

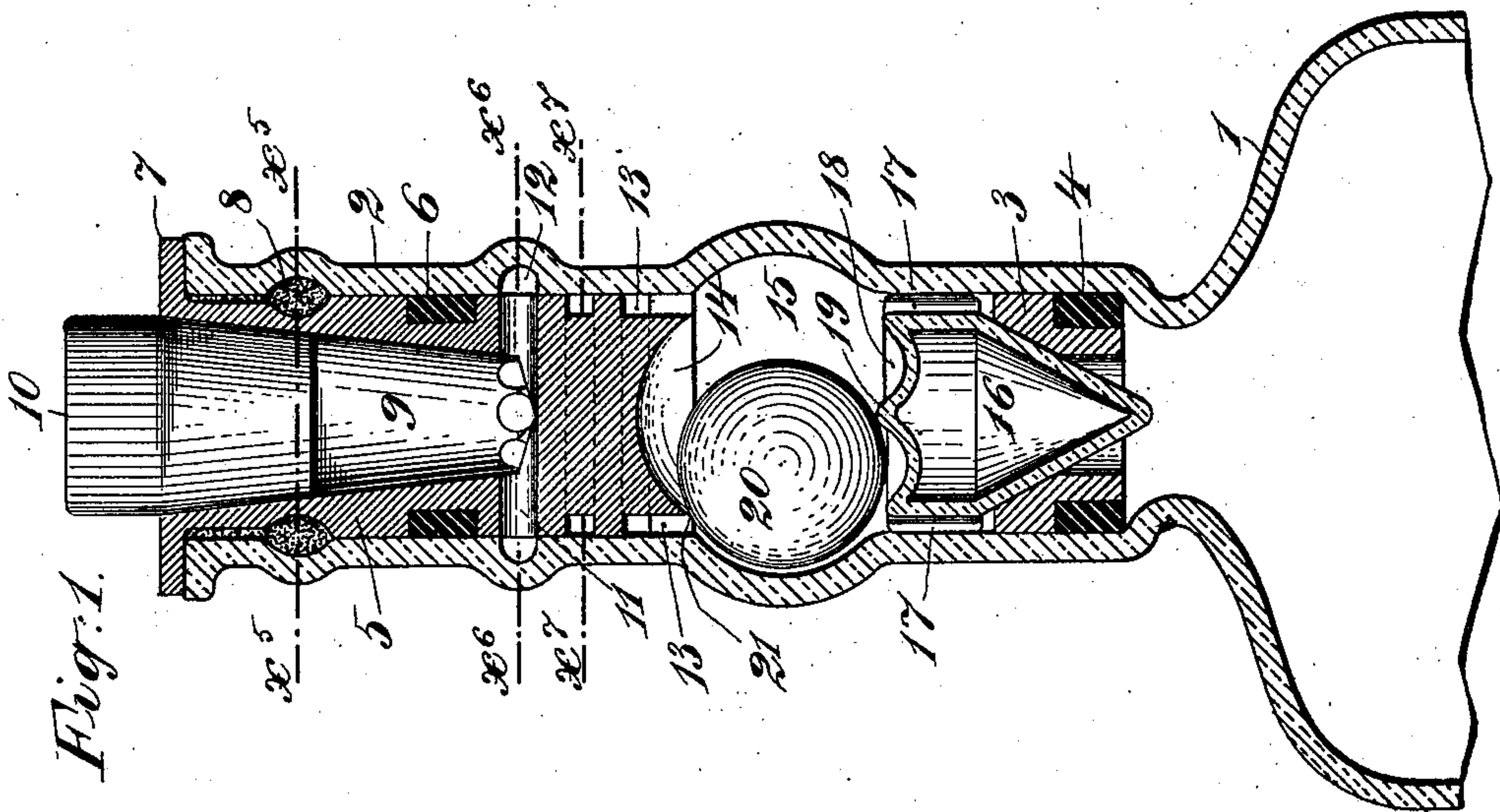
