Jan. 18, 1938. K. D. HEIMSCH ET AL 2,106,028

CLOSURE FOR TUBES AND THE LIKE

Filed March 28, 1936

Fig. 1.

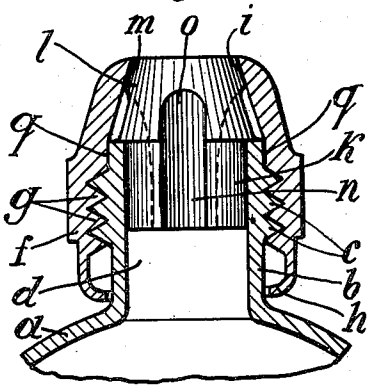


Fig. 2.

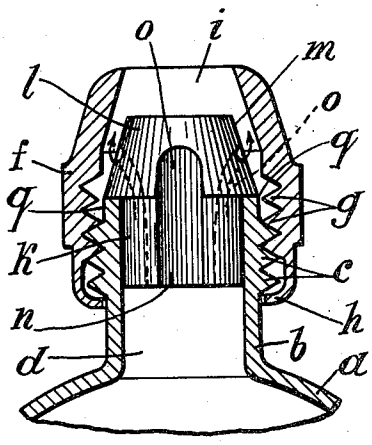


Fig. 4.

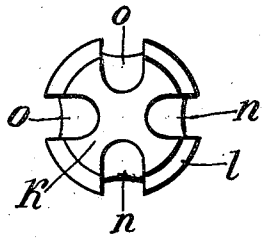


Fig. 6.

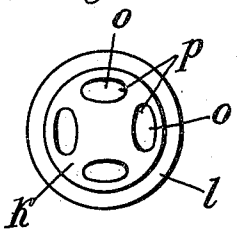


Fig. 3.

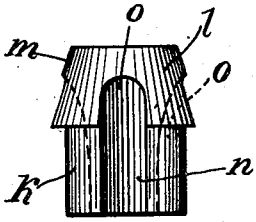
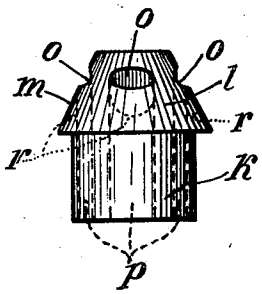


Fig. 5.



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UNITED STATES PATENT OFFICE

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CLOSURE FOR TUBES AND THE LIKE

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Application March 28, 1936, Serial No. 71,443
In Germany March 29, 1935

3 Claims. (Cl. 221—60)

This invention relates to a closure for tubes and the like which is characterized in that in the screw cap a central aperture is provided by which the passages in the tube head are covered or uncovered if the screw cap is turned a part rotation. A closure head with passages is inserted in the neck of the tube. The top end of the closure head is conical so that, if the screw cap is completely screwed on, the inner conical surface of the aperture in the screw cap bears tightly on this conical surface of the top of the closure head, whereas, if the screw cap is unscrewed, an annular gap is formed between the central aperture and the closure head.

This closure possesses the advantage that the screw cap cannot get lost as it remains on the tube head during dispensing of the content.

Several embodiments of the invention are illustrated by way of example in the accompanying drawing in which:—

Fig. 1 shows the tube closure in closed state in vertical section.

Fig. 2 is a similar view showing the screw cap partly unscrewed so that the closure is open.

Figs. 3 and 4 show the closure head in elevation and in bottom plan view.

Figs. 5 and 6 are views similar to 3 and 4 showing a modification.

In the neck *b* of a tube *a* a closure head *k* is inserted which has a number of vertical grooves *n* in its surface. The top part *l* of the head *k* projects from the tube neck *b* and is conical. This top part *l* forms the closure proper together with a screw cap *f* having a central aperture *i* in its upper end. The grooves *n* are outwardly curved at their upper ends and form the outlets *o* for the contents of tube *a*. The tube neck *b* is externally screw threaded at *c*, the internal screw thread *g* of cap *f* being screwed on. The lower edge *h* of the screw cap *f* is bent inwards so that unscrewing of the cap *f* is limited by this inwardly bent edge *h*. The screw cap remains therefore permanently on the tube and cannot get lost. The inner wall of the open end *i* of the screw cap *f* is conical in accordance with the conical top end *l* of the closure head *k*. The outer surface of the upper end *g* of the tube neck *b* is conical and forms a continuation of the conical surface of head *l*. The conical inner wall *i* of the screw cap covers the conical surfaces *l* of head *k* and, when the cap is screwed home, the upper end *q* of the tube neck. If the cap *f* is screwed home, the inner wall *i* presses tightly against the conical surfaces *l* and *q* so that the open ends *o* of the grooves *n* are air-tightly closed also in downward direction so that nothing of the content of the tube can get into the screw threads (Fig. 1). If the screw head *f* is unscrewed, the open ends *o* of grooves *n* are uncovered and an anular space is formed between cone *l* and the inner wall of the aperture *i*, through which space the content of the tube can flow as soon as the tube *a* is pressed.

As shown in Figs. 5 and 6, the head *k* can have channels *p* instead of grooves *n*. The open ends *o'* of the channels *p* may extend downwards to the dash-line *r* so that they are large.

The closure head *k* and the screw cap *f* can be made of the same material as tube *a* or of artificial resin or any other artificial substance; they are preferably made by pressing. The diameter of head *k* is so large that, if inserted into the tube neck, it fits tightly in the same. If desired, the closure head *k* may be screwed into the tube neck and the lower edge of the screw cap *f* may be straight instead of being curved inwards, so that the screw cap can be removed from the tube.

We claim:—

1. A closure for tubes, comprising in combination an externally screw threaded tube neck, a closure head consisting of a cylindrical lower part adapted to be removably fitted in said tube neck in frictional contact therewith and of a conical upper part with a base corresponding to the outer diameter of said tube neck and adapted to bear tightly against the top thereof so that its conical surface forms a continuation of the outer surface of said tube neck, said head having a plurality of passages extending from its lower end to the conical upper part below the top thereof, a screw cap adapted to be screwed on to said neck, an inwardly directed flange on the lower end of said cap adapted to limit the outward movement of said cap on said neck, said cap having a central aperture and a conical upper end corresponding to the upper part of said head, said cap adapted when screwed home to bear with its conical upper end against the conical part of said head and close said passages and when unscrewed to form an outlet passage for the contents of the tube through said passages in said head and through the central aperture in said cap.

2. A closure as specified in claim 1, in which the passages are formed by grooves in the wall of said head becoming shallower towards their upper end.

3. A closure as specified in claim 1, in which the passages are formed by eccentric longitudinal bores.

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