May 7, 1963 S. ORTNER 3,088,356

TAPE DISPENSING MACHINE

Original Filed June 27, 1960 4 Sheets-Sheet 1

FIG. 1

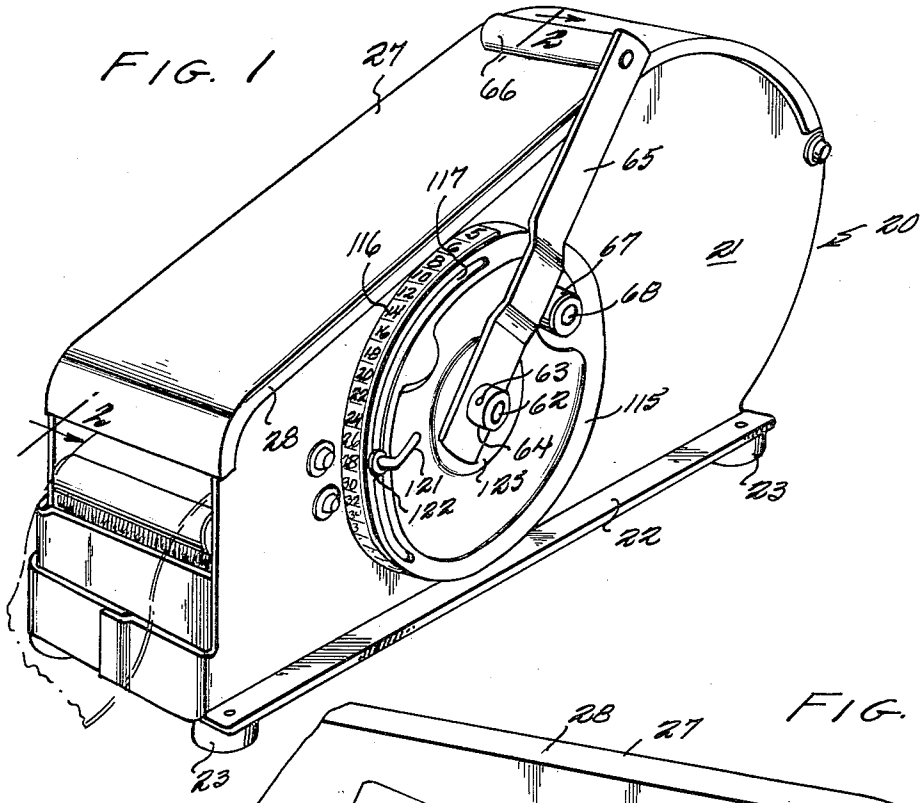
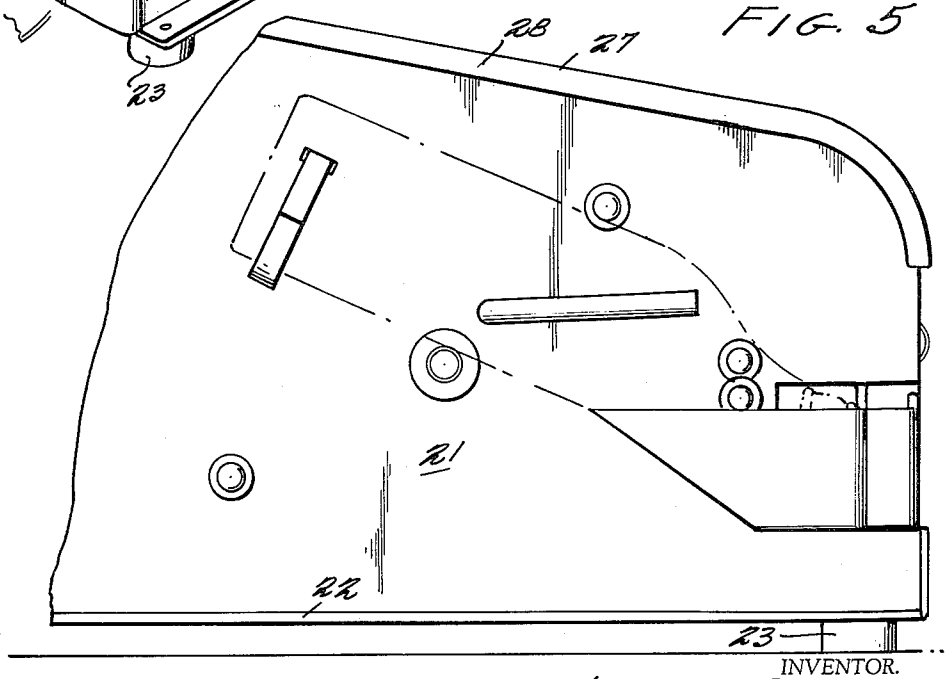


