Feb. 4, 1930. A. BOOMERSHINE 1,745,888

MACHINE FOR DISPENSING PAPER

Filed April 7, 1926

FIG. 2.

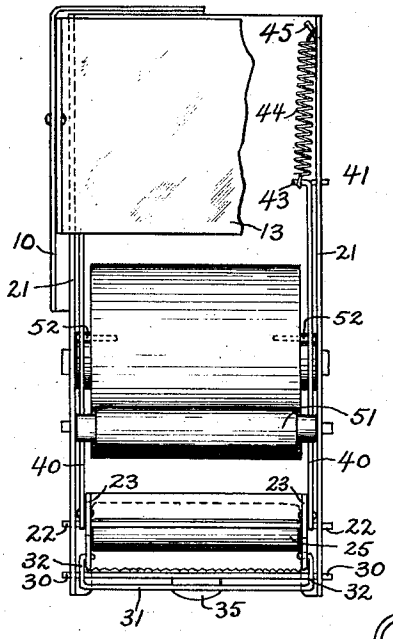


FIG. 1.

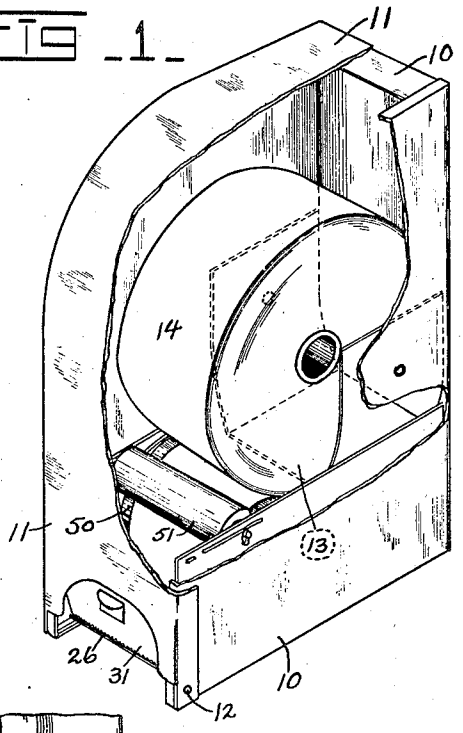
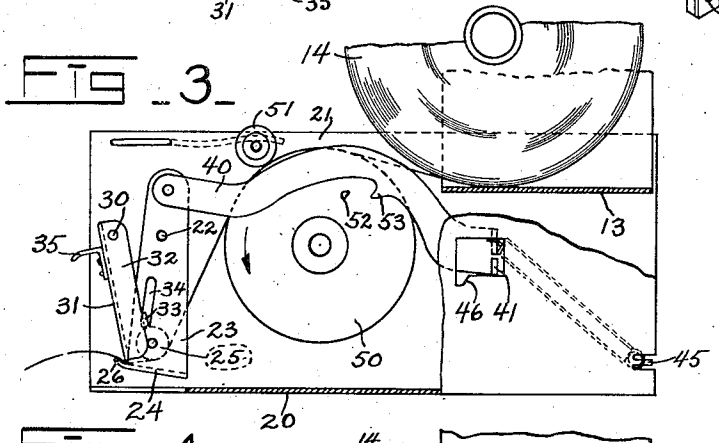


FIG. 3.



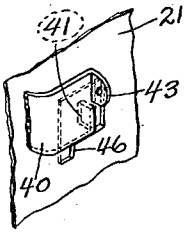
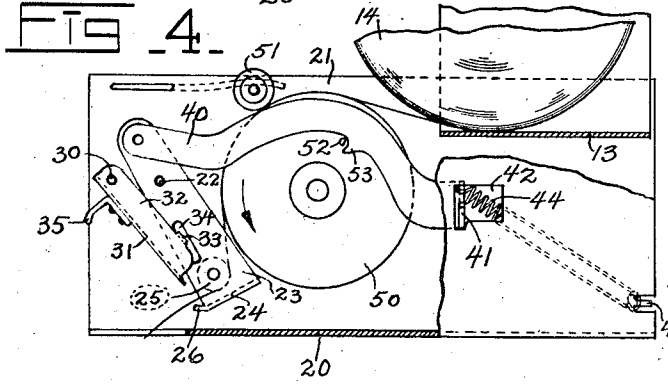


FIG. 5.

FIG. 4.



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UNITED STATES PATENT OFFICE

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MACHINE FOR DISPENSING PAPER

Application filed April 7, 1926. Serial No. 100,418.

This invention relates to apparatus for dispensing paper from rolls in predetermined lengths.

There are two principal purposes for the invention, one of which is to dispense paper suitable to use for drying the hands and face, and the other is to dispense paper which has been coated with soap and adapted to use as a substitute for soap.

One object of my invention is to give free access to the paper, but to discourage waste by automatically limiting the amount of paper that can be removed from the roll with a single pull at the protruding end. Another object is to provide a convenient and effective way of severing the withdrawn paper from the roll, requiring only one hand.

