

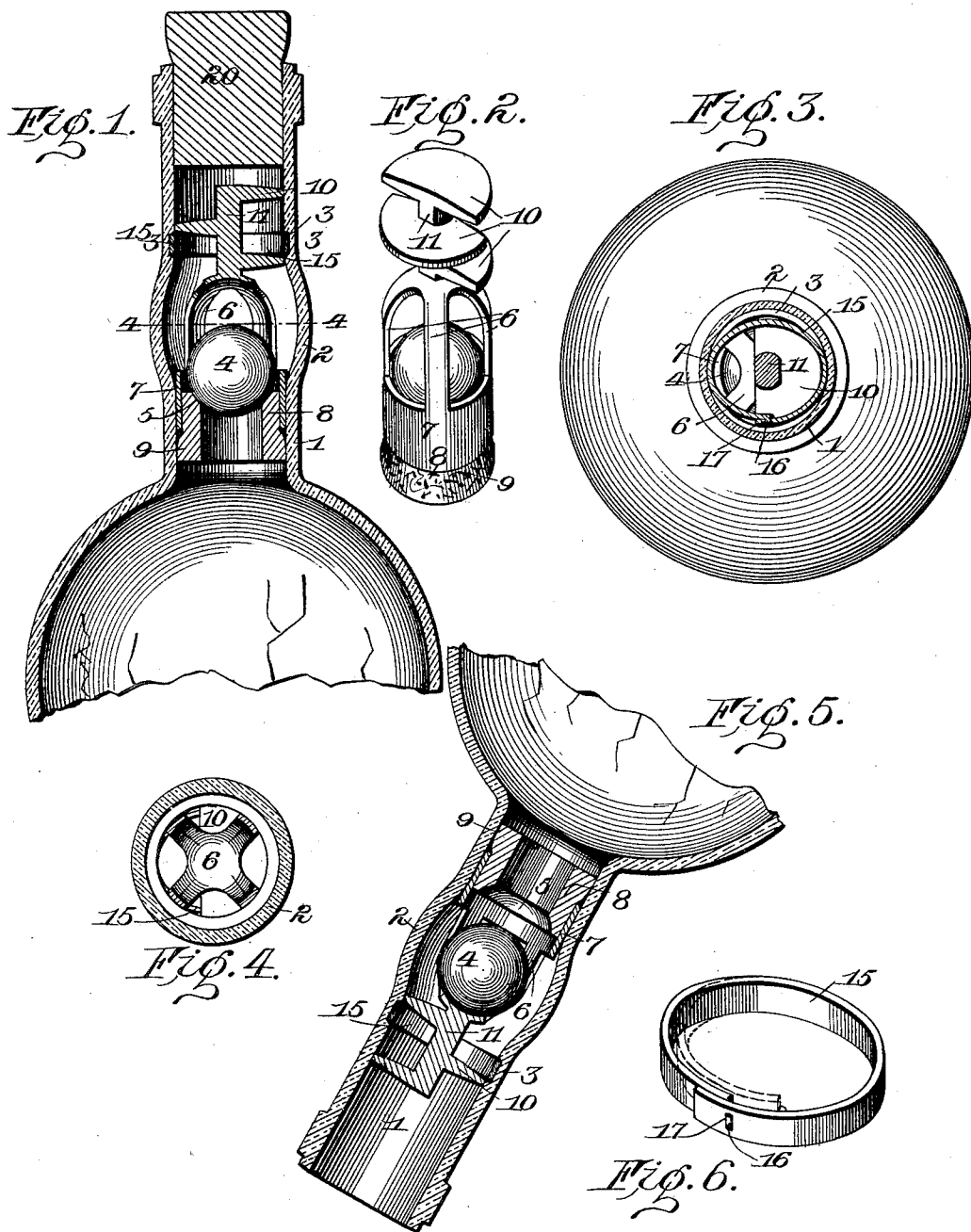
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Patented May 14, 1901.

C. D. LEONARD.
NON-REFILLABLE BOTTLE.

(Application filed Jan. 24, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

CHARLES D. LEONARD, OF ROCHESTER, NEW YORK.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 673,915, dated May 14, 1901.

Application filed January 24, 1900. Serial No. 2,677. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. LEONARD, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention has for one object to provide a bottle or other liquid-receptacle which cannot be refilled after its original contents have been removed, and has for its further object to provide an attachment adapted to be applied to the neck of a bottle after the latter has been filled which will only permit the free outward passage of the liquid and one which shall be simple and inexpensive in construction and capable of being made of a suitable material which will not injure the contents of the receptacle and can be applied to bottles not differing essentially from the ordinary bottles in use.

