

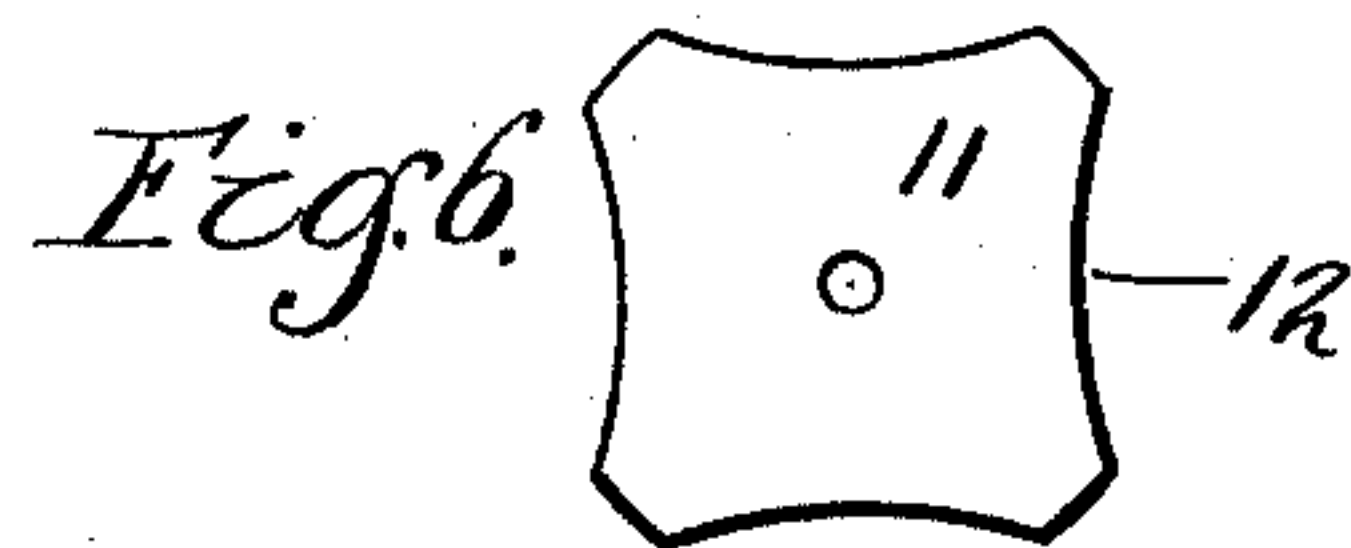
