Aug. 9, 1927. 1,638,816

T. H. KRUEGER

TAPE SERVING DEVICE WITH INCLINED GUIDE

Filed March 4. 1924 4 Sheets-Sheet 1

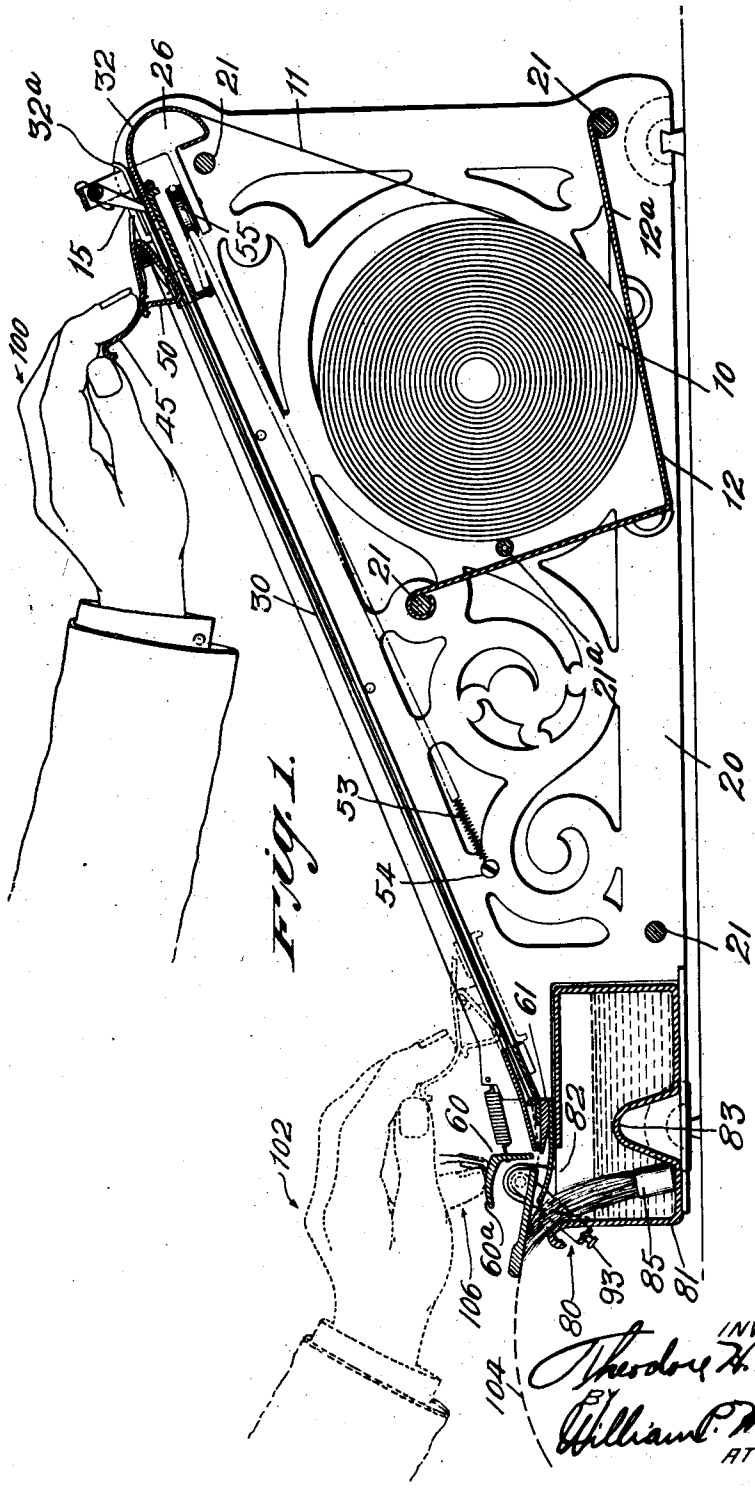


Fig. 1.

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Fig. 2.

