

No. 842,874.

PATENTED FEB. 5, 1907.

W. DOWNS.
PLUMB RULE AND LEVEL.
APPLICATION FILED SEPT. 10, 1906.

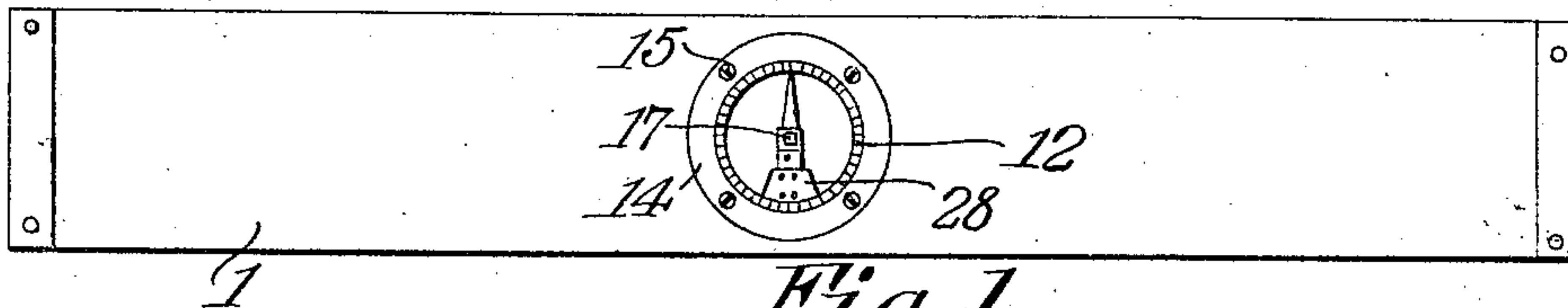


Fig. 1.

