May 31, 1932. A. F. GILLET 1,860,668

PAPER STRIP DISTRIBUTING, CUTTING, AND MOISTENING MACHINE

Filed Sept. 13, 1930 5 Sheets-Sheet 1

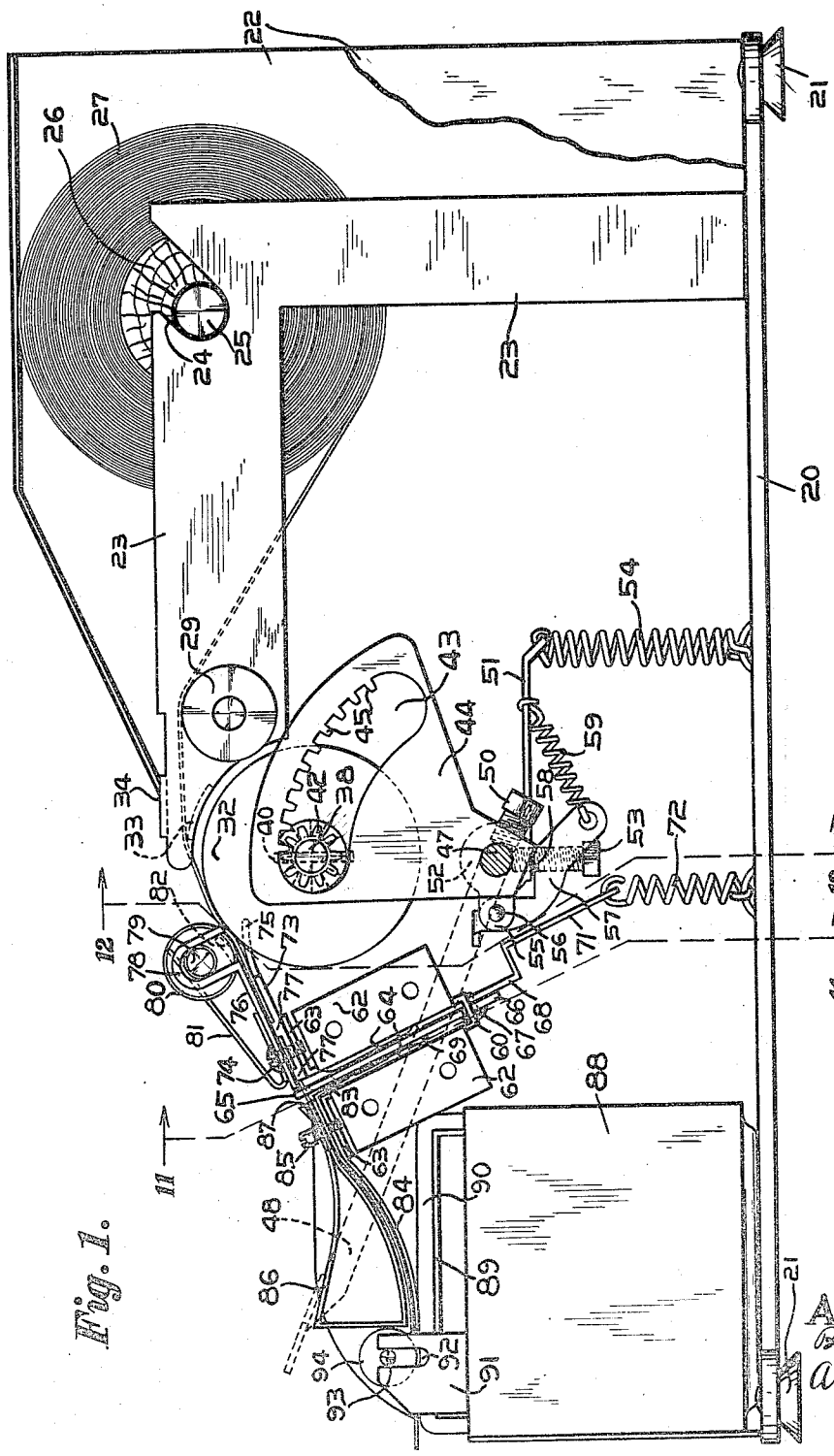


Fig. 1.

