Jan. 22, 1957 P. A. ATTERBY 2,778,547

ROTATABLE CONTAINER CLOSURE

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Fig. 1.

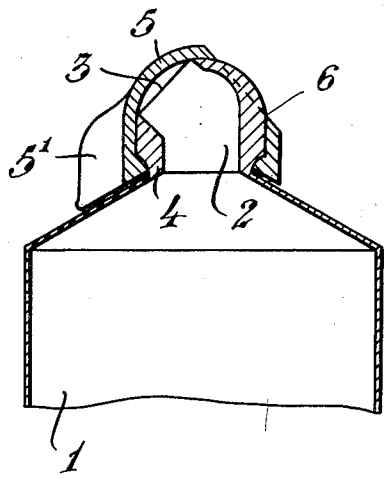



Fig. 2.

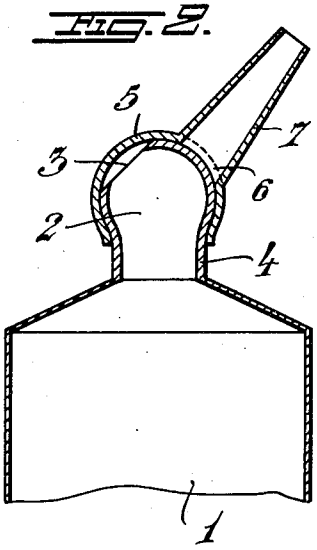
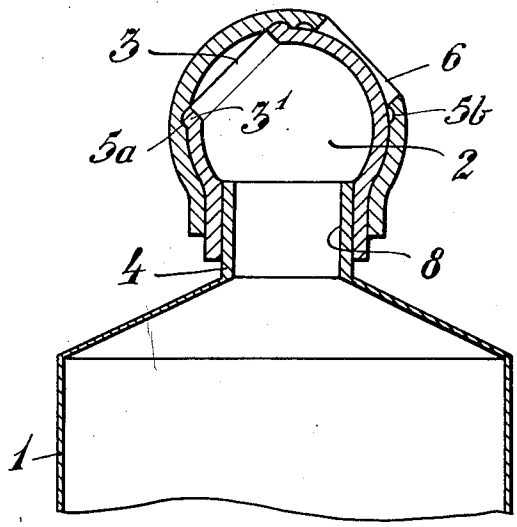



Fig. 3.




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# ROTATABLE CONTAINER CLOSURE

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2 Claims. (Cl. 222—553)

This invention relates to a device for closing a container outlet, for instance in bottles, but more particularly collapsable tubes for plastic substances, such as grease.

The invention refers to the well known type of a device for closing a container outlet, comprising a hollow head on the container, which head is spherical at least in its top portion and has a lateral outlet, and a cap rotatably mounted on the head and normally closing said outlet, which cap is provided with a hole in a location allowing the same to be aligned with the outlet of the head by rotation of the cap, for discharging or expelling the content of the container through said outlet and hole when in registering positions.

The object of the invention is to create an improved device of said type, in which the procedure of applying and holding the cap on to the head is facilitated, and an hermetic rotary seal is provided.

According to the invention the cap consisting of an elastic material of a rubber-like nature, such as polyethylene or another elastic plastic material, is premanufactured with internal dimensions causing a sealing fit on the head but allowing rotation of the cap relative to the head, said cap being applied to the head by forcing it on to the same under expansion of its lower portion, but being tensionless when in position on the head. Thus, the inside of the cap and the outside of the head are, according to the invention, preformed with substantially the same dimensions although the cap consists of an elastic material and the cap thus lodges on the head without tension and is capable of being rotated to a position in which the outlets are in register for dispensing the contents of the container.

Three embodiments of a tube according to the invention are by way of example illustrated in Figs. 1, 2 and 3 of the accompanying drawing, showing sectional elevations of the upper portion of the tube.

Referring to the embodiment illustrated in Fig. 1, the collapsable tube 1 has on its top a spherical head 2 which may be pressed in one single piece with the tube proper or may be made as a separate piece connected with the tube by suitable means. The head is hollow and its interior constitutes a discharge channel for the content of the tube, said channel terminating in an outlet 3 inclined in relation to the axis of the tube and the head. Preferably, the base portion 4 of the head has a slightly smaller diameter than the remaining portion of the head. On the head a spherical cap 5 is mounted, the internal surface of which has a sealing fit in relation to the external surface of the head. The cap is somewhat constricted in its lower section conforming to said base portion of the head, but allowing the cap to be forced onto the head under an elastic expansion, the cap then being automatically retained in its position on the head. The cap is rotatable relative to the head and is provided with a lateral discharge hole 6 which corresponds to the discharge outlet 3 of the head and which by rotation of the cap may be aligned with the outlet 3 when the contents of the tube is to be expelled. Normally, the cap is set in a position of rotation relative to the head so as to close the outlet 3. Preferably, the cap is provided with a rib 5' serving as a grip.



