Sept. 4, 1934. J. A. ADELL 1,972,071

MOISTENING MACHINE

Original Filed Oct. 1, 1928 4 Sheets-Sheet 1

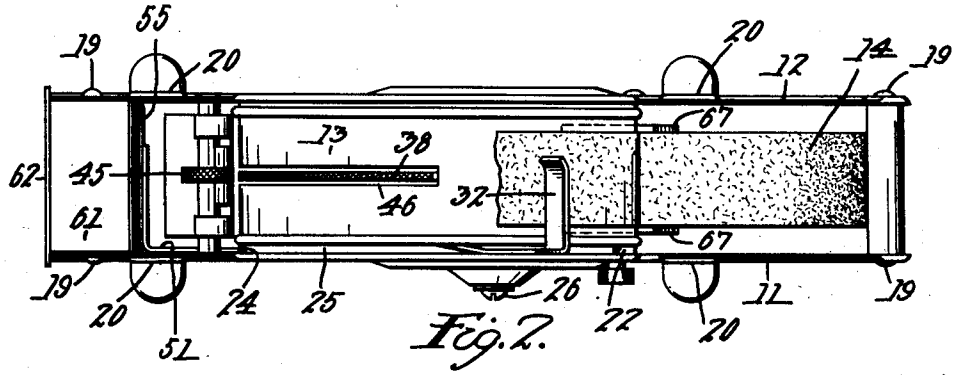

Fig. 2.

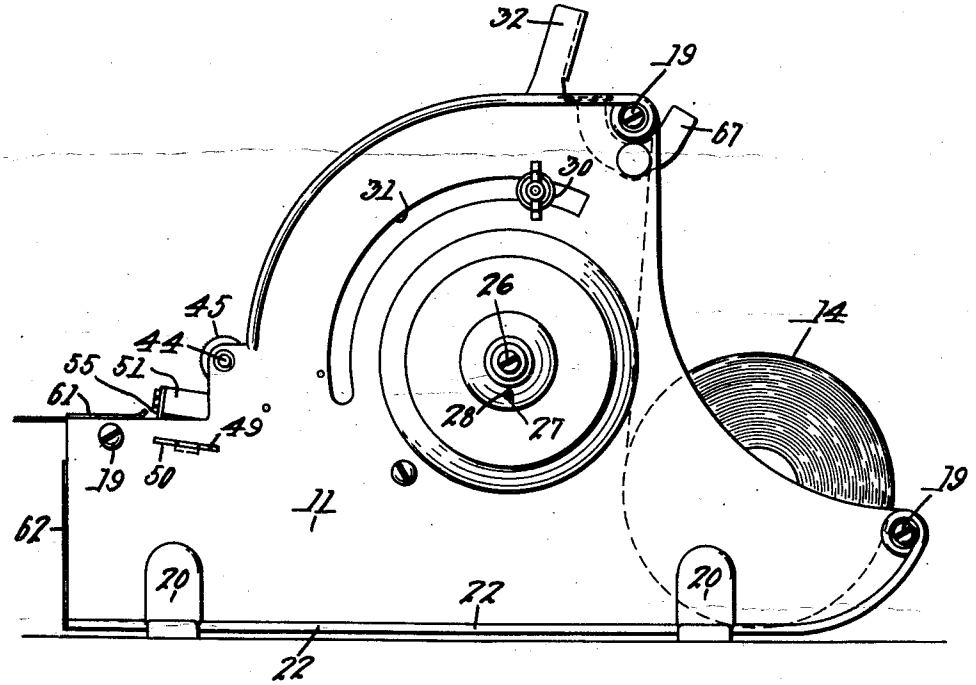

Fig. 1.

