

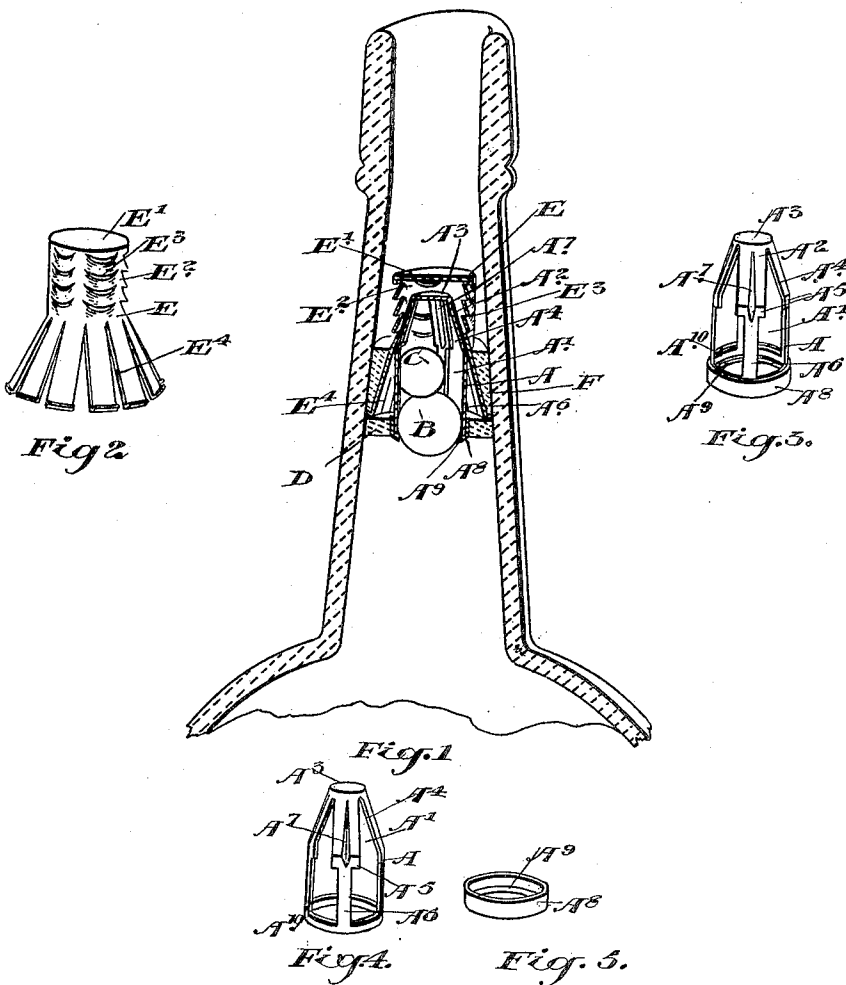
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NON-REFILLABLE BOTTLE ATTACHMENT.

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Witnesses.

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NON-REFILLABLE-BOTTLE ATTACHMENT.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, EDWARD ALAN SULLIVAN, mechanical engineer, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, THOMAS WILLIAM PRITCHARD, insurance broker, of Germantown, county of Philadelphia, in the State of Pennsylvania, and RODMAN W. C. ELLISON, gentleman, of Bryn Mawr, Montgomery county, in the State of Pennsylvania, have invented certain new and useful Improvements in Non-Refillable-Bottle Attachments, of which the following is the specification.

Our invention relates to improvements in non-refillable-bottle attachments; and the object of the invention is to devise an attachment of this class which may be applied to any ordinary style of neck, and thereby obviate the necessity of forming the neck specially, and which when placed in the neck will be securely held therein and will allow of the free steady flow of the liquid when being poured, and yet effectually prevent the ingress of foreign liquids and the consequent adulteration of the liquid contained in the bottle or the substitution of an inferior liquid for the original, and subsidiary objects are to make the device so simple and cheap in construction that it may be introduced generally, and to so construct the device that its effective operation cannot be interfered with by tampering without destroying it; and it consists, essentially, of an open cage provided with a tapered upper portion having reverse V-shaped notches extending upwardly into the tapered portion of a narrower width than the main openings of the cage, so as to form projecting shoulders, internal ribs formed in the inclined portion of the bars formed between the reverse V-shaped notches, the top of the cage being preferably flat and the bottom being in the form of an annulus, a collar fitting around the annulus provided with an inwardly-extending flange, the major and minor balls fitting within the cage, the major ball having its seat on the flange and the minor ball its seat on the major ball, a ring fitting outside of the collar and the neck of the bottle, such ring being of yielding material and suitably cemented in position in the neck, a hood formed with an upper cylindrical portion having louver-like openings in the periphery and a flat top and the lower

portion cone-frustum-shaped and slitted, the hood being formed of spring metal, so as to allow of the slitted portion to yield as the hood is being pushed down into position in the neck, the bottom of such hood being designed to rest on the flexible ring, and a filling of any suitable cement surrounding the cone-frustum-shaped portion of the hood and having the top preferably impressed with a trade-mark of the owner, the parts being otherwise constructed and arranged as hereinafter more particularly explained.

Figure 1 is a sectional perspective view showing my improved attachment. Fig. 2 is a perspective view of the hood. Fig. 3 is a perspective view of the cage. Figs. 4 and 5 are perspective details of the two portions of the cage.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the cage, formed with the openings A', as indicated, and the tapered upper portion A², having preferably the flat top A³. The tapered portion A² is provided with reverse V-shaped notches A⁴, which are narrower than the openings A', and thereby form shoulders A⁵ on each side of the openings, as indicated. The bars A⁶, formed between the openings, are consequently narrower at the bottom than at the top, and at the top where the bar inclines and is wider it is provided with inwardly-extending narrow longitudinal ribs A⁷. The bottom of the cage is in the form of an annulus A¹⁰.