In the accompanying drawing,

Fig. 1 is a perspective view of my apparatus, with portions of the enclosing cabinet broken away to reveal interior parts. This figure shows a device for dispensing soap-coated paper, but as will become apparent the difference between this and a device for dispensing paper toweling is merely a matter of proportions;

Fig. 2 is a plan view of the mechanism, removed from the cabinet;

Fig. 3 is a side elevation of the mechanism shown in Fig. 2, a portion of the near side wall being removed;

Fig. 4 is the same view as Fig. 3, but shows the parts in different positions, and

Fig. 5 is a fragmental detail of construction.

The cabinet consists of a body 10 and a lid 11 which is hinged to the body at 12 and by a similar hinge on the opposite side, not visible in the drawing. Within the body 10 there is a sort of hanging shelf 13 on which the roll of paper 14 lies. This shelf is secured to the sides of the cabinet as shown in Fig. 1 and it is no more than wide enough to admit the roll, thereby keeping the roll central in the cabinet.

The mechanism forms a separate unit, which may be lifted out of the cabinet, and comprises a bottom 20 and two side plates, 21—21, integral with the bottom. Pivotally attached to each wall 21, as at 22, this being at what I shall call the front end of the unit, i. e., the end nearest the user as he faces the machine, is a depending arm 23, which arms carry a platen 24. Preferably the arms and platen are composed of a single piece of sheet metal. A short distance above the platen the arms 23 carry a roller 25. The platen lies in a plane substantially tangent to its arc of movement on the pivots 22, but at its front edge the platen is bent upwardly as at 26, to an angle of about 30 degrees.

Pivotally mounted on the side plates 21—21 at 30—30 is a plate 31. Each vertical edge of the plate is bent 90 degrees to form flanges 32—32 through which the pivotal axis passes. At 33—33 small tangs bent over from the edges of the flanges, enter slots 34 in the arms 23, forming a connection whereby the platen 24 and plate 31 are caused to swing in unison. But because of the axes 22 and 30 being removed from each other a substantial distance there is a to and fro movement between the lower edge of the plate 31 and the platen. In Fig. 3 this has caused the edge to impinge on the platen and grip the strip of paper. Because of this I refer to the edge and platen in some of my claims as jaws, and to the mechanism as a whole as a gripping device. Preferably the lower edge of the plate 31 is serrated. I shall refer to this mechanism again, presently.

The arms 23 extend a short distance above their axis 22—22, and to these extensions links 40 are pivotally connected. These links extend rearwardly in parallelism to the plates 21—21, and their rear ends are notched to form tangs 41, which being bent to a position perpendicular to the links extend through apertures 42. The remaining portions of the notched ends of the links are bent in the opposite direction, forming tangs 43, to which tension springs 44 are attached, the other ends of the springs being connected at 45—45 to the plates 21—21. As these connections 45—45 are low down on the plates, the springs not only pull endwise on the links 40 and tend to rock the gripping device (24—31) to the position it occupies in Fig. 3, but they also pull downward on the rear ends

of the links, as will be quite apparent upon inspection of Figs. 3 and 4. The lower horizontal margins of the apertures 42 in the plates 21 are notched to form shoulders 46, against which the tangs 41 abut to hold the gripping device in the position it occupies in Fig. 4. The downwardly exterted action of the springs 44, aided by gravity tend to keep the tangs 41 thus engaged or latched.

A large roller 50 is revolubly supported by the side plates 21—21, and paper drawn from the roll 14 passes partly around this roller, then passes under the roller 25 and between the platen 24 and the serrated edge of the plate 31. A spring-pressed tension roller 51 presses the paper to the surface of the roller 50, and as the surface of the roller 50 is knurled, the paper rotates the roller as it is drawn out of the cabinet. At each end of the roller 50 there is an extending stud 52 adapted to engage a lug 53 on the contiguous link 40 and lift the link sufficiently to release its rear end from the shoulder 46.

I shall now describe the operation of this machine: Assuming everything is as shown in Fig. 4, the operator seizes the protruding end of paper, the bottom 20 being cut away to facilitate this, and he draws the paper out. This rotates the roller 50 in the direction indicated by the arrow, and when the roller has revolved almost one revolution the studs 52 engage the lugs 53 on the links 40 and unlatch the rear ends of the links, allowing the springs to draw the links rearwardly and rock the gripping mechanism to the position it occupies in Fig. 3. This arrests the paper and the operator tears the paper off, using the serrated edge of the plate as a tearing-off device. While the springs are the prime movers of the gripping device, the forward pull on the paper supplements the action of the springs. The serrated edge engages the platen about at the bend 26, which, as will be seen by reference to Fig. 3, causes the paper to meet the serrated edge at an angle which tends to thrust the points of the serrations through the paper. Because of this, the tearing off the paper after it is gripped by the gripping jaws is more or less automatic. That is, if the operator simply continues pulling at the paper after the paper is arrested the paper will be cut off by the serrations without his making any change in his tactics. After the paper is torn off the parts remain in the position they occupy in Fig. 3, and before any more paper can be withdrawn the gripping device must be pushed back to the position it occupies in Fig. 4. This can be done by simply pushing against the plate 31, but I also provide a finger piece 35 which may be used if desired.