To these ends my invention consists in certain improvements in construction and combinations of parts, all as will be hereinafter fully described, and the novel features pointed out in the claims at the end of this specification.

In the drawings, Figure 1 is a vertical sectional view through the neck of a bottle, showing a bottle and stopper therefor constructed in accordance with my invention; Fig. 2, a perspective view of the stopper; Fig. 3, a sectional view on the line 3 3 of Fig. 1; Fig. 4, a similar view on the line 4 4 of Fig. 1 looking upward. Fig. 5 shows the bottle in an inverted position; Fig. 6, a detail view of the locking-spring or latch.

Similar reference-numerals in the different figures indicate similar parts.

Bottles to which my invention is adapted to be applied are not essentially different from those in use, but are preferably provided with the neck 1, having the straight internal bore and the enlarged or bulged portion 2 intermediate its ends, and above the latter in the preferred arrangement is provided an annular depression or recess 3, the function of which will be presently described. The at-

tachment or stopper is adapted to be inserted in the neck of the bottle and consists of a valve in the form of a ball 4, resting when in normal position upon a valve-seat 5, being centered thereon and permitted a longitudinal movement relatively thereof by guides 6. The guides curve inwardly over the ball a short distance above the top thereof, forming a cage, and are connected at their lower ends by a band or collar 7, into which is fitted and secured a hollow ring 8, of cork or similar elastic packing material, forming the valve-seat and having the lower projecting end 9 flaring outwardly slightly and engaging the inner surface of the bottle-neck to form a tight packing, as shown. Arranged above the valve-cage are a series of segmental plates or flanges 10, offset at different levels from a central stem 11, with their edges overlapping the passage in the neck of the bottle above the valve, forming an indirect passage to the valve and effectually preventing the insertion of any instrument whereby the valve might be held off its seat and at the same time affording a free passage for the liquid. The guides 6 are jointed at their upper ends in such a manner that the apertures formed between them extend above the center of the ball, so that in case a fraudulent attempt is made to refill the bottle by laying it upon its side the liquid as it is introduced will strike the upper side of the ball and force it upon its seat and seal the bottle. In order to allow a free passage for the liquid from the bottle, I have made the valve and valve-cage as large as possible and have also made the latter to fit the interior of the bottle-neck, and to permit the liquid to escape around the valve the neck is formed with an enlargement, as shown at 2, which permits a free egress of the liquid around the valve when the bottle is inverted and the ball moved off its seat. The device is locked in position in the bottle by any suitable means inaccessible from the top, such as a spring-catch (shown particularly in Fig. 6,) consisting of a band 15, of spring metal, bent into an oval form, having its ends overlapping, one of which is provided with the finger 16, adapted to engage in the aperture 17, formed in the opposite extremity. This catch or lock in the form shown when in operative position encircles the stem 11 be-

tween two of the flanges 10 and engages at the ends of the oval in the recess or depression 3. When inserted, the overlapping ends of the catch are sprung still farther together, 5 permitting the device to be passed into the neck of the bottle with the stopper or attachment and moved downwardly with the latter until the recess 3 is reached, when the spring action will cause it to expand and en- 10 gage the recess, the overlapping ends assuming their normal position, when the finger 16 will engage in the aperture 17, preventing the removal of the catch and permanently locking the attachment in position. The at- 15 tachment or stopper may be comparatively short and applied to bottle-necks of the usual length and the device inserted a sufficient distance below the upper end to allow a space for the application of the usual cork or seal 20 20. The device may be used with equal success in bottles formed with straight necks, the only change from the form of stopper described being the employment of a smaller ball-valve and valve-cage to provide a space 25 between it and the interior of the neck through which the liquid could pass.

Bottles provided with stoppers such as I have shown and described may be furnished cheaply, and the simple construction of the 30 device permits it to be made of a single piece of glass, porcelain, or similar material, which can in no way become injurious to the contents of the bottle. By employing a ball-valve and providing a seat for the latter com- 35 posed of cork or other suitable packing material, which also engages the neck of the bottle, I am enabled to provide a stopper that will positively close the bottle without the necessity of grinding the parts to a close and 40 accurate fit.

I claim as my invention—

1. The combination with a bottle and a valve-cage arranged therein having a collar, of an elastic packing-ring secured in the col- 45 lar forming a valve-seat therein and projecting beyond the edge thereof and engaging the bottle-neck below the collar, and a valve operating in the cage.