Inventor
A. F. Gillet
By
Arthur H. Sturges
Attorney

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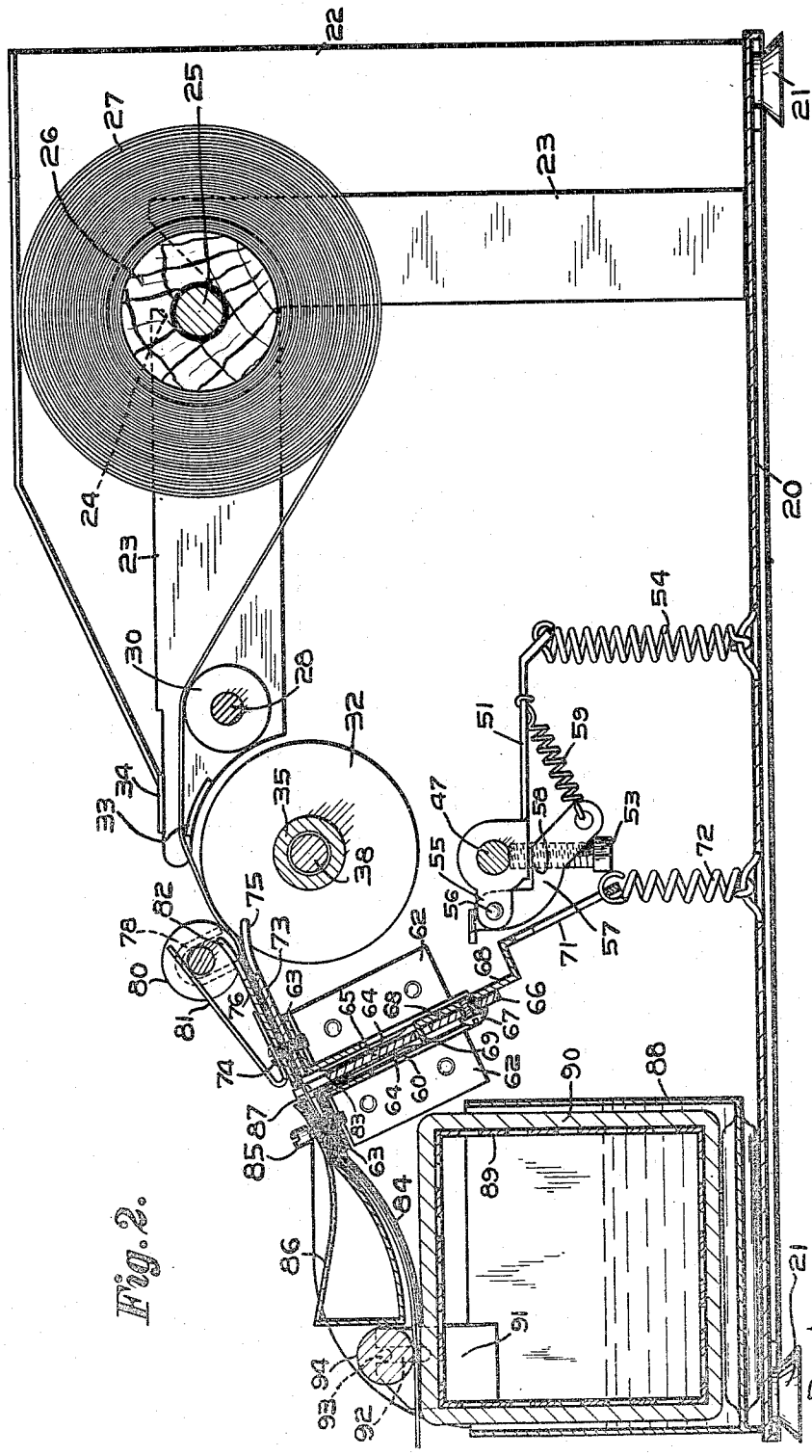


Fig. 2.