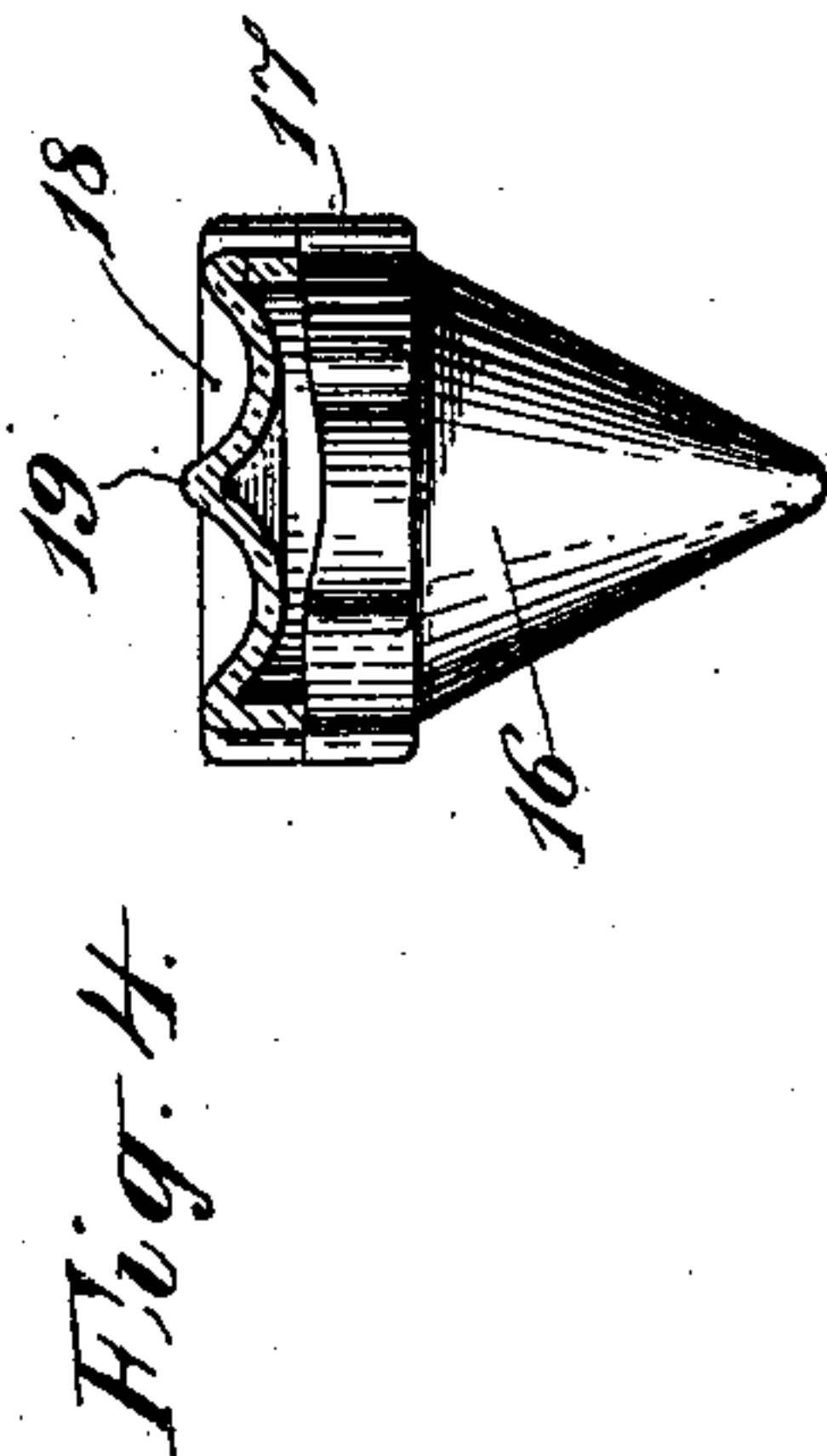
