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TUBE CONTAINER

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Fig. 1

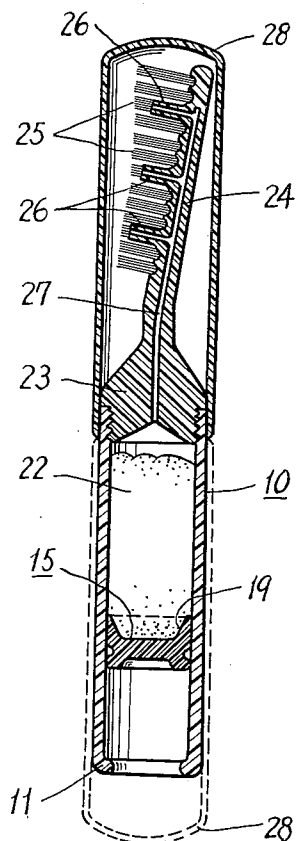


Fig. 2

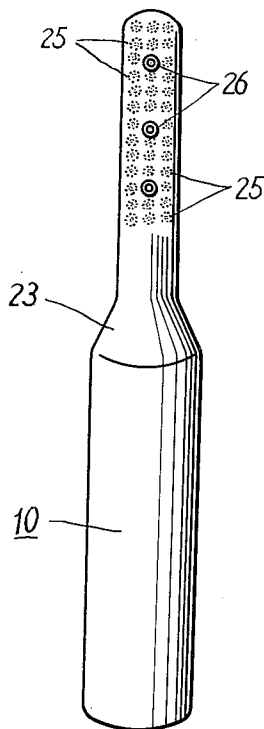


Fig. 4

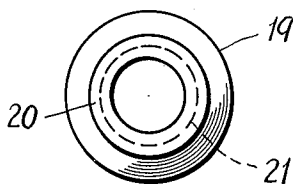
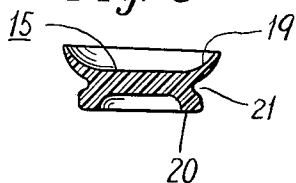


Fig. 3



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TUBE CONTAINER

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4 Claims. (Cl. 15-555)

The present invention relates to a tube container for the preservation of paste.

The primary object of the invention is to provide a tube container, in which paste material such as dental cream, shoe cream or the like is easily charged and contained therein.

A further object of this invention is to provide a tube container, which is preferably used repeatedly and which prevents any possible leakage of the contents on account of possible tube breakage normally encountered, if a soft container of the easily rolled-in type be used.

A still further object of this invention is to provide a tube container, in which the container proper is made solid, so that it may serve as a holder for a brush head adapted to be united with said holder in a rigid, but detachable unit.

Still another object of the invention is to provide a tube container exceedingly more rigid and durable than hitherto known tube containers.

A still further object of the invention is to provide a tube container, which is adapted to keep the original neat appearance, until the contents have been squeezed out completely.

In order to fulfill the various objects above mentioned, the tube container, according to this invention, for preservation of paste, comprises a hollow rigid cylinder, preferably made of hard synthetic resin, said cylinder being open and provided with an inner flange at one end and with a female screw at the opposite end thereof; a mouth piece in the form of a brush head provided with an inner bore for passage of said paste, when the latter is subjected to pressure, as well as with a male screw adapted to mesh with said female screw; and a slide piece movably mounted on the inner wall of said cylinder.

Various further and more specific objects, features and advantages of the invention will appear from the description given below, taken in connection with the accompanying drawings illustrating by way of example a preferred embodiment of this invention.

In the drawings:

Figure 1 represents a longitudinal section of the tube container according to the invention;

Figure 2 is a perspective view thereof, the cylindrical cap, however, being taken away;

Figure 3 shows a vertical section of the slide piece adapted to be movably mounted in the rigid cylindrical container proper;

Figure 4 is an inverted plan view thereof.

