No. 762,793. PATENTED JUNE 14, 1904.

C. M. YOUNG.

CLOSURE FOR BOTTLES OR OTHER RECEPTACLES.

APPLICATION FILED DEC. 3, 1903.

NO MODEL.

Fig. 1,

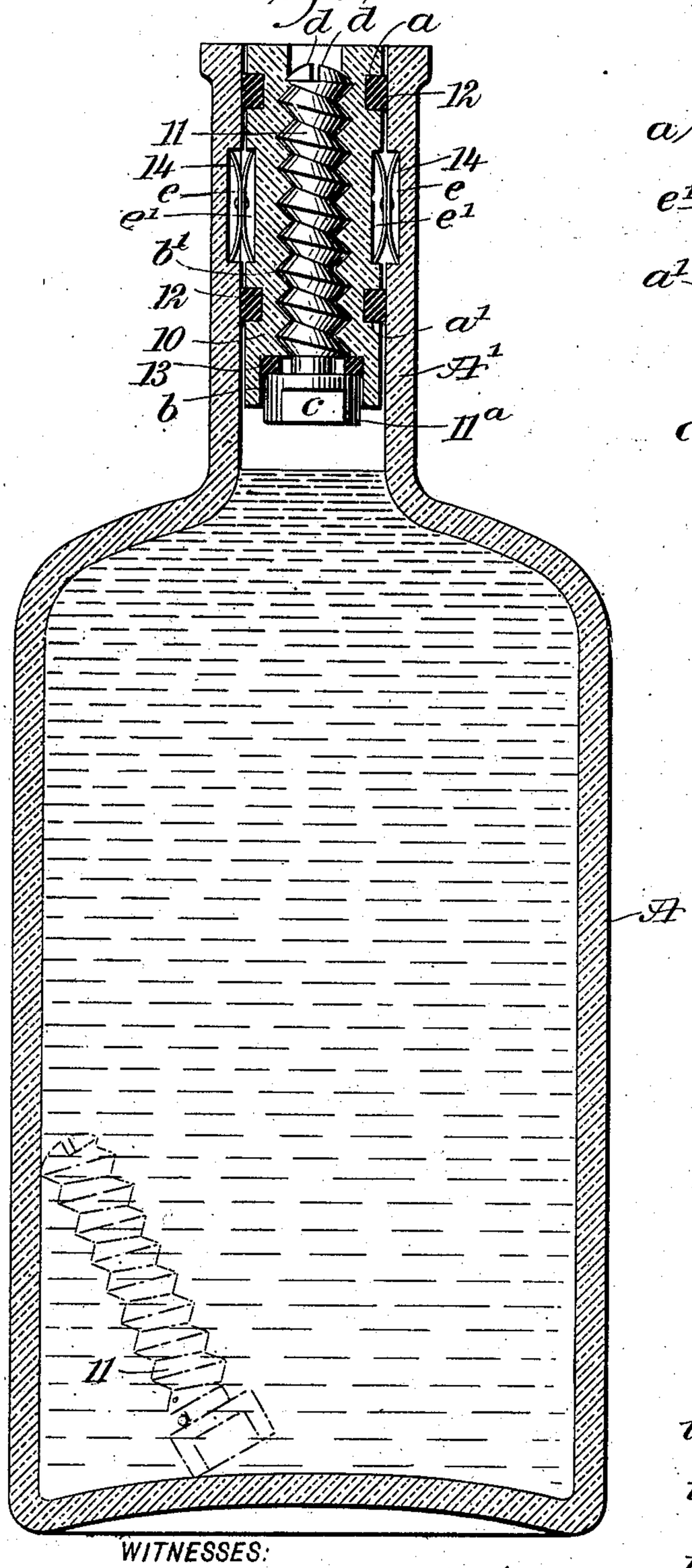


Fig. 2,

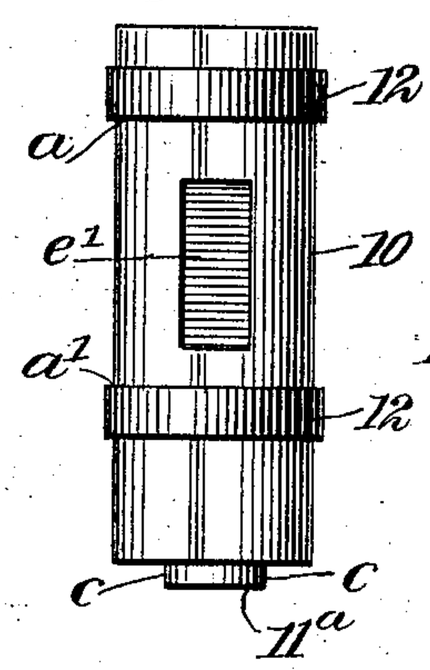