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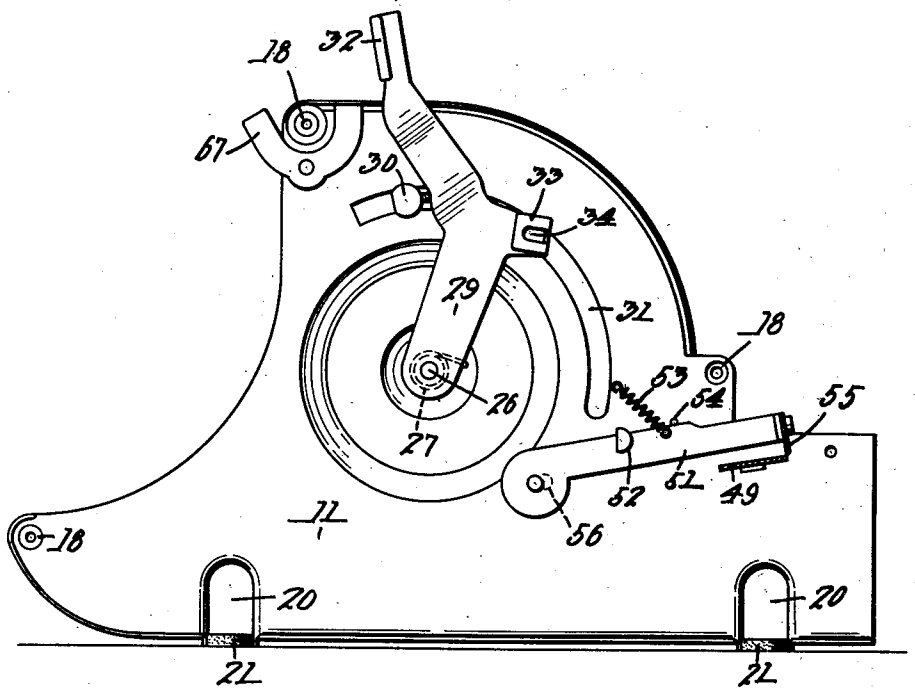

Fig. 3.

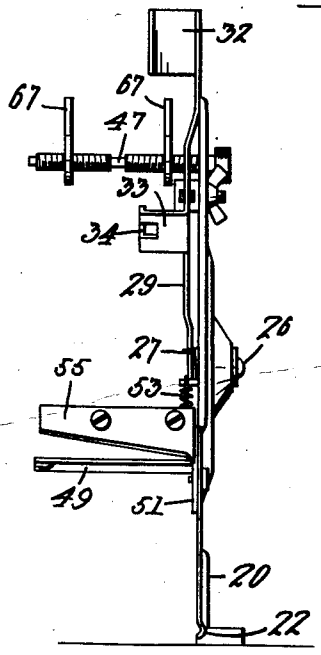

Fig. 4.

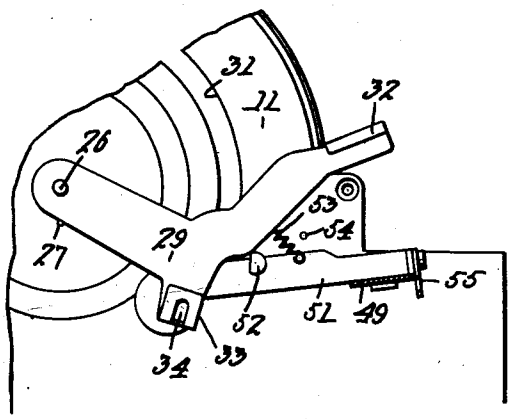

Fig. 5.