FIG. 5



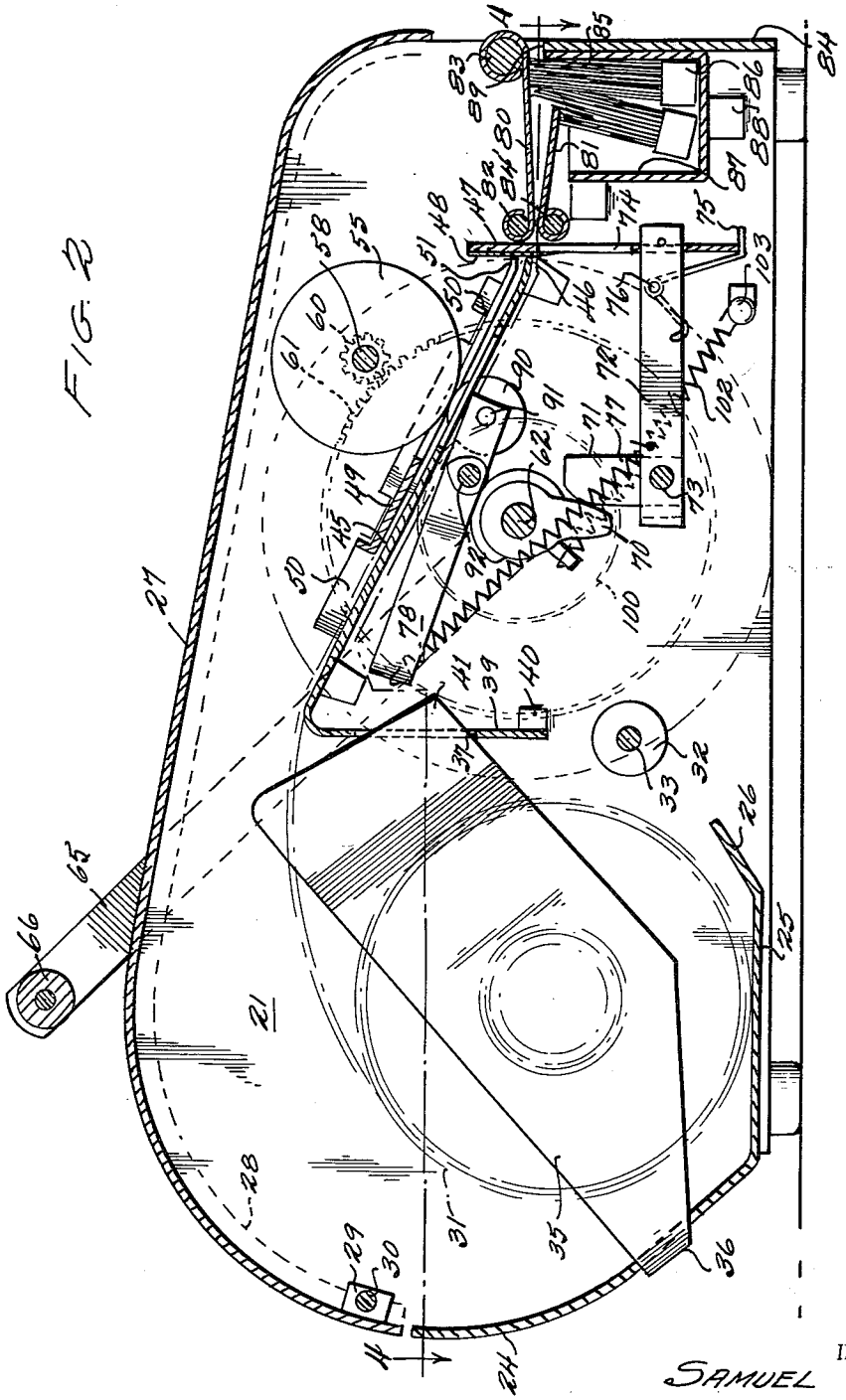
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TAPE DISPENSING MACHINE