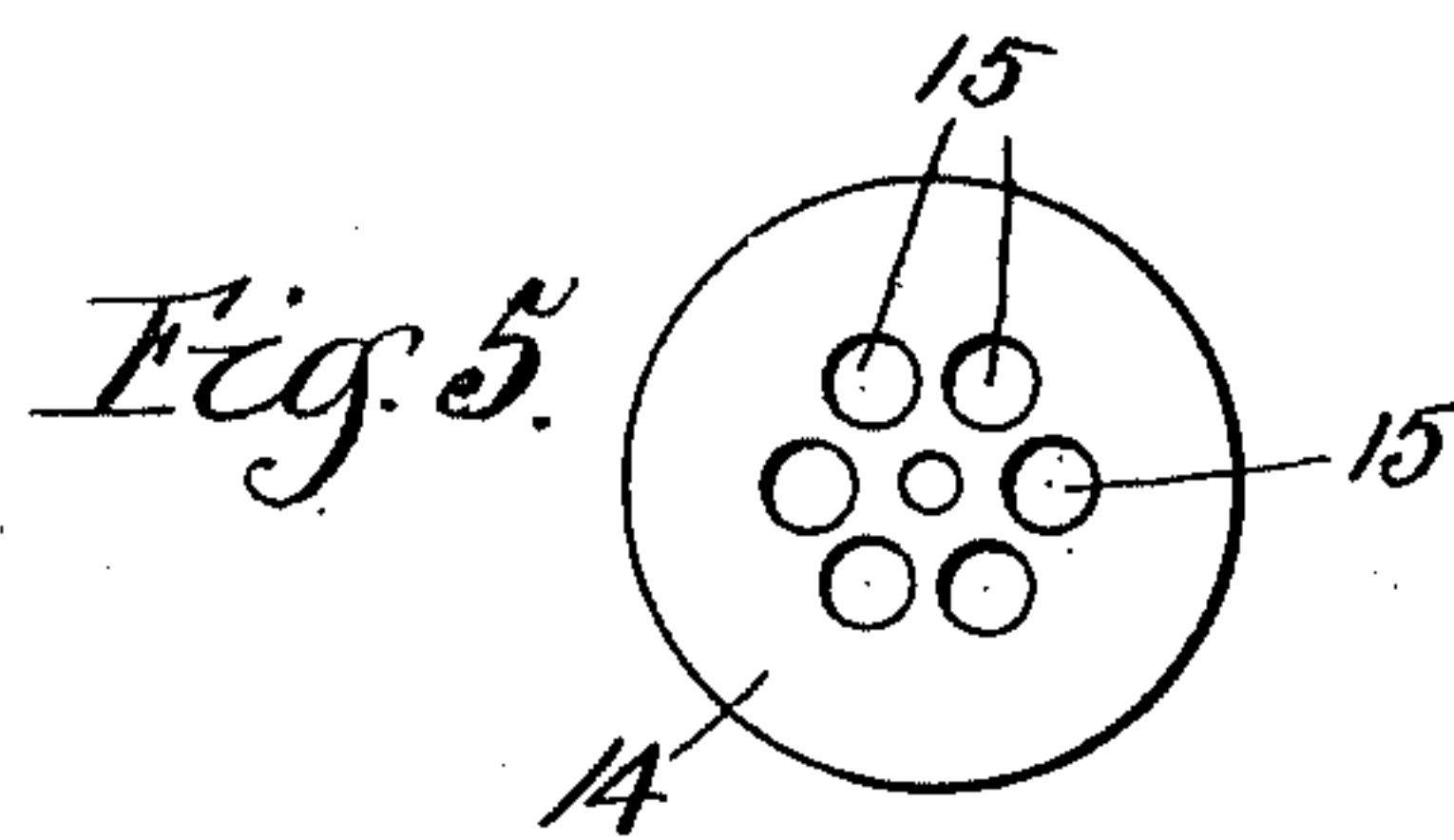
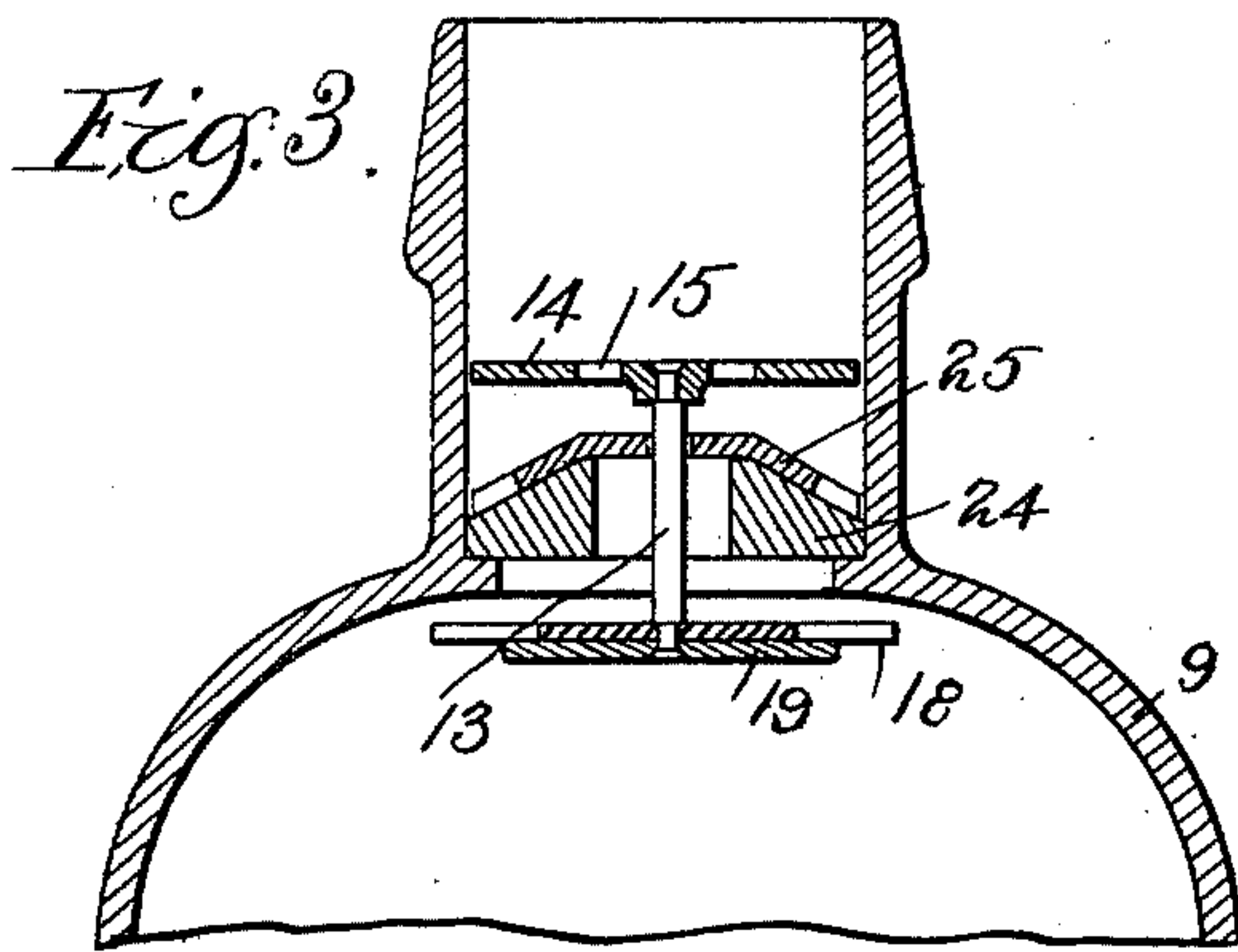
