

No. 610,311.

Patented Sept. 6, 1898.

H. STARCK.  
NON-REFILLABLE BOTTLE.

(Application filed June 21, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

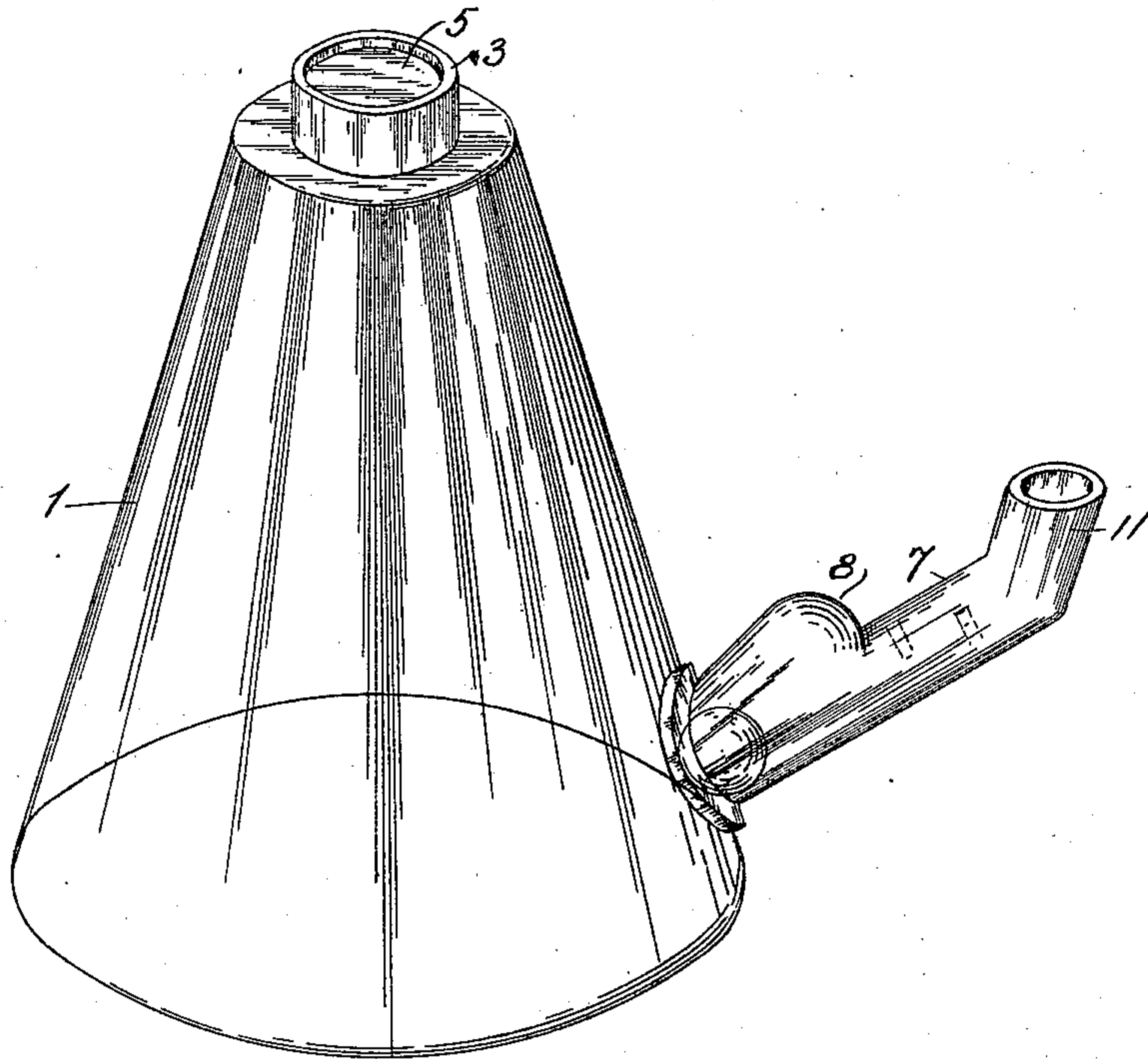
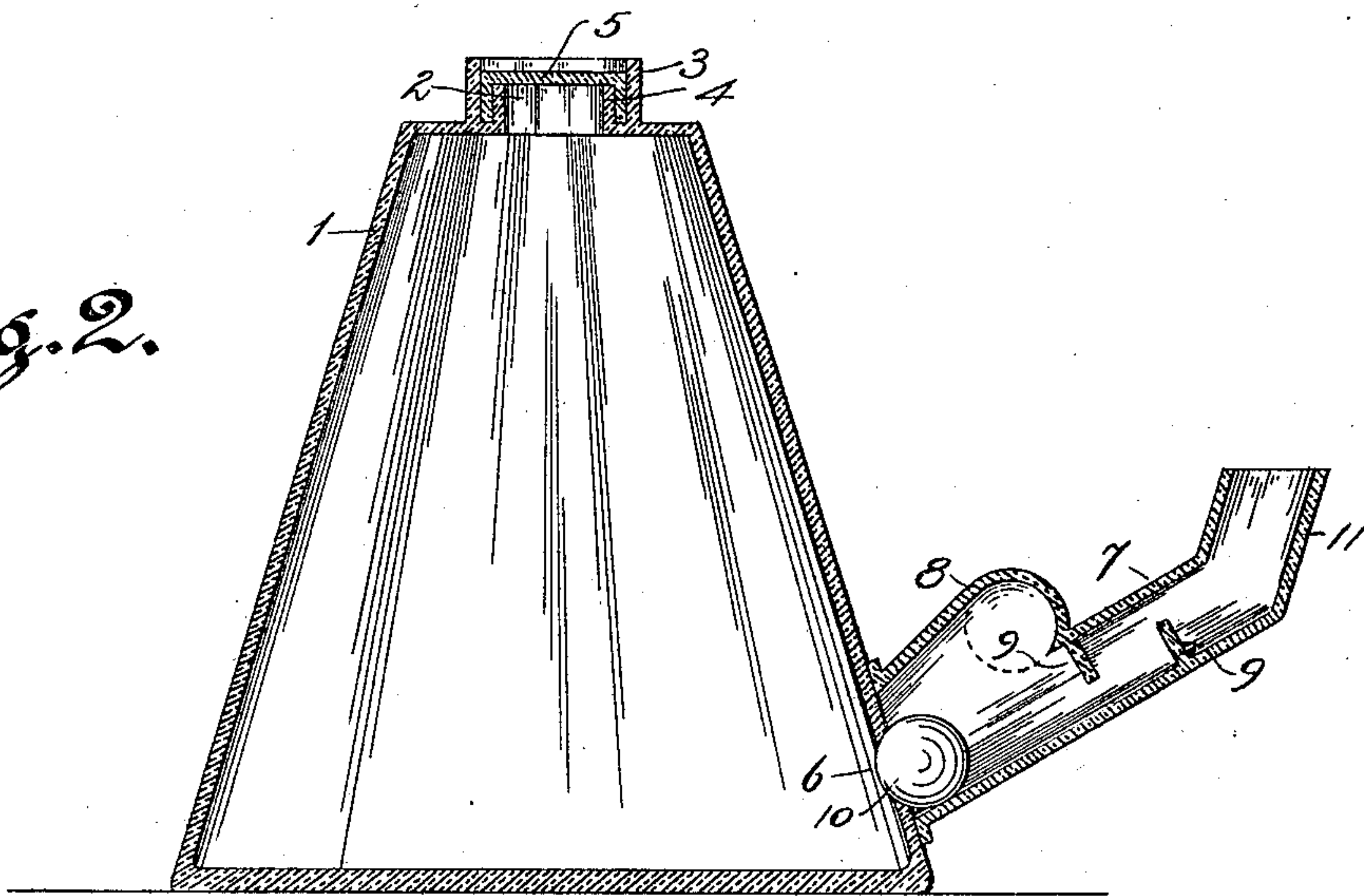


Fig. 2.



