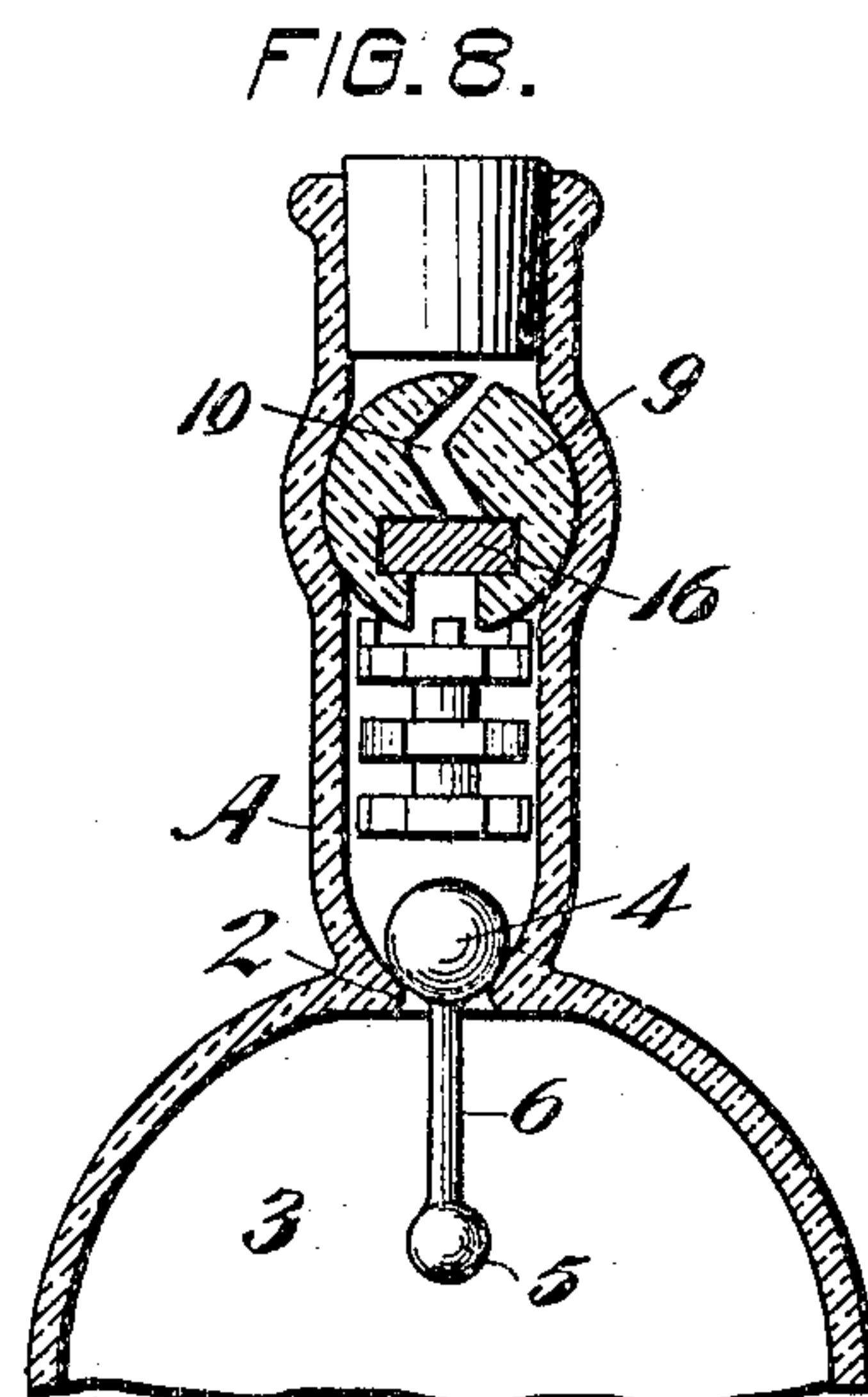