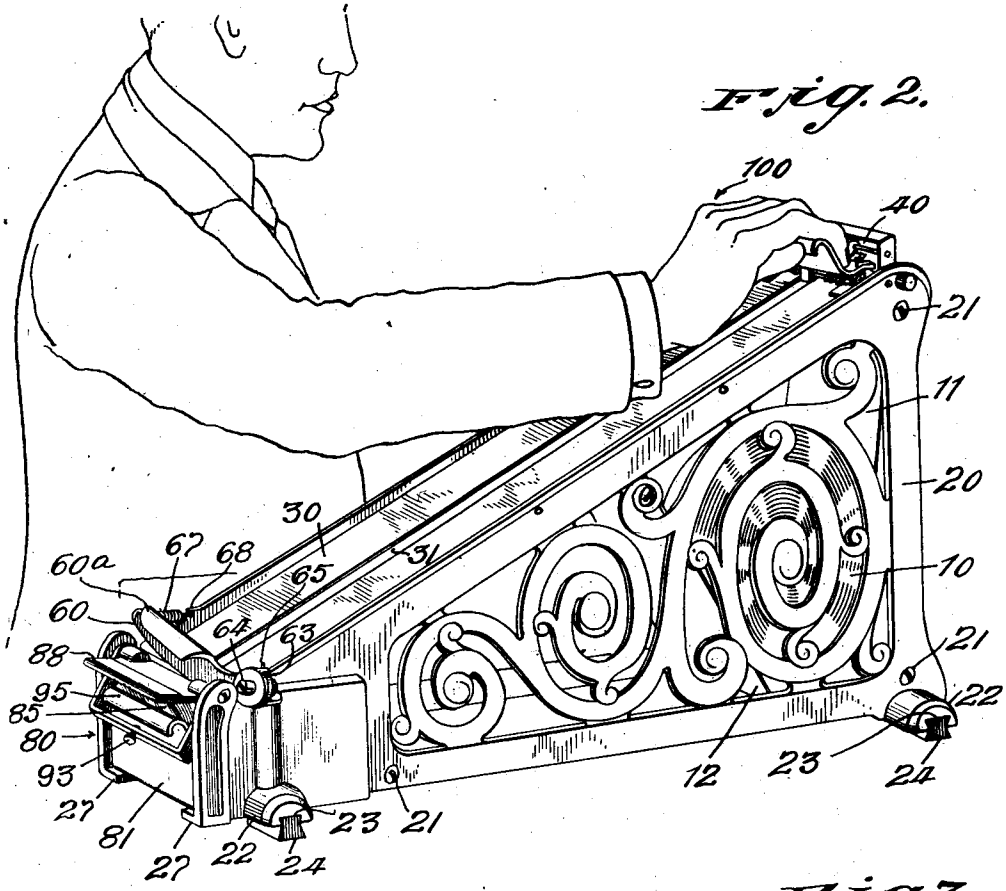
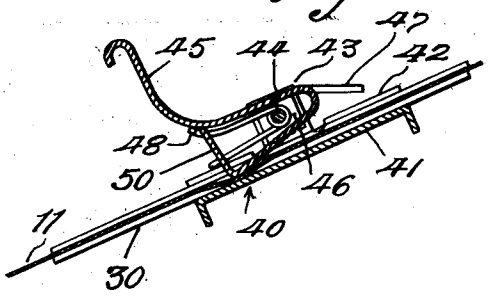


Fig. 3.



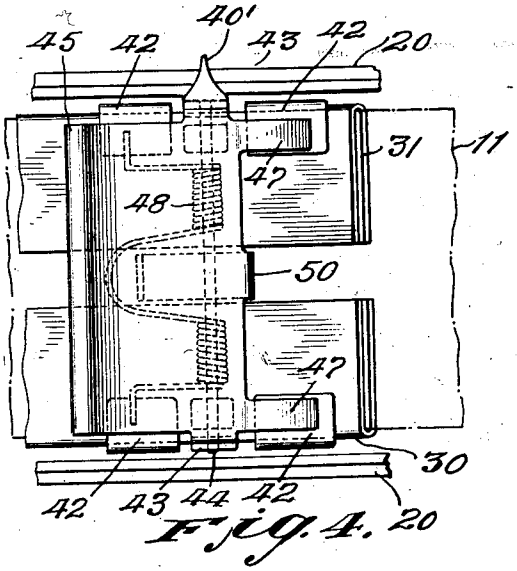


Fig. 4.

