

No. 678,315.

Patented July 9, 1901.

E. G. HOLDEN.
INK FOUNTAIN.

(Application filed Sept. 12, 1900.)

(No Model.)

Fig. 1.

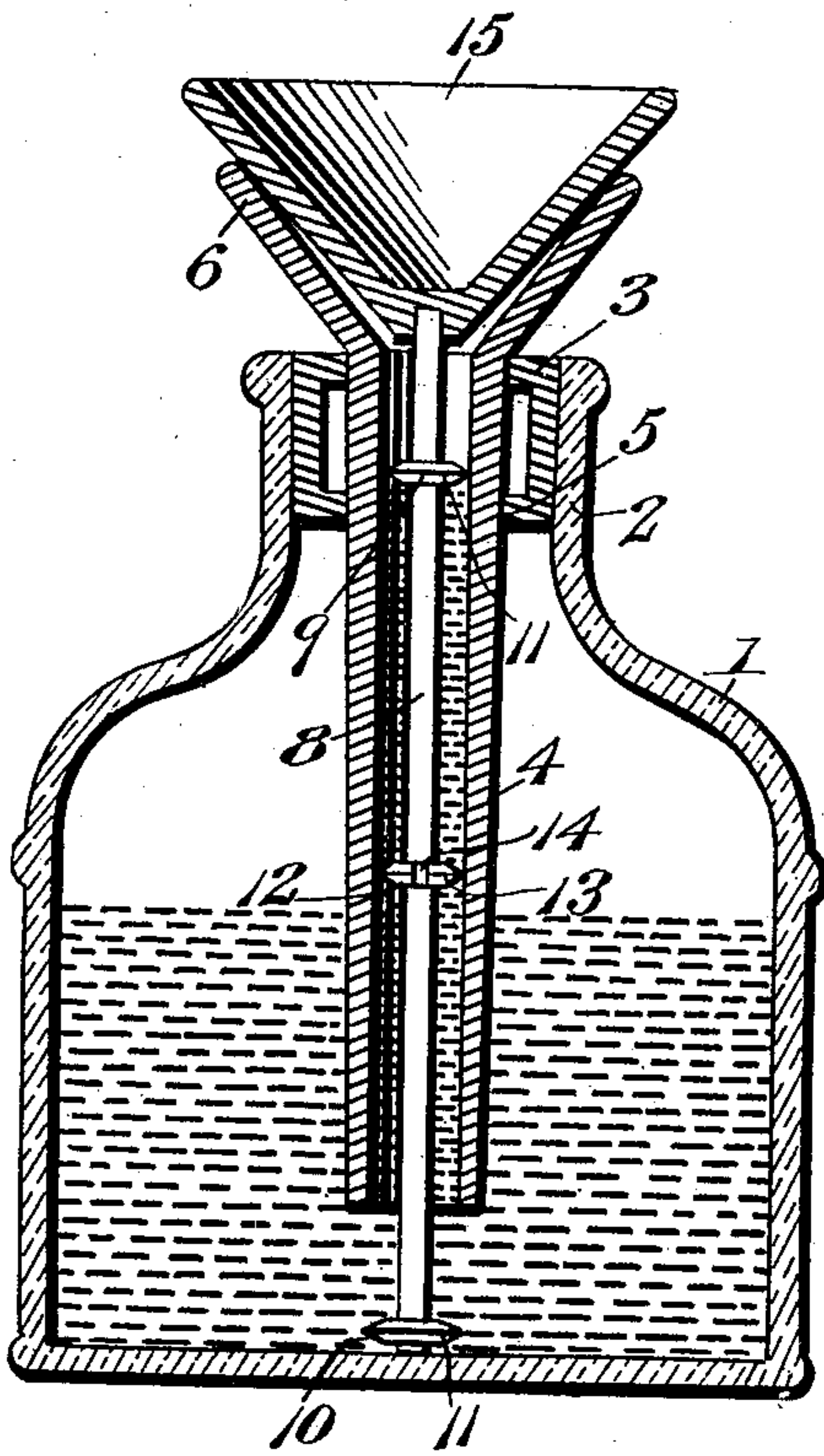


Fig. 2.