Fig. 3,

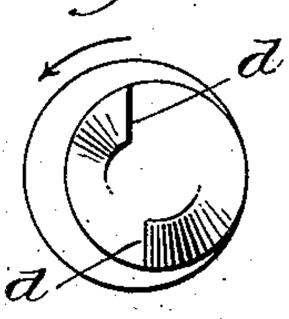


Fig. 4,

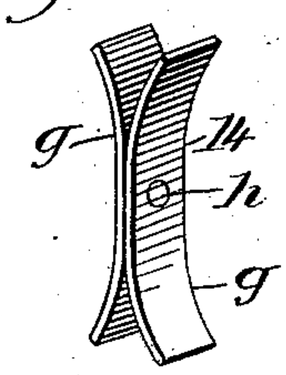


Fig. 5,

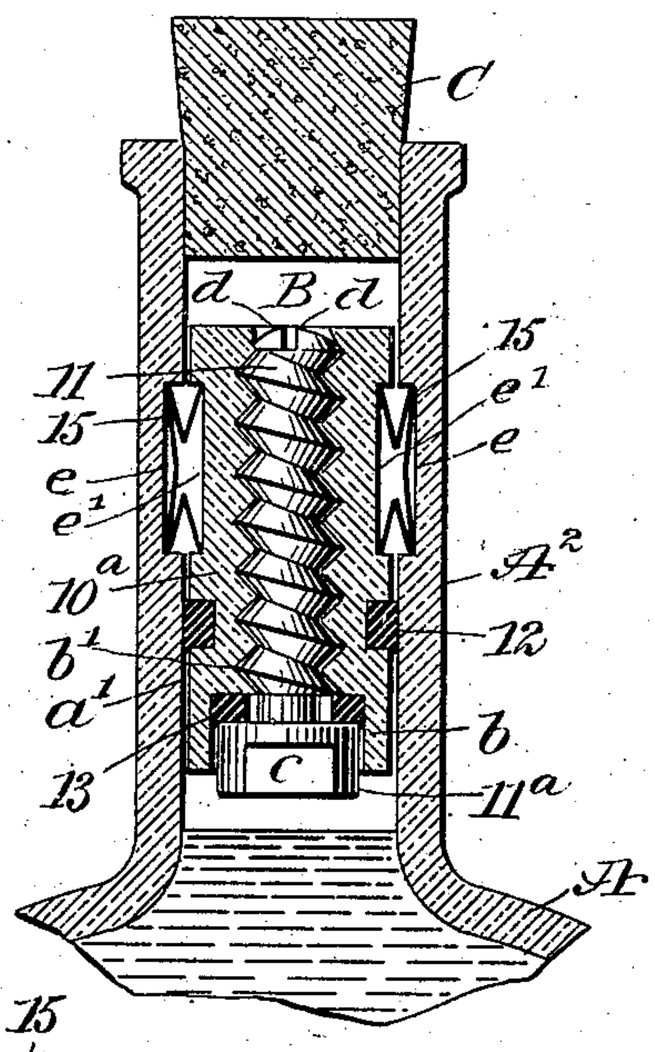
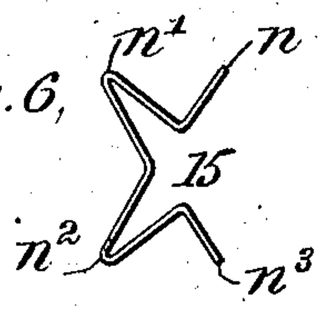


Fig. 7.

