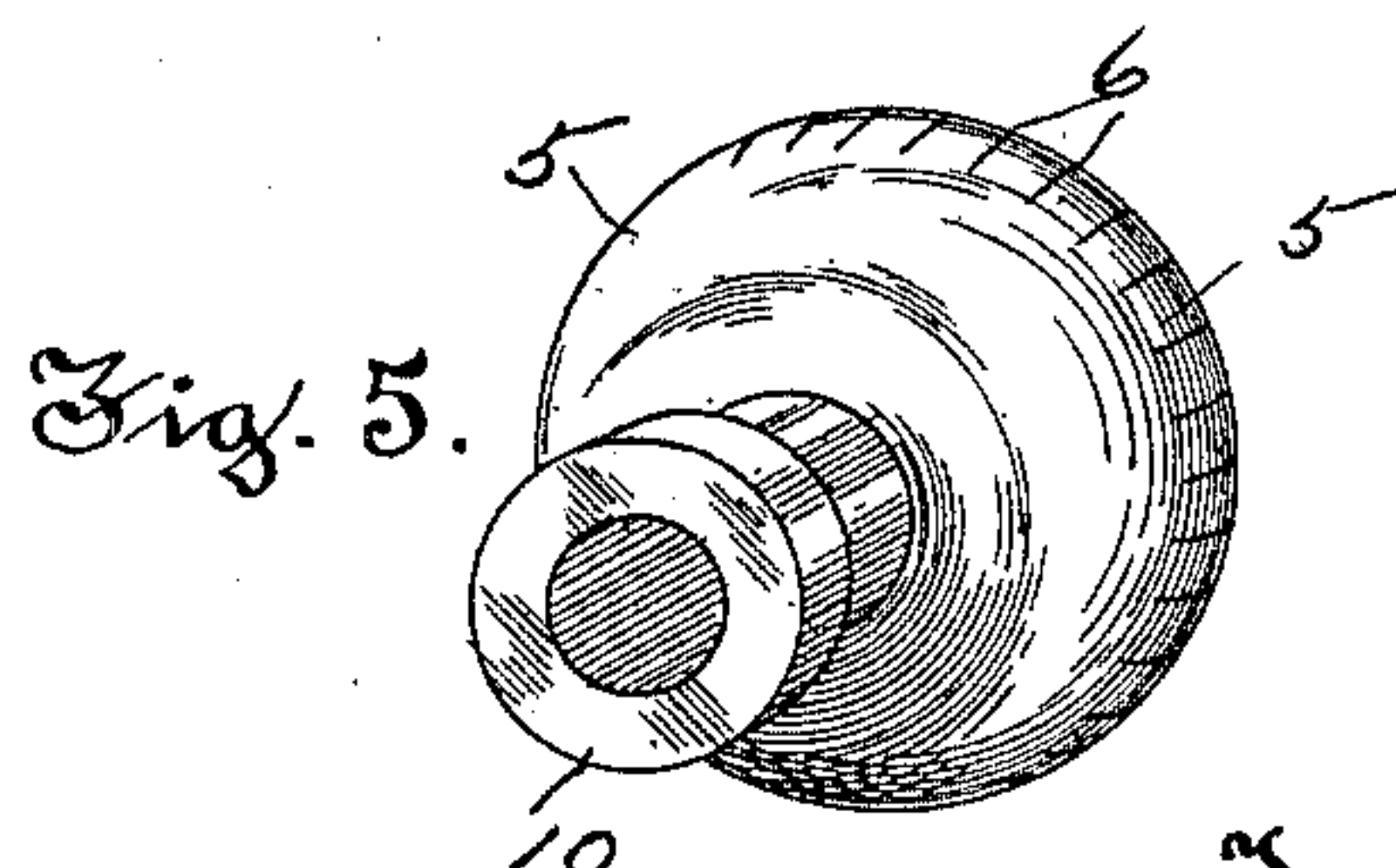
