May 28, 1957 J. B. PILKINGTON 2,793,792

TOOTHPASTE DISPENSER

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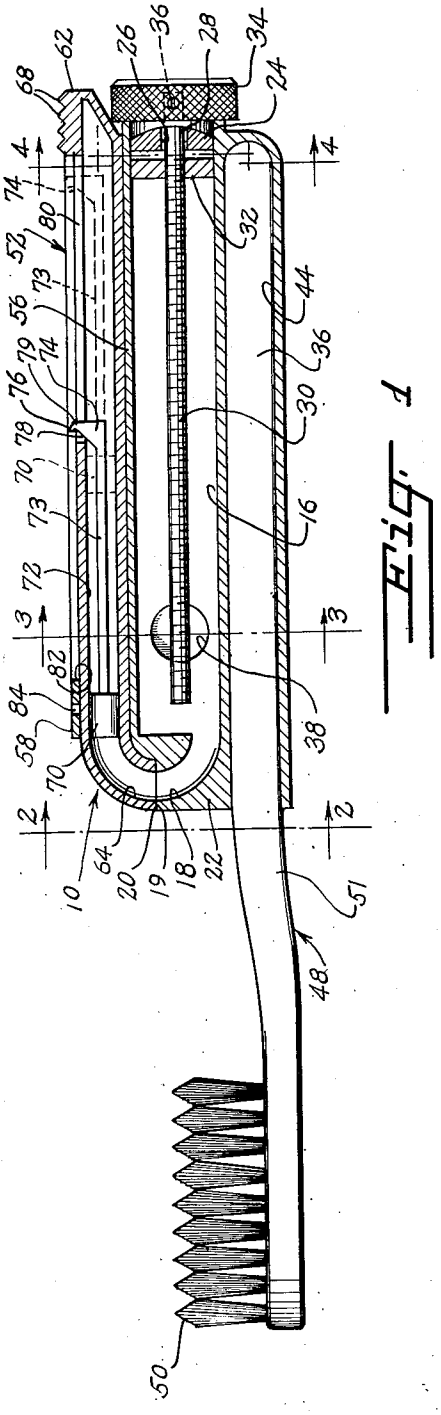


