C. H. CROWELL.

STRIP MOISTENING AND DELIVERING MACHINE.

APPLICATION FILED DEC. 3, 1914.

1,244,708.

Patented Oct. 30, 1917.

2 SHEETS—SHEET 1.

Fig. 1

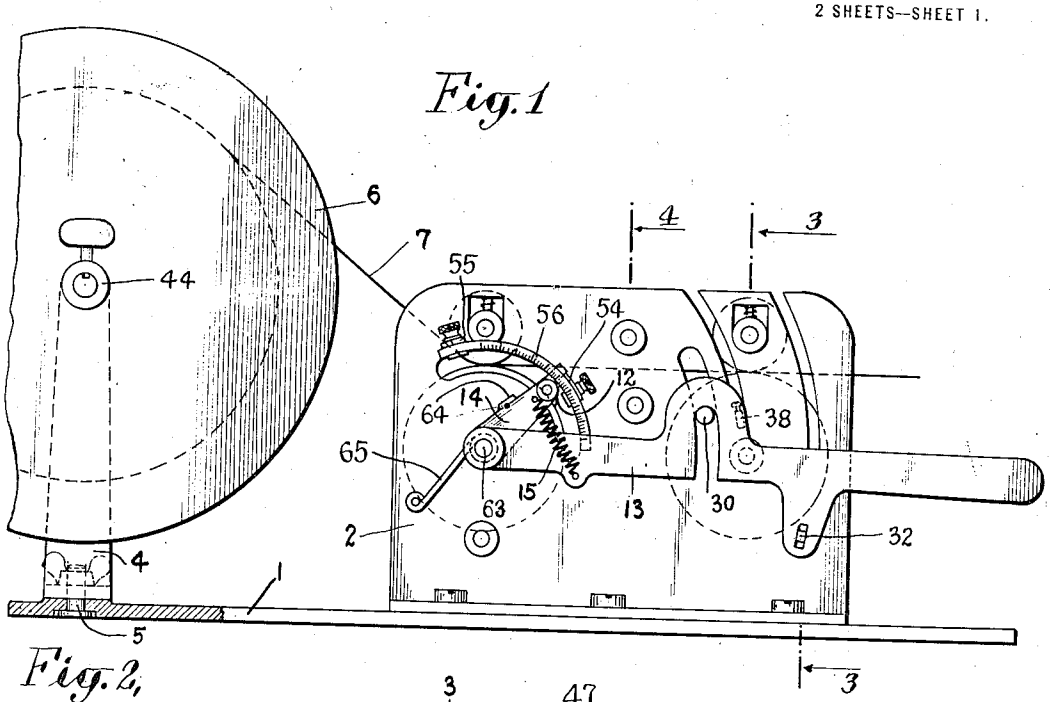
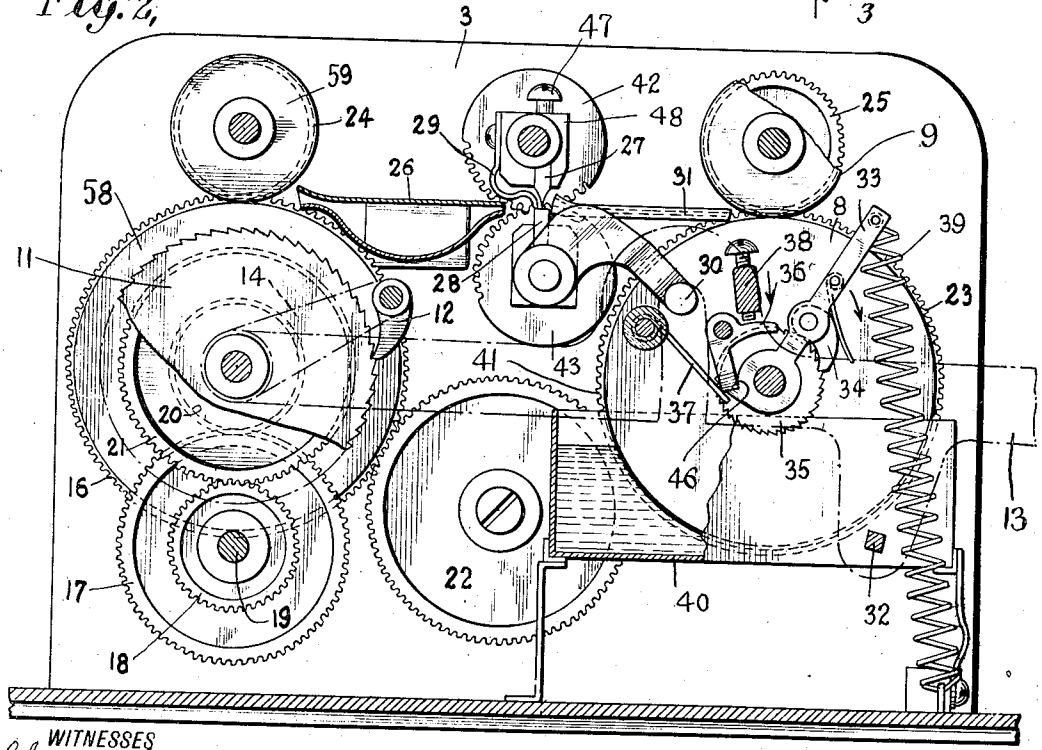