Reference will be had to Figures 1 to 4 of the drawings. 10 denotes a hollow cylinder made of a hard material, such as hard synthetic resin and provided with female screw at one end thereof and with an inside flange 11 at the opposite end of said cylinder. A slide piece 15 is made of a soft elastic material, such as soft synthetic resin and movably inserted in the inner space of said cylinder. The slide piece is provided with upper and lower flanges 19 and 20, the former flange having an

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exceedingly larger diameter than the inside diameter of said tube while that of the latter flange is selected to be slightly larger relative to said inside diameter. The upper and larger flange 19 is made in such a manner that the thickness becomes gradually smaller as the wall comes nearer to the outside peripheral edge. Between said both flanges 19 and 20 is formed thus a circular recess 21, the cross section of which, according to this invention, has the corresponding shape to the profile of said flange 11 at the open lower end of the cylinder or container proper 10.

The solid tube container above explained is especially suitable for conservation of paste, such as dental cream, shoe cream or the like. For this purpose, the slide piece 15 is first inserted through the upper opening into the hollow space of the cylinder 10 and pushed down in Figure 1, until said piece engages with the upper surface of said flange 11. Whereupon, the slide piece is pressed down with stronger effort, until said piece and flange tightly mesh with each other in the manner of tongue and groove connection, thus providing an effectively sealing bottom for said cylinder. Next, the paste is charged from above into said cylinder.

The slide piece, made of a suitably elastic material, provides an effective sealing means, preventing the contained mass from leaking out, because the slide piece takes the shape of a somewhat deep dish having the upper large flange 19 tightly pressed against the inner wall surface of said cylinder under the influence of the pressure exerted on the mass. The lower flange 20 further prevents any possible leakage. The thus provided double sealing slide piece acts most suitably for the purpose.

A brush head 23 is adapted to be screwed in said cylinder 10, as shown in Figure 1, said head 23 being provided with an elongated projection 24, which is provided with a number of grouped brush hairs 25 embedded therein. 26 represents several small elastic tubes made of, for instance, soft synthetic resin and fixed onto the brushed surface of said projection 24 made of hard material, such as hard synthetic resin. The brush head 23 is provided with an inner passage 27 leading from the inner space of the cylinder, when it is screw-coupled with the brush head 23, to the outlet of said each projecting soft tube 26. A cylindrical cap 28 is provided to cover said brush head, when the latter is screw-coupled to said cylinder 10.

In this case, after the paste is charged as explained hereinbefore, the brush head 23 can be attached to said cylinder 10. In this case, when the slide piece is pushed inward from the position, where it meshes with said bottom flange 11, the paste contained in the container is pushed out from the inner space of the latter through passage 27 and small soft tubes 26 onto the brush hairs 25 and thus ready for use. The cylinder 10 also serves, in this case, as the brush holder. After usage the cap 28 is press-fitted onto the upper end of said cylinder.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:

1. A combined brush and paste container comprising, in combination, a hollow rigid cylinder made of synthetic resin, said cylinder being open at both ends and being provided with an integral inner flange at a first end and with an internal screw thread at the opposite second end thereof, a finger-activated piston positioned in said cylinder to engage slidably the inner wall of said cylinder, said piston being made of soft synthetic resin and being provided with a pair of flanges serving for double sealing, said pair of flanges being separated by a circular recess, one of said pair of flanges having a substantially larger diameter than the inside diameter of said cylinder, and the other of said pair of flanges having

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a diameter slightly larger than said inside diameter, one of said pair of flanges having a thickness which decreases in the direction of the outside peripheral edge thereof, said circular recess being dimensioned to frictionally receive said integral inner flange of said hollow rigid cylinder whereby to close said first end of said cylinder sealingly when said piston is in fully retracted position but is adapted to be disengaged from said inner flange upon inward pressure on the piston in activating said piston to eject the contents of said cylinder toward said second end, a bristled brush head threadedly engageable with said second end of said cylinder, said head being made of soft synthetic resin and being provided with an inner bore communicating with the interior of said cylinder, and a plurality of small short tubes made of soft synthetic resin moulded integrally with said brush head communicating with said bore, said tubes being adapted to allow the paste contained in the cylinder to exit in a plurality of streams substantially above the base of the bristles.