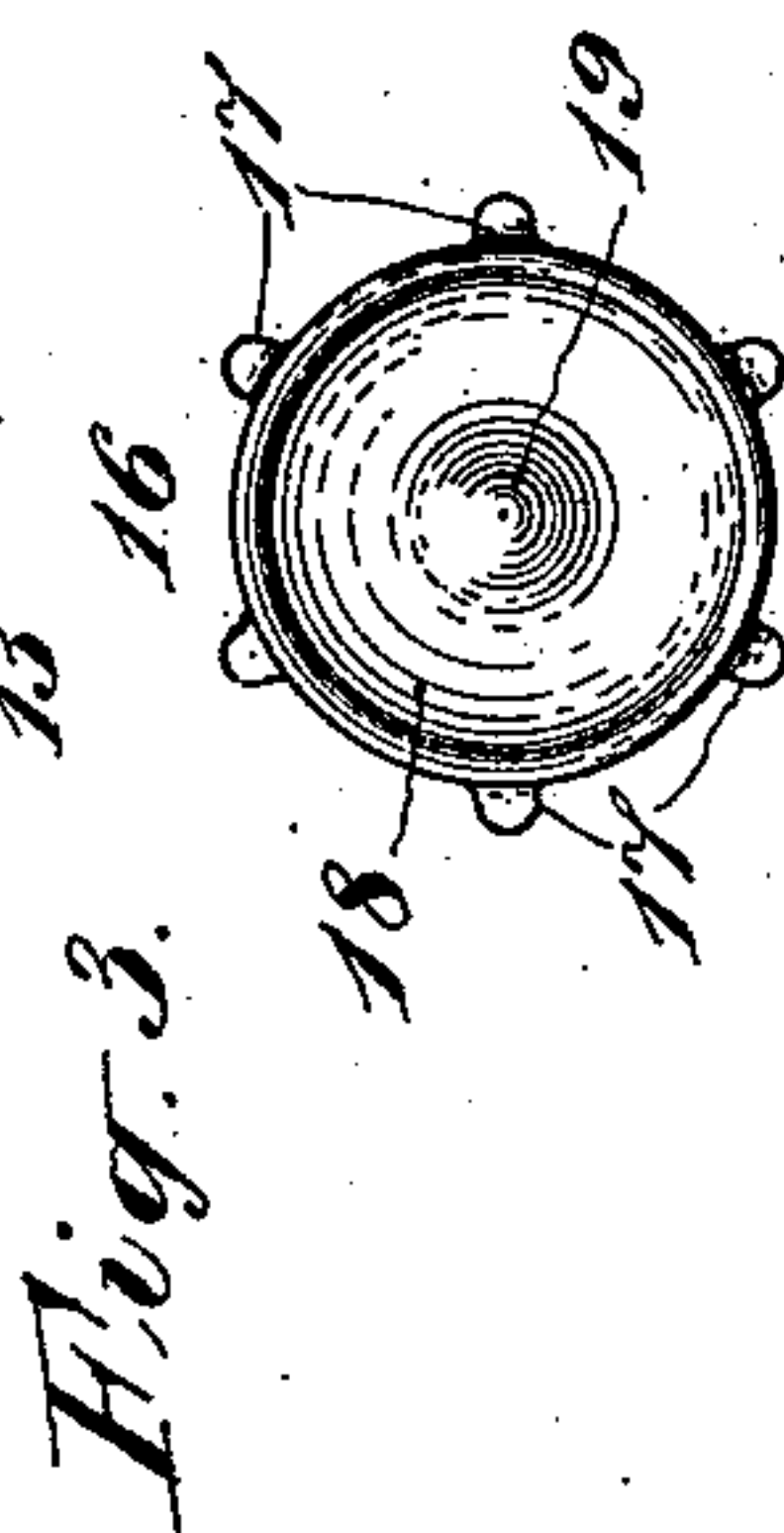
