

(No Model.)

J. J. EBERT.
AUTOMATIC FUNNEL.

No. 539,422.

Patented May 21, 1895.

Fig. 1.

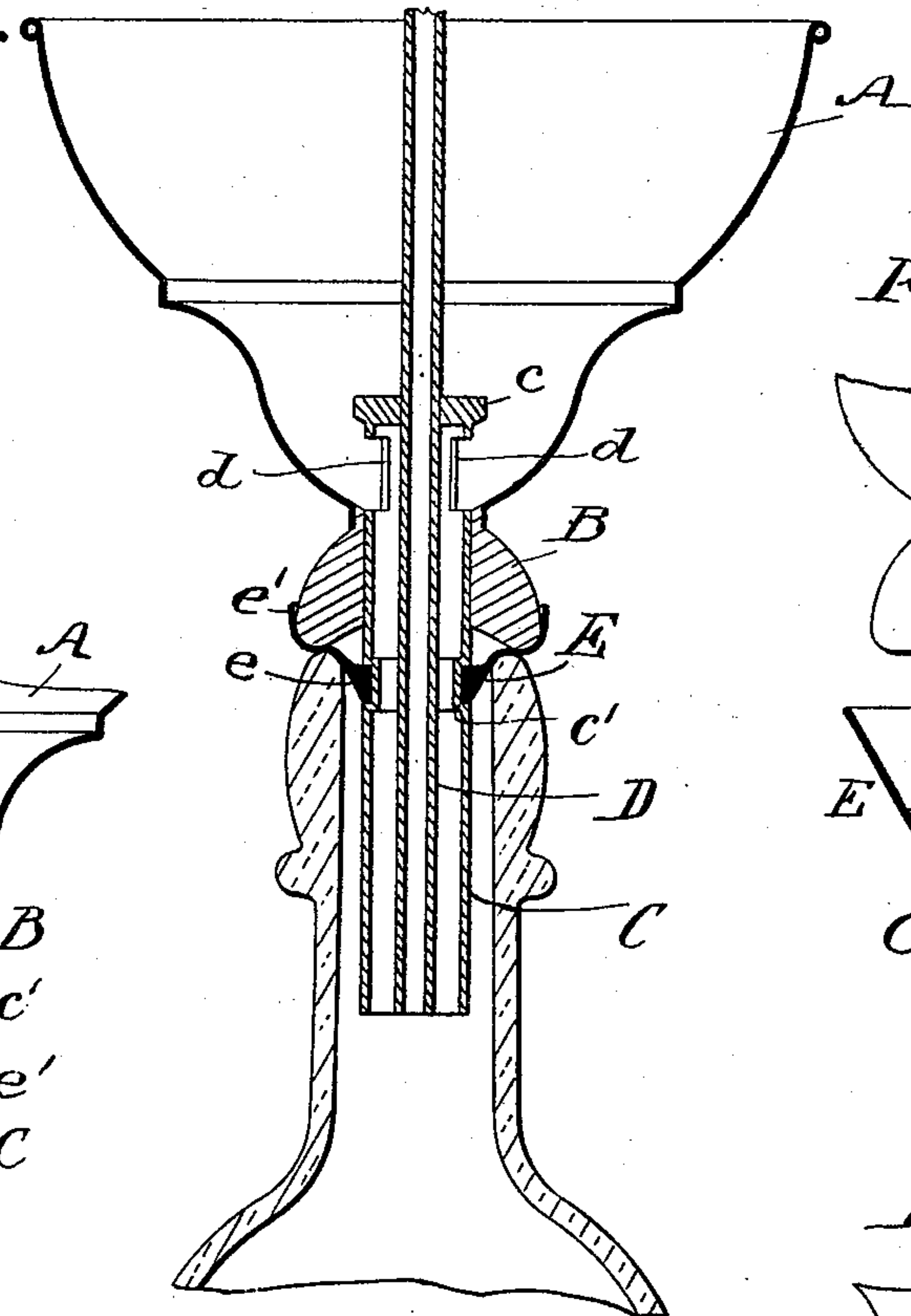


Fig. 3.