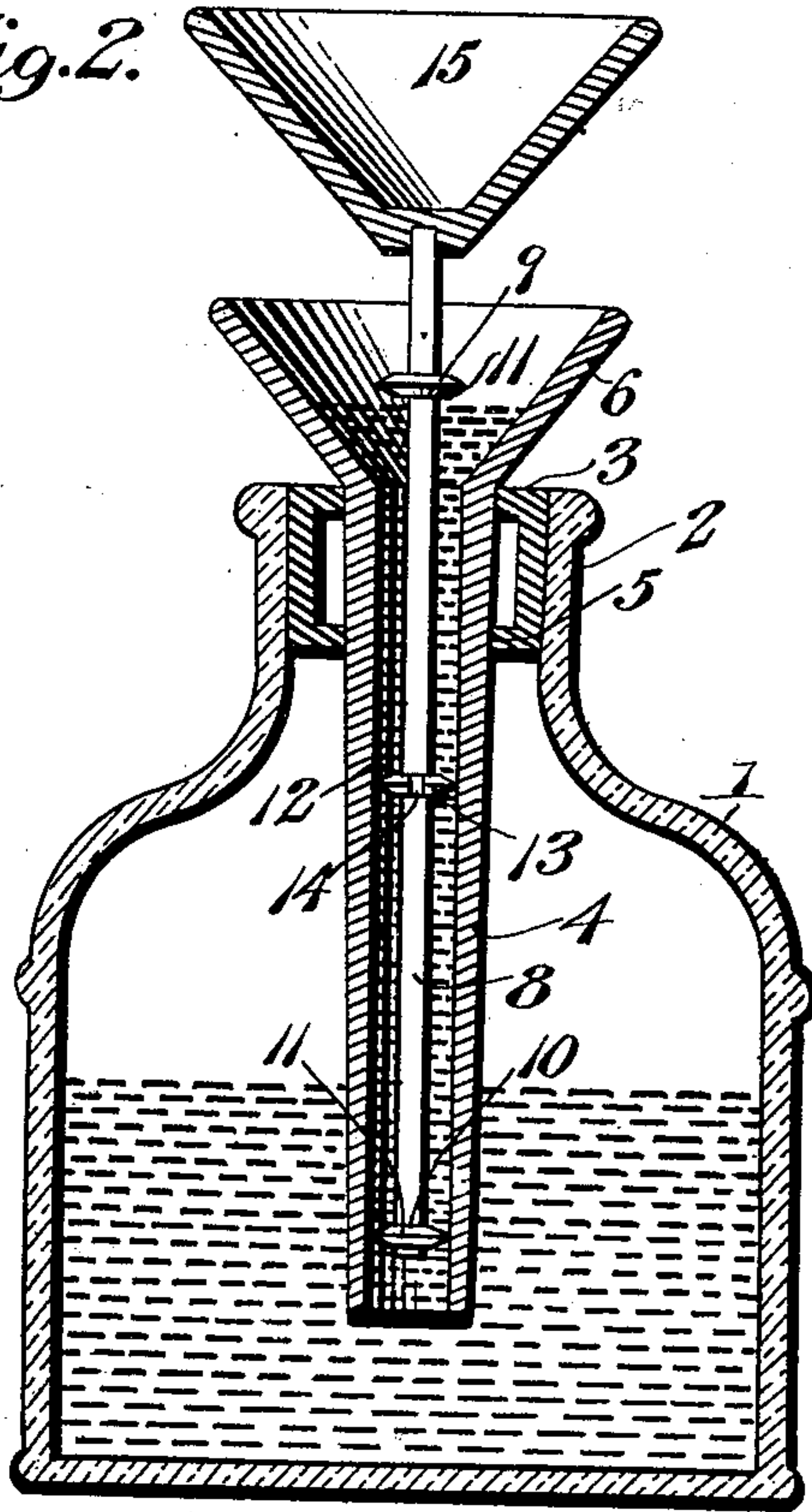


Fig. 3.