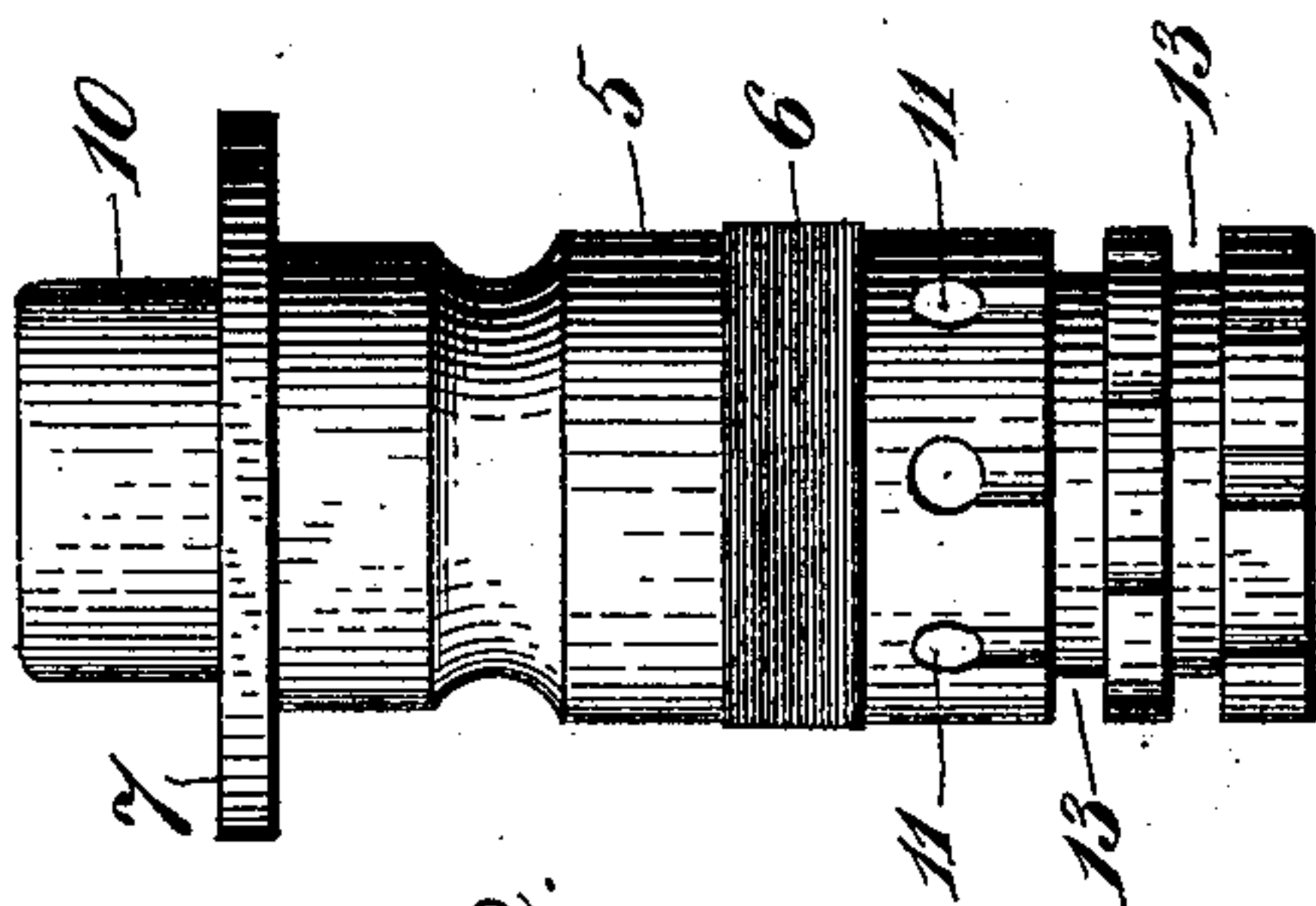
