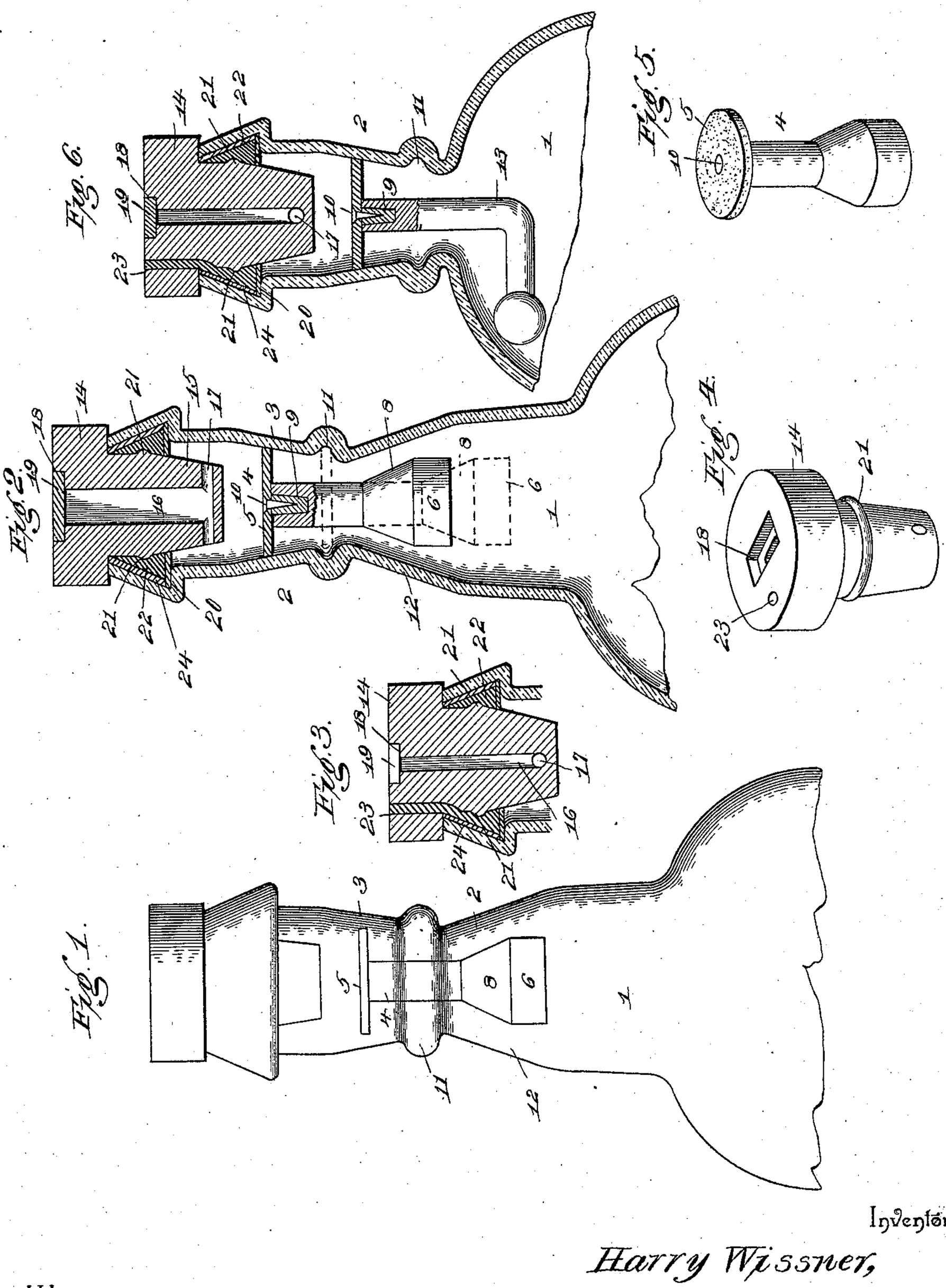
(No Model.)

H. WISSNER.

NON-REFILLABLE BOTTLE.

No. 577,094. Patented Feb. 16, 1897.



Inventor

Harry Wissner,

Witnesses

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UNITED STATES PATENT OFFICE.