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FIG. 2



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TAPE DISPENSING MACHINE

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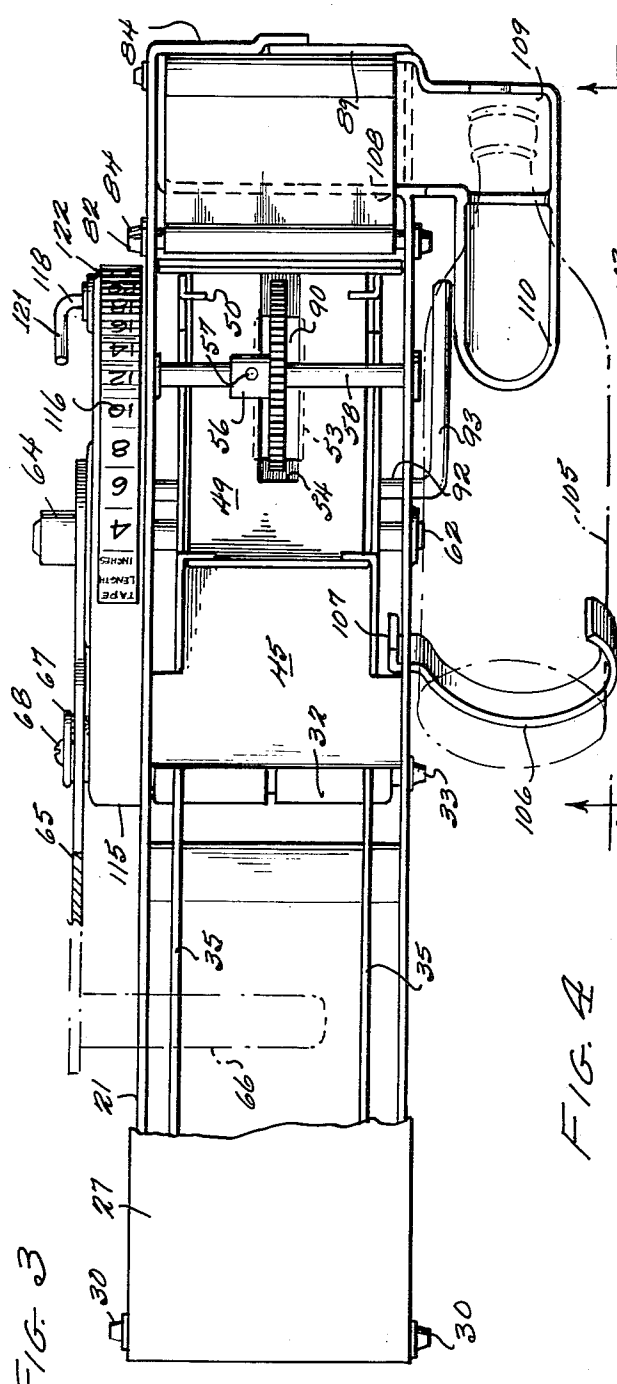


