

July 1, 1941.

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2,247,357

CONTAINER CAP

Filed Dec. 22, 1939

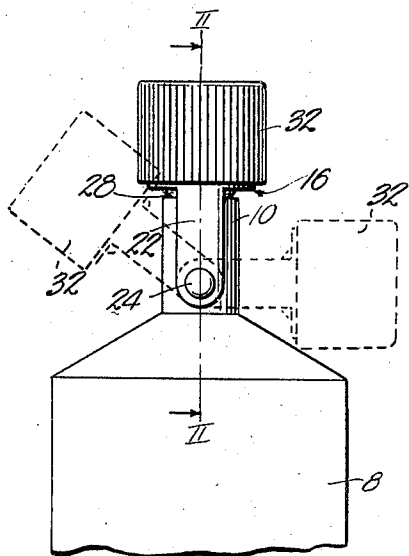


Fig. 1.

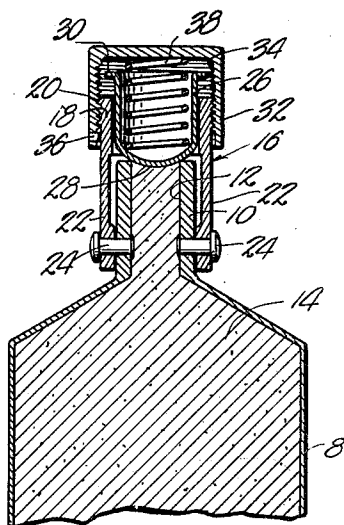


Fig. 2.

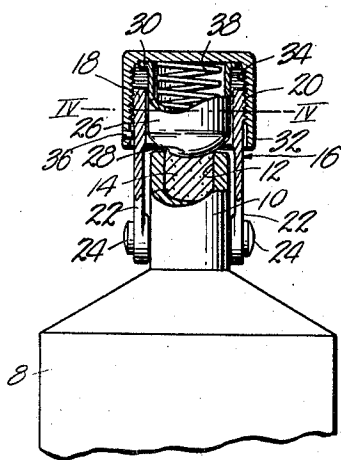


Fig. 3.

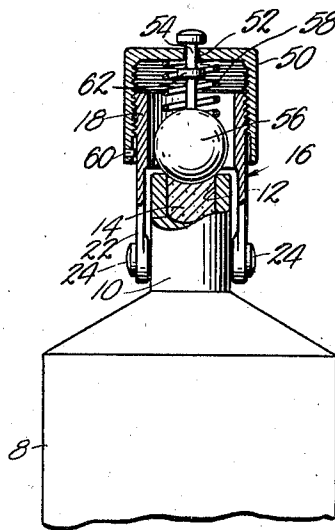


Fig. 5.

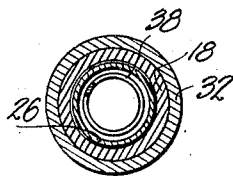


Fig. 4.

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2,247,357

CONTAINER CAP

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Application December 22, 1939, Serial No. 310,515

5 Claims. (Cl. 221-60)

This invention relates to cap assemblies for container bodies and the primary object is to provide a closure that will automatically maintain the mouth of a container in a sealed condition so long as the said cap assembly is in the normal position.

One of the important aims of this invention is to provide a container cap that is particularly useful in connection with collapsible tubes in the nature of those conventionally employed in containing tooth paste or similar substances, it being the object to provide a cap that is permanently attached to the container in such a manner as to permit the user to quickly and conveniently flip the entire cap assembly to the normal position without manipulating screw threaded hoods or like elements, such as is now common practice.

A further object of this invention is to provide a container cap comprising a valve member mounted by unique elements in a manner as to yieldably hold the same against the mouth of the container when the cap is in its normal position, yet which may be quickly removed from the mouth closing station by a lateral sidewise force in either one of two directions, said cap being replaceable to close the mouth by flipping the same to the normal position so as to permit the yieldable means forming a part of the assembly, to exert its force in retaining the valve member in place to function as a means for precluding the escape of the container contents.

