, a tape roll support and tape guide means, opposed feed rolls for advancing the tape between them, one roll being fixed on a shaft equipped with a drive pinion, drive gears for said pinion, a feed lever pivoted coaxially with the end gear, a detachable plate on the frame covering the lower portion of the feed lever and associated parts, and a feed lever return spring mounted on said plate at the inner face thereof and detachably associated with the feed lever for demounting as a unit with said plate.

8. In a gummed tape serving machine, in combination, a frame, a support for a tape supply, means to advance and guide the tape for delivery, an operating lever for said means, having actuating and return movements, a movable blade for cutting off the tape, a cutter lever for manually actuating the blade, said cutter lever having a hand piece readily accessible at the front of the machine, a pivotal support for the cutter lever, means operatively connecting the blade and the cutter lever, a rock member having lost-motion connection with the blade, and interengaging means between said rock member and the operating lever of the machine, permitting forward movement of the operating lever independently of the movable blade and cutter lever but effecting actuation of the movable blade during the return movement of the operating lever.

9. In a gummed tape serving machine, in combination, a frame, a support for a tape supply, means to advance and guide the tape for delivery, a movable cutter element for cutting off a length of tape advanced, a manual operating lever for the advancing means, having a forward tape-advancing movement and a return movement, a depressible cutter lever manually accessible to an operator at the front of the machine, operating connections between said cutter lever and the movable cutter element for manually actuating the latter independently of the operation of the feed lever, and other operating connections between said cutter element and the operating lever whereby a return movement of the operating lever effects automatic actuation of said cutter element.

10. In a gummed tape serving machine, in combination, a frame, a support for a tape supply, means to advance and guide the tape for delivery, a movable cutter element for cutting off a length of tape advanced, a manual operating lever for the advancing means, having a forward tape-advancing movement and a return movement, a depressible cutter lever manu-

ally accessible to an operator at the front of the machine, and operating connections associating said cutter element, cutter lever and operating lever whereby the operator may sever the tape optionally by depressing said cutter lever, irrespective of the position of the feed lever, or by utilizing the return movement of the operating lever.

11. In a gummed tape serving machine, in combination, a frame, a support for a tape supply, roll means to feed the tape, an operating lever having a feed actuating movement and a non-feeding movement, a movable cutter to sever the tape, a cutter-lever having a manual operating piece readily accessible at the front of the machine, means operatively connecting the cutter-lever with the cutter, and operative connections between the feed-operating lever and the cutter whereby the latter is actuated by said operating lever during its non-feeding movement, said cutter-lever being operable to sever the tape independently of the feed lever.

12. In a gummed tape serving machine, a frame, means thereon for supporting a tape roll, a feed table for the tape, a pair of feed rolls for advancing the tape along the table from its roll, a floating deflector plate resting flatwise on the table in the absence of tape and upon the tape when present, said plate having an upturned rear portion for receiving and guiding the tape beneath it, and lug-and-slot engaging formations between said plate and the table, removably retaining the plate in operative position with capacity for play both transversely of, and in, the plane of the tape.

13. In a gummed tape serving machine in accordance with claim 12, the construction wherein one feed roll has its axis below the table and the latter has a slot formation through which the roll engages the tape, and the floating deflector plate has a corresponding slotted formation for passage of the feed rolls.

14. In a machine of the class described, in combination, a frame including a tape roll support, guide means providing a path for the tape from said support, rotary means for advancing the tape along its path, a deflector plate above the tape path adjacent said rotary means, said plate constructed and arranged to float upon the upper face of the tape passing beneath it, horizontal positioning formations for holding the plate in position with capacity for play both transversely of, and in, the plane of the tape, and other means for retaining said plate in operative but readily bodily removable position on the machine.

15. In a gummed tape serving machine, in combination, spaced side frames, a support for a tape roll between the frames and means to guide the tape forwardly from it, a pair of relatively yieldable feed rolls adapted to advance the tape by engagement at its opposite faces, one of said rolls fixed on a shaft for driving it, a swinging lever having a hand grip at its outer portion and pivotally mounted at its opposite end portion upon one of the side frames, a train of gears on said side frame including at one end a gear coaxial with the lever pivot and operable by the lever, said train operatively connected at its other end with the shaft of the driven feed roll and having a ratio of at least one to ten, the non-driven feed roll comprising a shaft and an inner hub-like part concentrically supported thereby and an outer tape-engaging tire-like part of light-weight construction, said outer part being at all times concentric with but rotatable independently of said shaft and inner part, the latter having a radius at least equal to one-half that of the tire-like outer part, and friction-reducing bearing means between said parts, whereby said high gear ratio is consistent with ease of manual starting and operation of the operating lever.