FIG. 3

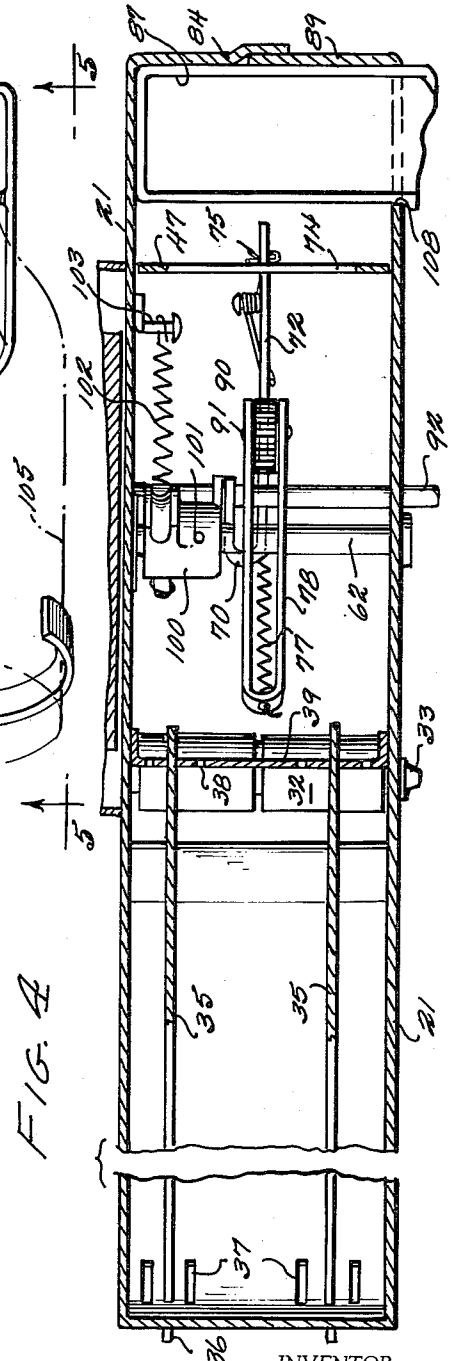


FIG. 4

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TAPE DISPENSING MACHINE

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FIG. 6

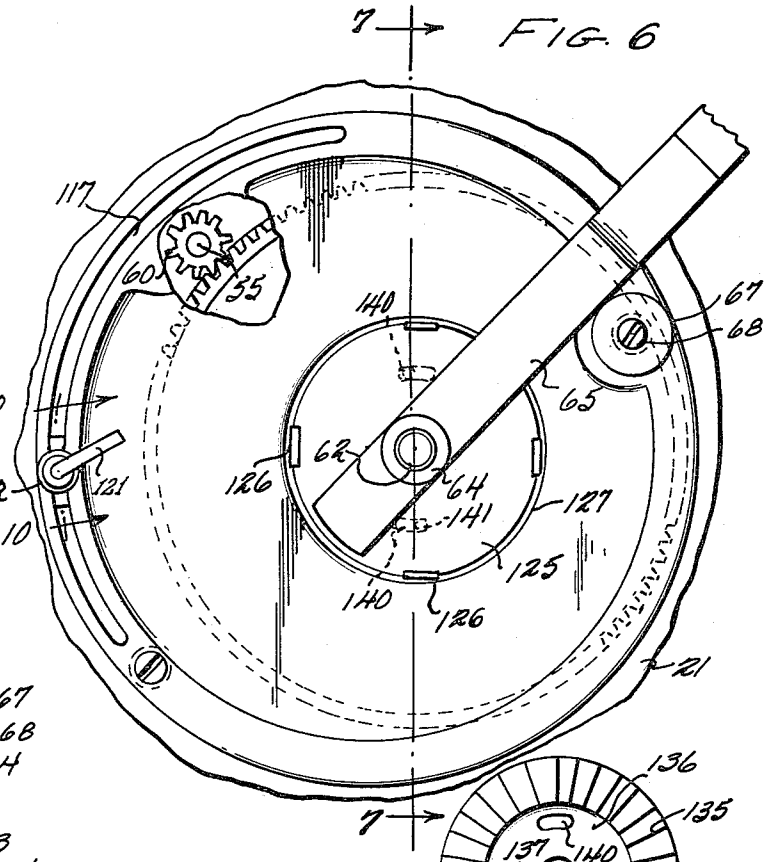
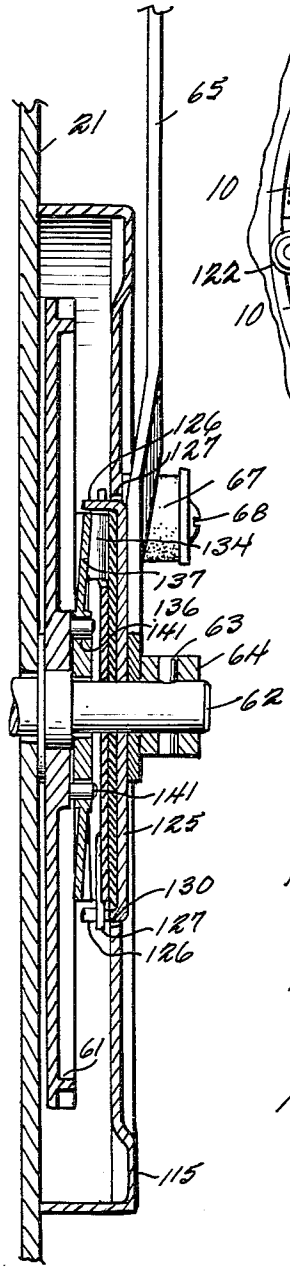


