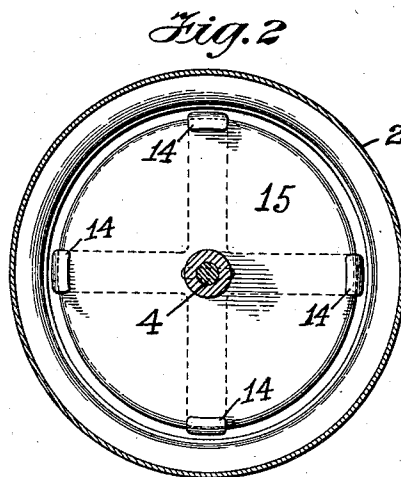
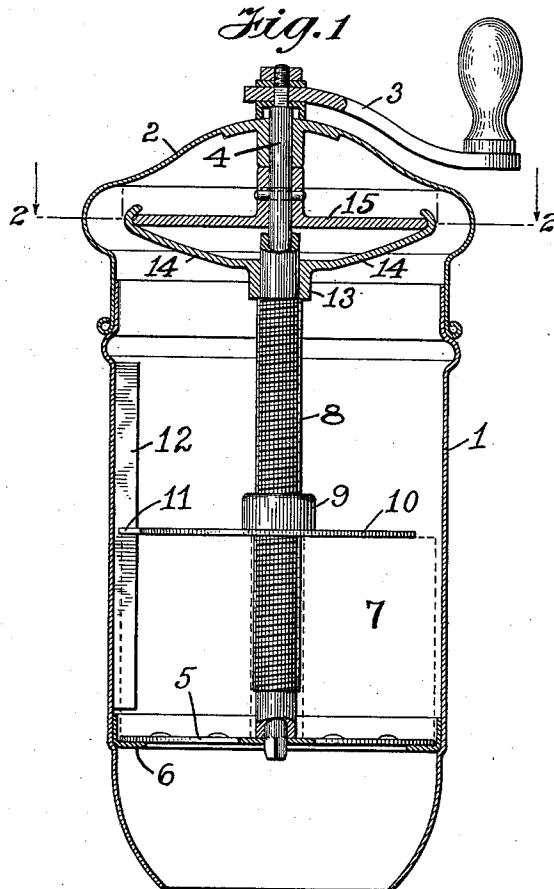


L. J. DOOLITTLE.
 AUTOMATIC FEEDING DEVICE FOR SOAP MACHINES.
 APPLICATION FILED JULY 20, 1906.

1,041,754.

Patented Oct. 22, 1912.



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UNITED STATES PATENT OFFICE.

LEWIS J. DOOLITTLE, OF NEW YORK, N. Y.

AUTOMATIC FEEDING DEVICE FOR SOAP-MACHINES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LEWIS J. DOOLITTLE, a citizen of the United States, and resident of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Automatic Feeding Devices for Soap-Machines, of which the following is a specification.

10 This invention relates to soap dispensing machines, the object being to provide a device which may be used as a toilet fixture in connection with wash basins for the purpose of supplying soap from a bar or cake in such a form that it may be readily and economically used, thus doing away with the use of a cake of soap in the ordinary manner in the hands.

20 The object of my invention is to provide a machine of simple and compact construction for the purpose above specified, which shall be certain and positive in its operation and at the same time supply the soap under all conditions in such form that it will dissolve and lather readily and freely in the hands.

30 To accomplish these results I have provided a machine wherein the soap is shaved into thin narrow strips or ribbons by a cutter of suitable design. In order to insure the positive operation of the machine under all conditions I have provided a friction device which is operated automatically from the means which operate the cutter and which also insures the feeding of the soap to the cutter at a rate regulated by the amount dispensed from the machine.

40 This invention relates more particularly to the feeding device and the means used to operate the same.

The various features of the device will be more fully described in connection with the drawings accompanying this specification.

45 Figure 1 is a side elevation in section showing the interior construction of a soap dispensing machine embodying my invention. Fig. 2 is a sectional plan view of the feeding device taken on the line 2-2 of Fig. 1, looking in the direction of the arrows.