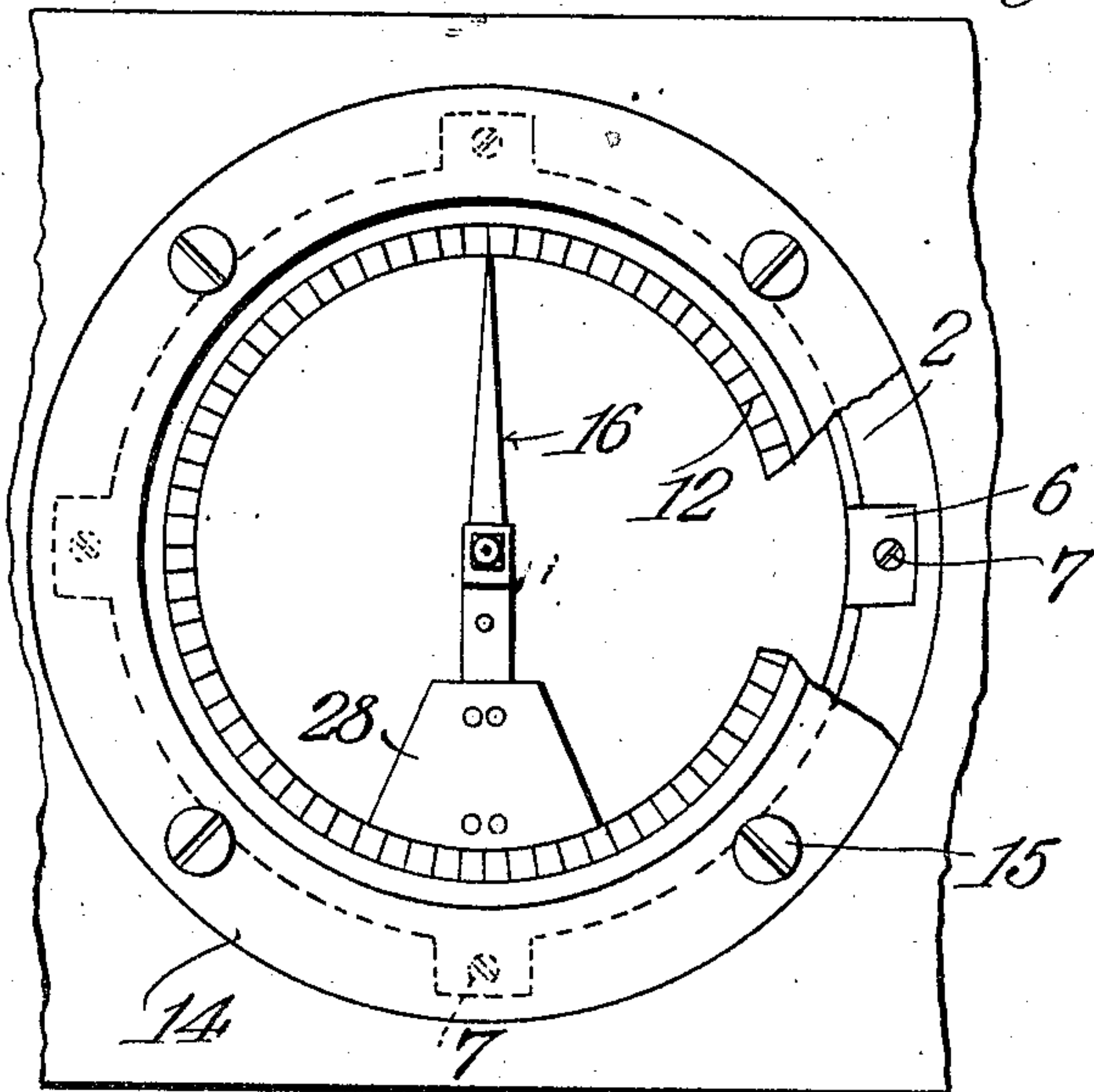


Fig. 2.