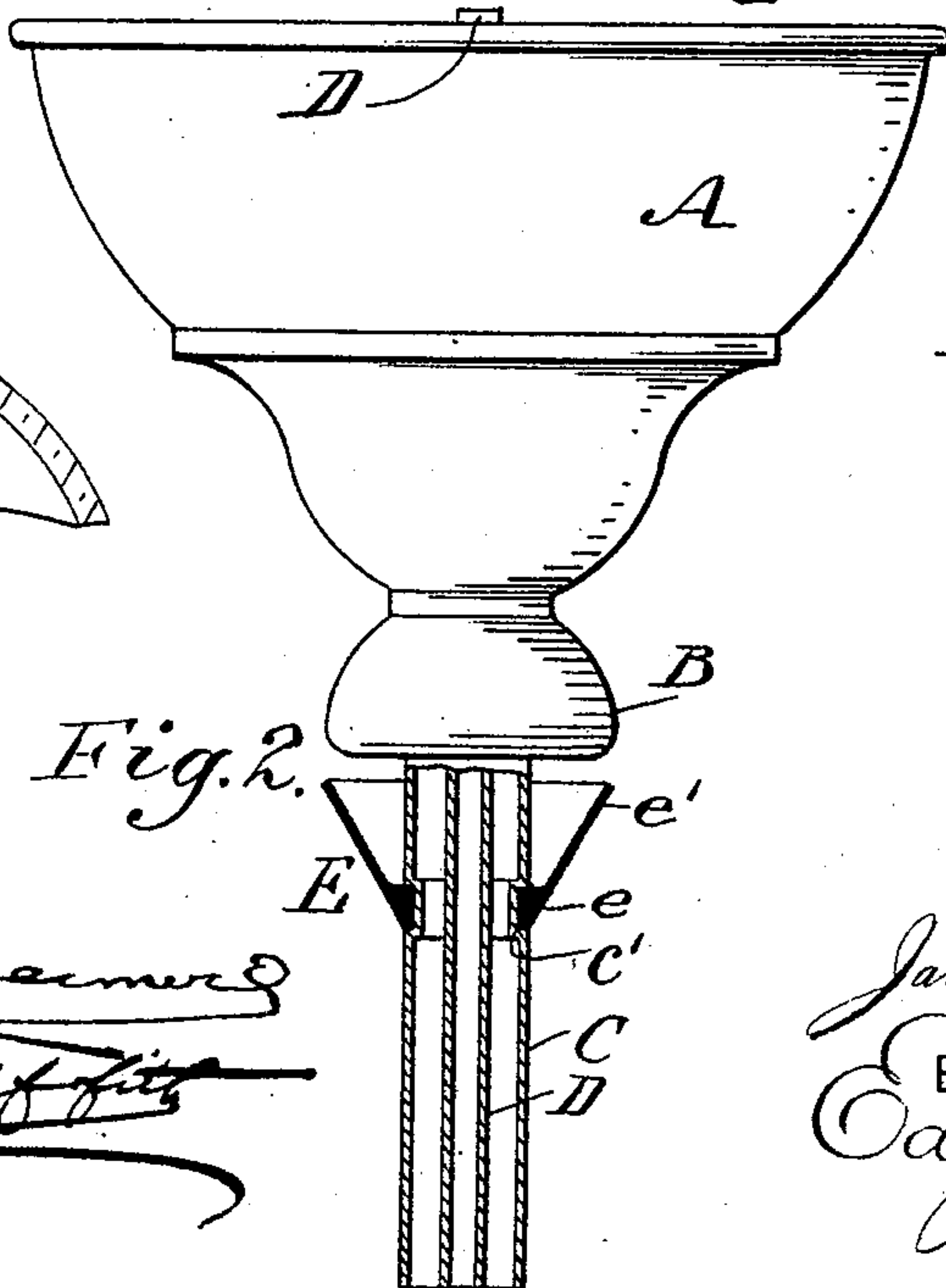