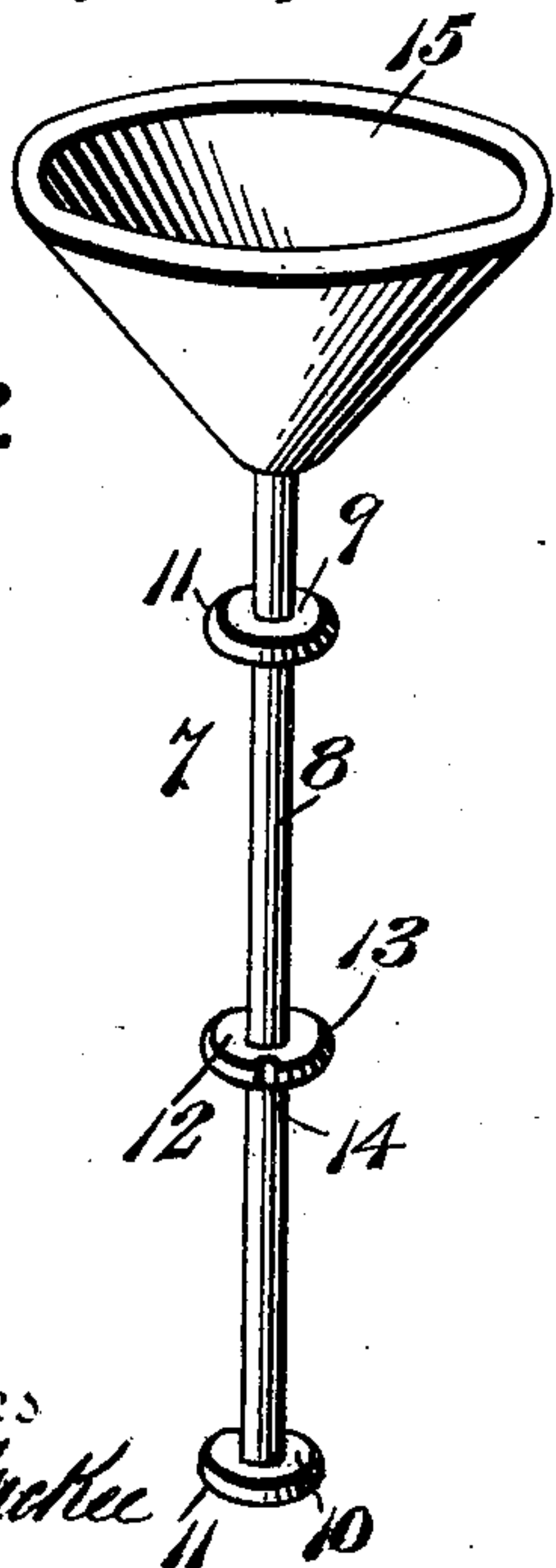
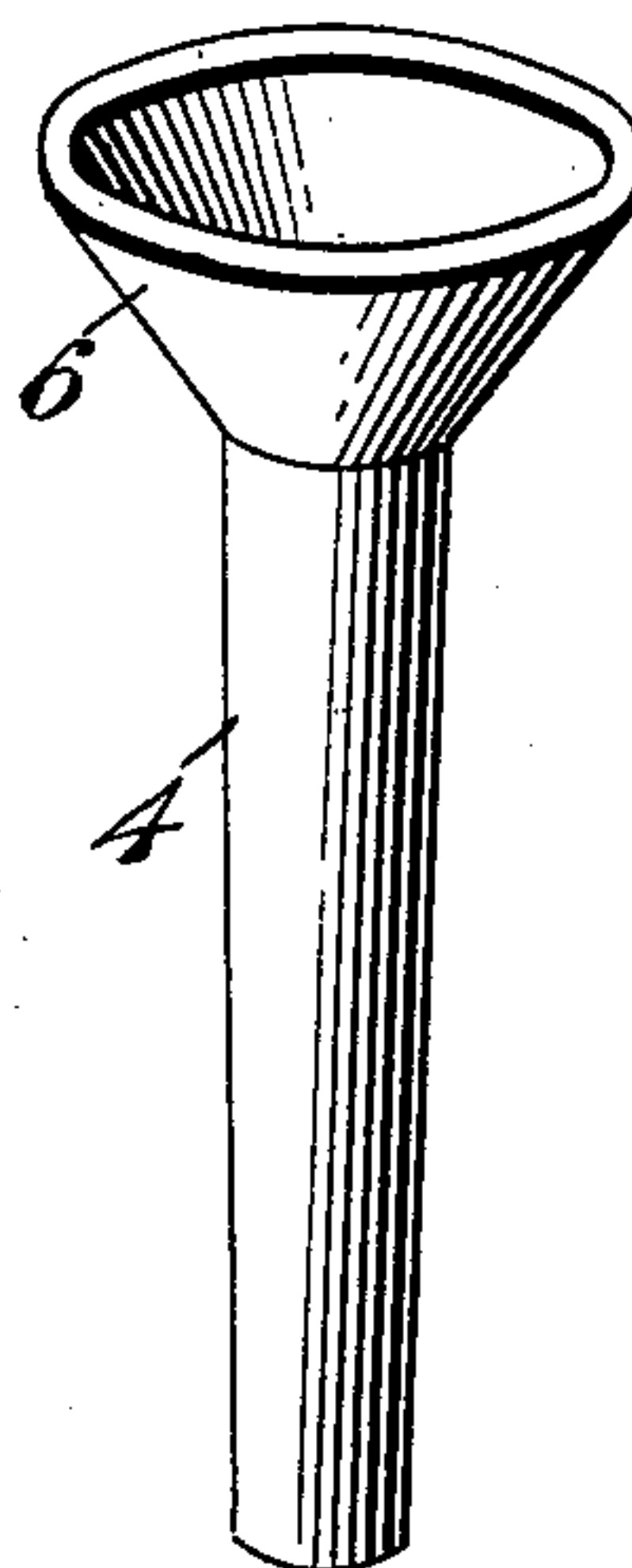


