No. 767,188. PATENTED AUG. 9, 1904.

E. D. WARNER.

SPIRIT LEVEL.

APPLICATION FILED MAR. 10, 1904.

NO MODEL.

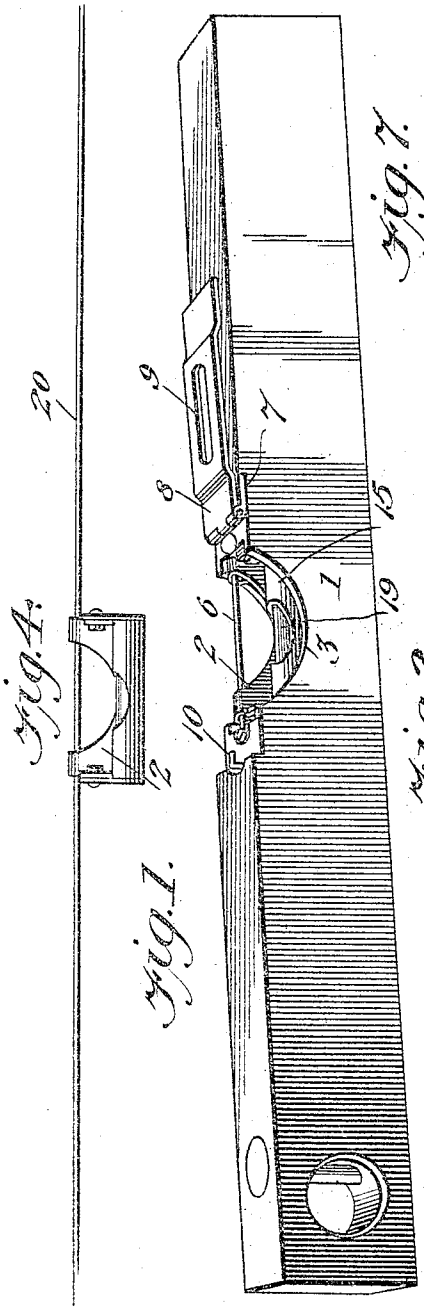


Fig. 1.

Fig. 4.



Fig. 7.

Fig. 8.

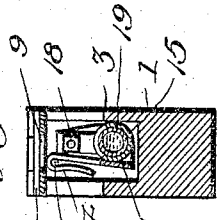


Fig. 2.

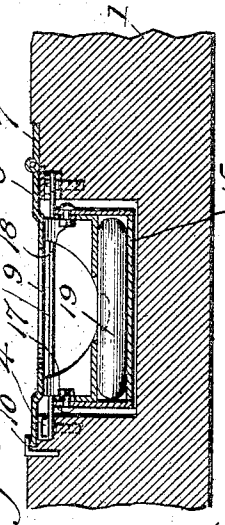


Fig. 3.

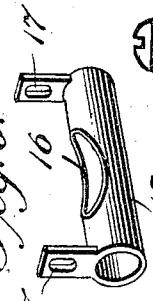


Fig. 6.



Fig. 9.



Fig. 5.

Witnesses

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No. 767,188. Patented August 9, 1904.

UNITED STATES PATENT OFFICE.

EDWARD D. WARNER, OF OCEAN CITY, NEW JERSEY.

SPIRIT-LEVEL.

SPECIFICATION forming part of Letters Patent No. 767,188, dated August 9, 1904.

Application filed March 10, 1904. Serial No. 197,530. (No model.)

To all whom it may concern:

Be it known that I, EDWARD D. WARNER, a citizen of the United States, residing at Ocean City, in the county of Cape May and State of New Jersey, have invented new and useful Improvements in Spirit-Levels, of which the following is a specification.

My invention relates to new and useful improvements in spirit-levels; and its object is to provide a simple device of this character which can be used in connection with a plumb or which can be suspended upon a line or arranged on a steel or try square.

With the above and other objects in view the invention consists of a spirit-level which is adjustably mounted upon a body having hooks which are adapted to engage a suitable holding device.

This spirit-level may be arranged within a recess provided therefor in the body of a combined plumb and spirit-level.