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MOISTENING MACHINE

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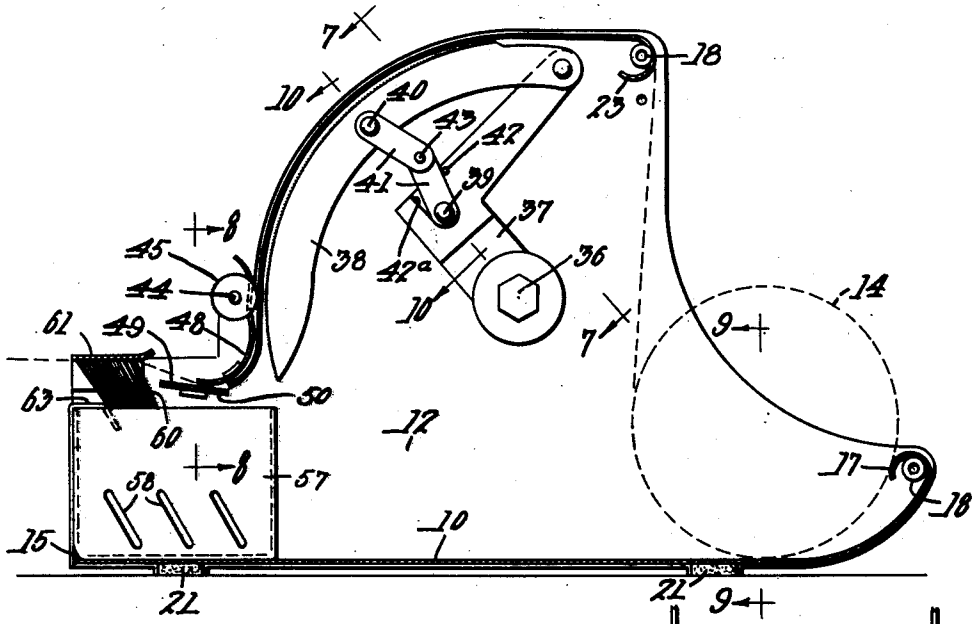

Fig. 6.

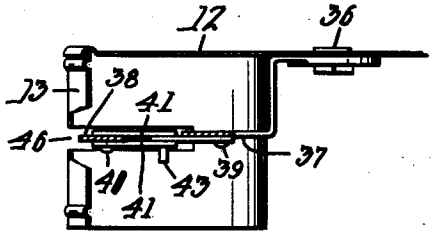

Fig. 7.

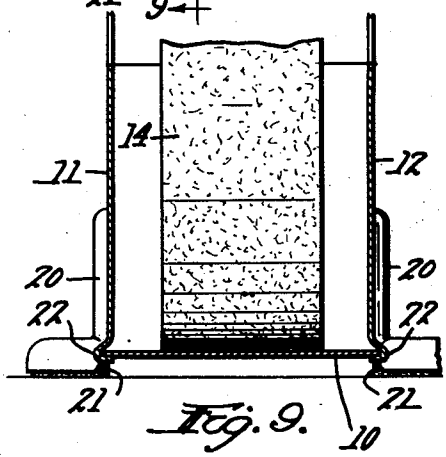

Fig. 9.

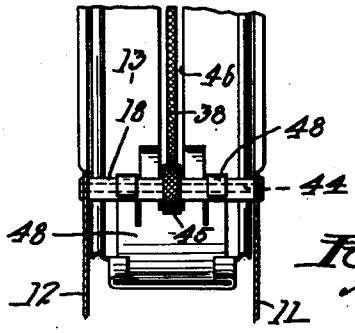

Fig. 8.

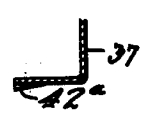

Fig. 10.

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MOISTENING MACHINE

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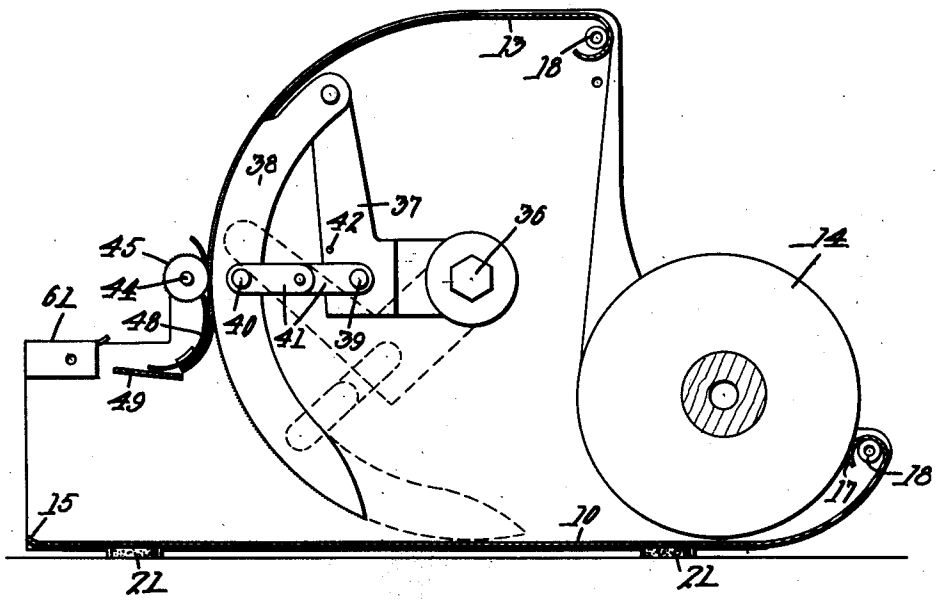