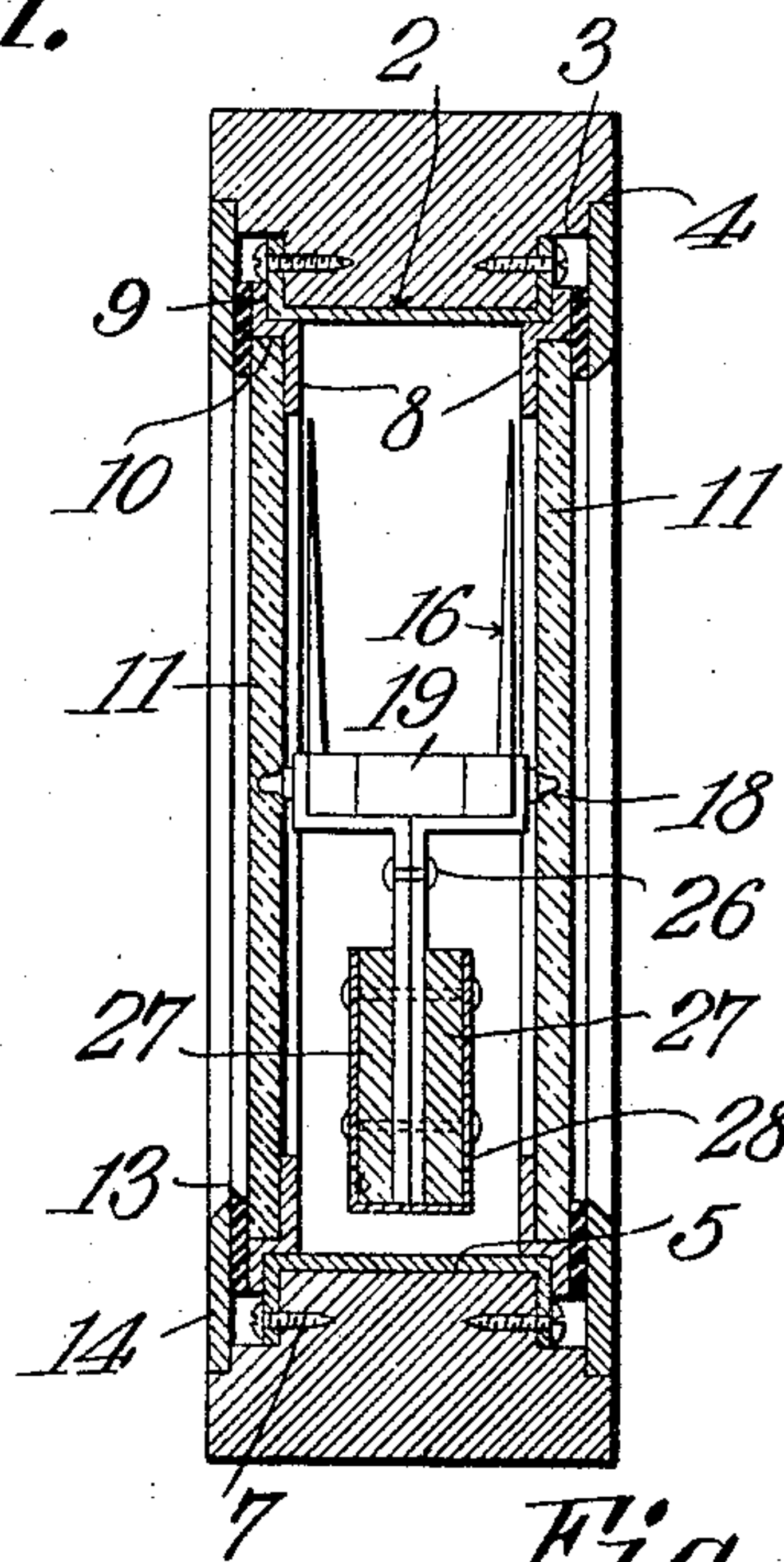


Fig. 3.