A still further object of this invention is to provide a cap assembly of the aforementioned character wherein is constructed means for varying the tension of the yieldable element which holds the valve member against the mouth of the container, and means for clamping the valve member against the mouth to preclude its displacement, said last mentioned means being that which varies the tension of the yieldable element and serves to progressively increase its force upon the valve member as the means is adjusted toward the place where the valve member is secured against the mouth.

Other objects of this invention will appear during the course of the following specification, referring to the accompanying drawing wherein two forms of the invention are illustrated, and wherein:

Figure 1 is a side elevation of a container having a cap assembly thereon made in accordance with this invention.

Fig. 2 is a fragmentary vertical sectional view through the cap assembly, taken on line II-II of Fig. 1.

Fig. 3 is a broken away elevational view of the cap assembly.

Fig. 4 is a cross sectional view taken on line IV-IV of Fig. 3; and

Fig. 5 is a broken away side elevational view illustrating the modified form of the invention.

In the illustrated embodiment of this invention, container 8 is in the form of the conventional collapsible tube having a neck 10 extending from one end thereof through which bore 12 is formed.

The material 14 within body 8 is forced out through bore 12 and since no internal pressure is established after the user releases his hold on the body, the cap assembly such as that illustrated herewith, can be adjusted to adequately close the mouth of neck 10.

The cap illustrated in Figs. 1 to 4 inclusive, comprises a yoke generally designated by the numeral 16 and which has an annular head 18 externally screw-threaded as at 20 and positioned above the end of neck 10, so that the axis of the annular head is on the axis of bore 12.

A pair of diametrically opposed arms 22 integral with head 18 depend to each side of neck 10 so that the free ends thereof may be pivotally attached thereto by pintles 24.

A valve member 26 having an arcuate or spherical surface 28 is carried by yoke 16 so that the said spherical surface may rest upon the mouth of neck 10. This valve member is a thimble-like unit having a continuous annular flange 30 at the end thereof, which flange overlies the upper annular edge of yoke 16 so as to provide a stop to limit the movement of the valve member 26 in one direction.

An internally screw-threaded hollow hood 32 is mounted on yoke 16 with its threads 34 in engagement with the external screw-threads 20 of yoke 16.

A pin 36 carried by hood 32 limits the movement of the latter by coming into engagement with threads 20 of yoke 16.

A coil spring 38 interposed between valve member 26 and hood 32 yieldably maintains the valve member against the mouth of neck 10.

The operation of the cap as just described, is effective and simple. When it is desired to uncover the mouth of the container, a lateral pressure in either one of two directions upon the side of hood 32, will move the entire cap assembly to either one of the positions shown in dotted lines of Fig. 1. In so moving spring 38 will be compressed as the highest point on the spherical wall 28 of valve member 26 passes over the annular edge of neck 10, which forms the mouth of bore 12. With the cap so displaced, material 14 may be removed from body 8 and thereafter the cap flexed back to the normal position.

As the spherical surface 28 of valve member 26 engages the annular edge of neck 10, spring 38 will be compressed and as soon as a portion of the spherical face 28 moves into the mouth of

neck 10, the movement of the cap will be arrested and the bore 12 closed.

If it is desired to establish a greater pressure upon valve member 26, hood 32 may be turned so that it moves closer to the annular flange 30 of the valve member. Obviously, the distance between the upper end of head 18 of yoke 16 and flange 30 of valve member 26, must not be great enough to allow the cylindrical side walls of the valve member to strike the edge of neck 10.

Pin 36 will preclude outward movement of hood 32 so that spring 38 will always be under tension. If the container is to be packed or placed in a condition where it is desired to positively seal the open end thereof, all that is necessary to clamp valve member 26 against movement, is to tighten hood 32 so that its inner surface will engage the top of valve member 26. All parts of the cap assembly will thereby be rendered immovable and the container definitely sealed until hood 32 is again manipulated to permit valve member 26 to compress spring 38 and move out of bore 12 and over the annular edge of neck 10.