Fig. 11.

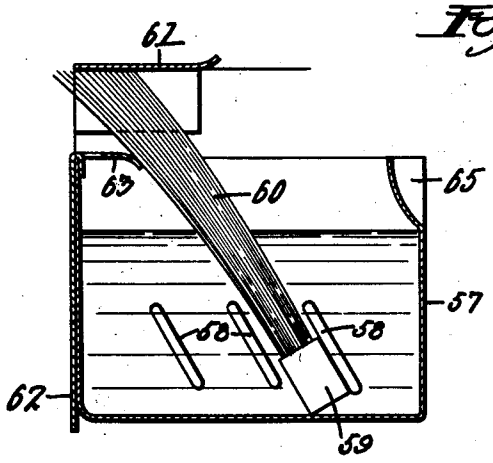

Fig. 12.

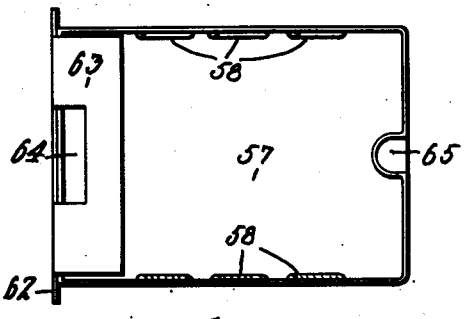

Fig. 13.

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UNITED STATES PATENT OFFICE

1,972,071

MOISTENING MACHINE

John A. Adell, Orange, Mass.

Application October 1, 1928, Serial No. 309,420
Renewed July 29, 1933

9 Claims. (Cl. 271—2.4)

This invention relates to a desk machine for moistening gummed strips of paper or other material, such as those used for sealing packages.

The principal objects of the invention are to provide an improved means for feeding the strips from a roll to the moistening element, which will work practically in a positive manner and keep control of the strip until it has practically gone through the moistening element and is severed; to provide an improved motion for the moistening strip feed; to provide a severing device of a convenient nature in which the blade can be removed readily for sharpening and which can be operated at the end of the feed by the motion of the feeding device; to provide an improved form of sheet metal casing made up of several parts secured together in a substantial but inexpensive manner; to provide improvements in the tank for the moistening liquid, and to provide a suitable side gauge to keep narrow or wide strips centered.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which

Fig. 1 is a side view of a moistening machine constructed in accordance with this invention;

Fig. 2 is a plan of the same;

Fig. 3 is an inside view of one of the sides of the moistening machine showing the parts attached thereto;

Fig. 4 is an edge view of the same;

Fig. 5 is a view similar to Fig. 3 showing the operation of severing the strip;

Fig. 6 is an inside view of the other side wall showing the feeding apparatus in the same position as in Figs. 1 and 3, that is, when it is not being operated;

Figs. 7, 8, 9 and 10 are transverse sectional views respectively on the lines 7—7, 8—8, 9—9 and 10—10 of Fig. 6;

Fig. 11 is a view like Fig. 6 with the parts shown in the position in which they are in the act of feeding the strip;

Fig. 12 is a longitudinal sectional view of the moistening tank and moistening element, and

Fig. 13 is a plan of the same;

This invention is particularly designed for moistening strips of gummed paper used for sealing packages and the like, but it is capable of use for moistening other strip material gummed in a similar way and for a similar use, merely by the use of a different liquid in the moistening tank used for applying any liquid to the surface of a strip.