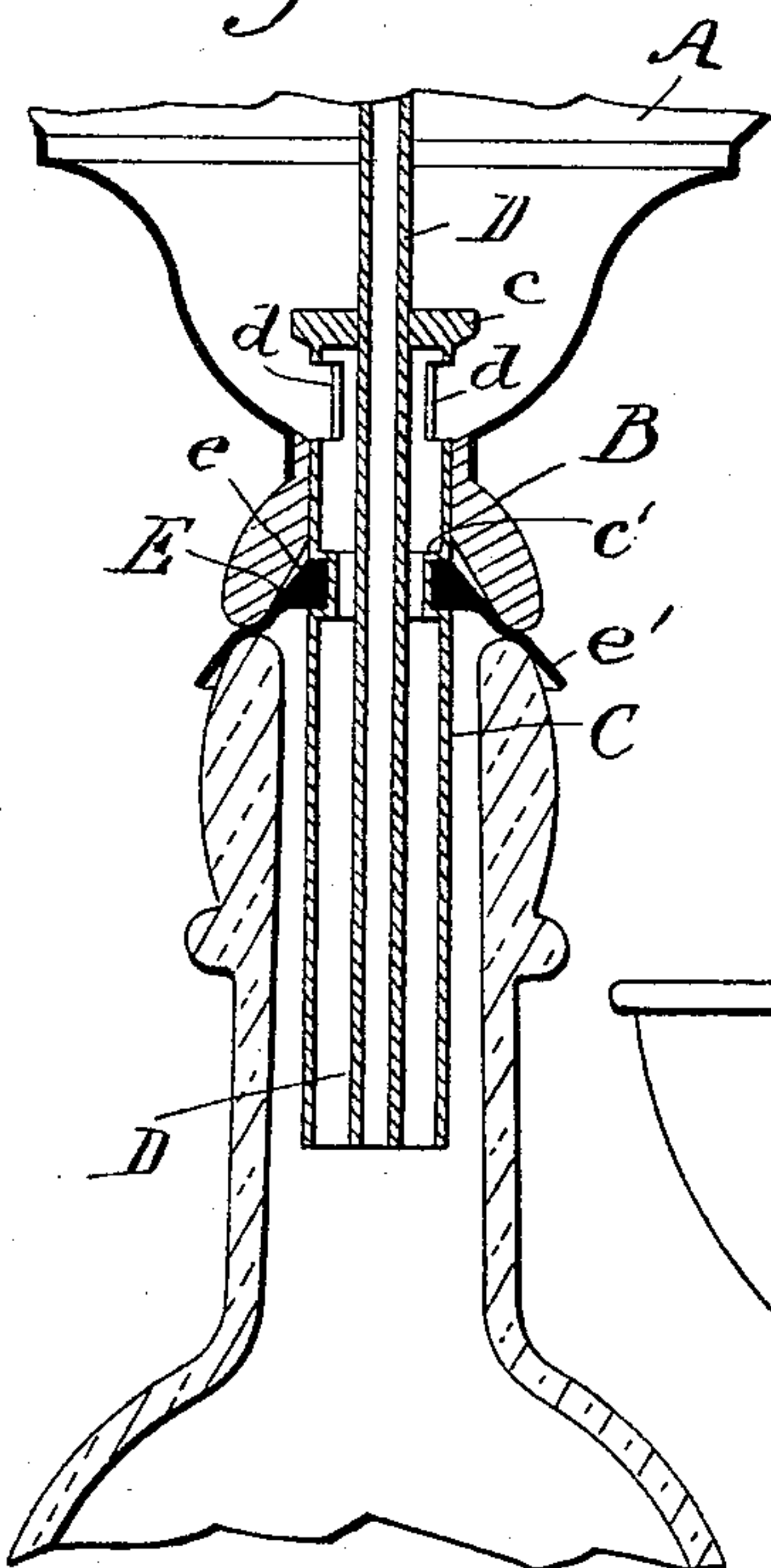


