Jan. 28, 1936. W. H. BURKE 2,029,055

DISPENSER

Filed Nov. 22, 1934

Fig. 1.

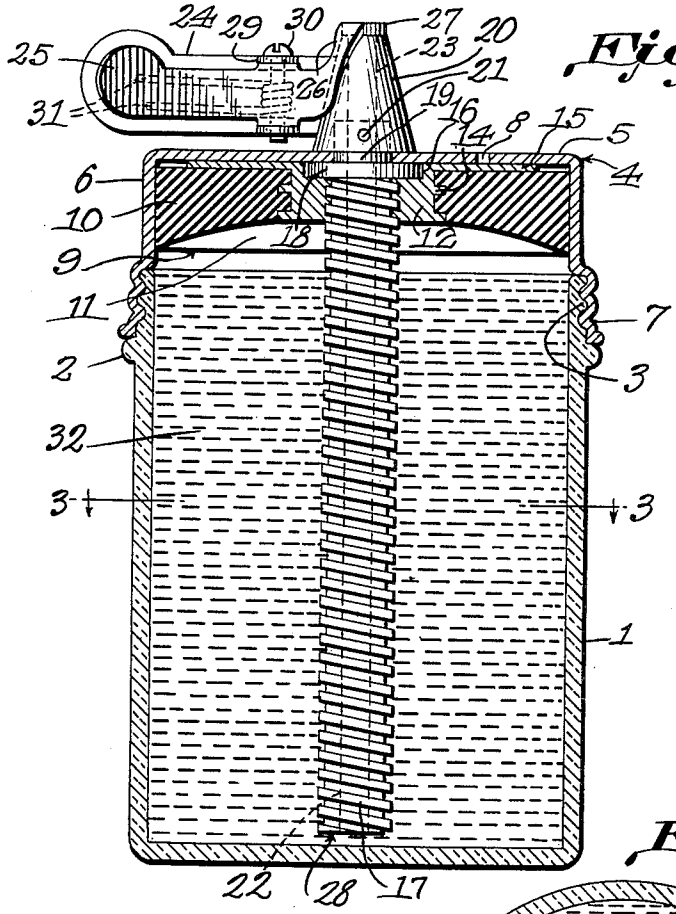


Fig. 3.

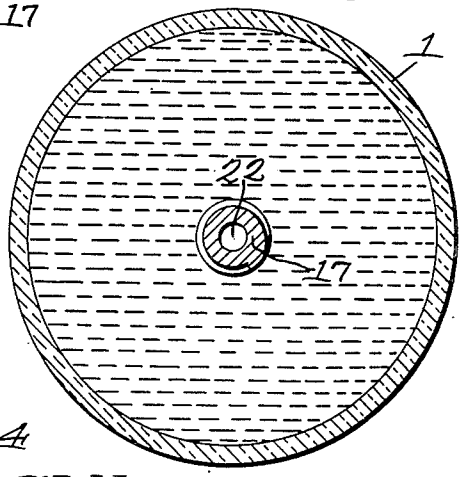
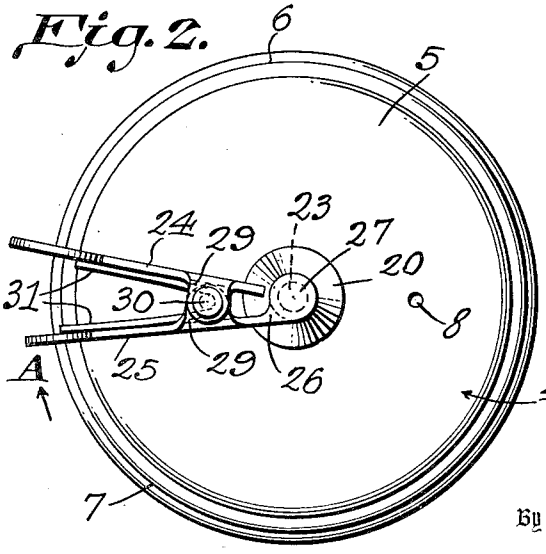


Fig. 2.



W. H. Burke Inventor

By C. A. Snow & Co.

Attorneys.