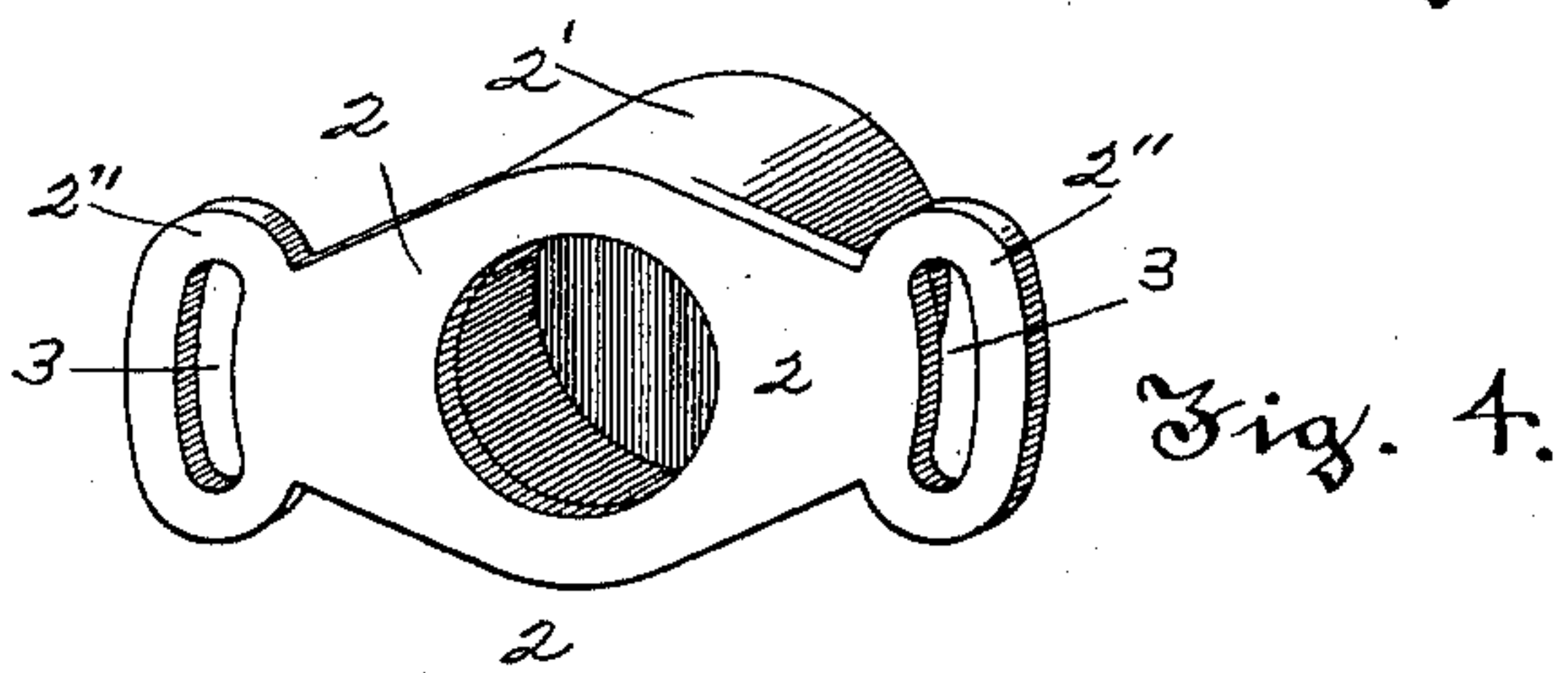
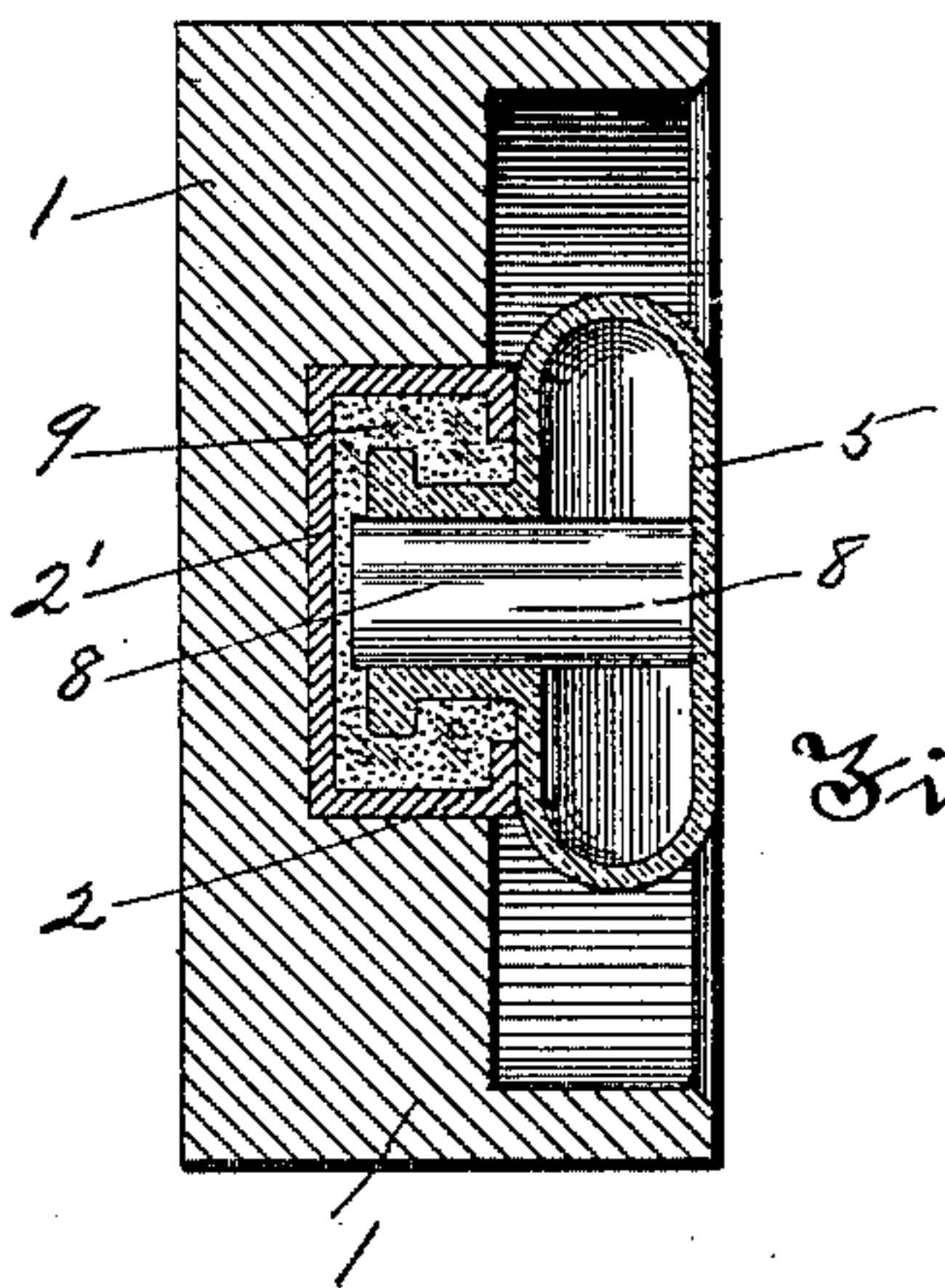