The machine preferably is made up of pieces of sheet metal involving a bottom 10, two sides 11 and 12, and a convex top 13 which constitutes the surface over which the strip of paper or the like from the roll 14 is passed. The bottom is provided with an up-turned end 15 at the front, which may have a notch in it and at the rear end is provided with a curved flange 17 passing around a spacing tube 18, which spaces the two sides apart. The sides are held against the spacing tube by screws 19.

The two sides are provided with embossed portions 20 which project outwardly at the sides and constitute legs on which are glued or otherwise fastened, rubber feet 21. They are also provided with inwardly extending flanges 22 at the bottom beaded so as to receive the edges of the bottom 10 and when the sides are bolted or riveted together by the screws 19 they will hold this bottom by that means.

The top member 13 is held in a similar manner on one side only but it is kept pressed against that side by the fact that it has a projection at the end of an integral curve 23 which provides for holding the sides apart and holding the top piece in fixed position. This curve 23 constitutes a flange surrounding another one of the spacers 18 and provides for holding the device together. At the lower end the top also has an ear 24 projecting out against the side of the frame. This top is in engagement with one side at two points and with the other side all the way along. These two parts 22 and 24 space the top from one side of the casing, leaving a slot 25 throughout the length in this upper part which is curved on the arc of a circle and which amounts to about a quadrant.

At the center of the quadrant on the side piece 11 is pivoted a stud or shaft 26 on which is a coiled spring 27, one end of which engages in a perforation 28 in that side and the other end of which engages a lever 29 pivoted on the stud. This normally forces the lever back against a stop 30 mounted on the side 11, which is provided with a screw and thumb nut by which it can be adjusted along an arcuate slot 31 cut through the side 11. This lever projects up through the slot 25 and has a handle 32 above the machine for manipulating it. It is also provided with a projection 33 which may be integral with it and has a slot 34 in its end for a purpose to be described. The projection 33 preferably is formed of sheet metal integral with the sheet metal of the lever 29.

On the other side 12 concentric with the stud 26 is a stud 36 on which is mounted to freely turn a sheet metal lever 37. This is shown as offset

so as to bring its upper part nearly to the plane of the end of the projection 33 and of right-angle shape so as to bring its end up near the top and rear of the casing when not being operated. At that point it has pivoted to it an arc-shaped operating plate 38 which is knurled or otherwise roughened on its convex surface. This is practically the length of a quadrant in the form shown.

Likewise, mounted on the lever 37 is a stud 39 and on the operating plate 38 is a stud 40. These two studs are connected by a pair of links 41 pivoted to the studs and pivoted together, adapted to engage a stop pin 42 on the lever 37.

Under ordinary conditions the parts thus described will take the relative locations shown in Fig. 6. The pivot stud 43 connecting the two toggle links 41 extends into the slot 34 and as these parts are practically the same distance from the centers of the studs 26 and 36 there is no danger of this pin getting out of that slot.

It will be obvious that upon the depression of the handle 32 by swinging it down from the position shown in Fig. 1 to that shown in Fig. 5 the pin 43 will move down to straighten the toggle which will engage an integral bent out projection 42^a on the lever 37. The operating plate 38 will swing down about its center from the position shown in Fig. 6 to the position shown in Fig. 11 in dotted lines.

The two side pieces support a cross shaft 44 which is mounted to rotate freely and carries at the center a roll 45 preferably knurled on its exterior surface. The object of this is that when the operating plate is moved downwardly the toggle links 41 will be straightened out necessarily and the knurled edge of the plate 38 will swing on its pivot and grip the paper between it and the rotary roll 45 and the paper will be positively fed along with the operating plate which projects through a slot 46 formed in the top piece 13. The force to hold the plate 38 out in concentric position and against the roll 45 is exerted through the handle 32.

