

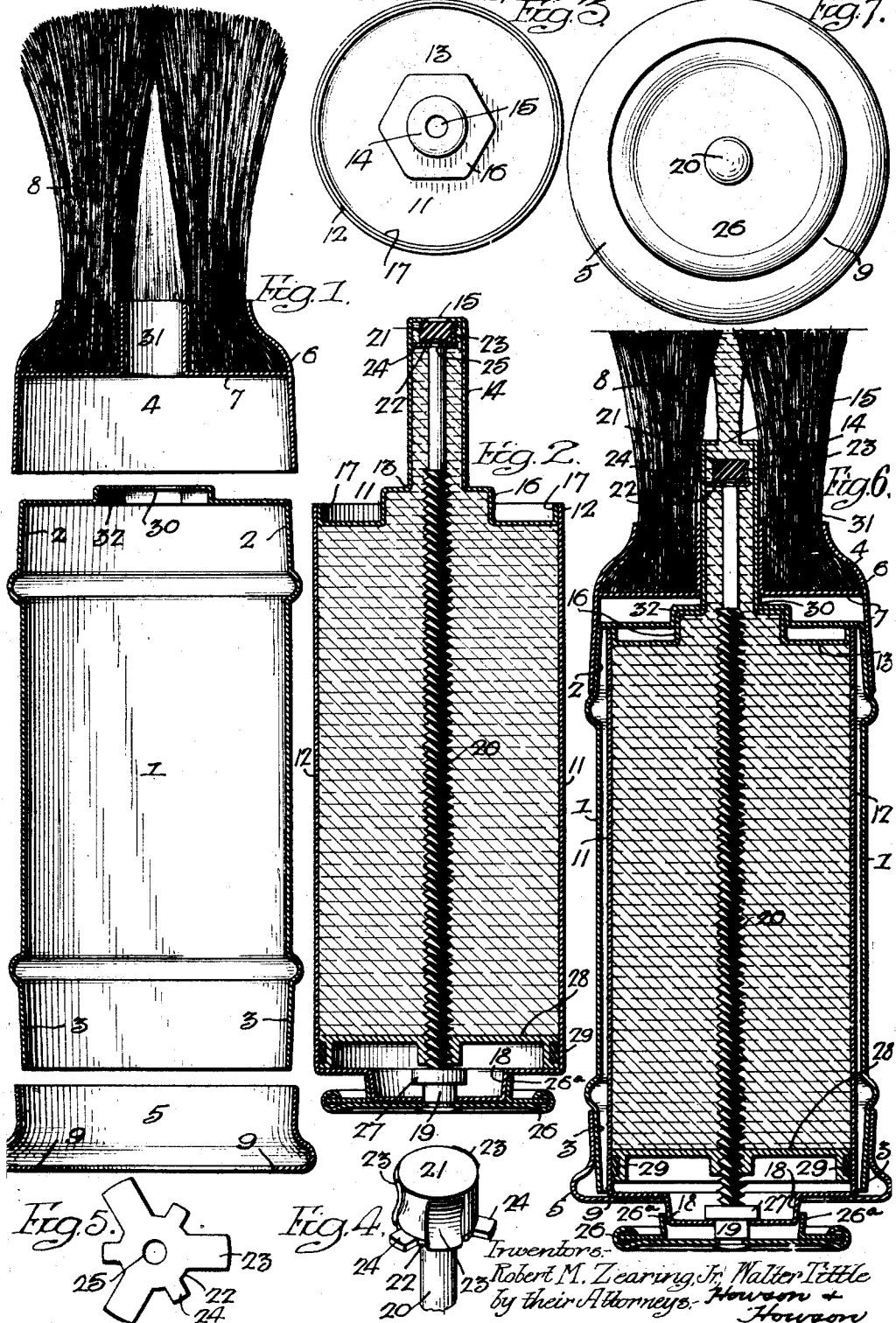
Feb. 12, 1929.