50 In the above described drawings illustrating one embodiment of my invention, I have shown a soap receptacle in the form of a cylindrical container at 1. This container is provided with a suitable cover 2 which is

constructed to fit tightly in place and may also be provided with a suitable lock if desired. An operating handle and lever 3 is attached to an operating shaft 4 which is journaled in the cover 2. This operating shaft is connected with a comminuting device or cutter 5 so as to rotate the same when the handle lever 3 is turned. A simple connection between the operating shaft and cutter is formed by providing a square end on the shaft 4 and a square opening in the cutter 5 through which this square portion of the shaft enters when placed in position in the container. This provides a separable connection between the shaft 4 and the cutter 5 and permits the removal of the cover and attached parts for removing the soap, etc., leaving the cutter in place in the container.

The cutter 5 is supported in the container 1 by means of a ring shaped member attached to said container providing a bearing around the periphery of the cutter.

The cutter or comminuting device may be of any desired construction.

55 In order to insure a positive feeding of the cake of soap, shown in dotted outline at 7, I have provided a mechanism within the container 1 operated from the shaft 4 which operates the cutter 5, and which, consequently does not require attention on the part of the operator, but operates automatically to feed the soap to the comminuting device or cutter as required.

60 A cylindrical hollow shaft, which I have designated as a feeding shaft, is shown at 8. This shaft may be positioned on the operating shaft 4 and adapted to be rotated concentrically therewith by means of a friction device which will be described more fully hereinafter. This feeding shaft 8 is threaded for a portion of its length and carries a follower 10 which is threaded to fit the same. A hub 9 is preferably provided on the follower 10 in order to furnish an increased threaded surface in which the feeding shaft 8 operates. The follower 10 is provided with a slot or a suitable projection, such as 11, at one side thereof adapted to engage a portion of the container 1, such as the fin 12. This retains the follower against rotation with the feeding shaft 8 and causes the same to be moved slowly down as the feeding shaft is rotated and feeds the cake of soap 7 against the cutter 5.

The cake of soap 7 is also provided with

a slot at one side thereof adapted to engage the fin 12 and is provided with a central opening through which the feeding shaft may pass.

- 5 The feeding shaft 8 may be necked down to remove the threads at the lower end thereof in order to prevent the follower 10 from being forced against the cutter 5 when it reaches this point in its travel.
- 10 At the upper end of the feeding shaft 8 may be attached a collar 13 from which one or more flexible members or springs, such as 14, extend radially. These flexible members or springs are preferably so formed
- 15 at their outer ends as to frictionally engage the periphery of a disk 15 which is attached to and rotated with the operating shaft 4. The size of the springs 14 is exaggerated in the drawing. It will be understood that the
- 20 size and number, as well as the construction and arrangement, of the springs and operating parts will be determined by the type of machine and use of the same.

- As the operating shaft 4 is turned by the
- 25 operating handle 3, rotating the cutter 5 and the disk 15, the feeding shaft 8 will also tend to rotate with the same on account of the frictional engagement between the flexible members 14 and the disk 15.
- 30 This causes the follower 10 to be moved down against the soap causing the same to be pressed and fed to the cutter 5.

- It has been found to be impracticable to provide a thread on the follower shaft 8
- 35 fine enough to produce a downward movement of the follower on the soap which shall not be too fast in relation to the rotation or operation of the cutter. In order to overcome this difficulty I have provided a friction device such as described by means of
- 40 which the feeding shaft is driven from the operating shaft at a reduced speed. The pressure between the flexible members or springs 14 and the disk 15 is so adjusted that
- 45 when sufficient pressure is produced between the soap and cutter by the soap being fed too fast the resistance will overcome the friction between the flexible members 14 and disk 15 which will slip one upon the other,
- 50 allowing the latter to be rotated faster than the former. Any desired degree of relative rotation between the feeding and the operating shaft may be produced by regulating the stiffness of the frictional members or
- 55 springs.