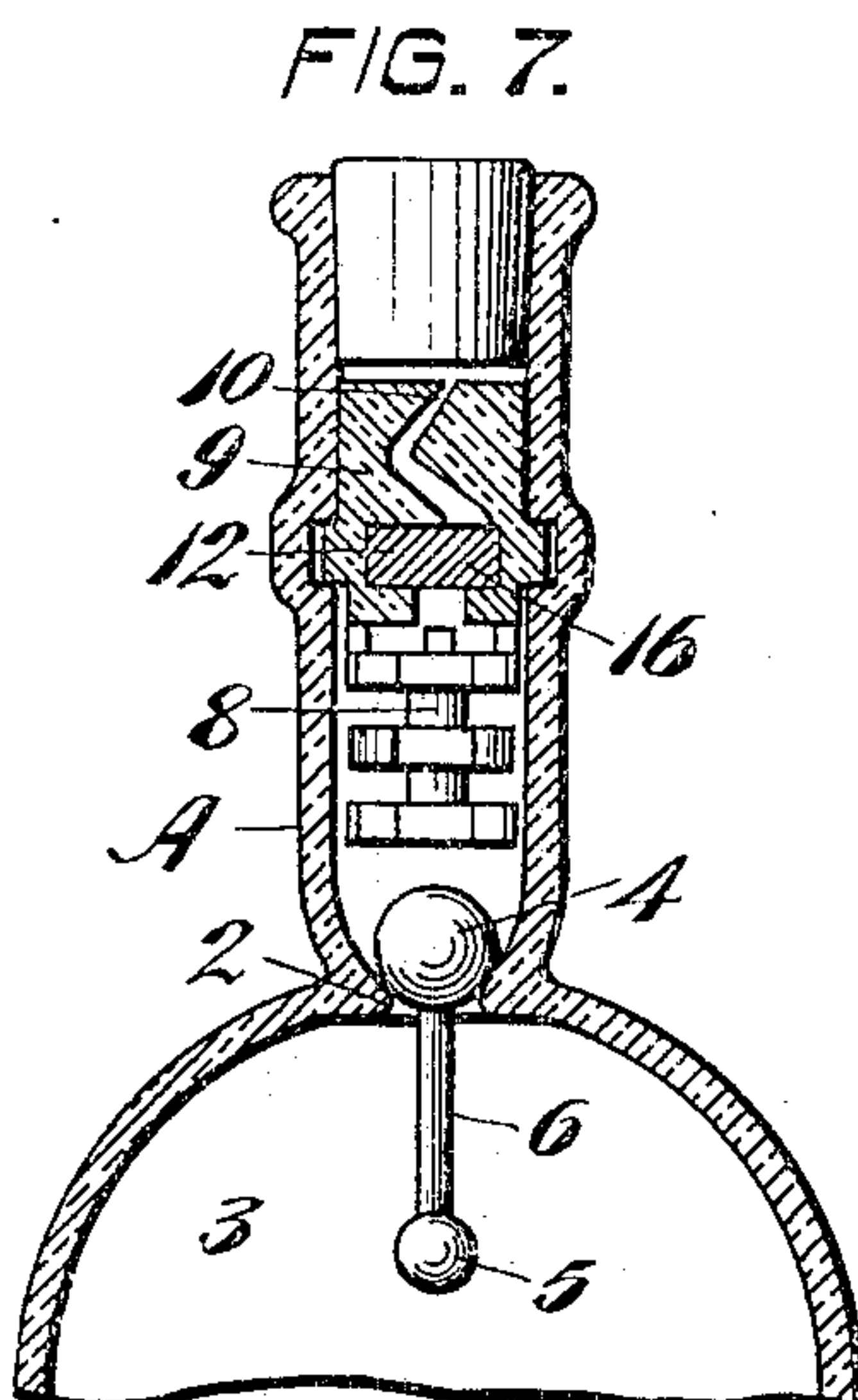
