C. G. MORTIMER.

PACKAGE SEALING DEVICE.

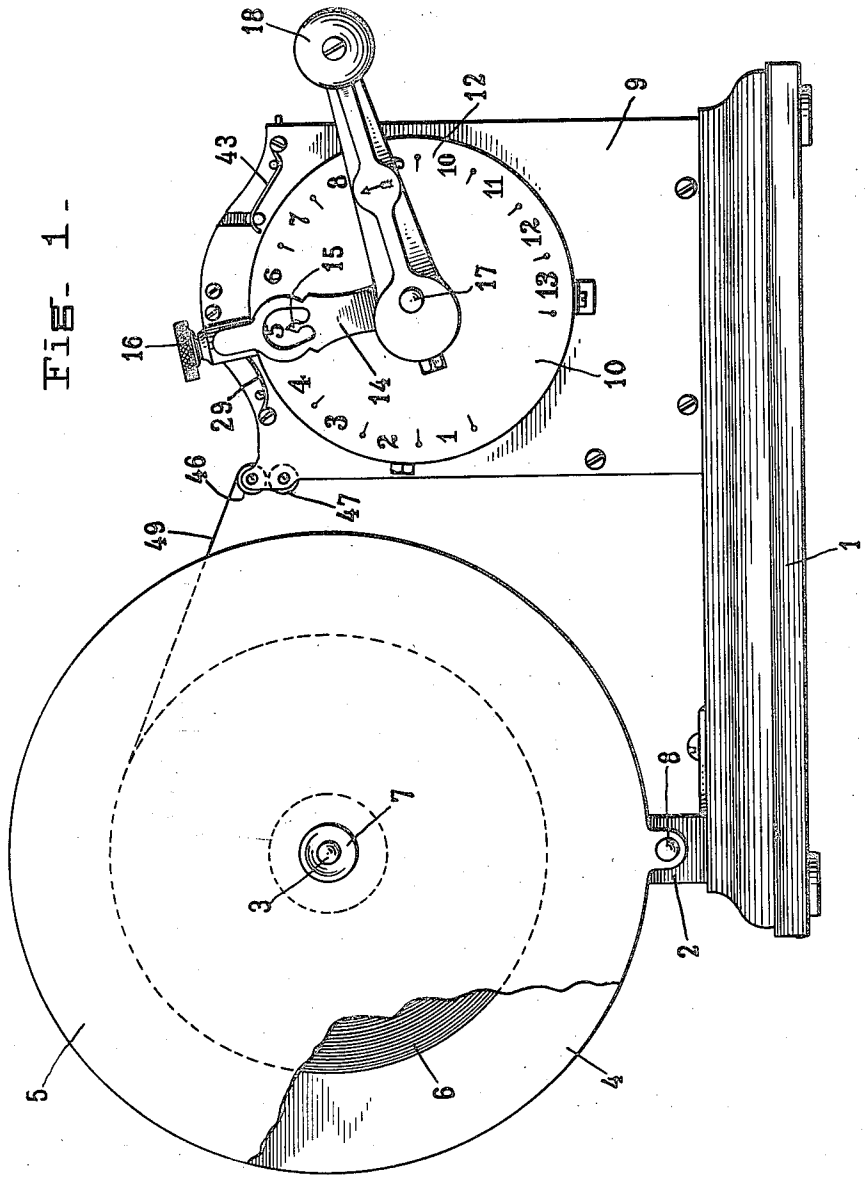
APPLICATION FILED JAN. 7, 1911. RENEWED OCT. 5, 1917.

1,268,377.

Patented June 4, 1918.

5 SHEETS—SHEET 1.

Fig. 1.



