

CHAPIN & STANLEY.

Spirit Level.

No. 68.603.

Patented Sept. 10, 1867.

Fig. 1

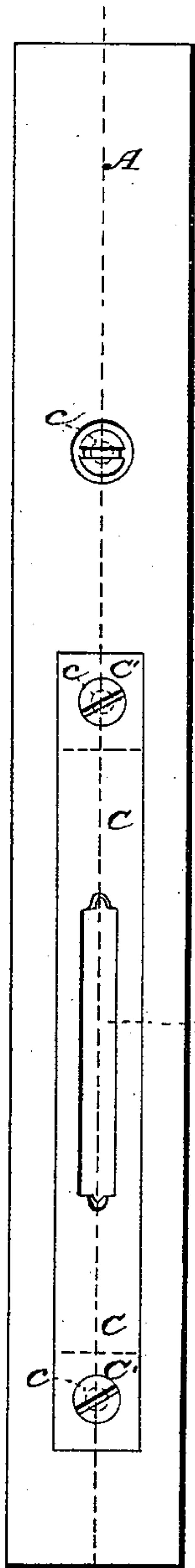
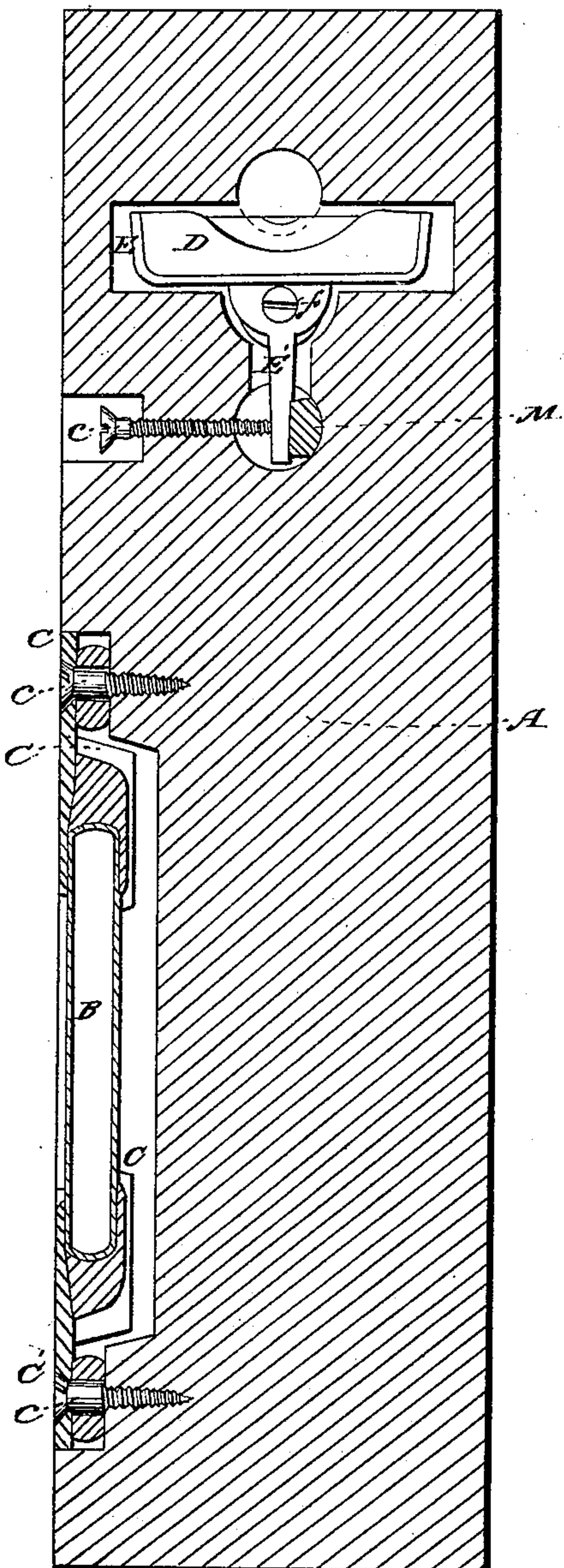


Fig. 2.



WITNESSES:

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INVENTORS:

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United States Patent Office.

SAMUEL N. CHAPIN AND AUGUSTUS STANLEY, OF NEW BRITAIN, CONNECTICUT.

Letters Patent No. 68,603, dated September 10, 1867.

IMPROVEMENT IN ADJUSTING SPIRIT-LEVELS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, SAMUEL N. CHAPIN and AUGUSTUS STANLEY, both of New Britain, in the county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in the Construction of Plumb and Level-Indicators; and we do hereby declare that the following is a full and exact description thereof.

Our invention relates to the means for adjusting the positions of the indicator in the structure so as to correct any slight derangements due to warping or other causes. This has been attempted heretofore, but very imperfectly.

We will first describe what we consider the best means of carrying out our invention, and will afterwards designate the points which we believe to be new. The accompanying drawings form a part of this specification.

Figure 1 is an edge view, and

Figure 2 a longitudinal section.

Similar letters of reference indicate like parts in all the figures.

The drawings represent the novel parts, with so much of the other parts as is necessary to indicate their relation thereto.

A is a piece of cherry carefully seasoned, and adapted to form the body of the plumb and level-indicator. It is mortised to receive the plumbing and levelling devices. These devices may be made as usual, by enclosing small quantities of air with alcohol in glass tubes. The same general mode of constructing and adjusting may be applied to both devices. B is the long glass, which is made available when the device is used for adjusting levels, and D is the shorter tube, which is available when the device is used for adjusting a perpendicular line. Some of the features of our invention are represented as applying to only one, and others to both of these glasses, for the purpose of adjusting them. The long glass B is firmly fixed in a metallic case, C, which presents a surface, C', at each end, adapted to receive the screws *c*, which hold the surface C' flush or about flush with the adjacent surfaces of the instrument. Under one or both of the overhanging ends C' we place a quantity of good vulcanized rubber, as indicated by M. By turning one or both the screws *c* the position of the case C and the contained glass may be adjusted relatively to the body A. Thus, by driving the screw in at either end the rubber at that end will be compressed, and the glass thus varied in its position; or, if the same screw be slacked the rubber M beneath will expand by its elasticity and adjust the glass in the opposite direction. The short glass D is fixed in a case, E, which turns on the pivot *f*. There is a stout arm, E', which stands at right angles with the glass D, and through which the adjustment is effected. The screw G, introduced from the edge of the body A, acts on the right-angled arm E', and by compressing and by varying the position of the latter the short glass D is adjusted at will.

We do not consider it essential to the success of our invention that the material of the body A shall be cherry or other wood, or that the levelling devices B and D, or the other parts, shall be constructed exactly in the form and with the proportions represented. Many modifications will be suggested by any good mechanic. It is practicable to employ other materials, as gutta percha, leather, or felt, in place of the rubber M, but we esteem it important that the material there employed shall be not only elastic, but shall extend uniformly across and offer its resistance evenly over a considerable surface, so as to prevent the device from rocking and twisting.

Having now fully described our invention, what we claim as new in instruments for determining levels and the like, is as follows:

1. We claim a bed of vulcanized rubber, M, or equivalent elastic material, arranged relatively to the adjusting-screw *c*, and to the adjustable levelling device B or D, substantially as and for the purpose herein specified.

2. We claim constructing the case E, which carries the short glass D, with a part, E', or its equivalent, standing at right angles to the glass D, in combination with means for adjusting the same, operated at the edge of the body A, substantially as and for the purpose herein specified.

SAMUEL N. CHAPIN,
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Witnesses:

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