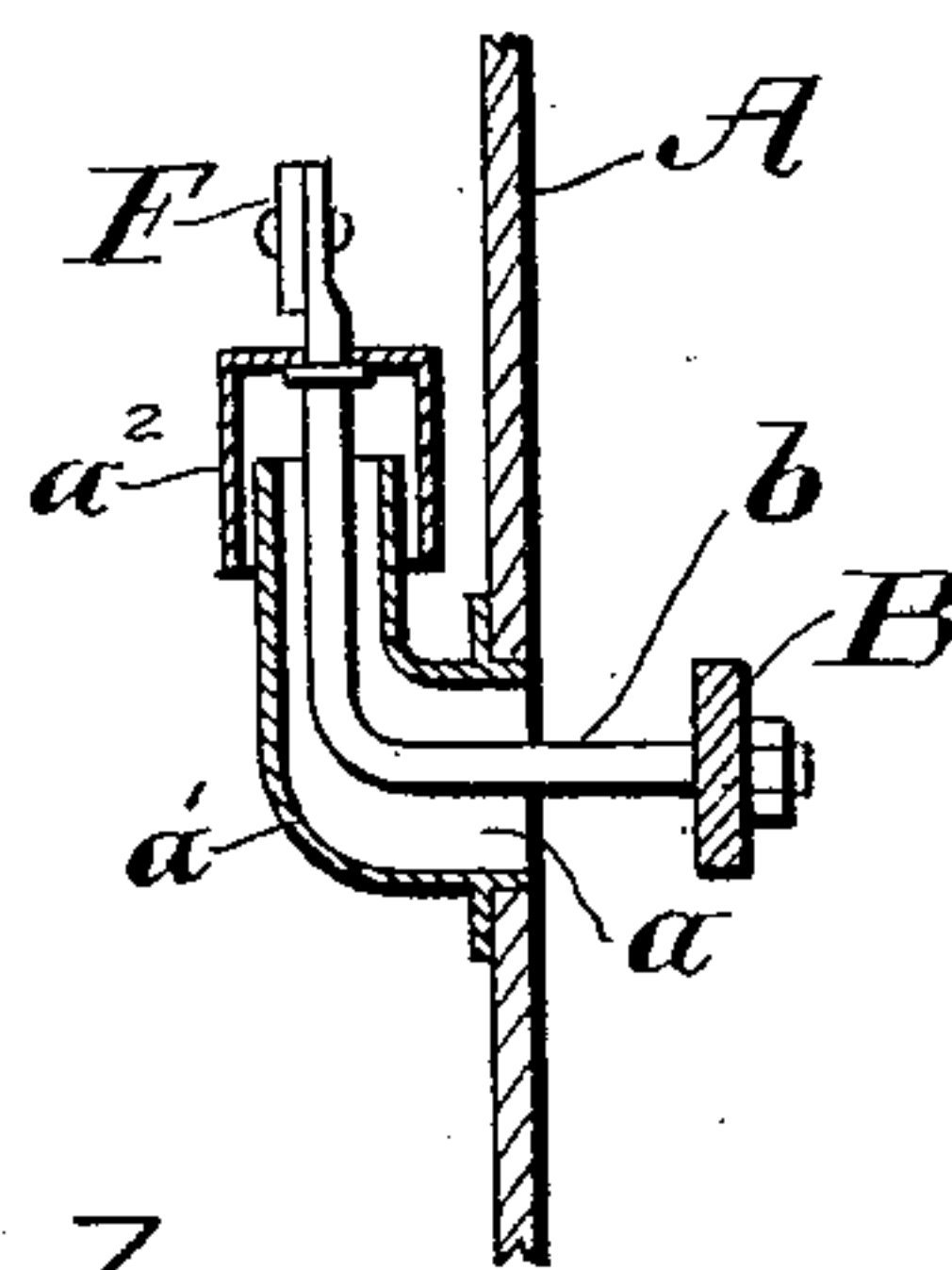