Inventor
A. F. Gillet
By
Arthur H. Sturges
Attorney

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PAPER STRIP DISTRIBUTING, CUTTING, AND MOISTENING MACHINE

Filed Sept. 13, 1930 5 Sheets-Sheet 3

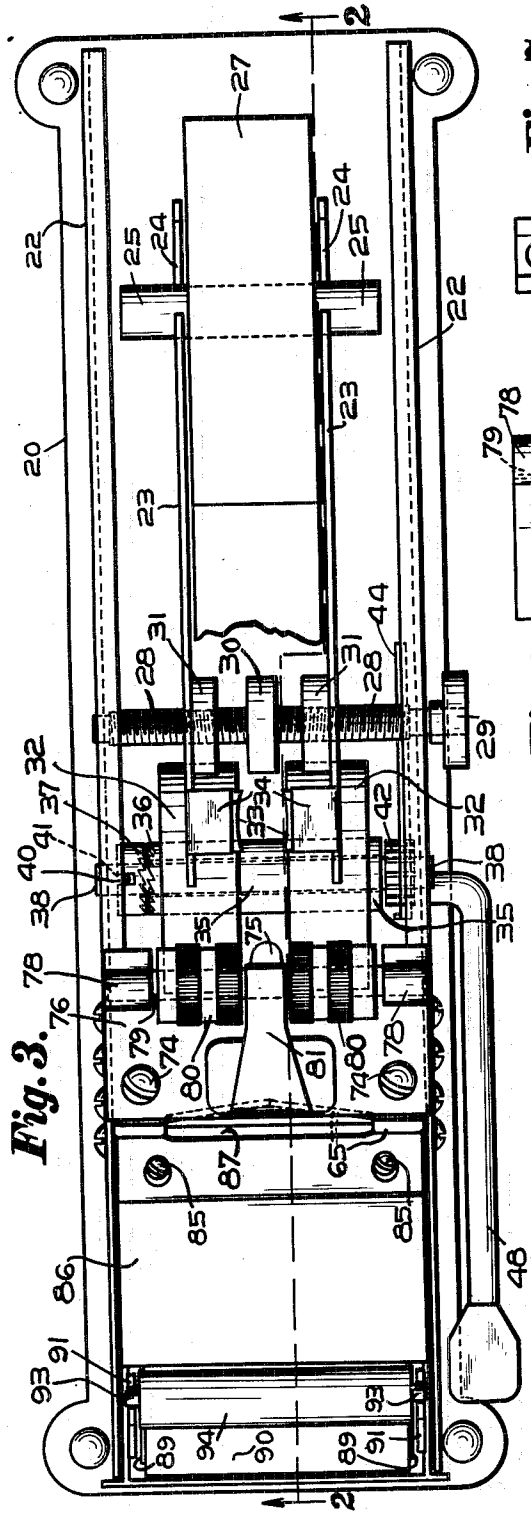


Fig. 3.

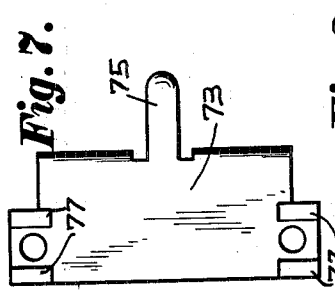


Fig. 7.



Fig. 8.

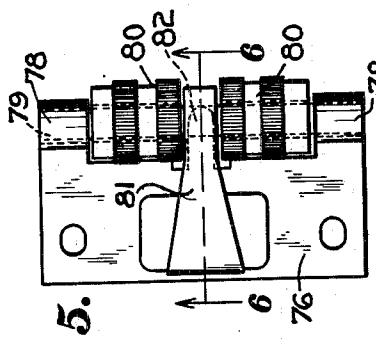


Fig. 5.

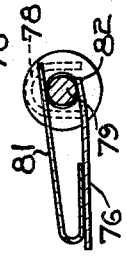


Fig. 6.

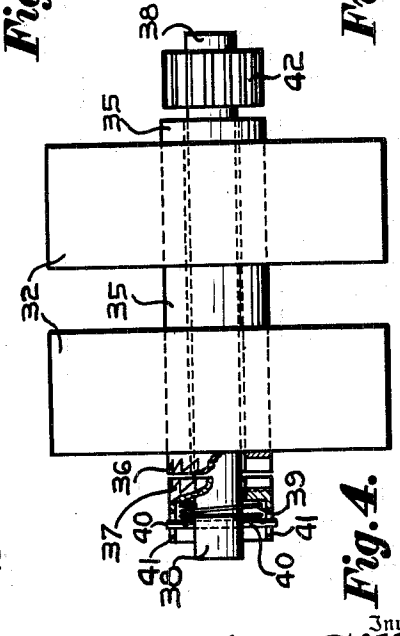


Fig. 4.

Inventor
A. F. Gillet
By Arthur H. Sturges
Attorney

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PAPER STRIP DISTRIBUTING, CUTTING, AND MOISTENING MACHINE

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Fig.12.

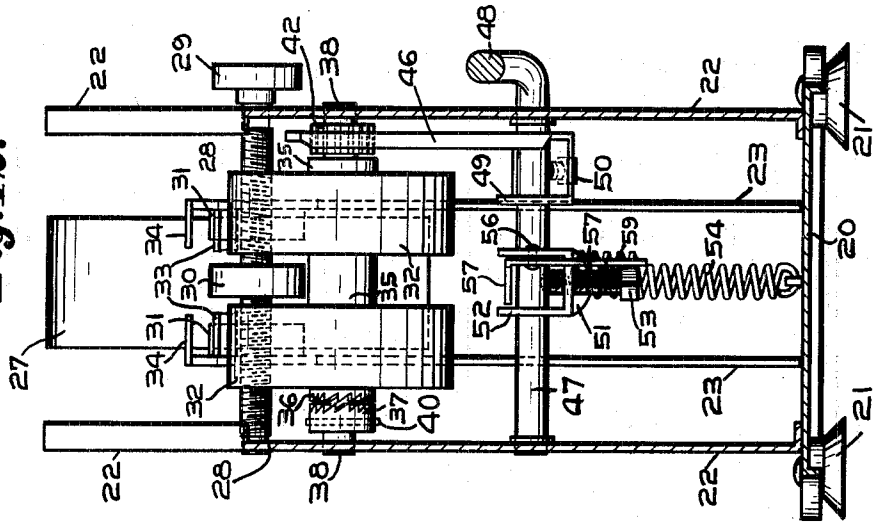


Fig.11.

