

W. J. HENDERSON.

LEVEL.

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908,406.

Patented Dec. 29, 1908.

Fig 1.

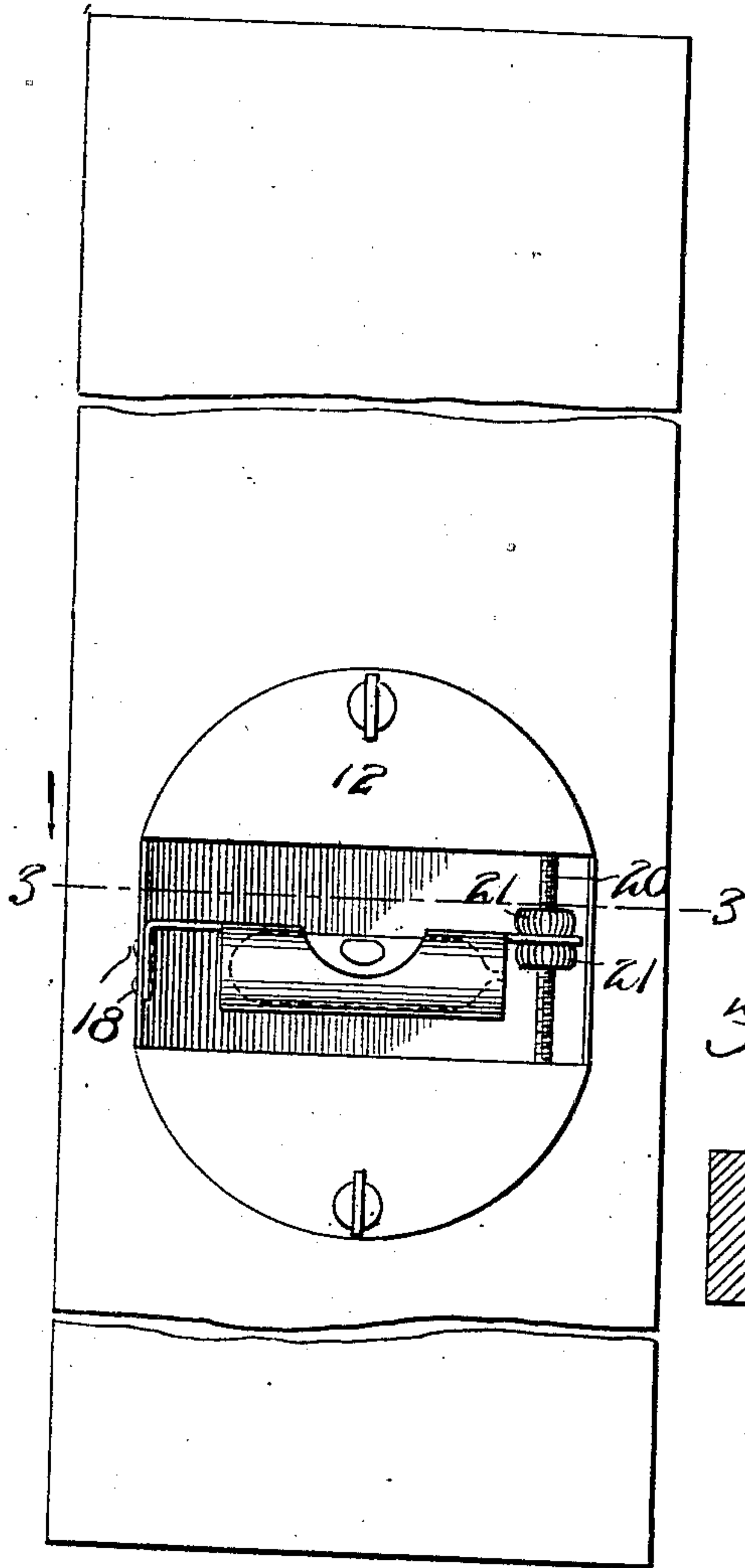


Fig 2.

