

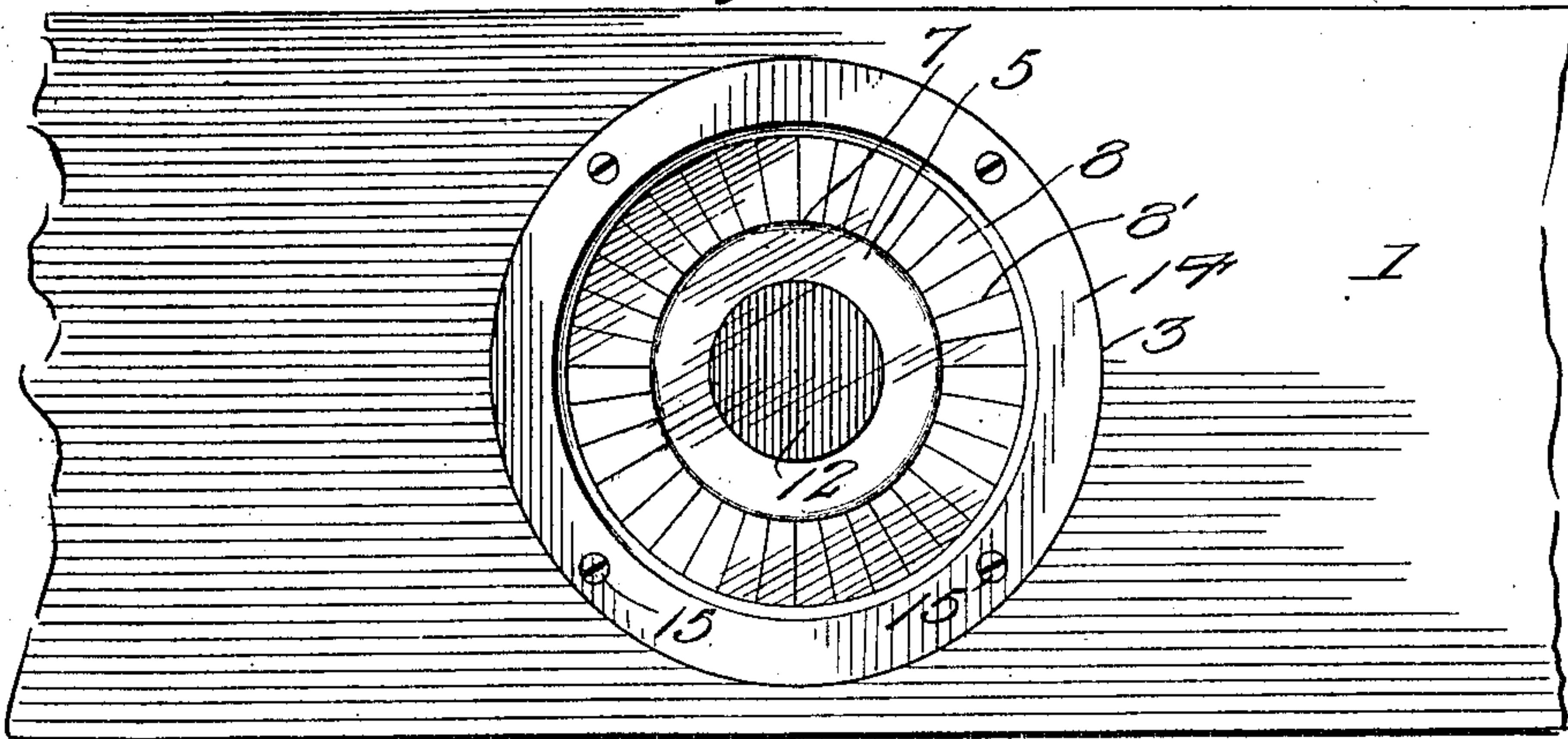
No. 871,684.

PATENTED NOV. 19, 1907.

