United States Patent [19]

Rallis

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[45] **July 23, 1974**

[54] **TOOTHBRUSH ADAPTER FOR AEROSOL CONTAINER**

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[52] **U.S. Cl.** **401/119,** 401/190, 141/355

[51] **Int. Cl.** **A46b 11/02**

[58] **Field of Search** 401/119, 190; 141/367, 141/351, 353, 355

[56] **References Cited**

UNITED STATES PATENTS

3,022,789	2/1962	Rallis et al.	401/119
3,093,857	6/1963	Hersh	401/190
3,376,095	4/1968	Modla	401/190

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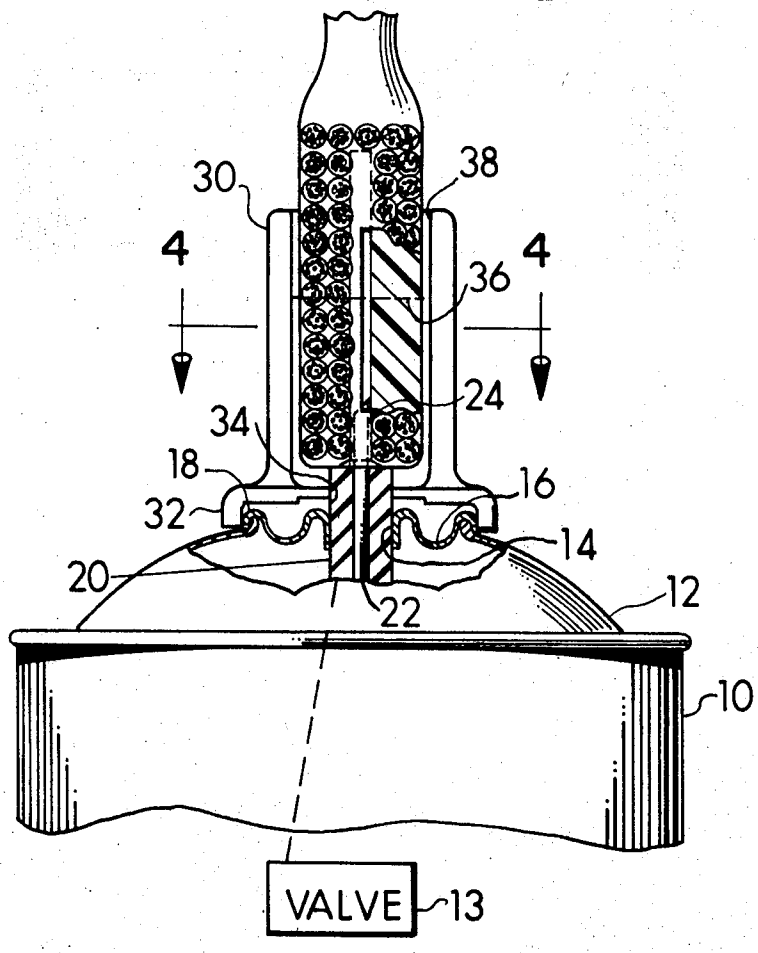
Attorney, Agent, or Firm—McCormick, Paulding & Huber

[57] **ABSTRACT**

A toothbrush has a hollow head into which head the user can inject toothpaste from an aerosol can. The aerosol can includes a valve in its upper portion which is spring loaded closed and adapted to be opened in response to pressure on a cylindrical plug extending upwardly through the top of the can. An adapter mounted on the aerosol can is adapted to receive the toothbrush so that it can be guided into a position which permits the user to push on the handle of the toothbrush to actuate the valve, and an injector tube also provided in the top of the aerosol can is received in an end opening associated with the hollow head of the toothbrush so that the user can grasp the aerosol can in one hand on the toothbrush in the other and thereby load his toothbrush in an efficient manner.

