

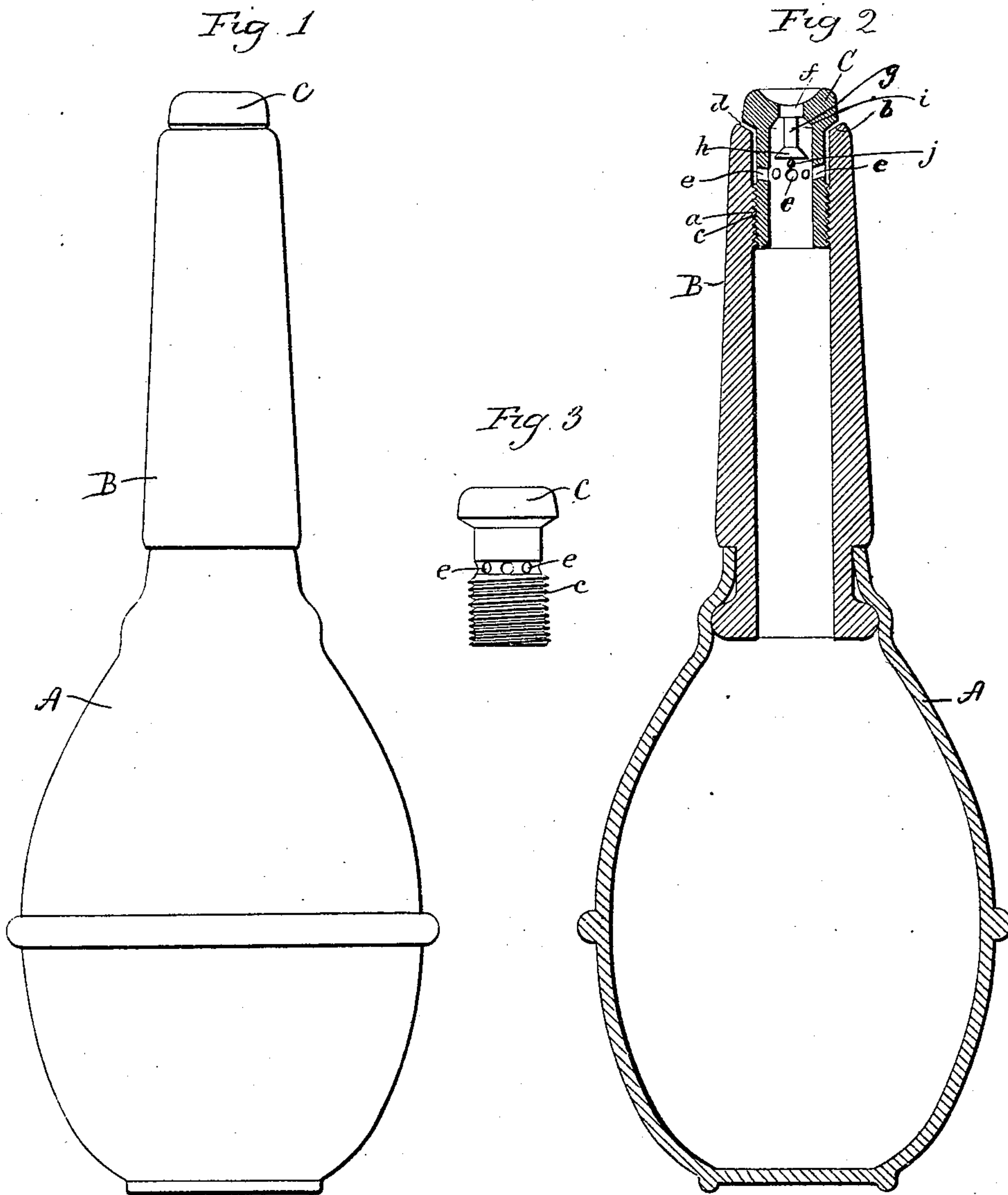
No. 682,110.

