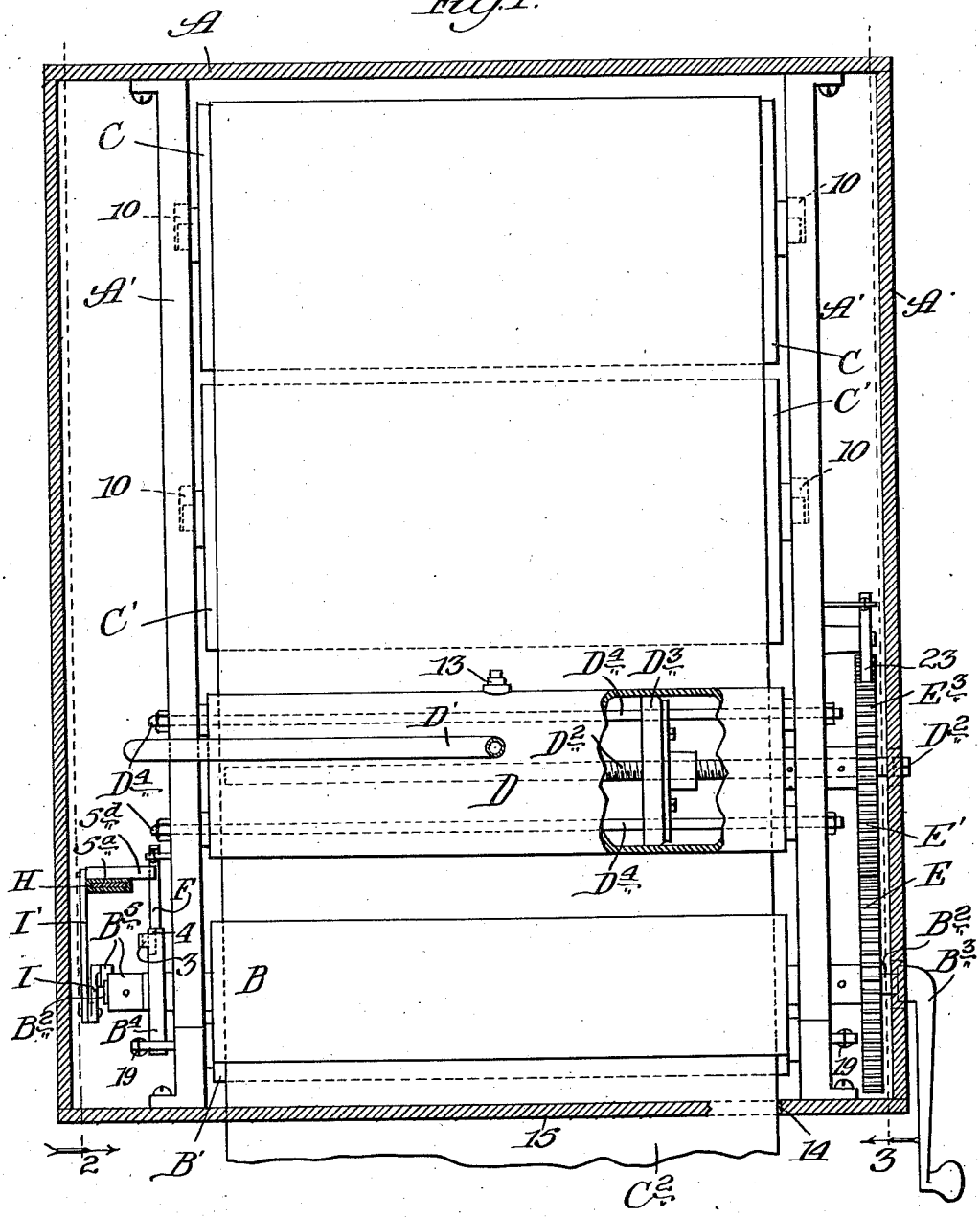
March 16, 1937. V. D. SMITH 2,074,077

SOAP AND TOWEL VENDING MACHINE

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Fig. 1.