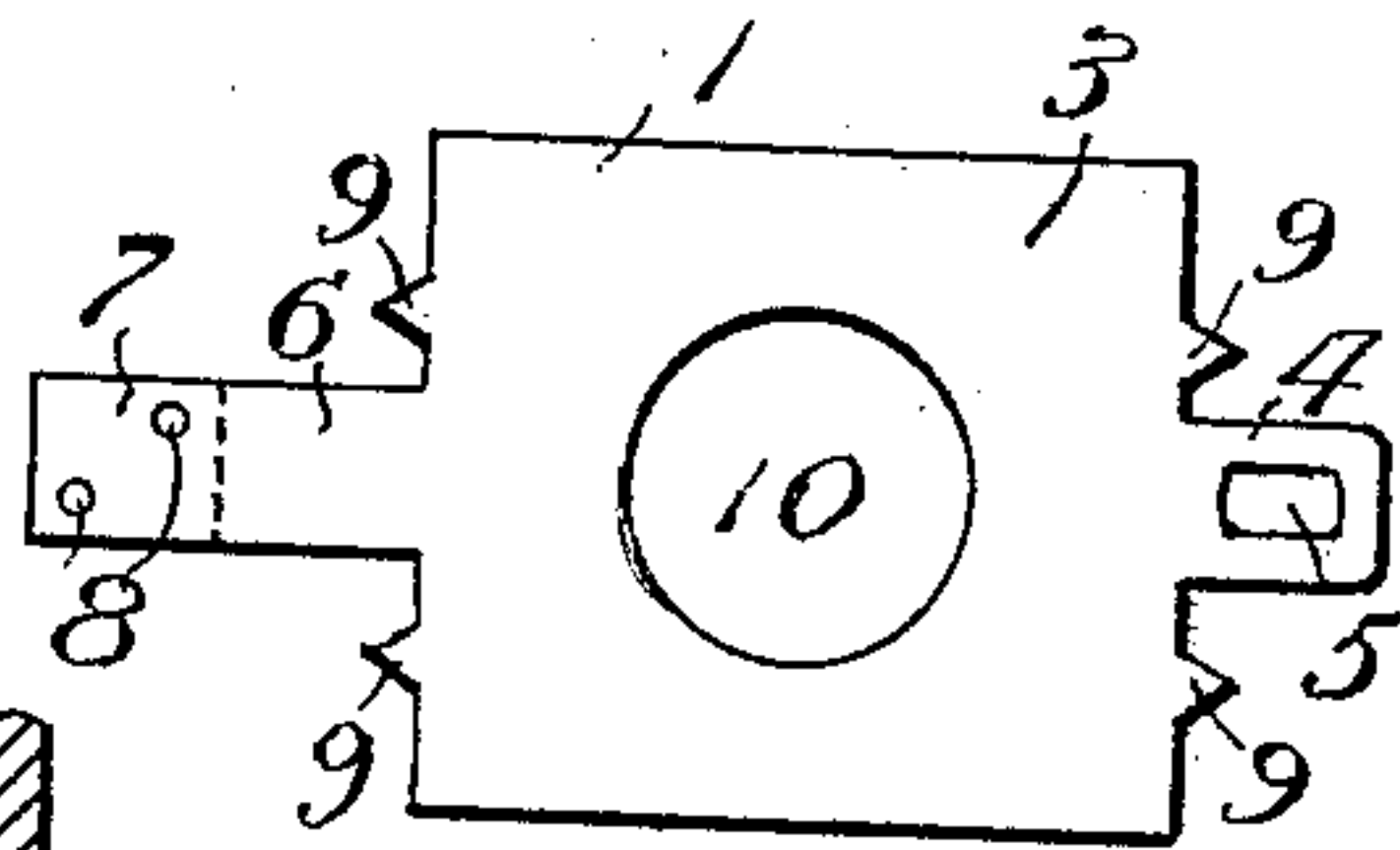


Fig 4.