In the illustrated embodiment of the invention exemplified in Fig. 5, all of the parts of the cap assembly, so far as body 8, neck 10, bore 12, yoke 16 and the parts thereof, are concerned, are the same.

Hood 50 is substantially the same as the hood previously described, with the exception that it is provided with an opening 52 at the axis thereof for the passage of stem 54, one end of which is secured to the ball valve 56. This ball valve closes the end of bore 12 in precisely the same manner as hereinabove set down, and spring 58 yieldably maintains the ball in the seated position.

Pin 60 on hood 50 limits the outward movement of the latter and collar 62 or stem 54 is engaged by the top of hood 50 when the latter is manipulated to move toward yoke 16. When hood 50 engages collar 62 a clamping force will be exerted on ball valve 56 to secure it in place. When such relation is established between ball valve 56 and neck 10, all of the parts of the cap, when made as illustrated in Fig. 5, will be secured against accidental displacement.

From the foregoing description and accompanying illustrations, it will be manifest to those skilled in the art that an inexpensive, durable, unique and effective container cap may be constructed to embody the concepts of this invention, and while but two forms have been revealed, it is obvious that container caps having physical characteristics other than those shown and described, might be made without departing from the spirit of the invention or scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a container having a body provided with a mouth, a cap comprising a valve member; a yoke swingably mounted on the container body for moving the valve member to and from a position closing the mouth of the container; yieldable means for maintaining the valve member against the mouth of the container when in said position; and a hood movable into direct engagement with the valve member to clamp the same against the container body for closing said mouth, said hood being mounted on the

yoke and adapted to vary the force exerted on the valve member by the yieldable means.

2. In a container having a body provided with a mouth, a cap comprising a valve member; a yoke swingably mounted on the container body for moving the valve member to and from a position closing the mouth of the container; yieldable means for maintaining the valve member against the mouth of the container when in said position; and a hood movable into direct engagement with the valve member to clamp the same against the container body for closing said mouth, said hood being mounted on the yoke and in engagement with the yieldable means to progressively increase the force of the said means upon the valve member as the part approaches the position to clamp the member against the mouth of the body.

3. In a container having a body provided with a mouth, a cap assembly comprising a valve member; a yoke swingably mounted on the container body for carrying the valve member to and from a position closing the mouth of the container; a hood adjustably mounted on the yoke for movement toward and from a position in direct engagement with the valve member to force the same against the mouth of the body; and a spring between the valve member and said hood for exerting pressure on the former in all operative positions of the hood other than the clamping position.

4. In a container having a body provided with a mouth, a cap assembly comprising a valve member; a yoke swingably mounted on the container body for carrying the valve member to and from a position closing the mouth of the container; a hood adjustably mounted on the yoke for movement toward and from a position in direct engagement with the valve member to force the same against the mouth of the body; and a spring between the valve member and said hood for exerting pressure on the former in all operative positions of the hood other than the clamping position, said hood having a stop for limiting the movement thereof from the clamping position, said stop being arranged to arrest the movement of the hood from the clamping position before the spring ceases to exert pressure upon the valve member.

5. A cap assembly for a collapsible tube comprising a yoke, provided with an externally threaded annular body adapted to be swingably attached to the tube for movement across the mouth of the tube; a hollow valve member loosely mounted on the yoke in the annular head thereof; a spring in the hollow valve member having one end projecting therefrom and against the hood; an internally threaded hood embracing the annular head of the yoke and movable toward and from the valve member as the hood is rotated; and a stop on the hood to limit movement thereof from the valve member, said spring being progressively compressed as the hood is moved toward the valve member to vary the tension thereof, the said hood being movable to force the spring into the valve member and thereafter bear directly against the valve member to clamp the same against the mouth of the tube and to lock the yoke against swinging movement.

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