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Fig. 2.

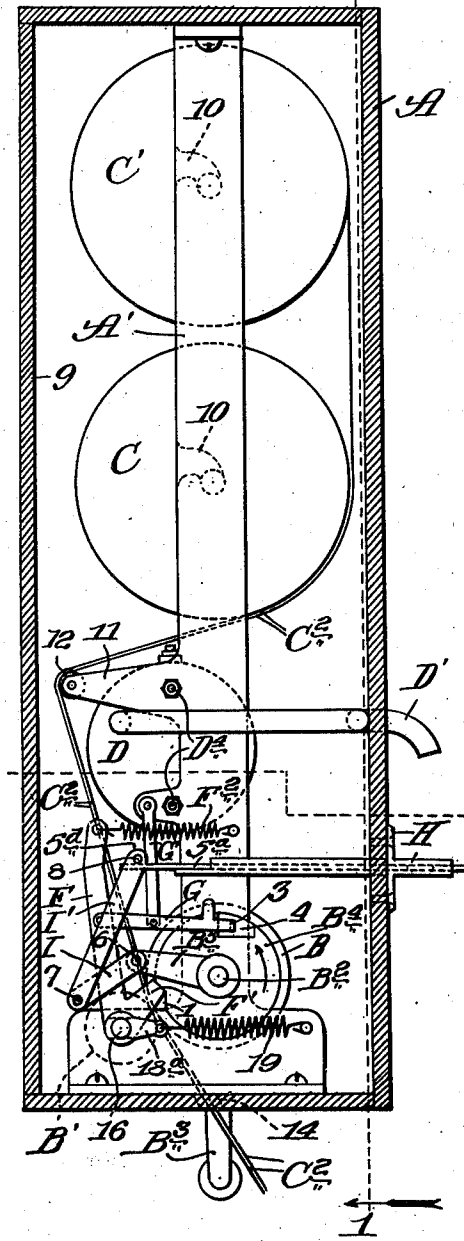
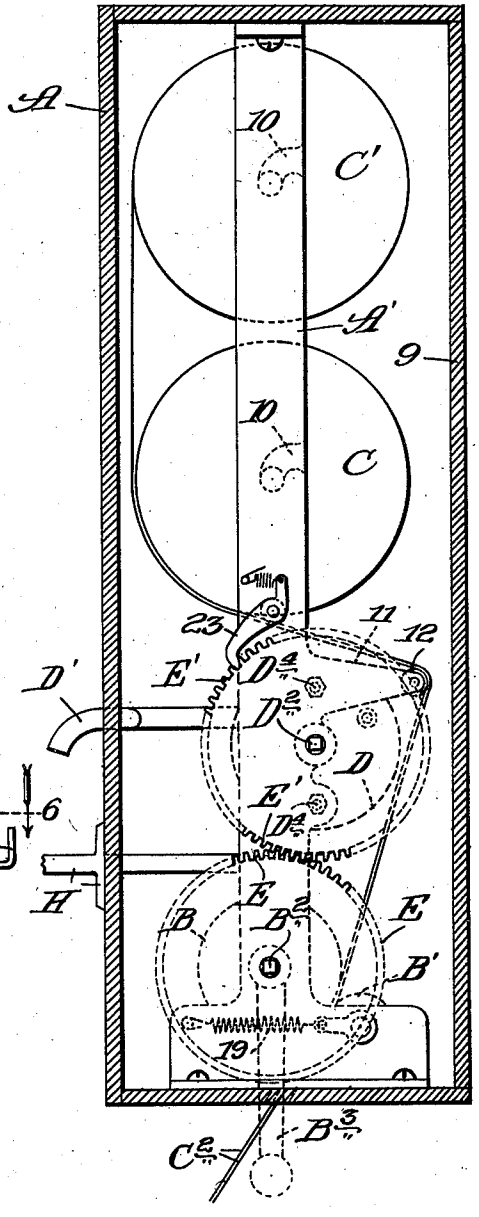


Fig. 3.