Fig. 2.



WITNESSES

Charles Eberhart

Jessie B. Kay.

INVENTOR

Charles H. Crowell

BY

Harry L. Duncan ATTORNEY

C. H. CROWELL.

STRIP MOISTENING AND DELIVERING MACHINE.

APPLICATION FILED DEC. 3, 1914.

1,244,708.

Patented Oct. 30, 1917.

2 SHEETS—SHEET 2.

Fig. 3,

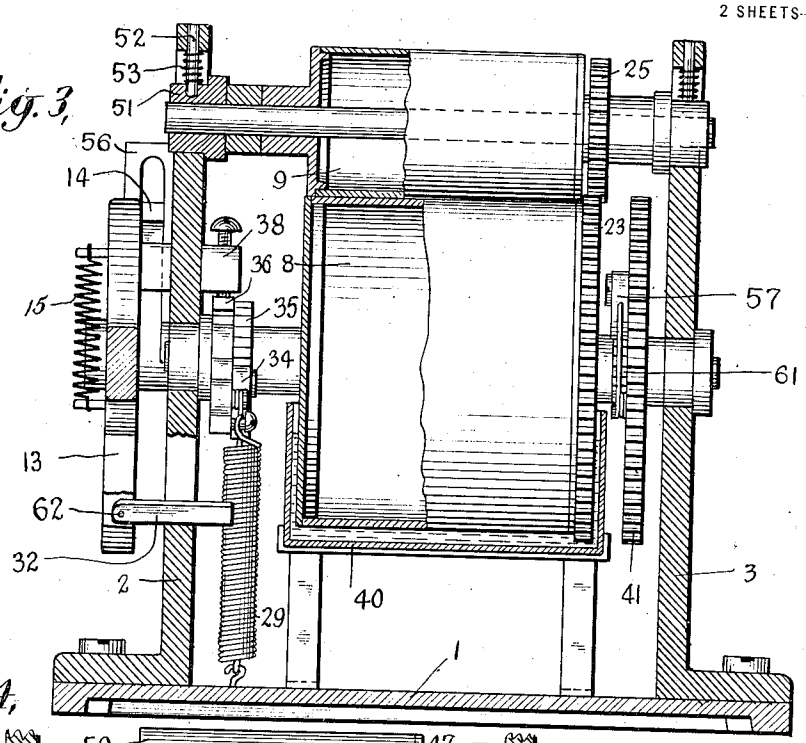


Fig. 4,

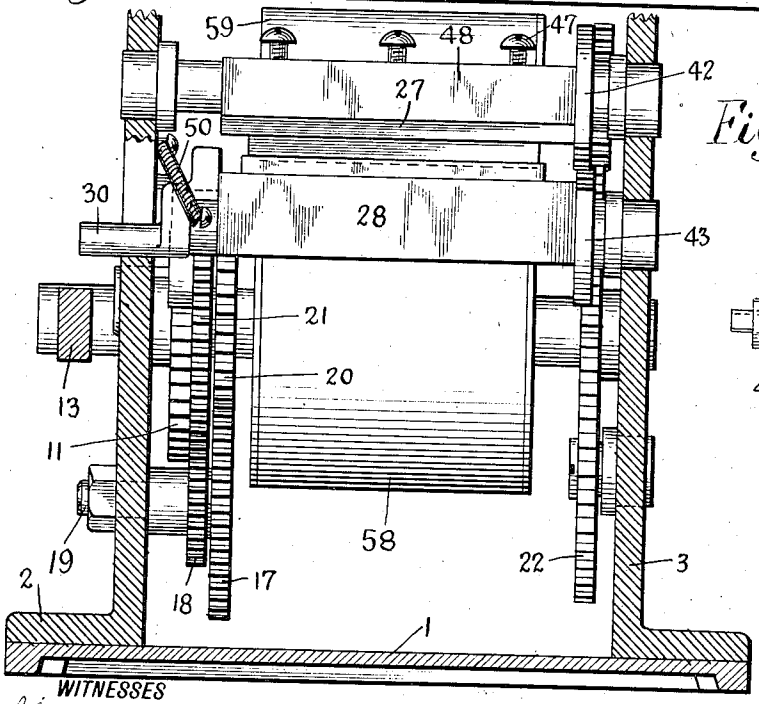
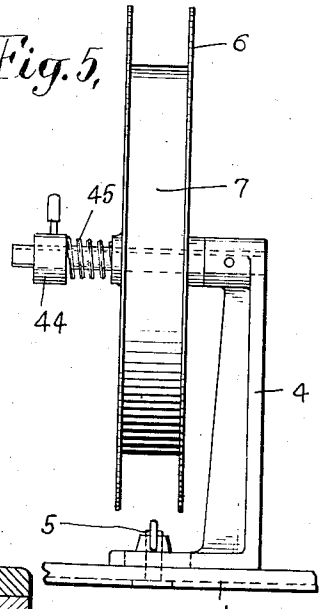


Fig. 5,



WITNESSES

Charles Ebahardt

Jessie B. Kay

INVENTOR

Charles H. Crowell

BY

Harry L. Duncan ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES H. CROWELL, OF BROOKLYN, NEW YORK.

STRIP MOISTENING AND DELIVERING MACHINE.

1,244,708. Specification of Letters Patent. Patented Oct. 30, 1917.

Application filed December 3, 1914. Serial No. 875,230.

To all whom it may concern:

Be it known that I, CHARLES H. CROWELL, a citizen of the United States, now residing in the borough of Brooklyn, county of Kings, city and State of New York, have made certain new and useful Inventions Relating to Strip Moistening and Delivering Machines, of which the following is a specification, taken in connection with the accompanying drawing, which forms part of the same.

This invention relates especially to machines for moistening and delivering or automatically discharging the severed moistened lengths of gummed tape for package sealing or the like, the machine being preferably arranged to withdraw the tape from regular rolls and cut off measured lengths, each of which is thereupon moistened and simultaneously delivered or discharged from the machine to be applied to packages or for other purposes.

In the accompanying drawings showing in a somewhat diagrammatic way illustrative embodiments of this invention—

Figure 1 is a side elevation, parts being shown in section.

Fig. 2 is an enlarged sectional side view.

