Sept. 10, 1940. D. AIKEN 2,214,218

CONTAINER FOR TOOTH POWDERS OR THE LIKE

Filed April 12, 1939

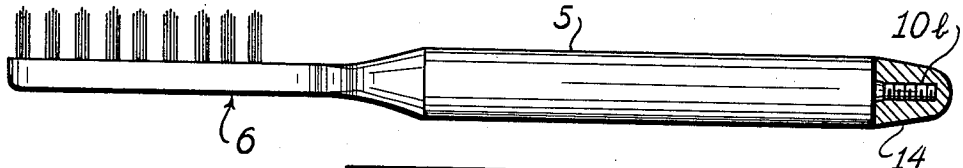


FIG. 1.

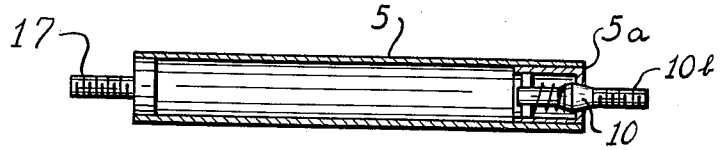


FIG. 2.

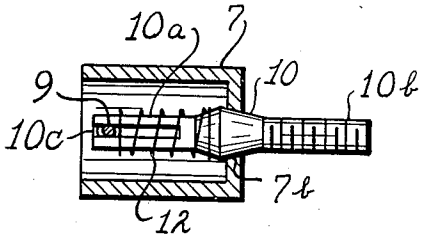


FIG. 3.

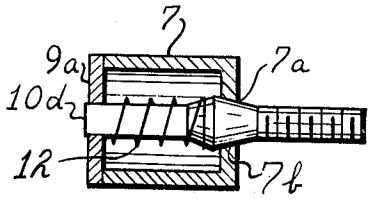


FIG. 5.

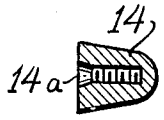


FIG. 7.

FIG. 6.

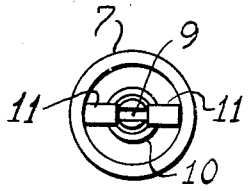
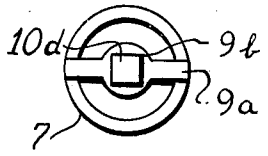


FIG. 4



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UNITED STATES PATENT OFFICE

2,214,218

CONTAINER FOR TOOTH POWDERS OR THE LIKE

David Aiken, Winnsboro, S. C.

Application April 12, 1939, Serial No. 267,418

4 Claims. (Cl. 221—62)

This invention relates to containers for tooth powders or the like, with particular reference to a container in the form of a hollow handle for tooth brushes with means for dispensing the powder as required in use.

The principal object of the invention is to provide a valve assembly for mounting through a wall of a container of any kind, such as the hollow handle of a tooth brush, in which case the valve assembly would be mounted in the rear end of the hollow handle, the said valve assembly including a valve having a bearing upon a valve seat, and a stem protruded outwardly from the valve, whereby the valve may be unseated for emitting a small quantity of a powder contained in the holder.

Another object is to provide a valve assembly for mounting in a container for tooth powder or the like, and whereby operation of the valve serves to discharge a quantity of the powder for use, the said assembly including a cupped plug for seating in an opening made in the container, the end of the plug being apertured to pass an outer valve stem and to provide a valve seat at the inner side thereof, the assembly including also an inner valve stem adapted for reciprocal movement over a cross piece whereby the valve is held in operative relation to its seat.

Still another object is to provide a valve assembly for delivering powder from a container, the same including an outwardly protruded stem for actuating the valve, the said stem being threaded for engaging a protective cap having a threaded bore for engaging the stem, and means for operatively guiding the valve and preventing rotation thereof in the process of screwing the protective cap into place.

With the foregoing objects in view together with such other objects and advantages as may appear from the following specification, attention is directed to the accompanying drawing as illustrating a preferred embodiment of the invention, and wherein:

Fig. 1 is a plan view of a combination tooth brush and dentifrice container handle as set forth in this specification, the protective cap at the rearward end being shown in section.

Fig. 2 is a longitudinal section thru the handle showing the connector and valve assembly therein.

Fig. 3 is an enlarged longitudinal sectional view of the valve assembly.

Fig. 4 is an enlarged top view of the valve assembly.

Fig. 5 is an enlarged longitudinal sectional view of a modified form of valve assembly.

Fig. 6 is an enlarged top view of the modified valve assembly.

Fig. 7 is a sectional view of the valve stem protective cap.