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Fig. 4.

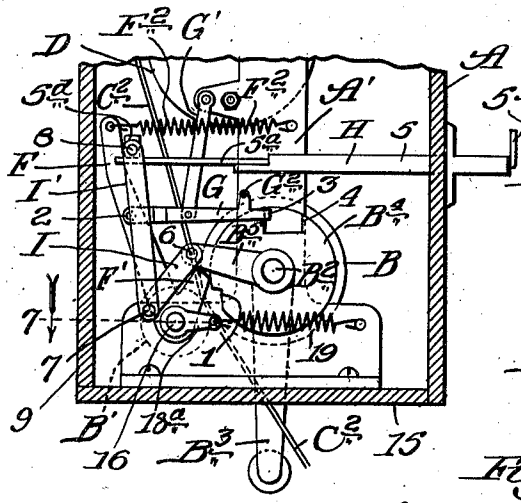


Fig. 5.

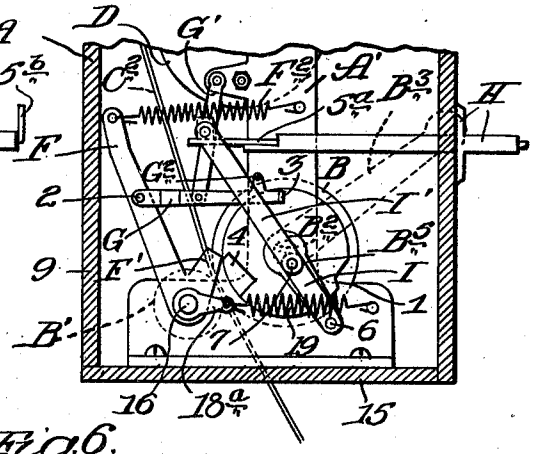


Fig. 6.

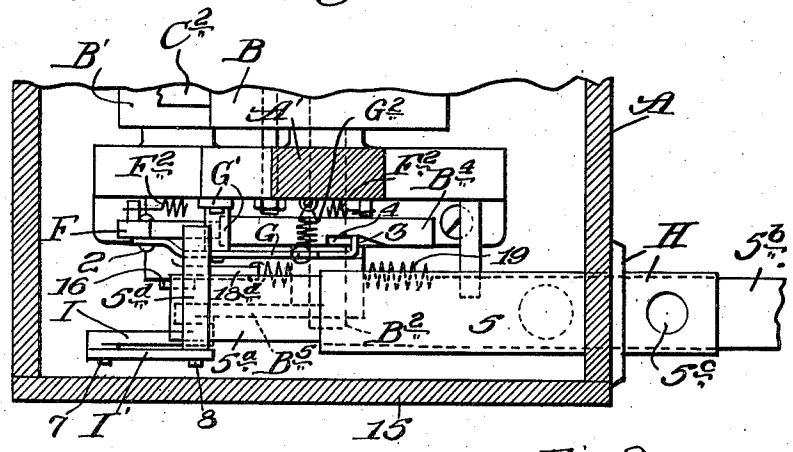


Fig. 7.

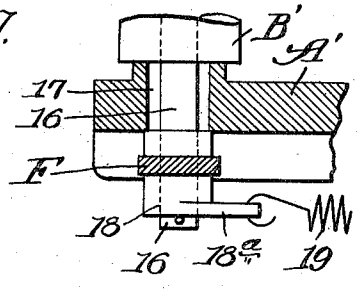
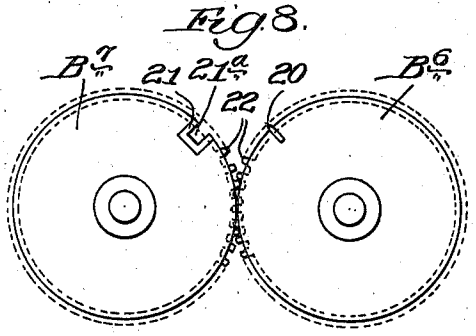


Fig. 8.