Fig. 3 is a transverse section taken substantially along the line 3—3 of Fig. 1.

Fig. 4 is a similar view taken substantially along the line 4—4; and

Fig. 5 is a detail transverse elevation of the tape holder and tensioning devices.

The rolls of gummed tape may be mounted in any desired way, a convenient arrangement being shown in connection with Figs. 1 and 5 as comprising the bracket 4 having a connected tape supporting bar or tape stud projecting from one side thereof and also having a suitable guiding projection which may extend through a slot in the base 1 of the machine so as to allow the bracket and connected parts to be laterally adjusted to center the tape and then be held in any desired position by tightening the fastening nut on the bolt 5. Side plates, such as 6, may be mounted on the tape stud and if desired they may be provided with central projecting bosses adapted as indicated in Fig. 5 to engage the adjacent portions of the bracket and exert the desired frictional retarding or tensioning action in connection therewith, while at the same time maintaining the accurate alinement of the roll of tape 7 with respect to the bracket and base. If desired these side plates may be held against rotation by forming thereon suitable studs or projections which extend into the key-way or slot formed in the tape stud, although this is not necessary in all cases. Any suitable tensioning spring, such as 45, may be mounted to coöperate with the outer side plate and its desired tension maintained by a suitable tension washer, such as 44, which may be secured as by a screw or nut in the desired position on the stud. In this way the tension on the tape may be readily adjusted from time to time and tape of different widths may be accurately alined with respect to the other parts of the machine by adjusting the bracket and connected parts as described.

