(No Model.)

T. L. BURCHINAL.

SPIRIT LEVEL.

No. 478,309. Patented July 5, 1892.

Fig 1

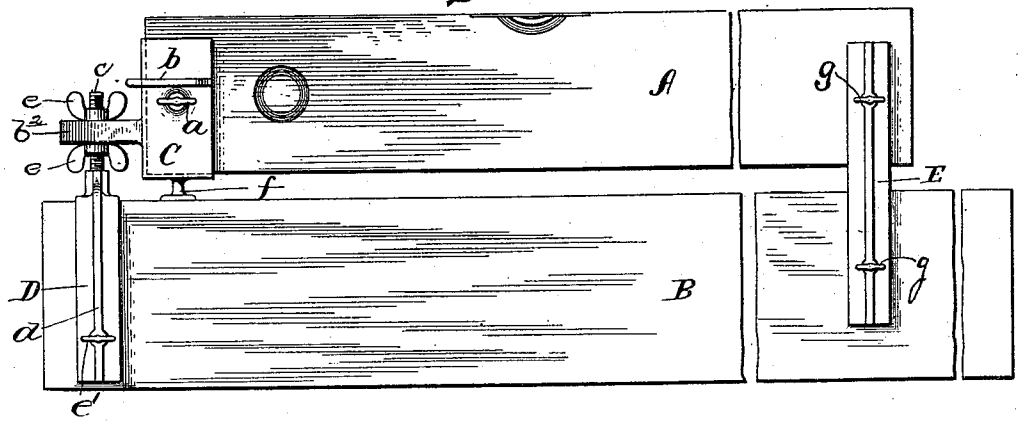


Fig 2

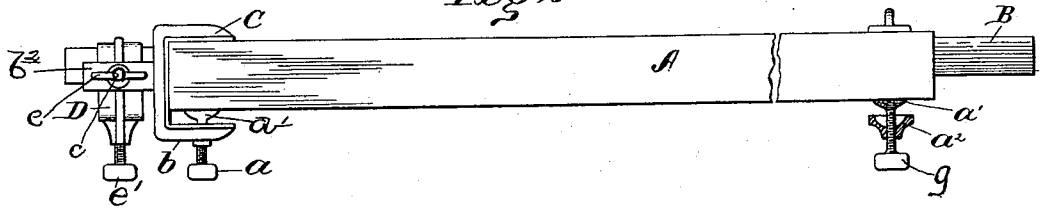


Fig 3

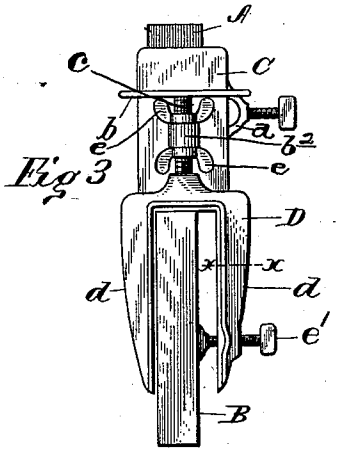


Fig 5

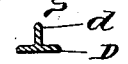
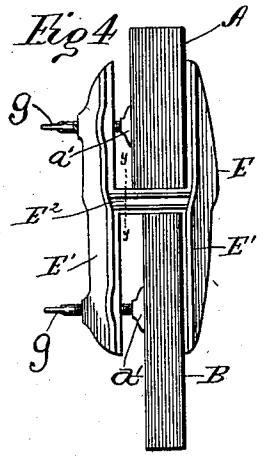


Fig 6

Fig 4



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UNITED STATES PATENT OFFICE.

THOMAS LEE BURCHINAL, OF MORGANTOWN, WEST VIRGINIA.

SPIRIT-LEVEL.

SPECIFICATION forming part of Letters Patent No. 478,309, dated July 5, 1892.

Application filed May 5, 1892. Serial No. 431,867. (No model.)

To all whom it may concern:

Be it known that I, THOMAS LEE BURCHINAL, a citizen of the United States, residing at Morgantown, in the county of Monongalia and State of West Virginia, have invented certain new and useful Improvements in Leveling-Instruments; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention has reference to an improvement in spirit-levels; and it consists of certain novel features, all of which are fully set forth in the following specification and shown by the accompanying drawings, which form a part thereof.

The object of my invention is to provide a leveling-instrument which may be used in unhandy and out-of-the-way places, and one that will take the place of plumb-bobs and similar instruments.

A further object is to construct the device in such a manner that it will be a more durable, efficient, and desirable arrangement than has heretofore been in use.