Fig. 4.



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UNITED STATES PATENT OFFICE.

ELBRIDGE G. HOLDEN, OF SAN ANTONIO, TEXAS.

INK-FOUNTAIN.

SPECIFICATION forming part of Letters Patent No. 678,315, dated July 9, 1901.

Application filed September 12, 1900. Serial No. 29,849. (No model.)

To all whom it may concern:

Be it known that I, ELBRIDGE G. HOLDEN, a citizen of the United States, residing at San Antonio, in the county of Bexar and State of Texas, have invented a new and useful Ink-Fountain, of which the following is a specification.

This invention relates to ink-fountains, and has special reference to an improved feed-supply attachment for "ink-bottles," "reservoirs," or "ink-wells," as they are commonly termed, the object being to provide improved means for supplying only a sufficient quantity of ink for immediate use, while at the same time securing a hermetical sealing of the ink within its reservoir, so as to prevent evaporation and thickening thereof.

To this end the invention primarily contemplates an ink-fountain or ink-supply attachment for ink bottles or reservoirs of a simple and effective construction and comprising means whereby the flow or supply of ink is entirely under the control of the operator and a sufficient supply for use can be obtained until the reservoir or bottle has become practically depleted of the supply therein.

A further object is to provide improved means in connection with the attachment whereby the ink within the bottle or reservoir will be thoroughly and effectively sealed from the outer air both when the parts are adjusted for use and when in an inactive position.

With these and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

While the essential features of the invention are necessarily susceptible to modification, still the preferred embodiment of the improvements is shown in the accompanying drawings, in which—

Figure 1 is a vertical sectional view of an ink-fountain embodying the present invention and showing the piston depressed, as when the fountain is not in use. Fig. 2 is a similar view showing the piston elevated a sufficient distance to hold a supply of ink in the dip well or funnel. Fig. 3 is a detail in

perspective of the vertically-movable piston.