FIG. 7



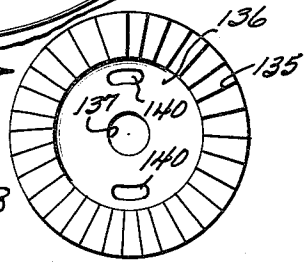


FIG. 8

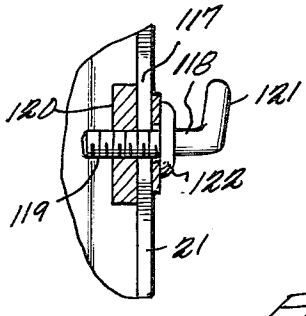


FIG. 10

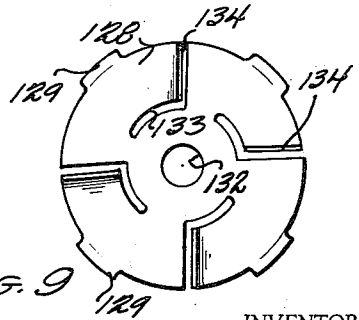


FIG. 9

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TAPE DISPENSING MACHINE

Samuel Ortner, 169 Murray St., Newark, N.J.

Continuation of application Ser. No. 38,959, June 27, 1960. This application Dec. 13, 1962, Ser. No. 244,400

1 Claim. (Cl. 83—233)

This invention relates to a tape dispensing machine, and has as its primary object the provision of an improved machine which will automatically dispense a predetermined quantity of heavy duty tape, severing the same when a desired quantity has been dispensed, and comprises a continuation of my co-pending application Serial No. 38,959, filed June 27, 1960, now abandoned.

An important object of the invention is the provision of an improved lost motion clutch mechanism which will actuate a gate to move the same to dispensing position prior to actual movement of the tape feeding mechanism, and which will ratchet to permit return movement of the operating handle when desired.

An additional important object of the invention is the provision of a stop means in association with the operating handle which is readily adjustable to allow the dispensing of a selected quantity of tape automatically by a single movement of the operating handle.

An additional object of the invention is the provision of improved means for the feeding of the tape by actuation of the operating handle, together with means for releasing the feeding mechanism so that the tape may be manually withdrawn when desired.

An additional object of the invention is the provision of an improved moistening arrangement for the tape as dispensed.

Still other objects of the invention reside in the combinations of elements, arrangement of parts, and features of construction, all as will be more fully pointed out hereinafter and shown in the accompanying drawings wherein there is disclosed a preferred embodiment of this inventive concept.

In the drawings:

FIGURE 1 is a perspective view of one form of tape dispensing machine embodying the elements of the instant inventive concept.

FIGURE 2 is an enlarged sectional view taken substantially along the line 2—2 of FIGURE 1 as viewed in the direction indicated by the arrows.

FIGURE 3 is a top plan view of the apparatus of FIGURE 1, certain parts thereof being broken away for clarity of illustration.

FIGURE 4 is a sectional view taken substantially along the line 4—4 of FIGURE 2 as viewed in the direction indicated by the arrows.

FIGURE 5 is a fragmentary enlarged sectional view taken substantially along the line 5—5 of FIGURE 3 as viewed in the direction indicated by the arrows.

FIGURE 6 is an enlarged side elevational view of the operating handle and its associated mechanism, parts thereof being broken away.

FIGURE 7 is an enlarged sectional view taken substantially along the line 7—7 of FIGURE 6 showing the clutch mechanism in detail.