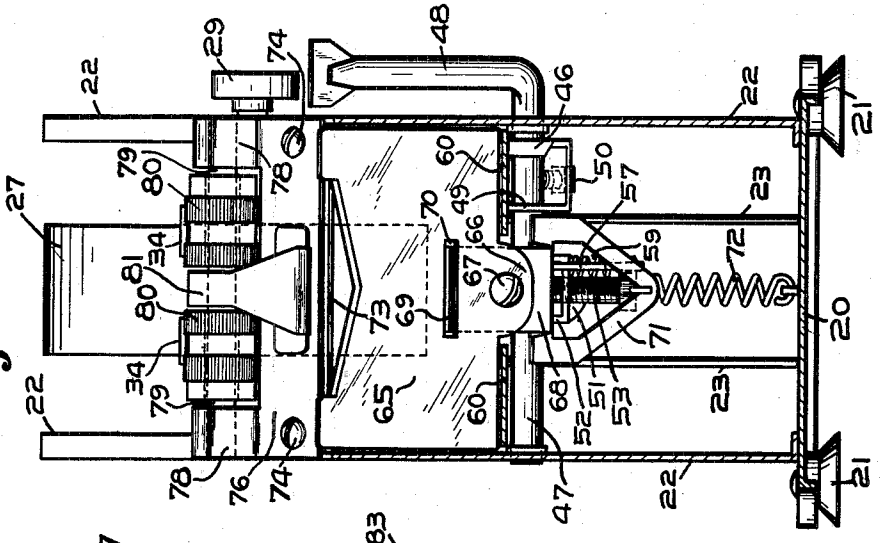


Fig.9.

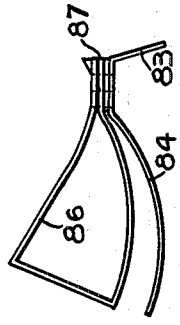
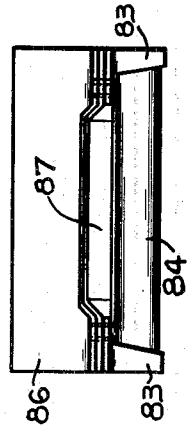


Fig.10.



Inventor
A.F.Gillet
By Arthur H. Sturges
Attorney

May 31, 1932. A. F. GILLET 1,860,668

PAPER STRIP DISTRIBUTING, CUTTING, AND MOISTENING MACHINE

Filed Sept. 13, 1930 5 Sheets-Sheet 5

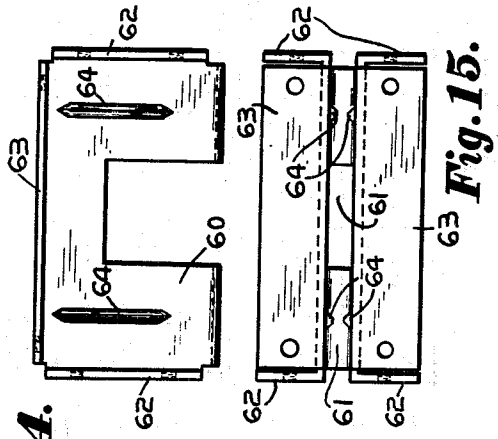


Fig. 14.

Fig. 15.

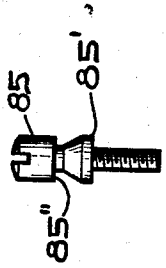


Fig. 16.

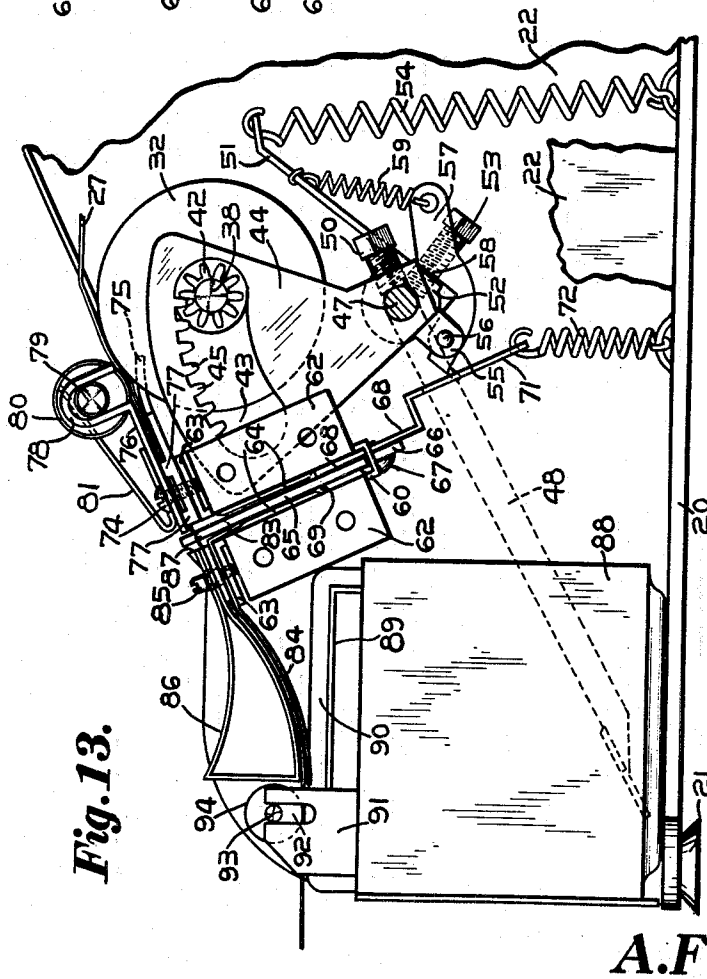


Fig. 13.