- A further feature of this portion of the device is in the method by means of which the springs engage the disk with a frictional grip. It will be noted that as shown in the
- 60 drawings the outer ends of the springs are bent or curved over so as to grip the periphery of the disk and that a slight longitudinal movement is provided for between the upper end of the feeding shaft 8 and
- 65 the disk 15. The purpose of this construc-

tion is to provide for the releasing of the gripping action of the springs 14 as the pressure between the cutter and cake of soap is increased causing the feeding shaft to be raised, thus tending to straighten the spring members 14 and releasing the curved ends of same from the gripping engagement with the periphery of the disk as described. This allows the disk and operating shaft to be rotated more freely and consequently will not cause so great a relative rotation of the feeding shaft and reduces the amount of soap fed to the cutter, resulting in a reduction of the pressure between the soap and the cutter. As the soap is cut away the spring members assume their former position increasing the frictional gripping effect. By this means the operation of the feeding device is controlled by the amount of soap dispensed by the machine and prevents the clogging of the comminuting device by reason of too fast a feeding of the soap thereto, etc.

It is thus seen that the feeding device operates automatically to feed the soap in a constant amount as required without attention on the part of the operator and that this result is accomplished in a very simple manner by the use of a frictional device such as described.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention designed without departing from the scope thereof, I intend that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative merely of an operative embodiment of my invention and not in a limiting sense.

What I claim is:

1. In a soap dispensing machine, in combination, a soap receptacle, a comminuting device, operating means for said comminuting device, a feeding device adapted to feed soap to said comminuting device, and frictionally operated means interposed between said operating means and said feeding device and adapted to operate said feeding means, the operation thereof being controlled by the pressure between the soap and comminuting device whereby the amount of feed is automatically varied in proportion to the amount of soap cut away by said comminuting device.

2. In a soap dispensing machine, in combination, a soap receptacle, a comminuting device, means for operating said comminuting device, said means being also adapted to operate a feeding device by frictional engagement, and a feeding device adapted to feed soap to said comminuting device, said device being provided with a flexible member adapted to frictionally engage said operating means to operate said feeding device.

3. In a soap dispensing machine, in combination, a soap receptacle, a comminuting device, means for operating said comminuting device, said means being also adapted to
 5 operate a feeding device by frictional engagement, and a feeding device adapted to feed soap to said comminuting device, said device being provided with a plurality of flexible members adapted to frictionally en-
 10 gage said operating means to operate said feeding device.

4. In a soap dispensing machine, in combination, a soap receptacle, a comminuting device, a shaft for operating said comminuting device, a disk operated by said shaft,
 15 feeding means adapted to be operated by a frictional device to feed soap to said comminuting device, and a friction device operated by said disk and adapted to operate
 20 said feeding means.

5. In a soap dispensing machine, in combination, a soap receptacle, a comminuting device, a shaft for operating said comminuting device, a disk operated by said shaft,
 25 feeding means adapted to feed soap to said comminuting device, said means being provided with a plurality of members adapted frictionally to operatively engage said disk to operate said feeding means.

30 6. In a soap dispensing machine, in combination, a soap receptacle, a comminuting device, a device for feeding the soap to the comminuting device, and a frictional gripping device interposed between the operat-

ing means for said comminuting device and 35 the feeding device.

7. In a soap dispensing machine, in combination, a soap receptacle, a comminuting device located therein, operating means for the comminuting device, a follower for feed-
 40 ing soap to said comminuting device, a feed shaft carrying said follower, and frictional driving means interposed between the operating means for the comminuting device and the feed shaft whereby the follower will be
 45 caused to feed the soap toward the comminuting device at a speed proportional to the amount of soap removed by the comminuting device.

8. In a soap dispensing machine, in com- 50 bination, a soap receptacle, a comminuting device, operating means for said comminuting device, a threaded feed shaft, a follower mounted thereon and adapted to feed the soap against the comminuting device, and 55 frictional means operatively connecting the operating means for said comminuting device with said feed shaft whereby the rotative movement of the latter varies with the pressure between the soap and the com- 60 minuting device.

Signed at the city of New York, in the county of New York and State of New York this 18th day of July A. D. 1906.

LEWIS J. DOOLITTLE.

Witnesses:

H. W. FORSYTH,
 ABRAM LITFELD.