WITNESSES

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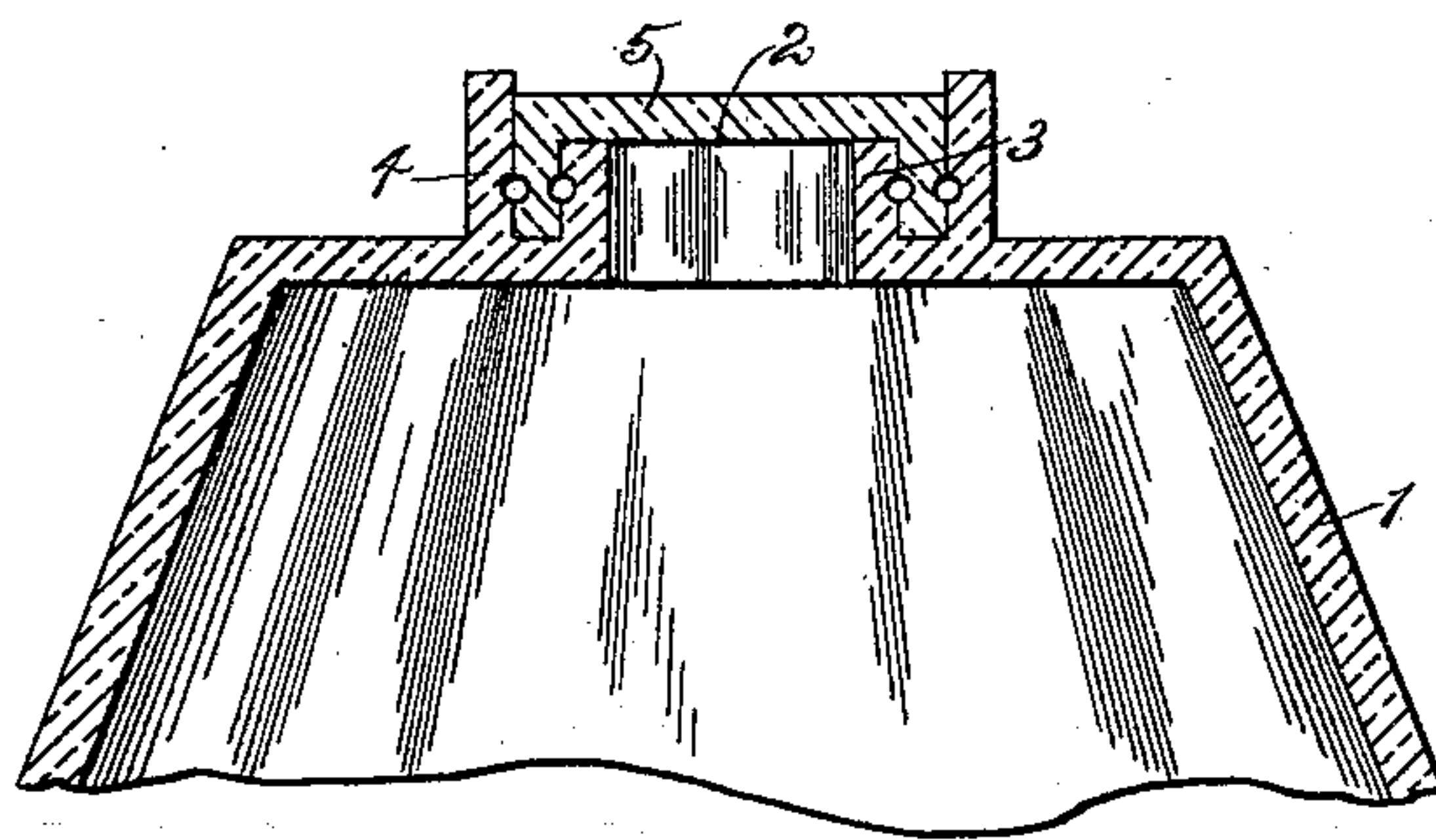
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Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 610,311, dated September 6, 1898.