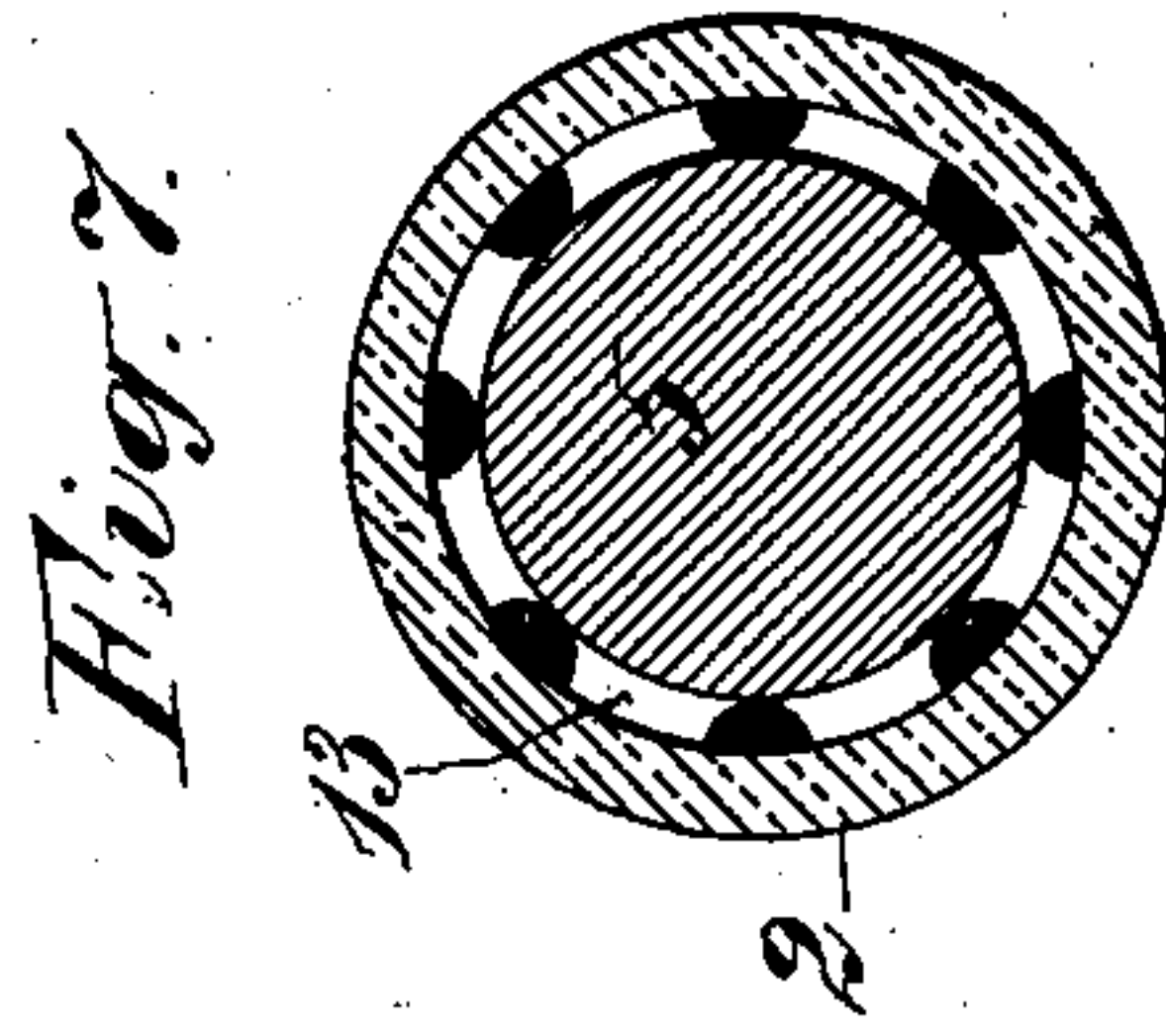
