No. 717,491. Patented Dec. 30, 1902.

R. B. YERBY.

CLOSURE DEVICE FOR BOTTLES OR SIMILAR VESSELS.

(Application filed Oct. 15, 1902.)

(No Model.)

Fig. 1.

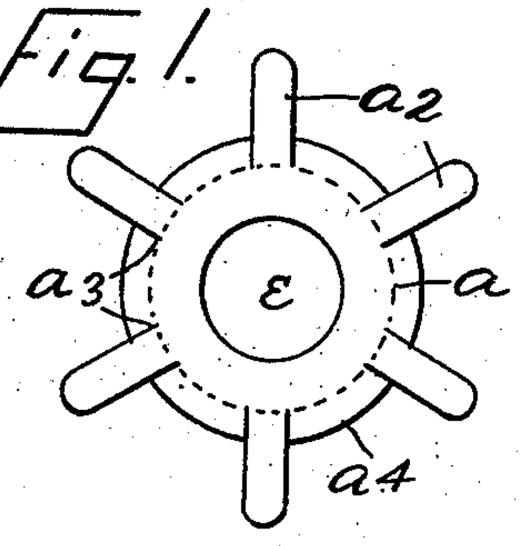


Fig. 2

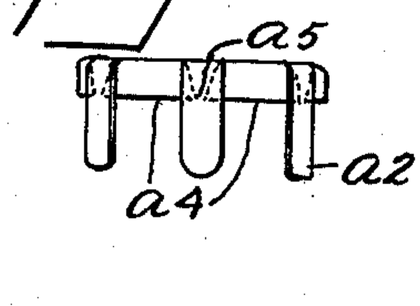


Fig. 6

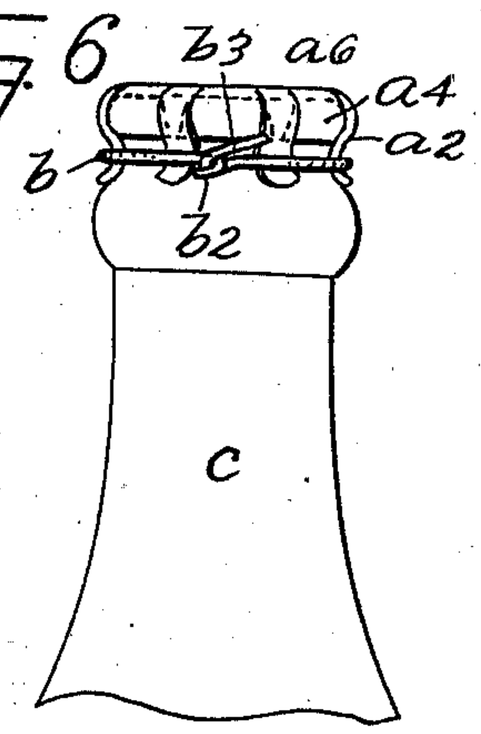


Fig. 3

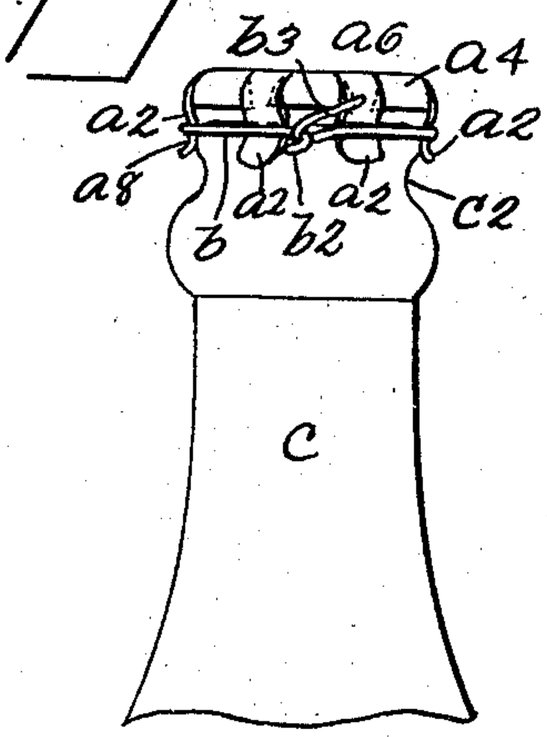


Fig. 4.