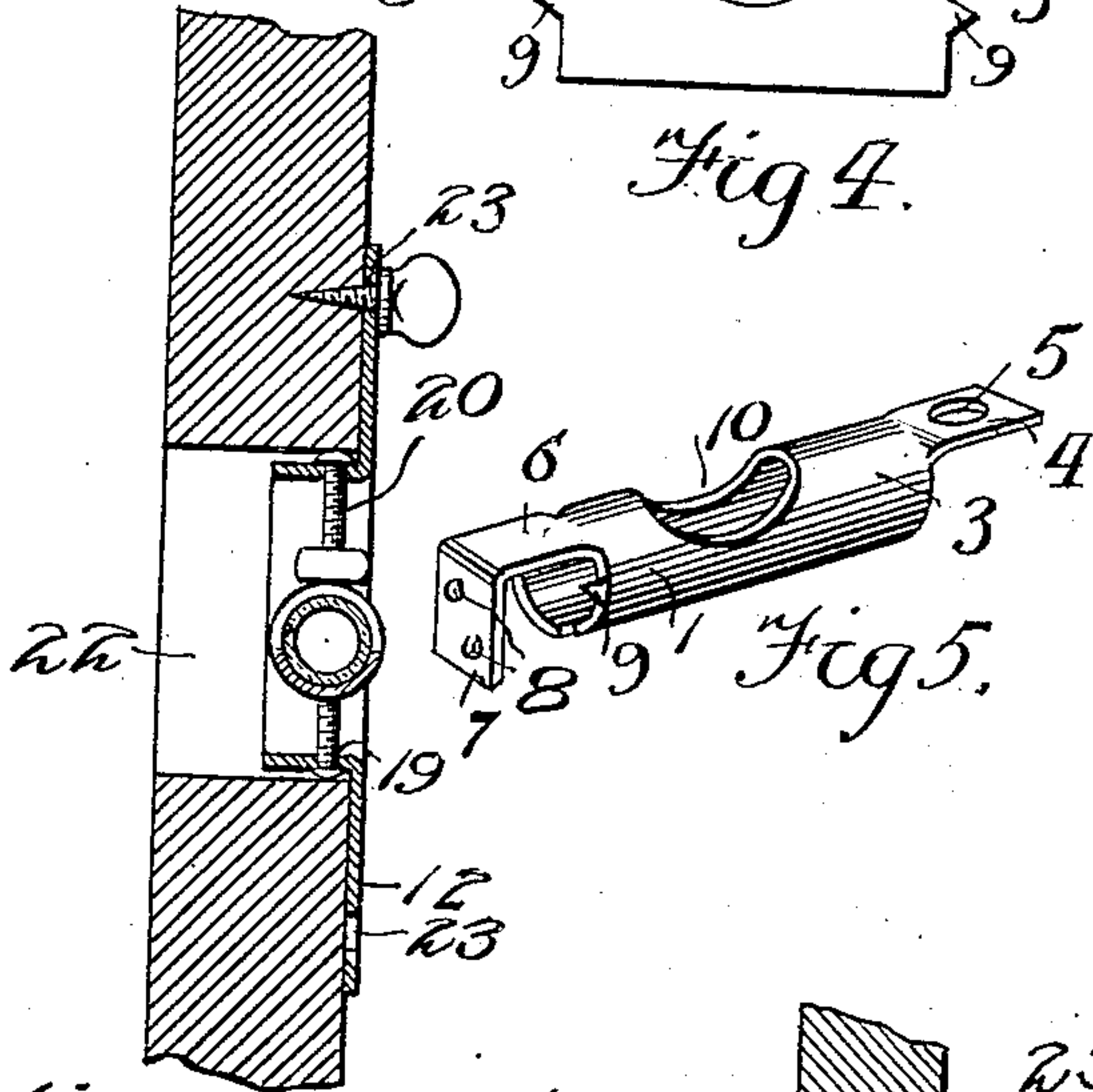


Fig 3.

Fig 7.