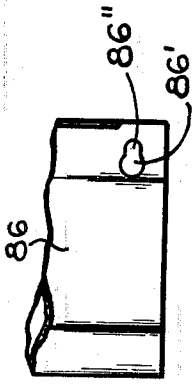


Fig. 17.

Inventor
A. F. Gillet
By Arthur H. Sturges
Attorney

Patented May 31, 1932 1,860,668

UNITED STATES PATENT OFFICE

ALEXIS F. GILLET, OF OMAHA, NEBRASKA, ASSIGNOR TO JUBILEE MANUFACTURING COMPANY, OF OMAHA, NEBRASKA, A CORPORATION OF NEBRASKA

PAPER STRIP DISTRIBUTING, CUTTING, AND MOISTENING MACHINE

Application filed September 13, 1930. Serial No. 481,688.

The present invention relates to paper strip distributing, cutting and moistening machines, and has more particular reference to certain detail constructions and combinations involving the structure of the same.

Another object of the present invention is to provide an improved moistening means for insuring the moistening of the gummed surface of the strip or tape as it is ejected from the machine.

Another object of the invention is to provide an improved cutting means for severing the strip or tape into lengths of the desired size and wherein the cutting is effected at the end of the tape ejecting operation and wherein the tape may be fed in desired different lengths and finally severed after the desired length is determined.

The invention also aims at the provision of an improved mechanism for supporting and accommodating rolls of strip paper or the like of various widths and wherein the mechanism may be adjusted to properly retain and center the rolls and strips irrespective of the width of the latter.

A still further object of the invention is to provide a general construction of paper strip ejecting, cutting and moistening machine embodying relatively few parts so peculiarly constructed and inter-related as to effect certain hereinafter pointed out sequence of operations for intermittently feeding a paper strip of the desired length out of the machine and subsequently cutting it off irrespective of the length.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claim appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views.

Figure 1 is a side elevation, partly broken away, of a strip cutting and moistening machine constructed according to the present invention.

Figure 2 is a longitudinal vertical section taken through the same.

Figure 3 is a top plan view of the machine.

Figure 4 is a detail enlarged view of the feed rollers and their mounting.

Figure 5 is a detail top plan view of the guide rollers and their supporting plate and tension means.

Figure 6 is a transverse section taken through the same on the line 6—6 of Figure 5.

Figure 7 is a detail plan view of the throat or guide plate for co-operation with the guide rollers.

Figure 8 is an edge view of the same.

Figure 9 is a detail edge elevation of the moistener roller guard and knife tensioning spring employed.

Figure 10 is a rear elevation of the same.

Figure 11 is a transverse section taken through the machine substantially on the line 11—11 of Figure 1.

Figure 12 is a like view but taken on the line 12—12 of Figure 1.

Figure 13 is a fragmentary enlarged side elevation of the forward portion of the machine, similar to Figure 1 but showing the parts in position for operating the knife or cutter.

Figure 14 is a detail side elevation of the knife or blade guide.

Figure 15 is a top plan view of the same.

Figure 16 is a side elevation of an undercut screw, and

Figure 17 is a fragmentary view of a guard and showing a portion of an attaching means employed therefor.

Referring now to the drawings, the machine may be housed in a casing or cabinet of any suitable size and configuration, and in the present instance the machine is provided with a base plate 20 supported upon feet 21 preferably in the form of suction cups of rubber or the like adapted to grip the supporting surface for the machine and maintain the machine against accidental shifting incident to its operation. The base plate 20 is provided with a pair of spaced apart side plates 22 suitably secured along the opposite longitudinal edge portions of the base plate 20 and which may be cut away or beveled toward their upper edges to one end of the machine to adapt the enclosure or cas-

ing to the general configuration of the machine.

Disposed in the inner end of the casing is a roll strip support which comprises a pair of spaced frame members 23 of substantially angular formation arranged with vertical portions slidably bearing at their lower ends upon the base plate 20 and with their horizontal portions projecting forwardly between the side plates 22. The frame members 23 are provided in their upper edges and adjacent the vertical portions thereof with downwardly and forwardly inclined slots or sockets 24 adapted to receive therein the opposite end portions of a cross shaft or pin 25 adapted to engage through the core or spool 26 of a roll 27 of strip paper or the like.

The pin 25 is retained in the frame members 23 by the imperforate side walls of the plates 22 while the frame members 23 may be moved toward and from each other and the opposite sides of the roll 27 in order to accommodate rolls of paper strips of different widths.

Means is provided for adjusting the roll holder as to width, such means comprising, as best shown in Figure 3, a transverse screw shaft 28 having bearing at its opposite ends in the side plates 22 and which is provided on one end, and beyond the adjacent plate 22, with a suitably knurled or milled thumb piece 29 fixed to the shaft and by means of which the shaft or screw 28 may be turned in either direction. The shaft or screw 28 has opposite screw threads at opposite ends and is provided with an intermediate disc 30 lying between the opposite threaded portions and adapted to limit the inward movement of traveling nuts 31 carried on the screw 28 at opposite sides of the disc 30.