2. A combined brush and paste container comprising, in combination, a hollow rigid cylinder made of synthetic resin, said cylinder being open at both ends and being provided with an integral inner flange at a first end and with an internal screw thread at the opposite second end thereof, a finger-activated piston positioned in said cylinder to engage slidably the inner wall of said cylinder, said piston being made of soft synthetic resin and being provided with a pair of flanges defining opposite cup-shaped recesses and serving for double sealing, said pair of flanges being separated by a circular recess, one of said pair of flanges facing said second end and having a substantially larger diameter than the inside diameter of said cylinder, and the other of said pair of flanges having a diameter slightly larger than said inside diameter, one of said pair of flanges having a thickness which decreases in the direction of the outside peripheral edge thereof, said circular recess being dimensioned to frictionally receive said integral inner flange of said hollow rigid cylinder whereby to close said first end of said cylinder sealingly when said piston is in fully retracted position but is adapted to be disengaged from said inner flange upon inward pressure on the piston in activating said piston to eject the contents of said cylinder toward said second end, a bristled brush head threadedly engageable with said second end of said cylinder, said head being made of soft synthetic resin and being provided with an inner bore communicating with the interior of said cylinder, and a plurality of small short circular tubes made of soft synthetic resin moulded integrally with said brush head communicating with said bore, said tubes being adapted to allow the paste contained in the cylinder to exit in a plurality of streams substantially above the base of the bristles.

3. A combined brush and paste container comprising, in combination, a hollow rigid cylinder made of synthetic resin, said cylinder being open at both ends and being provided with an integral inner flange at a first end and with an internal screw thread at the opposite second end thereof, a finger-activated piston positioned in said cylinder to engage slidably the inner wall of said cylinder, said piston being made of soft synthetic resin and being provided with a pair of flanges serving for double sealing, said pair of flanges being separated by a circular recess, one of said pair of flanges having a substantially larger diameter than the inside diameter of said cylinder, and the other of said pair of flanges having a diameter slightly larger than said inside diameter, one of said pair of flanges having a thickness which decreases in the direction of the outside peripheral edge thereof,

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said circular recess being dimensioned to frictionally receive said integral inner flange of said hollow rigid cylinder whereby to close said first end of said cylinder sealingly when said piston is in fully retracted position but is adapted to be disengaged from said inner flange upon inward pressure on the piston in activating said piston to eject the contents of said cylinder toward said second end, a bristled brush head threadedly engageable with said second end of said cylinder, said head being made of soft synthetic resin and being provided with an inner bore communicating with the interior of said cylinder, and a plurality of small short tubes made of soft synthetic resin moulded integrally with said brush head communicating with said bore, said tubes being adapted to allow the paste contained in the cylinder to exit in a plurality of streams substantially above the base of the bristles, and a cylindrical cap detachably press-fitted on said second end of said rigid cylinder.

4. A combined brush and paste container comprising, in combination, a hollow rigid cylinder made of synthetic resin, said cylinder being open at both ends and being provided with an integral inner flange at a first end and with an internal screw thread at the opposite second end thereof, a finger-activated piston positioned in said cylinder to engage slidably the inner wall of said cylinder, said piston being made of soft synthetic resin and being provided with a pair of flanges defining opposite cup-shaped recesses and serving for double sealing, said pair of flanges being separated by a circular recess, one of said pair of flanges facing said second end and having a substantially larger diameter than the inside diameter of said cylinder, and the other of said pair of flanges having a diameter slightly larger than said inside diameter, one of said pair of flanges having a thickness which decreases in the direction of the outside peripheral edge thereof, said circular recess being dimensioned to frictionally receive said integral inner flange of said hollow rigid cylinder whereby to close said first end of said cylinder sealingly when said piston is in fully retracted position but is adapted to be disengaged from said inner flange upon inward pressure on the piston in activating said piston to eject the contents of said cylinder toward said second end, a bristled brush head threadedly engageable with said second end of said cylinder, said head being made of soft synthetic resin and being provided with an inner bore communicating with the interior of said cylinder, and a plurality of small short circular tubes made of soft synthetic resin moulded integrally with said brush head communicating with said bore, said tubes being adapted to allow the paste contained in the cylinder to exit in a plurality of streams substantially above the base of the bristles, and a cylindrical cap detachably press-fitted on said second end of said rigid cylinder.

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