2. The combination with a bottle, of a valve-cage therein opening at the sides, the plates 50 above the valve preventing access thereto from above, and a collar upon the lower end of the cage, a packing-ring arranged in the collar forming a valve-seat and adapted to 55 engage the neck of the bottle below the collar, a valve operating in the cage, and means for locking the latter in the bottle-neck.

3. The combination with a bottle, of a valve-cage arranged therein, having the plates above 60 the cage forming an indirect passage thereto, and a collar upon the lower end of the cage, an elastic packing-ring secured in the collar forming a valve-seat therein and adapted to engage the bottle-neck below the collar, a 65 valve in the cage operating against the seat and means inaccessible from the exterior of the bottle for locking the cage in position.

4. An attachment for bottles to render the same non-refillable, consisting of a cage hav- 70 ing the collar upon its lower end, a valve therein, overlapping plates or projections above the cage, and a packing-ring secured to the collar to retain the valve and form a seat therefor and extending beyond the col- 75 lar to engage the bottle-neck and prevent the passage of liquid between the latter parts.

5. The combination with a bottle-neck hav- ing a recess, of a valve-cage having the collar upon its lower end and provided with the ap- 80 ertures arranged above the collar, the stem on the upper end of the cage having the over- lapping flanges forming an irregular passage above the cage, and an annular packing-ring secured to the said collar forming a valve- 85 seat therein and engaging the bottle-neck be- low the collar, a valve freely movable in the cage and normally engaging the seat, and a catch located between two of the flanges and engaging the recess in the bottle-neck.

6. In combination with a bottle-neck hav- 90 ing an annular recess, of a valve-cage having the collar upon its lower end and provided with the apertures arranged above the lat- ter, the stem upon the upper end of the cage having the overlapping flanges forming an 95 irregular passage to the cage, an annular packing-ring forming a valve-seat in the col- lar and projecting below the edge thereof to engage the neck of the bottle below the cage, a valve freely movable in the latter nor- 100 mally engaging the seat, and a spring-catch lying in the recess and engaging the proximate faces of two of the flanges to secure the valve-cage against removal.

7. In combination with a bottle-neck hav- 105 ing an annular recess, a valve-cage having the collar upon its lower end and provided with the apertures arranged above the latter, and the stem above the cage having the over- lapping flanges forming an irregular passage 110 to the cage, of an annular packing-ring secured to the collar forming a valve-seat there- in and extending below the edge thereof and engaging the bottle-neck, a valve freely mov- 115 able in the cage normally resting upon the seat, and a spring-catch lying in the recess in the bottle-neck having the interlocking ends and engaging the proximate faces of two of the flanges to secure the valve-cage against 120 removal.

8. In combination with a bottle-neck hav- ing an enlargement and provided with a re- 125 cess, a valve-cage containing a valve and hav- ing the apertures arranged opposite the en- largement in the bottle-neck, the annular packing-ring in the lower portion of the cage with which the valve engages and engaging 130 the sides of the bottle-neck, and the stem in the cage having overlapping flanges, of a spring-catch engaging the recess in the bot- tle-neck, and engaging between the proximate faces of two of the flanges, having the over- lapping ends, one of which is provided with an aperture and the other having a finger en-

gaging said aperture to lock the catch when in engagement with the recess.

9. An article of manufacture adapted to be applied to bottles to render the same non-refillable, consisting of a body having a plurality of laterally-extending portions, open at the sides, and a cage beneath, open at the lower end, said lateral portions forming with the bottle-neck an indirect passage to the cage, an annular packing-ring in the lower end of the cage adapted to cooperate with the edges of the bottle-neck and a valve confined within the cage by and cooperating with the central opening in the packing and means inaccessible from the upper end locking the device in the neck of a bottle.

10. The combination with a bottle-neck having an annular recess 3 therein, a valve-cage

having the collar 7 upon its lower end and provided with the apertures arranged above the latter, and the stem 11 above the cage having the overlapping flanges 10 forming an irregular passage to the cage, of an annular packing-ring 8 secured to the collar forming a valve-seat 5 and extending below the edge of the collar and engaging the bottle-neck, a valve 4 freely movable in the cage normally resting upon the seat, and a spring-catch 15 lying in the recess 3 having interlocking ends and engaging the proximate faces of two of the flanges 10 to secure the valve-cage against removal.

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