Application filed June 21, 1897. Serial No. 641,666. (No model.)

*To all whom it may concern:*

Be it known that I, HALVAR STARCK, of Davenport, in the county of Scott and State of Iowa, 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 invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to non-refillable bottles; and its object is to provide an improved form of the device which shall be adapted for the purposes specified and which may be cheaply constructed.

To this end my invention consists of a bottle which may be blown, molded, or otherwise shaped from glass or other material, provided with certain novel features of construction that are hereinafter fully set forth and claimed.

In the accompanying drawings, Figure 1 is a perspective view of my device. Fig. 2 is a section therethrough. Fig. 3 is a detail of the neck of the bottle, showing a construction provided with cement-grooves.

It will be noted that this bottle is in reality provided with two necks, the filling-neck and the emptying-neck, and that the last-mentioned one must be formed separately and attached thereto.

The numeral 1 indicates the body portion of my device, which is made of any desired form, as round, square, elliptical, or as fancy may dictate. I have shown in the drawings a conical form having an extended base, which for emptying purposes ought in all the forms to be curved upward.

An opening 2 is made in the upper part of my bottle and is surrounded by a projecting annulus 4, having a second similar annulus 3 formed outside thereof. I preferably form the second annulus to project slightly above the first, creating in such a way a place where the one who sells the filled bottle can put his trade-mark, seal, or any other designation in sealing-wax, plaster-of-paris, or any other suitable material. The annuli ought, preferably, to be concentric.

A cap 5 is adapted to be inserted within the annulus 4 after the bottle is filled and is there

secured by any suitable means, as cement, plaster-of-paris, &c. This cap has a downwardly-projecting annular flange that is adapted to fit between the two annuli 3 and 4, and in the construction of the flange it is provided with a horizontal groove corresponding with a similar groove either on annulus 3 or on annulus 4, or on both, which, filled with the fastening material, effectually prevents the removal of the cap by any other means than by completely destroying this part of the bottle.

At the lower portion of the bottle and a little above the base is fastened the neck which is used in emptying the bottle, and this is formed by a tubular extension made separately for inserting the glass ball forming the ball-valve appertaining thereto and will now be described.

The numeral 6 indicates the opening from the neck to the body of the bottle, and extending therefrom is the neck 7, having an enlarged portion 8 therein containing a projection to support the ball-valve in certain positions. Partitions 9 extend horizontally from each and opposite sides when the bottle is upright, at least half the diameter of the neck, to prevent the insertion of any flexible filling-tube into the bottle when it is kept in an inverted position and when the ball-valve does not stop the opening in the bottle. The upper one of these partitions serves a further purpose in that by means thereof the device is particularly adapted for use as an ink-bottle, since the upper portion serves to retain a small portion of the liquid contained in the bottle. This, it will be plain, affords a place in which a pen may be dipped and at the same time prevents too great a quantity of ink being taken up thereby. A further use of the peculiar adaptation of this partition is that medicine may be moved therefrom by means of the ordinary medicine-dropper.