The roll 14 is held in the rear of the casing and naturally abutts against the curved end 17 of the bottom 10. In order that it may be centered, no matter whether it is narrow or wide, a side gauge is provided comprising a right and left hand screw 47 carried by the casing and having a knurled head or the like for turning it. This screw carries two gauge bars 67 which can be moved toward or from each other to keep the paper strip in the center irrespective of width. This ensures the paper entering the machine centrally and coming down to the cutter in central position.

The paper strip is held down against the top plate 13 and at the front by a piece of metal 48 which has a pair of integral ears projecting over the shaft 44 to support it in position. It is curved outwardly at the top to form a trough for receiving the front edge of the paper and also at the bottom to keep the paper strip from rising above a cross-plate 49 which forms a means for receiving the paper. This plate 49 is provided with integral ends passing into slots 50 in the two side pieces for holding it in position. The top plate 13 extends downwardly in curved formation over this plate 49.

Mounted on the sides on the inside, is a simple form of cutter comprising a pivoted lever 51 having a stud 52 adapted to be engaged by the handle 29 when it reaches practically the end of its stroke and held up by a spring 53 against a stop 54 when not in use. This arm 51 is bent at right angles with the front and has detachably mounted on it a blade 55 which is made slanting from one end to the other to provide for an easy cut and cooperate with the front edge of the plate 49 for performing its cutting operation as shown in Fig. 5. The lower end of the blade always projects below the plate 49 and is held against the plate by the spring 53. The lever 51 has a pivot slot 56 to allow for sharpening and replacement.

The moistening means consists of a box 57, preferably of sheet metal having ribs 58 projecting inwardly from opposite sides and providing spaces between them for receiving the butt 59 of a brush 60, which is adapted to be located at an inclination in the moistening tank and project up to a fixed cross-plate 61 which is secured to the sides 11 and 12 and does not have to be adjusted. This brush touches this plate and the paper is forced to pass under this plate and over the brush.

The moistening tank is held in place by the upwardly extending projections 15 and the front end 62, which projects beyond the sides of the moistening machine and forms the front thereof when in position and constitutes stops for limiting the innermost position of this tank.

At the top the front end 62 is provided with a horizontal flange 63 bent down at the end for receiving the drippings and has an opening 64 through which the latter can pass back into the tank. At the rear the tank is shown as provided with a depression 65 to allow the operating plate 38 to pass by it. It is held in place by friction preferably and it is easily removed for replenishing with water or for cleaning the brush.

In the operation of the device the tank 57 is provided with water and a brush 60 and put in place. The roll 14 of strip material is put into the rear of the machine and the end of the material with the gummed side down passed between the guides 67 and then down under the plate 48 so that the end will come out on the top of the plate 49. The handle 32 is in its uppermost position as shown in Fig. 3 and the operating plate also in the position shown in Fig. 6. All the operator has to do is to swing the handle 32 downwardly around the curved surface of the top of the machine and the operating plate will be drawn out so as to grip the paper against the roll 45 and feed it forward in the manner specified above. The strip material is forced to pass under the plate 61 and over the brush 60, which is kept moist by capillary attraction. It traverses the course shown by the dot and dash line in Fig. 6.

If the operator desires to cut off the paper strip he simply swings the handle down until it comes against the stud 52. This forces the shear blade 55 to cut off the strip. On account of the adjustment of the stop 30, the length of the strip thus cut off will be predetermined. This constitutes a simple and a positive means for accomplishing this result.

The machine is made practically of sheet metal which can be formed up very cheaply and assembled very easily. It is held together by screws or rivets as 19 and by the plate 61. It is a machine that is not likely to get out of order and can be operated a very large number of times. It can be left without operation for a long period of time and nothing is necessary to be done to it except to see that the brush is comparatively clean and that there is liquid in the tank.