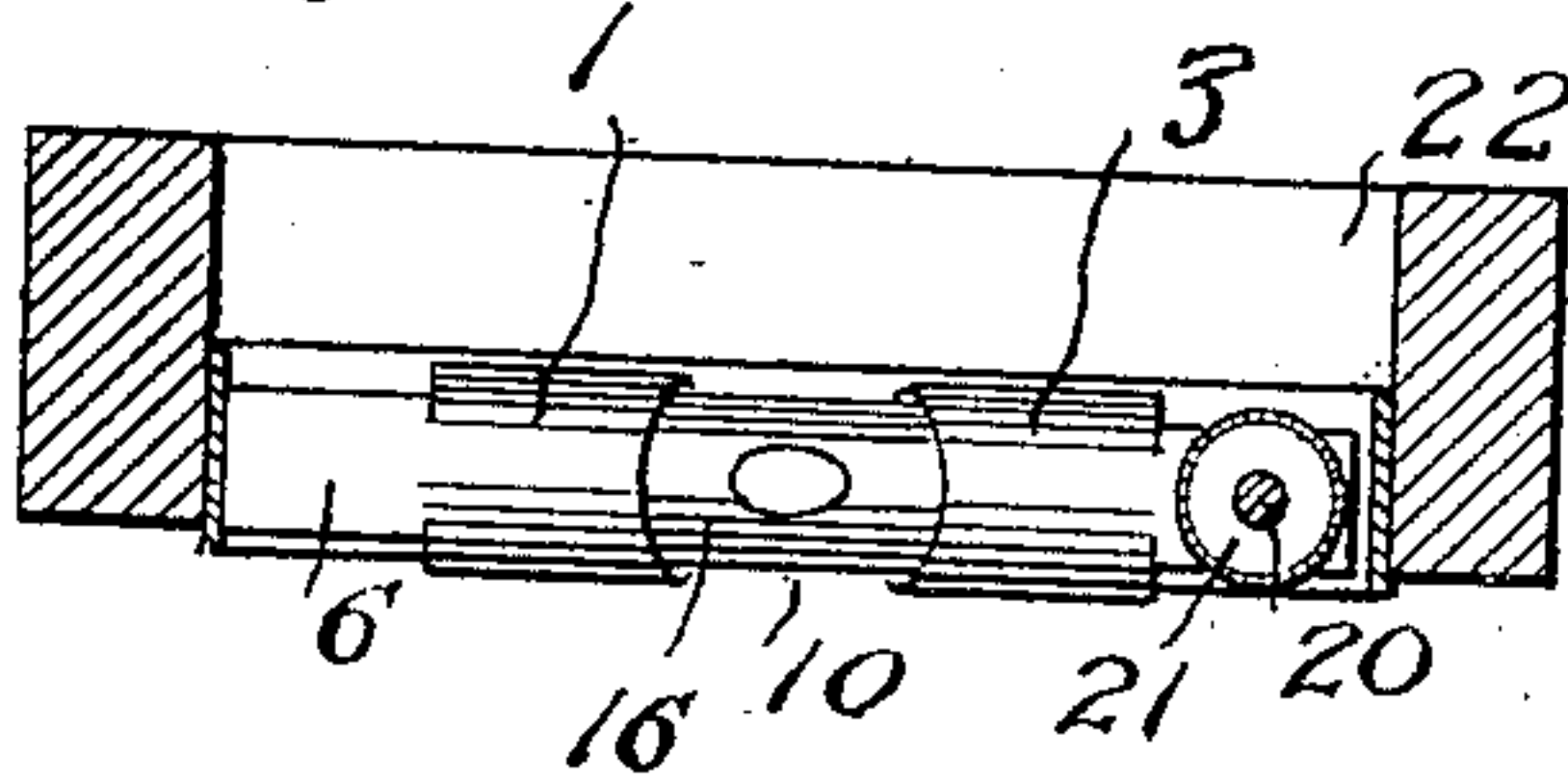
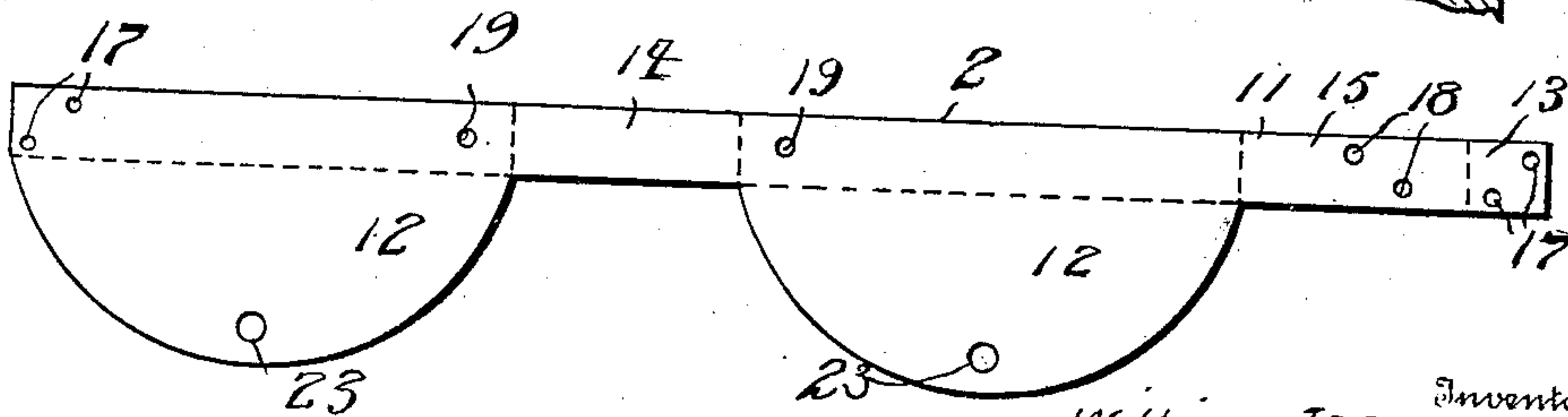