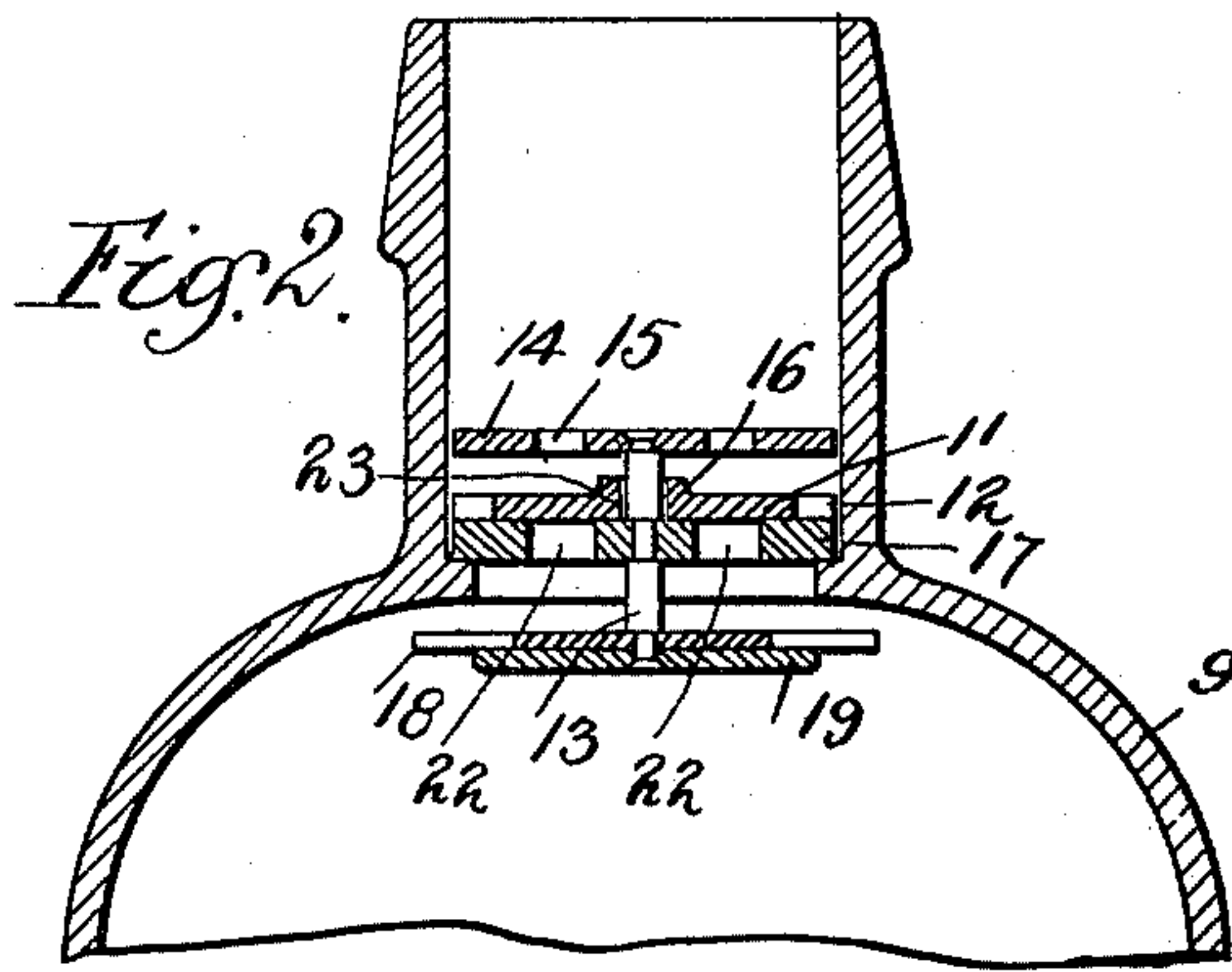
