

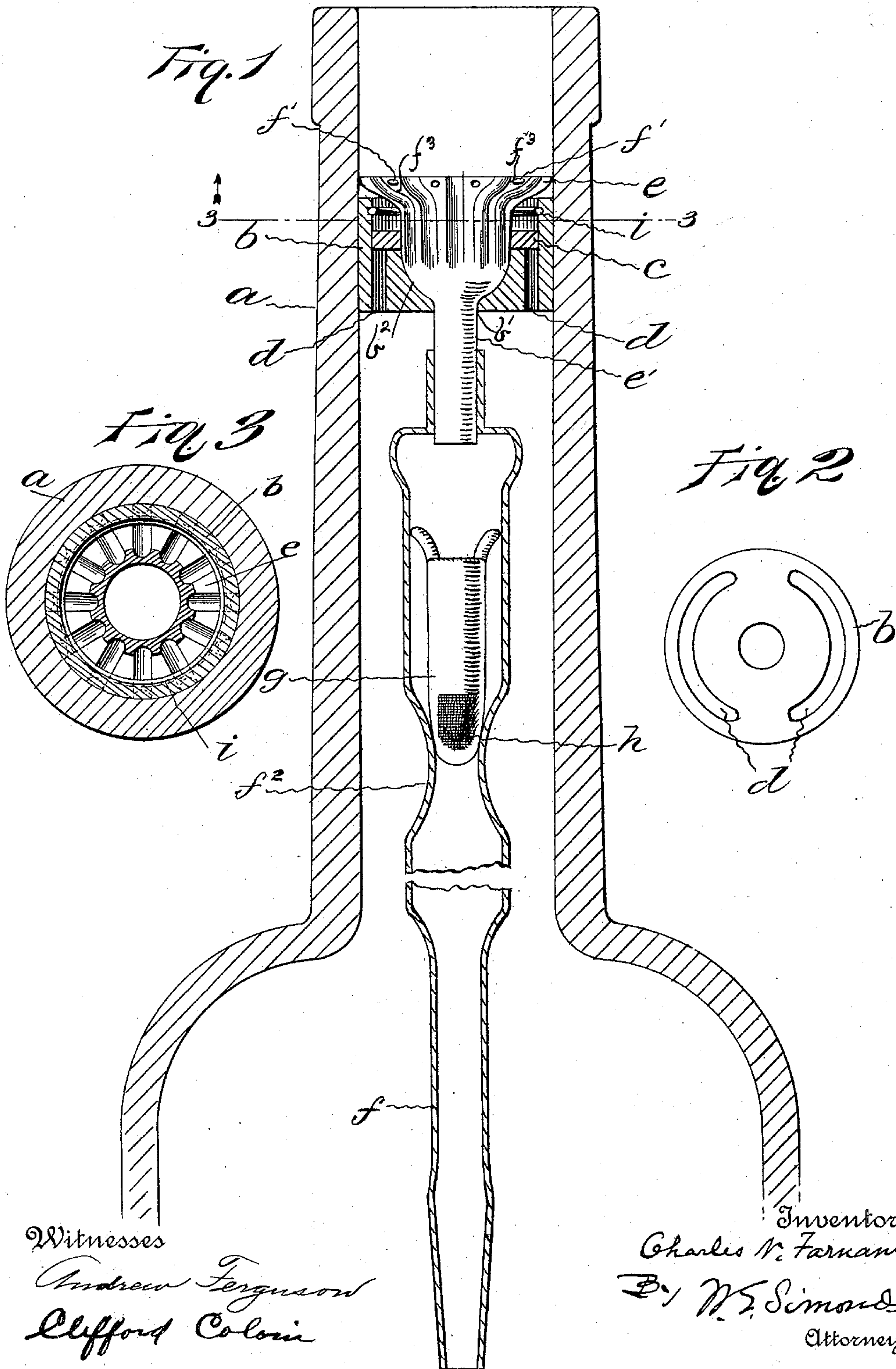
No. 609,988.

Patented Aug. 30, 1898.

C. N. FARNAM.
BOTTLE FILLER GUARD.

(Application filed July 6, 1895.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES N. FARNAM, OF HARTFORD, CONNECTICUT, ASSIGNOR OF FIVE-EIGHTHS TO ALEXANDER HARBISON AND WILBUR S. STEELE, OF SAME PLACE.

BOTTLE FILLER-GUARD.

SPECIFICATION forming part of Letters Patent No. 609,988, dated August 30, 1898.

Application filed July 6, 1895. Serial No. 555,174. (No model.)

To all whom it may concern:

Be it known that I, CHARLES N. FARNAM, a citizen of the United States of America, residing at Hartford, in the county of Hartford and State of Connecticut, have invented a certain new and useful Improvement in Bottle Filler-Guards, of which the following is a description, reference being had to the accompanying drawings, wherein—

Figure 1 is a view in central vertical section of a bottle embodying said improvement. Fig. 2 is a detail view of the under side of the valve-plug. Fig. 3 is a horizontal section of the bottle-neck at a point between the valve and the elastic confining-ring.

The object and purpose of the improvement is the production of a guard in a bottle to prevent the refilling thereof after the original contents are once drawn out without breakage of parts.