FIGURE 8 is a plan view of one of the clutch members.

FIGURE 9 is a plan view of the other clutch member; and

FIGURE 10 is an enlarged fragmentary sectional detail view taken substantially along the line 10—10 of FIGURE 6 as viewed in the direction indicated by the arrows.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Referring now to the drawings in detail, the tape dispensing device of the instant invention comprises a casing generally indicated at 20 which includes a pair of side

plates 21, each having an outwardly turned bottom flange 22 to which are secured rubber feet 23 for supporting the device. A rear and bottom plate 24 has an upwardly extending rear portion and a bottom portion 25, which includes at its inner end an upturned flange 26. The remainder of the bottom of the apparatus is open, as best seen in FIG. 2. A cover member 27 provided with side flanges 28 includes a pair of inwardly extending ears 29 which are pivoted as on pivots 30 to the side walls 21 to provide access to the interior of the aparatus. A roll of heavy duty tape 31 is seated on the bottom 25 and held in position by the flange 26 as well as an idler roller 32 mounted on a shaft 33 which extends transversely between the side plates 21. The roll of tape 31 is held against lateral displacement by means of a pair of side plates 35. The side plates 35 have reduced ends 36 which are adapted to extend through selected ones of a pair of series of slots 37 in the rear wall 24, and through corresponding selected slots 38 in a partition 39 which extends transversely across the device between side walls 21, being secured thereto as by means of flanges 40 which are welded to the side walls. The plates 35 have corners 41 which project through the slots 38, and may be suitably positioned to accommodate tape rolls of varying widths.

Partition 39 has integrally formed therewith a lower tape guiding plate 45, which extends forwardly and downwardly and terminates in a lip 46 adjacent a gate 47 which carries a cutting knife 48. An upper tape guiding plate 49 is also provided and is slidably mounted in channels formed by flanges 50 carried by the sides of plate 45. Plate 49 also terminates in a flared lip 51 adjacent the gate 47.

An elongated slot 53 is provided in lower plate 45, and a second slot 54 is provided in plate 49 for the accommodation of a toothed feeding roll 55, which carries a hub 56 and which is secured by means of a set screw 57 to a transversely extending shaft 58 which extends between the side walls 21.

The shaft 58 carries at its outer end a gear 60 which is engaged by the teeth of a relatively large gear 61, which is mounted on a main shaft 62 exteriorly of one of the side walls 21. The main shaft 62 extends across the space between the side walls 21 and is suitably journalled for rotation therein. The shaft 62 has secured to its outer extremity by means of a pin 63 a boss 64 which comprises an integral portion of an elongated operating lever 65 which carries at its outer extremity a transversely extending operating handle 66. A fixed stop 67 is provided for limiting the return travel of the handle, and is mounted on a projecting axle 68 extending from the side wall 21 of the casing.

The shaft 62 has mounted thereon between the side walls 21 a projecting lug 70 which is adapted to engage an arm 71 which is integrally secured to a lever 72 mounted for pivotal movement on a shaft 73. The outer end of the lever 72 carries the gate 47, which is provided with an elongated opening 74 therein to permit the passage of tape from roll 31 between the end portions 46 and 51 of the plate 45 and 49. The gate 47 is normally biased upwardly by means of a spring 75 which is mounted on a pin 76 secured to the lever arm 72. A spring 77 is secured to the lever arm 72 at one end, and at its other end to the bight of a U-shaped bracket 78, to be more fully described hereinafter, the arrangement being such that when the lug 70 is in the position shown in FIGURE 2, for example, lever 72 is biased to a position so that the sliding gate 47 precludes passage of tape through the opening between the outwardly turned ends of the plates 45 and 49. However, when the shaft is rotated by means of the operating handle 66 to move the lug in a clockwise direction away from the arm 71, the spring 77 serves to bias lever 72 and hence gate 47 upwardly to permit the

passage of tape through the opening 74. When the gate is in raised position the tape passes between a pair of plates 80 and 81, the upper plate 80 being supported on rods 82 and 83 which extend transversely across the casing, and the lower plate 81 being supported on a rod 84'. Plate 81 terminates short of the end plate 84 of the casing, and the tape passing thereover engages the bristles 85 of brushes 86 which are mounted in a moistening tank 87 which is suitably supported on lugs 88 carried by the opposite inner sides of plates 21. After the tape is moistened it passes outwardly through an opening 89 in the end plate 84 and having been previously severed by the knife 48, in a manner to be more fully described hereinafter, may be lifted by the fingers in position in any desired location.