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UNITED STATES PATENT OFFICE

2,074,077

SOAP AND TOWEL VENDING MACHINE

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Application October 4, 1934, Serial No. 746,881

10 Claims. (Cl. 312—38)

This invention relates particularly to a machine for dispensing soap and paper towels. Preferably, the soap used will be of suitable consistency to enable it to be forced from a suitable reservoir through a discharge tube having a conveniently located discharge-orifice.

The primary object is to provide a simple machine equipped with a single manual actuating-device which when operated, will deliver a paper towel, or towels, and a measured quantity of soap. The machine preferably is coin-controlled. The user may insert, for example, a penny, and may then manipulate a device for unlocking the mechanism. Thereupon, a crank may be turned to deliver a towel and a measured quantity of soap.

The invention is illustrated in the preferred embodiment in the accompanying drawings, in which—

Fig. 1 is a vertical sectional view (partly broken) of the improved machine, the section being taken as indicated at line 1 of Fig. 2; Fig. 2, a section parallel with one of the sides of the machine, taken as indicated at line 2 of Fig. 1; Fig. 3, a section taken as indicated at line 3 of Fig. 1; Fig. 4, a broken sectional view showing, in a different position, the mechanism shown at the lower portion of Fig. 2, the mechanism having been unlocked through the medium of the coin-slide and the paper-feeding rolls having been turned in this action to prevent re-locking, thus leaving the machine in condition to permit the crank shown at the lower right-hand portion of Fig. 1 to be turned to effect the feeding of the towels and the discharge of a measured quantity of fluid soap; Fig. 5, a view similar to Fig. 4, but showing the condition after the crank has been turned about 45°; Fig. 6, a broken plan sectional view taken as indicated at line 6 of Fig. 2; Fig. 7, a broken plan view taken as indicated at line 7 of Fig. 4, showing one of the bearings of a pressure-roll which coacts with the main paper-feeding roll; and Fig. 8, a view of a modification in which the paper-feeding rolls are of the same diameter and are equipped with means for perforating the paper, and are also geared together.

In the embodiment illustrated, A designates a casing equipped interiorly with vertical standards A′ which are spaced somewhat from the side-walls of the casing; B and B′, towel-feeding rolls journaled in the lower portions of the standards A′, the roll B being provided with a shaft B^2 which is equipped at one end with a hand-operated crank B^3 and is equipped at the other end with a fixedly mounted control-disk B^4 and with a fixedly secured crank B^5; C, C′, towel-supply rolls from which strips of paper C^2 pass to the feed-rolls; D, a soap-reservoir fixedly mounted between the standards A′ and equipped with a discharge-tube D′ which is shown connected with one end of the cylinder D, and which has a discharge-end projecting through the front wall of the casing; D^2, a journaled shaft which extends axially through the cylindrical container D and has threaded connection with a piston, or follower, D^3, the piston being guided and prevented from rotating by rods, or long bolts, D^4, which serve to support the cylinder D on the standards A′; E and E′, inter-meshing gears fixed on the shafts B^2 and D^2 respectively; F, a latch-lever, or locking-dog, which is pivotally supported on the shaft of the feed-roll B′ and which has a short arm, or tooth, F′, which engages a peripheral notch 1 with which the disk B^4 is provided, a spring F^2 serving normally to hold the lever F in the latching position; G, a disk-actuating link which is pivotally connected at 2 with the lever F and which is equipped at its opposite end with a lug 3 which engages a lateral notch 4 in the disk to initially actuate the disk B^4 and the shaft B^2 until the notch 1 passes the tooth F′ in the manner illustrated in Fig. 4; G′, a link on which the intermediate portion of the link G is suspended; G^2, a spring which serves to hold the member G yieldingly against one side of the latching-disk B^4; H, a coin-controlled device which includes a guide 5 extending through the front wall of the casing and a slide 5^a adapted to be actuated by a member 5^b when a coin of proper denomination is introduced through the opening 5^c appearing in Fig. 6, the inner end of the slide 5^a being equipped with a fixedly secured member 5^d which is adapted to engage and release the latch-lever F, as illustrated in Fig. 4; and I and I′, links connecting the crank B^5 with the rear end of the slide 5^a, the pivotal connections being indicated at 6, 7 and 8, it being noted that the crank B^5 is thus equipped with means for positively returning the slide 5^a to its initial position.