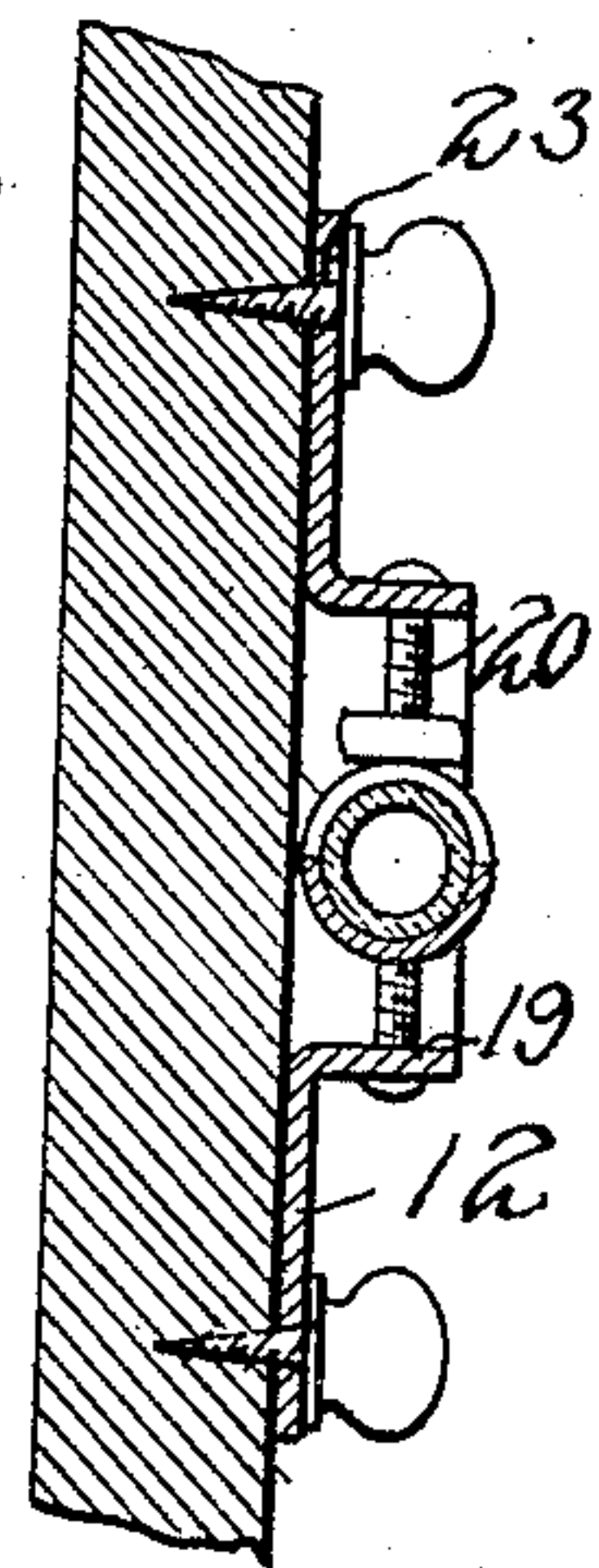