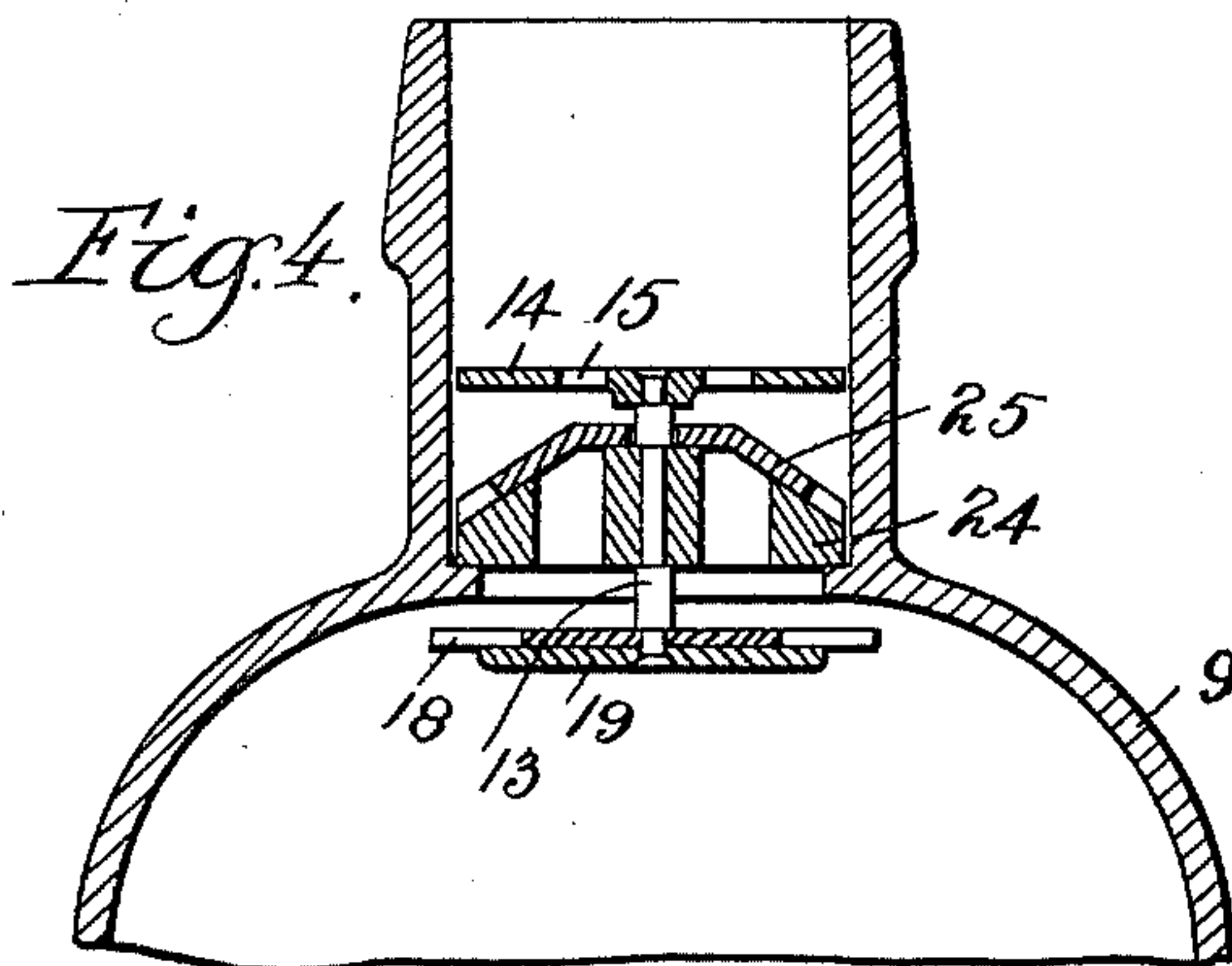