The invention also consists in the further novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, in which—

Figure 1 is a perspective view of my improved spirit-level used in connection with a plumb and showing the retaining-plate removed from its normal position. Fig. 2 is a central transverse section through the spirit-level when in the position shown in Fig. 1, the retaining-plate being shown in normal position. Fig. 3 is a central longitudinal section through the parts shown in Figs. 1 and 2. Fig. 4 is a side elevation showing my improved spirit-level used upon a line. Fig. 5 is a detail view of the body of the spirit-level. Fig. 6 is a similar view of the adjustable holder. Fig. 7 is a detail view of the holding-rod used in connection with a combined plumb and spirit-level. Fig. 8 shows my improved spirit-level used in connection with a try-square. Fig. 9 is a detail view of one of the rod-adjusting screws.

Referring to the drawings by numerals of reference, 1 is a block such as ordinarily used in a combined plumb and spirit-level, and this block has a recess 2 in one edge, the walls of which are cut away, as shown at 3. Adjusting-screws 4 are arranged at the ends of recess 2 and extend into the edge of block 1. Arranged on these adjusting-screws are eyes 5, formed at the ends of a rod 6, which extends longitudinally of recess 2. A plate 7 is secured to the block 1 adjacent one end of recess 2 and has a retaining-plate 8 hinged to it and provided with a longitudinally-extending slot 9. This plate 8 is adapted to be locked in position over the rod 6 by means of a catch 10.

The spirit-level is formed of three parts—to wit, a body, a holder, and a spirit-tube. The body comprises a plate 11, having flanges 12 at the ends thereof, having apertures 13 in their upper portions. Hooks 14 are arranged at the upper edge of the plate 11 and adjacent the flanges 12, and these hooks are adapted to engage the rod 6. The holder comprises a tube 15, having an aperture 16 in the upper face thereof, and longitudinally-slotted arms 17 extend upward from the ends of this tube. The tube and arms are adapted to be fitted between flanges 12 and are secured thereto by bolts 18, which are adapted to extend through the slotted arms 17 and the apertures 13. By providing connecting devices of this character the tube 15 can be adjusted in relation to the plate 11. The spirit-tube 19 is of usual form and is adapted to be seated within the tube 15.

It will be seen that when the spirit-level is suspended from the rod 6 it will accurately indicate whether or not the block 1 is horizontal. Accidental displacement of the spirit-level is prevented by the retaining-plate 8. Should it for any reason be desirable to remove the spirit-level from the block 1, it is merely necessary to release the plate 8 and swing it away from the recess 2. The spirit-level can then be raised from the recess. The spirit-level can be adjusted to the proper relation with the block 1 by rotating one of the screws 4 so as to raise or lower the end of the rod connected to it.

It will of course be understood that the spirit-level can be used independently of the

block 1. In Fig. 4 I have shown it suspended from a line 20, and in Fig. 8 the same has been shown mounted upon a try-square 21.

It will be seen that the device is very simple and inexpensive in construction and is capable of being utilized in various places where the ordinary spirit-level cannot be employed.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing any of the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

Having thus described the invention, what is claimed as new is—

1. The combination with a block having a recess in one face thereof, and a retaining-plate adapted to extend over the recess; of a supporting-rod extending longitudinally of the recess, and a spirit-level detachably engaging the rod and within the recess.

2. The combination with a block having a recess in one face thereof, and a retaining-plate normally extending over the recess; of an adjustable rod extending over the recess, and a spirit-level within the recess and detachably connected to the rod.

3. In a spirit-level, the combination with a plate having integral hooks at one side thereof; of a tubular holder detachably and adjustably connected to the plate, and a spirit-tube within the holder.

4. In a spirit-level, the combination with a plate having hooks at one side thereof, and flanges integral with the plate; of a holding-tube, arms thereon adjustably connected to the flanges, and a spirit-tube within the holding-tube.

5. In a spirit-level, the combination with a plate having hooks at one side thereof, and flanges at the ends of the plate; of a tube interposed between the flanges, arms thereon adjustably connected to the flanges, and a spirit-tube within the holding-tube.

6. The combination with a block having a rod connected thereto; of a plate having hooks thereon engaging the rod, flanges upon the plate, a holding-tube interposed between and adjustably connected to the flanges, and a spirit-tube within the holding-tube.

7. The combination with a block having a recess in one face thereof, and a retaining-plate adjacent the recess; of an adjustable rod extending over the recess, a hooked plate detachably connected thereto, flanges upon the plate, a holding-tube interposed between the flanges, arms thereon adjustably connected to the flanges, and a spirit-tube within the holding-tube.

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

EDWARD D. WARNER.

Witnesses:
GEORGE O. ADAMS,
FURMAN R. WILLIS.