Patented Jan. 28, 1936

2,029,055

UNITED STATES PATENT OFFICE

2,029,055

DISPENSER

William H. Burke, Onawa, Iowa, assignor of one-fourth to G. W. Myrland and one-fourth to Geo. W. Prichard, both of Onawa, Iowa

Application November 22, 1934, Serial No. 754,346

3 Claims. (Cl. 221—79)

The device forming the subject matter of this application is adapted to be used for dispensing material, such as creams, mustard and the like. The invention aims to supply a novel means for forcing the material out of a jar or receptacle, to provide novel means for regulating the flow of the material, to provide a novel means whereby the material may be forced out, and its delivery regulated, by a single operation; and, generally, to improve and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawing:

Fig. 1 shows, in vertical longitudinal section, a device constructed in accordance with the invention, parts being in elevation;

Fig. 2 is a top plan;

Fig. 3 is a cross section on the line 3—3 of Fig. 1.

The numeral 1 designates a cylindrical receptacle or jar, adapted to contain the material 32 to be dispensed. The material shown at 32 may be a toilet cream, mustard, or any thing of the like. Near its upper end, the receptacle 1 has an external circumferential stop bead 2. Above the bead 2, the receptacle 1 has an external thread 3.

The numeral 4 designates, generally, an inverted cup-shaped cap, which may be made of metal. The cap 4 comprises a top 5 and a depending circumferential rim 6. The rim 6 is threaded at 7, to engage with the thread 3 on the receptacle 1, and when the parts 4 and 1 are threaded together, the lower edge of the rim 6 engages the stop bead 2. A vent hole 8 is formed in the top 5 of the cap 4.

The numeral 9 designates, generally, a piston housed in the cap 4, but adapted to be advanced downwardly into the receptacle 1. The piston 9 is a composite structure, including a body 10, preferably made of rubber or a rubber compound having some resiliency. The body 10 of the piston 9 has a close, sliding, frictional fit within the rim 6 of the cap 4, and in the receptacle 1. If the receptacle 1 happens to be a little out of round, the body 10 of the piston 9 will fit closely in the receptacle, because the body of the piston is resilient. The body 10 of the piston 9 has a concaved recess 11 in its bottom, and this recess extends outwardly to the periphery of the body.

The piston, designated by the numeral 9, includes a hub 12 mounted centrally in the body 10 of the piston, the hub having circumferential fins 14 which extend outwardly into the body 10, to aid in holding the hub 12 and the body 10 together. The hub 12 preferably is made of metal, because into it is threaded a feed screw 17, which will be alluded to hereinafter. On its upper end, the hub 12 carries a circumferential backing plate 15, engaging the upper surface of the piston body 10. The backing plate 15 preferably is of somewhat smaller diameter than the piston body 10. There is a circular recess 16 in the top of the hub 12.

The numeral 28 designates an operating member, comprising several parts. One of those parts is the aforesaid feed screw 17, threaded into the hub 12 of the piston 9, and extended downwardly to a point closely adjacent to the bottom of the receptacle 1. The feed screw 17 is provided near its upper end with a circular disk-like head 18, housed in the recess 16 of the hub 12 and engaging the lower surface of the top 5 of the cap 4. Above the head 18, the feed screw 17 has a smooth, cylindrical, upper portion 19, journaled in the top 5 of the cap 4, and extended upwardly a little way above the top 5.

The operating member, designated generally by the numeral 28, includes a conical tip 20, engaged with the upper surface of the top 5 of the cap 4. The cylindrical upper portion 19 of the feed screw 7 extends into the tip 20, the parts 19 and 20 being secured together by any suitable means, indicated by the numeral 21. The tip 20 carries an outstanding radial arm 24, arranged at right angles to the axis of the feed screw 17. The feed screw 17 and its upper portion 19 have an axial bore 22, in line with a corresponding bore 23 in the tip 20.

A lever 25 is arranged at an acute angle to the arm 24 and is supplied at its inner end with an upwardly extended finger 26, terminating in a closure disk 27, the disk 27 fitting closely but slidably on the upper end of the tip 20 and closing the upper end of the bore 23 in the tip, the bore 23 and the bore 22 of the screw 17 forming a conduit through which the material 32 is discharged. The arm 24 and the lever 25 are supplied with overlapped transverse ears 29, receiving a fulcrum member 30, which may be a screw or any equivalent device. The lever 25 thus is fulcrumed intermediate its ends on the arm 24

for swinging movement in a direction substantially at right angles to the axis of the feed screw 17. The lever 25 is held normally in the position of Fig. 2, with the disk 27 in closed relation to the upper end of the conduit 22—23, by means of a coiled spring engaged around the fulcrum 30 for the lever 25, and including arms 31 which extend outwardly along the inner surfaces of the member 24 and the lever 25.