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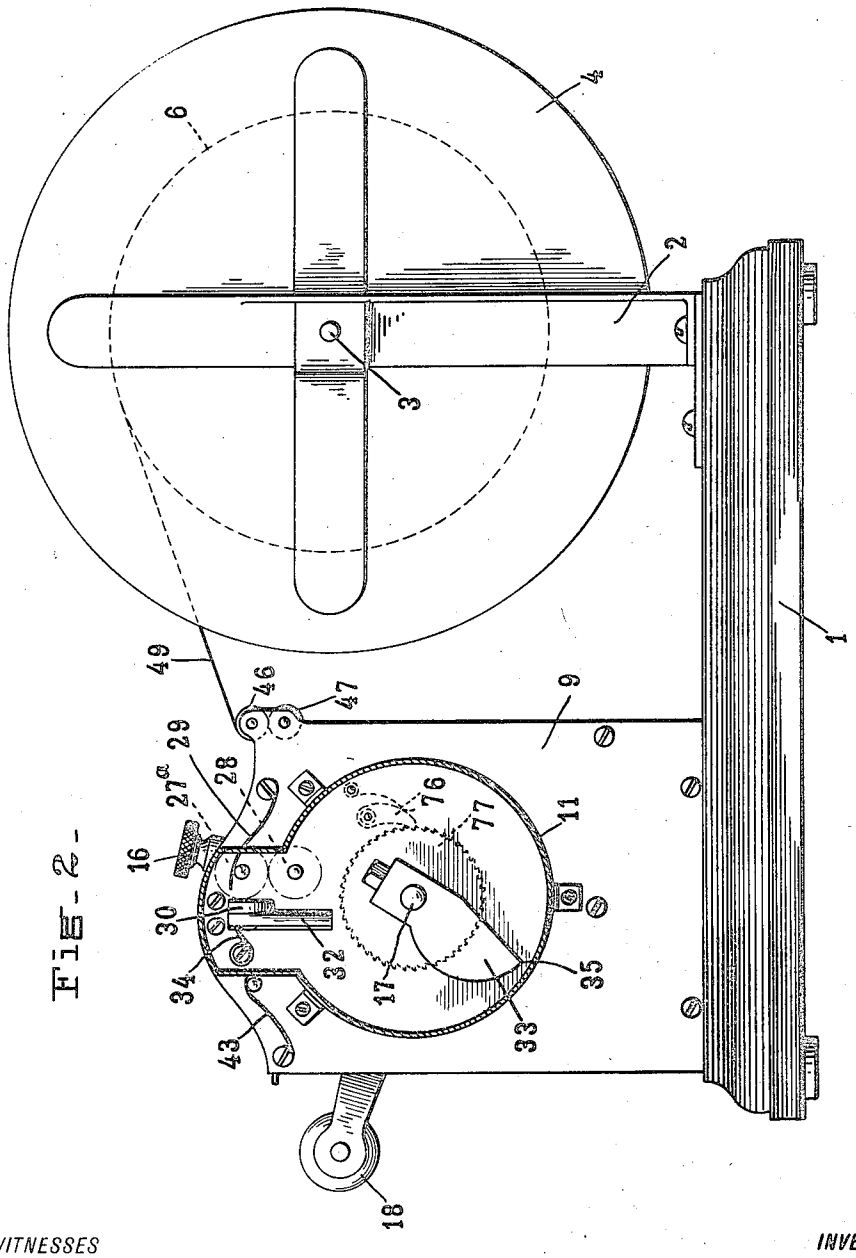


FIG. 2.

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