W. L. CLARK.

PASTE TUBE.

APPLICATION FILED JULY 10, 1907.

953,375. Patented Mar. 29, 1910.

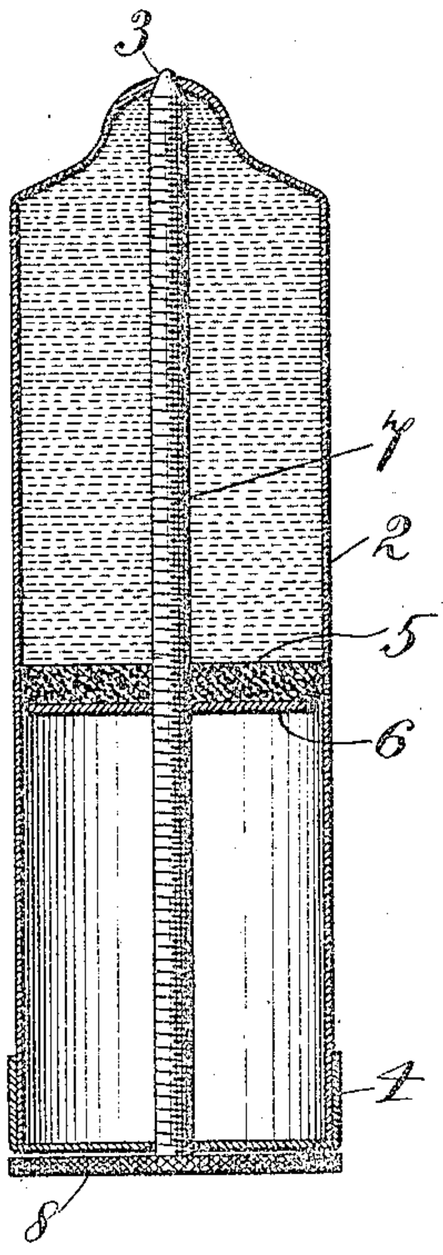

Fig. 1.

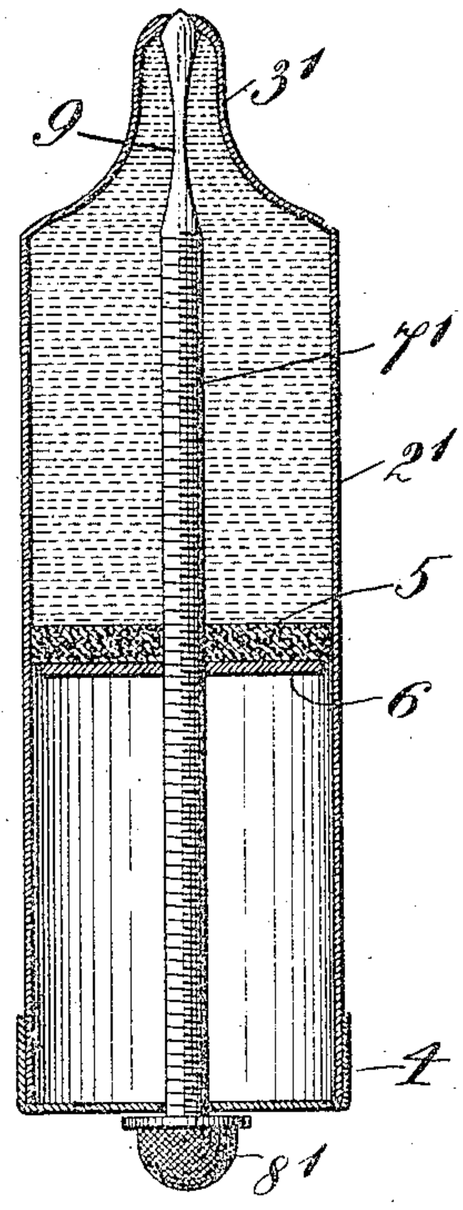

Fig. 2.

WITNESSES:

Joseph T. Brennan.

Mary A. O'Brien.

INVENTOR:

Walter L. Clark,

By E. G. Chadwick,

Attorney.

UNITED STATES PATENT OFFICE.

WALTER L. CLARK, OF NEW YORK, N. Y.

PASTE-TUBE

953,375. Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed July 10, 1907. Serial No. 383,001.

To all whom it may concern:

Be it known that I, WALTER L. CLARK, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Paste-Tubes, of which the following is a specification.

This invention relates to that type of receptacle which comprises a rigid tube adapted to contain a viscous or powdery material and provided with a piston and piston-operating means for expelling such material through its outlet, my invention being intended to improve upon prior receptacles of this type in certain particulars which will be hereinafter explained.

In the accompanying drawings, Figure 1 is a central, longitudinal section through a receptacle embodying a preferred form of my invention, partially emptied of its contents; and Fig. 2 is a similar view showing a slightly-modified construction.

