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L. R. O'NEILL

DISPENSING DEVICE FOR SHAVING CREAM

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Fig. 1.

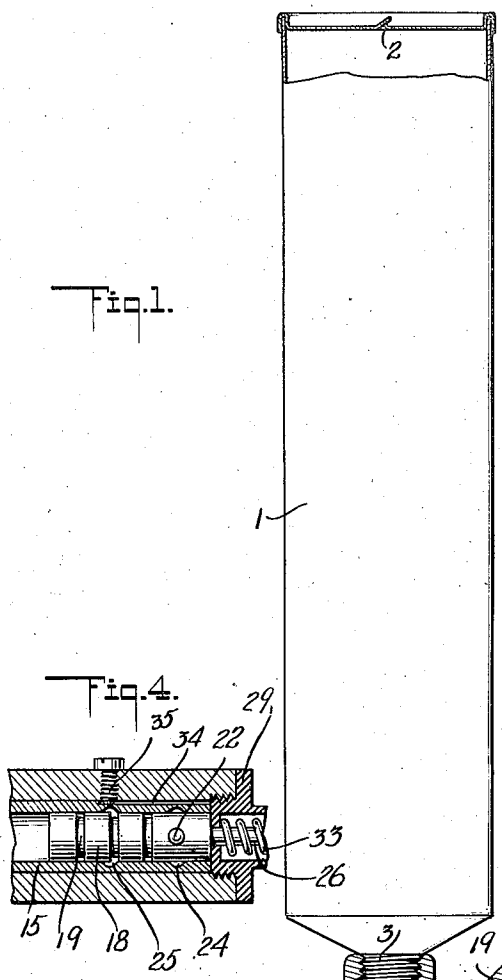


Fig. 2.

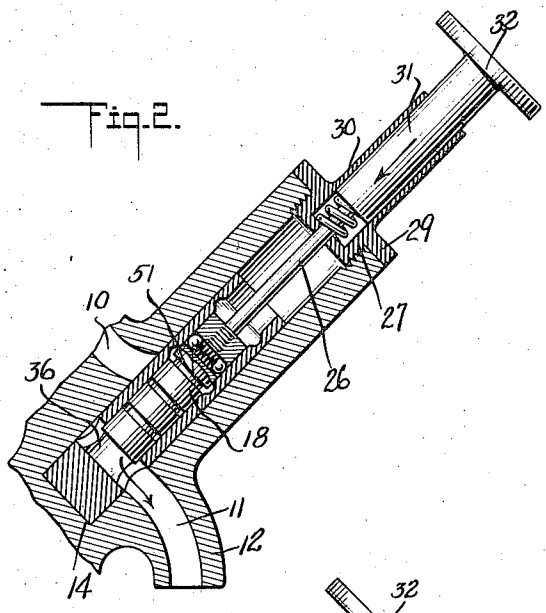


Fig. 4.

Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

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DISPENSING DEVICE FOR SHAVING CREAM.

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To all whom it may concern:

Be it known that I, LOUIS R. O'NEILL, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented a new and Improved Dispensing Device for Shaving Cream, of which the following is a full, clear, and exact description.

This invention relates to a new article of manufacture concerning a dispensing device for material such as shaving cream, and has for an object the provision of a simple, strong, economically manufactured and readily operable device for dispensing fluid material, such as shaving cream.

With regard to the new article of manufacture, another object of the invention resides in the provision of a unit including a cream receptacle and a dispensing device, the operation of which removes the cream from the receptacle, this unit to be disposed in such places as barber shops, and requiring a minimum of attention on the part of the person operating it.

A further object resides in the provision of a dispensing apparatus in which the receptacles containing the material to be dispensed can be very readily supplied in any number to the dispensing device to replenish those from which the material has been removed, this arrangement requiring a minimum expenditure of time and labor.

A still further object resides in the particular construction and arrangement of parts which are hereinafter described and claimed and shown in the accompanying drawings.

The invention is illustrated in the drawings, of which—

Figure 1 is a vertical section through the valve portion of the dispensing device to show the container in elevation.

Fig. 2 is a section through the valve showing the valve in a different position.

Fig. 3 is a similar section showing the valve in the position in which cream is about to be drawn in from the receptacle or container into the valve chamber.