1,702,147

R. M. ZEARING, JR., ET AL

DISPENSING DEVICE

Filed Dec. 21, 1925



Inventors:
Robert M. Zearing, Jr., Walter Little
by their Attorneys: Howson +

UNITED STATES PATENT OFFICE.

ROBERT M. ZEARING, JR., AND WALTER TITTLE, OF PHILADELPHIA, PENNSYLVANIA,
ASSIGNORS, BY MESNE ASSIGNMENTS, TO ROBERT M. ZEARING, JR., OF PHILADEL-
PHIA, PENNSYLVANIA.

DISPENSING DEVICE.

Application filed December 21, 1925. Serial No. 76,692.

This invention relates to shaving brushes and the like, and relates more particularly to that type of brush which is adapted to include a separable container or cartridge 5 containing soap or other material which is to be applied by means of the bristles.

The principal object of the present invention is to provide a brush of this character having certain novel structural features rendering it a material improvement in the art.

More particularly, the object of the invention is to reduce the brush to the extreme of simplicity and ease of manipulation.

15 An important feature of the invention resides in the construction of the cartridge or container and particularly in the provision of simple and highly efficient means for valving the discharge port of the cartridge so as to seal the cartridge during the 20 periods when not in use, while permitting discharge of any desired amount of the contents.

These and other novel and improving 25 features are illustrated in the attached drawings, in which:

Figure 1 shows in section a detached view of the outer shell of the container including the separable bristle ferrule, handle and 30 cartridge container;

Fig. 2 is a longitudinal sectional view of the cartridge;

Fig. 3 is a plan view of the cartridge;

33 Fig. 4 is an enlarged perspective of the upper end of the valve stem;

Fig. 5 is a plan view of the blank from which the valve-retaining member is formed;

40 Fig. 6 is a view in section of the assembled brush, and

Fig. 7 is an inverted plan view of the handle portion of the assembled brush.

With reference to the drawings, the brush comprises a cartridge-containing outer shell 45 1, which functions also as the handle of the brush. As illustrated in Fig. 1, this shell is slightly tapered at both ends, designated respectively by the numerals 2 and 3, and these tapered portions constitute seats for a bristle-containing ferrule 4, which is adapted to fit down over the end 2, and a cartridge-retaining sleeve 5 which fits over the open end 3 of the casing 1 and retains the cartridge therein, as hereinafter de-

scribed. The ferrule 4 is preferably formed, 55 as shown in Fig. 1, of two parts 6 and 7 respectively which may be struck up from sheet metal and assembled, as illustrated, to provide a retaining recess for the bristles 8. The cartridge retainer 5 is formed also, 60 as shown in Fig. 1, with a tapered portion adapted to fit over and snugly seat upon the tapered portion 3 of the casing, and includes the cartridge-retaining flange 9, as hereinafter more fully described. The cooperating 65 tapers are so formed that the ferrule 4 and the retainer 5 when inserted over the ends of the casing 1 are firmly retained thereon by friction.

In Fig. 2 we have illustrated a preferred 70 form of container or cartridge 11 so formed as to fit within the casing 1. This cartridge comprises a cylindrical shell 12 having at one end a nozzle-forming end piece 13. This end piece 13 which preferably is struck 75 up from sheet metal comprises an extended nozzle 14 having at its end a discharge port 15 and having at its base a hexagonal or other irregularly shaped part 16 whose function will be described hereinafter. 80 The end piece 13, as will be noted, is provided with flanges 17 which fit neatly the inner diameter of the shell and provide means for securing the parts together. The shell 12 is formed at the other end with a 85 tapered extension 18 having an aperture neatly fitting the lower enlarged portion 19 of a shaft 20 which occupies a position longitudinally of the shell 12 extending at one end through the aforesaid aperture and at 90 the other end into the nozzle 14. At the nozzle end, this shaft 20 carries a rubber valve tip 21 which in one position of the shaft is adapted to bear against and close the port 15. The tip 21 is held in the 95 present instance in a clip 22, shown in Figs. 5 and 6, this clip being formed as shown in the latter figure from a sheet metal blank substantially circular in form and having radial protrusions 23 and 24, the former 100 being turned upwardly as shown in Fig. 5 to press against the sides of and retain the rubber tip 21, while the protrusions 24 are left to constitute guides centering the shaft 20 within the stem 14. The clip is also 105 provided with a central aperture 25, see Figure 6, in which the upper reduced end of the shaft is riveted, thereby securing the