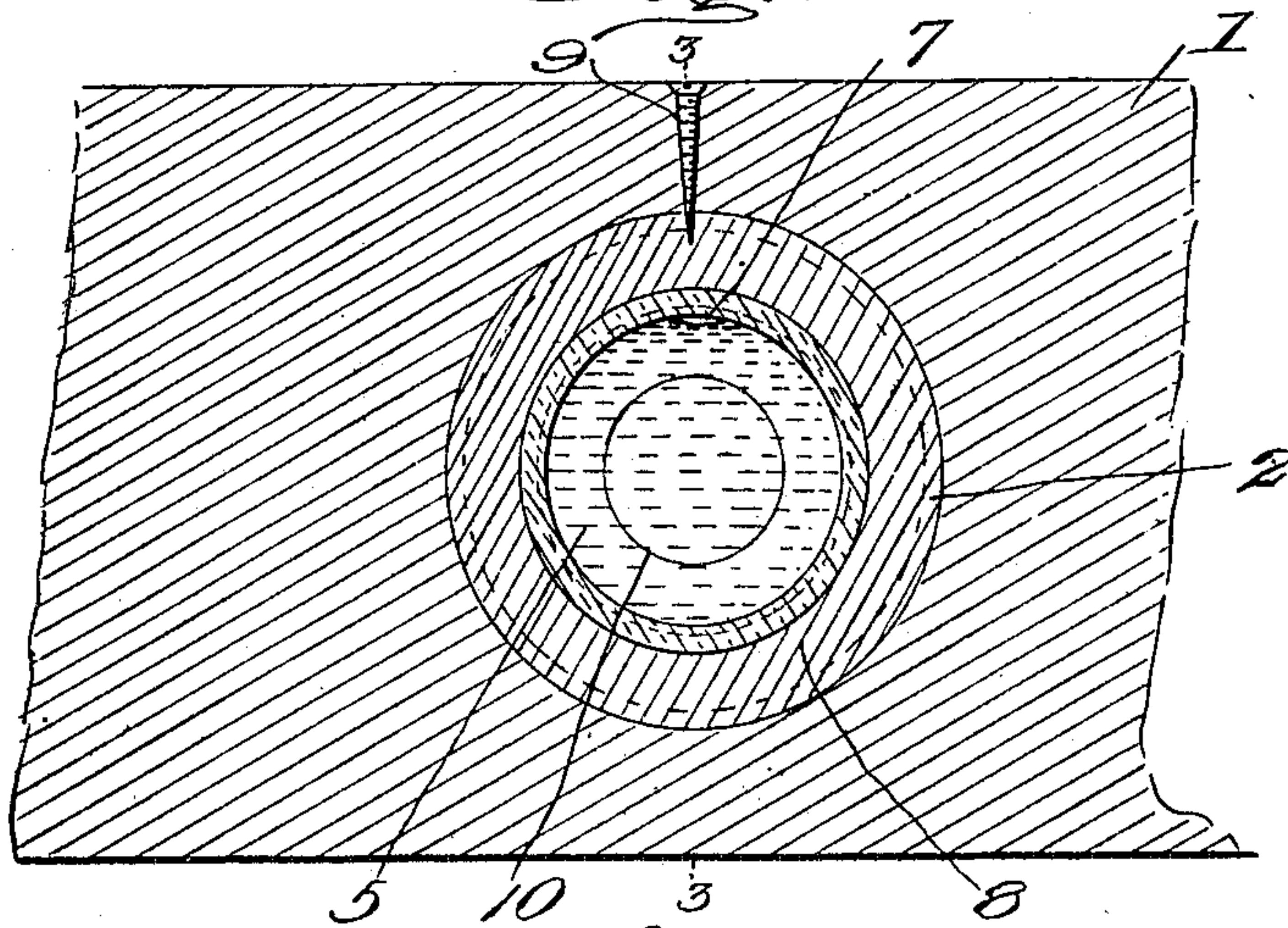
W. FOSTER & T. L. SCHENCK.  
SPIRIT PLUMB AND LEVEL DEVICE.

APPLICATION FILED JUNE 14, 1907.