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Fig. 5.

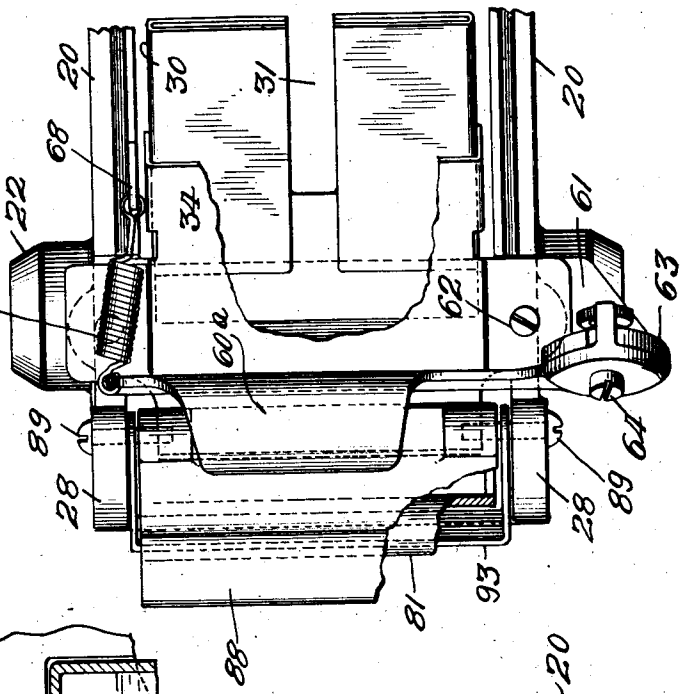


Fig. 7.

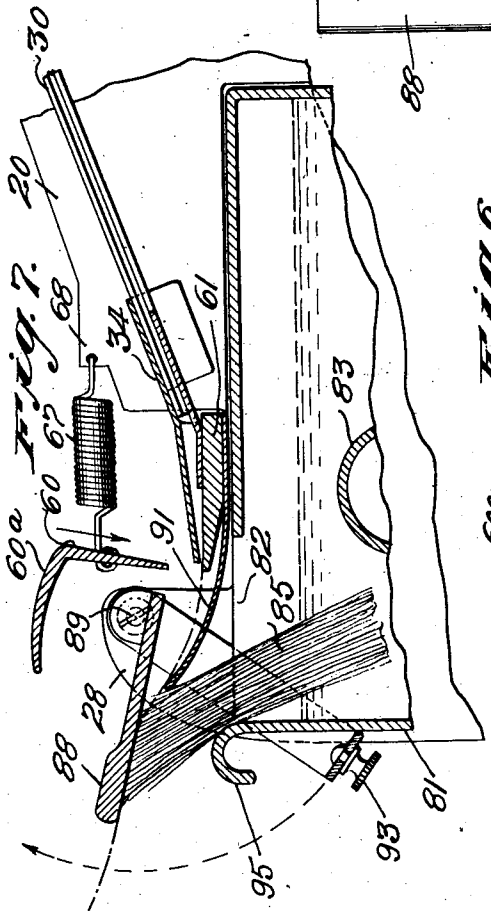
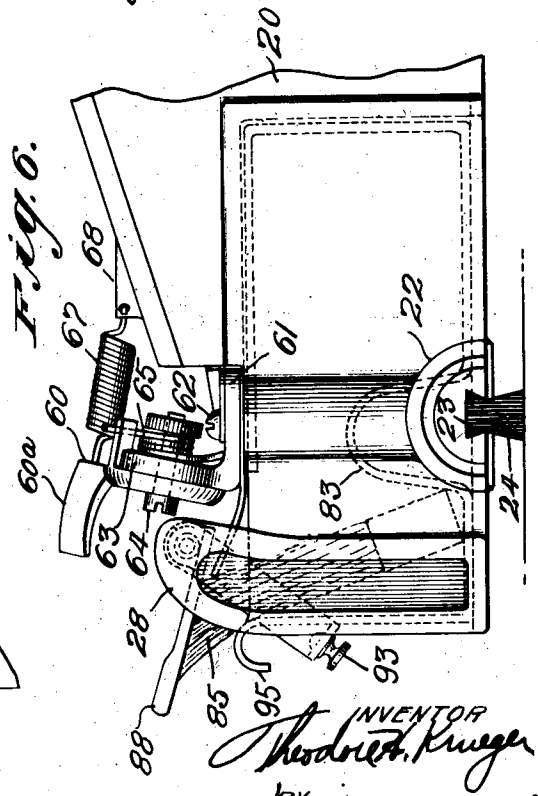