The other portions of the machine may be readily mounted on the base as by suitable side frames 2, 3 bolted or otherwise secured to the base and carrying the working parts of the machine which may comprise any suitable form of feed device to withdraw the tape from the roll and feed it forward to the moistening device of any desired character, there being any suitable form of cutter interposed between the feeding and the moistening device, there being preferably arranged adjacent the moistening device or in direct connection therewith a suitable discharge device to automatically discharge from the machine each length of gummed tape after it has been severed by the cutter. If desired the moistener may be in the form of a moistening roll 8 of any desired construction, such as a cylindrical metal roll of smooth, corrugated or otherwise roughened moistening surface which may be supplied with water in any suitable way as by dipping into the water tank 40 supported beneath. This moistening roll preferably has in coöperation therewith the presser roll 25 which may be spring pressed toward the moistener with the desired force in any suitable way as by arranging the trunnion blocks or bearings 51 of this presser roll so that they operate in suitable vertical slots as indicated in Figs. 1 and 3 and providing the pins 52 to loosely engage these trunnion blocks and also serve as guides for the presser springs 53 which force the roll down toward the moistener, the blocks preferably engaging stops or parts on the frame which prevent actual contact between this presser roll and moistener. Also if desired this moistener and presser roll may be geared to-

gether as by the meshing gears 23, 25 shown in connection therewith.

The feed device may comprise the feed roll 58 and coöperating presser roll 59 similarly spring pressed against the feed roll and geared thereto by the gears 16, 24, as indicated in Fig. 2. It is also desirable to insure the rotation of these feed and moistening rolls at the same peripheral speed when the tape is being withdrawn from the tape roll and this may be effected in any desired way as by the use of an intermediate gear 22 meshing with the gear 16 and also with the gear 41 which as indicated in Fig. 3 may have connected thereto the drive pawl 57 normally held in mesh with the drive ratchet 61 connected to the moistener roll 8 so as to positively rotate it in unison with the feed roll whenever the feed roll feeds forward the tape, while at the same time the moistener roll is still free to rotate in a forward direction so as to allow the automatic or other discharge of a severed piece of tape which may be accomplished by any suitable discharging mechanism. The tape may be guided between the feed roll and moistener roll by any suitable guides or channels, such as 26, 31, and the cutting device of any desired character may be interposed between these feed and moistening discharge devices, as for instance, by locating it between the two guides above referred to. A suitable form of cutter device for this purpose may as indicated comprise the cutter blade 27 which is adjustably mounted as by the screws 47 in the cutter head 48 so as to be accurately brought into coöperation with the cutter block 28 mounted to rotate in unison with the blade by the use of suitable meshing gears such as 42, 43, connected to these two elements and insuring their swinging simultaneously toward this vertical position when rotated by the connected cutter arm 30 having a projection which may extend out through a suitable slot in the side frame. A return spring such as 50, may be connected to this cutter arm and to the adjacent side frame so as to normally swing and hold the cutter and block apart under normal conditions, while the tape is being fed between them. It is also desirable in some cases to hold the rear end or portion of the tape in position while it is being severed and this may be readily accomplished by a suitable retainer operated in connection with the cutter, such, for instance, as the resilient retainer 29 which as indicated in Fig. 2 is adapted to coöperate with the cutter block and hold the tape in connection therewith when the cutter device moves into the final severing position indicated.