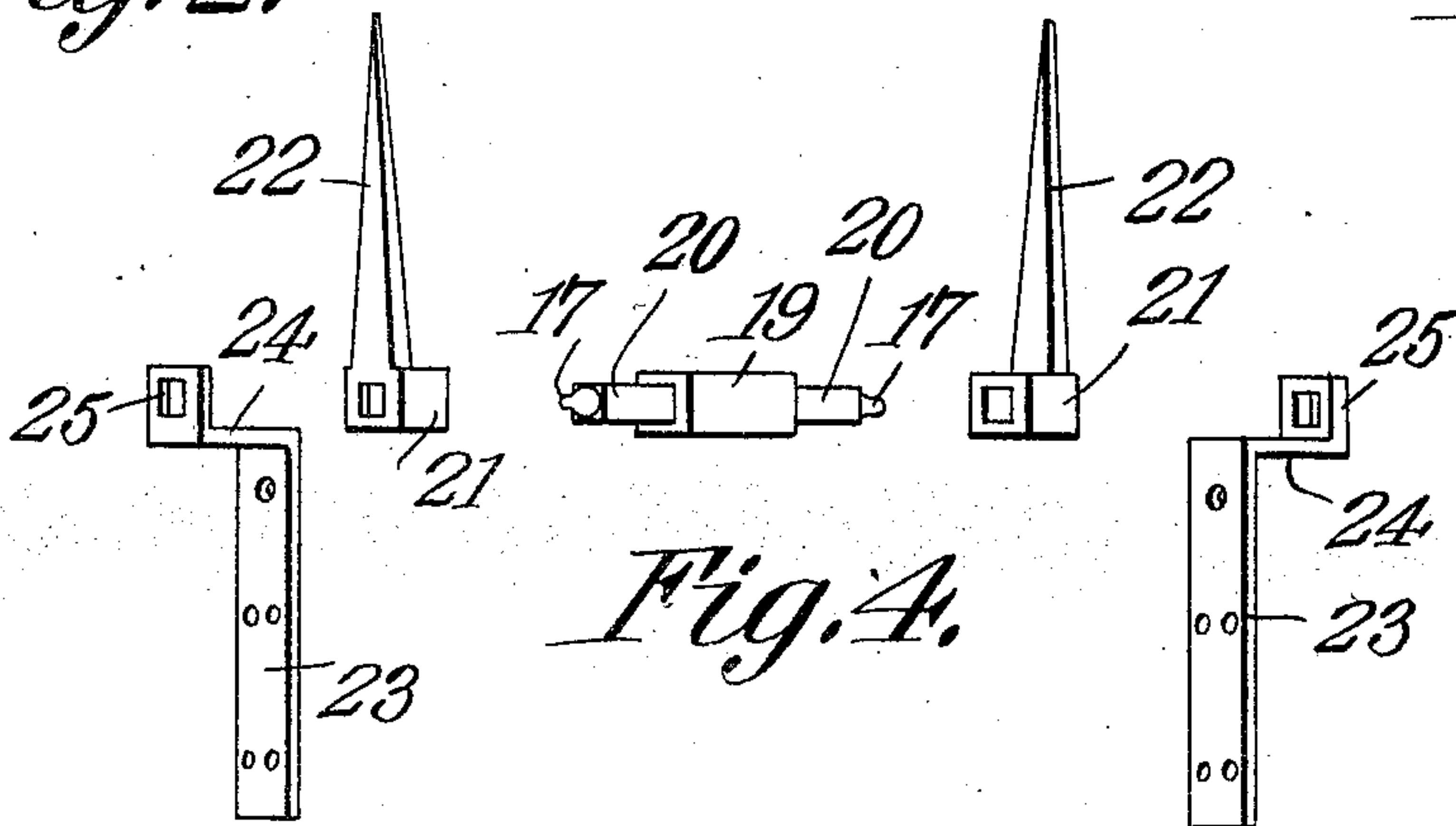


Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

WAYNE DOWNS, OF DALLAS, TEXAS, ASSIGNOR OF TWO-FIFTHS TO SILAS R. ADAMS, OF DALLAS, TEXAS.

PLUMB RULE AND LEVEL.

No. 842,874.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed September 10, 1906. Serial No. 333,980.

To all whom it may concern:

Be it known that I, WAYNE DOWNS, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented a new and useful Plumb Rule and Level, of which the following is a specification.

This invention relates to plumb rules and levels.

The objects of the invention are to improve and simplify the construction of such devices; furthermore, to increase their efficiency in operation and to decrease the expense attending their manufacture.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of the following claims without departing from the spirit of the invention or sacrificing any of its advantages.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a plumb rule and level constructed in accordance with the present invention. Fig. 2 is an enlarged detail view, in side elevation, the outer and inner retaining-rings being partly broken away. Fig. 3 is a transverse section through the construction illustrated in Fig. 2, and Fig. 4 is a view showing the parts of the indicator in separated position.

Like reference-numerals indicate corresponding parts in the different figures of the drawings.

The reference-numeral 1 indicates a stock, which is formed through the central portion thereof with an opening 2, having an inner rabbeted portion 3 and an outer rabbeted portion 4. Fitted into the opening 2 is an annular collar 5, which is formed at its outer ends with lugs or ears 6, that are fitted into the inner rabbeted portion 3 and are held therein in any suitable manner, such as by means of the screws 7. The ears 6 are of course bent into the inner rabbeted portion 3 after the collar 5 has been inserted into the opening 2. Disposed at each end of the collar 5 is a ring 8, which is approximately Z-shaped in cross-section, so as to produce a

pair of angular seats 9 and 10, the angular seat 9 being fitted against the outer end of the collar 5 and the angular seat 10 being adapted to receive a transparent wall or disk 11. The inner portion of the Z-ring 8 preferably is graduated, as indicated at 12 in Fig. 2, so that said graduations will be disposed behind the transparent wall 11 and will be visible therethrough.

For the purpose of holding each transparent wall 11 within the angular seat 10 of the Z-ring 8 and for also holding said Z-ring against the outer end of the collar 5 an inner retaining-ring 13 is employed. This inner retaining-ring, which preferably is formed of rubber or similar material which will not readily slip upon the surface of glass or metal, fits against the outer edge of the transparent wall 11 and also against the outer portion of the Z-ring 8. The inner retaining-ring 13 is held in position by means of an outer retaining-ring 14, which is fitted into the outer rabbeted portion 4 of the opening 2 and is held in position by means such as the screws 15. It will be obvious that the outer retaining-ring 14 presses the inner retaining-ring 13 securely against the transparent wall 11 and Z-ring 8, the advantage of this construction being that the inner retaining-ring prevents any accidental rotation of either the Z-ring 8 or the disk 11, so that when the graduations 12 of said Z-ring have been arranged in proper position the retaining-ring 13 will prevent them from working into a wrong position, even when the plumb rule and level receives rough treatment.