Fig. 4 is a similar view of the ink-supply tube and the dip well or funnel carried thereby.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

In carrying out the invention the ink-supply device, constituting the operative part of the fountain, may be associated with any type of ink bottle, receptacle, or reservoir, so for illustrative purposes there is shown in the drawings an ordinary bottle 1, constituting a reservoir for holding a quantity of ink, said bottle being provided with the usual neck 2, which is adapted to receive therein a suitable closure 3. While different forms of closures may be employed for sealing the ink-bottle and sustaining the ink-supply device in operative relation thereto, it is preferable in carrying out the invention to employ a closure 3, consisting of a rubber or equivalent stopper, which may be of a hollow formation, as shown in the drawings, to constitute a cushion-support for the ink-supply device, besides being capable of having a wedging air-tight fit within the neck of the bottle 2, as well as upon the ink-supply tube 4, forming one of the elements of the ink-supply device.

The ink-supply tube 4 of the fountain tightly fits within the tube or opening 5, piercing the stopper or cork 3, and is of a sufficient length to extend downwardly within the reservoir or bottle 1 to a point in sufficiently close proximity to the bottom thereof, whereby the contents of the reservoir or bottle may be substantially emptied before it is necessary to refill the same. The said ink-supply tube 4 may be of varying lengths and sizes to suit different bottles or reservoirs and may be formed of glass, pottery, or rubber or any other suitable material which may be selected for the purpose; but for the practical carrying out of the invention the said ink-supply tube is preferably of a truly cylindrical form and is provided at the upper end thereof with a conical or upwardly-flaring funnel 6, which lies above the top of the bottle or reservoir exterior thereto and constitutes a dip-well for holding the ink into which the pen-point is dipped. To provide for transferring the ink from the interior of the

reservoir or bottle 1 to the dip well or funnel 6, there is associated with the ink-supply tube 4 and the said funnel thereof a reciprocatory piston, designated in its entirety by the numeral 7 and illustrated in detail in Fig. 3 of the drawings. The said piston 7 essentially comprises a straight piston stem or rod 8, adapted to move longitudinally through the tube 4, and a pair of spaced upper and lower piston-heads 9 and 10, fitted to the stem, respectively upon the upper and lower portions thereof, so as to operate alternately within the ink-supply tube 4 in the manner to be presently explained. The said upper and lower piston-heads 9 and 10 are preferably in the form of flexible rubber or equivalent disks provided with beveled peripheral edges 11, designed to tightly and slidably engage with the inner wall of the ink-supply tube 4, so as to form effective air-tight stoppers when located therein. In connection with the oppositely-arranged spaced heads 9 and 10 there is also associated with the piston-stem 8 a check-valve 12, also preferably in the form of a flexible rubber disk fitted to the stem intermediate the said piston-heads and having a beveled peripheral edge 13, also slidably and tightly engaging the inner wall of the ink-supply tube. The said check-valve disk 12 is further provided in its edge or at any other suitable point therein with an ink-circulating port 14, which permits of the flowing of ink into the space between the two piston-heads. To provide for manipulating the piston, it is necessary to associate a suitable form of handle or knob therewith; but the preferable means employed is shown in the drawings; and it consists of a conical cap 15, attached to the upper end of the stem 8 and not only serving as a handle for moving the piston up and down, but also acting in the capacity of a cap or cover for the dip well or funnel 6, inasmuch as the same is designed to fit within the said well or funnel when the piston is lowered. The said combined cap and handle 15 is also preferably of a hollow formation, so that the same may be utilized to receive a pen-wiper or sponge, if desired.