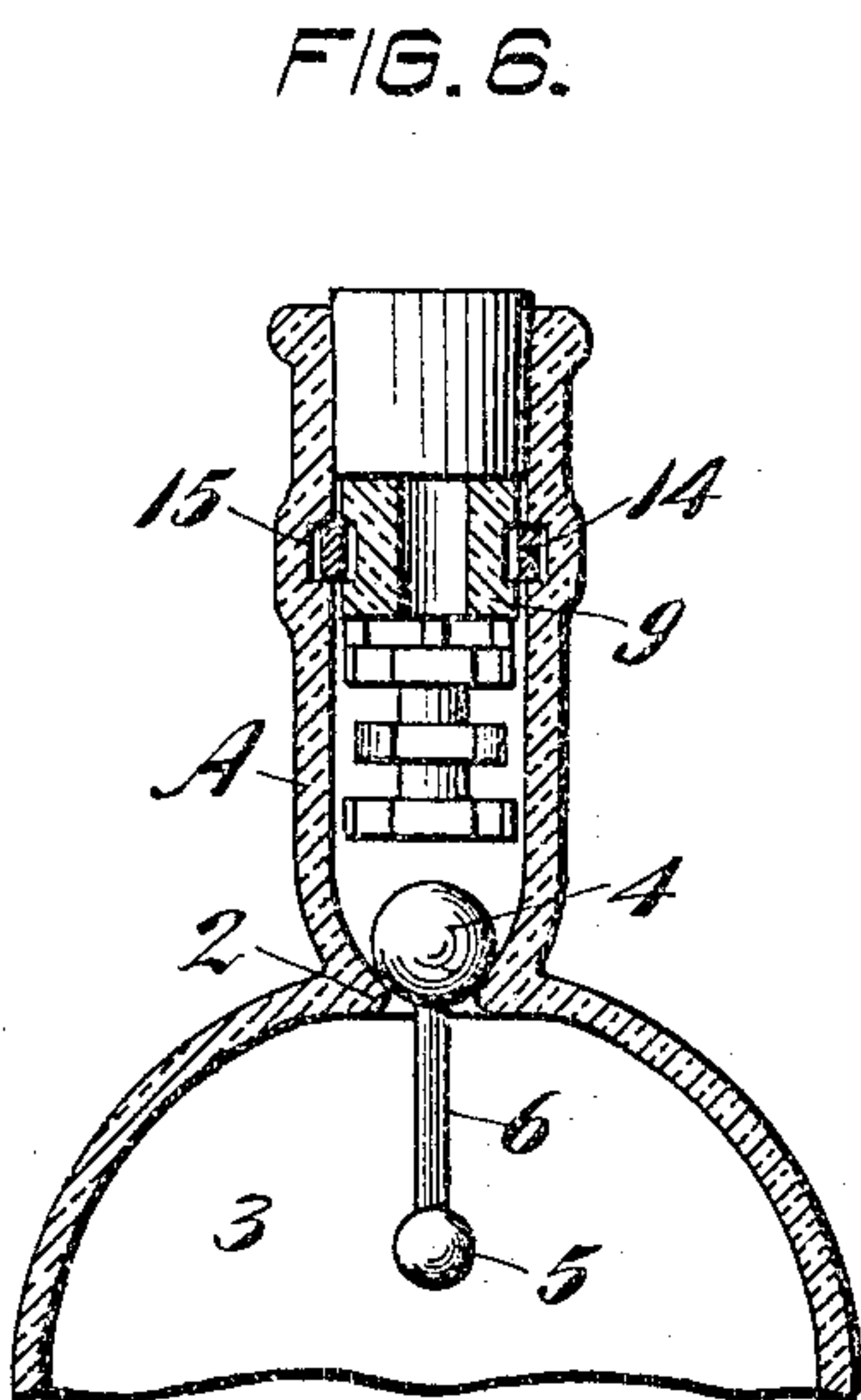