For the purpose of determining the angle which any given line occupies with respect to the perpendicular an indicator, which is indicated generally by the reference-numeral 16, is mounted between the transparent walls 11. As shown in Fig. 4, the indicator 16 preferably consists of a pivot member having reduced ends 17 adapted to fit into depressions or sockets 18. In addition to the reduced ends 17 the pivot member of the indicator is formed with an enlarged central portion 19 and non-circular intermediate portions 20, which are adapted to receive the lower ends 21 of pointers 22. For the purpose of holding the pointers 22 in position upon the pivot member of the indicator two hangers, each having a shank 23, an angularly-bent upper end 24, and an upstanding per-

forated lug 25, are employed, the shanks 23 being riveted together, as indicated at 26, and the lugs 25 being engaged with the non-circular intermediate portions 20 of the pivot member of the indicator, so as to hold the pointers in position. Riveted against opposite sides of the shanks 23 is a pair of segmental weights 27, which are surrounded by a casing 28. The weights 27 serve to hold the pointers 22 in upright position, so as to cooperate properly with the graduations 12 upon the Z-ring 8.

The plumb rule and level of the present invention is extremely strong, simple, durable, and inexpensive in construction, as well as thoroughly efficient in use. In assembling the device the Z-ring 8 can be rotated until the graduations 12 are in the desired position with respect to the indicator 16, after which by applying the retaining-rings 13 and 14 said Z-ring, together with the transparent wall 11, will be firmly held in position against accidental movement. By forming the transparent walls 11 with the depressions 18 to receive the reduced ends 17 of the pivot member of the indicator the construction of the device is greatly simplified, as it requires only the use of the transparent walls 11. Furthermore, the pivot-points of the indicator 16 by reason of their direct contact with the hard glass walls 11 permit the ready movement of the indicator and also serve to prevent the same from wearing out the depressions 18.

What is claimed is—

1. In a plumb rule and level the combination with a casing having transparent walls and graduated seats therefor; of an angular pivot member having reduced ends bearing in the transparent walls, pointers engaging and extending radially from the pivot member said pointers being rotatable therewith, hangers non-rotatably mounted upon the pivot member for retaining the pointers thereon, said hangers being radially connected to prevent lateral movement of the pointers, and a weight secured to the hangers.

2. A plumb rule and level having an approximately Z-shaped graduated ring forming a pair of angular seats, a collar fitted into one of said angular seats, a transparent wall fitted into the other of said angular seats, a retaining-ring contacting partially with said

transparent wall and partially with said graduated ring for holding the same in position, and an indicator having one of its pivot-points supported by said transparent wall.

3. A plumb rule and level comprising a stock having an opening extending there-through and formed at each end with inner and outer rabbeted portions, a collar fitted into said opening and having lugs engaging said inner rabbeted portion, a Z-ring having a pair of angular seats, one of said angular seats being fitted against one end of said collar, a transparent wall fitted into the other of said angular seats, a resilient inner retaining-ring fitted against a portion of said Z-ring and a portion of said transparent wall, and an outer retaining-ring fitted against said inner retaining-ring for holding said transparent wall in the angular seat of said Z-ring and for holding said Z-ring against the outer end of said collar.

4. A plumb rule and level comprising a stock having an opening formed with inner and outer rabbeted portions, a collar fitted into said opening and having lugs engaging said inner rabbeted portion, a pair of Z-rings each having a pair of angular seats one of which is fitted against the adjacent end of the collar, a transparent wall fitted into the other angular seat of each Z-ring, each transparent wall having a depression in its inner face, an inner retaining-ring fitted against each transparent wall and Z-ring, an outer retaining-ring fitted into the outer rabbeted portion for holding the inner retaining-ring in position, and an indicator consisting of a pivot member having reduced ends fitted into the depressions in said transparent walls, an enlarged central portion, non-circular intermediate portions, pointers engaging with said non-circular intermediate portions, hangers engaged with said non-circular intermediate portions for holding said pointers in position, and weights secured to said hangers.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WAYNE DOWNS.

Witnesses:

S. R. ADAMS,

W. G. HENDERSON.