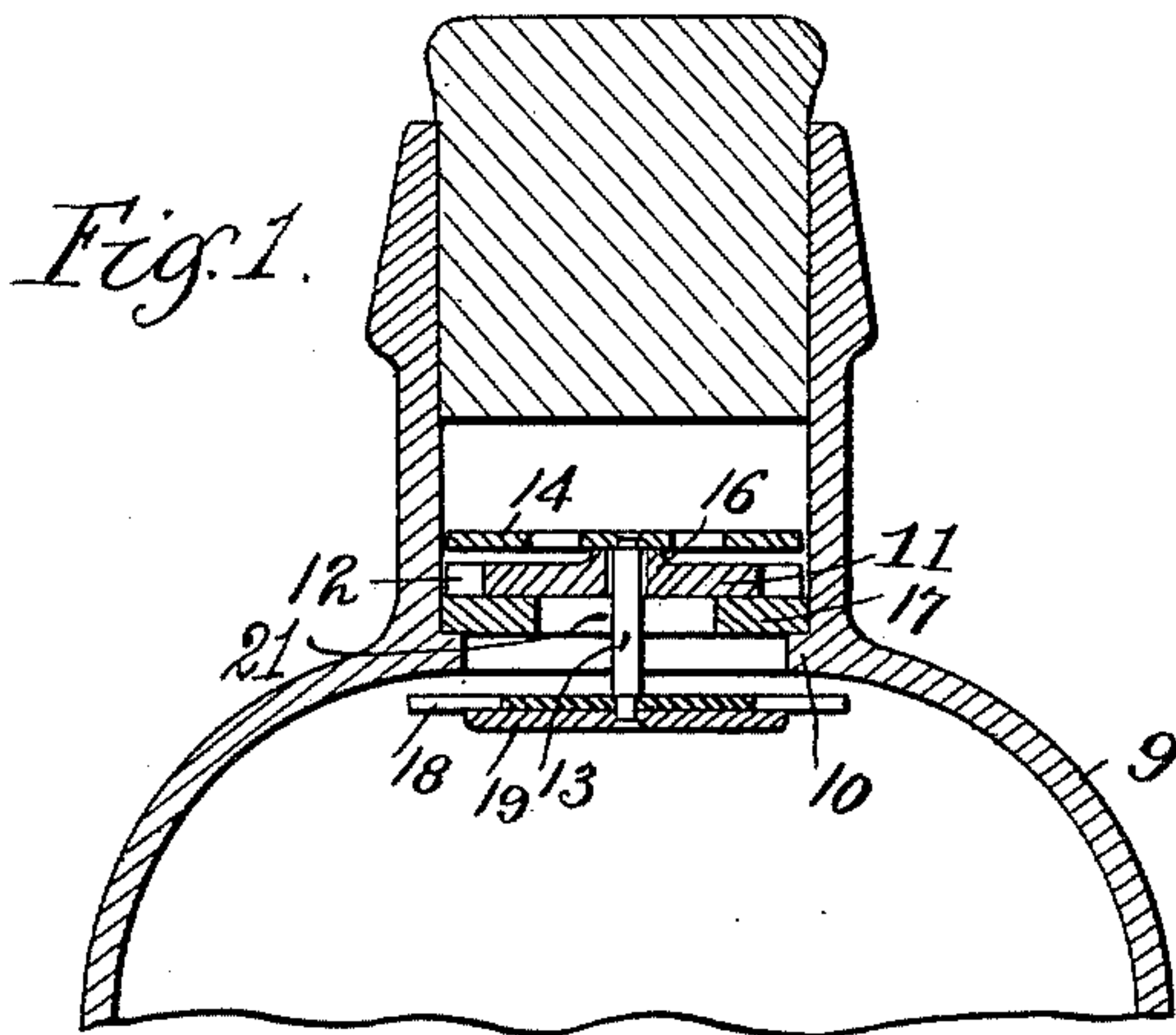
No. 619,312.