Fig. 6,



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No. 762,793. Patented June 14, 1904.

UNITED STATES PATENT OFFICE.

CHARLES M. YOUNG, OF SAN FRANCISCO, CALIFORNIA.

CLOSURE FOR BOTTLES OR OTHER RECEPTACLES.

SPECIFICATION forming part of Letters Patent No. 762,793, dated June 14, 1904.

Application filed December 3, 1903. Serial No. 183,674. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. YOUNG, a citizen of the United States, and a resident of San Francisco, in the county of San Francisco and State of California, have invented a new and Improved Closure for Bottles or other Receptacles, of which the following is a full, clear, and exact description.

This invention relates to closures for bottles or the like of the class that are designed to expose the reuse of the bottle or receptacle after the contents have been removed.

The object of my invention is to provide novel details of construction for a bottle or jar closure which will infallibly show when the contents of the receptacle have been partially or entirely removed, this being exposed by the retention within the bottle of a sealing-plug that is an important detail of the improved bottle or jar closure.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side view of a bottle having the improved closure secured in its neck. Fig. 2 is a side view of the improved closure removed from the neck of the bottle. Fig. 3 is an enlarged plan view of a sealing-plug employed. Fig. 4 is a perspective view of one form of a spring-keeper employed to hold the closure device in the neck of the bottle. Fig. 5 is a sectional side view of the neck of a bottle and of a slightly-modified embodiment of the improvement secured therein. Fig. 6 is an edge view of a resilient keeper differing in form from the one shown in Fig. 4, and Fig. 7 is a side view of a resilient metal strip which when bent into shape forms the spring-keeper represented in Fig. 6.

As before indicated, the improved closure device may be applied to seal the neck of a bottle or of a jar having a neck. In the drawings the improvement is represented as applied to close the orifice or passage through the neck of a bottle and consists of the following described construction and arrangement of parts.

A indicates an ordinary glass bottle, such as is commonly employed to hold liquor or other liquid as a sealed vendible package, and A′ the neck thereof, which is cylindrical and of a suitable length to receive the improved closure device, which principally consists of a cylindrical sleeve-nut 10 and a sealing-plug 11. The sleeve-nut 10 is in the form of an essentially-cylindrical block having a suitable length to partially fill the bore of the neck A′, wherein it is loosely fitted, the proportions of the sleeve-nut conforming with the dimensions of the bottle-neck. As represented in Fig. 1, the sleeve-nut 10 is adapted to extend from the upper edge of the neck A′ to a point near the junction of the neck with the body A of the bottle shown in said figure.

Two preferably flat-bottomed circumferential grooves *a a′* are respectively formed in the periphery of the sleeve-nut 10 near the upper and lower ends of the same, and in said grooves the sealing-rings 12 are embedded, these rings having such an external diameter as adapts them to fit tight and require force to insert them along with the sleeve-nut into the neck A′ of the bottle A. The rings 12 may be formed of cork or other suitable material.

The sleeve-nut 10 is longitudinally and axially perforated, forming a passage of sufficient diameter to permit a free flow of liquid from the bottle therethrough, and in the defining-wall of the perforation a preferably coarse female thread is formed, as represented in Figs. 1 and 5. At the lower end of the threaded perforation in the sleeve-nut 10 a counterbored recess *b* is formed, having a flat bottom wall and sufficient depth to receive a flat pliable joint-ring 13, that may be of elastic rubber and in service is seated upon said bottom wall.

The sealing-plug 11 is in the form of a screw-threaded bolt, the thread *b′* thereon being of equal pitch with the thread in the sleeve-nut 10 and of such a diameter as will permit the plug to be screwed into the nut at its normal lower end and fit neatly therein. The sealing-plug 11 is provided with a head 11ª on

one end, that is mainly cylindrical and of a diameter that adapts the head to fit loosely in the recess *b*, the inner end wall of the head being flat, so that it may have a bearing throughout its area upon the joint-ring 13. The head 11^a is preferably flattened on opposite sides, as shown for one side at *c* in Figs. 1 and 5, these flat sides affording means for an engagement of a wrench therewith to screw the sealing-plug fully within the threaded perforation in the sleeve-nut 10 and into engagement at the head 11^a with the joint-ring 13, which effectively seals the passage through the sleeve-nut. The length of the sealing-plug 11 is such that when it is fully screwed into the sleeve-nut 10 the normal upper end of the sealing-plug will be located near the upper end of the sleeve-nut, and two shoulders *d d* are preferably formed oppositely on said upper end for an engagement therewith of a screw-driver or the like, which by rotation in the direction of the curved arrow in Fig. 3 will unscrew the plug 11, so as to release it from the sleeve-nut.