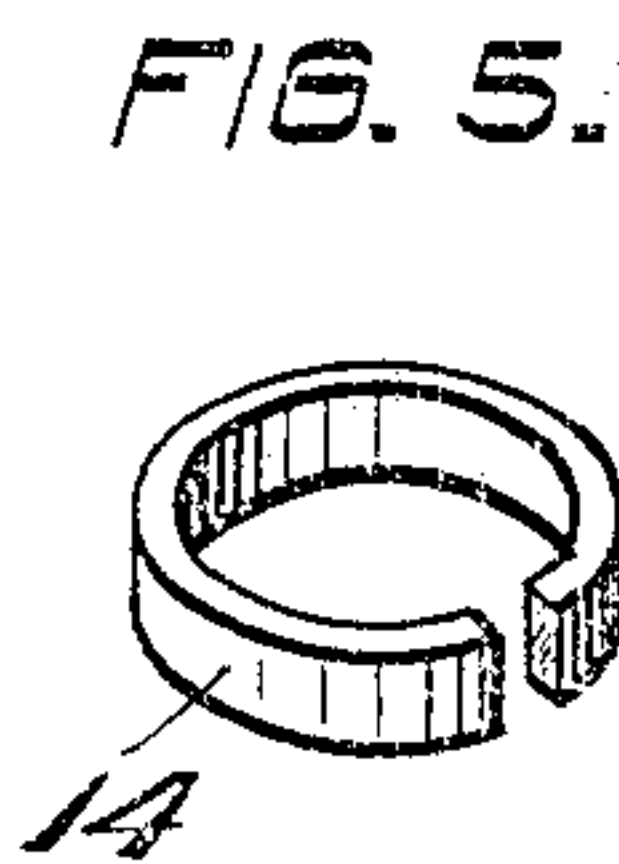
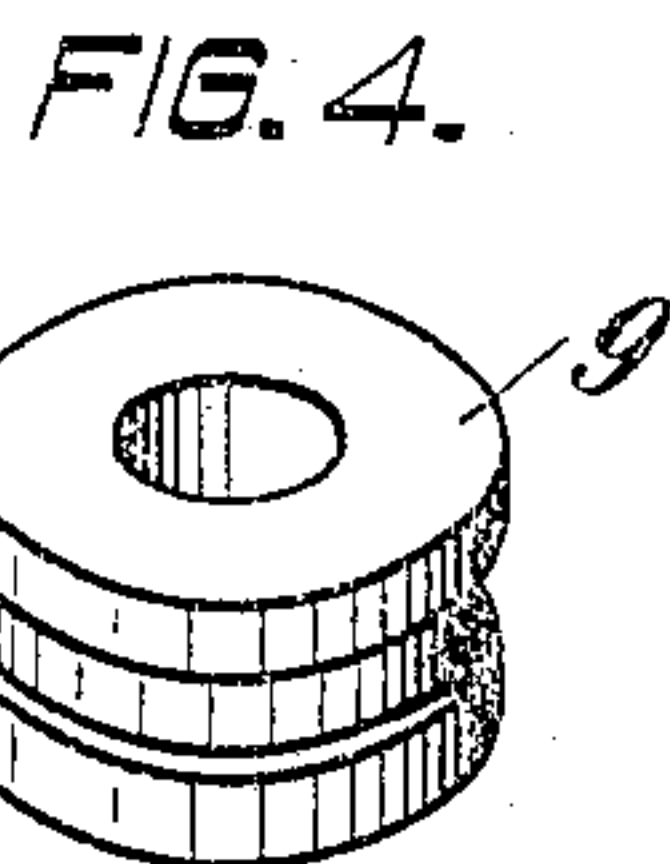