Fig. 4 is a section illustrating certain details of the valve mechanism.

The particular application of the invention shown in the drawings is a preferred form thereof, although it is understood that modifications in the construction and arrangement of the parts and in the character of the materials used may be adopted without departing from the spirit of the invention.

In the drawings I show a dispensing unit which comprises a container or receptacle 1 in which material to be dispensed is disposed, said material being of any suitable character, such as shaving cream. The bottom wall of the container is provided with a lip such as 2 which can be lifted by a knife point to admit air into the container and thus more readily permit the material within the container to be drawn out without collapsing the sides of the container in the event that the container is made of soft material. The material of which the container is made, however, is not part of the invention, although a preferred form of container would be the usual collapsible tube now used to contain shaving and dental creams. The lower end of the container is provided with the usual threaded plug portion 3 which is intended to be screwed into a suitable threaded bore 4. This bore 4 is formed in a casting 5 provided with a base portion 6 to be fastened by any suitable means, such as screws 7, to a support 8 which may be, for instance, a shelf or support in a barber shop. This casting 5 is also provided with a longitudinally disposed bore 9 extending through the casting. An inlet passage 10 extends from the bore 4 to the bore 9. An outlet passage 11 extends from another portion of the bore 9 to the atmosphere. This passage 11 is formed in a nozzle 12. A shoulder 13 is formed in the bore 9 to one side of the discharge passage 11 for the purpose of limiting the movement of the bore 9 of the plug portion 14 of a hollow shell 15 which is slidable within the bore. This shell is provided with oppositely disposed apertures 16 and 17. The aperture 16 is adapted to be alined with the inlet passage 10, and the aperture 17 is adapted to be alined with the outlet passage 11.

Within the shell 15 a piston 18 moves. This piston is provided with a plurality of annular grooves 19 therein and with a bore 20 extending transversely therethrough. This bore receives two balls 21 and 22 at opposite ends thereof between which a spring 23 is disposed, the spring 23 tending to force the balls outwardly from the bore 20. These

balls are adapted to engage with circular grooves 24 and 25 formed at a suitable distance apart in the inner walls of the shell 15. To the rear end of the piston 18 an actuating bar 26 is connected.

One end of the bore 9 is threaded as at 27 to receive the threaded plug portion 28 of a cap having a flange 29 resting on the end surface of the casting 5. This cap is provided with a cuplike extension 30 having an aperture in the bottom thereof through which the bar or rod 26 extends. Within this cuplike extension 30 a partly hollow plug 31 is adapted to slide, the other end of the bar 26 being screwed into the plug 31. This plug 31 is provided with an enlarged head portion 32, enabling the plug to be operated by hand. A spring 33 extends around the bar or rod 26 between the bottom of the cup 30 and the bottom of the hollow portion of the plug 31.

As shown in Fig. 4, a slot 34 is formed in a portion of the side of the shell 15 and into this slot the lower end of a set screw 35 extends. This set screw acts as a sort of key to prevent the shell 15 from rotating within the bore 9, although the shell may move longitudinally within the bore.

In the position of the parts shown in Fig. 1, the piston 18 is at the extreme outward end of its stroke within the shell 15 by reason of the action of the spring 33 forcing the head portion 32 outwardly. It is assumed that in this position of the parts shaving cream or other material from the container 1 has been drawn from the container into the passage 10 and the chamber designated 36 formed in the shell 15 between the plug portion 14 and the end of the piston 18. With this chamber full of cream it is desired to discharge this cream from the device through the outlet passage 11. To do this, the operator presses on the head 32, depressing the bar 26 and the piston 18. However, in the position of the parts shown, the balls 21 and 22 disposed on the piston are in engagement with the groove 24 in the shell so that the shell will move inwardly with the piston under the depression above mentioned. This movement of the shell will cause the aperture 16 to pass by the opening of the passage 10 and close this passage and this aperture. The movement of the piston and the shell will continue in this relative manner until the plug 14 strikes the shoulder 13 and is in the position shown in Fig. 2. In this position further pressure on the head 32 has caused the balls to become disengaged from the groove 24, whereby the piston can move further relative to the shell and the material within the chamber 36 is discharged through the passage 11, since the aperture 17 has been moved into alinement with the passage 11 in this position of the shell 15.