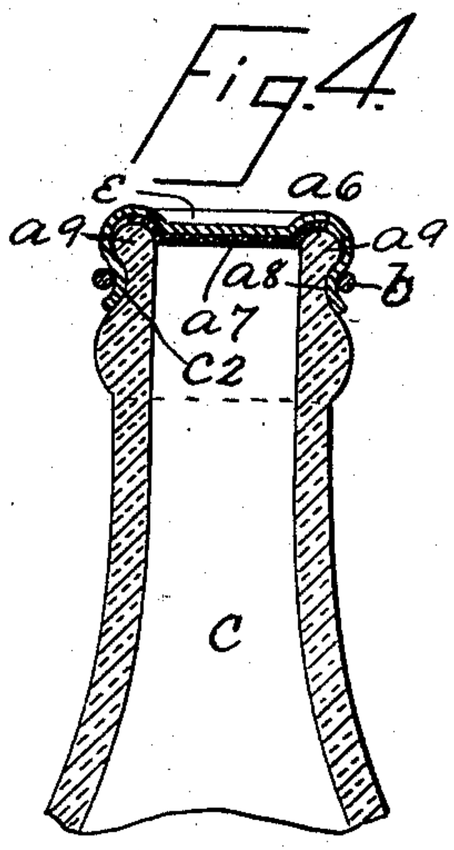


Fig. 7.

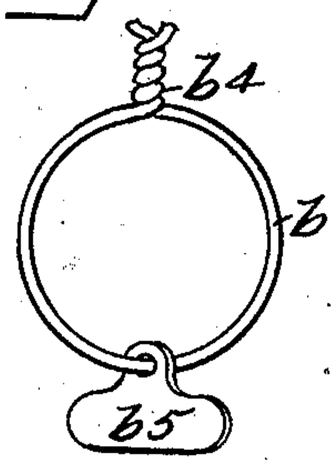
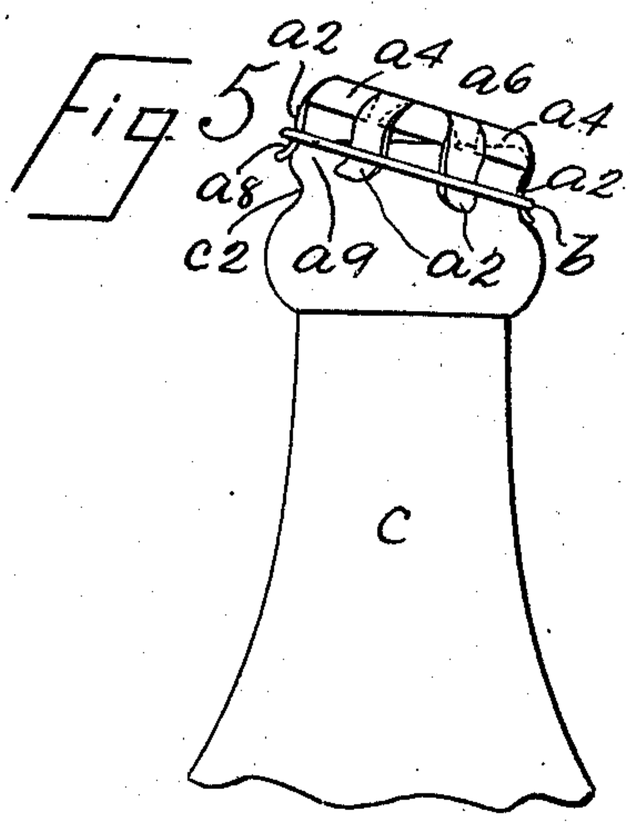


Fig. 5



WITNESSES

J. C. Larsen.

F. A. Stewart.

BY

INVENTOR

Ross B. Yerby.

Edgar Tate & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

ROSS B. YERBY, OF BROOKLYN, NEW YORK.

CLOSURE DEVICE FOR BOTTLES OR SIMILAR VESSELS.

SPECIFICATION forming part of Letters Patent No. 717,491, dated December 30, 1902.

Application filed October 15, 1902. Serial No. 127,333. (No model.)

To all whom it may concern:

Be it known that I, ROSS B. YERBY, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Closure Devices for Bottles or Similar Vessels, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide an improved closure device for bottles, jugs, jars, and similar vessels, whereby a vessel of this class may be securely closed whenever desired and opened whenever necessary by hand without the use of mechanical devices or tools of any kind or class.