5 SHEETS—SHEET 3.

Fig. 4.

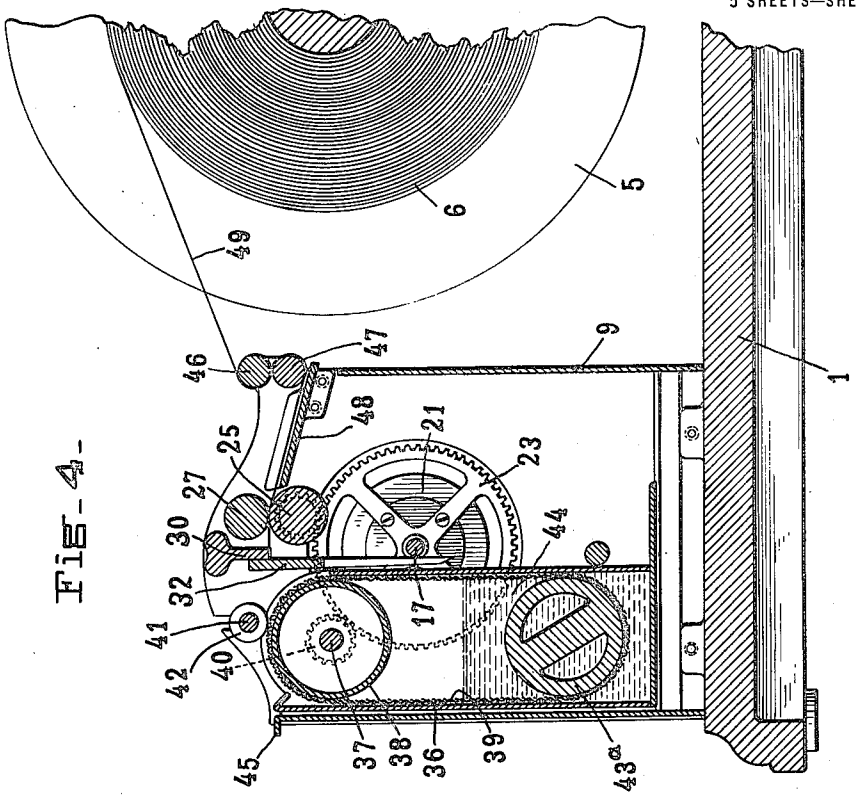
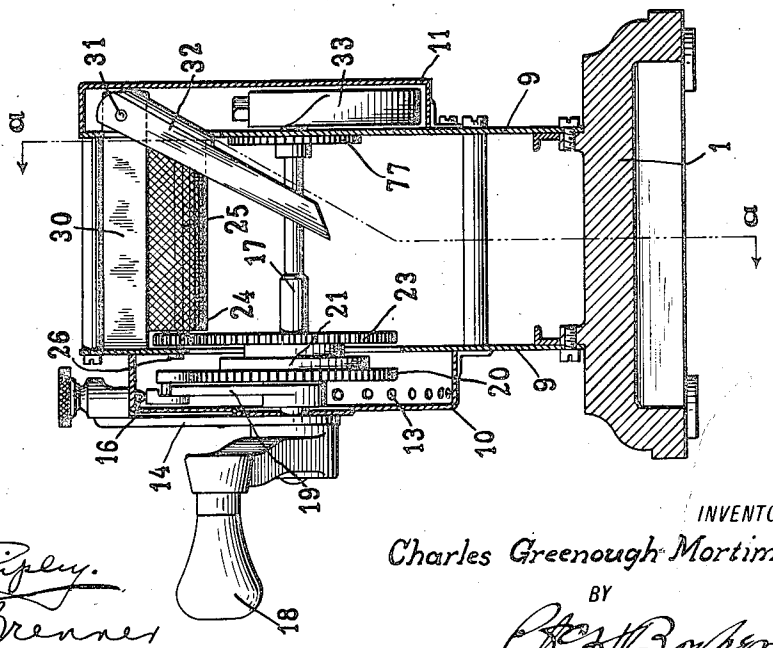


