

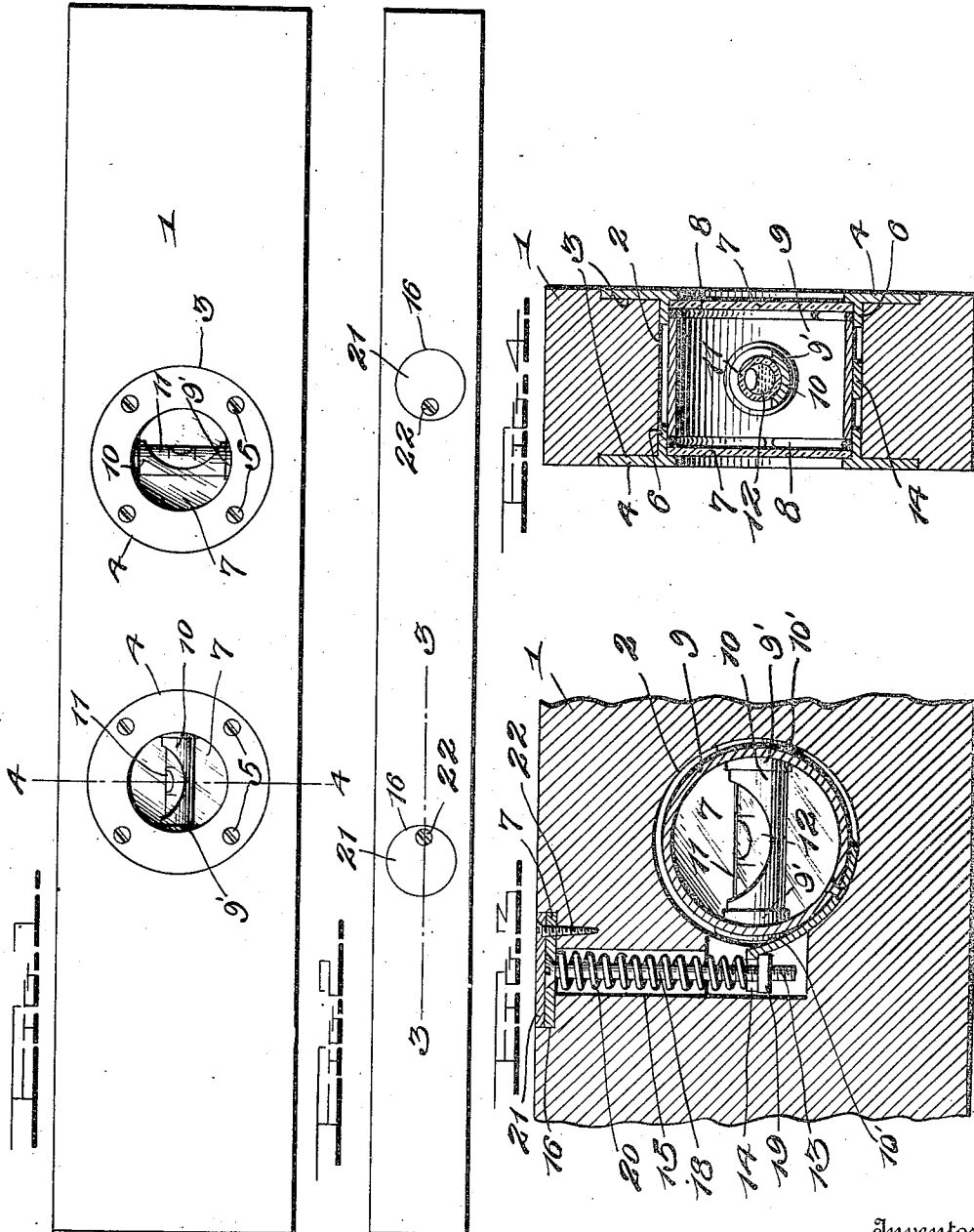
E. F. OTTO.

LEVEL.

APPLICATION FILED OCT. 5, 1912.

1,057,662.

Patented Apr. 1, 1913.



Inventor

E. F. Otto,

Witnesses

Chas. L. Griesbauer.
A. J. Lind.

By

Watson E. Coleman,
Attorney

UNITED STATES PATENT OFFICE.

EDWARD F. OTTO, OF KENOSHA, WISCONSIN.

LEVEL.

1,057,662

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed October 5, 1912. Serial No. 724,153.

To all whom it may concern:

Be it known that I, EDWARD F. OTTO, a citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented certain new and useful Improvements in Levels, of which the following is a specification, reference being had to the accompanying drawings.

10 The present invention comprehends certain new and useful improvements in levels and relates more particularly to the means of mounting the spirit glasses within the stock of the level.

15 The primary object of the present invention is to provide means for adjusting the spirit levels within the stock so that the same will be accurately held in position.