Fig. 1

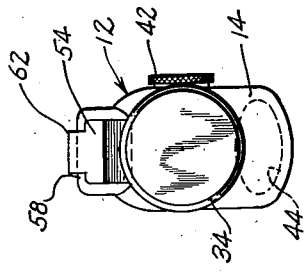


Fig. 5

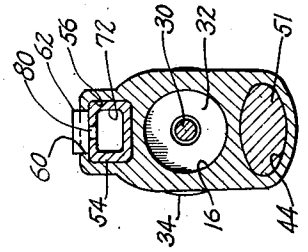


Fig. 4

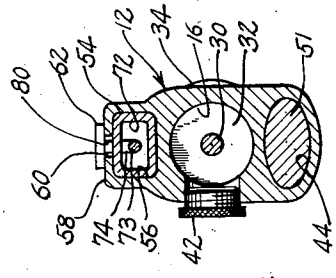


Fig. 3

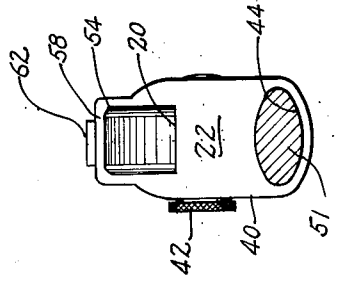


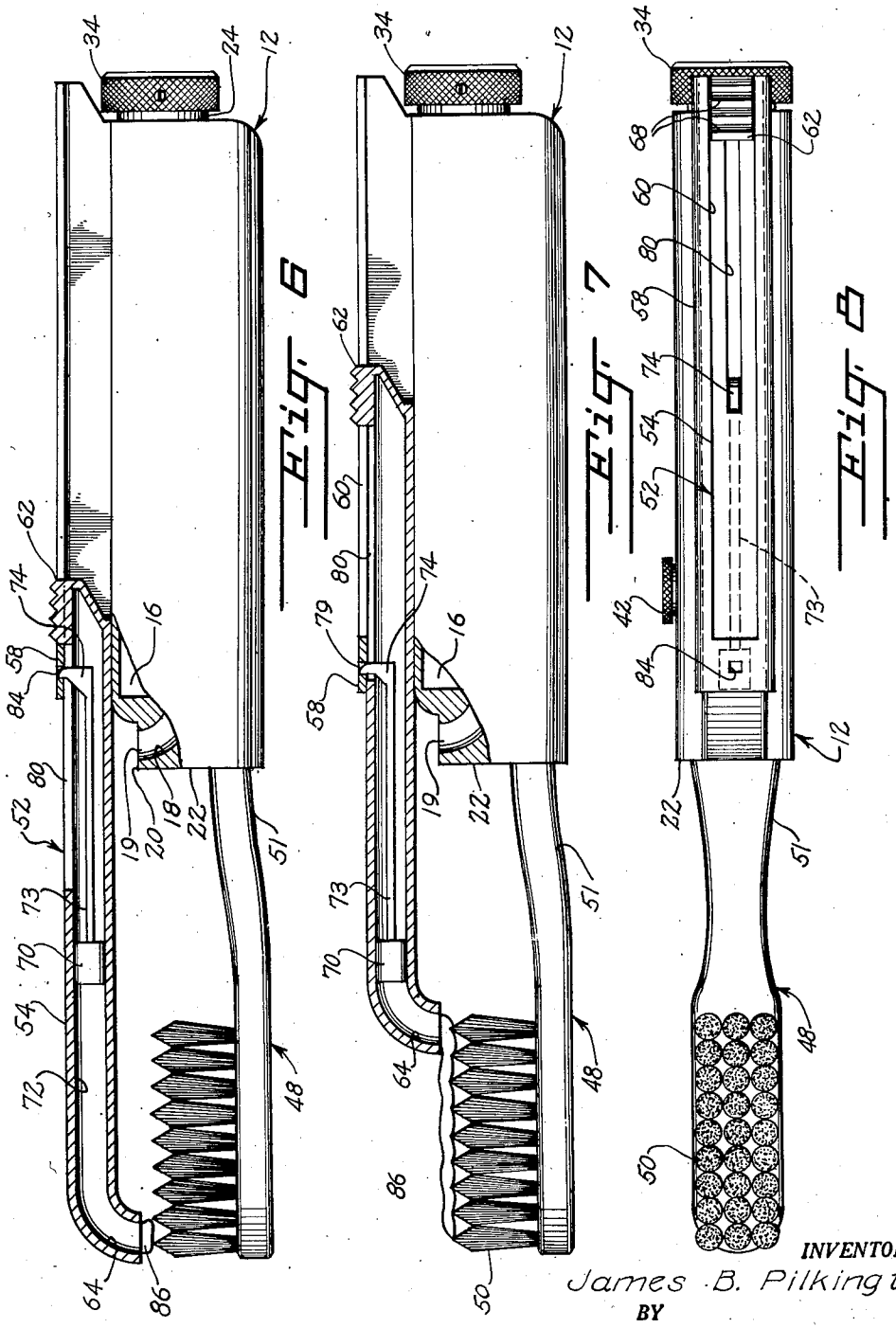
Fig. 2

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TOOTHPASTE DISPENSER

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United States Patent Office 2,793,792 Patented May 28, 1957

2,793,792

TOOTHPASTE DISPENSER

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Application April 19, 1955, Serial No. 502,369

2 Claims. (Cl. 222—191)

This invention relates to improvements in material dispensing devices and more particularly to a paste dispenser for use with cleaning implements, such as a toothbrush.

It is the principal object of this invention to provide a paste dispenser for use with a toothbrush which carries its own supply of toothpaste, and will automatically dispense the correct amount of paste directly on the bristles of the brush with a minimum amount of effort on the part of the user.

In carrying out the foregoing objects, this invention embodies among its features, a material dispensing means which includes a cleaning implement receiving pocket opening to one end thereof for the reception of a cleaning implement handle therein, a reservoir in the body or housing in which the pocket is formed, the reservoir containing the cleaning material or compound to be dispensed, means carried by the body or housing and operative within the reservoir to force the cleaning compound through a discharge opening provided at one end of the housing and opening therethrough, and a dispensing tube carried by the body or housing for movement longitudinally thereof, said tube having a bore therein opening to one end thereof to define a material outlet end adapted to register with the discharge opening port of the reservoir when the tube is in its retracted position so as to receive material forced from the reservoir, and material extruding means, in the form of a piston, disposed within the bore of the dispensing tube for movement longitudinally thereof, and the extruding means being movable in one direction under the influence of the material forced into the bore, means carried by the piston and engageable with the tube as the dispenser is moved longitudinally outwardly from the housing or body so as to anchor the means at a predetermined location within the bore to cause extrusion of the material in the bore as the tube is retracted from its extended operative position to its retracted position wherein the material extruding opening is again in register with the discharge opening of the reservoir.