The casing A may be of any suitable construction. It should be provided with a removable panel (which may be the rear panel, for example) to enable access to the interior of the cabinet to be gained for servicing purposes. In the illustration given, the rear panel 9 may be assumed to be removable.

The standards A′ are shown provided with notched bearings 10 for the shafts of the paper-rolls C and C′, so that the paper rolls may be

readily removed. The standards A' are equipped with rearwardly extending arms 11, which support a guide or roller 12 over which the strips of paper pass.

The soap-reservoir D is shown provided at its upper side with a removable plug 13, enabling the cylinder to be charged with soap.

The crank-actuated roll B is of such diameter that it will feed a desired length of paper at each revolution. In the illustration given, the gears E and E' are of the same diameter, so that the threaded shaft D^2 turns one revolution each time the roll B turns one revolution. The thread on the shaft D^2 is of fine pitch, so that the follower D^3 makes only a very slight advance movement with each revolution of the shaft. The proportions are such as to deliver a suitable amount of soap through the discharge tube D' at each actuation of the shaft. For example, a fraction of an ounce of soap may be delivered at each actuation; and the diameter of the roll B may be such that a suitable length, for example 14", of paper towel will be delivered at each revolution of the roll. Preferably two sheets of paper are fed, as illustrated. The paper is delivered, preferably, through a slot 14 which extends through the bottom wall of the casing, this wall being designated 15.

The locking-lever F is shown as in the form of an angular lever. Obviously, any suitable coin-control mechanism and any suitable locking-device coacting therewith may be employed.

The coin-control device H is of well-known construction and need not be described in detail. It is sufficient to say that the slide 5^a can be moved rearwardly a sufficient distance to effect release of the latch-lever F only by the insertion of a coin, or slug; and as already stated, the links I and I', actuated by the crank D^5, serve positively to return the slide 5^a to its normal position before the completion of the cycle of operations which result in dispensing the towels and soap. Were another type of coin-control lock to be employed, the use of the crank B^5 and the links I and I' might become unnecessary.

The rolls B and B' should be pressed together by some suitable device. In the illustration given, the shaft 16 of the roll B' (see Figs. 5–7) has its ends movable in slots 17 in the standards A' and equipped with collars 18 (one shown) provided with arms 18^a with which are connected springs 19. Thus, the roll B' is yieldingly held against the roll B.

In the modification shown in Fig. 8, the feed-rolls are designated B^6 and B^7. One of the rolls is equipped with a perforating edge 20 and the other is equipped with a yielding insert 21 which may be slotted, as indicated at 21^a. However, the insert need not be slotted where a very soft rubber insert, for example, is employed. In this illustration, the rolls are connected by gears 22, so that both rolls are positively driven.

The operation may be stated briefly:

A person desiring to secure soap and towels inserts a coin through the opening 5^c and presses the member 5^b inwardly, thus causing the slide 5^a to be moved rearwardly and through the medium of the member 5^d to effect release of the latch-lever F. In this same action, the link G turns the latch-disk B^4 a sufficient distance to prevent re-locking. Thereupon, the purchaser operates the crank B^3 until one complete revolution of the roll B is effected and one complete revolution of the threaded shaft D^2 is effected. This causes two paper towels to be dispensed through the slot 14, and causes a measured quantity of soap to be expressed through the delivery tube D'. The crank B^5, through the medium of the links I and I', causes the slide 5^a to be positively returned to its initial position. At the end of the cycle of operations, the mechanism is latched in the normal position shown in Fig. 2.