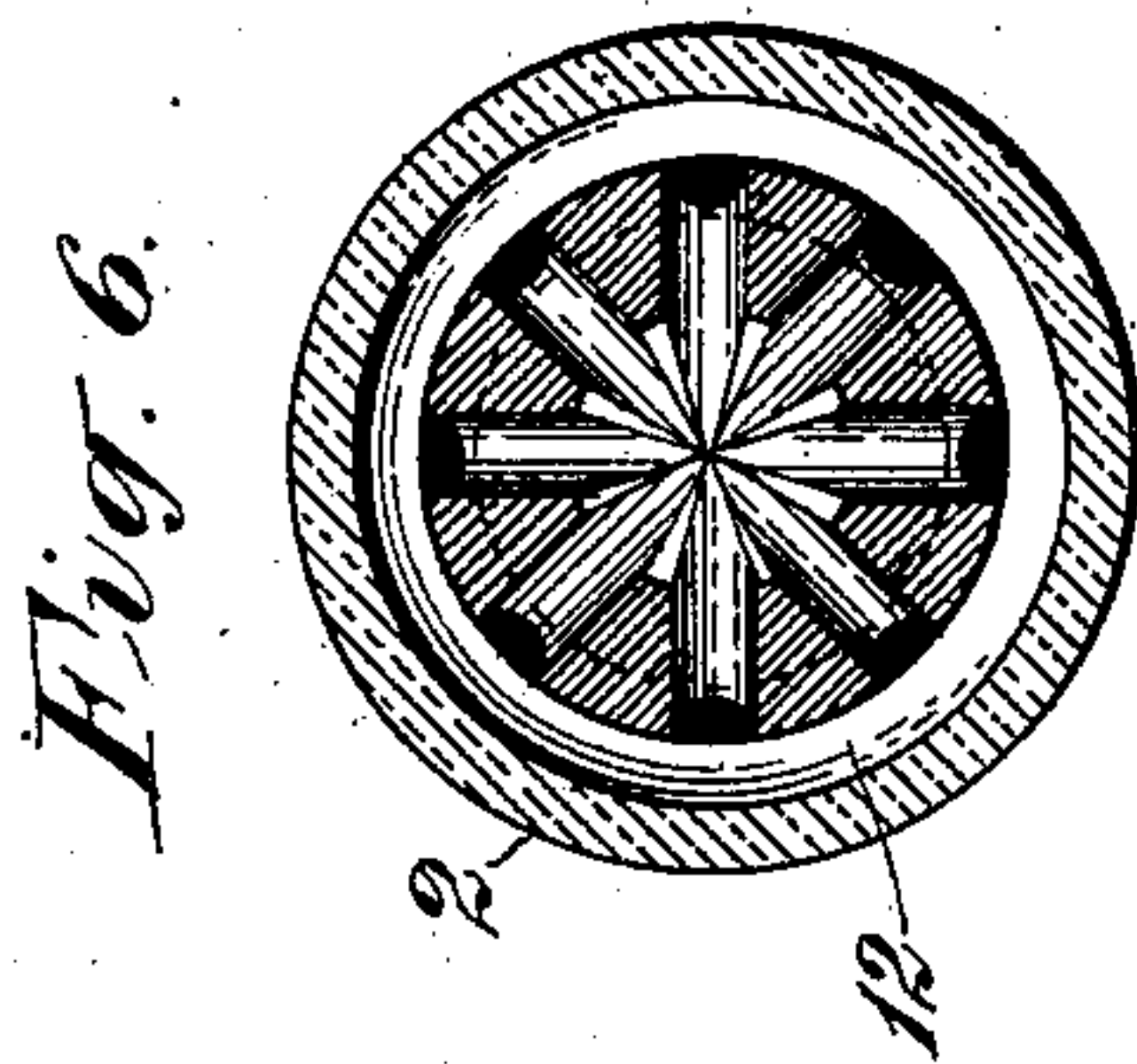