Referring to Fig. 1 of the drawings, the receptacle therein illustrated comprises a rigid tube 2 which is preferably cylindrical in form and is usually drawn from a single piece of thin sheet metal, said tube being permanently closed at one end, except for an outlet 3, and provided with a cap 4 for closing its opposite or rear end after the contents of the tube have been placed therein. Within the tube 2 is located a piston which may conveniently consist of a disk of cork 5 making a close sliding fit with the interior of the tube and provided with a stiffening metallic disk or backing 6, and a piston-operating rod 7 passes through said piston and extends longitudinally within the tube, in alinement with the outlet 3. At their front ends the rod 7 and tube 2 are provided with conforming surfaces constituting a valve whereby the outlet 3 may be closed by forcing said rod forward, the arrangement being such that said rod may be moved backward through the piston in an endwise direction, without moving the latter, and if then forced forward will carry the piston with it. To this end, according to my preferred construction, the rod 7 is screw-threaded and has a threaded engagement with the disk 6, and its rear end passes through the cap 4 and is provided on the exterior of the latter with an operating head or thumb-piece such as a flat disk 8 rigidly secured thereto. Said rod passes freely through the cap 4, as distinguished from having an internal bearing on the same, so that it is capable of being moved longitudinally through the cap without rotation, and the parts should be so proportioned that when the front end of the rod 7 is seated at the outlet 3 the disk 8 will be just out of contact with the cap 4, thus providing for the tight closing of said outlet.

As thus constructed, when it is desired to expel any of the contents of the tube, the rod 7 is rotated in such direction as to cause it to travel backward through the piston and through the cap 4, the piston being prevented from rotating by its frictional engagement with the tube. By such backward movement of the rod the outlet 3 is opened, and said rod is then forced directly forward, without rotation, carrying the piston with it and thereby expelling a certain amount of the contents of the tube, according to the distance through which said rod has been screwed backward through the piston. At the end of this forward movement the front end of the rod closes the outlet and prevents further expulsion of the contents of the tube until the operation above described is repeated.

It is one of the features of the construction above described that the outlet from the tube is automatically closed at the end of each operation by which any portion of the contents of the tube is expelled, and that this closure takes place in a forward direction, that is to say, from the inside of the tube, so that there is no danger of its forcing out of the completely-filled space in front of the piston any surplus material which would have to be subsequently removed and wasted, thus overcoming a defect which has existed in certain prior receptacles of a similar general character. It is also a feature of the described construction that it provides an absolutely tight closure for the tube when first filled and during transportation, since the piston is at that time located at the rear end of the tube and cannot be moved backward, so that if the threaded rod be turned in such direction as to tend to screw it forward through the piston the latter will serve as a fixed nut therefor and will cause the front end of said rod to be forced firmly against its seat at the outlet. This requires that the cap 4 be tightly secured to the tube, which is preferably accomplished by providing a close driving fit

between said parts. My construction also enables the user to expel with accuracy any desired quantity of the contents of the tube, since such quantity will evidently depend upon the distance through which the threaded rod is moved backward with respect to the piston before forcing it forward, as previously stated.

The modified construction shown in Fig. 2 is more particularly intended for use as a reservoir for fountain brushes and the like, to which end the front end of the tube 2′ is provided with an elongated outlet nozzle 3′ and that portion of the rod 7′ which is located within said nozzle is reduced in diameter, as at 9, to provide a free passage for the material between itself and the nozzle. At its rear or opposite end said rod is shown as provided with a slightly different form of thumb-piece, consisting of a metallic knob 8′ cast upon the end of the rod, the construction being otherwise the same as that shown in Fig. 1 and the mode of operation being the same in each case.

In a prior application for U. S. Letters Patent filed by me on the 19th day of January, 1907, Serial No. 352,697, I have described and claimed a receptacle having a piston and a threaded rod for operating the same, and so constructed that said rod is capable of passing freely through the rear end of the receptacle without rotation, and I therefore do not claim broadly such an arrangement herein, as my present invention relates more particularly to the employment of a piston-operating rod which will serve to close the outlet from the receptacle at the end of its movement forwardly, or in that direction which operates the piston, and it is to be understood that the particular constructions herein described whereby this result is accomplished may be modified in various respects without departing from my invention.

I claim as my invention:—

1. A receptacle of the character described, comprising a rigid tube provided at one end with an outlet and an internal valve seat, a piston arranged to slide in said tube, and a screw-threaded rod passing through said piston in threaded engagement therewith and formed at one end to fit said valve seat, said rod being movable longitudinally within the tube.

2. A receptacle of the character described, comprising a rigid tube provided at one end with an outlet and having its opposite end closed, a piston mounted to slide in said tube, and a screw-threaded rod passing through the piston in threaded engagement therewith and adapted to move longitudinally without rotation through the closed end of the tube, said rod and tube being provided with conforming surfaces constituting a valve for closing said outlet.

3. A receptacle of the character described, comprising a rigid tube having at one end an elongated nozzle terminating in an outlet, a piston mounted to slide in said tube, and a piston-operating rod movable longitudinally within the tube and adapted to close said outlet at the end of its forward movement, that portion of the rod which is located within the said nozzle being reduced in diameter.

4. A receptacle of the character described, comprising a rigid tube having at one end an elongated nozzle terminating in an outlet, a piston mounted to slide in said tube, and a screw threaded rod passing freely through and engaging the piston and movable freely through the rear end of the tube, said rod being adapted to close the outlet from the tube when moved forward therein and being reduced in diameter within the said nozzle.

In testimony whereof, I have hereunto subscribed my name this fifth day of July, 1907.

WALTER L. CLARK.

Witnesses:

M. E. STODDART,

F. S. TUTTLE.