

C. F. HILL,

Spirit Level.

No. 84,880.

Patented Dec. 15, 1868.

Fig 3.

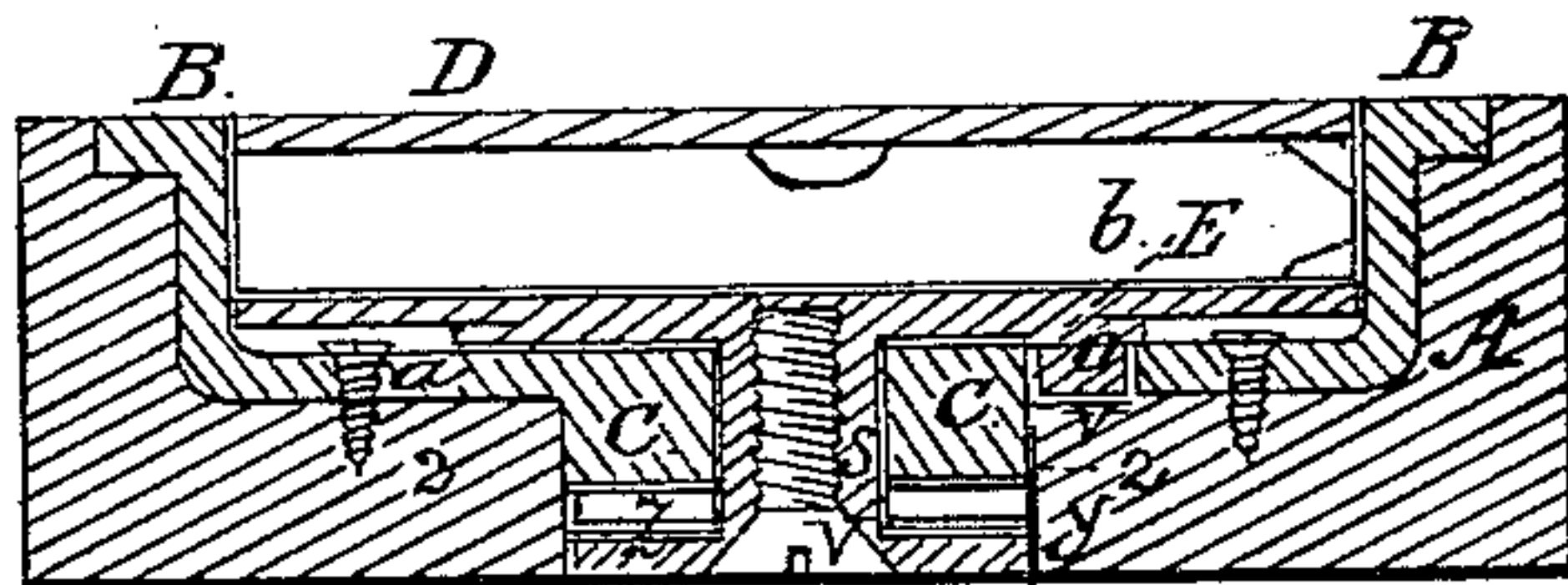


Fig. 2.