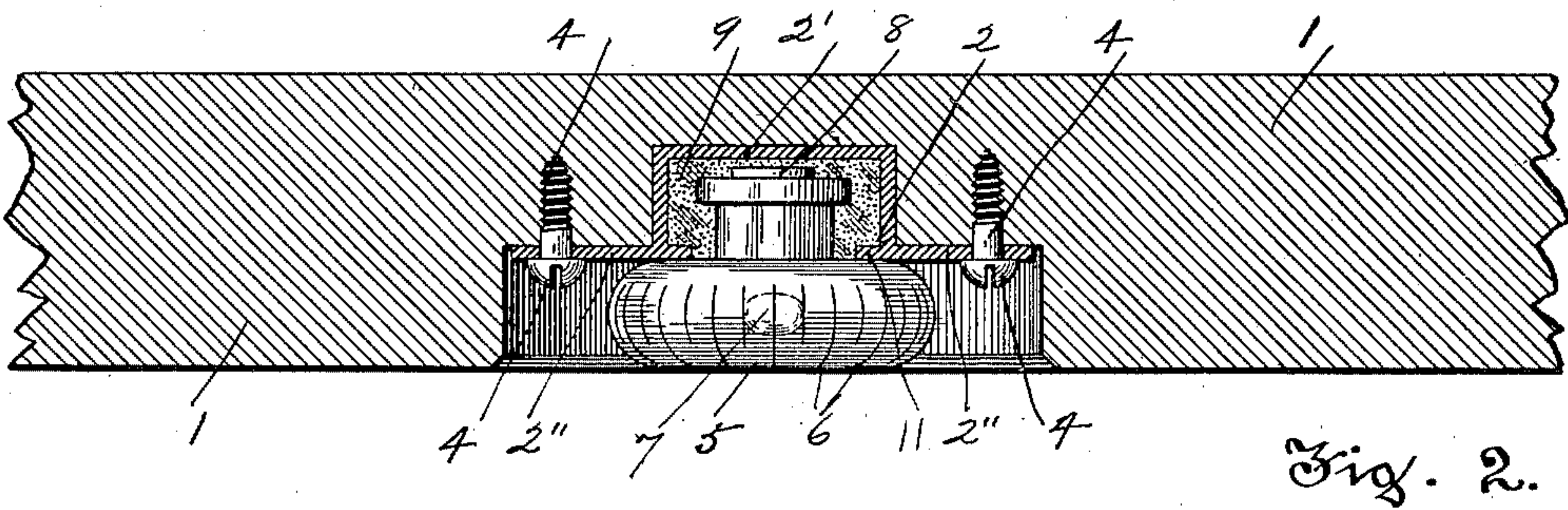