Fig. 2.

Fig. 4.

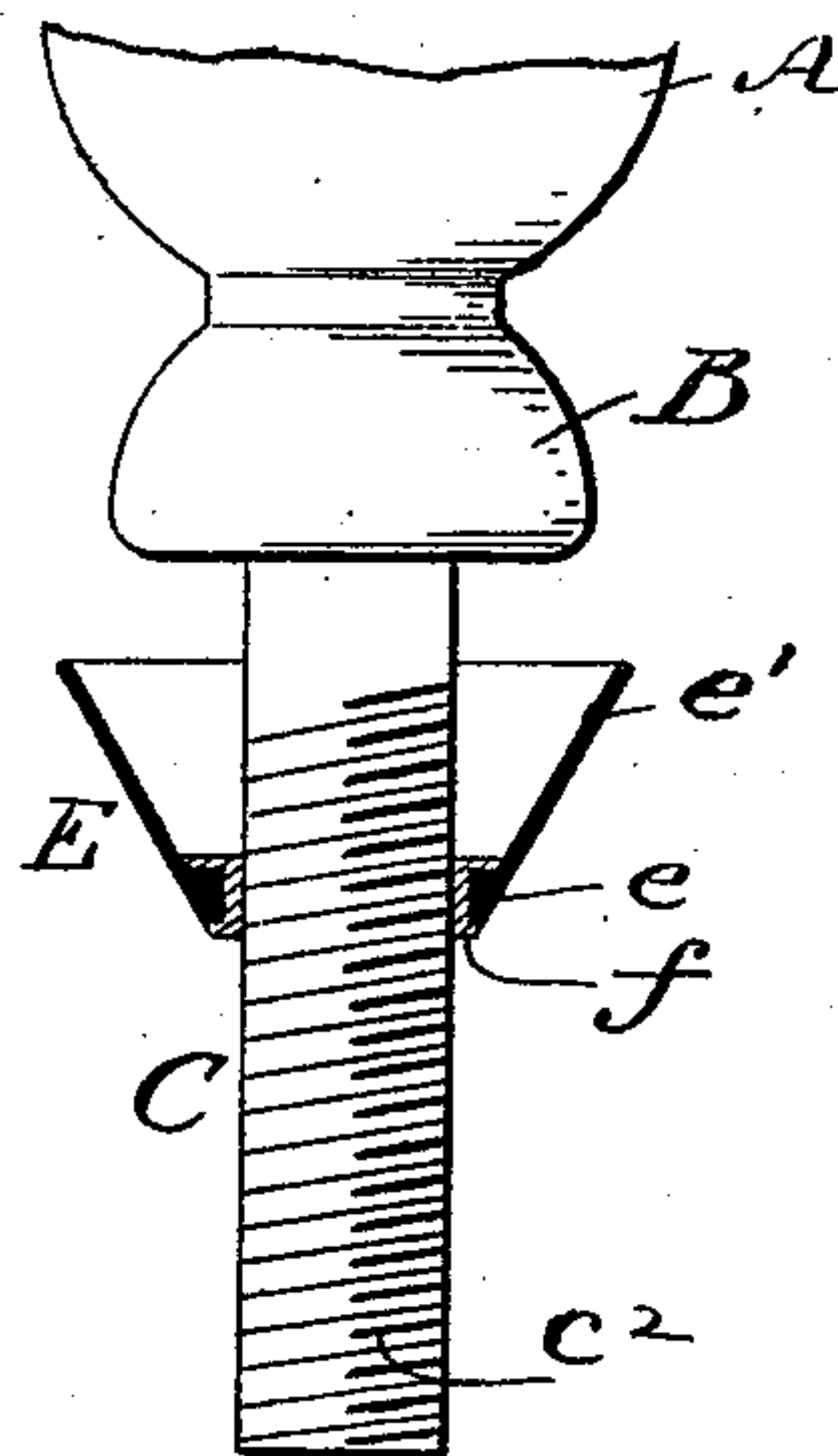
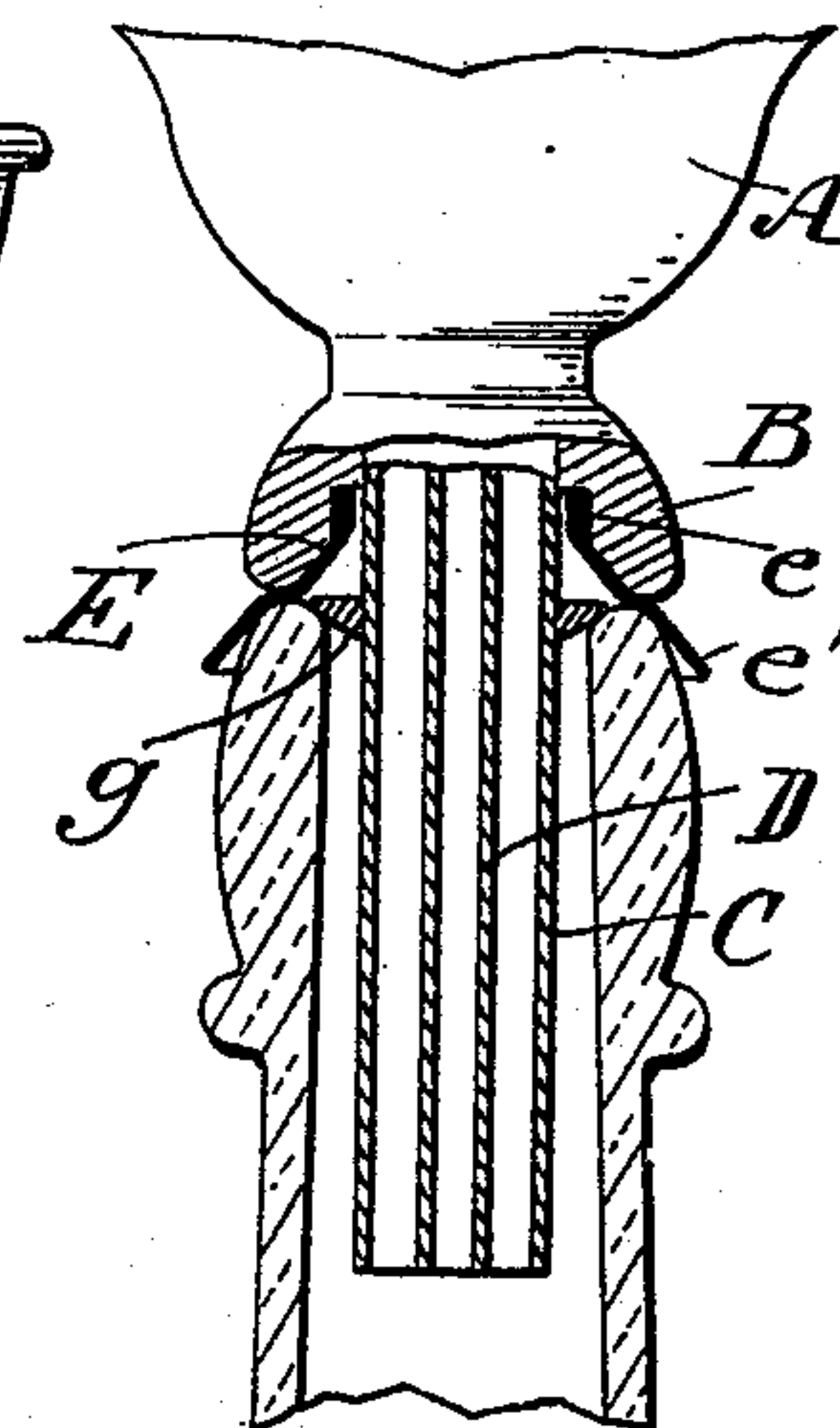