Fig. 3.



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5 SHEETS—SHEET 4.

Fig. 7.

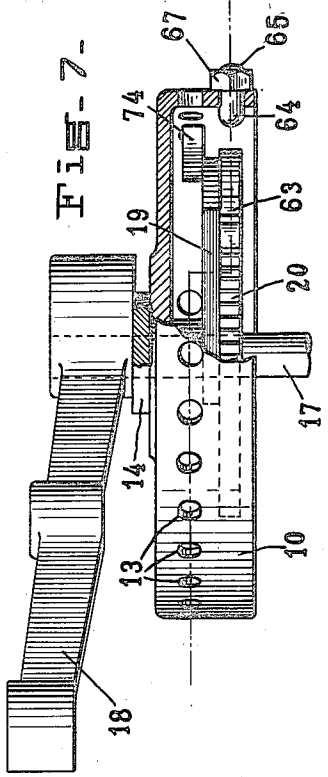


Fig. 6.

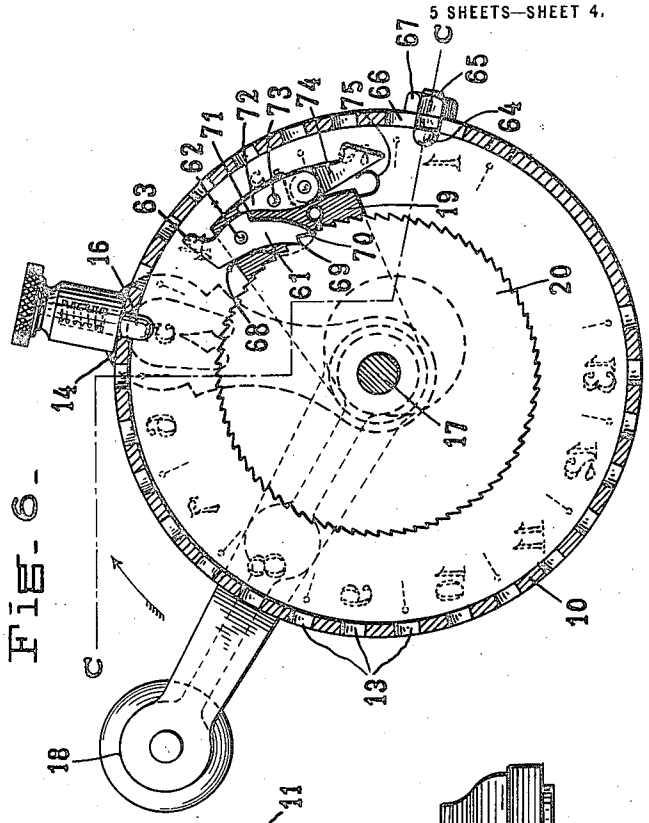
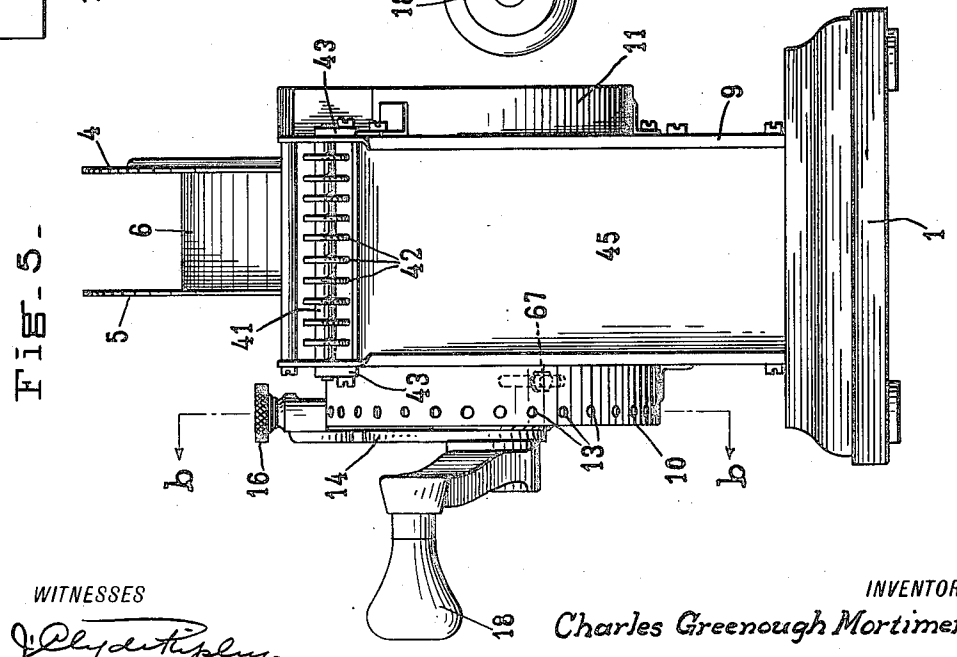


Fig. 5.



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5 SHEETS—SHEET 5.

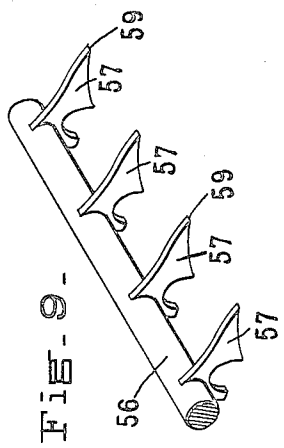


FIG. 9.

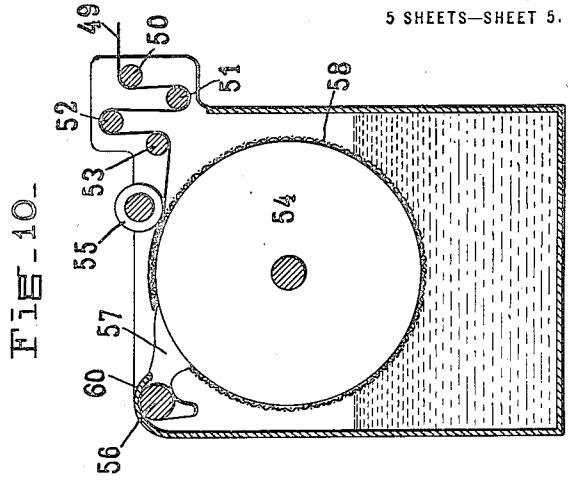


FIG. 10.

