Aug. 11, 1936. H. F. COLVIN 2,050,246

TUBE SPRAYER

Filed May 25, 1933

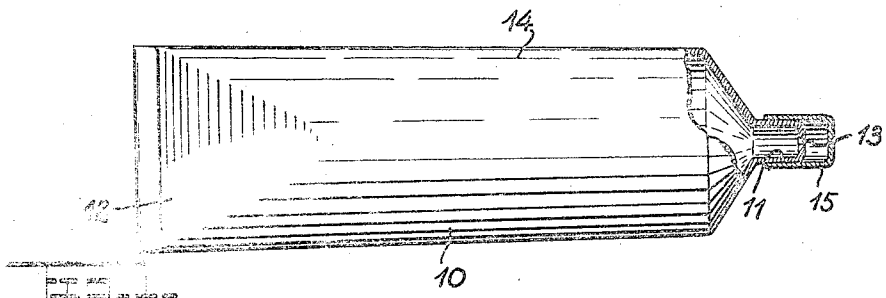



Fig. 1.

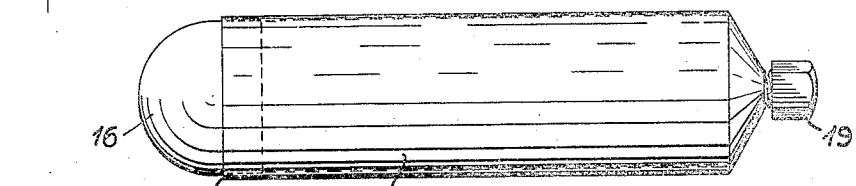



Fig. 2.

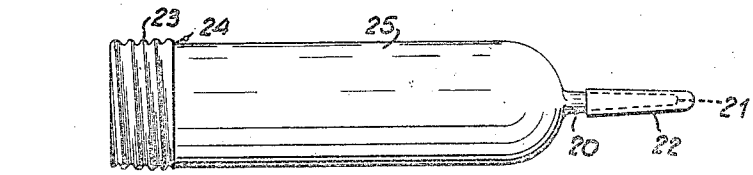



Fig. 3.

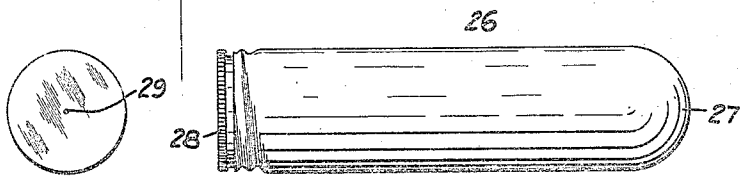



Fig. 5. Fig. 4.

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## TUBE SPRAYER

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Application May 25, 1933, Serial No. 672,798

1 Claim. (Cl. 299—90)

This invention relates to improvements in vapor, powder or liquid spraying devices.

I have found that by constructing a tube or other container of cellulosic material and by providing a small orifice at one end thereof a very practical, economical and efficient sprayer may be provided. A container made of cellulosic material of suitable thickness yields to slight or moderate hand pressure and when the pressure is released the container returns to its original shape. By intermittently depressing or collapsing the sides of the receptacle containing the powder or liquid, a fine spray is emitted through the small orifice which spreads after the same leaves the receptacle.

Such a device affords a very satisfactory medium for dispensing toilet powder over the body, for instance, when the body is moist from perspiration, or after the bath, when it is difficult to apply powder to the body through the instrumentality of a powder puff, as the latter will absorb the moisture and cause the same to cake on its surface.

In using the usual perforated box or container the powder or liquid cannot be readily directed to the parts to be sprayed.

Devices in use at present are usually made of either cardboard or metal. These materials are subject to cracking or permanently setting, while the cellulosic material intended for this improvement will retain its resiliency, and further permit the use for spraying substances in liquid form.