*Fig. 1.*



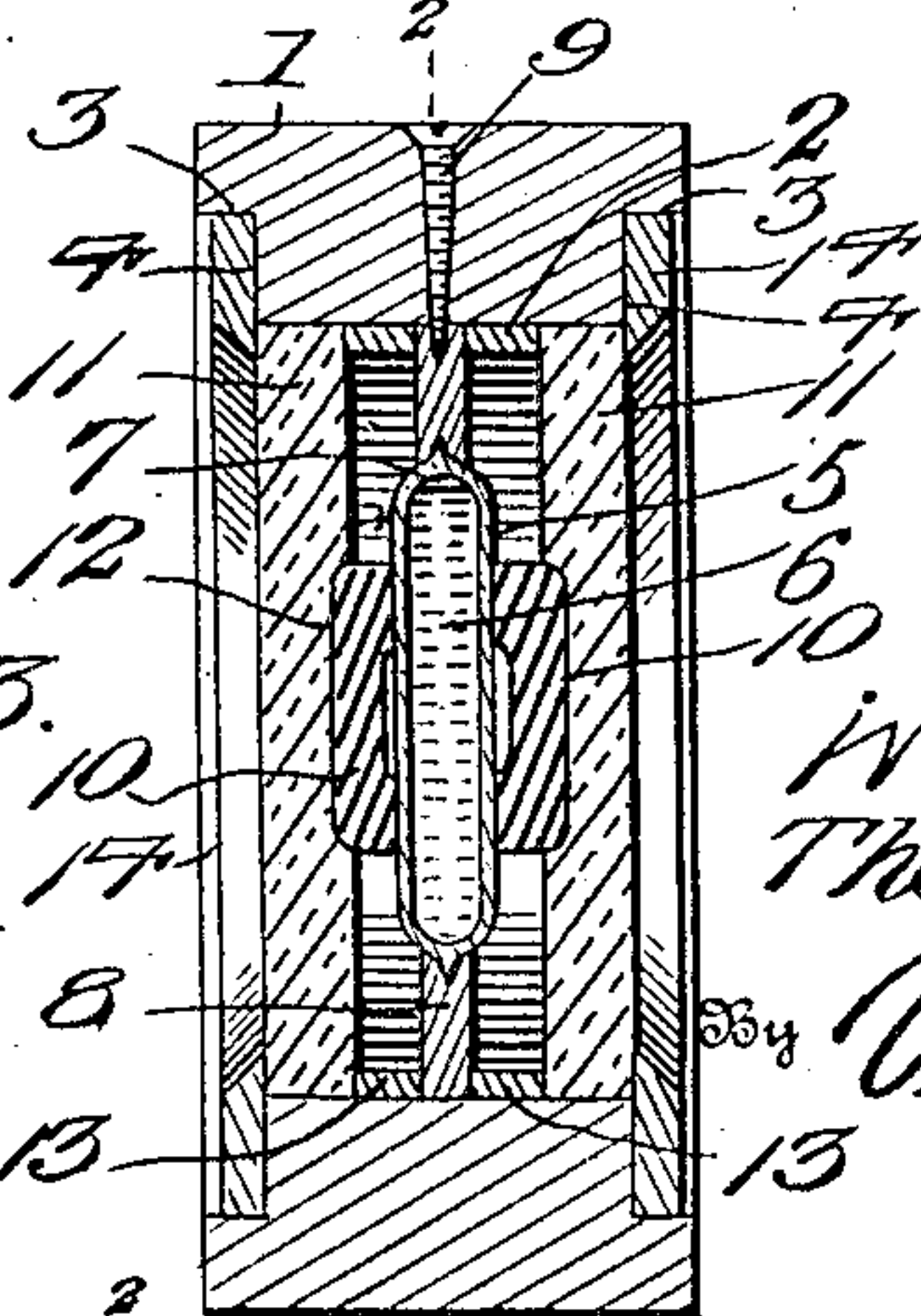
*Fig. 2.*



*Fig. 3.*

Witnesses

*Wm. North*  
*C. Bradway*



Inventors  
*William Foster,*  
*Theodore L. Schenck,*  
By *Victor J. Evans*  
Attorney



# UNITED STATES PATENT OFFICE.

WILLIAM FOSTER AND THEODORE L. SCHENCK, OF BUTLER, PENNSYLVANIA.

## SPIRIT PLUMB AND LEVEL DEVICE.

No. 871,684.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed June 14, 1907. Serial No. 379,023.

*To all whom it may concern:*

Be it known that we, WILLIAM FOSTER and THEODORE L. SCHENCK, citizens of the United States, residing at Butler, in the county of Butler and State of Pennsylvania, have invented new and useful Improvements in Spirit Plumb and Level Devices, of which the following is a specification.

This invention relates to a combined plumb and level device of that type in which the indicating element is arranged in the stock of the device in such a way that it cannot get out of adjustment, and whereby perpendicular, as well as horizontal, indications can be obtained with equal facility.