Other objects and advantages will become apparent from a consideration of the following detailed description, forming the specification, and taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a medial, longitudinal, vertical cross sectional view taken through a toothpaste dispenser in accordance with the present invention, showing a toothbrush connected therewith;

Figure 2 is a vertical cross sectional view taken substantially along line 2—2 of Figure 1 and looking in the direction of the arrows;

Figure 3 is a vertical cross sectional view taken along line 3—3 of Figure 1 and looking in the direction of the arrows;

Figure 4 is a vertical cross sectional view taken along line 4—4 of Figure 1 and looking in the direction of the arrows;

Figure 5 is an end view looking to the left in Figure 1;

Figure 6 is a side elevational view, partially broken away to show interior construction, showing the dispensing tube in its extended position;

Figure 7 is a view similar to Figure 6 but showing the dispensing tube partially extracted toward the retracted position shown in Figure 1; and

Figure 8 is a top plan view of Figure 1.

With continued reference to the drawings, there is shown a dispensing device, generally indicated at **10**, embodying this invention. The device comprises an elongated body, generally indicated at **12**, having a longitudinal bore **11** therein opening through its rear end **14** to define a reservoir **16**. An eccentric discharge passage **18** of smaller diameter than the reservoir **16** curves laterally and opens through a ledge **20** formed on the forward end **22** of the body **12** to define a discharge port for the reservoir **16**.

A plug **24** closes the open rear end of the reservoir **16**. The plug **24** is provided with a central opening **26** therethrough to rotatably receive and form a bearing support for the smooth outer end **28** of a threaded rod **30** extending longitudinally within the reservoir **16**. A piston **32** is threaded on the rod **30** within the reservoir **16** so as to form a relatively tight fit with the interior surface of the reservoir and to be movable along the rod **30** upon rotation of the rod from one end of the reservoir toward and away from the other end thereof. A knurled knob **34** is secured onto the rearwardly projecting portion of the rod **30**, as by a set screw **36**, so that upon rotation of the knob, the rod wil be rotated about its longitudinal axis and cause the piston **32** to travel therealong. A filling opening **38** is provided through one side **40** of the body **12** and opens into the reservoir **16**. A threaded closure plug **42** is threadingly engaged in the opening **38** so as to be removable therefrom.

The body **12** also includes a longitudinally extending socket **44** opening through its forward end **22** to receive the handle portion **46** of a cleaning implement, generally designated **48**, such as a toothbrush, with its bristle **50** extending crosswise of the body **12** and spaced forwardly from the forward end **22** of the body **12**.

A dispenser, generally designated **52**, comprises a rectangular cross section dispensing tube **54** slidably mounted within a rectangular cross section bore **56** opening through the opposite ends **14** and **22** of the body at the opposite side of the reservoir **16** from the socket **44**, and having its longitudinal axis parallel to the longitudinal axis of the reservoir **16**.

The dispensing tube **54** is slidable longitudinally in the bore **56** from a retracted position, shown in Figure 1, to an extended operative position, shown in Figure 6, wherein the tube extends forwardly beyond the forward end **22** of the body in overlying relation to the bristles **50** of the cleaning implement **48**.

The side **58** of the body **12** is provided with a central longitudinal slot **60** opening through the rear end **14** thereof, and opening into the bore **56**. A thumb piece **62** on the rear end of the dispensing tube **54** projects laterally outwardly through the slot **60**. A laterally inwardly curved terminal **64** is provided on the forward end of the tube **54**. The outer surface of the thumb piece **64** is preferably ridged, as at **68**, to provide a nonslip surface for the thumb of a user for moving the dispensing tube in the bore **56**.

A piston **72** is disposed within the bore **72** of the dispensing tube **54** for movement longitudinally therein. A piston rod **73** extends rearwardly from the piston **70** and preferably is made of spring metal material. The rod **73** is provided on its rear end with an enlarged laterally projecting latch piece **74**.

The latch piece **74** is formed at its outer end with a projection **76** and with an oblique cam surface **78** extending between the projection **76** and the rod **73** at the

side of the piece **74** facing the piston **70**, as shown in Figure 1.

The projection **76** and the cam surface **78** project through a longitudinal slot **80** in the adjacent side of the dispensing tube **54** and can be in the bore **72**.

In use, the reservoir **16** is filled through the inlet opening **38** with the desired cleaning material, such as toothpaste, after which the plug **42** is used to close the opening **38** with the piston **32** in the retracted position shown in Figure 1, and with the dispensing tube **54** in its retracted position, as shown in Figure 1. The knob **34** is then rotated so as to move the piston **52** along the threaded rod **30** toward the forward end of the body **12**. This forces the material in the reservoir through the discharge passage **18** and out of the discharge port **19**. The material forced through the port **19** is received in the registering open end of the dispensing tube terminal **64**, and this forces the piston **70** rearwardly toward the thumb piece **68** from the solid line position shown in Figure 1 to the broken line position shown in the same figure. Thus the bore **72** of the dispensing tube is filled with toothpaste.