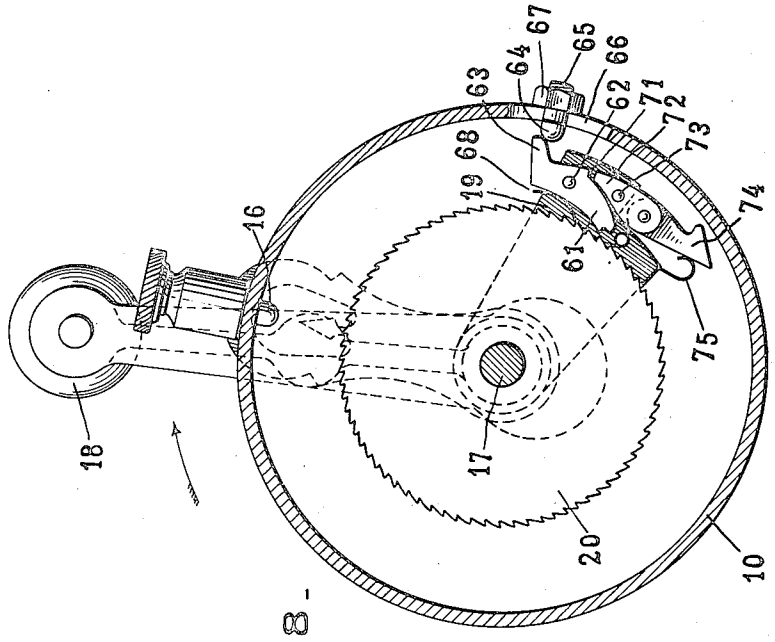


FIG. 8.

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UNITED STATES PATENT OFFICE.

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PACKAGE-SEALING DEVICE.

1,268,377. Specification of Letters Patent. Patented June 4, 1918.

Application filed January 7, 1911, Serial No. 601,451. Renewed October 5, 1917. Serial No. 194,988.

To all whom it may concern:

Be it known that I, CHARLES GREENOUGH MORTIMER, a citizen of the United States, and a resident of East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Package-Sealing Devices, of which the following is a full, clear, and exact description, whereby any one skilled in the art may make and use the same.

The invention relates to devices or apparatus for supplying, in determinate lengths, strips in tape form, which may be employed for wrapping or binding or sealing packages; and relates particularly, to a machine which will accurately feed forward definite lengths of material, which lengths, may be varied at will during a single movement of the operating handle. As shown and described herein, the machine employs a strip of tape of indefinite length suitably supported and which is gummed upon one side. This strip during the operation of the machine is fed forward and moistened as to its gummed surface and cut off in predetermined lengths by a continuous movement of the operating handle. So far as the apparatus shown is concerned, an ungummed strip of tape or paper may be employed by utilizing the reservoir or tank for the purpose of gumming the strip, in contra-distinction to using said tank with a simple liquid for moistening the gummed surface of a strip of tape.

The object of the present invention is to provide an apparatus which will feed the strip to a determined extent and thereupon sever said strip, so that strips of tape of determinate length, with an adhesive surface of proper consistency to be applied to a package or other surface, may be taken off from the machine.

A further object is to provide for a feeding, cutting-off and moistening or adhesive application, during a single continuous movement of the operating handle.

A further object is to provide means for delivering strips of various lengths, within reasonable latitudes, dependent upon the size of the machine and to maintain accuracy in the lengths of said strips.

A still further object is to provide for the delivery of the strips of various lengths duly moistened or treated with adhesive, in a substantially flat and uncurled condition, although said strips may be taken from a single coil or roll of continuous tape.

Referring to the drawings:

Figure 1 is a side elevation of the machine with a part of the standard-plate broken away to show the tape roll.

Fig. 2 is a partial sectional view of the casing showing the parts of the machine in elevation from the opposite side from that illustrated in Fig. 1.

Fig. 3 is a cross-sectional view through the casing, of the parts shown in Figs. 1 and 2, illustrating the main shaft and appurtenant parts in full view.

Fig. 4 is a sectional view longitudinally of the machine on the line *a*—*a* of Fig. 3, looking in the direction of the arrow of said section lines.

Fig. 5 is a view in front elevation of the machine illustrated in Fig. 1.

Fig. 6 is a partial sectional view on the line *b*—*b* of Fig. 5, looking from the central line of the machine as indicated by the arrows.

Fig. 7 is a plan view of the parts shown in Fig. 6, cut in partial section on the line *c*—*c* of said figure.

Fig. 8 is a view similar to that of Fig. 6, illustrating the pawls assuming a non-feeding position.

Fig. 9 illustrates a device for separating the tape from the moistening or adhesive applying roll.

Fig. 10 illustrates a modified form of tank and straightening mechanism in conjunction with the tape.

In the accompanying drawings the numeral 1, denotes a base or support, at one end of which is a standard 2, having a supporting shaft 3, upon which tension-plates 4, 5, are mounted upon opposite sides of a tape roll 6, which may be of any desired size and width and arranged to slip upon and be supported upon a shaft 3. The necessary tension upon the tape-roll 6, is effected by screwing down the nut 7, against the plate 5, which plate 5, as well as the plate 4, is held in non-rotative position by a pin 8.

Upon the opposite end of the base 1, is arranged a casing 9, which serves as an inclosure for the various working parts, as well as a support therefor.