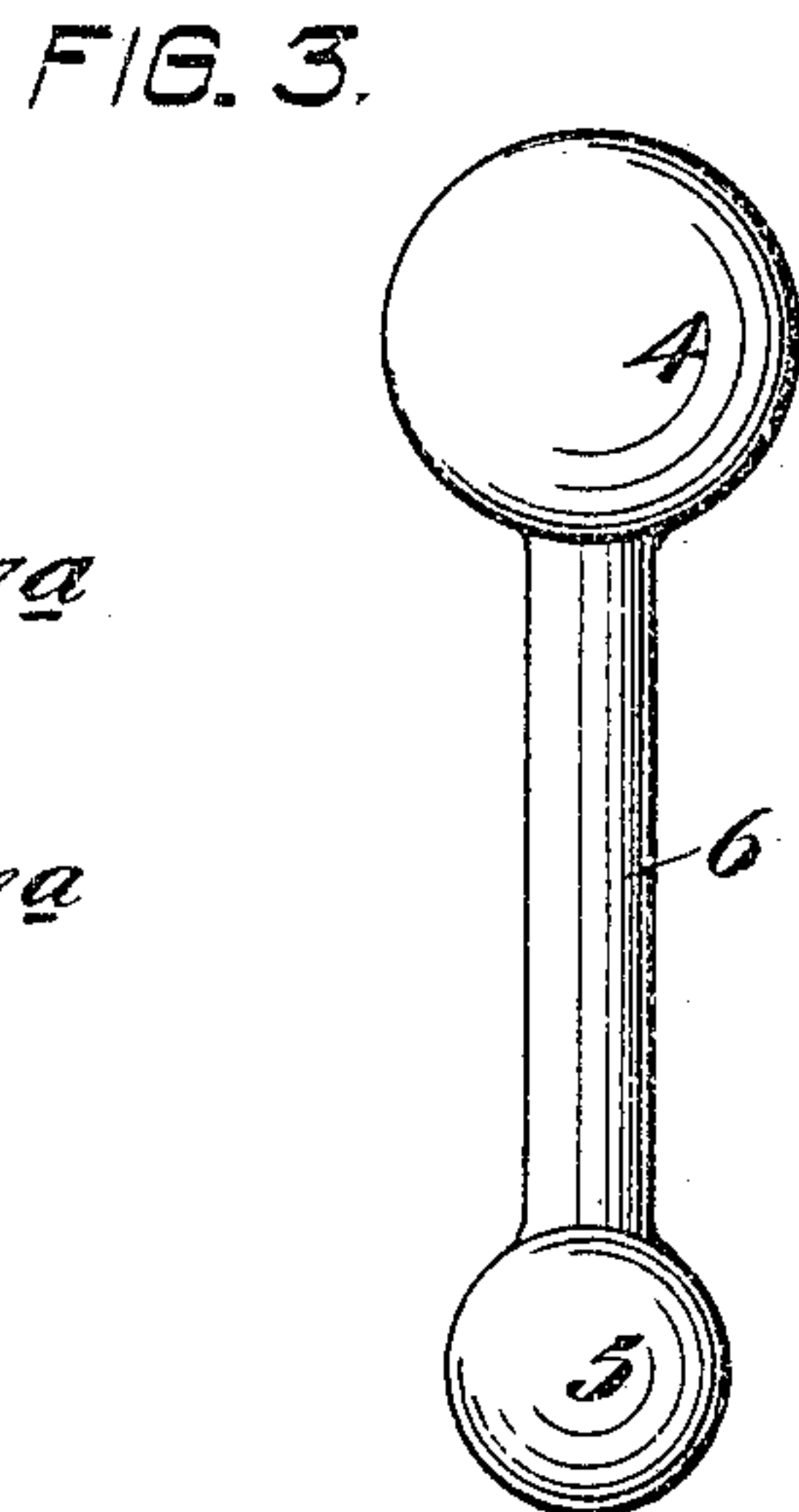