An object of the invention is to provide a simple, inexpensive and efficient means for carrying and dispensing powders or liquids or vapors.

Another object of the invention is to provide a container having simple means for ejecting the contained material in a very fine spray.

Another object of the invention is to provide a refillable tube sprayer.

Another object of the invention is to construct a container and sprayer of cellulosic material, either colored, opaque or transparent.

The invention will best be understood from a consideration of the following detailed description, taken in connection with the accompanying drawing forming part of this specification, with the further understanding that while the drawing shows some practical forms of the invention, the latter is not confined to any strict conformity with the showing of the drawing, but may be changed and modified so long as such changes and modifications come within the scope of the appended claim.

In the drawing:

Fig. 1 is a view of one embodiment of the invention having a press fit cap and flat bottom.

Fig. 2 is a view of a further embodiment of the invention, the tube having a round press fit bottom and screw cap type of closure.

Fig. 3. is a view showing the invention in another modified form, having a nozzle on one end and a screw bottom on the other.

Fig. 4 is a view showing the invention in a further modified form, in which the screw cover is provided with a small outlet.

Fig. 5 is an end view of Figure 4 showing the screw cover in detail.

Like numerals refer to like parts throughout the specification.

In Figure 1 of the drawing there is disclosed a collapsible tube 10 having the conventional flat clamped end 12 and a spout or neck 11. Neck 11 is provided with a small opening 13. The tube 10 is constructed of thin cellulosic material, and by virtue of its resiliency and yieldability a slight or moderate pressure on tube portion 14 with the hand holding the tube will expel the air contained therein carrying along with it part of the contents. The contents upon leaving the tube through the small opening 13 will be broken up into a fine spray. Upon releasing the pressure applied, the wall of the tube will quickly return to its normal shape. The thickness of the material is such as to permit of rapid intermittent depressing or collapsing of the sides of the receptacle or tube 10, to cause a succession of fine sprays of material to be emitted through the opening 13. The spout 11 may be covered with a suitable cover or cap 15.

At times it may be desired to have a container of cylindrical shape instead of one having a flat end portion. In this case a round end piece 16 is inserted either by pressure alone or cemented to the body 18 of the container at its open end 17. This end piece maintains the container cylindrical. The spout 11 may be of the threaded type in which case a threaded cap 19 is employed for closing.

This device is adaptable for spraying insect destroying chemicals, and to facilitate the reaching of insects in cracks or small openings, the sprayer may be supplied with a tapered nozzle-like outlet 20 having an opening 21 at its extreme end. The nozzle 20 may be covered with a suitable cap 22. The tapered opening in cap 22 will assure a tight closing fit with nozzle 20. The tube as exemplified in Figure 3 is shown as of a refillable type, in which there is provided a screw

cover bottom **23** engaging the outside threaded portion **24** of the tube **25**.

A still further form of the invention is shown in Figure 4, in which the container **26** has a rounded closed end **27**, and an internally threaded screw cover or cap **28** engaging its openable end. This cap may be made of metal or any other suitable material. The ejecting opening **29** is provided in the cover **28**.

It is understood, that any combination of the various forms illustrated may be employed, and that there are other modifications possible, which are contemplated as being within the scope of the invention, so that while certain preferred embodiments of this device have been shown and described, it will be understood that changes in the form, arrangements, proportions, sizes and details thereof may be made without departing from the scope of the invention as defined in the appended claim.

Having thus described my invention, what is claimed as new and desired to secure by Letters Patent, is:

A sprayer comprising a substantially cylindrical body constructed of cellulosic material and having an open end, and a removable cap for closing said end, the cylindrical wall of said body being of such resiliency as to be yieldable by moderate hand pressure whereby when depressed and upon the pressure being released adapts it to quickly resume normal shape, by which to cause rapid intermittent collapsing of the wall, said cap having a minute opening through which material in the body may be dispensed upon application and release of such pressure.

HENRY F. COLVIN.