In manipulating the attachment to provide for the several operations of supplying ink to the dip-well and cutting off the same therefrom the piston 7 is first removed entirely from the ink-supply tube and the dip well or funnel thereof; but in thus removing the piston care should be exercised that when the lower piston head or disk 11 about reaches the upper end of the ink-supply tube 4 the piston-head is tilted so as to allow a gradual breaking of the vacuum below the said lower piston-head 10 as it leaves the supply-tube 4, thereby preventing rebounding and splashing of the ink. The piston is then replaced with the stem held perfectly vertical, so that the piston-head 10 as it descends within the supply-tube 4 will force a quantity of air into the reservoir or bottle 1, so that when the said lower piston-head 10 passes out of and

beneath the lower end of the tube 4 the ink will flow into and fill the tube 4 beneath the upper piston-head 9, which will lie just above the upper edge of the tube 4 to permit the escape of the air within said tube. The ink which flows into the lower end of the tube 4 under the influence of the air-pressure is checked from a too sudden or violent circulation by the check-valve 12, while the port 14 of such valve permits the ink to gradually flow into the space within the tube 4 beneath the upper piston-head 9. When it is desired to use the ink-fountain, the cap or handle 15 is grasped and the piston elevated, which movement carries the lower piston-head 10 into the lower end of the tube 4, thus forming a seal or closure therefor at the bottom, while the upper head 9 is raised farther above the upper end of the tube and permits the ink within the tube to be freely raised to the desired height within the well or funnel 6 for the dipping in of the pen-point. By forcing the piston 7 rapidly into the tube, so that the upper head 9 passes into the same, it will be seen that the ink cannot rise because of the confined air above it, and thus an effective stopper or seal is formed at this point. At this point it may be observed that the well or funnel 6 is preferably of a greater capacity than the entire capacity of the tube 4, so as to prevent the accidental overflowing thereof. After the fountain has been used the piston is lowered, thereby permitting the ink remaining within the well or funnel 6 to flow back into the tube and be sealed therein by the upper piston-head 9, which passes into the upper portion. The operations described are repeated in the continued use of the fountain until it is necessary to replenish the same with ink.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described ink-fountain will be readily apparent to those skilled in the art without further description, and it will be understood that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into the reservoir, an exterior dip-well in communication with said tube, and a device, movable within the tube, and comprising means for supplying the well with ink from the reservoir, and also for sealing the reservoir from the outer air when the well is both supplied and empty.

2. In an ink-fountain, the combination with the reservoir, of an ink-supply device having an ink-supply tube extending into the reservoir, an exterior dip-well in communication with said tube, and a piston arranged to work

within said tube and having separate piston-heads alternately fitting within the tube to seal the reservoir from the outer air when the well is respectively supplied and empty, substantially as set forth.

3. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into the reservoir, an exterior dip-well in communication with said tube, and a combined air-supply and ink-controlling piston working within said tube, substantially as set forth.

4. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into said reservoir, an exterior dip-well in communication with said tube, and a combined air-supply and ink-controlling piston working within the tube and having an ink-check device comprising means for checking a rapid flow of ink from the reservoir into said tube, substantially as set forth.

5. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into the reservoir, an exterior dip-well in communication with said tube, and a reciprocatory piston having spaced piston-heads, and an ink-check device intermediate of said heads comprising means for checking a rapid flow of ink from the reservoir into said tube.

6. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into the reservoir and having at its upper end a dip well or funnel, and a reciprocatory piston having a pair of spaced piston-heads arranged to alternately move into and out of the supply-tube, and a check-valve carried by the piston-stem between the separate piston-heads, substantially as set forth.

7. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into the reservoir and having an exterior dip well or funnel, and a reciprocatory piston comprising a stem, a pair of spaced piston-heads carried by the stem and tightly fitting within said ink-supply tube, and a check-valve disk also fitted on said stem between the piston-heads and having an ink-circulating port therein, substantially as set forth.

8. In an ink-fountain, the combination with the reservoir, of an ink-supply tube extending into the reservoir and having at its upper end a dip well or funnel, and a combined air-supply and ink-controlling piston working within said tube and carrying a combined cap and handle conforming in shape to the dip well or funnel, and adapted to fit therein when the piston is lowered, substantially as set forth.

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

ELBRIDGE G. HOLDEN.

Witnesses:

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