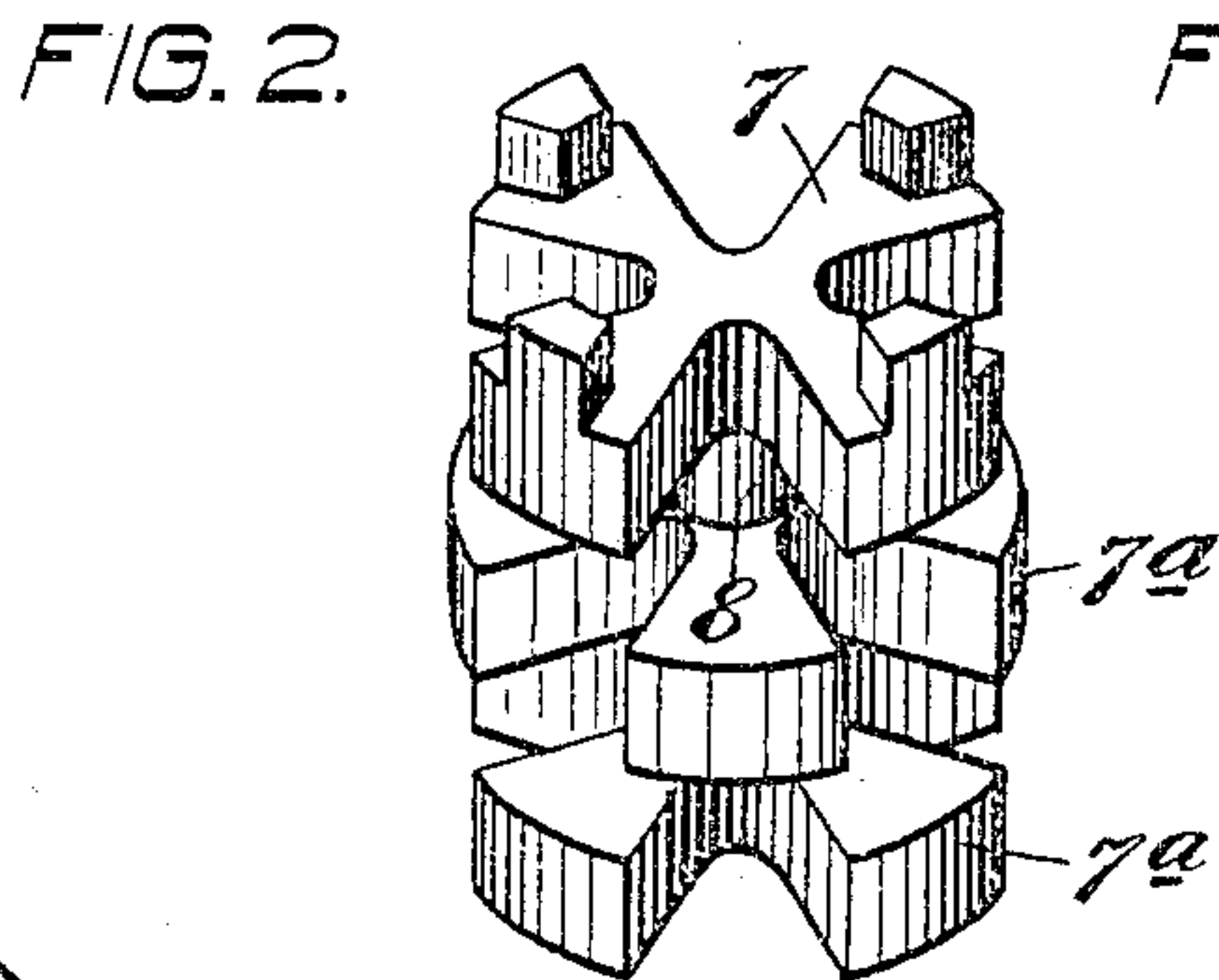