These devices may be operated in unison by any suitable operating mechanism, preferably comprising suitable measuring devices to measure with the desired accuracy the length of the pieces of tape which are withdrawn from the tape roll severed and moistened. These operating devices may comprise the operating lever 13 of any suitable construction and arranged, for instance, for manual operation by engagement by the hand of the operator, although, of course, this lever can be operated by connecting thereto a suitable treadle or pedal arrangement so as to leave free both hands of the operator for the package sealing work. This operating lever which may be formed with suitable devices to operate the cutting and discharging mechanism preferably has a feed lever, such as 14, relatively movable with respect thereto so as to effect a variable extent of movement of this feed lever and the feed roll or device operated thereby when it is desired to vary the length of the strips of tape which are delivered by the machine. For this purpose the feed lever 14, for example, may be loosely pivoted about the pin or stud 63 of the operating lever and provided with an alining lug 64 which is normally adapted to be drawn into engagement with this operating lever 13 by a spring 15 when this operating lever is raised as by the return spring 65 which may be coiled around the pin 63 for instance. In this way the operating lever may if desired be normally returned to its raised position and the spring 15 tends to keep the feed lever in close alinement with the operating lever while at the same time allowing a separation of these levers as indicated in Fig. 1 whenever downward movement of the feed lever is arrested. As shown in Figs. 1 and 3, the end of this feed lever coöperates with a suitable graduated guide 56 in connection with which a fixed stop such as 54, is mounted and rigidly held in the desired position by a set screw or the like. This stop limits the forward movement of the feed lever, the spring 15 being extended by the further downward movement of the operating lever, the extent of which is shown as considerably exaggerated in the drawing for the sake of clearness, so that in this way the severing and other parts of the machine may be subsequently operated while the feed lever is only oscillated to a more limited extent corresponding to the desired lengths of tape which are to be supplied. This may be determined by the extent of rearward movement of the feed lever which may be regulated by the adjustable stop 54 secured to the guide 56 at the desired point as by the set nut indicated so as to be engaged by the feed lever 14 and regulate its feeding action. This feed lever may, as indicated in Figs. 1 and 2, be provided with a feed pawl, such as 12 coöperating with the feed ratchet 11 connected to the gear 21. This gear may as indicated mesh with the pinion 18 on the shaft 19 on which the intermediate

gear 17 is mounted so as to mesh with the pinion 20 connected to and rotating in unison with the feed roll 58 and its gear 16. In this way the extent of movement of the feed lever is increased to the desired extent and it will be understood that each forward movement of the feed lever and connected intermediate gearing described, including the drive ratchet 61 and its pawl 57 serves to rotate the moistening roll 8 in unison with the feed roll. When the feed lever engages its fixed stop further feeding movement of these parts thereupon ceases and during the further movement of the operating lever the tape is held against further forward movement by the stationary feed roll 58 and its coöperating presser roll which are then held stationary, while the further movement of the operating lever then brings into operation the cutting and discharging devices which sever the end of the gummed tape and then automatically discharge it from the machine which is then ready for another up-and-down feeding movement of the operating lever. In this way the tape may be held entirely or practically stationary while the cutting devices act to sever its end and by the discharge of this severed end of the tape from the machine there is no tape left in contact with the moistening devices, so that uniform moistening of all parts of the tape is thus insured.

The discharging devices may be of any suitable character and actuated in any desired way to deliver or discharge from the machine the end of the tape after its severance from the rest of the strip. Any desired device, preferably of an automatic character, may, for instance, cause the necessary further forward rotation of the moistening roll or otherwise withdraw the tape therefrom, so that preferably by spring action the remaining part of the strip is moistened and discharged. For example, the discharge lever 33 may be arranged in connection with the moistening roll so that its spring-pressed pawl 34 coöperates with the discharge ratchet 35 secured to the moistening roll to rotate in unison therewith. This discharge lever may be connected to the discharge spring 39 which when in the position indicated in Fig. 2 tends to swing sharply downward the end of this lever and rotate the moistening discharge roll through this connected mechanism. During the time that the tape is fed forward by the feed roll, however, this discharge lever is held in its raised inoperative position by a suitable detent mechanism, such, for example, as the pivoted detent 36 whose lower end may be held by the spring 37 in engagement with the catch 46 on the hub or other portion of the discharge lever. The operating lever 13 shown in dot and dash lines in Fig. 2 may be provided with a releasing or discharge pin or arm 38 which may if desired have mounted therein an adjusting screw as indicated to engage the detent 36 at the proper time. Thus after the operating lever has engaged and swung down the cutter arm 30 as indicated so as to sever the tape, this discharge pin thereupon disengages the detent 36 and allows the discharge spring 39 to rotate the moistening roll 8 sufficiently to automatically discharge the end of the tape in contact with this roll. This discharge lever may, if desired, be returned to its raised or set position shown in Fig. 2 by a return pin 32 in the operating lever which may during its upward movement engage and raise this discharge lever until its detent snaps into engagement with the catch 46, this return pin being preferably pivoted in the operating lever as by the pin 62 shown in Fig. 3, so that during its downward movement it can swing up to pass over the discharge lever 33. It is of course understood that although it is not necessary for the operation of the machine, the spring 65 may be made strong enough to return the operating lever to raised position so that it may be at once pushed down to feed and discharge another length of moistened tape.