The further movement of the piston 18 to the extreme end of its path, where the bottom of the piston rests against the surface of the plug 14, results in the balls 21 and 22 becoming engaged in the groove 25 which is, consequently, so disposed as to be in alinement with the balls when the piston reaches this point of its travel. Consequently, when the hand of the operator is released from the head 32, the spring 33 tends to move the bar 26 and the piston 18 back to the normal position shown in Fig. 1. The first effect of this movement from the extreme inward position of both the shell 15 and the piston 18 is to move the piston and the shell together by reason of the engagement of the balls 21 and 22 with the groove 25. However, when the upper end of the shell 15 hits the inner face of the plug 28 associated with the flange 29, the movement of the shell 15 is arrested, but at this time the aperture 16 has been alined with the passage 10, and prior to this alinement the aperture 17 has been moved out of alinement with the outlet passage 11. The piston, however, continues further to move by reason of the fact that the balls 21 and 22 are moved out of engagement with the groove 25. This relative movement of the piston with respect to the shell 15, after the shell 15 has stopped in the above-mentioned position, tends to engage the sides between the plug 14 and the piston 18 to form the chamber 36 above referred to. This movement of the piston causes, therefore, a suction back of the piston which will draw in the cream or material through the passage 10 from the container 1. This sucking action will continue until the piston has reached the position shown in Fig. 1, which is the extreme outward end of its travel. After this position has been reached, the cycle of operations can then be repeated. In other words, to operate this device, it is merely necessary to push down on the head 32 as far as the parts will move and then to release the head, whereupon the spring will return it to normal position. It is to be observed that the movement of the parts in one direction will cause a compressive discharge of the cream in the chamber within the shell 15, and that a movement of the parts in the opposite direction results in a suction of a charge from the container into the chamber in the shell.

It is equally apparent that this device is very simply constructed and is economical to manufacture; that its simplicity renders it very easy to operate and very little likely to get out of order. The peripheral grooves formed in the piston become filled

with the cream material being dispensed and these act as fluid piston rings to make the action of the piston within the shell tight. In a similar manner, the shell sliding in the bore 9 is lubricated. This device, including the container, is sold as a unit to barbers and similar persons who require a simple device whereby materials of the above-mentioned character can be readily dispensed. Containers of the type shown can be furnished for replenishing the supply, and this replenishment is effected merely by unscrewing one container and inserting another in place.

What I claim is:

1. A valve mechanism which comprises a casting or frame having a bore and inlet and outlet passages leading thereto, a shoulder in the bore adjacent the outlet passage, a shell slidable within the bore and having its forward end closed, said shell having apertures to be alined with the inlet and outlet passages, a piston slidable within the shell, said shell having a plurality of spaced grooves therein, and locking means on the piston engaging the said grooves in the movement of the piston in either direction to cause the temporary movement of the shell therewith.

2. A valve mechanism comprising a casting or frame having a bore and inlet and outlet passages leading thereto, a shoulder in said bore adjacent the outlet passage, a hollow shell closed at one end and slidable within said bore and having apertures to be alined with said passages, the movement of the shell in one direction being arrested by the shoulder, a cap disposed over the other end of the bore to arrest the movement of the shell in this direction, a piston slidable within the shell, there being formed between the piston and the closed end of the shell in one extreme position thereof a chamber connected with the inlet passage by reason of the alinement of an aperture in the shell with this passage in this position, a flexible connection between the shell and the piston in this position whereby the shell and piston move together until the shell is arrested by the shoulder, said arrest occurring when the other aperture in the shell is alined with the outlet passage, further movement of the piston releasing the flexible connection and discharging the material from the chamber through the outlet passage, and means causing the reengagement of the flexible connection between the shell and the piston when the piston has reached the other extreme of its travel.

3. A valve mechanism which comprises a casting or frame having a bore, a shell slidable within said bore, a piston slidable within said shell, said shell having spaced annular grooves on its inner face, and resilient means on the piston adapted to engage in said grooves in different positions of the piston relatively to the shell to temporarily lock the shell and piston together whereby they move together.

LOUIS R. O'NEILL.