Patented Feb. 14, 1899.

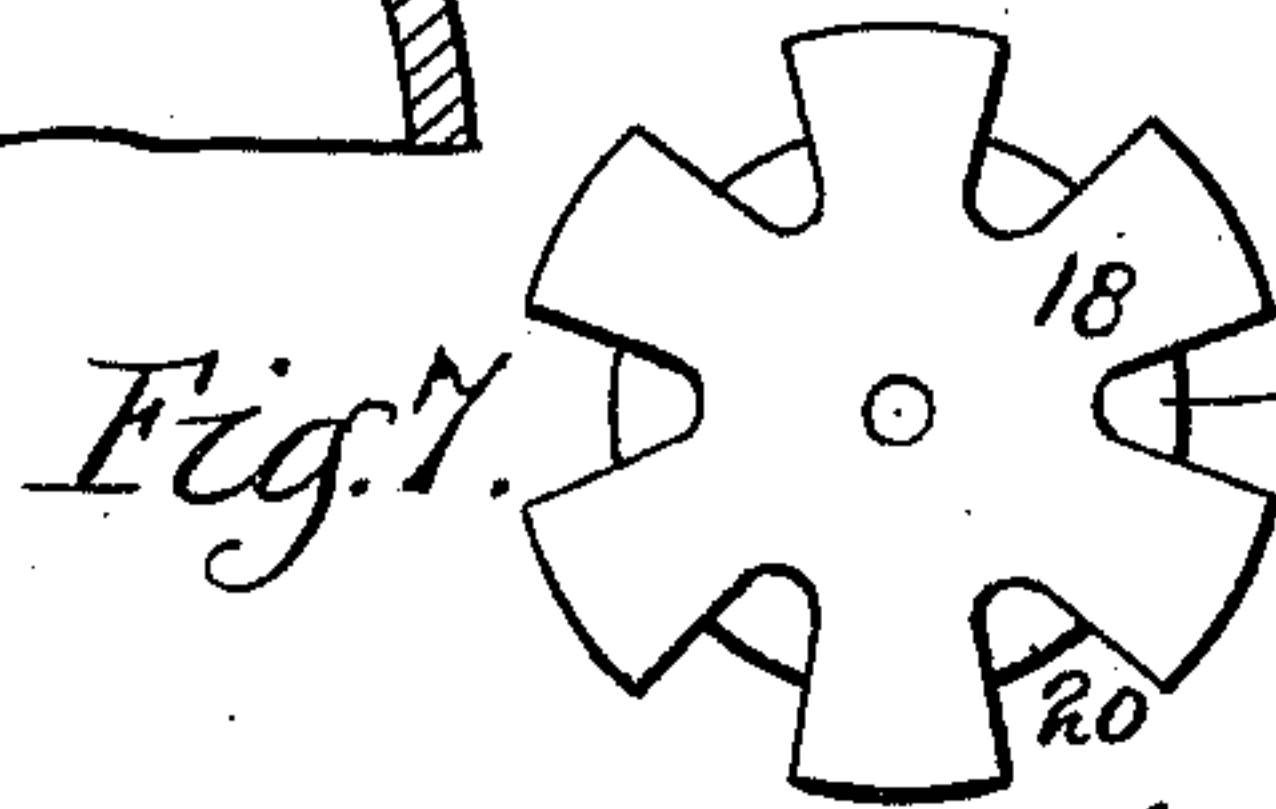
J. L. JACKSON.
NON-REFILLABLE BOTTLE.