5 Claims, 7 Drawing Figures



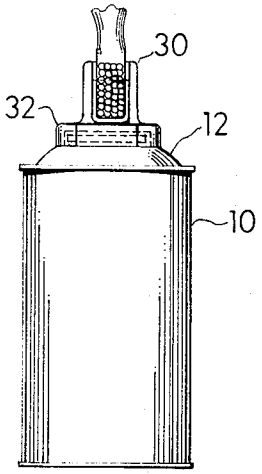


fig. 1

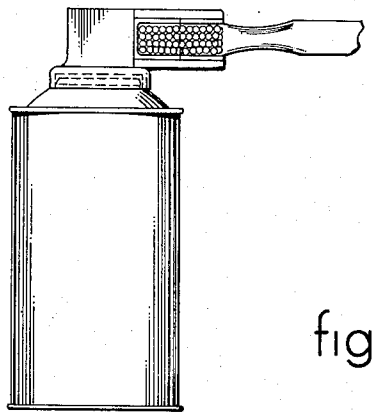


fig. 2

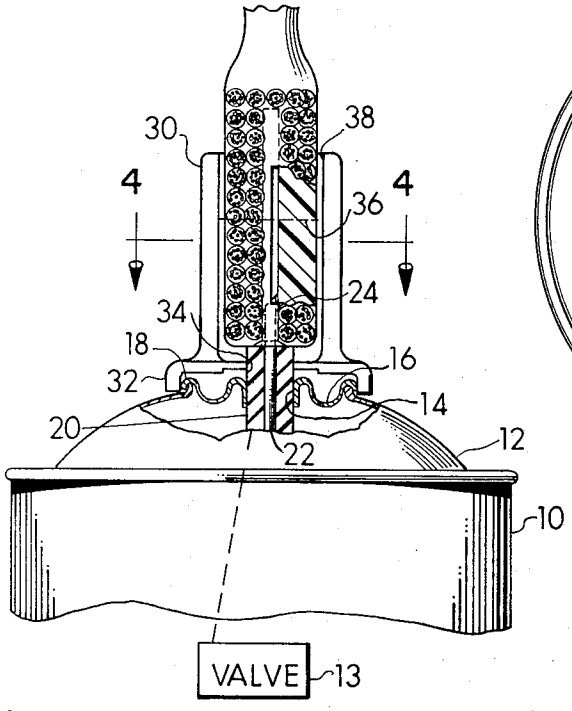


fig. 3

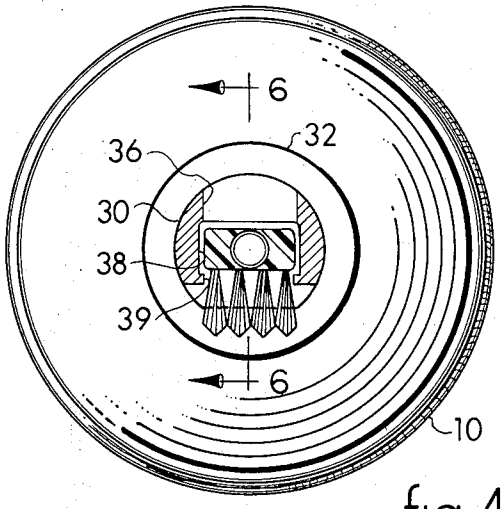


fig. 4

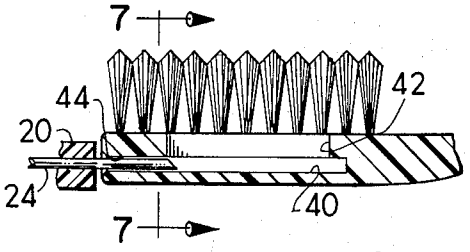


fig. 5

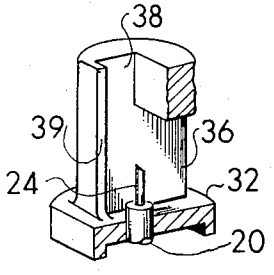


fig. 6

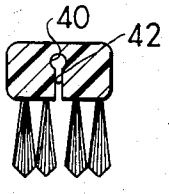


fig. 7

TOOTHBRUSH ADAPTER FOR AEROSOL CONTAINER

BACKGROUND AND SUMMARY OF THE INVENTION

This invention relates to toothbrushes of the type having an internal chamber for storing a limited quantity of toothpaste, and deals more particularly with the combination of such a toothbrush, and adapter means for loading the toothbrush with toothpaste from an aerosol can.

In U.S. Pat. No. 3,022,789 a proposed solution to this problem is shown, which requires that the user depress a button to open the valve associated with the aerosol container, and simultaneously hold the toothbrush in position with respect to an injector in order to load the toothbrush.

The present invention permits the user to open the aerosol valve as he inserts his toothbrush in a unique adapter carried by the otherwise conventional aerosol container.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an overall view of the aerosol can together with the adapter and a portion of the toothbrush which is adapted to be received in the adapter.

FIG. 2 is an alternative construction wherein the toothbrush is adapted to be received at 90° to the orientation of the central axis of the aerosol can.

FIG. 3 is a detailed view of the upper portion of the aerosol can, portions thereof being broken away to better reveal the construction of the adapter, said adapter being shown at least partly in section. The head portion of the toothbrush of FIG. 1 is also shown in this view.

FIG. 4 is a sectional view taken on the line 4—4 of FIG. 3.

FIG. 5 is a sectional view of the head portion of the toothbrush together with the valve actuating portion of the aerosol can, the adapter being removed for clarity.

FIG. 6 is a detailed view of the head portion of the adapter, and

FIG. 7 is a sectional view taken on the line 7—7 of FIG. 5.