In the inner surface of the neck A′ of the bottle A a plurality of recesses *e* are formed, which may with advantage be oblong and rectangular, extending longitudinally therein and preferably positioned oppositely in pairs, as is shown in Figs. 1 and 5. Similar recesses *e′* are formed in the peripheral surface of the sleeve-nut 10 and so located that they will be adapted to register with opposite pairs of the recesses *e*, as represented in Figs. 1 and 5, thus providing spring-holding pockets that are partly in the bottle-neck and partly in the sleeve-nut. A resilient keeper is provided to occupy each recess *e e′*, and these keepers, which are formed of spring-metal strips bent into form, may be shaped as shown in Figs. 1 and 4 or as represented in Figs. 5 and 6.

The keepers 14 (illustrated in Figs. 1 and 4) each consist of duplicate strips *g* of spring-plate metal and are preferably of such dimensions as adapt them when in completed condition to loosely occupy a recess *e e′*. The pair of strips composing a spring-keeper 14 are similarly curved sidewise and are held connected together with their convex surfaces impinged upon each other by a rivet *h* or other means, so that a pair of divergent spring members project at each end of the keeper from the center of the same.

If the bottle A has been filled by any suitable means with liquid it is to contain as an original vendible package, while the neck A′ is unsealed, or, in other words, before the improved closure is introduced therein, the latter may be quickly inserted by pressing the lower end of the sleeve-nut 10 into the upper end of the neck A′, while the keepers 14 are held in the recesses *e′*, and the latter are in vertical alinement with the recesses *e*. By continued pressure on the sleeve-nut 10 the spring-keepers 14 will enter the recesses *e*, that are in the inner wall of the bottle-neck A′, and by their resilience their members will assume normal diverged positions, which will positively and non-removably secure the sleeve-nut 10 in the bottle-neck A′, and as the sealing-plug 11 has been screwed into the sleeve-nut so as to impinge its head 11^a upon the joint-ring 13 before the sleeve-nut was introduced within said neck it is evident that the bottle will be sealed against accidental leakage at its closure. When the bottle is to be opened for a removal of a portion of or the entire contents of the same, this may be readily effected by unscrewing the sealing-plug 11 completely with a suitable implement, which will permit the sealing-plug to drop down into the bottle, as indicated by dotted lines in Fig. 1, where it will be held from removal and show that the original contents of the bottle have been removed, thus preventing a fraudulent reuse of the bottle.

In the embodiment of the invention illustrated in Fig. 5 the sleeve-nut 10^a is so reduced in length that when it is fully introduced within the neck A^2 of a bottle a sufficient space B is provided for the insertion of the cork C therein to seal the bottle in the usual manner. In this construction the spring-holding recesses *e e′* are similar to those shown in Fig. 1 and hereinbefore described; but the spring-keepers that occupy said recesses are each constructed of a single strip 15 of resilient plate metal having a suitable length and width, as shown by the blank in Fig. 7. To give each of the last-mentioned keepers proper shape, the strip of spring metal 15 is bent at *i*, *i′*, i^2, i^3, and i^4 to give it the angular formation shown in Fig. 6, which produces four resilient members *n n′* n^2 n^3, which diverge in pairs at opposite ends of the keeper. The recesses *e e′* in this construction of the improvement are located near the upper end of the sleeve-nut, and at a suitable distance below said recesses the cylindrical body of the sleeve-nut is circumferentially grooved for the reception of the joint-ring 12, similar to the lower ring 12 shown in Fig. 1.