The thumb piece **68** is then moved forwardly so as to move the dispensing tube to its extended position, as shown in Figure 6, wherein it extends longitudinally outwardly from the forward end **22** of the body **12**. In this extended position, it will be seen that the cam surface **78** will have been engaged by the closed forward end **82** of the slot **60** and the projection **76** thereby forced beneath the outer wall **58** of the bore **56** so that the catch **78** rode thereunder and then, due to the inherent springiness of the rod **73**, the projection was sprung upwardly into the catch opening **84**, provided in the wall **58**, so as to lock the dispensing tube **54** in its extended position, as clearly shown in Figure 6.

When the dispensing tube **54** is moved rearwardly from its extended position toward its retracted position, the piston **70** remains stationary and the material in the bore **72** is caused to be extruded through the terminal **64** onto the bristles **50** of the associated cleaning implement or toothbrush **48**, as shown in Figure 7. As the tube **54** is further retracted, the piston **70** will reach the entrance of the curved terminal **64** and be prevented from further forward longitudinal movement within the bore **72**, and the curved rear surface **79** of the catch **76** will cause the catch to ride out of the catch opening **84** and move beneath the outer wall **58** and then spring out into the slot **80** and the slot **60**, thereby permitting further rearward movement of the piston, and its piston rod, along the bore **72** to its retracted position wherein the open end of the terminal **64** is again in registry with the outlet port **19** of the discharge passage **18**, as shown in Figure 1.

In order to again use the dispensing device, it is merely necessary to again rotate the knob **34** so as to force the material within the reservoir **60** into the tube bore **72** and repeat the movement of the dispensing tube from its retracted to its extended position and return to the retracted position.

It will also be apparent that due to the friction fit of the handle **51** of the implement **48** in the socket **44**, it will be a simple matter to replace the implement as desired or necessary.

After the paste material **86** has been placed on the bristles **50**, and the dispensing tube **54** returned to its retracted position, the body **12** of the dispensing device may then be used as a handle in applying the bristles and paste to the object to be cleaned. In the present illustration, the toothbrush bristles **50** with the paste **86** thereon will be applied against the teeth of the user in the normal way, with the user's hand employing the device **10** as the handle therefor.

While there is shown and described the preferred embodiment of the invention, it is to be understood that the structure is susceptible to change and modification within the practicability of the invention and therefore should be limited only by the scope of the claims appended hereto.

What is claimed is:

1. In a dispenser, an elongated body having forward and rear ends, said body having a first longitudinal bore and a second longitudinal bore alongside of said first bore, said second bore having a forward end opening through the forward end of said body, a dispensing tube having a rear end slidably engaged in said second bore through its forward end, said dispensing tube having a forward end, means for moving said dispensing tube endwise in said second bore from a rearward retracted position to a forward dispensing position in which the forward end of the dispensing tube is spaced forwardly from the forward end of the body, the dispensing tube having a longitudinal bore having a forward end portion opening through the side of the dispensing tube adjacent to said first longitudinal bore, said first longitudinal bore having a forward end portion opening laterally through the forward end of the body, the openings of the forward end portion of the first and second bores being in facing relation and being registered and in communication with each other only in the retracted position of the dispensing tube, means for transferring paste from said first bore into the forward end of said second bore only in the retracted position of the dispensing tube, and piston means in the bore of said dispensing tube for discharging paste through the opening of the forward end portion of the dispensing tube bore only while the dispensing tube is in its forward dispensing position.

2. In a dispenser, an elongated body having forward and rear ends, said body having a first longitudinal bore and a second longitudinal bore alongside of said first bore, said second bore having a forward end opening through the forward end of said body, a dispensing tube having a rear end slidably engaged in said second bore through its forward end, said dispensing tube having a forward end, means for moving said dispensing tube endwise in said second bore from a rearward retracted position to a forward dispensing position in which the forward end of the dispensing tube is spaced forwardly from the forward end of the body, the dispensing tube having a longitudinal bore having a forward end portion opening through the side of the dispensing tube adjacent to said first longitudinal bore, said first longitudinal bore having a forward end portion opening laterally through the forward end of the body, the openings of the forward end portion of the first and second bores being in facing relation and being registered and in communication with each other only in the retracted position of the dispensing tube, means for transferring paste from said first bore into the forward end of said second bore only in the retracted position of the dispensing tube, and piston means in the bore of said dispensing tube for discharging paste through the opening of the forward end portion of the dispensing tube bore only while the dispensing tube is in its forward dispensing position, and means on said body for holding a brush with the head of the brush positioned forwardly of the forward end of the body for receiving paste discharged from the forward end of the dispensing tube only in the dispensing position of the dispensing tube.

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