This invention has been described in connection with a number of illustrative embodiments, forms, proportions, materials, parts, arrangements and methods of operation, to the details of which disclosure the invention is not of course to be limited, since what is claimed as new and what is desired to be secured by Letters Patent is set forth in the appended claims.

1. In tape moistening and delivering machines, a base, a bracket transversely adjustable on said base and carrying on one side a tape stud, side plates rotatably mounted on said stud to engage a roll of tape on either side of the same, a tension spring and adjustable tension washer mounted on the free end of said stud to exert the desired tensioning action on said tape roll, a feed roll and coöperating presser roll to withdraw lengths of tape from said tape roll, a moistening discharge roll and a presser roll coöperating therewith to receive the strips of tape from said feed roll, guides between said feed roll and said moistener roll, a swinging cutter blade and a coöperating cutter block coöperating with said guides between said feed roll and said moistener roll, a retainer coöperating with said cutter block to hold the severed end of the tape connected to the tape roll, an operating lever, a feed lever relatively movable with respect thereto and operated thereby through spring connections, an adjustable stop to limit the extent of movement of said feed lever, gearing connected to said feed lever by which it causes the forward rotation of said feed roll, drive gearing between said feed roll and

said discharge moistener roll comprising a drive ratchet to rotate said discharge roll in unison therewith during the forward movement of said feed roll and to allow the independent free forward movement of said discharge roll, a discharge lever and spring coöperating with said discharge roll to cause its forward discharge rotation, a detent normally preventing the operation of said discharge lever and a discharge pin on said operating lever to release said discharge lever when said cutter device has been operated.

2. In tape moistening and delivering machines, a base, a bracket transversely adjustable on said base and carrying a roll of tape, a feed roll and coöperating presser roll to withdraw lengths of tape from said tape roll, a moistening discharge roll and a presser roll coöperating therewith to receive the strips of tape from said feed roll, a swinging cutter blade and a coöperating cutter block coöperating with said guides between said feed roll and said moistener roll, a retainer coöperating with said cutter block to hold the severed end of the tape connected to the tape roll, an operating lever, a feed lever operated thereby, an adjustable stop to limit the extent of movement of said feed lever, gearing connected to said feed lever by which it causes the forward rotation of said feed roll, drive gearing between said feed roll and said discharge moistener roll comprising a drive ratchet to rotate said discharge roll in unison therewith during the forward movement of said feed roll and to allow the independent free forward movement of said discharge roll, a discharge lever and spring coöperating with said discharge roll to cause its forward discharge rotation, a detent normally preventing the operation of said discharge lever and a discharge pin on said operating lever to release said discharge lever when said cutter device has been operated.

3. In tape moistening and delivering machines, a base, a bracket transversely adjustable on said base and carrying a roll of tape, a feed roll to withdraw lengths of tape from said tape roll, a moistening discharge roll to receive the strips of tape from said feed roll, a swinging cutter blade and a coöperating cutter block coöperating with said guides between said feed roll and said moistener roll, a retainer coöperating with said cutter block to hold the severed end of the tape connected to the tape roll, an operating lever, a feed lever operated thereby, an adjustable stop to limit the extent of movement of said feed lever, gearing connected to said feed lever by which it causes the forward rotation of said feed roll, drive gearing between said feed roll and said discharge moistener roll comprising a drive ratchet to rotate said discharge roll in unison therewith during the forward movement of said feed roll and to allow the independent free forward movement of said discharge roll, and a discharge member on said operating lever to operate said moistening discharge roll when said cutter device has been operated.