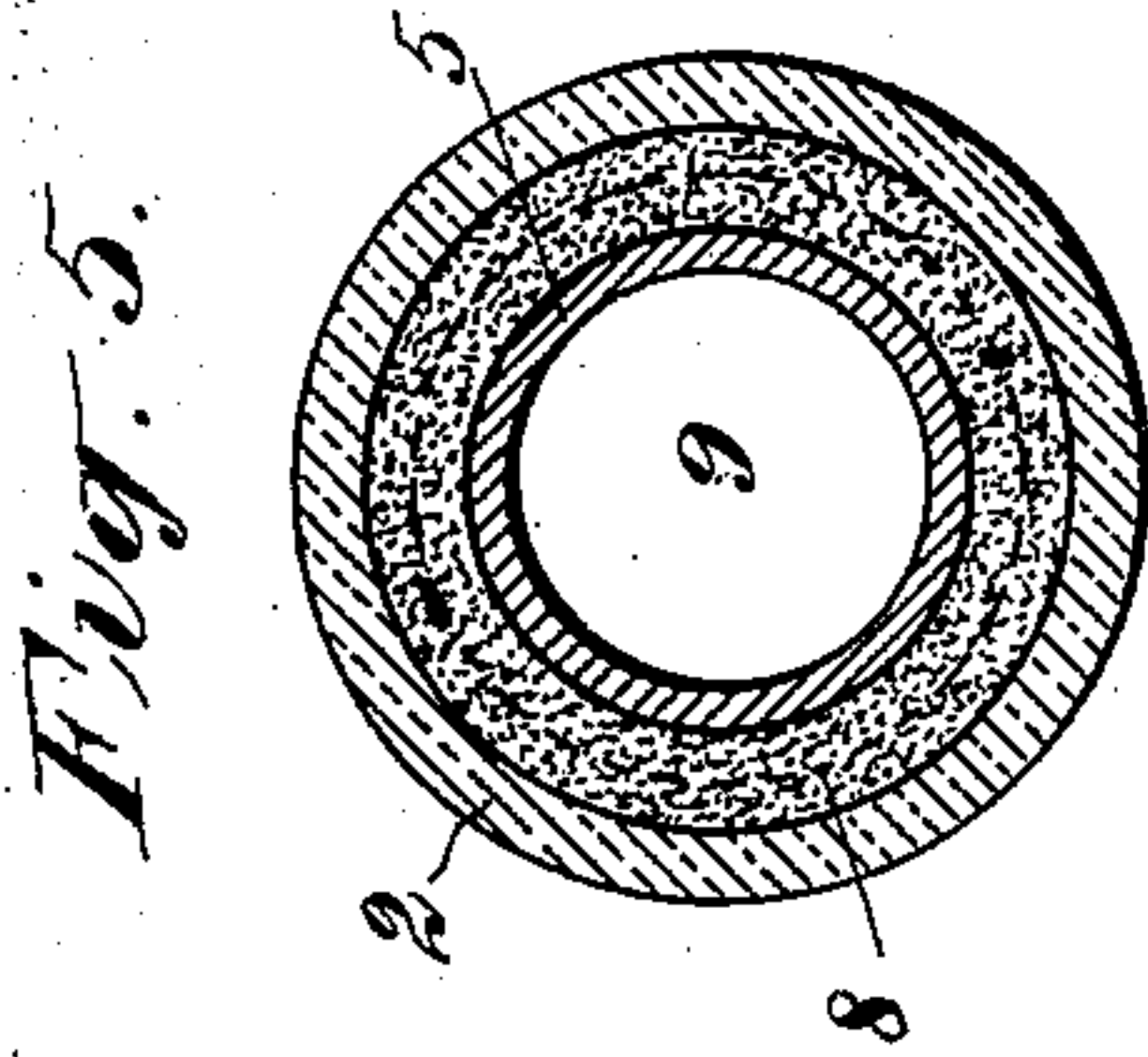
No. 688,542.