Each screw 31 is suitably secured to an adjacent frame member 23 so that as the traveling nuts 31 move toward and from each other the frame members 23 are carried therewith. In this manner by means of the external thumb piece 29 the desired tension may be placed upon the paper roll 27 and the paper strip may be properly centered with respect to the mechanism in the casing.

The frame members 23 are beveled or cut away at their forward sides or under ends to accommodate the forward portions of a pair of feed rolls 32 which may be of rubber or other suitable resilient material, and the forward beveled edges of the frame members 23 carry inwardly projecting lower tongues 33 which are disposed beneath a pair of upper tongues 34 which project inwardly from the upper edges of the frame members 23.

As may be best seen from Figure 4, the feed rollers 32 are mounted upon a hollow shaft 35 provided with endwise projecting teeth 36 at one end which are of ratchet form and adapted to co-operate with a ratchet wheel 37 slidably mounted upon an inner shaft 38 which has reduced trunnions at opposite ends supported in the side plates 22. The ratchet wheel 37 houses in its outer side a spring 39 which bears against the hub of the ratchet wheel 37 at one end and against a transverse pin 40 at its other end, the pin passing transversely through the shaft 38 and lying at opposite ends in slots 41 formed in the ratchet wheel 37. The ratchet wheel 37 is thus locked by the pin 40 to the shaft 38 to turn therewith but is permitted an axial movement on the shaft under the influence of the spring 39 for normally tending to interlock the ratchet wheel 37 with the teeth 36 of the hollow shaft.

At the opposite end of the feed roller structure the inner shaft 38 is provided with a pinion 42 which lies within an arcuate slot 43 of a sector 44, the slot 43 having rack teeth 45 in its upper edge which intermesh with the pinion 42 so as to turn the latter when the sector 44 is moved. The sector 44 is provided along its forward substantially radial edge with an in-turned stop flange 46 adapted to engage the pinion 42 when the sector is swung backwardly into its normal position of rest.

The sector 44 is mounted upon a shaft 47 which is the main shaft of the machine and which has bearing at opposite ends in the side plates 22. One end of the shaft 47 is provided with a hand lever 48 which lies at the outer side of the adjacent side plate 22 and which extends forwardly from the shaft into a suitable position for engagement by the hand for depressing the lever 48. The sector 44 is provided with a returned hub portion 49 on its lower or inner end, the returned portion 49 providing with the sector 44 spaced bearing portions which are apertured for the reception of the shaft 47 therethrough, as clearly shown in Figures 11 and 12. A set screw 50 is carried through the lower end of the returned portion 49 and is adapted to bind against the adjacent side of the lever 48 for correctly positioning the shaft and the lever 49 for convenient operation.

A spring arm 51 is provided with a returned hub portion 52 which is suitably apertured for the reception of the shaft 47 therethrough and which is adjustably fixed to the shaft by a set screw 53 which, as shown in Figure 1, may be secured with the spring arm 51 extending rearwardly and upwardly horizontally from the shaft 47. A main spring 54 is anchored to the base plate 20 at one end and at its other end is secured to the outer end of the arm 51 for normally urging the latter downwardly and to normally maintain the operating lever 48 in a raised position as shown in dotted lines in Figure 1.

The hub portion 52 of the spring arm 51 is provided at one forward edge with a forwardly projecting lug 55 carrying a pivot 56

upon which is mounted a trip lever 57, the upper end of which is bent crosswise for engagement with the knife operating mechanism as will hereinafter appear. The lower portion of the trip lever is stepped downwardly and backwardly to provide a shoulder 58 adapted to seat beneath the spring arm 51 and limit the swinging movement of the trip lever in one direction. The free lower end of the trip lever 57 is provided with a spring 59 which extends rearwardly and is suitably secured to the spring arm 51 for normally urging the shoulder 58 to its seat.

Disposed in a downwardly and backwardly inclined position between the side plates 22, and forwardly of the feed rollers 32, is a knife or blade guide 60. As may be best seen from Figures 1, 14 and 15, this blade guide may be stamped from a single sheet of metal which is overturned upon itself to provide a lower closed end and which is suitably bent and stamped to provide a slot 61 in its bottom and a pair of outwardly and oppositely turned wings 62 at the opposite sides of the blade or knife guard, the wings 62 being suitably apertured and threaded for the reception of screws and the like for securing the wings against the inner opposite sides of the side plates 22.

The upper transverse edges of the knife guide 60 are also turned outwardly away from each other to provide flanges 63, and the side portions of the guide 62 may be provided with vertically extending and inwardly pressed projections 64, which as shown in Figure 15, approach each other, are disposed in opposite relation, and which provide therebetween a suitable space for the reception of a knife or cutter blade 65. The blade 65 has bearing upon the projections 64 and is held thereby in proper position in the guide 62. As may best be seen from Figure 11, the knife 65 is provided in its upper edge and intermediate its ends with a cutting edge which converges downwardly to the central portion of the knife whereby to effect simultaneous and equal cutting of the strip from the outer edges inwardly thereof.