A⁸ is a collar which is provided with an inwardly-extending flange A⁹, which forms a seat for the major ball B.

The minor ball C rests on top of the major ball, and the openings A' are so wide that when the bottle is tilted to pour out the liquid and the minor ball C runs up into the tapered portion A² the minor ball C will as the bottle is being restored to its normal position pass quickly down the ribs A⁷ and V-shaped notches A⁴ into the openings A' and protrude beyond the circumference of the cage, as indicated in Fig. 1, thereby always quickly and effectually forcing the major ball back on its seat.

The ribs A⁷ and the reverse-V-shaped notches A⁴ materially insure the rapidity of the movement of the minor ball and prevent any water seal of the ball in the top of the

cage. The bars of the cage being formed with shoulders A⁵ and the ball passing down between the openings A' beneath the shoulders A⁵, such ball is held in position between two opposing shoulders A⁵ and the bottom ball. The effect of this construction is that the ball is practically wedged in place, so that should any attempt be made to shake the valve, so as to shake liquor into the bottle when placed in the neck, such attempt will meet with failure.

D is a ring made of yielding material, which is passed down into the neck with the collar A⁷ and suitably cemented in position.

E is the hood, which is made with a flat top E' and a cylindrical portion E², having a series of louver-like openings E³ arranged in vertical sets. The lower portion of the hood is provided with a series of slits E⁴, and the hood being made of spring metal allows of the contraction of the lower portion, which is formed in a cone-frustum shape. It will thus be seen that the hood may be forced down into the neck of the bottle into position. When in position, it will rest upon the ring D.

F is an annular filling of a suitable cement, such as plaster-of-paris, which is placed around the cone-frustum shaped bottom of the hood. The top of the filling is suitably impressed when soft with the trade-mark of the owner.

It will be seen from the formation of the hood with the louver-like openings that it will be impossible to insert any wire in the louver-like openings, which incline upwardly from the outside, and consequently the valves cannot be tampered with.

It will now be seen from the construction herein described that the liquid may be poured out of the bottle when it is tilted and will pass directly through the openings to and through the louver-like openings and then out. The louver-like openings we find in practice form a means at one side to allow of the air to pass up into the bottle through the openings in the cage, and the ball being removed from its seat allows the liquid to pass around the same and out through the lowermost louver-like openings.

We find in practice that such a construction as we describe allows of the liquid to pass out without any stoppage in its flow, there being no gurgling, but a constant supply of air, and consequently a steady flow of liquid outwardly.

From what has been heretofore described it will be understood that should any attempt be made to refill the major ball will always pass immediately to its seat, and thereby any ingress of the liquid into the bottle is obviated. The minor ball normally protrudes outside of the periphery of the cage, so as to hold the valve-ball on its seat; but as soon as the bottle is tilted or shaken to pour out the

liquid the minor ball falls from its locked position and allows the major ball to pass from its seat and the free egress of the liquid to occur.

From the construction we have described it will be understood that the rapidity of the discharge does not in any way depend on the amount of liquid remaining in the bottle.

What we claim as our invention is—

1. A non-refillable-bottle attachment comprising a lower portion or cage having an inwardly-extending flange, a ring formed of yielding material surrounding such lower portion and adapted to be suitably cemented in the neck, and a ball having a seat on the inwardly-extending flange, and a hood fitting over the cage and provided with louver-like openings in its periphery as and for the purpose specified.

2. A non-refillable-bottle attachment comprising a lower portion or cage having an inwardly-extending flange, a ring formed of yielding material surrounding such lower portion and adapted to be suitably cemented in the neck and a major ball having a seat on the inwardly-extending flange and a minor ball designed to rest on the major ball and protrude through one of the openings in the cage when in the normal position as and for the purpose specified.

3. A non-refillable-bottle attachment comprising a lower portion or cage having an inwardly-extending flange, a ring formed of yielding material surrounding such lower portion and adapted to be suitably cemented in the neck, and a ball having a seat on the inwardly-extending flange, a hood fitting over the cage and provided with louver-like openings in its periphery and a slitted cone-frustum-shaped bottom portion, the bottom of which is designed to rest on the ring aforesaid as and for the purpose specified.

4. A non-refillable-bottle attachment comprising a lower portion or cage having an inwardly-extending flange, a ring formed of yielding material surrounding such lower portion and adapted to be suitably cemented in the neck, and a ball having a seat on the inwardly-extending flange, a hood fitting over the cage and provided with louver-like openings in its periphery, a slitted cone-frustum-shaped bottom portion, the bottom of which is designed to rest on the ring aforesaid and a filling of cement located peripherally outside the cone-frustum-shaped bottom of the hood as and for the purpose specified.

5. In a non-refillable-bottle attachment, a lower portion consisting of an open cage tapered at the top and having reverse-V-shaped notches forming an upward extension of the openings of the cage as and for the purpose specified.

6. In a non-refillable-bottle attachment, a lower portion consisting of an open cage tapered at the top and having reverse-V-shaped

notches forming an upward extension of the openings of the cage and shoulders at the bottom of the tapered portion as and for the purpose specified.

5 7. In a non-refillable-bottle attachment, a lower portion consisting of an open cage tapered at the top and having reverse-V-shaped notches forming an upward extension of the openings of the cage, the bars between the
10 openings being provided with ribs on the inside of the inclined portion as and for the purpose specified.

8. In a non-refillable-bottle attachment, a hood comprising a cylindrical portion with a flat top and louver-like openings in the cylindrical portion and a slitted cone-frustum-shaped bottom portion as and for the purpose specified. 15

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