While there is nothing to prevent the operator pushing back the gripping device after it has come forward and gripped the paper, but before tearing off the paper, and by doing this repeatedly draw out a long continuous piece of paper, the trouble which this entails tends to discourage the practice. Moreover, the paper cannot be given a pull and a long length pulled out as is so often done in the case of paper towels. When this happens with the ordinary paper towel support, even tho its occurrence is accidental, the operator seldom takes the trouble to reroll the excess paper; he simply tears it off and it is wasted.

It is not to be understood that my invention is limited to its present embodiment or to the details of construction shown.

It is limited only by the scope of my claims, which are as follows:

1. In a machine for dispensing paper from a roll thereof in pieces of limited length, a gripping device comprising two jaws between which the paper passes, said device being movable from one to the other of two positions, in one of which positions the jaws are adapted to grip the paper, the jaws being apart when said device is in the other position; a spring for moving said device from the non-gripping to gripping position, a latch for retaining the device in the non-gripping position and means for releasing the latch when a predetermined length of paper has been drawn out.

2. In a machine for dispensing paper from a roll thereof in pieces of predetermined length, a gripping device comprising two jaws between which the paper passes, said device being movable from one to the other of two positions, means whereby moving it to one of said position closes the jaws and moving it to the other position opens the jaws, a spring for moving it to the position which closes the jaws, a latch to hold it in the position of open jaws, means for releasing the latch when a predetermined length of paper has passed between them.

3. In a machine for dispensing paper from a roll thereof in pieces of limited length, a gripping device comprising two jaws between which the paper passes, said device being movable to one of two positions by a spring, in which position the jaws are closed and grip the paper, enabling the paper to be torn off at one jaw, and movable in the other direction manually by an operator desiring to extract a piece of paper, in moving to which position said jaws open and recede from the end of the paper, leaving a sufficient amount protruding for the operator to grasp and draw the paper out; a latch for securing the gripping device in said latter position, and means for automatically releasing said latch and allowing the spring to move the device to its gripping position when a predetermined length of paper has been drawn out.

4. In a machine for dispensing paper, a mounting for a roll of paper, a roller which is rotated when paper is drawn from the

roll, a gripping device comprising two jaws between which the paper passes after coming off of the roll, said jaws being pivotally mounted on different axes but connected so they move in unison and whereby the jaws are brought together when they move to one position and separated when moved to the other position; a spring tending to move said device to its gripping position, a latch to hold it in its open position, and means whereby a said roller trips the latch when the roller has rotated a given distance.

5. In a machine for dispensing paper, a mounting for a roll of paper, a combined gripping and tearing-off device, comprising a horizontal platen having at each end an upwardly extending arm the upper ends of which are pivotally supported so the platen can swing to and fro with reference to the roll of paper, the paper passing between said arms and across the platen as it comes from the roll; a vertical plate pivotally supported at its upper edge on an axis parallel to that of the platen, said plate being connected to the platen in such manner that when the device is swung away from the roll of paper the lower edge of the plate impinges on the platen and grips the paper between them; a spring adapted to move said device to gripping position, a latch for holding it in its open position and means for releasing the latch when a predetermined length of paper has been drawn from the roll.

6. In a machine for dispensing paper, a mounting for a roll of paper, a combined gripping and tearing-off device, comprising a horizontal platen having at each end an upwardly extending arm the upper ends of which are pivotally supported so the platen can swing to and fro with reference to the roll of paper, the paper passing between said arms and across the platen as it comes from the roll; a vertical plate pivotally supported at its upper edge on an axis parallel to that of the platen, said plate being connected to the platen in such manner that when the device is swung away from the roll of paper the lower edge of the plate impinges on the platen and grips the paper between them, the platen being bent upward at the point where the plate impinges, so the paper is made to lean toward the plate, the edge of the plate being serrated; a spring adapted to move said device to gripping position, a latch for holding it in its open position and means for releasing the latch when a predetermined length of paper has been drawn from the roll.

7. In a machine for dispensing paper from a roll in pieces of predetermined length, wherein the operator seizes the end of the paper and pulls it out a distance equal to said predetermined length; mechanism adapted to grip the paper when it has been pulled the aforesaid distance and prevent further movement of the paper, a knife on the edge of which to tear off the paper after it is thus arrested, means whereby to release the remaining end of the paper from the gripping mechanism and cause said end to be free standing, so the operator can readily seize it with his thumb and fingers, and means for automatically operating said gripping mechanism when the paper has been pulled a distance equal to said predetermined length.

8. In a machine for dispensing paper from a roll in pieces of predetermined length, wherein the operator seizes the end of the paper and pulls it out a distance equal to said predetermined length; mechanism adapted to grip the paper when it has been pulled the aforesaid distance and prevent further movement of the paper, a knife on the edge of which to tear off the paper after it is thus arrested, means whereby to release the remaining end of the paper from the gripping mechanism and cause said end to be free standing, so the operator can readily seize it with his thumb and fingers, and means put into action by the paper for operating said gripping mechanism when the paper has been pulled out a distance equal to said predetermined length.

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