Fig 6.



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LEVEL.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM J. HENDERSON, a citizen of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented new and useful Improvements in Levels, of which the following is a specification.

The invention relates to an improvement in levels, and is particularly directed to a construction whereby the level proper may be used with a straight edge having an opening for the reception of the level or with a straight edge without such opening, thereby adapting the level for convenient application to straight edges of minimum and maximum length and for convenient transfer from one to the other.

The main object of the present invention is the provision of blanks, one of which is adapted for the reception of the spirit bulb, while the other is adapted for the reception of the first named blank, said latter blank being constructed for application to a straight edge with or without the usual level receiving opening, the construction including a simple means whereby the bulb receiving blank may be adjusted in the supporting blank to insure accuracy of the level in either use.

The invention in the preferred form of detail will be described in the following specification; reference being had particularly to the accompanying drawings in which:

Figure 1 is a plan illustrating the application of my improved structure to a straight edge. Fig. 2 is a longitudinal central section of the same. Fig. 3 is a transverse section of the same on the line 3—3 of Fig. 1. Fig. 4 is a plan of the bulb receiving blank. Fig. 5 is a perspective of the same in completed form. Fig. 6 is a plan of the supporting blank. Fig. 7 is a sectional view showing the use of the level on an ordinary straight edge.

Referring particularly to the accompanying drawings, it may be noted that the present invention is in effect made up of two blanks, a bulb receiving blank 1 and a supporting blank 2, each of which is preferably constructed by stamping from sheet material, preferably metal.

The bulb receiving blank is in the form illustrated more particularly in Fig. 4, comprising an approximately rectangular body

section 3 having a width equal to the circumferential length of the bulb to be used and a length equal to the length of the bulb. Projecting centrally from one end edge of the body is a tongue 4, centrally formed with an elongated opening 5, while from the opposite end edge of the body, in alinement with the tongue 4, there is projected a second tongue 6 adapted to be transversely and centrally bent to dispose the free end thereof at right angles to the main body of the blank, said angularly disposed portion 7 being formed with rivet receiving openings 8. From the respective end edges of the blank, on opposite sides of the respective tongues 4 and 6 project retaining spurs 9, for a purpose which will presently appear. The body 3 is also centrally formed with an opening 10 designed for use as a sight opening when the bulb is in place.

The supporting blank, illustrated more particularly in Fig. 6 comprises an elongated strip 11 from one longitudinal edge of which at determinate intervals is projected rounded bearing plates 12. One of the plates is arranged adjacent one end of the strip 11, while the second plate is spaced from the first plate a distance equal to the desired width of the supporting frame formed from the blank. The strip 11 is extended beyond the second blank a distance equal to the space between the first and second blanks and is further extended to provide a securing lip 13. The lengths of strip 11 between the first and second blanks, as 14, and beyond the second blank, as 15 will thus form the ends of the supporting frame, while those portions of the strip 11 coextensive with the respective plates 12 form the sides of the frame.