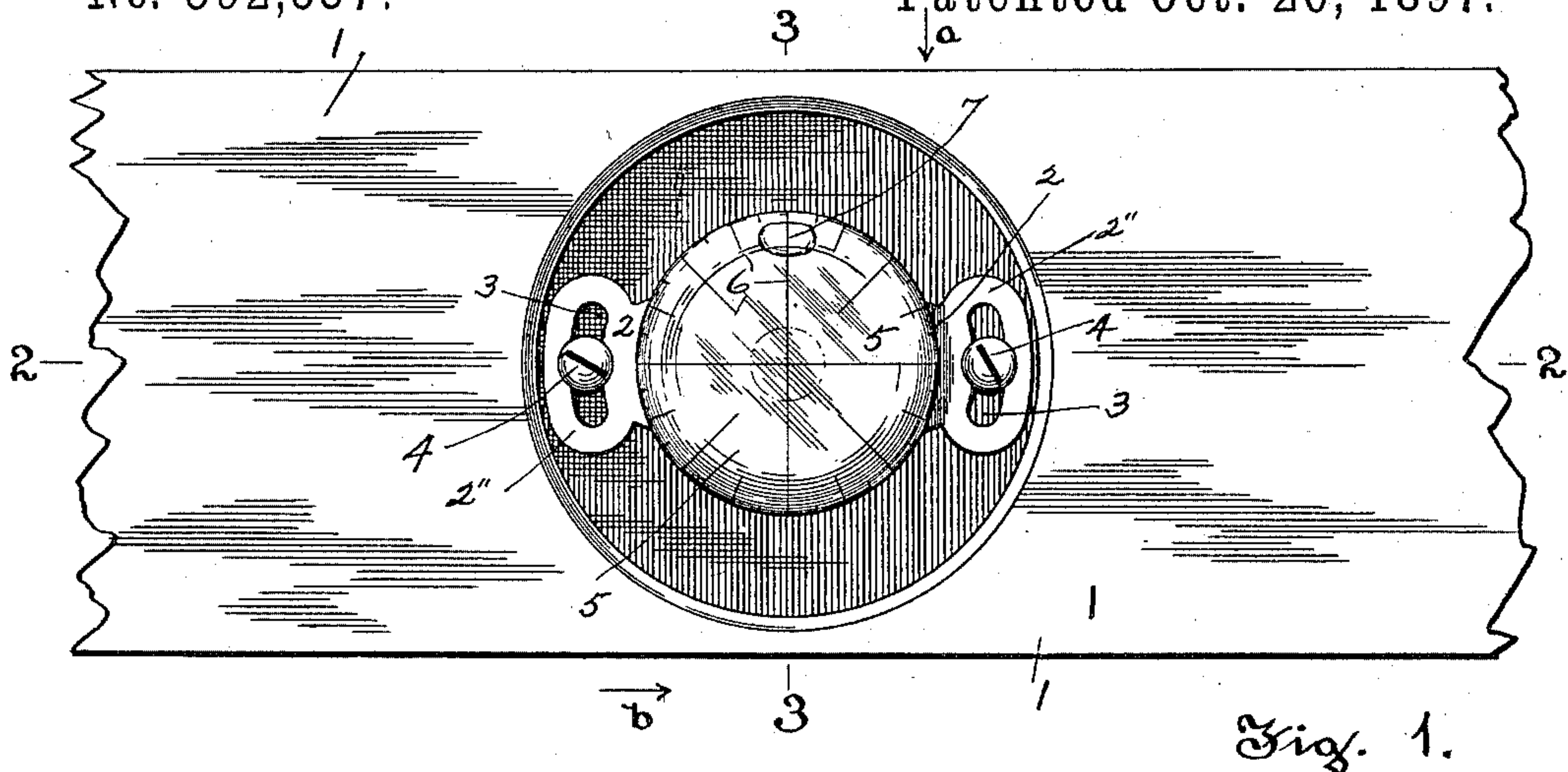