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES J. EBERT, OF NEW ROCHELLE, NEW YORK.

AUTOMATIC FUNNEL.

SPECIFICATION forming part of Letters Patent No. 539,422, dated May 21, 1895.

Application filed December 29, 1894. Serial No. 533,236. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. EBERT, a citizen of the United States, and a resident of New Rochelle, county of Westchester, and State of New York, have invented certain new and useful Improvements in Automatic Funnels, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters of reference indicate corresponding parts in all the figures.

My invention relates to improvements in automatic funnels and consists in providing a funnel with an air tube contained within the funnel stem, a bowl or body adapted to slide vertically thereon, and a bottle closing device adapted for sealing the neck of a bottle while the same is being filled; the objects of my invention being to facilitate the work of filling bottles or other similar vessels, and to prevent overflow and consequent waste of liquid while the same are being filled. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section showing my improved funnel fitted within the neck of a bottle. Fig. 2 is a side elevation partly broken away. Fig. 3 is a sectional elevation of a portion of a funnel fitted within the neck of a bottle, showing a slightly-modified construction. Fig. 4 is a side elevation of a portion of a funnel, partly in section, showing another modification. Fig. 5 is a sectional elevation of a portion of a funnel, illustrating a further modification.

In the construction of my invention, an ordinary funnel bowl or body A, is provided at its lower or outlet portion with a heavy metallic sleeve B, which slides vertically upon a funnel stem C. Within the said funnel stem C, and attached securely thereto is an air tube or vent D, through which the air from a bottle passes while the same is being filled. This said air tube terminates at its upper end above the top line of the funnel bowl A, and at its lower end at or near the bottom or outlet portion of the said funnel stem C. The said funnel stem C is also provided with a stop c, adapted to rest upon the sleeve B, of the funnel body A, when the funnel is lifted from the neck of a bottle. Fluid inlet from the funnel body A to the stem C is effected by means of

openings d, in the upper portion of the said funnel stem C, which said inlet is opened and closed by the sliding of the sleeve B of the funnel body A, upon the said stem C. Surrounding the stem C, and held thereto by means of an annular groove c' is a flexible collar E, preferably conical in shape, comprising a solid ring e, and an annular flange e', adapted to be pressed over the top of the neck of a bottle, and bent to conform thereto by the weight of the funnel body A, and the sleeve B, which rests thereon while a bottle is being filled.