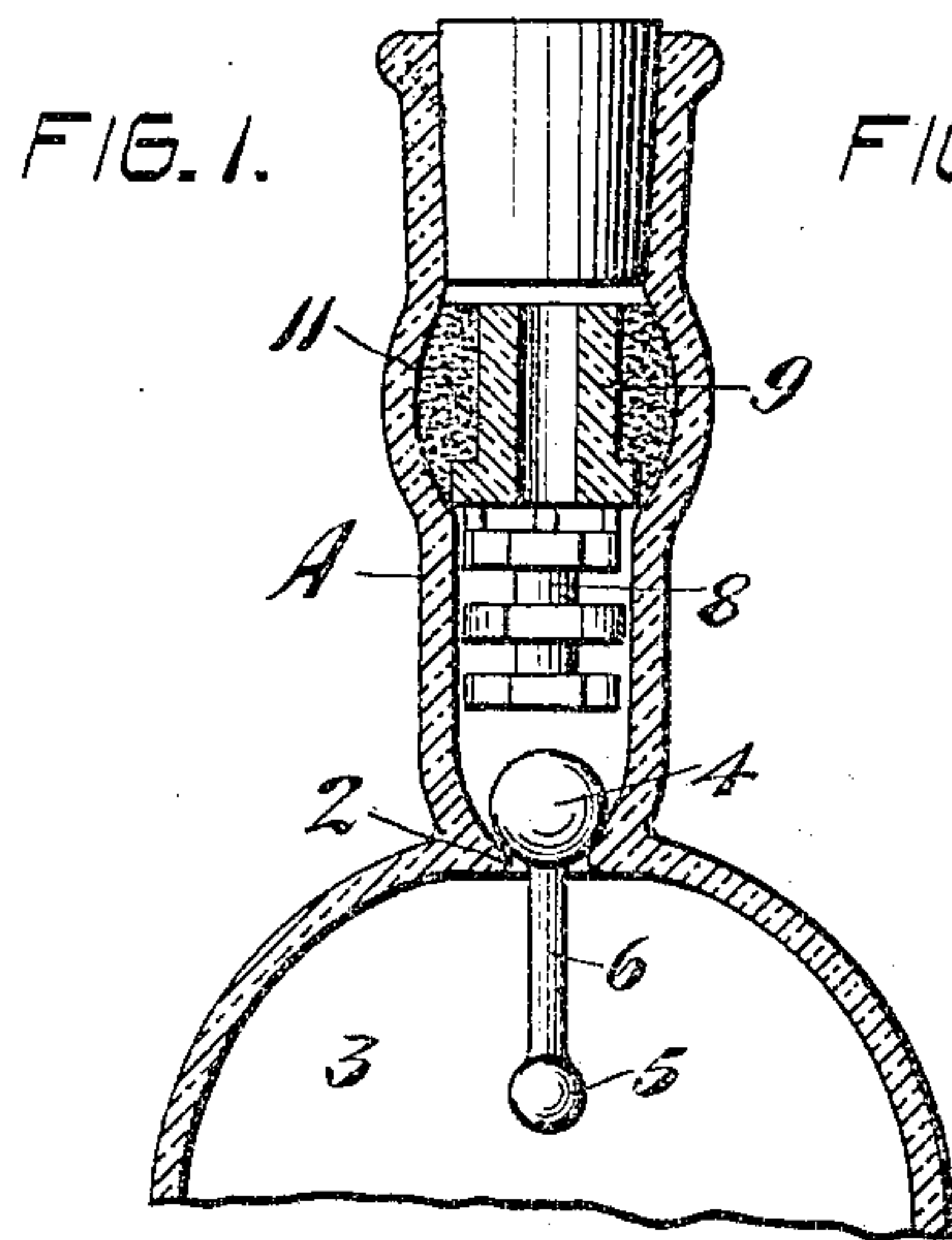


