

April 22, 1941.

S. T. LIEM

2,239,238

SCREW TYPE CLOSURE

Filed April 28, 1939

FIG:1

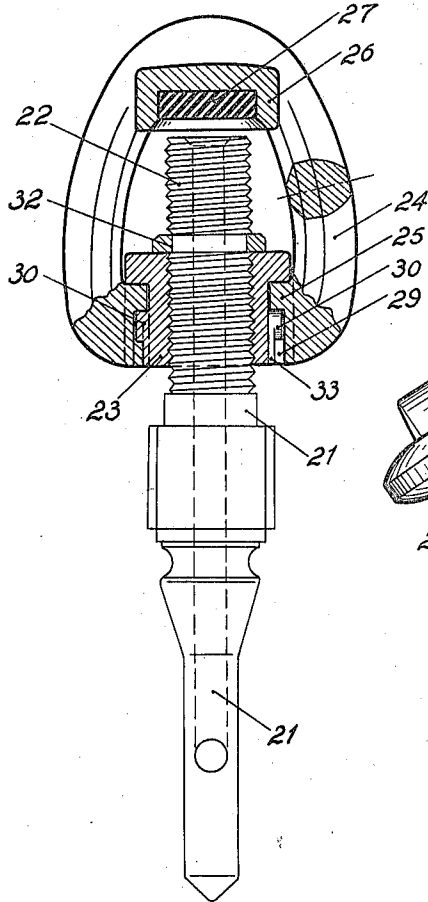


FIG:2

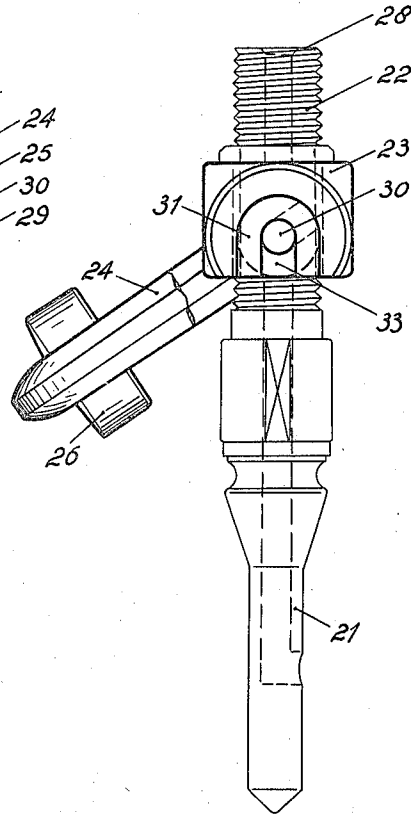


FIG:3

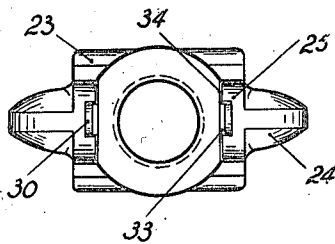
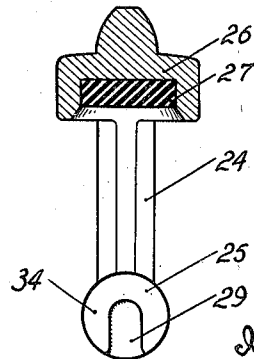


FIG:4



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UNITED STATES PATENT OFFICE

2,239,238

SCREW TYPE CLOSURE

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Application April 28, 1939, Serial No. 270,621
In Denmark March 29, 1939

2 Claims. (Cl. 138—89.3)

The invention relates to a screw type closure for containers in general in which the stopper member can be swung laterally away from the mouth of the container by means of a loop pivoted on the container or on an annular nut or the like screwed on to the mouthpiece of the container.

Such screw type closures are described in my earlier U. S. application Serial No. 205,319 filed April 30, 1938.

According to the invention, which is the subject matter of said application, the part which contains the openings or recesses for taking the pivots or pins (about which the loop is rotatable) provided on the loop or on the mouthpiece of the container, is provided with slots opening into these recesses for allowing the passage (on the fitting in of the loop) of the said pivots or pins, the depth of these slots and the distance apart of the pivot ends being so chosen that the loop can be fitted on the container mouthpiece or on the annular nut without tensioning or bending it.

According to the present invention the connection between the loop and the annular nut is of the type of a bayonet coupling. In this way a reliable connection between the closure member and the annular nut is obtained, preventing loss of the closure member.

According to a feature of the invention, the pivot ends of the loop arms at their inwardly turned ends may be provided with slots, extending from below, the pivot holes for the loop pivots comprising pin like extensions protruding into said slots.

According to a further feature of the invention the upper edge of these slots may be constituted by a cylindrical surface, which has its axis coinciding with the axis about which the loop may be turned.

Below the pin like extensions according to the invention in the pivot holes for the loop pivots protruding parts may be provided, which in the middle position of the loop constitute an abutment against turning to the side.