Preferably, means is provided for preventing retrograde movement of the feeding device. Thus, a spring-held pawl 23 is mounted on one of the standards A' and engages one of the gears, for example the gear E'.

Obviously, the elements and the arrangement of the elements of the machine may be variously modified without departure from the invention.

If desired, the rolls of paper may be preparatorily perforated at the junctions between the sections constituting the towels. That is, this may be done before the paper is inserted in the cabinet. If desired, a device, such as that shown in Fig. 8, may be used for completely severing the paper, although it is preferred to employ lines of weakening between the sections which compose the towels. The final severing may be accomplished by a jerking or tearing action, the paper parting readily along the lines of weakening.

The foregoing detailed description is given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible in view of the prior art.

What I regard as new and desire to secure by Letters Patent is:

1. In a machine of the character set forth: a casing; paper-feeding rolls disposed transversely in said casing; a soap-reservoir disposed transversely in said casing; a follower in said reservoir and a shaft for actuating said follower; gears connecting said shaft and one of said rolls; and means for actuating said gears.

2. A machine comprising: paper-serving rolls; a soap-reservoir provided with a discharge-tube; a follower in said reservoir equipped with an actuating shaft; gears connecting said shaft and one of said rolls; a control disk controlling rotation of said gears; a locking-pawl coacting with said control disk; means for effecting release of said locking-pawl; means for initiating movement of said gears, and means for completing the feeding movements.

3. A machine comprising: a casing; a pair of paper-feeding rolls; a soap-reservoir equipped with a follower and an actuating shaft; gears connecting said shaft and one of said rolls; a crank for actuating said gears; and a releasable locking-device normally preventing rotation of the gears.

4. A machine as specified in claim 3, equipped with means for releasing said locking-device and effecting initial movement of the paper-feeding rolls.

5. A machine comprising: a casing; paper-feeding rolls journaled in the lower portion of said casing; a releasable lock controlling the movement of said rolls; a soap-reservoir in said casing above said rolls equipped with a discharge tube; a follower in said reservoir and an actuating shaft therefor; gears connecting said shaft and one of said rolls; a crank for actuating said gears; a paper-supply roll supported in said cas-

ing above said reservoir; and means for guiding paper therefrom to the paper-feeding rolls.

6. In combination: a casing; paper-feeding rolls journaled therein; a control disk and a crank fixed to rotate with one of said rolls; a roll-latching device normally preventing feeding action; a slide through the medium of which said device is actuated to effect release thereof; means actuated by said slide for initiating movement of said control-disk; links connecting said slide with said crank and a hand-actuated crank for actuating the paper-feeding rolls.

7. In combination: a casing; standards mounted in said casing and spaced from the lateral walls thereof; paper-feeding rolls journaled in said standard; a soap-reservoir fixedly secured between said standards; a follower in said reservoir and an actuating shaft therefor and projecting through one of the standards; gears between one of said standards and the corresponding side-wall of the casing connecting said shaft and one of said rolls; and a releasable latching-device mounted in the space between the other of said standards and the corresponding side-wall of the casing.

8. In a machine of the character set forth: a casing; feeding rolls journaled therein, one of said rolls having a shaft equipped with a fixedly mounted control-disk having a locking shoulder; a locking-dog pivotally mounted on said casing and normally engaging said locking shoulder to prevent feeding action of the rolls; means for rotating said locking dog about its pivot to disengage it from said shoulder, thereby releasing said control disk; means for initiating movement of said control disk and rolls; said means cooperating with and actuated by said first-mentioned means; and a crank serving to actuate said feed rolls after their movement is initiated by said last-mentioned means to complete the feeding movement.

9. A machine as specified in claim 8, combined with a soap-reservoir in said casing equipped with a discharge tube, a follower in said reservoir, a shaft for actuating said follower, and gears connecting said shaft with one of said rolls.

10. A machine as specified in claim 8, in which at the end of the operative movement of said crank said locking dog again engages said locking shoulder to prevent further feeding movement.

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