The operating member 28 is journaled for rotation in the top 5 of the cap 4, but is held against longitudinal movement therein, because the head 18 of the feed screw 17 and the tip or nozzle 20 are disposed on opposite sides of the top 5 of the cap 4. Since the body 10 of the piston 9 is resilient and has a frictional grip on the rim 6 of the cap 4 and on the receptacle 1, the piston 9 does not tend to rotate to any appreciable extent, when the screw 17 is rotated. Therefore, when the screw 17 is rotated, the piston 9 moves downwardly, forcing the material 32 upwardly through the conduit 22—23.

The outer end of the lever 25 is pressed toward the outer end of the arm 24, by a thrust, or by a pinching action. The first result is that the lever 25 is swung on its fulcrum 30, the closure 27 on the inner end of the lever 25 being withdrawn laterally from above the tip 20, the conduit 22—23 being opened at its upper end. Continued pressure in the direction of the arrow A in Fig. 2 causes rotation to be imparted to the screw 17, by way of the arm 24 and the tip 20, and as the screw 17 is rotated, the piston 9 is carried downwardly, because the screw 17 is threaded into the hub 12 of the piston 9. The vent 8 in the top 5 of the cap 4 admits air to the cap, above the piston 9, and permits the piston to move downward freely. The piston 9 compresses the material 32 in the receptacle 1, and forces the material up through the conduit 22—23, the material being delivered at the end of the tip 20. When the operator has delivered as much of the material 32 as he needs, pressure in the direction of the arrow A in Fig. 2 is stopped, and the lever 25, under the action of the spring 31, resumes the position shown in Fig. 2, the disk 27 on the lever going back to closed position with respect to the upper end of the conduit 23—22.

When the piston 9 gets down to the bottom of the receptacle 1, the body 10 of the piston 9 flattens out, under the action of the feed screw 17, the material in the recess 11 of the body 10 being forced upwardly through the conduit 22—23 and there being practically none of the material 32 left in the receptacle 1. Because the body 10 has the recess 11 in its bottom, the body 10 is given a thinned lower peripheral edge which aids in enabling the body 10 to conform to the inner surface of the receptacle 1.

A person, in the first place, can buy the completed article, as shown in Fig. 1, or he can buy the cap 4 alone, with parts attached thereto. Thereafter, the purchaser can buy the receptacle 1 and its contents 32, and assemble it by means of the threading at 2—7 with the cap 4 and other parts which he has already. In other words, the user does not have to buy a new cap 4 and attached parts, every time that the receptacle 1 becomes empty. It is possible, of course, to refill a single receptacle 1, and use it as many times as desired.

Having thus described the invention, what is claimed is:

1. Dispensing mechanism comprising a container, a piston slidable in the container, operating means embodying a feed screw held for rotation but again longitudinal movement on the container, the feed screw being threaded into the piston, the operating means, including the feed screw, having a conduit for the discharge of the contents of the container, under pressure of the piston, a lever, fixed fulcrum means by which the lever is mounted on the operating means, the lever having a closure so located as to control the passage of the contents of the container through the conduit, the lever being disposed substantially at right angles to the axis of the feed screw, the fulcrum means comprising a part so located as to be engaged by the outer end of the lever whereby pressure exerted against the outer end of the lever first will swing the lever and move the closure to open position with respect to the conduit, and then rotate the screw, to advance the piston and force the contents of the container through the conduit.

2. Dispensing mechanism comprising a container, a piston slidable in the container, operating means embodying a feed screw held for rotation but against longitudinal movement on the container, the feed screw being threaded into the piston, the operating means, including the feed screw, having a conduit for the discharge of the contents of the container, under the pressure of the piston, an arm and means for securing the arm to the feed screw, and a lever fulcrumed intermediate its ends on the arm and having at its inner end a closure so located as to control the passage of the contents of the container through the conduit, the lever and the arm being of approximately the same length and being disposed substantially at right angles to the axis of the feed screw.

3. Dispensing mechanism constructed as set forth in claim 1, and further characterized by the fact that the piston embodies a resilient member making close contact with the inner wall of the container, the piston being provided in its inner surface with a convexed recess extended outwardly from the screw to the periphery of said resilient member and defining a thin edge where the piston engages the container.

WILLIAM H. BURKE.