The lower end of the knife 65 is provided with a lug or projection 66 which projects down through the slot 61 and carries a screw 67 adapted for engagement in the upper end of a slide bar 68 which is turned over at its upper extremity to provide a flange 69 which passes through a slot 70 formed in the lower portion of the knife blade 65. The slide bar 68 extends downwardly through the slot 61 in the knife guide 60 and is provided on its lower end with an enlarged loop 71 adapted to receive therein the upper portion of the trip lever 57, the top of the trip lever being arranged to engage the upper edge of the loop 71 for raising the slide bar and the knife blade 65.

The loop 71 is offset rearwardly from the body portion of the slide bar 68 as may be seen in Figures 1 and 13 so as to dispose the loop 71 in the path of the trip lever 57. The lower end of the loop 71 is connected to a spring 72 which extends downwardly and is anchored to the base plate 20 for normally drawing the slide bar 68 together with the knife blade 65 downwardly and thus clear the throat of the machine above the knife guide.

A throat or guide plate 73, best shown in Figures 7 and 8, is secured by means of screws 74 or the like to the upper side of the top flange 63 of the knife guide which is located rearwardly of the plane of operation of the knife blade 65. The throat or guide plate 73 extends rearwardly from the knife guide toward the feed rollers 32 and the plate 73 is provided with a deflecting tongue 75 intermediate its rear edge and which projects between the spaced apart feed rollers 32 for insuring the picking up of the paper strip from the feed rollers 32 and directing the strip over the upper surface of the plate 73. A carrier plate 76 is secured by the screws 74 to the upper side of the throat plate 73 and is spaced therefrom by projections or spacers 77 which are carried upon the upper side of the throat plate 73 and which are arranged toward the opposite ends of the latter to provide a clear strip receiving throat or space between the plates 73 and 76.

It will be noted from Figure 5 that the carrier plate 76 is provided with elongated openings or slots for the screws 74 so that the carrier plate may be adjusted lengthwise of the machine upon the throat plate 73 and with respect to the feed rollers 32. The carrier plate 76 is provided near its opposite ends and at its rear edge with a pair of upwardly arched bearing tongues 78 providing downwardly opening bearings adapted to receive the opposite ends of a shaft 79 upon which are mounted suitable guide rollers 80 having milled or knurled peripheries for engagement with the upper surface of a strip paper through the throat of the machine. The shaft 79 is depressed toward the feed rollers 32 by means of a spring arm 81 suitably secured to the carrier plate 76 and which also co-operates with a spacing tongue 82 which projects rearwardly from the intermediate portion of the carrier plate for separating the guide rollers 80 and holding them toward the opposite sides of the carrier plate. The forwardly extending upper flange 63 of the knife guide 60 carries a knife tensioning spring 83 which may be in the form of a pair of tongues which extend forwardly and downwardly from the rear edge portion of a forward guide plate 84 which is secured to the flange 63 under the lowermost shoulders

85′ of a pair of undercut screws 85, one of the latter being depicted in Figure 16.

The guide plate 84 is bowed downwardly and forwardly and is adapted to carry the paper strip over its upper surface. The guide plate 84 also carries a moistener guard 86 which may be formed of sheet metal overturned upon itself to provide an elongated loop of the desired size and with a lower wall which conforms in curvature substantially to that of the guide plate 84, and which provides the upper wall of the guide slot for the paper strip.

This guard 86 is secured under the upper shoulders 85″ of the screws 85 in a removable manner, apertures 86′, formed through the guard, of corresponding diameter to the heads of the screws are adapted to receive the latter, as shown in Figure 17, said apertures are in communication with elongated restricted openings 86″, the latter being of the size of the medial portion of the screws between the shoulders 85′ and 85″ thereof, thereby retain the guard 86 between the said shoulders. To remove the guard the latter is moved toward the spool 26 until the apertures 86′ are in alinement with the heads of the screws; whereupon the guard may be lifted upwardly and detached.

As will be noted from Figures 9 and 10 particularly, the intermediate portions of the plate 84 and the guard 86 are offset upwardly to provide an entrance throat 87 for the paper strip as it leaves the knife guard.

The moistener is located in the forward end of the casing beneath the guide plate 84 and is in the form of a removable receptacle 88 adapted to contain water or the like and in which is placed a rectangular perforated frame 89 having an exterior covering of absorbent material 90 which may be felt, flannel or the like, and which is adapted to raise the water from the receptacle 88 by capillary attraction or the like. The forward edge of the guide plate 84 is adapted to yieldingly bear upon the upper side of the moistener element 90 and to thus carry the paper strip forwardly and downwardly into contact with the moistener element 90 for moistening the gummed lower surface of the strip.