In forming the bulb receiving blank, body 1 is rolled into cylindrical form to receive the spirit bulb 16 of usual type, the projection 7 of the tongue 6 being bent at right angles to the longitudinal plane of the blank to provide for securing the receiving blank in the supporting blank. After application of the spirit bulb, the spurs 9 are bent inwardly to prevent independent movement of said bulb.

The blank 2 is bent into rectangular form, projection 13 overlapping the opposite end of the strip 11 and being secured thereto by rivets or other fastenings taking through openings 17 in said parts. The plates 12 are

bent at right angles to the plane of the rectangular frame thus formed, being extended across from one edge of the strip 11.

The bulb receiving blank is supported in blank 2 by securing the downturned lip 7 of the tongue 6 to one of the end portions of the rectangular frame by rivets passed through the openings 8 in the lip 7 and through similar disposed openings 18 in the end portion of the frame, as 15. Adjacent the opposing end portion of the frame as 14, the side bars of the frame are formed with alined openings 19, in which is fixedly mounted a threaded pin 20. The pin by this arrangement is disposed adjacent one of the end bars of the frame and is in position to receive the opening 5 of the tongue 4 of the receiving blank. Adjusting nuts 21 are threaded upon the pin 20 on opposite sides of the tongue 4, whereby one end of the receiving blank, and thereby the spirit bulb may be readily adjusted at will within the supporting frame.

In use the level thus provided may be secured to a straight edge formed with an opening 22 of a size to receive the supporting frame, in which event the plates 12 will overlie the surface of said straight edge beyond the opening 22, screw holes 23 being formed in the plates 12 for fastening the frame in position. The level is also adapted for a straight edge lacking the opening 22, as shown in Fig. 7, in which event the frame will be exactly reversed, the plates 12 being secured upon the surface of the straight edge and the rectangular frame extending outwardly from said surface, as will be obvious.

By the construction described the spirit bulb may be readily adjusted to insure its absolute accuracy with respect to any particular straight edge with which it may be used, through the operation of the nuts 21, whereby the nicety of adjustment usually necessary in securing a level on a straight edge is avoided. Furthermore by the particular arrangement noted the level in use with one straight edge may be conveniently disconnected therefrom and applied to another straight edge of greater or less length, whereby the level is adapted for a variety of uses not ordinarily possible with the usual level. For example with the level adapted to a comparatively short straight edge, and the use of a longer straight edge being required, as in plumbing partitions, walls, etc., the level may be conveniently removed from

the short straight edge and directly secured to a board of desired length, the spirit bulb after application being adjusted for accurate registry with a particular edge of the board.

Having thus fully described the invention what is claimed as new is:

1. A spirit level including a spirit bulb receiver, and a supporting frame therefor, and means for mounting the receiver wholly within the plane of the supporting frame, said frame being adapted to be secured in either of two reverse positions, whereby to permit the use of the level within or entirely beyond the surface of a straight edge.

2. A spirit level including a bulb receiving blank, comprising a rectangular body centrally formed with an opening and at opposing ends with projecting alined tongues, one of the tongues exceeding the other in length and being bent to provide a laterally projecting portion for use in securing the article in place, the ends of the body on opposite sides of the tongues being formed with retaining spurs.

3. A spirit level including a bulb receiving frame and a supporting frame each made up of a single blank, the blank of the bulb receiving frame comprising an elongated strip bent into rectangular form, those portions of the strip forming the side walls of the frame being provided with integral plates bent at right angles to said walls.

4. A spirit level including a supporting frame formed with a rectangular body and with securing plates projecting from the body coincident with one edge of the rectangular frame, a spirit bulb, and means for mounting the spirit bulb within the rectangular frame to avoid projection beyond the edges of the walls of said frame.

5. A spirit level comprising a supporting frame made up of a single blank and including a series of walls arranged in rectangular form, securing plates projecting from and coincident with similar edges of opposing walls, a bulb frame fixed at one end to one of the walls of the rectangular body, and means adjustably connecting the opposing end of the bulb frame to the walls of the body.

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

WILLIAM J. HENDERSON.

Witnesses:

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