As previously mentioned, the feed roll 55 serves to advance the tape when the handle 66 is moved forwardly in a manner which will be more fully described hereinafter, while a lower friction roll 90 engages the underside of the tape to facilitate the pressure of roll 55 thereagainst. Roll 90 is mounted on an axle 91 which extends between the ends of the legs of the U-shaped member 78. U-shaped member 78 is mounted for pivotal movement on an axle 92, which extends through the casing, and which terminates in an operating handle 93. Downward pressure on the operating handle 93 will serve to tilt the U-shaped member 78 and relieve the presure of roll 90, which extends upwardly through the slot 53 on the underside of the tape, permitting the same to be withdrawn manually by the fingers through the opening 89 without the necessity of using the operating handle, when desired.

A half pulley 100 is secured to shaft 62 by means of a pin 101 and partially surrounded by a coil spring 102 which is secured at one end thereto. The other end of spring 102 is secured to a pin 103 which extends outwardly from one of the side walls 21. Spring 102 is thus so arranged that it biases shaft 62 and hence operating lever 65 rearwardly into engagement with stop 67, after the same has been pulled forwardly to move the tape by means of roller 55.

Moisture is supplied to the receptacle 87 from a bottle 105 which is mounted in a U-shaped supporting clip 106 which has an upturned flange end 107 which projects through a suitable slot in the adjacent side wall 21. The receptacle 87 extends outwardly through an opening 108 in the side wall of casing 21, and includes a compartment 109 within which the end of bottle 105 rests. A rearwardly extending portion 110 serves as a support for the lower portion of the bottle, and any conventional suitable bottle may be employed for supplying moisture, the neck of the bottle being supported below the water level, so that as the fluid is absorbed by the birstles 85 of brushes 86, it is constantly replenished from the bottle.

A cylindrical casing 115 concentric with shaft 62 surrounds a clutch assembly and the gear 61. Receptacle 115 is provided with indicia 116 along one edge thereof, and an elongated arcuate slot 117. The slot 117 has a movable stop 118 positioned therein, the stop comprising a screw 119 which engages a nut 120 positioned interiorly of the casing, and an offset handle 121 exteriorly of the casing, together with a washer 122 which engages the outer surface of the casing adjacent slot 117. The arrangement is such that turning of the handle 121 serves to loosen the device so that it may be moved about the arcuate slot to a position adjacent a selected one of the indicia 116, which indicia indicates in feet the quantity of tape which will be unreeled by movement of the handle 66 forwardly until the lever 65 engages the stop 118.

A circular plate 125 is integrally mounted with boss 64 and is rotatable with movement of the handle 65, plate 125 being provided with inwardly turned flanges 126 which extend through a suitable arcuate slot 127 in the wall of casing 115. A first clutch plate 128 is provided with radial lugs 129 which extend through suitable slots 130 in flanges 126, the arrangement being such that clutch plate 128, which is provided with the central aperture 132 loosely surrounding shaft 62, is rotated by movement of plate 125 through movement of handle 65. Clutch plate 128 is formed of spring steel, and has a series of L-shaped slots 133 therein with tongues 134 forming clutch fingers formed therefrom. The fingers 134 are adapted to ratchet, when moved in one direction over serrations 135 formed in a second clutch plate 136, which is also provided with a central aperture 137 which loosely surrounds shaft 62. Clutch plate 136 is also provided with a pair of spaced apart elongated arcuate slots 140, which are adapted to be engaged by pins 141 which are fixed to the gear 61. The arrangement is thus such that when handle lever 65 is moved from its position adjacent stop 67, against which it is held by a spring 102, forwardly to engagement with stop 118, the clutch fingers or tongues 134 engage the faces 135 of clutch plate 136, which in turn through slots 140 and pins 141, rotate gear 61. This rotation of the gear 61 in turn rotates gear 60 which drives tape feeding roller 55. At the same time when movement of the handle is initiated the lost motion provided by the elongation of slots 140 permits the lug 70 first to disengage the arm 71 to move lever 72 to raise the gate into a position to permit the tape 31 to pass therethrough.