clip with its retained tip 21 to the shaft. At the opposite end the shaft, as previously stated, extends through the aperture in the tapered extension 18, and a reduced extreme portion is riveted into a knob 26 which has on the inside a tapered socket 26^a for the extension 18 in which the said extension neatly fits and in which by means of slight pressure the said extension is adapted to frictionally bind. Inside the enlargement 19 of the shaft 20 is an extending flange 27 which limits movement towards that end of the cartridge of the shaft 20, there being permitted sufficient play for the shaft within the receptacle to uncover the port 15 when it is desired to discharge some of the contents. This longitudinal movement of the shaft 20 to uncover the port 15 is accomplished by manipulating the knob 26 in a manner hereinafter described. The shaft 20 is threaded over the greater portion of its length, and this threaded portion of the shaft passes through a correspondingly threaded central opening in a plunger or piston 28 within the shell 11, as clearly shown in Fig. 2. This piston 28 is preferably formed as therein illustrated with a circumferential recess for rubber or other packing 29 which prevents leakage past the piston and also provides for a certain frictional engagement of the piston with the shell for a purpose hereinafter described. The piston 28 is advanced in the shell to discharge the contents by rotation of the shaft 20 through the knob 26.

This cartridge, as previously described, is adapted to fit within the casing 1, and apertures 30 and 31 in the bristle end of the casing 1 and in the ferrule 4 respectively provide for passage of the nozzle 14 into the base of the bristles, as clearly illustrated in Fig. 6. The bristle-retaining end of the casing 1 is formed with a horizontal or other recess 32 corresponding in shape to the part 16 of the cartridge 11, and when in position in the casing, this part 16 fits within the recess 32 and thereby prevents rotation of the cartridge in the casing. The cartridge is retained by means of the sleeve 5, as clearly shown in Fig. 6, the flange 9 of this part underlying the end of the cartridge. It will be noted that the knob 26 projects through the open end of the sleeve 5 so as to be easily taken hold of by the fingers, and preferably this knob is of such diameter as to constitute a base upon which the brush may rest in an upright position.

In operation, the cartridge is inserted as described and the ferrule 4 and retainer 5 securely applied to the casing. During the periods when the brush is not being used, the cartridge parts are as shown in Fig. 2, the stem 20 being forced upwardly so that the valve tip 21 firmly closes the port 15, and being retained in this position by means

of the frictional grip between the extension 18 and the knob 26. When it is desired to discharge some of the contents of the cartridge into the bristles, the shaft 20 is rotated (in a clockwise direction for example), with the result that the shaft is backed away from the port 15 by reason of the threaded engagement with the piston 28 which as previously described is frictionally retained immovable in the cartridge. This backing away of the shaft 20 results eventually in bringing the flange 27 against the bottom of the extension 18, and further rotation of the shaft 20 through the knob 26 results in an advance of the piston 28 towards the discharge end of the cartridge and the expulsion of some of the contents through the port 15. When sufficient of the contents has been discharged and it is again desired to close the port 15, it is only necessary to reverse the rotation of the knob 26 which results in a longitudinal movement of the shaft 20 inwardly of the cartridge until the tip 21 is pressed firmly against the inside of the port 15 and the knob 26 has firmly engaged the tapered wall of the extension 18.

The extreme simplicity of the device will be noted. The parts with the exception of the shaft 20 are adapted to be struck up or formed from sheet metal, with the result that the cost of manufacture is extremely low. The use of the tapered friction grips for the ferrule and the retainer 5 and for the knob 26 are also of considerable advantage in that they provide an extremely simple and highly efficient means of holding the parts together and greatly simplify the operations of assembly and disassembly.