(Application filed Sept. 22, 1897.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN L. JACKSON, OF CHICAGO, ILLINOIS.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 619,312, dated February 14, 1899.

Application filed September 22, 1897. Serial No. 652,651. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. JACKSON, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to non-refillable bottles, and has for its object to provide a bottle of this class in which the stopper may be readily inserted into the bottle-neck and locked non-removably therein after the bottle has been filled and in which refilling of the bottle will be effectually prevented; also, to provide a bottle and stopper which may be manufactured at a cost not materially above that of ordinary bottles.

I accomplish the objects of my invention as hereinafter specified and as illustrated in the drawings.

That which I regard as new is set forth in the claims.

Referring to the drawings, Figure 1 is a vertical section showing the valve-supporting disk. Fig. 2 is a similar view showing a modified arrangement of the valve-disk. Figs. 3 and 4 are views showing modified forms of valves and valve-disks. Fig. 5 is a plan view of the protecting-disk. Fig. 6 is a similar view of the valve-disk shown in Figs. 1 and 2, and Fig. 7 is a plan view of the locking-disks.

In the drawings, 9 indicates a bottle which is provided with an internal flange 10 or other suitable constriction in its neck, as shown in the drawings, said flange being placed as far from the top as practicable. The flange 10 may be a true continuous flange, as illustrated, or it may consist of a series of internal projections arranged in substantially the same zone, or the bottle-neck may be gradually contracted from the outer to the inner part thereof, as desired. This flange or the contracted part of the neck serves to support a certain part of the stopper and prevent it from being forced into the bottle, as well as to prevent its withdrawal, as will be hereinafter described.

11 indicates the valve, which, as shown in Figs. 1 and 6, consists of a disk of suitable material, as glass or metal, provided with de-

pressions in its periphery or other passages 12 for the liquid. The valve 11 is loosely carried in the bottle-neck and is loosely mounted upon a stem or rod 13, which extends above and below the valve, as shown. At its upper end the stem 13 carries a protecting device consisting of a plate or disk 14, which in the form of my invention here shown is fixedly secured to the stem. The disk 14 is provided with a number of passages 15, which do not register with the passages 12 in the valve 11. These passages 15 may be of any suitable form, such as circular, oval, slit, &c. The disk 14 is preferably made of glass or metal; but any other suitable material may be used. To prevent the disk 14 from being forced down upon the stem 13, the latter is provided with a shoulder 26, as shown in Fig. 1, and to hold the valve 11 and disk 14 apart when the bottle is inverted one of said members, as the valve, is provided with a raised portion 16, as shown in Fig. 1. Instead of this arrangement, however, a washer may be placed on the stem between the valve and disk 14, or some other suitable arrangement may be made.

17 indicates a perforated disk or plug which is placed upon the stem 13 immediately below the valve 11 and rests upon the flange 10 when the stopper is in place, as shown in Fig. 1. The disk 17 may either be loose upon the stem, as shown in Fig. 1, or it may be tightly fitted thereupon, as shown in Fig. 2. When the former arrangement is used, the disk 17 is provided with a single central passage 21, as shown in Fig. 1, and is secured to the flange 10 or to the bottle-neck by cement or by other suitable means, in some instances it being sufficient simply to make the disk of such size as to fit tightly in place, as illustrated in Fig. 1. When the arrangement shown in Fig. 2 is used, the disk 17 may be loosely fitted in the bottle-neck, resting upon the flange 10, which in such arrangement must be continuous to prevent liquid from flowing into the bottle around said disk. In this construction the disk 17 is provided with a plurality of perforations 22, which are out of alinement with the passages 12, as shown in Fig. 2. The disk 17 serves as a seat for the valve, and when fixedly secured in place it

may also act to prevent withdrawal of the stopper by engaging the retaining or locking device.

The locking devices by which the parts are retained in the bottle-neck are carried at the lower end of the stem 13, and consist, as here shown, of a flexible disk 18 and an inflexible disk 19 immediately thereunder. The inflexible disk is slightly less in diameter than the internal diameter of the flange 10 or where the disk 17 is fixedly secured in the bottle-neck than the internal diameter of said disk. The diameter of the flexible disk is somewhat greater than that of the inflexible disk, the arrangement being such that when the edges of the flexible disk are bent over the inflexible disk the device cannot pass the flange above it, the parts being thus irremovably secured in place. The flexible disk, as herein shown, is provided with notches 20 in its edges to permit the passage of liquid; but other suitable means may be employed to prevent the retaining or locking device from closing the outlet when the bottle is completely or partly inverted.

By the term "disk" as used herein I mean to include not only true disks, but also such other forms as perform equivalent service.