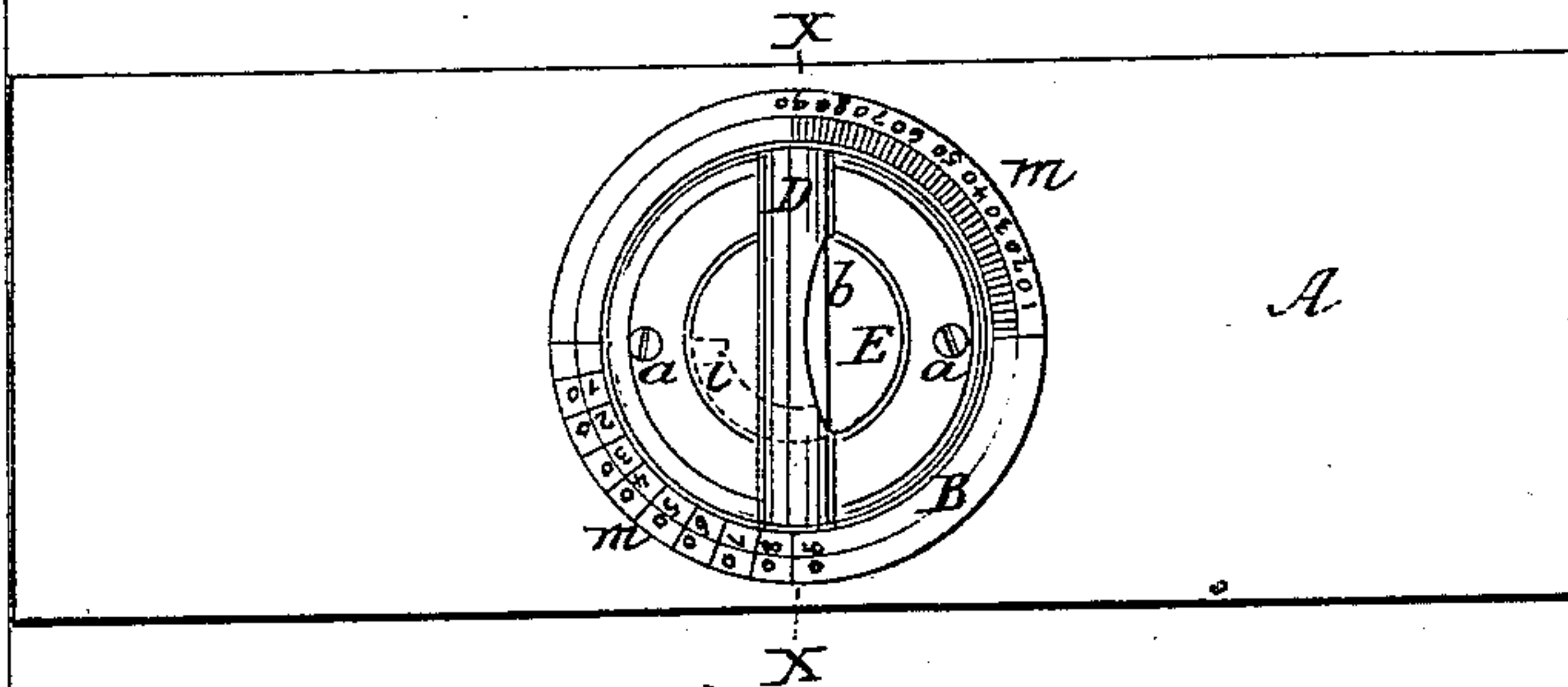
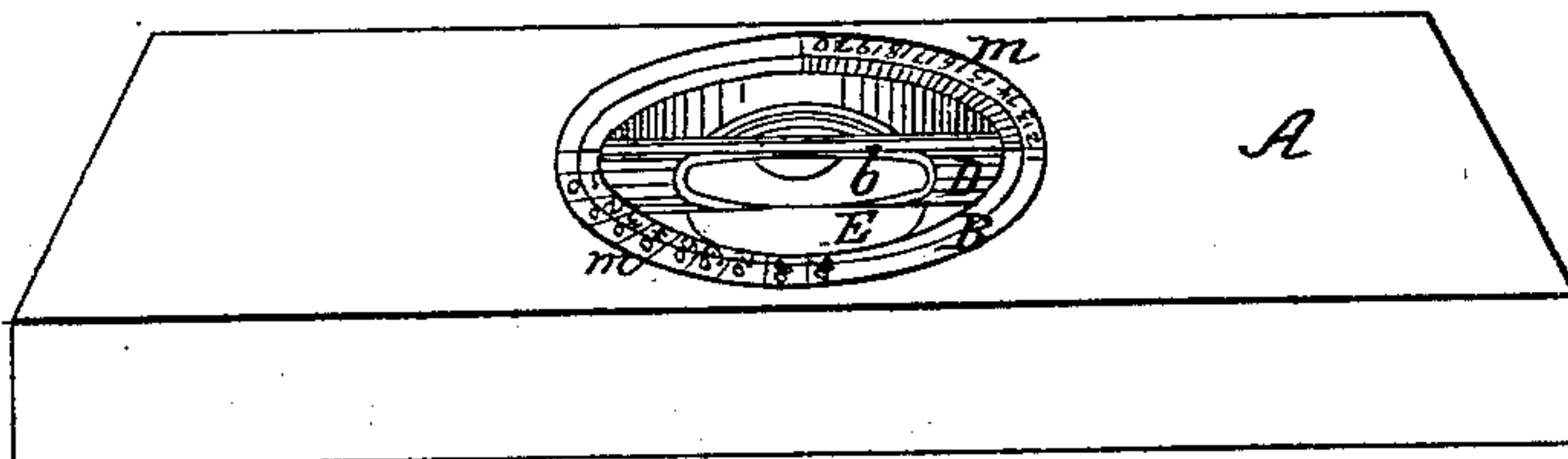


Fig 3



Witnesses.