HARRY WISSNER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE WISSNER NON-REFILLABLE BOTTLE COMPANY, OF SAME PLACE.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 577,094, dated February 16, 1897.

Application filed February 23, 1895. Serial No. 539,403. (No model.)

To all whom it may concern:

Be it known that I, HARRY WISSNER, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Non-Refillable Bottle, of which the following is a specification.

The invention relates to improvements in bottles.

The object of the present invention is to provide a bottle which will absolutely prevent refilling and which will have a valve adapted to conform to any irregularity in the formation of a bottle and capable of automatically locking itself in a closed position should any attempt be made to refill the bottle.

A further object of the invention is to prevent any tampering with the valve and to provide a stopper which cannot be withdrawn from the neck of a bottle without breaking the same.

Another object of the invention is to provide such a bottle capable of being filled in the first instance as readily as the ordinary construction of bottles holding valuable liquids.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is an elevation of a bottle constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detail sectional view of the stopper and the upper end of the neck of the bottle. Fig. 4 is a detail perspective view of the stopper. Fig. 5 is a similar view of the valve. Fig. 6 is a vertical sectional view illustrating a modification of the invention.

Like numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a bottle the neck 2 of which is provided with a slight downward contraction or tapering portion 3, forming the seat for a valve 4, consisting of a disk or plate 5 for closing the neck of the bottle and a weight 6 for holding the working surface of the plate or disk 5 on the seat 4. The plate or disk 5 is constructed of paper or similar flexible material capable of being quickly affected by a liquid and of swelling and of conforming to the configuration of the neck of the bottle irrespective of any irregularity in the formation of the bottle. The weight 6 is preferably formed of a straight stem of porcelain or similar material and is provided at its bottom with an enlarged tapered or conical portion 8. The upper end of the stem is provided with a socket receiving a plug 9 of wood adapted to enable a fastening device 10 to be driven into the stem or weight 6 for attaching the valve-plate 5, but a wooden peg may be employed for securing the valve-plate to the stem, or any other desired form of fastening device may be used.

The neck of the bottle is provided at the base of the tapered portion or seat 3 with an interior annular groove 11, of the same diameter as the valve-plate 5 and adapted to receive the same when any pressure is exerted on the valve incident to an attempt to force liquid into the bottle for refilling the same. The most common expedient for refilling bottles is the use of the pump, and it has been found by experience that the slightest pressure incident to pumping liquid into the bottle will force the flexible valve-plate into the trap-groove, thereby securely closing the neck of the bottle and preventing any liquid from entering or leaving the same. Paper has been found sufficiently susceptible to a liquid to swell or expand instantly and conform to the interior of the neck of the bottle, and it is sufficiently flexible to be readily forced into the trap-groove, and in either position it will prevent a liquid leaking past it.

The interior of the neck of a bottle is never a true circle or perfectly cylindrical, but is always slightly irregular, and this irregularity is mostly caused by the shrinking of the glass after the bottle has been blown, and if a valve be constructed of glass, porcelain, or similar material incapable of swelling it is impossible to obtain a firm and perfect fit between the bottle and the valve, and the slightest intervening space will enable the bottle to be filled by means of a pump.

The neck of the bottle has an upwardly-tapering portion 12 below the trap-groove 11 to permit the weight to pull inward on the

valve-plate 5 when the bottle is in a horizontal or nearly horizontal position; but instead of employing the tapered portion 12 the trap-groove may be arranged at the base of the neck, with the lower portion of the stem or weight within the bottle, and in this form it is preferable to use an L-shaped stem or weight 13, as illustrated in Fig. 6 of the accompanying drawings.

The bottle is provided with a porcelain stopper 14, having an enlarged head and provided with a reduced shank 15, fitting within the upper end of the neck of the bottle. The head is preferably cylindrical and has a flat upper face, and the stopper is provided with a longitudinal discharge-opening 16, having lateral branches 17 at the lower end of the stopper. The lateral branches 17 are arranged at right angles to the longitudinal opening, and this form of discharge-opening prevents any liability of a wire or other instrument being inserted into the neck of the bottle and tampering with the valve. The stopper is provided in its outer end with a rectangular recess 18 for the reception of a plug 19 for closing the discharge-opening, and the plug is preferably constructed of paper and is designed to be sealed in any suitable manner.