In order to insure the even distribution of moisture to the strip, the receptacle 88 may be provided at its forward portion and at opposite edges with a pair of upstanding guide flanges 91 having vertical slots 92 therein for receiving the opposite ends of a roller shaft 93 upon which is mounted a weighted roller 94. The roller 94 is disposed, as shown particularly in Figure 1, immediately in front of the guard 86 and above the paper strip so as to yieldingly urge the latter against the moistener.

The roller 94 is adapted to turn under the forward movement of the paper strip which is fed forwardly by the inherent stiffness of the strip combined with the confining walls of the passage for the strip. It is apparent that when the strip is severed the forward end thereof may be grasped and drawn from beneath the roller 94 so as to withdraw the strip as cut from the machine.

In operation, a paper strip roll 27 is inserted between the frame members 23 after the shaft or pin 25 has been placed through the hub or spool 26 of the roll. The ends of the shaft 25 are seated in the bottoms of the slots 24 and thus the paper roll 27 is supported in such position that it may turn on the shaft 25 between the frame members 23. By adjusting the transverse screw 28 the frame members may be moved toward and from each other to the desired extent so as to center the strip from the roll 27 with respect to the longitudinal way or throat of the machine.

As shown in Figure 1, the paper strip from the roll 27 is carried over the traveling nuts 31 and the disc 30 of the frame adjusting means and is thence carried forwardly between the tongues 33 and 34 to the feed rollers 32. The strip is held in frictional contact with the feed rollers 32 by the guide or pressure rollers 80 and the strip is thus drawn from the roll 27 and projected forwardly through the machine. The strip enters the throat of the machine between the tongues 75 and 82, passes between the throat plate 73 and the carrier plate 76 and then traverses the upper end of the knife guide 60.

The strip when fed forwardly by the rollers 32 passes across the knife guide 60 and into the throat 87 of the moistening device, the strip passing downwardly between the forward guide plate 84 and the guide 86 into position beneath the weighted roller 94.

In order to feed the strip forwardly in the machine the operating lever 48 is depressed to a position near its lower limit, and if the length of strip projected from the machine is not sufficient, the lever 48 is permitted to rise under tension of the spring 54 so that the lever 48 may be reciprocated the desired number of times before it is depressed to its full extent. Each time the lever 48 is depressed the shaft 47 is turned and the sector 48 is swung forwardly to carry the rack teeth 45 over the pinion 42 to turn the same. When the pinion 42 turns by the forward movement of the sector, the spring 39 moves the ratchet wheel 37 into engagement with the teeth 36 so as to turn the feed rollers 34 and thus move the paper strip forwardly. When, however, the operating lever 48 is released, the main spring 54 turns the shaft 48 and the sector 44 back into normal position, and during such movement the pinion 42 is turned in a reverse direction with the result that the ratchet teeth of the shaft 35 and the ratchet wheel 37 slide over one another and the spring 39 is sufficiently weak to

permit this operation without forcing the paper strip backwardly. Thus, the paper strip is intermittently fed in a forward direction during the reciprocating movement of the operating lever 48.

When the desired length of paper strip is determined and is in advance of the knife guide 60, the lever 48 is depressed to its full extent with the result that the trip lever 57 is snapped downwardly into the loop 71. When the operating lever 48 is now released, the main spring 54 turns the shaft 47, raises the trip lever 57 and the latter binds against the upper edge of the loop 71 as the shoulder 58 is seated and thus the spring 54 raises the slide bar 68 and the knife blade 65 upwardly to project the cutting edge of the knife 65 upwardly through the strip of paper to sever the same.

It will be noted that the main spring 54 is of greater size and resistance than the spring 72 for overcoming the latter, the spring 72 returning the knife blade 65 into its lowermost normal position after the trip lever 57 has passed beyond the upper edge of the loop 71.

The projecting end of the strip is now grasped and drawn forwardly so as to remove the strip from the machine, the roller 94 insuring that the entire length of the strip passing from the forward end of the machine is brought in contact with the moistener element 90 so as to properly moisten the lower gummed surface of the strip.

By adjustment of the set screws connected with the shaft 47 it is apparent that the throw of the lever 48 and the operation of the feed rollers 32 may be adjusted or regulated and also that the desired tension and tripping of the knife or cutting blade 65 may be had.

As above explained, the roll support is also capable of adjustment as to width so as to accommodate strips of different widths and to insure the centering of the same with respect to the feed rollers 32 and the other parts of the machine.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claim.

What is claimed is:—

In a strip paper roll holder, a pair of side walls, a pair of frame members disposed between the walls, said frame members having bearing sockets near one end, a cross pin detachably mounted in said bearing sockets and adapted to support a strip paper roll between the members, a screw rotatably mounted at opposite ends in said walls, and having oppositely threaded portions between the walls, nut portions carried by said frame members engaging the opposite ends of said screw, a handle on the outer end of the screw exteriorly of the adjacent wall for turning the screw to move the frame members toward and from each other and accommodate paper strip rolls of different widths, and an intermediate supporting element carried upon the screw intermediate the ends thereof for engaging the paper strip from the roll to support the same over the screw.

In testimony whereof, I have affixed my signature.

ALEXIS F. GILLET.