Fig. 6.



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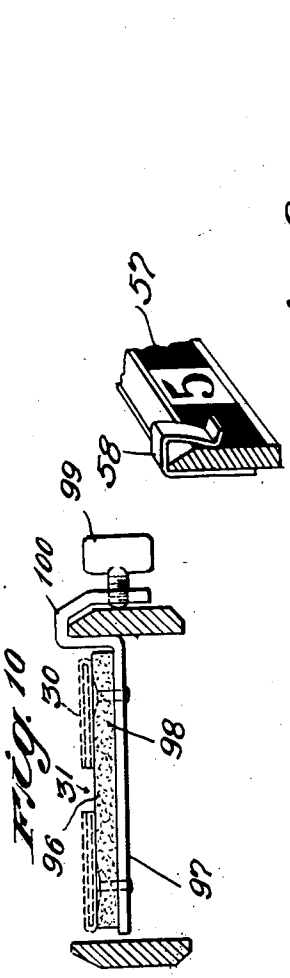


Fig. 10.

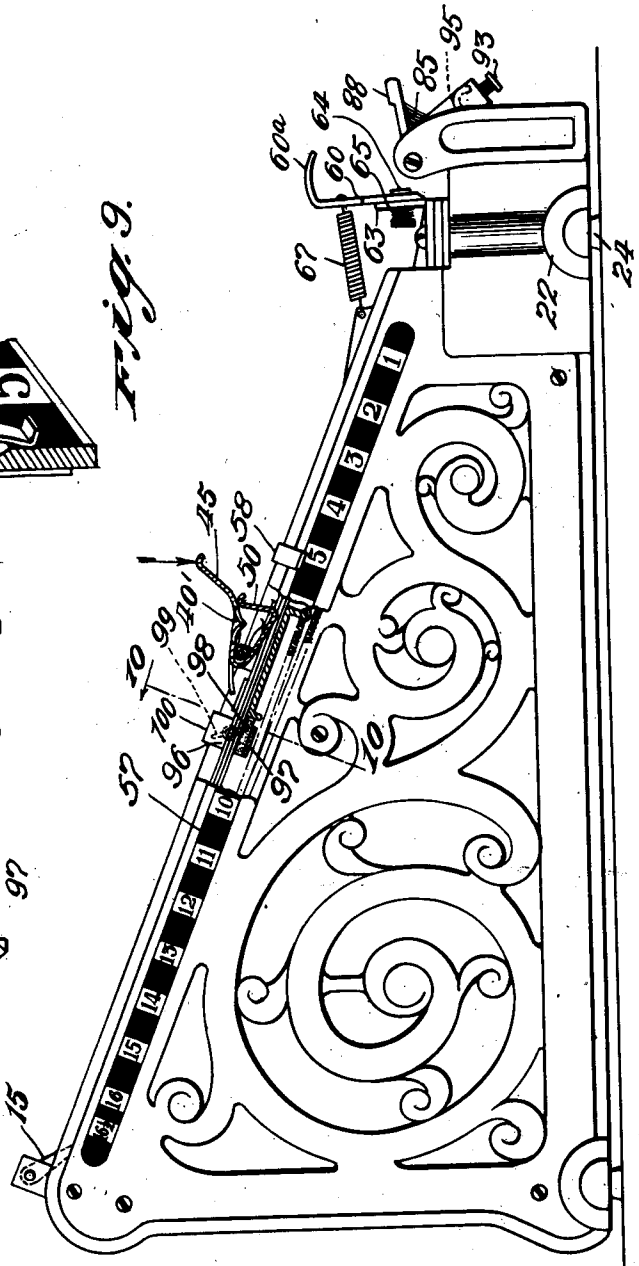


Fig. 8.

Fig. 9.

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UNITED STATES PATENT OFFICE.

THEODORE H. KRUEGER, OF NEW YORK, N. Y.

TAPE-SERVING DEVICE WITH INCLINED GUIDE.

Application filed March 4, 1924. Serial No. 696,907.

This invention relates to paper serving machines and more especially to machines for serving gummed paper strip in condition to be immediately applied to a package or the like. One of the objects of the invention is to provide a machine of the type having an inclined tape guide which considerably facilitates and eases the work of the operator, reduces the overall length of the machine and secures other advantages.

Another object of this invention is to provide a means for serving paper strip with its gummed surface properly moistened, in any desired length or lengths and to accomplish this service without spreading the moistening and gumming material beyond the desired confines for the same.

It is also an object of this invention to provide a serving device from which complicated mechanism has been eliminated with a resultant increase in the convenience and simplicity of its use, to provide a device of such size and shape as to be capable of most convenient location and of use without involving the inconvenient and unnatural movements on the part of its operator necessary with previous devices.

More especially it is the purpose of this invention to provide a machine capable of serving paper strip of widths, and in lengths, not conveniently handled in the device described in my co-pending application Serial No. 661,168, filed September 6, 1923, and to effect certain improvements in the mechanism and arrangement of that device as will be hereinafter described.

Another object of the invention is to provide a machine which will automatically serve a measured length of strip, and in which the length can be readily increased or decreased a measured amount by manual operation of the serving mechanism.

In the accompanying drawings which illustrate preferred forms of embodiment of the invention, like parts have been indicated by like numerals throughout the several views:

Figure 1 is a sectional elevation of one embodiment of my invention.

Figure 2 is a view in perspective of the complete device, an illustrative embodiment of my invention as it appears in actual use.

Figure 3 shows in section a detail of the device shown in Figures 1 and 2.

Figure 4 shows in plan the detail shown sectionally in Figure 3.

Figure 5 is a plan view of a further detail of the complete device with a portion thereof broken away for illustrative purposes.

Figure 6 shows in side elevation the detail shown in Figure 5.

Figure 7 is a sectional view of the detail shown in Figure 6 on an enlarged scale.

Figure 8 is a side view of the machine with parts broken away taken from the side opposite to the one shown in Figure 1.

Figure 9 is a perspective view of a portion of the scale and marker.

Figure 10 is a sectional view on the line 10—10 of Figure 8.

In the embodiment of the invention illustrated in Figure 1, the machine comprises a pair of substantially triangular side frame members 20 connected by cross members 21 and spaced apart a sufficient distance to receive the tape serving mechanism therebetween.

This tape serving mechanism comprises, a roll supporting pan 12, supported from the cross members 21, which is provided with an inclined bottom 12^a which tends by gravity to keep the roll 10 which may be inserted by merely pushing same in at the rear between the members 20 in proper position in the pan. The roll 10 when in position in the pan contacts at one point with the bottom of the pan and at another point with the back of the pan or with one of the cross members 21^a so as to prevent the unwinding of the strip 11 except when the strip is being withdrawn from the roll in the manner designed. The roll 10 of gummed paper strip extends in a strip 11 from the roll, over the cross member 26 at the back of the machine, and thence through the guides 30, which are provided with a slot 31 therebetween to permit the gripping of the strip in the guides and through the cut-off 60 and moistener 80 to the lower end of the machine where the moistened strip may be removed in suitable lengths to be applied to a package or other bundle.