In the practice of my invention, I prefer the construction as described above and illustrated in Figs. 1, 2, and 3, but it will be readily seen that slight modifications in construction may sometimes be desirable; as for instance, the bottle closing device E may be adjustably secured to the stem C, as illustrated in Fig. 4, in which case, the latter is provided with an exterior thread c², and the former with a threaded and grooved collar f, adapted to engage with the said thread and to receive the bottle closing device E.

In Fig. 5, a further modification is shown, in which the bottle closing device E is shown attached directly to the sleeve B, in which case, the stem C must be provided with a collar g, adapted to engage with the neck of a bottle being filled and to prevent the funnel stem from being removed from the body, should the same be inverted.

The operation of my invention is as follows: When the tube or stem C, is inserted within the neck of a bottle to a sufficient distance to allow the bottle closing device E to come in contact with the upper portion of the said bottle neck and rest thereon, the funnel body A, and its sleeve B, will slide downwardly upon the stem C, until the sleeve B shall rest upon the flange e', of the bottle closing device E, thereby opening the fluid inlet d, and sealing the neck of the bottle being filled, by bending the said flange e', of the bottle closing device E, over and around the top portion of the bottle; whereby a perfect sealing of the bottle neck is effected without exerting any pressure upon the bottle closing device E, other than that supplied by the combined weight of the funnel body, its contents and its sleeve B. The liquid is now allowed

to flow with perfect freedom until it reaches a level on a line with the lower end of the vent tube D, when further inflow is prevented by the rising liquid closing the vent. The funnel is then removed from the neck of the bottle by the simple act of lifting the funnel body, which slides upwardly upon the stem C, until its sleeve B comes into engagement with the stop c. The fluid inlet has now been completely shut off, and no further outflow of liquid can be effected until the stem C is again placed within the neck of a bottle and the funnel body is allowed to drop and open the fluid inlet.

The operation as above described applies to the constructions as shown in Figs. 1, 2, 3, and 4, but it will be readily seen that my invention applies equally to the construction as shown in Fig. 5, whereby the sealing of the neck of a bottle is effected by the same means, viz: the pressing of the flange *e'*, of a bottle closing device around and over the neck of a bottle being filled.

It will be evident to those familiar with the art of filling bottles that my bottle closing device has advantages over any similar device heretofore used in combination with an automatic funnel; as by its use, I not only effect a perfect sealing of the neck of a bottle, by bending the flange *e'* over and around the neck of same, thereby covering any indentations which may be accidentally formed thereon, but I effect such sealing by simply relying upon the pressure exerted by the weight of the funnel body and its sleeve B, thereby obviating the necessity of tightly pressing the bottle sealing device within the neck of a bottle, whereby instantaneous removal of the funnel from the bottle is prevented by the bottle closing device adhering to the neck of the bottle.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an automatic funnel which comprises in its construction a bowl or body adapted to slide vertically, upon its tube or stem, the combination with a pliable rubber ring mounted upon and projecting outwardly from the said tube or stem, of an annular projection upon the lower end of the funnel body, adapted to engage said ring and bend the same over and around the neck of a bottle, substantially as shown and described.

2. A funnel tube having connected to it a vertically adjustable bottle closing device, comprising a metallic collar having an annular groove formed thereon, a flexible ring, sealed in said annular groove and having a flange formed integrally with said ring, combined with a sliding funnel body, adapted to rest upon the flange of the said bottle closing device, for causing the same to seal the neck of a bottle, substantially as shown and described.

3. A bottle closing device comprising a flexible ring having a flange formed thereon, combined with a funnel tube having fluid inlet at its upper part, and a sliding funnel body adapted to rest upon the said bottle closing device, for causing the same to seal the neck of a bottle, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 19th day of December, 1894.

JAMES J. EBERT.

Witnesses:

C. GERST,
PERCY T. GRIFFITH.