The letter *a* designates the bottle, and *b* a cup-shaped valve-plug secured within the neck with its open end upward. This plug is provided in its base with a central perforation *b'*, extending therethrough and terminating in an enlarged concave opening *b²* in the upper face of the base. The base is also provided with perforations *d*, located near its periphery to permit the passage of liquid when the valve is unseated. The upper portion of the plug being hollow and cylindrical, the valve *c* will, through force of gravity, quit contact with its valve-seat when the bottle is reversed in position, so as to permit the passage of the original liquid contents of the bottle; but when the bottle is restored to its normal position, as shown in Fig. 1, this valve *c* will return to its normal position and seat itself upon the base of the plug to cover the perforations *d* and prevent any liquid from passing downward through it into the bottle.

The valve *c* has a central perforation and surrounds the protector *e*, the body portion of which is hollow and funnel-shaped and provided with air openings or perforations *f'*. The upper or larger end of this protector is closed, while its lower end is open and terminates in a reduced portion or stem *e'*. This protector is adapted to be seated within the plug *b*, so that the base of the funnel rests in the concave portion in the base of the plug, and the stem *e'* passes through the central

perforation *b'* and extends for some distance within the neck of the bottle. The periphery of the protector is provided with a series of grooves or corrugations *f³*, and in the periphery between the grooves or corrugations are perforations *f'* to permit the entrance of air when the bottle is inverted.

The letter *i* denotes a confining-ring, which is simply a piece of spring-wire sitting and fitting in a corresponding annular groove in the wall of the plug which contains the valve *c*. The purpose of this ring (when employed) is to prevent the valve *c* from escaping from its cup when the bottle is inverted, and its elasticity permits it to be readily put into position or removed.

The letter *f* denotes a vent-tube pendent from the valve-plug and reaching downward into the open space within the body of the bottle and preferably very close to the floor or bottom of the bottle. The office and function of this vent-tube is to permit the access of air into the bottle and behind the body of the liquid when it is desired to withdraw the original contents from the bottle. This vent-tube at its upper end slips upon the stem *e'*, which is projected through the valve-plug for that purpose. The vent-tube is of course hollow. The stem *e'* is also hollow and for the purpose in hand is practically a continuation of the vent-tube above the valve-plug.

The vent-tube *f* has a contracted neck at *f²*, forming thereby a valve-seat on its interior. The letter *g* denotes a valve for the vent-tube at this point. It remains closed when the bottle is in normal position and opens by gravity when the bottle is reversed and placed mouth downward. This valve *g* is hollow, and within it is a small body of quicksilver *h*, which, moving from one end to the other of this valve as the bottle is reversed in position, accentuates and makes sure the opening and closing movements of this valve in the vent-tube.

The operation is as follows: To empty the contents, the cork is removed and the bottle inverted, as in the usual manner. The air-valve *g* will immediately become unseated, and air will pass in through the perforations *f'* through the hollow protector up through the vent-tube *f*. At the same time the weight of the liquid, in combination with the force of

gravity, will unseat the valve *c*, allowing the liquid to pass through the perforations *d* in the valve-plug *b*, along the grooves or corrugations *f*³ in the protector, and then out of the mouth. After the contents have been removed and the bottle returned to its normal position the valves *c* and *g* will immediately settle to their seats, thus closing all entrances to the bottle. The protector is closed at the upper end, so as to prevent the insertion of a wire for removing the same.

I claim as my improvement—

1. The combination with a bottle, a hollow cylindrical valve-plug secured within its neck and provided with perforations in its base near its periphery, also a central perforation terminating in a concave portion in its upper face, and a hollow corrugated funnel-shaped protector with a closed upper end provided with air-holes and an open reduced lower extremity or stem, the latter fitting the central perforation and the enlargement fitting the concavity in the plug; of a reciprocating valve within the plug surrounding the protector and closing the perforations in the plug, and a removable retaining-ring secured within the plug, substantially as and for the purpose set forth.

2. The combination with a bottle, a hollow cylindrical valve-plug secured within its neck and provided with perforations in its base near its periphery, also a central perforation terminating in a concave portion in its upper face, a hollow corrugated funnel-shaped protector with a closed upper end provided with air-holes and an open reduced lower extremity or stem, the latter fitting the central perforation and the enlargement fitting the concavity in the plug, and a valved vent-tube attached to

the stem; of a reciprocating valve within the plug surrounding the protector and closing the perforations in the plug, and a retaining-ring secured within the plug, substantially as and for the purpose set forth.

3. The combination with a bottle, a hollow cylindrical valve-plug secured within the neck and provided in its base with a central concave perforation and a series of perforations around the same, a centrally-perforated valve within the plug and a retaining-ring secured above the valve; of a hollow corrugated protector having a closed upper end provided with a series of perforations near its periphery, a substantially cylindrical body on which said valve slides, and a reduced lower portion; and a vent-tube connected with the latter and extending near to the bottom of the bottle, the body and stem fitting within and passing through the valve-plug, substantially as and for the purpose set forth.

4. A valve for bottles consisting of a hollow cylindrical valve-plug secured within the neck, perforations near its periphery, and a central perforation terminating in an enlarged cavity in the upper face of the plug, a hollow funnel-shaped protector having a closed upper end and an open reduced lower extremity, grooves or corrugations in the exterior of its body, and air-openings near the periphery through its upper end, the whole fitting within and passing through the valve-plug and a valve surrounding the protector and covering the perforations in the plug, substantially as and for the purpose set forth.

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