16. In a gummed tape serving machine, in combination, a frame, a support thereon for a gummed tape supply, tape feeding means, means to arch the tape uniformly transversely as it is fed and so that its gummed face is concave, and a brush moistener having its hairs or bristles of graduated length from side to side of the brush so that the free ends of said hairs or bristles are disposed along a uniform arc transverse of the tape path and in a plane substantially perpendicular thereto, for moistening engagement with the gummed face of the tape along the line of said arc, and a correspondingly concavely arched roller cooperable with the other face of the tape to insure full-width moistening engagement thereof with said brush moistener, the latter and said roller being positioned for relative yielding movement.

17. In a gummed tape serving machine, in combination, a frame, a support thereon for a gummed tape supply, tape feeding means, means to arch the tape uniformly transversely as it is fed and so that its gummed face is concave and the tape being fed with its gummed face down, an upwardly directed brush moistener having the free ends of its hairs or bristles disposed along a uniform arc transverse of the tape path, for moistening engagement with the gummed under face of the tape along the line of said arc, and a guide roller yieldably disposed above the brush moistener and having its periphery shaped in conformity with it for cooperative guiding engagement with the upper, ungummed face of the tape.

18. In a gummed tape serving machine, in combination, a frame, a tape roll support, tape guiding means, means for advancing the tape along the latter, with its gummed face down, a non-rotary capillary moistener element for engagement with the under face of the tape, and an overlying tape deflector having a substantially flat rear portion, at a level below the top of the moistener element, and cooperating with said tape guiding means to conduct the tape to the moistener element, a longitudinally arched intermediate portion spanning the moistener element, and a forwardly and downwardly inclined front portion, in advance of the moistener element, for positively deflecting the tape downwardly into moistening engagement with the moistener element as it passes over the latter between said front and rear portions of the deflector, said front and rear portions having means cooperating with fixed parts of the machine to retain the deflector in stationary operative position wherein it is out of contact with any portion of the moistener element in the absence of the tape.

19. In a gummed tape serving machine, in combination; cross-connected side frames supporting between them a tape roll chamber, tape guides, and tape feeding means; a tape severing unit comprising two shear blades having at one end portion a pivot pin connecting them for swinging movement of one blade relative to and upon the other; adjustable spring means carried by the blades for urging the swinging

blade toward the fixed one; and means for adjustably and demountably supporting said severing unit as a whole in operative position transversely of the tape path, said supporting means including threaded members on the non-swinging blade, adjacent each side frame, and inwardly projecting horizontally slotted ears on the side frames receiving said threaded members at variable positions relative to the tape path.

20. In a gummed tape serving machine, in combination, a frame including a tape roll support, guide means providing a path for the tape from said support, a tape feed wheel engageable with one face of the tape, and a rotary feed unit at the opposite tape face and cooperating with said wheel to advance the tape, said unit comprising a shaft mounted for yielding movement toward and from said feed wheel, spring means urging the shaft toward said feed wheel, an annular tire-like member surrounding the shaft in fixed concentric axial position relative thereto and peripherally engageable with the tape, a concentric inner member surrounded by said tire-like member and supported coaxially on said shaft, said inner member having a radius at least equal to one-half that of the peripheral tape-engaging portion of said tire-like member, said inner and surrounding members having annular radially spaced portions between them providing a ball-bearing race, and ball bearings in said race.

21. In a gummed tape serving machine, in combination, a frame, a support at the rear thereof for a tape supply, feed rolls forwardly of said supply support and operable to advance the tape from the latter for delivery at the front of the machine, a moistening element adjacent the delivery end of the machine and having an upper tape-engaging portion, a tape guiding platform underlying the tape path from the supply support behind the feed rolls and extending to and past the latter and substantially up to said tape-engaging portion of the moistening element, said platform throughout its full extent being similarly arched transversely of the tape path along a uniform uninterrupted line of curvature having a radius at least equal to the width of the widest tape to be served, overlying means along the entire extent of the platform for conforming the tape to said arched formation, the aforesaid moistening element having its tape-engaging portion arched similarly as the platform, and correspondingly arched guiding means oppositely above said arched portion of the moistening element to conduct the tape in arched moistening relation past the latter.

22. In a gummed tape serving machine, in combination, a frame, a support at the rear portion thereof for a supply of gummed tape, tape feed means forwardly of the supply support, tape moistening means adjacent the delivery end of the machine, tape severing means intermediate the feed means and the moistening means, said severing means including fixed and movable members, and platform means and overlying guide means forming therewith a passage for the tape, said platform and overlying means extending from the supply support to and past the feeding and the severing means and substantially up to the moistening means, and said feeding means, moistening means, the fixed member of said severing means and said platform and overlying guide means all having their tape-engageable portions, including the full length of said platform and overlying means, all similarly disposed along a continuous arc transverse of the tape path, whereby said machine is adapted to receive from the supply initially flat tape of uniform transverse strength and to deliver moistened, severed lengths thereof in uniformly transversely arched non-creased form.

TREVOR R. GAUTIER.