In the drawings, Figure 1 represents a side elevation of my complete device; Fig. 2, a plan view; Figs. 3 and 4, end views; Fig. 5, a section on line x x, Fig. 3; Fig. 6, a section on line y y, Fig. 4.

The reference-letter A represents a spirit-level of ordinary construction, to which is rigidly secured the straight-edge B by means of the clamps C, D, and E. The clamp C, which embraces the end of the level A, is substantially rectangular in shape, having one end and side cut away for its reception. A thumb-screw a, working in the side of the clamp-section C, serves to hold the level securely in place. This thumb-screw has secured to its end a conical swivel a', which may be milled on its face, if desired. Formed in the inner side of the clamp C is a corresponding recess a^2, adapted to receive this enlarged swivel. By this means it will readily appear that the swivel will not interfere in any way with whatever object it is desirous to clamp in section C, as it (the swivel) can be drawn up into the recess a^2, whereupon a clear space will be left for the reception of the level A. The clamp-section C has formed on it a rib b, which serves to strengthen it and prevent collapsing when pressure is applied by the thumb-screw a. Projecting out from the rear of this clamp-section is an arm b^2, having an eye formed in its end. This eye receives the threaded shank c of the clamp-section D, which fits loosely therein and is adjustably held in place by means of the thumb-nuts e. Projecting from the lower side of clamp C is an extension f, which extends downwardly and engages the straight-edge B on its upper side. The function of this extension will be fully explained hereinafter.

The clamp D is substantially U-shaped, having a strengthening-rib d formed on it to compensate for the pressure of thumb-screw e', which is located in the side of the clamp. This construction is shown in cross-section by Fig. 5. The thumb-screw e' is of a construction similar to the screw a described in relation to section C, which form is also applied to the double clamp E and lettered g, as will be seen by reference to the drawings. The clamp D is adapted to hold one end of the straight-edge B. The free ends of the level and straight-edge are clamped in adjustment by means of the double-clamp section E, which is formed of a pair of vertical side sections E′, connected to each other by means of a cross-piece E^2, (shown in cross-section at Fig. 6,) the whole being cast in one integral piece. This cross-piece E^2 is of a size equal to the length of the extension f of clamp C. By means of these two corresponding portions f and E^2 it will readily appear that the level and straight-edge may be secured perfectly parallel in their respective clamps. Thumb-screws g are employed in the section E and are of the peculiar construction explained hereinbefore.

To use my improvement, the level and straight-edge are secured in their respective clamps, care being taken to bring them both up flush with the extension f and cross-piece E^2, whereupon they will be perfectly parallel. This careful adjustment is essential to the successful operation of the invention.

In practice it is intended to have the

straight-edge much longer than the level in order that the operator may reach down chimneys and into out-of-the-way places which have heretofore been inaccessible by a level, plumb-bob, or similar instrument.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a level, a clamp embracing its end, a straight-edge, a clamp secured thereto and connected to the clamp on the level, and a double clamp secured to the free ends of the level and straight-edge, substantially as described.

2. The combination of a level, a clamp secured to one end, a downward extension formed on the clamp, a straight-edge, a second clamp secured thereto and connected directly to the clamp on the level, a double clamp connecting the opposite ends of the level and straight-edge, and a cross-piece on the double clamp of a size similar to the extension on the level-clamp, substantially as described.

3. The combination of a level, a clamp secured to one end, an arm projecting out from the same, a straight-edge, a clamp secured thereto, a shank formed on the straight-edge clamp, means for connecting the arm and shank, and a double clamp secured to the opposite ends of the level and straight-edge, substantially as described.

4. The combination of a level, a clamp secured to one end, an arm projecting out from the clamp, an eye formed in the end of the arm, a straight-edge, a clamp secured thereto, a threaded shank formed on the straight-edge clamp and adapted to pass through the eye in the arm on the level-clamps, thumb-nuts for adjusting and holding the shank in place, and a double clamp secured to the opposite ends of the level and straight-edge, substantially as described.

5. The combination of a level, a clamp secured to its end, a downward extension formed on the same, an arm projecting out from the clamp, a straight-edge, a clamp secured thereto, a threaded shank formed on the straight-edge clamp, means for connecting the shank and arm, a double clamp connected to the straight-edge and level, and a cross-piece on the double clamp of a size similar to the extension on the level-clamp, substantially as described.

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

THOMAS LEE BURCHINAL.

Witnesses:
W. R. PASTORIUS,
M. W. PROTZMAN.