It is of special importance that the opening 11 should be higher than the upper part of the opening in the bottle when it is standing on its base, as will be explained below. It is also of importance that the opening 6 is large enough to allow the ball-valve to be inserted, and consequently larger than the opening in the bottle. The opening in the



bottle receiving the ball-valve is made with a spherically-beveled face to form a seat for the ball-valve, thus forming a perfect closure. It will also be here noted that the enlarged portion of the neck is formed so as to receive and by the projection hold the ball-valve when the bottle is turned upside down to be emptied and is of such a size that the ball-valve when held therein cannot interfere with the free passage of the contents of the bottle when it is desired to pour the same therefrom; but it must be constructed so that the ball-valve presents at least half of its diameter above the outpouring part of the neck, so that an ingoing fluid can strike it and force it up to the opening in the bottle if, as shown below, vacuum should be created in the bottle. It is also plain that the opening 11 must be turned upward, as shown in the drawings, because if not done it would not prevent a fluid from entering the opening in the bottle when it is turned up and down and immersed with the principal direction of the neck parallel with the surface of the fluid.

To fill the bottle: After it is rinsed with both necks open a cork or other kind of a stopper is inserted in the opening 11 and the bottle is filled through the opening 2, not quite full, leaving a little space between the surface of the fluid and the stopper in the upper part of the bottle. When that is done, the cap 5 is put on and secured as above described.

To empty the bottle: The stopper is removed from the opening 11 and the bottle is turned upside down. The little air left in the bottle during filling will again be uppermost and is enough to permit the first portion of the fluid to be poured out through the emptying-neck. When there has been poured out as much as desired, the bottle is turned over and placed on its base. The pressure of the exterior air prevents the contents from rising in the neck higher than a line drawn horizontally through the top point of the opening into the body of the bottle. The ball-valve prevents any evaporation of the contents as well as any attempt to dilute the same with any other liquid.

It is impossible to refill this bottle, for in an upright position, even if no ball-valve was placed in the lower neck, the bottle could not be filled farther than to the horizontal line passing through the upper point of the opening in the body of the bottle, but the ball-valve prevents even this. The ball-valve prevents also the bottle being refilled in any other position in which the bottle may be placed with the emptying-neck turned up. The two partitions prevent the insertion of a flexible tube to refill the bottle even in an inverted position, as they completely occupy the cross-sectional area of the neck. It will also be impossible to refill the bottle when immersed in any fluid, for with the upper or filling neck turned upward and the base downward not only the air inclosed in the bottle

but also the ball-valve prevents any fluid from entering the bottle.

When, with the bottle inverted and the ball-valve free from the opening, the bottle is immersed in the fluid, the opening or mouth of the neck strikes the surface of the fluid, thus inclosing the air therein and preventing any fluid entering. If from this position the bottle is brought to a horizontal position, the partitions in the neck will come into play. The one that in this position is uppermost will prevent the air from escaping from the bottle, while the other will prevent the fluid from entering therein. If the bottle be turned farther, the ball-valve falls down and closes the opening. In all positions between the two last mentioned it is easily understood that either the ball-valve or the partitions will prevent the fluid from entering and the air escaping.

If an attempt be made to fill the bottle by evacuating the air therefrom and inverting the bottle in any fluid, the intruding fluid will strike that part of the ball that projects into the neck, (the ball being, as above stated, in the recess when the bottle is inverted,) thus forcing the same to seat itself in the opening and firmly close the valve. The pressure of the air will add materially to this effect. It is consequently impossible to refill this bottle, either partially or entirely, since it can only be filled as at first before the filling-neck is sealed up. I have thus invented in this bottle a simple and effective device which once filled and sealed cannot again be used. It is thus well adapted for patent medicines, wines, fine liquors, ales, perfumes, &c., or, in other words, for all liquid preparations the manufacturers of which use their own special bottles and are desirous of preventing the refilling thereof with spurious imitations.

Having described my invention in detail and set forth the various uses thereof, I claim as new and desire to secure by Letters Patent—

1. In a non-refillable bottle, the combination with a body portion provided with a pair of openings therein, one of said openings being located at the upper end of said body portion, and the other thereof being located in the lower part of said body portion, of means for permanently sealing the opening of the upper part of the body portion, a neck leading from the other opening, a ball held in said neck which is adapted to receive and hold the ball, diaphragms extended partially across said neck, a valve-seat formed in said neck, a lateral enlargement formed upon said neck, and an upturned end formed thereon.