20 The invention has for a further object a simple, durable and efficient construction of an apparatus of this character, the parts of which may be cheaply manufactured, readily assembled, installed and operated, and will also hold the level glasses in a stationary position when adjusted to prevent the accidental movement thereof.

25 With the above and other objects in view, the invention consists of the novel details of construction, combination, formation and arrangement of parts as will be more fully described and particularly pointed out in the appended claim.

30 In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that the right is reserved to any changes, alterations, and modifications to which recourse may be had within the scope of the invention and without departing from the spirit or sacrificing the efficiency of the same.

35 In the said drawings, Figure 1 illustrates a side elevation of a level stock illustrating my invention as applied thereto. Fig. 2 is a plan view of the same. Fig. 3 is a longitudinal vertical section taken on the line 3—3 of Fig. 2, and Fig. 4 is a vertical transverse section taken on the line 4—4 of Fig. 1.

40 Reference now being had to the accompanying drawings wherein like and corresponding parts are designated by similar reference characters throughout the several views, the numeral 1 indicates an ordinary

level stock having formed adjacent the medial portion thereof a pair of cylindrical openings 2 in which the spirit glasses are arranged. It will be noted from the drawings that the spirit glasses are arranged at right angles to each other so that the levels of surfaces extending either in a horizontal or vertical plane may be readily ascertained. With the exception of this difference the two spirit glasses and the means for supporting and operating the same are similar and, therefore, throughout this specification I will refer to one spirit glass, but the same description will apparently apply to both level glasses.

45 Secured within the recesses 3 formed within each face of the stock 1 are a pair of rings 4 being held in place by means of set screws or the like, indicated by the numeral 5. Each of these rings has a cylindrical opening formed in the center thereof and extending from the rear face of each of the rings and resting within the openings 2 are bearing flanges 6, thereby forming a pocket in which rests a transparent member 7 preferably of glass, which will protect the spirit glass carried within the interior of the opening 2. Mounted within the bearing sleeves 6 are coil springs 8 which rest upon the inner face of the glass 7 for holding the same in place. Rotatably mounted within the bearing sleeves 6 is a cylindrical casing 9 which carries the spirit glass. Extending through openings formed in the diametrically opposite sides of the casing 9 are sleeves 9' which are bent outwardly and soldered to the outer periphery of the casing 9 as at 10'. These sleeves provide means for retaining the spirit glass in place. By having the openings formed in each side of the sleeve 9 the glass may be inserted through the openings and then cemented in place which would greatly facilitate the manufacture of the same.

50 To provide means so that the operator may readily know which is the upper face of the spirit glass so as to readily ascertain the position of the air bulb within the spirit glass I provide a casing 10 having mounted therein in any preferred manner the spirit glass 11 and the said casing being cut away as at 12 so that the air bulb within the spirit glass may be readily seen.

55 It is to be noted from the foregoing, that the casing 9 in which the spirit glass is

secured is adapted to be rotated, and to provide means whereby the casing may be adjusted from the exterior of the stock and held in the adjusted position, I provide a mechanism as will be hereinafter described.

Communicating with each of the openings 2 is an enlarged slot 13 in which extends a bifurcated extension 14 carried by the periphery of the casing 9. Communicating with the recess 13 is a vertically extending slot 15 which extends to the upper face of the stock and terminates in an enlarged circular recess portion 16. Secured within the recess 16 is a cylindrical disk 17 having a tapered opening therein in which rests the tapered head of a bolt 18. The lower extremity of this bolt 18 is threaded and has adjustably mounted thereon a squared nut 19. This bolt also extends through the bifurcated arms of the extension 14 and the said bifurcated extension rests upon the upper face of the nut 19, and to provide means for yieldingly holding the extension upon the upper face of the nut, I interpose between the lower face of the disk 17 and the said extension a coil spring 20.

It is obvious from the foregoing that by rotating the bolt 18 by means of a screw driver or similar tool, the nut 19 will also be adjusted thereupon and in adjusting the said nut, the extension 14 will also be adjusted which in turn will oscillate the cas-

ing 9, thereby adjusting the spirit glass to the desired position. To provide means for retaining the bolt in its lowermost position after the same has been adjusted, I mount within each of the recesses 16 a disk 21 which is held in place by means of set screws 22 which extend through the plate 17 into the stock of the level, as more clearly illustrated in Fig. 2 of the drawings.

What I claim is:—

In a level, the combination of a stock having an opening extending therethrough, plates secured within said opening and having flanges directed inwardly, transparent members secured against the inner faces of the plates, within the flanges, coil springs bearing against the transparent members and adapted to retain said transparent members in place, a cylindrical casing rotatably mounted within said flanges, a spirit level carried by said casing, an arm projecting from the periphery of said casing, and means extending through said stock and through the arm for adjusting the casing and retaining the same in position.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

EDWARD F. OTTO.

Witnesses:

ROBERT VERNE BAKER,
FRANK S. SYMMONDS.