The embodiment illustrated in Fig. 2 differs from the first embodiment in that the cap is provided with a spout 7 in connection with the discharge hole 6, through which spout the content of the tube can be expelled. By this the material as discharged can be applied to the point of consumption in a more convenient way.

In the embodiment illustrated in Fig. 3 the head 2 is made as a separate piece which then is connected with a collar 8 provided on the top portion of the tube. In this embodiment the cap 5 is substantially of the same structure as in Fig. 1.

As illustrated in Fig. 3 the outlet 3 of the head may have a ridge 3' around its edge for increasing the sealing pressure against the cap when in closed position. The cap may be provided with a corresponding groove 5*a* receiving said ridge and fixing the closed position, and a similar groove 5*b* around the opening 6 for fixing the open position.

What I claim is:

1. In dispensing heads for collapsible tubes for containing plastic substances, a thick-walled rigid hollow container head having a substantially hemispherical convex upper portion with a smooth external surface and a generally cylindrical lower portion having a smooth external surface and having a diameter equal to the maximum diameter of said upper portion, the surface of said upper portion smoothly merging at its line of maximum diameter into the upper end of said lower portion, a neck having a smooth external surface of a diameter smaller than said maximum diameter and connected integrally with the lower end of said lower portion of the head, said head having an aperture formed in its convex upper portion and constituting an outlet located entirely to one side of the axis of said head, a cap of non-metallic, flexible, readily deformable and elastically distensible material having a smooth internal surface slidably contacting the external surfaces of said upper and lower portions of said head over their whole area, the internal dimensions of said cap and the elasticity thereof being selected to cause a tensionless sealing fit of said cap on said head whereby rotation of said cap relative to said head is permitted without leakage of the contents of said container between said head and said cap, an inwardly projecting flanged lower edge on said cap opposite said neck and having an internal diameter intermediate the neck diameter and said maximum diameter but capable of enlargement to slightly more than said maximum diameter by elastic distension of said cap, said cap having a single opening constituting an outlet in a location allowing the same to be aligned with the outlet opening in the head by rotation of said cap on said head, and an external operating rib formed on said cap entirely to one side of said opening therein whereby said cap may be rotated on said head.

2. In dispensing heads for collapsible tubes for containing plastic substances, a thick-walled rigid hollow container head having a substantially hemispherical convex upper portion with a smooth external surface and a generally cylindrical lower portion having a smooth external surface and having a diameter equal to the maximum diameter of said upper portion, the surface of said upper portion smoothly merging at its line of maximum diameter into the upper end of said lower portion, a neck having a smooth external surface of a diameter smaller than said maximum diameter and connected integrally with the lower end of said lower portion of the head, said head having a single aperture formed in its convex upper por-

tion and constituting an outlet located entirely to one side of the axis of said head, a cap of non-metallic, flexible, readily deformable and elastically distensible material having a smooth internal surface slidably contacting the external surface of said upper and lower portions of said head over their whole area as a sealing fit without exerting pressure thereon, an inwardly projecting flanged lower edge on said cap opposite said neck and having an internal diameter intermediate the neck diameter and said maximum diameter but capable of enlargement to slightly more than said maximum diameter by elastic distension of said cap, said cap having a single opening constituting an outlet in a location allowing the same to be aligned with the outlet opening in the head by rotation of said cap on said head, and an external operating rib formed on



said cap entirely to one side of said opening therein whereby said cap may be rotated on said head.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 1,729,839 | Meggitt | Oct. 1, 1929 |
| 1,862,662 | Costello | June 14, 1932 |
| 1,996,493 | Schumacher | Apr. 2, 1935 |
| 2,302,641 | Baron | Nov. 17, 1942 |
| 2,545,350 | Fuld | Mar. 13, 1951 |

OTHER REFERENCES

Broderick: Abstract of application Serial Number 560-225, published October 11, 1949, 627 O. G. 576.