(No Model.)

J. CARRIERE.  
LEVEL.

No. 592,537.

Patented Oct. 26, 1897.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOSEPH CARRIERE, OF WORCESTER, MASSACHUSETTS.

## LEVEL.

SPECIFICATION forming part of Letters Patent No. 592,537, dated October 26, 1897.

Application filed February 8, 1897. Serial No. 622,434. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH CARRIERE, a subject of the Queen of Great Britain, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Levels, of which the following is a specification.

My invention relates to levels; and the object of my invention is to provide a combination-level which may be used as a plane-level and also as a plumb-level and in which a single air-bubble is used both for the plane and the plumb level.

My invention consists in certain novel features of construction of my combination-level, as will be hereinafter fully described.

Referring to the drawings, Figure 1 is a side view of a portion of a level of my improved construction. Fig. 2 is a central longitudinal section on line 2 2, Fig. 1, looking in the direction of arrow *a*, same figure. Fig. 3 is a vertical section on line 3 3, Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 4 is an isometric view of the metal case removed, and Fig. 5 is an isometric view of the glass indicator removed.

In the accompanying drawings, 1 is the body portion of the level, preferably made of wood, which is recessed or cut out on one side, as shown, to receive the metal case or holder 2, which in this instance has a cylindrical portion 2', and the oppositely-extending arms 2'' 2'', which are provided with transverse slots 3 in their ends. Screws 4 extend through the slots 3 and are used to secure the metal case 2 to the body 1 and to allow of the adjustment of said case 2.