The guide 30 is formed from a single piece of sheet metal folded upon itself and slotted lengthwise for the major portion of its length as is illustrated in Figure 5 to allow the gripper 50 to extend through the slot and engage the paper strip. A short portion at each end of the bottom guide member is unslotted and the rear unslotted end is bent into the paper strip receiving apron 32 which is bent around the cross

member 26 of the frame 20 to secure the upper end of the guide 30 firmly in place. The lower end of the guide 30 is secured to the frame through a cross member 61 by means of the guide extension and nozzle member 34. Cross member 61 also serves as the lower blade for the cutter blade 60. To facilitate the threading of the strip into the guide the rear end of the top is bent upward as at 32a.

The strip feeder 40 is shown particularly in Figures 3 and 4 and comprises a slider base 41 formed preferably from sheet metal, which passes under the guide 30 and extends up over the edges of the guide to form ears 42 which loosely fit upon the guide 30 to permit sliding of the feeder 40 thereon. Between the ears 42 portions of the base 41 are turned upward at substantially right angles to the body of the base to form bearings 43 for the pivot rod 44 which supports a sheet metal finger piece 45 provided at either side thereof with downwardly extending portions 46 pivoted on the rod 44. A pair of wings 47 extend rearwardly from the finger piece 45 to serve as stops to prevent the finger piece 45 from being turned too far by the spring 48 when released from the operator's fingers. A portion struck out from the finger piece 45 is bent downwardly and rearwardly under the rod 44, then upwardly to contact with the main finger piece to form the gripper jaw 50.

When the finger piece 45 is grasped by the operator and pushed down the finger piece turns on the pivot 44 and the member 50 is brought down through the slot 31 to grip the strip 11 between the member 50 and the base 41 so that as the feeder 40 is pulled down the guide 30 the strip of paper is fed forward under the knife 60 and through the moistener 80. When the hand is removed from the finger piece 40, the spring 48 releases the gripper jaw 50 so that the feeder may be returned to its starting point preparatory to feeding a new strip. To automatically return the feeder a coil spring 53 is secured at one end to the feeder and at the other end to a point 54 on the machine frame and is passed over a pulley 55 near the top of the machine.

The cutter 60 is turned over at its top to form a finger pressure plate 60a and the cross piece 61 is secured to the frames 20 by the screws 62 to form the lower blade of the cutting device and to act as a support for the lower end of the guide 30, a projection 63 extends outward from the cross piece 61 to form a support for the cutter 60 which is pivoted thereto by a bolt 64 which also serves as a support for the cutter raising spring 65. A coil spring 67 is attached to the cutter 60 at the end remote from its pivot, and to the frame 20 at a point 68 for the purpose of holding the edge of cutter 60 firmly against the edge of cross piece 61 in such manner that the paper strip is cleanly sheared off when the cutter is depressed.

A moistener 80 engages the paper strip just beyond the cutter, this comprises a liquid container 81 arranged to slide between the frames 20 and be supported therebetween by the frame lugs 27. The liquid container 81 is provided with an opening 82 from which the brush 85 projects and it is also provided with a projection 83 which serves to guide the brush 85 to its proper place and to hold it in operative position, when the brush 85 is dropped into the opening 82. To bring the paper strip's gummed surface into positive contact with the hairs of brush 85, a weighted metal flap 88 is pivoted at its corners to the brackets 28 by means of the screws 89.