4. In tape moistening and delivering machines, a base, a bracket transversely adjustable on said base and carrying a roll of tape, a feed roll to withdraw lengths of tape from said tape roll, a moistening discharge roll to receive the strips of tape from said feed roll, a swinging cutter blade and a coöperating cutter block coöperating with said guides between said feed roll and said moistener roll, a retainer coöperating with said cutter block to hold the severed end of the tape connected to the tape roll, an operating lever, a feed lever operated thereby, gearing connected to said feed lever by which it causes the forward rotation of said feed roll, drive gearing between said feed roll and said discharge moistener roll comprising a drive ratchet to rotate said discharge roll in unison therewith during the forward movement of said feed roll and to allow the independent free forward movement of said discharge roll, and a discharge member on said operating lever to operate said moistening discharge roll when said cutter device has been operated.

5. In tape moistening and delivering machines, means to hold a roll of tape, a feed roll and coöperating presser roll, a moistening discharge roll and a coöperating presser roll to receive the strips of tape from said feed roll, a cutter between said feed roll and said moistener roll, an operating lever, a connected feed lever relatively movable with respect thereto and operated thereby through spring connections, an adjustable stop to limit the extent of movement of said feed lever, gearing connected to said feed lever by which it causes the forward rotation of said feed roll to intermittently withdraw a length of tape from the tape roll and to then hold stationary the tape in engagement therewith, drive gearing between said feed roll and said discharge moistener roll to rotate said discharge roll in unison therewith during the forward movement of said feed roll and a discharge member on said operating lever to effect the further operation of said moistening discharge roll when said cutter has been operated.

6. In tape moistening and delivering machines, means to hold a roll of tape, a feed roll, a moistening discharge roll to receive the strips of tape from said feed roll, a cutter between said feed roll and said moistener roll, an operating lever, a connected lever relatively movable with respect thereto and operated thereby through spring connections, an adjustable stop to limit the extent

of movement of said feed lever, gearing connected to said feed lever by which it causes the forward rotation of said feed roll to intermittently withdraw a length of tape from the tape roll and to then hold stationary the tape in engagement therewith, and a discharge member on said operating lever to effect the further operation of said moistening discharge roll when said cutter has been operated.

7. In tape moistening and delivering machines, means to hold a roll of tape, a feed roll and coöperating presser roll to withdraw lengths of tape from said tape roll, a moistening discharge roll and a coöperating presser roll to receive the strips of tape from said feed roll, guides between said feed roll and said moistener roll, a cutter between said feed roll and said moistener roll, a retainer coöperating with said cutter to hold the severed end of the tape connected to the tape roll, an operating member, a connected feed member relatively movable with respect thereto and operated thereby through spring connections, an adjustable stop to limit the extent of movement of said feed member, gearing connected to said feed member to effect the forward rotation of said feed roll to intermittently withdraw a length of tape from the tape roll and to then hold stationary the tape in engagement therewith, drive gearing between said feed roll and said discharge moistener roll to rotate said discharge roll in unison therewith during the forward movement of said feed roll, a discharge lever and spring coöperating with said discharge roll to cause its forward discharge rotation, a detent normally preventing the operation of said discharge lever and a discharge member on said operating member to effect the operation of said discharge roll when said cutter has been operated.

8. In tape moistening and delivering machines, means to hold a roll of tape, a feed roll to withdraw lengths of tape from said tape roll, a moistening discharge roll to receive the strips of tape from said feed roll, guides between said feed roll and said moistener roll, a cutter between said feed roll and said moistener roll, a retainer coöperating with said cutter to hold the severed end of the tape connected to the tape roll, an operating member, a connected feed member relatively movable with respect thereto and operated thereby through spring connections, an adjustable stop to limit the extent of movement of said feed member, gearing connected to said feed member to effect the forward rotation of said feed roll to intermittently withdraw a length of tape from the tape roll and to then hold stationary the tape in engagement therewith, drive gearing between said feed roll and said discharge moistener roll to rotate said discharge roll in unison therewith during the forward movement of said feed roll, and a discharge member on said operating member to effect the operation of said discharge roll when said cutter has been operated.