A material improvement is also found in the method for opening and closing the discharge port of the container in that they can be accomplished by mere rotation of the knob 26 in opposite directions.

We claim:

1. A dispensing device comprising a hollow cylindrical casing having tapered ends, an apertured member having a tapered socket adapted to fit over and be frictionally retained on one end of said casing, a sleeve having a tapered socket adapted to fit over and be frictionally retained on the other end of the casing, a cartridge adapted to fit within the casing and retained therein by said sleeve, and means for discharging the contents of the cartridge through said apertured member.

2. In a dispensing device, the combination with a hollow cylindrical handle portion having a discharge opening at one end, of a cartridge adapted to fit within the casing, an annular retaining member detachably secured at the opposite end of the casing for retaining the cartridge in place, and mechanism for discharging the con-

tents of the cartridge through the said discharge opening including a part projecting beyond the outer end of said annular retainer.

3. A dispensing device comprising a cylindrical shell having a discharge port at one end and at the other end a tapered extension, a shaft extending longitudinally of the shell and having at one end a valve element adapted to close said discharge port and at the other end projecting through an aperture in the shell, a piston in threaded engagement with the shaft and frictionally engaging the sides of the shell, means providing for a limited longitudinal movement of the shaft in the shell, and a shaft-operating element secured to the projecting end of said shaft and having a tapered socket for reception of the said tapered extension on said shell.

4. A dispensing device comprising a cylindrical shell having a discharge port at one end and at the other end a tapered extension, a shaft extending longitudinally of the shell and having at one end a valve element adapted to close said discharge port and at the other end projecting through an aperture in the shell, a piston in threaded engagement with the shaft and frictionally engaging the sides of the shell, means providing for a limited longitudinal movement of the shaft in the shell to uncover and close the port at will, and a shaft-operating element secured to the projecting end of the shaft and having a tapered socket adapted to frictionally bind around said tapered extension when the valve is in the port-closing position.

5. In a dispensing device, the combination with a hollow cylindrical handle portion having a discharge opening at one end, of a cartridge adapted to fit within the casing and comprising a cylindrical shell having a discharge port at one end and at the other end a tapered extension, a shaft extending longitudinally within the cartridge and having at one end a valve element adapted to close said discharge port and at the other end projecting through an aper-

ture in the bottom of said tapered extension, a piston in threaded engagement with said shaft and frictionally engaging the sides of the shell, means providing for a limited longitudinal movement of the shaft in the shell, a shaft-operating element secured to the projecting end of said shaft and having a tapered socket for reception of said tapered extension on the shell, means for establishing communication between the discharge port of the cartridge and the said discharge opening of the casing, means for preventing rotation of the cartridge in the casing, and means for retaining the cartridge in the casing including an annular element secured at one end of the casing and having a flange underlying the bottom face of the cartridge at the base of said tapered extension whereby the said extension with the shaft-operating element project beyond the said retaining element.

6. In a dispensing device, the combination with a hollow cylindrical handle portion having a discharge opening at one end, of a cartridge adapted to fit within the casing, and means at the opposite end of the casing for retaining the cartridge therein including an element detachably secured to the casing and engaging the cartridge intermediate its ends, and means on the projecting end of the cartridge for discharging the contents of the cartridge through said discharge opening.

7. A dispensing device comprising a cylindrical shell having a discharge port at one end, a shaft extending longitudinally of the shell and having at one end a valve element adapted to close said discharge port and projecting at the other end through an aperture in the shell, a piston in threaded engagement with the shaft and frictionally engaging the sides of the shell, means providing for a limited longitudinal movement of the shaft in the shell, a shaft-operating element secured to the projecting end of the shaft, and friction means for retaining the shaft in the port-closing position.

ROBERT M. ZEARING, JR.
WALTER TITTLE.