Patented Dec. 10, 1901.

J. O'CONNOR.
BOTTLE.

(Application filed June 25, 1901.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN O'CONNOR, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO JOHN GOODCHILD, GUARDIAN, OF NEW YORK, N. Y.

BOTTLE.

SPECIFICATION forming part of Letters Patent No. 688,542, dated December 10, 1901.

Application filed June 25, 1901. Serial No. 65,958. (No model.)

To all whom it may concern:

Be it known that I, JOHN O'CONNOR, a citizen of the United States, residing in the borough of Manhattan, in the city, county, and State of New York, have invented certain Improvements in Bottles or Similar Receptacles, of which the following is a specification.

This invention relates to that class of bottles and similar receptacles for liquids which when once emptied cannot be refilled, or at least cannot be refilled except at an expense or cost too great to permit of the receptacle being used a second time. My Patent No. 655,887, of August 14, 1900, describes a bottle or receptacle of this character, and my present invention relates to improvements in the construction of the said patent, such improvement residing mainly in the valve.

The principal object of the present invention is to provide the bottle with a valve of varying buoyancy—that is to say, the valve *per se* has a specific gravity slightly greater than the liquid with which the bottle is to be filled, but it has a cavity or air-chamber in its top open exteriorly, so that when the valve is inverted in the liquid in the bottle-neck air enough will be incarcerated in said cavity or chamber to supply the buoyancy necessary to carry the valve up through the liquid to its seat.

In the accompanying drawings, which illustrate the invention, Figure 1 is an axial section of the neck and upper part of a bottle embodying the invention. Fig. 2 is a side elevation of the closing-plug, detached. Fig. 3 is a plan of the valve, detached. Fig. 4 is a side elevation of the valve, detached and partly broken away at the upper part. Figs. 5, 6, and 7 are transverse sections of the bottle-neck and plug in the respective planes indicated by the lines x^5 , x^6 , and x^7 in Fig. 1.

1 designates the upper part of the bottle or receptacle, and 2 the neck thereof. At the bottom of the cavity in the neck is secured a coned valve-seat 3, provided with a cork packing-ring 4. In the neck is fitted a plug 5, having a cork packing-ring 6 and a flange 7 at the top. This plug is secured by cement 8 and has a central bore 9 to receive an ordinary cork or stopper 10. So far as de-

scribed the plug is substantially the same as that shown in my before-mentioned patent.

At the bottom of the bore 9 are radial cross-bores 11 in the plug, which open at their outer ends into an internal annular groove 12 in the bottle-neck, and these bores at their outer ends connect with annular grooves 13 in the outer surface of the plug for the outward flow of the liquid from the bottle. The lower end of the plug has a concavity 14, which opens to a ball-chamber 15 in the bottle-neck, which latter is laterally enlarged to form this chamber.

16 is the valve, which is hollow and preferably of glass. This valve is conical where it fits into the valve-seat and cylindrical above and is provided exteriorly with ribs 17. In the top of the valve is an air chamber or cavity 18, and in the center of this cavity is an elevation 19, upon which bears a ball 20, which bears at its top against the plug 5 at the margin 21 of the cavity in the lower end of the plug. Thus the weight of the ball is transmitted to the center or axis of the valve to hold it down instead of being placed to bear on the valve at one side, as in other constructions. I find it essential to good results that the pressure should be at the center of the valve. The valve 16 has a specific gravity a little greater than that of the liquid of the receptacle or bottle, so that it will sink therein; but when inverted by the turning of the bottle and liquid is forced into the bottle air will be incarcerated in the cavity 18 in the top of the valve in quantity sufficient to render it buoyant or give it a specific gravity less than that of the liquid, and consequently it will rise to its seat, which will then be above it, thus preventing the refilling of the receptacle. Thus it will be seen that the valve has an internal air-chamber which is normally closed and an external air-chamber which is normally open and adapted to be sealed by the incoming liquid, so as to reduce the normal specific gravity of the submerged valve and render it lighter than the submerging liquid.

The object of the radial bores 11 in the plug and the internal annular groove 12 in the neck is to deflect a wire if it be introduced and to aid in preventing the wire from reaching the

valve 16. At the bottom of the bore 9 these bores form radial grooves to receive and deflect an inserted wire.

Having thus described my invention, I
5 claim—

The combination with the receptacle having a valve-seat in its neck, and a closing-plug, of a valve between said plug and seat and provided with an elevation in its crown en-
10 circled by a depression, and a ball having nor-

mally a bearing below on said elevation at the axis of the valve, and bearing above on the margin of said plug, substantially as set forth.

In witness whereof I have hereunto signed my name, this 21st day of June, 1901, in the
15 presence of two subscribing witnesses.

JOHN O'CONNOR.

Witnesses:

HENRY CONNETT,

PETER A. ROSS.