Patented Sept. 3, 1901.

J. MURRAY.
SYRINGE.

(Application filed May 15, 1901.)

(No Model.)



Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES MURRAY, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE
SEAMLESS RUBBER CO., OF SAME PLACE.

SYRINGE.

SPECIFICATION forming part of Letters Patent No. 682,110, dated September 3, 1901.

Application filed May 15, 1901. Serial No. 60,281. (No model.)

To all whom it may concern:

Be it known that I, JAMES MURRAY, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Syringes; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of a syringe constructed in accordance with my invention; Fig. 2, a vertical central section of the same; Fig. 3, a side view of the tip detached.

This invention relates to an improvement in syringes, and particularly to that class which comprise a tube and a bulb connected directly thereto, the object of the invention being to improve the form of distributor at the end of the tube, whereby greater force and increased area of distribution may be given to the liquid discharged and which permits the bulb to be readily filled.

With these ends in view the invention consists in the construction as hereinafter described, and pointed out in the claims.

As shown in the accompanying drawings, the bulb A may be of any approved form and size and secured to the tube B in any desired manner. The tube B may also be straight or curved, as desired. Near the outer end the tube is formed with internal threads *a*, and the outer edge of the tube is formed with an upwardly-inclined bevel *b*. Into the end of the tube a tip C is inserted, the tip being tubular and formed near its lower end with screw-threads *c* for engagement with the threads *a* in the pipe. Above the threads *c* the exterior of the tip is contracted, forming an annular passage *d*, which extends between the end of the pipe and the lower face of the outer end of the tip C, which is somewhat enlarged, so as to extend over the inner edge of the pipe. In the sides of the tip are transverse openings *e*, entering the passage *d*, and in the outer end of the tip, which is preferably concave, is a vertical opening *f*, in which a valve is arranged, the said valve comprising a stem *g*, which extends into the opening

f, and a head *h*, which comes to a bearing in a seat *i* in the tip, the valve being held in position by a transverse wire pin *j*, the said valve being arranged to close the central opening *f* through the tip by the compression of the bulb, but to open by the force of gravity or the suction caused by the expansion of the bulb. The bulb is filled in the usual manner by submerging the end of the pipe in liquid and compressing the bulb and allowing it to expand, which draws the fluid through the passage *d* and openings *e*, as well as through the opening *f* in the center of the tip. When the liquid is discharged, however, by the compression of the bulb, the force at once raises the valve and closes the central opening in the tip and causes the fluid to be discharged through the openings *e* and the passage *d*, which, owing to the inclination of the end of the tube and the tip, will cause it to take a bulbous form, and as the discharge-opening is comparatively small considerable force may be applied to the fluid by the quick compression of the bulb. As before stated, the expansion of the bulb after contraction draws the fluid into the bulb.

I am aware that syringes have been provided with pipes and tips adapted to discharge the fluid through an annular passage at the outer end, and therefore do not wish to be understood as claiming, broadly, such as my invention; but,

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

1. A syringe comprising a pipe, a tip inserted into the outer end thereof, the sides of the tip being smaller than the diameter of the pipe so as to provide a passage between the outer end of the pipe and the said tip, said tip formed with transverse openings into said passage and also formed with a central opening extending longitudinally through the tip so to leave it open at both ends, and a valve within said opening and adapted to close the same, substantially as described.

2. A syringe comprising a pipe having internal threads below its outer end, the said outer end outwardly beveled, a tip formed with threads at its lower end for engagement

with the threads in the pipe, said tip extending beyond the ends of the pipe and over the beveled edges thereof so as to leave an annular passage between the tip and pipe, trans-
5 verse openings in the tip opening into said annular passage, a longitudinal opening extending through the tip, and a valve within the tip, the stem of the valve extending through said central opening, and a trans-

verse pin for supporting the valve within the tip, substantially as described.

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

JAMES MURRAY.

Witnesses:

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