A further object is to provide a secure closure device for bottles or other vessels of the class specified which is simple in construction and operation and comparatively inexpensive and may be easily and quickly removed whenever necessary.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which—

Figure 1 is a plan view of a metal disk which I employ; Fig. 2, a side view thereof, showing the same bent into shape for use as a closure device; Fig. 3, a side view of the neck of a bottle with one form of my improved closure device resting thereon; Fig. 4, a central vertical section of the neck of a bottle closed by my improved closure device; Fig. 5, a view similar to Fig. 3, but showing the opposite side of the neck of the bottle and showing the closure device in the preferred position in the operation of forcing it on the neck of a bottle; Fig. 6, a side view of the device as shown in Fig. 4, and Fig. 7 a plan view of one form of a locking ring or wire which I employ.

In the practice of my invention I cut from a sheet of flexible metal a disk a, having radial fingers a^2, any desired number of which may be employed, and the perimeter of the disk a is slitted radially at each side of said fingers for a distance approximately equal to about one-third of the length of said fingers, as shown at a^3. By slitting the perimeter of the disk a, as shown and described, I form between each of the fingers a^2 segmental members a^4, and in preparing the disk for use as a closure device the segmental members a^4 are bent downwardly, as shown in Fig. 2, as are also the fingers a^2, and in this operation the fingers a^2 overlap the lower corners of the ends of the segmental members a^4, as indicated in dotted lines at a^5.

The above operation may be performed in any desired manner either on a suitable form and by means of a suitable machine, or the segmental members a^4 and fingers a^2 may be bent downwardly, as shown in Fig. 2, in the operation of closing the neck of the bottle. In practice, however, I prefer to form the closure device, which is shown as a whole at a^6 in Figs. 3 to 6, inclusive, independently of the neck of a bottle and to slip or force the same thereonto, as hereinafter described, and in this operation I place on the bottom of the central portion of the disk a and in the receptacle formed by the segmental members a^4 and fingers a^2 a packing-disk a^7, which may consist of cork or any other suitable material, and in the operation of completing the closure device or of forming it, as shown in Figs. 2 to 6, inclusive, the fingers a^2 are also bent inwardly, as shown at a^8, and a wire b is passed around said fingers a^2 in the position shown in Figs. 3 to 6, inclusive, and one end of said wire is provided with a hook b^2, and the other end is bent backwardly to form a finger or end piece b^3, and said wire forms a locking-ring to hold the closure device in position. A depression e is formd in the disk a, to the bottom portion of which is applied the packing a^7, the purpose of which depression is to effect a tight seal when the closure is applied to a bottle or the like.

In Figs. 3 to 6, inclusive, I have shown at c the neck of a bottle, and said neck is provided near the top with an annular groove c^2, and whenever it is desired to close a bottle or other vessel having this neck formation all that is necessary is to place the closure device in the position shown in Fig. 3 or in the position shown in Fig. 5 and then force the closure device down into the position shown in Figs. 4 and 6. In this operation the wire b will yield sufficiently to allow of the

closure device being forced into position, but the wire *b* will securely hold the closure device on the neck of the bottle, and in order to open the bottle all that is necessary is to bend back the finger-piece b^3, when the wire *b* may be removed and the finger-pieces a^2 of the closure device may be bent upwardly by hand and the closure device removed from the neck of the bottle. The wire ring *b* is normally of slightly less diameter than the greatest diameter of the annular bead a^9 above the annular groove c^2; but the connection of the ends of the wire *b* is such that the said wire will yield slightly in the operation of forcing the closure device into position, and said wire will automatically close in below the bead a^9, so as to securely hold the closure device in place.

Instead of completely forming the closure device as above described and then forcing it onto the neck of the bottle the disk *a*, with the packing-disk a^7 in position, may be placed on the neck of the bottle, and by means of a suitable machine the segmental members a^4 and the fingers a^2 may be bent downwardly, as shown in Figs. 2 and 6, and said fingers a^2 may be crimped inwardly at the same time, as shown in Fig. 6, and the wire *b* may also be applied at the same time. The difference between these two operations, as will be understood, is as follows: In the first operation the closure device is completely formed and forced onto the neck of the bottle and in the second operation the closure device is partly formed in applying it to the neck of the bottle.