No. 788,115.

PATENTED APR. 25, 1905.

F. A. MULLER.
NON-REFILLABLE BOTTLE.
APPLICATION FILED NOV. 10, 1904.



WITNESSES,
Chas. E. Chapin.
J. H. Morse

INVENTOR,
Frederick A. Muller
By Geo. H. Strong atty

UNITED STATES PATENT OFFICE.

FREDERICK A. MULLER, OF OAKLAND, CALIFORNIA.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 788,115, dated April 25, 1905.

Application filed November 10, 1904. Serial No. 232,093.

To all whom it may concern:

Be it known that I, FREDERICK A. MULLER, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to a device which is designed to prevent the refilling of bottles after their contents have once been exhausted.

It consists in the combination and arrangement of parts which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical section of a portion of a bottle, showing my invention applied. Fig. 2 is a detached perspective view of the plugs 7. Fig. 3 is an enlarged detached view of the valve with its stem and weight. Fig. 4 is a detached perspective view of a plug 9. Fig. 5 shows a split ring detached. Fig. 6 is a view similar to Fig. 1, showing the plugs and split ring in position. Figs. 7 and 8 are views similar to Fig. 6, but showing plugs of modified form.

It is the object of my invention to prevent the refilling of bottles which have once been emptied.

In carrying out my invention the bottle-neck A is blown in such a manner as to form a contracted seat, as at 2, between the neck and the body 3 of the bottle. Within this neck the ball-valve 4 is fitted and adapted to close hermetically upon the seat at 2. In order to retain this ball in position and prevent its being raised from the seat in any way except by absolutely inverting the bottle, I have shown a weight, as at 5, connected with the ball-valve 4 by an intermediate rod or connection, as at 6. This weight depends into the body of the bottle, and if the bottle be turned upon either side it will swing to the lower side of the bottle and will act to retain the valve upon its seat. In order to prevent the introduction of a wire or tampering in any way with this ball-valve through the neck, I have shown various devices interposed between the mouth of the bottle-neck and the ball 4. One of these devices consists of plugs,

as at 7, which are retained in the neck between the plug 9 and the ball 4, and these plugs are formed with radial disks, channeled, as shown plainly in Fig. 2 at 7^a. There may be two or more of these disks connected rigidly by intermediate shanks of smaller diameter, as shown at 8, and the points 7^a are so disposed that the points of one of the plugs will coincide with the interspaces of the adjacent plugs, thus providing a tortuous passage through which it would be impossible to introduce a wire or other implement. An additional protection is provided by means of a plug, as at 9, which is fixed in the neck of the bottle above the plug 7 in various ways. Thus plug 9 may have any suitable or tortuous passage made through it, as at 10, and it is locked into the neck of the bottle in any suitable or desired manner. Thus it may be introduced and fixed in place by means of a body of cement which fills an enlargement in the bottle-neck and also a reduced portion of the plug 9, which coincides with this enlargement, as shown at 11. Another method would be to make the plug in two parts, the lower part of the plug coinciding with the enlargement, and a piece of cork or other expansible or non-corrosive material 16 may be introduced into a chamber in the lower part of the plug, as shown at 12. This substance when expanded by being moistened or otherwise softened will separate the two parts of the plug at the bottom and will force the enlarged lower portion into the corresponding enlargement of the bottle-neck, and thus lock it in place, so that it cannot be removed.

In another form the central portion of the plug may be of a reduced diameter, and an elastic ring, as 14, may be sprung into the groove and the plug then pressed inward until the ring will engage with a coincident annular groove in the bottle-neck, as at 15, which prevents removal of either plug or ring. These devices working in unison form a very complete obstruction to the introduction of liquid from the outside; but by reason of the passages through and around the different parts the contents may be readily discharged when the bottle is inverted.

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

1. A bottle having a seat at the junction of
5 the neck and body, a valve closable upon the seat, a plug fixed above the valve composed of a plurality of separated disks, with openings which do not register, and intermediate shanks
10 of smaller diameter, and a second plug fixed above the first-named plug and having a tortuous passage therethrough.

2. A bottle having a seat at the junction of the neck and body, a valve closable upon the seat, a superposed plug composed of parallel

disks with openings which do not register and
intermediate shanks of smaller diameter, a
15 second plug located above that first named, and having a tortuous passage therethrough and devices by which said plugs are permanently fixed in the bottle-neck. 20

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FREDERICK A. MULLER.

Witnesses:

S. H. NOURSE,
HARRY J. LASK.