At either side of the casing, as herein shown, are extended casings 10, 11, which also serve to inclose the working parts. The casing 10, is for convenience provided on its outer face with a dial 12, and on its peripheral surface with stop openings 13, which dial and stop openings, in conjunction with an indicator-arm 14, having a pointer 15, and spring-pressed plug 16, serve, not only to indicate the length of tape which will be fed from the machine, but actually determine, in conjunction with a pawl mechanism, hereinafter described, the extent of action of the feeding mechanism.

Journaled in the casings described, is a suitable main shaft 17, which is connected with an operating handle 18, and supports the indicator-arm 14, loosely mounted thereon as well as a pawl-carrier 19, fixed thereon.

A feeding ratchet 20, is secured, through a sleeve 21, to a gear 23, and these gears, with their sleeve, are loosely mounted upon the shaft 17, but move therewith, whenever the pawls borne upon the pawl-arm 19, are in engagement with the ratchet 20.

The gear 23, is in mesh with a pinion 24, connected with a feeding roll 25, upon a shaft 26, and said roll has coöperating therewith, a presser-roll 27, suitably journaled, in the casing and gear-connected with the shaft 26, through gears 27ª, 28, so that the feeding roll 25, and presser-roll have a uniform movement. The roll 27, is resiliently held against its coöperating feeding roll 25, by a spring or other suitable device 29.

In advance of the feeding roll 25, there is a stationary blade 30, under which the strip of tape passes as it is fed forward by the feeding rolls. Suitably pivoted as at 31, is a coöperating blade 32, which, during the pause of the feeding action, is forced upward by a cam 33, secured to the main shaft 17. The blade 32, is normally held in its normal position by a light spring 34, and as there is an abrupt face 35, upon the cam 33, the spring 34, instantly returns the movable blade 32, to its normal position after it has made a full cutting movement with reference to the stationary blade 30.

In advance of the cutting mechanism there is arranged a tank 36, having suitably journaled therein a shaft 37, which bears a roll 38, about which passes a band of resilient and absorbent material 39. The shaft 37, bearing the roll 38, is geared through a pinion 40, to the gear 23. Therefore the feeding movement of the feeding rolls and the forward feeding movement of the roll 38, are uniform. Overlying the roll 38, and its tape 39, is a presser roll 41, having a series of disks 42, to prevent adhesion. The presser roll 41, is resiliently held against the upper surface of the tape by springs 43, arranged at each end of its axle.

The absorbent material 39, surrounding the roll is held in place by a weighted roll 43ª, which, of course, is located below the level of a liquid 44, or adhesive, as the case may be.

The moistening receptacle 36, is removable from the casing 9, upon removal of a slide-plate 45, which forms a closure for the front-side of the casing 9. It will be observed that the moistening device is a distinct unit, consisting of the casing 36, closed at the top by the roll 38, and its band of moisture or gum-conveying material so that there can be little or no evaporation of the material contained in the receptacle, except such slight evaporation as may occur from the exposed surface of the band 36, where it leads over the roll at the upper end of the casing. The roll and its band, when in operation, are in constant movement and therefore a full fresh supply, of moistening liquid or adhesive, is always submitted to one side of the tape, as it is fed through the machine.

At the rear of the machine, as indicated in Figs. 1 to 4 inclusive, there are a pair of rolls 46, 47, and a guide-plate 48. The tape from the tape-roll is passed over the roll 46, about the roll 47, then across the guide-plate 48, to the feed-roll 25, and presser-roll 27. It is then projected, past the cutting off device, between the moistening roller 38, and its presser 42.

The tape 49, being in coil form, naturally has a tendency to curl and by passing it over the rolls 46, and about the roll 47, the adhesive surface is broken, into minute particles, so that it will be delivered, in flat, uncurled form, after it passes through the machine.

In Fig. 10 there is illustrated a slightly modified arrangement of the rolls 46, 47 wherein a greater action of breaking the surface of the tape or paper may be effected. In this figure, the tape 49, is first led over a roll 50, about intermediate rolls 51, 52, and under a guiding roll 53, before passing to the moistening or gumming roll 54, to the surface of which it is held by a roll 55, located off the vertical center of the roll 54.

To insure the flattened tape or paper strip being passed from the surface of the moistening roll 54, a bar 56, is pivoted in suitable position and has a series of blades 57, which are formed to bear upon the cylinder of the roll 54, between sections of the fabric or moisture-conveying material 58. These are so formed with regard to their advanced points 59, and their supporting shaft 56, in conjuction with the edge 60, of the tank that the strips of paper are led off without liability of adhering to the moistening material 58. The bar and its blades are illus-

trated in perspective in Fig. 9 and, of course, whether straightening rolls 50, to 53, inclusive, are arranged directly upon the tank or in the position illustrated in Fig. 4, is quite immaterial. Merely for convenience they are shown in Fig. 10 in conjunction with the moistening tank.