Although I have illustrated and described only one form of the invention I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to the details herein disclosed, but what I do claim is:

1. In a strip feeding machine, the combination with a frame and support for the material to be fed, said frame comprising a slotted top plate formed on the arc of a circle, of a lever pivoted on the center of said arc and having a handle for swinging it, a pivoted operating plate substantially concentric with said arc, and means between the lever and the plate for projecting the operating plate through the slot in the top plate.

2. In a strip feeding machine, the combination with a casing comprising side plates and a top plate formed on the arc of a circle, of an arm pivoted on the center of said arc and having a handle for swinging it, a pivoted operating plate knurled on the outer edge which is concentric with said arc, and a toggle joint between the lever and the plate at a distance from said pivot, whereby when the handle is turned in one direction the toggle will be straightened out and the operating plate will be projected and swung about the center of said arc.

3. In a strip feeding machine, the combination with a frame having a curved top with a slot therethrough, of a lever pivoted near the center of said curve, an operating plate pivoted to said lever at one side thereof and having a curved outer face, means for connecting the operating plate with the lever at another point, said means being expansible, and a roll on the outside of the frame which said operating plate is adapted to engage when swung on its center for feeding a strip of material between the roll and the operating plate.

4. In a strip feeding machine, the combination with a frame having a top in the form of an arc of a circle with a slot therethrough, of a lever pivoted at the center of said arc and having a projection extending to the side, an operating plate pivoted at the end of said projection and having a curved knurled outer face, expansible means for connecting the operating plate with the lever at a point near the center, a knurled roll on the outside of the frame which said operating plate is adapted to engage when swung on its center for feeding a strip of material between the roll and the operating plate.

5. In a strip feeding device, the combination with an operating plate having a knurled convex surface and a freely rotatable roll having a knurled surface in position to be engaged by the plate, means for swinging the plate on a center, means for swinging the plate outwardly when swung on its center, whereby the plate will hold the paper between it and the roll and feed it forward, and a gauge for directing the strip forward in a substantially radial position after the operating plate leaves it.

6. In a strip feeding device, the combination with a frame having two side pieces, and studs located on the inner sides thereof in axial alignment, of an operating lever pivoted on one of said studs, said lever being provided with a projection extending toward the opposite side of the frame and having a notch therein, a lever pivoted on the other stud having an operating plate movably connected therewith, a toggle for connecting the lever with the operating plate comprising a pair of links and a pin connecting them, said pin projecting into the notch in the operating lever, whereby said lever and operating plate are actuated by the operating lever.

7. In a strip feeding device, the combination with a frame having two side pieces, and studs located on the inner sides thereof in axial alignment, of an operating lever pivoted on one of said studs, a curved top plate on the frame having a slot through it and a slot at the side through which latter slot said lever projects, said lever being provided with a projection extending toward the opposite side of the frame and having a notch therein, a lever pivoted on the other stud having an operating plate movably connected therewith and adapted to be projected through the first named slot in the top of the frame, a toggle for connecting the lever with the operating plate, and a pin carried by them and projecting into the notch in the operating lever, whereby said lever and operating plate are actuated by the operating lever.

8. In a strip feeding device, the combination of a frame having two side pieces, and studs located on the inner sides thereof in axial alignment, an operating lever pivoted on one of said studs, said lever being provided with a projection extending toward the opposite side of the frame and having a notch therein, a lever on the other stud having an operating plate movably connected therewith, a toggle for connecting the lever with the operating plate and a pin mounted on the toggle and projecting into the notch in the operating lever.

9. In a strip feeding machine, the combination with a frame having opposite side pieces, pivot studs mounted on the inner surfaces of said side pieces in axial alignment, an operating lever pivoted on one stud, the side piece on that side having a slot concentric with the stud and a stop adjustable along the slot to control the length of the stroke of the operating lever and thereby the amount of strip fed thereby at each stroke, of a lever on the other stud connected with the operating lever by a detachable connection, to facilitate assembling and dis-assembling, and means on the second lever for feeding a strip forward when the operating lever is depressed.

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