It is to be understood that the sleeve-nut 10^a is axially perforated and threaded in the wall of the perforation and that the sealing-plug 11, that is screwed into the sleeve-nut, is provided with a head 11^a, which occupies the recess *b* at the lower end of the sleeve 10^a and contacts with the joint-ring 13 to seal the passage through the sleeve-nut, these details of construction being duplicates of those shown in Fig. 1 and already fully described.

It will be seen that if the plug 11 is screwed into the sleeve-nut 10^a so as to seal the passage therethrough and the sleeve-nut is inserted into the top of the bottle-neck A^2 so as to dispose respective pairs of the recesses *e e′* opposite each other, with the keepers formed of the single strips 15 held in said recesses or in

the pockets they produce, the sleeve-nut 10^a will be fixed immovably in the bottle-neck A^2, and the bottle will be sealed with the improved neck-closing device, as is clearly shown in Fig. 5.

The upper end of the sealing-plug 11, that fills the passage in the sleeve-nut 10^a, is formed at the upper end with two opposite shoulders *d d* for an engagement therewith of a suitable tool, (not shown,) that affords means for unscrewing the plug downwardly and removing it from the sleeve-nut, the gravity of the plug sinking it to the bottom of the bottle, wherein it will remain as an evidence that the contents of the bottle are unsealed for removal partially or entirely.

It is a feature of advantage to furnish the bottle-neck A^2 with a cork C, as this enables the sealing of the otherwise-open bottle-neck in case the plug 11 is removed from the sleeve-nut and but a portion of the liquid contents of the bottle have been removed.

The sleeve-nut and sealing-plug that comprise the main features of the improved closure device may be formed of glass, porcelain, hard rubber, or non-oxidizable metal, as may be preferred; but the color of the sealing-plug should be different from that of the liquid contents of the bottle or other receptacle having the improved closure, so that the plug will be plainly visible after it is removed from the sleeve-nut and lies at the bottom of the receptacle.

Obviously the improved closure may be applied upon a vessel having a wide cylindrical neck, such as a jar, and be effective as a means to expose an attempt to refill the vessel.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A closure for the neck of a vessel, comprising a sleeve-nut securable in the neck and having a threaded opening therethrough, a threaded sealing-plug enlarged on the normal inner end and inserted from the opposite end into the inner end of the nut, means that adapt the plug to receive turning movement at the normal outer end thereof, so as to unscrew it completely into the vessel, and means for closing the neck above the nut.

2. A closure for the neck of a vessel, comprising a sleeve-nut having a threaded perforation therethrough, means engaging the inner wall of the neck of the vessel and the periphery of the sleeve-nut, for holding it immovable in said neck, a sealing-plug exteriorly threaded and screwed into the nut from the end of said nut that is nearest the bottle-body, and means formed at the outer end of the sealing-plug which adapt said plug to be unscrewed completely so that it will fall into the bottle.

3. A closure for the neck of a vessel, comprising a cylindrical sleeve-nut having a threaded perforation therethrough, and an annular recess at the inner end of the perforation, a sealing-plug threaded for screwing into the thread in the sleeve-nut, said plug having a headed enlargement on the normal inner end thereof for engaging within the annular recess, a joint-ring in said recess, whereon the head of the screw may contact for sealing the passage through the nut, shoulders formed at the outer end of the screw-plug to adapt it to be unscrewed into the vessel, and means engaging the neck and sleeve-nut, which holds the nut from removal.

4. A closure for the neck of a vessel, comprising a cylindrical sleeve-nut having peripheral spaced grooves therein, joint-rings seated in said grooves and adapted for enforced engagement with the inner surface of the neck, said sleeve having a threaded axial perforation therethrough, that is counterbored at its inner end, a threaded sealing-plug screwing into the counterbored end of the sleeve-nut and having a head that occupies the counterbore, a joint-ring in the counterbore, pressed by the head, and a plurality of resilient keepers, each keeper formed of plate-metal strips and provided with divergent members, two opposed recesses being formed, one in the periphery of the sleeve-nut and the other in the inner surface of the neck which said keepers respectively occupy.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES M. YOUNG.

Witnesses:
J. E. DAVIS,
GEORGE PATTISON.