Secured to the underside of cross piece 61 is a guide plate 91. When the brush 85 and the container 81 are in position, the brush hairs are supported near their ends in such manner that the weighted flap 88 presses the paper strip firmly against the brush hairs. The butt end of the brush extends into the water in the container 81 and the brush hairs form a capillary moisture conveyor which keeps the brush hair ends continually supplied with moisture which the hair ends individually spread upon the gummed surface of the paper strip. The positive pressure of the weighted flap 88 holds the paper strip against the natural resilience of the brush hairs, each hair end reaching a different point in the width of the paper strip, even and complete moistening is thus assured. The unavoidable unevenness and indentations in the strip surface, which would prevent even moistening in a roller moistener, do not effect at all the evenness of the moistening as performed by the improved brush moistener herein described.

To hold the container 81 in the frame and to permit ready withdrawal of the same a latch 93 pivoted on the screws 89 is provided. A curled lip 95 on the container provides a hand grip by which the container may be drawn from the frame.

For convenience in withdrawing a measured length of strip the machine may be provided with a scale 57 as illustrated in Figures 8 and 9, and the strip feeder 40 may be provided with a pointer 40′ by which the scale may be read.

Suitable markers 58 may be provided to frictionally engage the scale portion to mark any desired length of strip, and where the packages being wrapped necessitate strips of different length markers of different color may be applied to the scale to assist the operator to return the strip feeder to the proper point to feed out the desired length.

For automatically stopping the return of

the feeder 40 in position to feed out length of strip which is less than the length of the guides 30 a stop 96 be provided, comprising a base portion 97 adapted to be positioned below the guide and to support a cushion pad 98 against which the base 41 of the feeder strikes to stop the return movement of the feeder. To adjust the position of the stop, the thumb screw 99 in the hook portion 100 may be loosened and the stop mechanism slid to the desired position and again locked by tightening the thumb screw.

To prevent the paper strip from being fed back when the feeder 40 is returned from the lower position of its movement a spring pressed pawl 15 is provided near the top of the machine, which presses against an unslotted under portion of the guide 30 in such a way as to permit the paper strip to move in one direction only.

The operation of the device shown is best described by reference to Figures 1 and 2. The strip serving device is usually mounted upon a desk or counter of such height as to be approximately at the end of the operator's arm as it hangs from his shoulder.

Frames 20 are preferably cast with feet 22 having key shaped slots 23 into which rubber strips 24 are inserted to provide supports which will not scratch the surfaces of the desks or counters upon which the device is placed, but provide a non-slipping contact with finely finished surfaces without damage thereto.

To serve a section of paper strip, the operator reaches forward and upward, grasps the finger piece 45 as indicated at 100. The weight of the operator's hand depresses this finger piece 45 and forces the jaw 50 downward, clamping the paper strip 11 against the gripper base 41 as shown in Figure 3. The operator then sweeps his hand downward in a natural swing to the position indicated at 102 in Figure 1, this pulls paper strip 11 from the roll 10 over the apron 32 into the guide 30 and at the same time pushes the length of strip in the guide 30 under the cutter 60 through the moistener 80 and projects the strip therefrom as indicated by the dotted lines at 104. The operator then merely raises his fingers to release the finger piece 45 whereupon the spring 48 releases the grip of the jaw 50 on the paper strip and spring 53 draws the feeder back to its original position at the top of the guides. With the continued swing of his arm the operator's fingers strike the pressure plate 60^a, as shown at 106 and the slight pressure depresses the cutter 60 to sever the paper strip. The end of the strip will, however, be held by the flap 88 and the brush 85 until withdrawn by a further movement on the part of the operator.

It is to be noted that the slope of the guide 30 is approximately tangent to the arc through which one's hand will travel when swinging naturally from the shoulder, and that by a natural swing of the arm and hand the finger piece 45 is depressed, the strip fed forward, the cutter operated and the hand swung out to receive and apply the moistened strip which has been projected from the machine.

By thus providing a machine which may be operated by the natural movement of the hand, the fatigue to the operator who stands at the machine wrapping packages all day, is materially lessened and the number of packages which he is able to wrap per unit of time is also increased. The use of an inclined guide 30 instead of a horizontal guide permits the use of a longer guide than is possible in a horizontal guide machine, without increasing the overall length of the machine.