A circular glass indicator 5, preferably made of flat bottle shape, as shown, is provided with indicating-lines 6, preferably cut or marked on the edge and outer surface thereof. The indicator 5 is partially filled with some liquid and the cork 8 is forced into the neck thereof with the inner end preferably bearing against the inner front surface of the indicator, as shown in Fig. 3, to support any pressure on the front surface and to reduce the danger of the breaking thereof, and, further, a less amount of liquid is required to fill the indicator and leave a small air space or bubble 7 when the cork is pressed

in so that the inner end of it bears against the outer wall or the inner side of the front surface of the indicator.

After the indicator 5 has been filled and the cork inserted the neck of the indicator or bottle is placed within the circular case 2', cement or other suitable material 9 having been first placed in the chamber, which hardens around the neck and secures the same within the chamber.

If desired, the neck of the indicator may be provided with a flange 10 or other means of forming a shoulder or stop for engaging with the cement and preventing its ready removal, and also the case may be provided with an inwardly-extending flange or projection 11, through which the neck can be passed into the cement and which will prevent the removal of the neck after the cement has become hardened or set.

The depth of the outer recess or cavity in the body of the level is as great or greater than the thickness of the indicator, so that when the case is in position in the recess in the bottom of the outer cavity the outer surface of the indicator will not project beyond the body of the level, but will lie within the same and be protected from accidental breakage. By extending the inner end of the cork against the surface of the indicator the body of the indicator will be strengthened against accidental breakage by a blow from any external object.

After the indicator or bottle 5 is secured in the case 2 the case is then adjusted by means of the screws 4, extending through the slots 3, until the bubble 5 lies exactly in the right position, as shown in Fig. 1. The screws 4 are then turned in and the level is ready for use.

When the level is used as a plane-level, the bubble will lie at the top, as shown in Fig. 1. When the level is used as a plumb-level, the bubble will move around forty-five degrees and extend just below one of the screws 4, and at any intermediate slope or inclination between the plane and plumb level the bubble 5 will lie at an intermediate point. It will thus be seen that in my combination-level with a single air-bubble I can obtain both a plane and plumb level and any intermediate slope or inclination.

The advantages of my combination-level



will be readily appreciated by those skilled in the art.

As there is only one air-bubble the level will always give the right level, whether used  
5 as a plane or a plumb level.

It will be understood that the details of construction of my plumb-level may be varied, if desired.

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

1. In a spirit-level, the combination, with a body provided with a shouldered recess or cavity, of a case provided with means for adjust-  
15 ably securing it upon the shoulder, and an indicator, the neck of which is secured within the case and has its body located within the cavity above the shoulder, substantially as set forth.

20 2. In a spirit-level, the combination, with a body provided with a shouldered recess or cavity, of a case provided with means for adjustably securing it upon the shoulder, and an indicator, the neck of which is secured within  
25 the case and the main portion of which is in the form of a flattened bottle, the thickness of which is no greater than the depth of the cavity, substantially as set forth.

3. In a spirit-level, the combination, with a  
30 body provided with a shouldered recess or cav-

ity, of a case within the bottom of the cavity, the top of which case is provided with laterally-projecting slotted arms, a fastener through each slot, an indicator, the neck of which is secured within the case and the main  
35 portion of which is of a less diameter than the diameter of the upper portion of the recess whereby the edge of the indicator is visible, substantially as set forth.

4. In a spirit-level, the combination, with a  
40 body, provided with a shouldered cavity or recess, of a case within the bottom of the cavity, the top of which case is provided with laterally-extending slotted arms, and an inwardly-extending flange or projection, an indicator,  
45 the neck of which is provided with a flange, and cement within the case and surrounding the neck, substantially as set forth.

5. In a spirit-level, the combination, with a body, provided with a cavity, of an indicator,  
50 the neck of which is secured within the bottom of the cavity, and a cork within the indicator, the inner end of which engages with the surface of the indicator, substantially as set forth.

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Witnesses:

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