H. P. Peck  
J. E. Peck.

Inventor.

Collins F. Hill  
by his atty  
H. P. Peck



COLLINS F. HILL, OF HAMILTON, OHIO.

Letters Patent No. 84,880, dated December 15, 1868; antedated December 8, 1868.

IMPROVEMENT IN 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 I, COLLINS F. HILL, of Hamilton, in Butler county, in the State of Ohio, have invented certain new and useful Improvements in Spirit-Levels; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 represents a perspective view of my improved level.

Figure 2 represents a front view of the same.

Figure 3 represents a transverse sectional view, taken at the line *xx* of fig. 2.

In the accompanying drawings—

A denotes a rectangular rule, made of hard wood, at the centre of which the metal chamber B is embedded.

The chamber B is of a true circular form, and is made with the hollow or perforated stem C, which terminates at the line 2 2, seen in fig. 3, and is secured in its seat by means of screws *a a*.

A cylindrical tube, D, containing a glass vessel, *b*, is made of metal, and is of the proper length to extend across the metal chamber B.

This cylinder D is connected with the circular base-plate E, which is provided on its under side with the detent *d*, which fits down in the quadrantal slot *i*, seen in dotted lines in fig. 2.

The plate E is also provided with the hollow arbor *s*, seen in fig. 3.

The outer end of the arbor *s* is made square, to fit into the square hole in the metal plate *u*, which is secured to the end of the arbor *s* by the screw *v*.

Between the circular plate *u* and the stem C, there is placed a thin metal plate, *y*, and an India-rubber packing or spring, *z*.

There are two scales of marks and figures, *m m*, on the outer surface of the circular metal chamber B, each including a quarter of a circle, and each scale represents, in marks and figures, ninety degrees.

The cylindrical vessel D, which is formed with an opening to exhibit the spirit-receptacle *b*, as represented in the drawings, will revolve upon its axis one-quarter of a revolution in either direction; and the

detent *d* in the slot *i* serves as a stop to determine the extent of this movement. In the rotation of the cylinder D, the plate *u*, with the screw *v*, which is firmly connected with the arbor *s*, will always partake of the motion of the cylinder D and its base-plate E. The India-rubber-spring packing *z* is necessary to retain the levelling-cylinder D in any position in which it is capable of being set. And, to prevent any inaccuracy in using the instrument, the thin metal washer *y* is interposed between the movable plate *u* and the packing *z*; because, if the packing *z* were in contact with the movable plate, the effect of the former would be to react upon the movement and setting of the cylinder D, at either termination of its rotary movement, and would thereby prevent an accurate adjustment of the level. But the washer *y*, which rests against the inner face of plate *u*, remains stationary, being retained by the elastic packing *z*.

From the foregoing description, it will be understood that the quarter of a revolution which may be given to the level-cylinder D, will bring it either in a longitudinal or transverse relation to the rule A, and enable it to be used for either a level or plumb. And it will also be readily seen that the cylinder D may be set within its chamber B in any position, to determine a line at any angle between the vertical and horizontal.

Having fully described my invention,

What I claim, and desire to secure by Letters Patent, is—

The chamber B, provided with the scales *m m*, and quadrantal slot *i*, in combination with the rotary adjustable cylinder D, spirit-vessel *b*, and rule A, substantially as and for the purpose described.

Also, the combination of the stem C, arbor *s*, plate *u*, packing *z*, and washer *y*, connected, arranged, and operating in the manner and for the purpose described.

In testimony whereof, I have hereunto set my hand, this 14th day of April, A. D. 1868.

COLLINS F. HILL.

Witnesses:

H. P. K. PECK,  
S. E. PECK.