The invention is illustrated in the accompanying drawing which shows by way of example in Figs. 1-4 the use of the invention on a valve stem for tires. Figs. 1 and 2 show a front view, partly a cross-section, and a side view of this valve (in Fig. 2 the loop is turned to the side, the front part of the loop being shown partly removed). Fig. 3 is a view from below, whilst Fig. 4 shows a longitudinal section of the loop of the screw stopper.

The valve body is indicated with the number 21. On the upper part 22 of this valve body which is provided with a screw thread the annular nut 23 is screwed; the loop 24 may be turned about this annular nut about the loop pins 25. The loop in its upper part bears the cap-like stopper member 26, provided with a sealing disc 27. When screwing the annular nut 23 with loop 24 into the closed position, the disc 27 is pressed against the upper edge 28 of the valve body 21.

The loop pins 25, as will be clear from Fig. 4, at their inwardly turned ends are provided with slots 29, said slots extending upwardly from the lower end of the pins and the upper edges of said slots constituting a cylindrical surface having an axis coinciding with the axis about which the loop can be turned. In these slots 29 pinlike extensions 30 protrude, provided on the annular nut 23. Said extensions are located in the centre of the pin holes 31 for the loop (in the annular nut). The upper semi-cylindrical surfaces of these pin holes are concentric with respect to the pinlike extensions 30, said surfaces being extended tangentially vertically downward to the bottom of the nut. The dimensions are so chosen that the pins of the loop may be inserted in said pinholes, as is shown in Figs. 1 and 2.

The loop is fixed to the annular nut in the following way:

The loop 24 is brought in a vertical coaxial position with respect to the annular nut, so that the caplike stopper member 26 will be below whilst the open end of the slots 29 in the loop pins will be directed upwardly and towards the pinlike extensions 30 in the annular nut. The loop is now lifted until the extensions 30 are located in the under ends of the slots 29, whereupon the loop is turned upwards. The loop being connected with the annular nut in this way (bayonet coupling), the latter is screwed on the valve member. As will be clear from Fig. 2 the loop in this position cannot be removed from the annular nut without unscrewing the latter.

From the drawing it may be seen that the screw thread of the valve body is interrupted at 32. In the annular slot 32 a suitable ring of resilient material such as rubber may be applied; this ring prevents unscrewing and loss of the annular nut 23.

In order to make the loop spring into the position shown in Fig. 1, or to retain the loop in any position into which it is turned to the side, protruding parts or ribs 33 are provided below

the pinlike extensions 30. In the vertical position of the loop the protruding parts 33 are located in the slots 29 of the loop pins and they will keep the loop in this position.

What I claim is:

1. A closure for containers having a threaded neck portion terminating in an opening for the container which comprises a nut element adapted to be threaded on the neck of the container, a yoke member having arms embracing said nut and pivotally connected thereto for swinging movement about an axis transversely of the nut, the pivotal connection between said arms and nut including complementary interlocking coupling elements, one of which complementary elements comprises means providing an open-ended slot having a rounded inner end and a pinlike projection within said slot concentric with the rounded end thereof, the other of which complementary elements comprises a pin engaging the rounded end of said slot and providing an open-ended recess in its face engaging the pinlike projection in the slot of said first-mentioned complementary element, a projecting rib in the slot of said first-mentioned complementary element for engagement with the recess in the face of the pin of said second-mentioned complementary element to retain said yoke in a predetermined position of rotation with respect to said nut, the open ends of said slot and said recess being aligned to permit the nut to be uncoupled from the yoke member, while maintaining the shape of the latter, by a sliding movement in one radial position of the yoke with

respect to its pivotal axis and to prevent uncoupling in all other such positions, and a sealing member carried by said yoke for sealing the opening in said neck portion.

2. A closure for containers having a threaded neck portion terminating in an opening for the container which comprises a nut element adapted to be threaded on the neck of the container, a yoke member having arms embracing said nut and pivotally connected thereto for swinging movement about an axis transversely of the nut, the pivotal connection between said arms and nut including complementary interlocking coupling elements comprising means on said nut providing an open-ended slot having a rounded inner end and a pinlike projection within said slot concentric with the rounded end thereof, a pin carried by said yoke and engaging the rounded end of said slot, which pin provides an open-ended recess in its face engaging the pinlike projection in said slot, a projecting rib in the slot provided in said nut for engagement with the recess in the face of the pin carried by said yoke to retain said yoke in a predetermined position of rotation with respect to said nut, the open ends of said slot and said recess being aligned to permit the nut to be uncoupled from the yoke member, while maintaining the shape of the latter, by a sliding movement in one radial position of the yoke with respect to its pivotal axis and to prevent uncoupling in all other such positions, and a sealing member carried by said yoke for sealing the opening in said neck portion.

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