The operation of my improved bottle is as follows: The disk 17 is supported and prevented from being forced into the bottle by the flange 10 or constriction and serves as a seat for the valve. The advantage of this arrangement is that by it the valve-seat may be made separately from the bottle, which may be made roughly without accurate finishing, while the valve-seat may be properly formed to cooperate efficiently with the valve. Furthermore, the passage in the neck of the bottle may be reduced in diameter more effectively by the disk 17 than by a fixed or integral internal flange or constriction and the cost of manufacture is less. The protecting-disk 14 prevents tampering with the valve, the perforations 15 being arranged out of alinement with the passages 12 for that purpose, and while the arrangement and location of the perforations or passages in the protecting-disk and valve may be altered they should be kept out of alinement, and the passages in the valve-disk must be so placed as to be closed when the valve is on its seat. The locking device permits the stopper to be inserted after the bottle has been filled and effectually prevents its removal thereafter. When the bottle is inverted, the valve 11 falls away from its seat, permitting the contents of the bottle to pass out through the passages 12 and 15, the projection 16 holding the valve 11 and disk 14 out of contact, so that the passages 12 will not be closed by the disk 14.

Where the disk 17 is loosely fitted in the bottle-neck, as shown in Fig. 2, it is prevented from following the valve 11 when the bottle is inverted by a sleeve 23 or a shoulder on the stem 13.

Figs. 3 and 4 show disks 24 and valves 25,

which operate similarly to the disks 17 and valves 11. (Shown, respectively, in Figs. 1 and 2.) The disks 24 and valves 25 are conical in form, however, instead of flat, as shown in Figs. 1 and 2.

I have described my improvements specifically as illustrated in the accompanying drawings, but do not restrict myself to specific details of construction except where I have claimed them specifically, as various modifications may be made without departing from my invention. Neither do I wish to be limited to the use of my invention in connection with bottles having a flange arranged as shown, as all that is essential is that a flange or obstruction be so arranged as to support the disk 17 in the bottle-neck and prevent its being forced into the bottle and that it coact with the retaining or locking device when the disk 17 is arranged loosely in the neck to prevent the withdrawal of the stopper from the bottle.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a bottle having an internal obstruction or flange, and a disk adapted to rest upon said flange and constrict the passage in the bottle-neck, of a stopper supported by said disk, said stopper consisting of a valve, a retaining device adapted to be inserted past said flange and to non-removably engage it after insertion, to lock the valve non-removably in the bottle-neck, and means for permitting outflow of liquid past the retaining device, substantially as described.

2. The combination with a bottle having an internal obstruction or flange, and a disk adapted to rest upon said flange and constrict the passage in the bottle-neck, of a stopper supported by said disk, said stopper consisting of a valve, a stem extending through said valve, a protecting device secured to the upper end of said stem, a locking device secured to the lower end of said stem and adapted to non-removably engage said flange or obstruction, after insertion, and means for permitting outflow of liquid past the locking device, substantially as described.

3. The combination with a bottle having an internal flange, of a disk supported on said flange, and constricting the passage through the bottle-neck, a valve supported by said disk, a stem extending through said disk and valve, a locking device connected to the lower end of said stem, said locking device being insertible past said flange and non-removably engaging it after insertion, and means for permitting outflow of liquid by the locking device, substantially as described.

4. The combination with a bottle having an internal flange, of a valve-seat supported on said flange, a valve supported on said valve-seat, a stem extending through said valve-seat and valve, a protecting device above said valve, and connected to said stem, a locking device connected to the lower end of said stem,

said locking device being adapted to be inserted past said flange and non-removably engaging it after insertion, and means for permitting outflow of liquid by the locking device, substantially as described.

5 5. A stopper for non-refillable bottles consisting of a valve-disk, a stem extending through said disk, a protecting device secured to said stem above said valve-disk, said valve-disk and protecting device having fluid-passages, such passages being out of alinement with each other, and a locking device connected to the lower end of said stem, substantially as described.

15 6. The combination with a bottle having an internal flange, of a disk supported on said flange constricting the passage through the bottle-neck, a valve supported by said disk, a stem extending through said disk and valve, 20 a protecting device above said valve and connected to said stem, and a locking device connected to the lower end of said stem, said

locking device consisting of an upper flexible disk and lower inflexible disk in juxtaposition thereto, said lower disk being of less diameter than the upper disk, and one or more passages for permitting outflow of liquid by the locking device, substantially as described. 25

7. A stopper for non-refillable bottles consisting of a valve-disk, a stem extending 30 through said disk, a protecting-disk secured to said stem above said valve-disk, said valve-disk and protecting-disk having fluid-passages, the passages of the two disks being out of alinement with each other, a disk below 35 said valve-disk for constricting the passage in the bottle-neck, and a locking device connected to the lower end of said stem, substantially as described.

JOHN L. JACKSON.

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