In order to prevent the stopper from being withdrawn from the neck of the bottle, the neck is provided at its upper end with an annular recess 20, substantially V-shaped in vertical section, and forming a horizontal or flat shoulder or seat, and a tapered or inclined portion or top. The shoulder formed by the head of the stopper rests upon and fits against the upper edge of the neck and avoids the necessity of finishing the bottle.

The stopper coöperates with the annular recess to form a pocket, and the shank 15 of the stopper is provided with a rib 21, and a flange 22 is formed on the shank by pouring molten metal into the space between the shank and a recess 20. The stopper is provided with a perforation or bore 23, communicating with the recess 20 and extending from the top of the stopper to a point below the head thereof, and a lining 24, of paper, is arranged in the recess to prevent the heat of the metal from cracking the glass of the bottle. The lining 24 is composed of a horizontal disk arranged on the shoulder or seat of the recess and a conical portion fitting against the tapered upper extremity of the neck. The flange 22 is formed of lead, which is easily melted and may be readily poured through the filling-passage 23, and the rib 21 enables it to obtain a hold on the shank of the stopper. This construction will prevent any liability of the stopper being extracted from the neck of the bottle without breaking the same.

It will be seen that the bottle is extremely simple and inexpensive in its construction, that it is capable of preventing refilling, and will prevent an imitation liquid being sold in original bottles as genuine. It will also be apparent that the valve is adapted to conform to any irregularity of the bottle, and that any attempt at refilling will automatically lock the valve in a closed position and will prevent any liquid being introduced to or poured from the bottle.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

What I claim is—

1. A bottle provided in its neck with a valve-seat and having below the same a trap-groove, combined with a valve having a flexible plate arranged within the neck on the seat, and being of a size to fill the trap-groove, and adapted to be forced into the same, whereby the valve-plate is locked against upward and downward movement to prevent any liquid entering or leaving the bottle, substantially as and for the purpose described.

2. A bottle provided at its neck with a tapered portion forming a seat, said bottle being provided below the seat with a trap-groove, combined with a valve comprising a flexible plate arranged on the seat and being of a size to fill the trap-groove, whereby the valve-plate is locked against upward and downward movement, to prevent any liquid entering or leaving the bottle, and a weight for holding the valve-plate on the seat, substantially as described.

3. A bottle provided in its neck with an interior valve-seat and having below the same a trap-groove, combined with a valve comprising a paper plate of a size to fill the trap-groove, and a rigid stem forming a weight for holding the plate on the seat, substantially as described.

4. The combination of a bottle provided at its neck with an interior groove, and having an upwardly-tapered portion below the groove and provided above the same with a downwardly-tapered portion forming a valve-seat, and a valve comprising a paper plate, and a stem secured to the plate and depending therefrom and having its lower portion tapered and enlarged, substantially as described.

5. The combination of a bottle, provided at its top with a recess, forming a horizontal seat, a stopper fitting within the bottle and combining with the recess to form a pocket, and provided with a bore communicating with the pocket and provided with a discharge opening or passage, a heat-non-conducting lining, arranged in the recess and fitting against the bottle, and a flange formed on the stopper and consisting of metal poured through the bore into the recess in a melted condition, substantially as described.

6. The combination of a bottle, provided at the top of its neck with an interior recess, a stopper combining with the recess to form a pocket and having a shank and provided with a head and fitting within the neck of the bottle and resting upon the upper end thereof,

said stopper being provided with a discharge opening or passage and having a filling opening or perforation communicating with said pocket, and the shank of the stopper being provided with an exterior rib, a lining non-conducting to heat arranged in the pocket, and a flange formed on the shank and consisting of metal poured into the recess through the filling opening or perforation when in a melted condition, substantially as described.

7. In a stopper, the combination of a valve-seat having a slight downward contraction, a valve having a working surface resting upon the valve-seat, means for holding the valve upon its seat, and means for compressing the valve in the valve-seat and locking it when subjected to abnormal pressure, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HARRY WISSNER.

Witnesses:
JOHN H. SIGGERS,
CORA I. SIGGERS.