9. In tape moistening and delivering machines, means to hold a roll of tape, a feed roll to withdraw lengths of tape from said tape roll, a moistening discharge roll to receive the strips of tape from said feed roll, a cutter between said feed roll and said moistener roll, an operating member, drive gearing between said feed roll and said discharge moistener roll to rotate said discharge roll in unison therewith during the forward movement of said feed roll, and a discharge member on said operating member to effect the operation of said discharge roll when said cutter has been operated.

10. In tape moistening and delivering machines, means to hold a roll of tape, a feed device to withdraw lengths of tape from said tape roll, a moistening device to receive the strips of tape from said feed device, guides and a cutter between said feed device and said moistener device, a retainer coöperating with said cutter to hold the severed end of the tape connected to the tape roll, an operating lever, a connected feed lever relatively movable with respect thereto and operated thereby through spring connections, an adjustable stop to limit the extent of movement of said feed lever, gearing connected to said feed lever by which it causes the forward operation of said feed device to intermittently withdraw a length of tape from the tape roll and to then hold stationary the tape in engagement therewith, a discharge device coöperating with said moistener device, drive gearing connected to said feed device to operate said discharge device in unison therewith during the forward feeding movement of said feed device, a discharge lever and spring coöperating with said discharge device to cause its discharge operation, a detent normally preventing the operation of said discharge lever and a discharge member on said operating lever to effect the operation of said discharge lever when said cutter has been operated.

11. In tape moistening and delivering machines, means to hold a roll of tape, a feed device to withdraw lengths of tape from said tape roll, a moistening device to receive the strips of tape from said feed device, guides and a cutter between said feed device and said moistener device, a retainer coöperating with said cutter to hold the severed end of the tape connected to the tape roll, an operating lever, a connected feed lever relatively movable with respect thereto and operated thereby, gearing connected to said feed lever by which it causes the forward operation of said feed device to intermittently withdraw a length of tape from the

tape roll and to then hold stationary the tape in engagement therewith, a discharge device coöperating with said moistener device, drive gearing connected to said feed device to operate said discharge device in unison therewith during the forward leading movement of said feed device, a discharge lever and spring coöperating with said discharge device to cause its discharge operation, and a discharge member on said operating lever to effect the operation of said discharge lever when said cutter has been operated.

12. In tape moistening and delivering machines, means to hold a roll of tape, a feed device to withdraw lengths of tape from said tape roll, a moistening device to receive the strips of tape from said feed device, a cutter between said feed device and said moistener device, an operating lever to intermittently withdraw a length of tape from the tape roll and to then hold stationary the tape in engagement therewith, a discharge device coöperating with said moistener device, drive gearing connected to said feed device to operate said discharge device in unison therewith during the forward feeding movement of said device and a discharge member on said operating lever to effect the operation of said discharge lever when said cutter has been operated.

13. In tape moistening and delivering machines, means to hold a roll of tape, a feed device to withdraw lengths of tape from said tape roll, a moistening device to receive the strips of tape from said feed device, a cutter between said feed device and said moistener device, an operating member to intermittently withdraw a length of tape from the tape roll and to then hold stationary the tape in engagement therewith, a discharge device coöperating with said moistener device, drive gearing connected to said feed device to operate said discharge device in unison therewith during the forward feeding movement of said feed device and means to effect the operation of said discharge device when said cutter has been operated.

14. In tape moistening and delivering machines, means to hold a roll of tape, a feed device to withdraw lengths of tape from said tape roll, a moistening device to receive the strips of tape from said feed device, a cutter between said feed device and said moistener device, an operating member to intermittently withdraw a length of tape from the tape roll and to then hold stationary the tape in engagement therewith, a discharge device coöperating with said moistener and means to effect the operation of said discharge device when said cutter has been operated.

CHARLES H. CROWELL.

Witnesses:
HARRY L. DUNCAN,
JESSIE B. KAY.