The arm 19, which is secured to the shaft 17, moved by the crank 18, bears a pawl mechanism illustrated in detail in Figs. 6, 7 and 8. This pawl mechanism has a clutching and releasing action with reference to the ratchet 20, which, as heretofore described, is connected through the sleeve 21, with the feeding gear 23, these various parts being loosely mounted upon the shaft 17.

The pawl mechanism comprises a main pawl 61, pivoted as at 62, to the arm 19, and provided with a cam-member 63, by which it may be moved and released from the ratchet 20, whenever it passes an adjustable trip 64. This trip 64, as illustrated, consists of a member 65, projecting through a slotted opening 66, in the casing 10, and may be clamped in any desired position of adjustment along said slotted opening by a nut 67. Its purpose and function is to raise the pawl 61, out of engagement with the ratchet 20, during the rotation of the operating handle and main shaft and thereupon stop the feeding action of the feed-rolls, and appurtenant parts, with reference to the tape or paper strip. A spring 68, normally tends to press the pawl 61, into engagement with its ratchet and in order to secure a definite and precise contact between the pawl 61, and its ratchet, the end of said pawl conforms to the ratchet teeth and has two pawl-points 69, 70, which insure full engagement with one tooth of the ratchet, in as much, as two ratchet teeth are actually engaged by the pawl-points 69, 70.

Arranged upon the upper surface of the pawl 61, is a detent 71, which, when the cam member 63, is depressed by the plug 64, is engaged by a trigger or pawl 72. This pawl is pivoted to the arm 19, as at 73, and has an off-set pawl member 74, arranged in the proper plane to be engaged by the spring plug 16, borne upon the arm 14, and passing through the perforations 13, and the casing 10.

Obviously, the spring plug 16, may be adjusted through any of the several openings 13, which correspond with the figures of the dial 12, and the position of this spring plug 16, determines the point of engagement, of the pawl 61, with its ratchet, for a feeding movement of the tape.

The pawl 61, remains in contact with the ratchet 20, effecting a feeding movement until the cam 63, is depressed by the plug 64. Thereupon the end of the trigger or pawl member 72, under the influence of a spring 75, drops into the notch 71, and holds the pawl 61, out of engagement with the ratchet 20, until the off-set pawl member 74, engages the plug 16. In Fig. 6, the pawls are shown in a feeding position, the off-set pawl 74, having been engaged by the plug 16, and depressed to release the feeding pawl 61.

In Fig. 8 the pawl 61, is shown as released from the ratchet 20, by the contact of the cam 63, with the plug 64.

As soon as the parts are in the position indicated in Fig. 8, the cutting off cam 33, is in position to move the blade 32, upward to cut off the tape which has been fed across the moistener and obviously, there is a dead pause in the feeding action and movement of the tape to permit this cutting off action. The next feeding movement will occur when the off-set pawl 74, is engaged by the plug 16, and trips the trigger 72, out of engagement with the notch 71, of the feeding pawl 61. To prevent possible retrograde movement of the shaft 17, a spring-pressed pawl 76, engages a fine toothed ratchet 77, the latter being secured to the shaft 17. These parts are best illustrated in Figs. 2 and 3.

From the above, it is apparent that a continuous movement of the operating handle 18, in one direction of rotation, effects a feeding movement of the tape or paper strip to a predetermined degree, and instantly stops the feed, giving a pause to the movement of the strip and thereupon severs the strip. There is a great advantage in such a mechanism, inasmuch as the parts may be timed to a nicety in their operation and the strips may be accurately cut, at predetermined lengths, after they have been fed forward and moistened or gummed as to one side. The whole operation is accomplished during one cycle of movement of the operating mechanism in one direction and obviously, the operating shaft may be power-operated or hand-operated to suit the exigencies of any particular case. Furthermore, a greater latitude as to the length of strip fed may be secured in an apparatus of the character described, as a comparatively small angular movement of the shaft may be utilized for the cutting off operation and substantially the full movement of the shaft may be utilized for feeding. In the small machine herein shown, strips varying from ½ to 13½ inches may be delivered and, of course, strips of any length between said figures may be served by adjusting the arm 14, and its spring-pressed plug 16.

The details of the mechanism might be varied and arranged, in different mechanical forms, without departing from the spirit or intent of the invention, which contemplates the serving of strips with a surface made suitably adhesive, in predetermined

lengths, by feeding the strip from a continuous roll, moistening it and cutting it off in predetermined lengths, by a continuous movement, of the operating shaft, in one direction.