The length of the travel of strip feeder 40, and hence the length of paper strip projected at one complete stroke may be controlled by shifting the stop 96 but it will be understood that a number of strokes, or only a measured portion of one stroke may be performed to project the exact length of strip required before the cutter 60 is operated. Thus it will be seen that means have been provided for projecting measured adjusted lengths and that this same means is operable to project any other length desired without disturbing the aforesaid adjustment.

As only one hand is required to operate the strip projecting, moistening and cutting means, the operator is free to hold the package being sealed and to apply the moistened strip as it is projected, thus eliminating much of the difficulty and "messiness" formerly unavoidably associated with the use of gummed paper strip.

It will be evident that the herein disclosed invention reveals many improvements in paper strip serving and that the ratchets, gears, levers and rollers previously associated with such mechanism have been dispensed with, that the elimination of the complicated and intricate mechanism has so simplified the device that its is adapted to a far broader field of use with greater efficiency in any field.

It is, of course, understood that the embodiment shown is for illustrative purposes only and that changes and modifications may be made in the complete mechanism or in the parts which form the elements thereof, without departing from the spirit of the invention of the scope of the appended claims.

I claim:

1. In a strip server of the type described including a severing device and a moistener, the combination of a roll holder, a straight inclined flattened tubular strip guide having

a slot through the upper and lower walls thereof, a hand-actuated strip feeder movable in a fixed path along the outside of said guide, and means on said strip feeder to project into said slots to feed the strip through said guide.

2. In a strip server of the type described, an inclined strip guide having slots through the upper and lower walls thereof, a carriage slidable along the outer side of said guide, means on the carriage to grasp the strip through said slots to advance the same and feed it from the lower end of the guide, means at the bottom of the guide to sever the strip, and means to moisten the strip after it has passed the severing means.

3. In a strip server of the type described, an inclined flattened strip guide, a slot in the walls of said guide, a strip feeder embracing said guide and slidable along the same, and means on the strip feeder projecting into said slot to feed the strip through the guide, means to moisten the strip, and means to sever the strip which has been fed from the guide.

4. In a strip serving device of the type described, a strip guide, means to advance the strip therethrough, a scale adjacent the guide, and universally adjustable stop means for stopping the strip-advancing means to automatically measure off desired lengths of strip.

5. In a strip server of the type described, the combination of a roll holder, an inclined strip guide having a slot through the upper and lower walls thereof, a strip feeder embracing said guide and relatively movable in a straight line along the same, strip gripping means on said strip feeder adapted to grip the tape through said slots, a severing device, a moistening unit, and means to permit the moistening unit to be removed from and replaced in the strip server.

6. A strip serving device, comprising a pair of substantially triangular frame members, means connecting the two members, a guide for tape comprising a tubular strip of sheet metal having a longitudinal slot through the walls thereof along an inclined side of said triangular frame members, a strip serving device embracing said guide and movable on said guide, and moistening mechanism between said frame members.

7. A strip serving device, comprising a pair of substantially triangular frame members, means connecting the two members, and a strip serving mechanism therebetween, including a strip guide having slots therein, and a strip server movable along an inclined side of said frame members and adapted to grasp the tape through said slots in the guide to serve the strip.

8. In a strip server of the type described, the combination of a pair of substantially right angle triangular frame members, an inclined strip guide between said members having a slot in the upper and lower walls thereof, means to feed the strip through said guide comprising a carriage slidable on said guide, and a strip moistening unit at the lower end of said guide slidable into and out of operative position between said frame members.

9. In a strip server of the type described, a straight inclined flattened strip guide having walls formed to provide a slot through a part only of its length; slidable means embracing said guide and projecting into said slot to feed the strip through the guide, a stop member on an unslotted portion of said guide and cooperating therewith to prevent movement of the strip in the other direction; means to moisten the strip and means to sever the strip which has been fed from the guide.

In testimony whereof I have affixed my signature to this specification.

THEODORE H. KRUEGER.