In Fig. 7 I have shown a modification of the wire ring *b*, in which the ends of the said wire ring are connected, as shown at b^4 or in any desired manner, and placed on the ring thus formed is a thumb-and-finger piece b^5, and with this form of device the fingers *a* may be crimped or bent inwardly by placing the wire ring *b* around said fingers and then turning the thumb-and-finger piece b^5, so as to crimp and contract the wire ring *b*, and when it is desired to open the bottle the thumb-and-finger piece b^5 may be turned in the opposite direction or turned until the wire ring *b* is broken, and said wire ring is made of suitable material to permit of this operation. In practice the central portion of the disk *a* is preferably depressed, so as to cause a more secure connection between the packing-disk a^7 and the neck of the bottle, and by means of my improvement I provide a perfectly secure and efficient closure device for vessels of the class specified which may be applied either by hand or by machine and which may be removed when necessary by hand alone without the use of any tool or instrument of any kind or class.

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

1. In a closure device for bottles and similar vessels, a flexible metal disk having flexible radial fingers at the perimeter thereof, the perimeter of said disk being slitted inwardly at each side of said fingers for a predetermined distance, substantially as shown and described.

2. In a closure device for bottles and similar vessels, a flexible metal disk having flexible radial fingers at the perimeter thereof, the perimeter of said disk being slitted inwardly at each side of said fingers for a predetermined distance, and the said fingers and the segmental portions formed by slitting the perimeter of said disk being bent downwardly, substantially as shown and described.

3. In a closure device for bottles and similar vessels, a flexible metal disk having flexible radial fingers at the perimeter thereof, the perimeter of said disk being slitted inwardly at each side of said fingers for a predetermined distance, and the said fingers and the segmental portions formed by slitting the perimeter of said disk being bent downwardly, and the said fingers being also crimped inwardly centrally thereof and a locking-ring passed around said fingers, substantially as shown and described.

4. As a complete article of manufacture, a closure device for bottles and the like, comprising a disk having a series of depending fingers, and a locking-ring carried by said fingers and adapted to force the latter into engagement with the neck of a bottle or the like when the closure is applied thereto.

5. As a complete article of manufacture, a closure device for bottles and the like, comprising a disk having a series of depending fingers, and a locking-ring carried by said fingers but detachable therefrom, said ring being adapted to force said fingers into engagement with the neck of a bottle or the like when the closure is applied thereto.

6. As a complete article of manufacture, a closure device for bottles and the like, comprising a disk having a series of depending fingers, said fingers being bent to provide depressions therein, and a locking-ring carried by said fingers and seated in the depressions thereof, said ring being adapted to force said fingers into engagement with the neck of a bottle or the like when the closure is applied thereto.

7. In a closure device for bottles and similar vessels, a flexible metal disk provided with flexible radial fingers at the perimeter thereof and segmental portions between said fingers, said segmental portions being bent downwardly and said fingers being also bent downwardly over the ends of said segmental portions, said fingers being also bent inwardly centrally thereof and a locking ring or wire passed around said fingers centrally thereof, substantially as shown and described.

8. In a closure device for bottles and similar vessels, a flexible metal disk provided with flexible radial fingers at the perimeter thereof and segmental portions between said fingers, said segmental portions being bent downwardly and said fingers being also bent

downwardly over the ends of said segmental portions, said fingers being also bent inwardly centrally thereof and a locking ring or wire passed around said fingers centrally thereof, said disk being also provided with a packing-disk which is secured to the bottom thereof, substantially as shown and described.

9. The combination with the neck of a bottle or similar vessel provided with an annular groove near the top thereof above which is an annular bead, of a closure device comprising a disk of metal having radial flexible fingers at the perimeter thereof, between which are segmental members, said segmental members being bent downwardly over said bead and said fingers being bent downwardly and into said groove, and a locking ring or wire passed around said fingers in said groove, substantially as shown and described.

10. The combination with the neck of a bottle or similar vessel provided with an annular groove near the top thereof above which is an annular bead, of a closure device comprising a disk of metal having radial flexible fingers at the perimeter thereof between which are segmental members, said segmental members being bent downwardly over said bead and said fingers being bent downwardly and into said groove, a locking ring or wire passed around said fingers in said groove said metal disk being also provided with a packing-disk which is secured to the bottom thereof, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 10th day of October, 1902.

ROSS B. YERBY.

Witnesses:
F. A. STEWART,
C. E. MULREANY.