What I claim as my invention and desire to secure by Letters Patent is:

1. A device for delivering strips of moistened adhesive tape comprising means for supporting a supply of tape, means for drawing strips therefrom, including a main shaft, feeding rollers, a sleeve loosely mounted on the main shaft and having a ratchet and a gear operatively connected with said feeding rollers, means fixed on the main shaft for carrying a pawl rotatable continuously in one direction and adapted to engage the ratchet and adjustable means for causing said pawl to engage and disengage said ratchet during continued rotation of the main shaft, and means for moistening and severing the strip.

2. A device for delivering strips of moistened adhesive tape comprising means for supporting a supply of tape, means for drawing strips therefrom, means for severing said strips, including a fixed blade disposed above the path of the unmoistened tape, a movable blade adapted to coöperate with said fixed blade and pivoted to rest normally below the path of the tape, a main shaft, and a cam fixed on said main shaft and adapted to engage and actuate said movable blade to sever a strip, and means for moistening the strip.

3. A device for delivering strips of moistened adhesive tape comprising means for supporting a supply of gummed tape, means for drawing strips therefrom, strip severing means, and means for rendering said strip adhesive, including a container for water, a moistening roller rotatable therein, a presser roller located above the moistening roller and to one side of the vertical center thereof, and means for breaking the dry gum coating on the tape before contact with said roller.

4. A device for delivering strips of moistened adhesive tape comprising means for supporting a supply of tape, means for drawing strips therefrom, including a main shaft, feeding rollers, a sleeve loosely mounted on the main shaft and having a ratchet and a gear operatively connected with said feeding rollers, means fixed on the main shaft for carrying a pawl adapted to engage said ratchet, means adjustable in the path of the pawl for causing the latter to engage said ratchet, and means also in the path of the pawl to disengage the latter from said ratchet, said pawl engaging and disengaging means being adapted to operate successively during the continued rotation of the main shaft in one direction.

5. In a machine for delivering strips of adhesive tape in various predeterminable lengths for application to a box, package, or the like, the combiantion of a tape support, tape feeding means, tape feed actuating and arresting means rotatable continuously in a single direction, and tape severing means comprising a fixed blade, a movable blade cooperating therewith and a cam arranged concentrically with said tape feed actuating and arresting means to positively actuate said movable blade.

6. In a machine for delivering strips of adhesive tape in various predeterminable lengths for application to a box, package, or the like, the combination of a tape support, strip feeding means, and strip feed controlling means including a pawl carrying member rotatable continuously in a single direction and operatively connected with said strip feeding means, and means adjustable in the path of said pawl carrying member whereby the strip feeding means may be alternately actuated and arrested.

7. In a machine for delivering strips of adhesive tape in various predeterminable lengths for application to a box, package, or the like, the combination of a tape support, strip feeding means, and strip feed controlling means including a rotatable pawl carrying member operatively connected with said strip feeding means and trips arranged in the path of said pawl carrying member whereby the latter may effect alternate operation and repose of the strip feeding means.

8. In a machine for delivering strips of adhesive tape in various predeterminable lengths for application to a box, package, or the like, the combination of a tape support, strip feeding means, and strip feed controlling means including a pawl carrying member rotatable continuously in a single direction and having a pawl for engaging the strip feeding means, and trip members arranged in the path of said pawl whereby the latter may alternately engage and disengage said strip feeding means.

9. In a machine for delivering strips of adhesive tape in various predeterminable lengths for application to a box, package, or the like, the combination of a tape support, strip feeding means, and strip feed controlling means including a rotatable pawl carrying member having a pawl for engaging the strip feeding means and a pawl engaging trigger, means for releasing said trigger to disengage said pawl whereby the latter may actuate the strip feeding means, and pawl engaging means rotatably adjustable in the path of said pawl and adapted to provide a trip whereby the pawl may be released from the strip feeding means to terminate the strip feeding operation.

10. In a machine for delivering strips of adhesive tape of various lengths for application to a box, package, or the like, the com-

bination with strip feeding means, of means for readily changing the operating period of said strip feeding means, comprising an indicator dial having peripheral recesses, plugs adjustably located in said recesses, and a rotatable arm provided with plug engaging means adapted to coöperate with the strip feeding means whereby the latter may be actuated or arrested.

11. In a machine for delivering strips of adhesive tape of various lengths for application to a box, package, or the like, the combination with strip feeding rollers, of roller driving means and means for readily changing the operating period of said strip feeding rollers, comprising an indicator dial having peripheral recesses, plugs adjustably located in said recesses and a rotatable arm provided with plug engaging means adapted to coöperate with the roller driving means whereby the latter may be actuated or arrested.

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