In combination with a container, as for example the hollow handle 5 of a tooth-brush 6, the rear end of the handle being open as indicated at 5*a*, the invention comprises a cup-shaped plug or stopper 7 for frictionally or otherwise fitting into this open end of the handle. This fitting may be purely frictional as here indicated, or the elements may be complementally screw-threaded for this connection. The outer closed end of the plug 7 is centrally apertured as shown at 7*a*, and as shown in Figure 4 the skirt 7*b* of the plug is diametrically spanned by a cross-pin or wire 9. A conical valve 10 is seated freely within the skirt of the plug 7, this valve being dimensioned to seat into and close the aperture 7*a* of the end of the plug or stopper. This valve is provided with inwardly and outwardly extended stems 10*a* and 10*b*, the inner stem being split or slotted longitudinally as shown at 10*c* and thus adapted to straddle and slidably engage the cross-pin 9. Stop pieces 11 are mounted on the pin 9 laterally of the stem 10*a*, and thus this stem is maintained in a straightaway reciprocal relation to the entire assembly, and so that the valve 10 is always accurately directed to its seat. A coil expansion spring 12 is mounted over the inner stem 10*a*, and being braced between the pin 9 and the valve 10, serves to hold that valve yieldably to its seat. It will be noted too that the valve and stems are locked against rotation by virtue of the pin 9 playing into the slot 10*c* of the inner stem.

The outer stem 10*b* is threaded as shown, and is thus adapted to threadably engage a cap 14 having the threaded socket 14*a*. As the stem 10*b* cannot rotate, this cap may be readily turned down thereon to protect this stem against breakage when the device is not in use.

As shown in Figures 5 and 6 the inner stem 10*d* is not split or slotted but is made square in cross-section for slidably engaging the squared aperture 9*b* of a cross-strip 9*a*, whereby the valve and stems are equally prevented from rotative movement. The outer stem 10*b* is substantially less in diameter than the aperture 7*a*, to provide an annular space 7*b* through which powder may be emitted when the valve 10 is open.

In the use of the invention as applied to a tooth brush 6, the handle 5 may be permanently mount-

ed thereto, or a separable connection 17 may be provided, same being here shown as a threaded connection. Thus a cheap and dispensable form of handle might be employed and discarded when empty and replaced with a new one filled with tooth powder.

The powder delivery valve is operated by removing the end cap 14, and by then striking the extremity of the outer stem 10b upon the palm of the hand, a regular quantity of the powder within the hollow handle, is emitted through the valve and is deposited upon the palm for use. The assembly thus is entirely sanitary, and when not in use the cap is screwed on as a protection to the valve assembly. The uniform operation of the valve at all times provides equal and uniform delivery of the same quantity of the powder.

While the invention is here shown as applied to a hollow-handled tooth brush, it is obvious the valve assembly constituting the gist of the invention, may be applied to any form of container for a powder of any kind.

While I have here shown and described a particular embodiment of the invention and certain structural features thereof, it is understood that same may be varied in details within the scope of the appended claims.

I claim:

1. In a valve assembly for mounting in a container having an opening for engaging same, comprising a plug for mounting in the said opening, the plug being apertured to pass a valve stem, a valve for closing inwardly over the aperture of the plug, inner and outer valve stems longitudinally extended from the valve, a guide to slidably engage the inner stem for holding same in operative alignment, and a cap for removable mounting over the outer valve stem for protecting same.

2. A valve assembly for mounting in a container having an opening for engaging same, comprising a cupped plug for seating in the opening of the container with the skirt of the plug turned inwardly, the end of the plug being apertured, a valve seated within the cup of the plug for closing the aperture thereof, said valve having inner and outer longitudinally extended valve stems, means spanning the skirt of the plug for slidably engaging the inner stem and preventing its rotation, the outer stem being threaded and a threaded cap for closing over the outer stem to protect same, the outer stem being less in diameter than the diameter of the aperture of the end of the plug, for providing an annular discharge opening for powder within the container.

3. In a valve assembly for mounting in a container having an opening for same, comprising a cupped plug for seating in the opening of the container with the skirt of the plug turned inwardly, the end of the plug being apertured, a pin extended diametrically across the skirt of the plug, a valve for mounting within the skirt of the plug over the aperture thereof, a slotted stem extended inwardly from the valve and slidably engaging the cross pin of the skirt through its slot, a stem extended outwardly from the valve through the apertured end of the plug, this stem being of less diameter than the aperture for providing a powder emission space, and being threaded exteriorly and a threaded cap for turning upon the exteriorly threaded stem.

4. A valve assembly for mounting in a container having an opening for engaging same, comprising a cupped plug for seating in the opening of the container with the skirt of the plug turned inwardly, the end of the plug being apertured, a valve seated within the cup of the plug for closing the aperture thereof, said valve having inner and outer longitudinally extended valve stems, and means spanning the skirt of the plug for slidably engaging the inner stem and preventing its rotation, the outer stem being threaded.

DAVID AIKEN.