The invention has for one of its objects to improve and simplify the construction and operation of devices of this character so as to make them comparatively easy and inexpensive to manufacture, thoroughly reliable and efficient in use, and to secure the indicating means against accidental displacement.

A further object of the invention is the provision of a transparent holder for the alcohol or other medium, which holder is of spherical or disk form and arranged within an annular protractor and suitably secured with the latter in the stock of the combined level and plumb device.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention, Figure 1 is a side view of the device. Fig. 2 is a vertical longitudinal section on line 2—2, Fig. 3. Fig. 3 is a transverse section on line 3—3, Fig. 2.

Similar reference characters are employed to designate corresponding parts throughout the several views.

Referring to the drawing, 1 designates the stop of the combined plumb and level device, which stop may be made of wood or metal and of any size and form, as desired, and in the stop is a cylindrical opening 2 extending from one side to the other and counterbored at its front and rear ends, as indicated at 3, so as to form shoulders 4, Fig. 3. Arranged centrally within the opening is a hollow body 5 of glass or other transparent

material that may be of spherical, disk or any other suitable form, the body being hermetically sealed to form a holder for alcohol or other liquid 6 that almost fills the holder except to provide a bubble 7, as indicated clearly in Fig. 2. The glass holder and body of liquid therein constitute the indicating element of the device and this element is mounted within an annular protractor 8 of metal or other suitable material, said protractor having its flat surfaces provided with degree marks 8', as shown in Fig. 1. The protractor is fitted in the opening 2 and held from rotary movement by a screw 9 or equivalent means that extends from the top of the stock 1 into the peripheral portion of the protractor. By this arrangement of protractor and indicating elements, the device can be used to ascertain horizontal and plumb lines or lines of any other angle.

Disposed on opposite sides of the member 5 are disk shaped cushions of rubber 10 arranged with their axes coinciding with that of the said member and in the ends of the opening 2 are plates of glass 11 that have their inner surfaces cupped at 12 to receive the cushioning blocks 10 and thereby hold the latter from moving. Interposed between the glass plates 11 are retaining means 13 that fit into the opening 2 and engage on opposite sides of the protractor to prevent the latter from moving laterally. In each of the counterbored portions 3 is a metal ring 14 that extends over the glass plates 11 so as to retain the latter in position, and these rings are secured to the stock by screws 15. With this construction, it will be seen that the indicating element and protractor are rigidly held in position and are incapable of being displaced with respect to the stock so that the device will be at all times accurate and reliable.

From the foregoing description taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while we have described the principle of operation of the invention, together with the apparatus which we now consider to be the best embodiment thereof, we desire to have it understood that the apparatus shown is merely illustrative and that such changes may be made when desired, as are within the scope of the claims.



Having thus described the invention, what we claim is:—

1. An instrument of the class described comprising a stock having an opening, a  
5 transparent indicating element, an annular protractor holding the element in the opening of the stock, glass plates closing the ends of the opening, and cushioning members disposed between the plates and element.
- 10 2. An instrument of the class described, comprising a stock having an opening, a transparent indicating element of circular form, a protractor arranged around the element, transparent plates closing the ends of  
15 the opening, pieces of elastic material held between the element and plates, and means for holding the plates removably in position.
3. An instrument of the class described comprising a stock having an opening, a  
20 hollow transparent member containing a body of liquid, an annular protractor in which the member is mounted, retaining rings fitted in the opening and engaging on opposite sides of the protractor, transparent  
25 disks fitted in the ends of the openings and

respectively engaging the rings, and outside retaining rings secured to the stock and respectively engaging over the said disks.

4. An instrument of the class described comprising a stock having an opening, a  
30 hollow circular member of glass containing a body of liquid, an annular protractor disposed around the member, rings fitted in the opening and engaging the opposite sides of the protractor, means on the stock for  
35 preventing rotative movement of the protractor, transparent plates cupped in their opposed faces, blocks of rubber arranged respectively in the cups of the plates and  
40 held between the latter and member, and rings secured to the stock for holding the plates respectively in position.

In testimony whereof, we affix our signatures in presence of two witnesses.

WILLIAM FOSTER.  
THEODORE L. SCHENCK.

Witnesses:

JAMES E. MARSHALL,  
THOMAS WATSON.