Upon release of the handle 65 the spring 102 returns the same to its position against the stop 67, and the return of lug 70 into engagement with arm 71 moves the gate 47 downwardly so that knife 48 suitably severs the tape at the desired predetermined length.

It will thus be seen that there is herein provided an improved tape dispenser wherein the tape is moved forwardly a predetermined amount in accordance with the setting of an associated stop member and appropriate indicia, which is provided with a gate which is moved by lost motion connection upon the initial movement of the operating handle, which measured out a predetermined quantity of tape and moistens the same and then severs it, and upon relinquishment of pressure on the operating handle, returns the operating handle to position for reuse, which accomplishes all the objects of this invention, and others, including many advantages of great practical utility and commercial importance.

As many embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative, and not in a limiting sense.

I claim:

In a tape dispensing machine, the combination of a casing including a rear plate, a roll of tape in said casing, upper and lower spaced feed plates between which the free end of said tape extends, said upper and lower plates each having a slot therein, a vertically movable gate having a tape opening therein at the end of said plates, a tape cutting knife carried by said gate, a pressure roller extending through said slot in said lower plate engaging said tape, a feed roller engaging through said slot in said upper plate, a drive gear rotatably mounted on said casing, a main shaft co-axial with said drive gear, a gear connection between said drive gear and said feed roller, a shaft extending transversely across said casing, a lever fixed at its inner end to said shaft for pivotal movement, an arm secured to said lever, a lug carried by said main shaft engageable by said arm, a connection between the outer end of said lever and a first spring, said first spring normally biasing said gate toward a position allowing passage of said type through said opening, a second spring secured at one end to the inner end of said lever, an axle extending transversely across said casing, a U-shaped bracket fixed to said axle, the other end of said second spring being connected to the bight of said U-shaped bracket, said pressure roll secured between the ends of said U-shaped bracket, handle means carried by said axle to move said lower pressure roll out of engagement with said tape,

said second spring normally biasing said lower pressure roller towards said tape, an operating lever secured to said main shaft exteriorly of said casing, a ratchet clutch between said main gear and said operating lever and lost motion means operable by said main shaft for moving said gate to tape passing position upon movement of said lever in one direction and said knife to tape cutting position against the bias of said first spring upon reverse movement of said lever, said ratchet clutch comprising a first clutch plate having clutch fingers thereon connected to said operating lever, a second clutch plate having ratchet teeth thereon in confronting relation with said fingers, said second clutch plate having a pair of elongated arcuate slots therein, a pair of pins engaging in said elongated slots carried by said drive gear, said pins and slots comprising said lost motion means, a housing surrounding said drive gear and clutch means, a rotatable boss on said housing, said operating lever being connected to said rotatable boss, said housing having a plurality of peripheral openings therein, and lugs on said first clutch plate engaging in said openings comprising the connection between said first plate and said boss and hence said operating lever, said housing having an arcuate slot adjacent its periphery, a movable stop in said slot limiting movement of said operating lever in one direction, a pair of angularly disposed, horizontally aligned, polygonal plates in said casing adjacent opposite radial faces of said roll of tape to prevent lateral displacement thereof,

said lower feed plate having a downwardly extending vertical portion disposed to form a transverse partition in said casing between said roll of tape and said feed roll, wall portions of said partition defining a plurality of parallel slots adjacent each end thereof, portions of said rear plate defining a plurality of parallel slots in alignment with the slots in said transverse partition, said polygonal plates removably held in certain of said aligned slots to prevent lateral displacement of a roll of tape having one dimension, and movable to other of said aligned slots to prevent lateral displacement of a roll of tape having a different dimension, a half pulley on said main shaft, a third spring partially surrounding said half pulley and secured thereto at one end, and means fixedly securing the other end of said third spring to an adjacent portion of said casing, said third spring normally biasing said main shaft and hence said operating lever away from said stop.

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