2. In a non-refillable bottle, the combination with a body portion having a broadened base, an opening in the top thereof and an opening in the side thereof near said base, of means for hermetically and permanently sealing the first-mentioned opening, a neck leading from the other opening, a ball-valve held in said neck, and a seat therefor, an enlarge-



ment formed in one side of said neck clear of the passage therethrough, adapted to receive and hold the ball-valve when the contents of the bottle are being poured therefrom, diaphragms extending partially across said neck, and an upturned end formed thereon.

3. In a non-refillable bottle, the combination with a body portion provided with a pair of openings therein, one of said openings being located at the upper end of said body portion and the other thereof being located in the lower part of said body portion, of means for permanently sealing the opening in the upper part of the body portion comprising a pair of annular flanges surrounding said opening and a cap having an annular flange thereon adapted to fit between said pair of flanges and cover said openings, a neck leading from the other opening, a ball-valve held in said neck, a lateral enlargement formed upon said neck adapted to receive and hold the ball, diaphragms extended partially across said neck and an upturned end formed thereon.

4. In a non-refillable bottle, the combination with a body portion having a broadened base, an opening in the top thereof and an opening in the side thereof near said base, of means for hermetically and permanently sealing the first-mentioned opening comprising a pair of annular flanges surrounding said opening and a cap having an annular flange thereon adapted to fit between said pair of flanges and cover said openings, a neck leading from the other opening, a ball-valve held in said neck, and a seat therefor, an enlargement formed in one side of said neck clear of the passage therethrough, adapted to receive and hold the ball-valve when the contents of the bottle are being poured therefrom, diaphragms extending partially across said neck, and an upturned end formed thereon.

5. In a non-refillable bottle, the combination with a body portion provided with a pair of openings therein, of a permanent closure for one of said openings comprising a pair of annular flanges surrounding said opening and having cement-grooves therein and a cap having an annular flange thereon provided with cement-grooves to correspond with the grooves on the before-mentioned flanges and adapted to fit between said flanges and cover said opening, a neck leading from the other opening, a ball-valve held in said neck, a lateral enlargement formed upon said neck adapted to receive and hold the ball, and diaphragms extending partially across said neck, one of

which is adapted to receive a portion of the liquid contained in the bottle.

6. In a non-refillable bottle, the combination with a body portion provided with a pair of openings therein, one of said openings being located at the upper end of said body portion and the other thereof being located in the lower part of said body portion, of means for permanently sealing the opening in the upper part of the body portion comprising a pair of annular flanges surrounding said opening and having cement-grooves therein and a cap having an annular flange thereon provided with cement-grooves to correspond with the grooves on the before-mentioned flanges and adapted to fit between said pair of flanges and cover said opening, a neck leading from the other opening, a ball-valve held in said neck, a lateral enlargement formed upon said neck adapted to receive and hold the ball, and diaphragms extending partially across said neck, one of which is adapted to receive and hold a portion of the liquid contained in the bottle.

7. In a non-refillable bottle, the combination with a body portion having a broadened base, an opening in the top thereof and an opening in the side thereof near said base, of means for hermetically and permanently sealing the first-mentioned opening comprising a pair of annular flanges surrounding said opening and having cement-grooves therein and a cap having an annular flange thereon provided with cement-grooves to correspond with the grooves on the before-mentioned flanges and adapted to fit between said pair of flanges and cover said opening, a neck leading from the other opening, a ball-valve formed in said neck, a seat therefor, an enlargement formed in one of said necks clear of the passage therethrough, adapted to receive and hold the ball of the ball-valve when the contents of the bottle are being poured therefrom, diaphragms extending partially across said neck, one of which is adapted to receive and hold a portion of the liquid contained in the bottle, and an upturned end formed thereon.

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

HALVAR STARCK.

Witnesses:

JOHN LORENZUS,  
A. F. KOCH.