DETAILED DESCRIPTION

Turning now to the drawings in greater detail, a conventional aerosol can is indicated generally at **10** in FIG. 1, said can having a top or upper portion **12** which includes a central opening **14** defined by an annular central insert member **16**, which member **16** is spun into mating relationship with the top **12** of the aerosol can in a conventional manner and so as to define an annular rib **18**. A conventional valve **13** is provided inside the aerosol can **10** being spring loaded closed variety and adapted to being opened in response to downward pressure on a generally cylindrically shaped actuating member, or plug **20**. As shown in FIG. 3 when this plug **20** is depressed the valve **13** is opened allowing the contents of the aerosol container to pass upwardly through the bore **22** defined for this purpose in the member **20**. An injector tube **24** is preferably mounted in the bore **22** of the actuating member or plug **20**. Thus, both the tube **24** and the plug **20** are depressed for opening the valve **13**. The plug **20** is spring returned for closing the valve.

An adapter **30**, preferably fabricated from a thermoplastic material by an inexpensive process such as by plastic injection molding is provided in mating relationship with the upper end of the aerosol can **10**. More particularly, the adapter **30** is snugly received on the annular rib **18** by means of an annular flange **32** provided for this purpose on the base portion of the adapter **30**. The adapter **30** further includes a central opening **34** for slidably receiving the actuating member **20**, associated with the valve **13**, in the aerosol can. As best shown in FIG. **4**, the adapter **30** also includes an upwardly extending cavity for receiving the head portion of a toothbrush.

The toothbrush itself is of conventional construction being similar to that shown in the above mentioned U.S. Pat. No. 3,022,789 issued to Theodore Rallis et al. Feb. 27, 1972. More particularly, the toothbrush shown in FIGS. **5**, **6** and **7** preferably corresponds to that disclosed in this prior art patent, and also includes a conventional handle portion. The head portion defines an internal chamber having a slot **42** on one side, that is in the side which carries the bristles, in order to permit the toothpaste to flow into the middle of the grouping of tufts or bristles. The end of the toothbrush associated with the head is also provided with a smaller cylindrical end opening **44** for receiving toothpaste from the tubular injector **24** and this end opening **44** communicates with the internal chamber **40** for this purpose. As so constructed and arranged toothpaste may be injected into the chamber and hence pass outwardly through the slot onto the bristles very expeditiously.

The principle advantage of the present invention relates to the novel means for injecting toothpaste into this chamber **40**. The chamber **40** as best shown in FIG. **5** communicates with the slot **42** and with the end opening **44** to define a passageway for the toothpaste. The bristles may be integrally molded with the toothbrush handle portion, or may be more conventionally mounted in the head portion when the plastic toothbrush is formed. FIG. **5** also shows one end of the plug member **20** which comprises a part of the aerosol valve in the container **10**, as well as the tubular injector **24** associated with this plug **20**.

Returning once again to a more complete description of the adapter **30**, its upper end is opened or slotted as best shown at **38** in FIG. **4** to receive the head portion of the toothbrush described above. This adapter **30** is provided with a cut away portion or opening **36** which permits the adapter to be conveniently raised out periodically by the user. Although it will be apparent that this adapter might be solid in this area it is preferably cut away as shown to provide a convenient way of cleaning the adapter periodically to remove any residue of toothpaste or the like.

Still with reference to the adapter **30**, and more particularly with reference to the toothbrush handle receiving slot **38**, FIG. **4** also shows lips **39**, **39** which serve to retain the toothbrush in the slot **38** while the user exerts downward pressure on the handle portion, thereby assuring that the necessary downward force is exerted on member **20** as he inserts the toothbrush in the adapter. The injector tube **24** will also be so guided as to penetrate the small end opening **44** as best shown in FIG. **5** when the toothbrush is pushed downwardly in the slot or recess **38**, as best shown in FIG. **3**.

I claim:

1. The combination comprising an aerosol type container having an upper end which defines a annular rib, a valve assembly in the container and operable in response to downward pressure on a generally cylindrical valve actuating member disposed centrally of said annular rib, a small diameter tube extending upwardly through said valve actuating member, and an adapter having a base fixed to said annular rib, said adapter having a central opening for slidably receiving said cylindrical valve actuating member, a toothbrush having a head portion with bristles or the like, and said toothbrush having a handle portion of conventional configuration, said toothbrush head portion having an internal chamber and having an end opening for receiving said tube, said adapter further including an upstanding portion with a recess for receiving the head portion of said toothbrush generally axially with respect to the adapter so that axial pressure on said cylindrical actuating member can be exerted by the user as a result of pushing on the handle portion of the toothbrush.

2. The combination set forth in claim 1 above further

characterized by said adapter having a base portion which extends outwardly of said annular rib on said aerosol can and which snugly receives the same.

3. The combination set forth in claim 2 above further characterized by said adapter recess being substantially open to at least one side along its entire axial extent except for the base portion for receiving the bristles defined in the head portion of said toothbrush.

4. The combination set forth in claim 3 above further characterized by said base portion recess also being partially open on the side opposite said open side along at least a portion of its axial extent exclusive of said base portion.

5. The combination set forth in claim 4 above further characterized by said substantially open side of said adapter recess being more particularly defined by longitudinally extending lips which restrain the toothbrush head portion from movement except in an axial direction in said adapter.

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