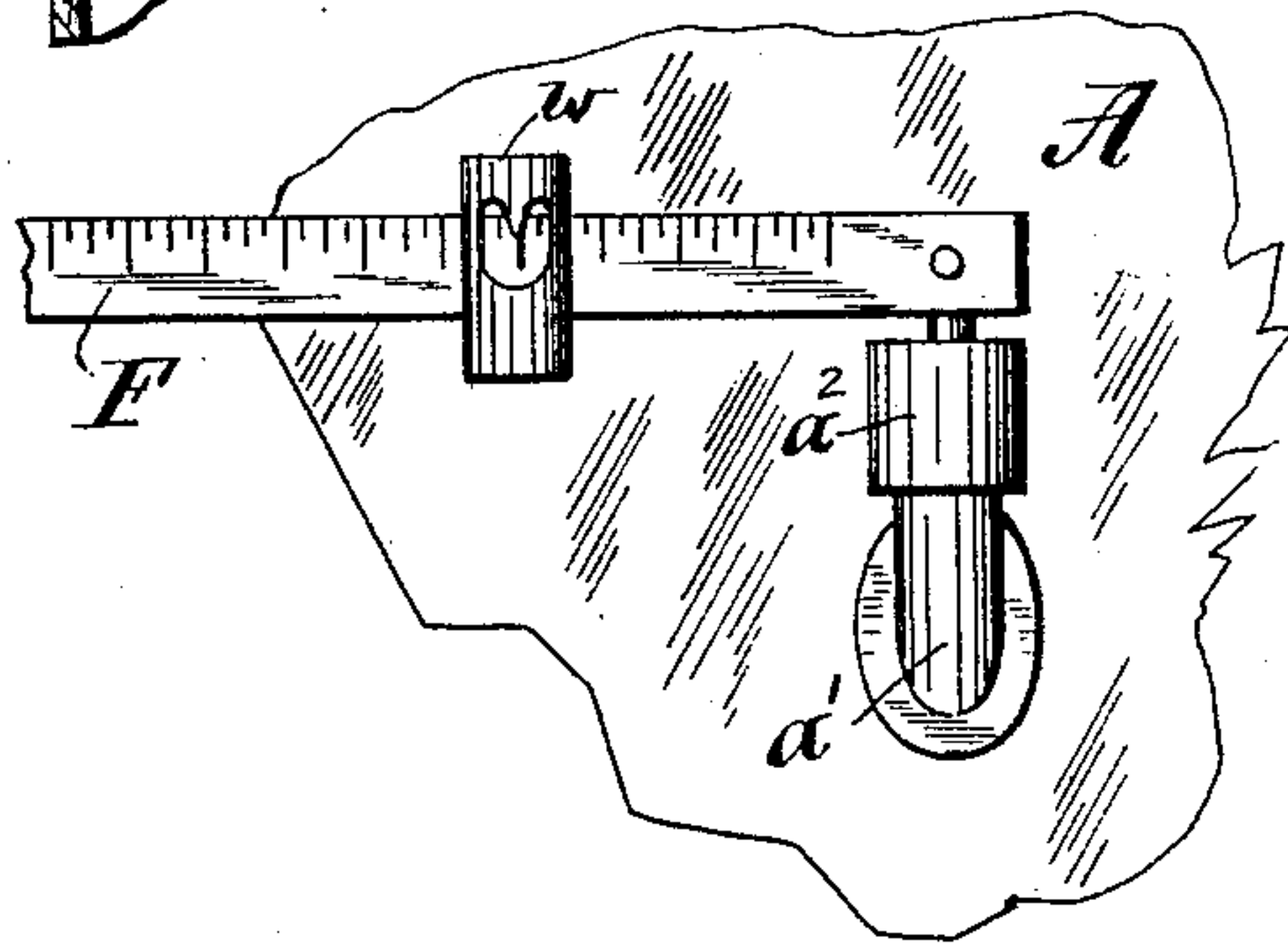
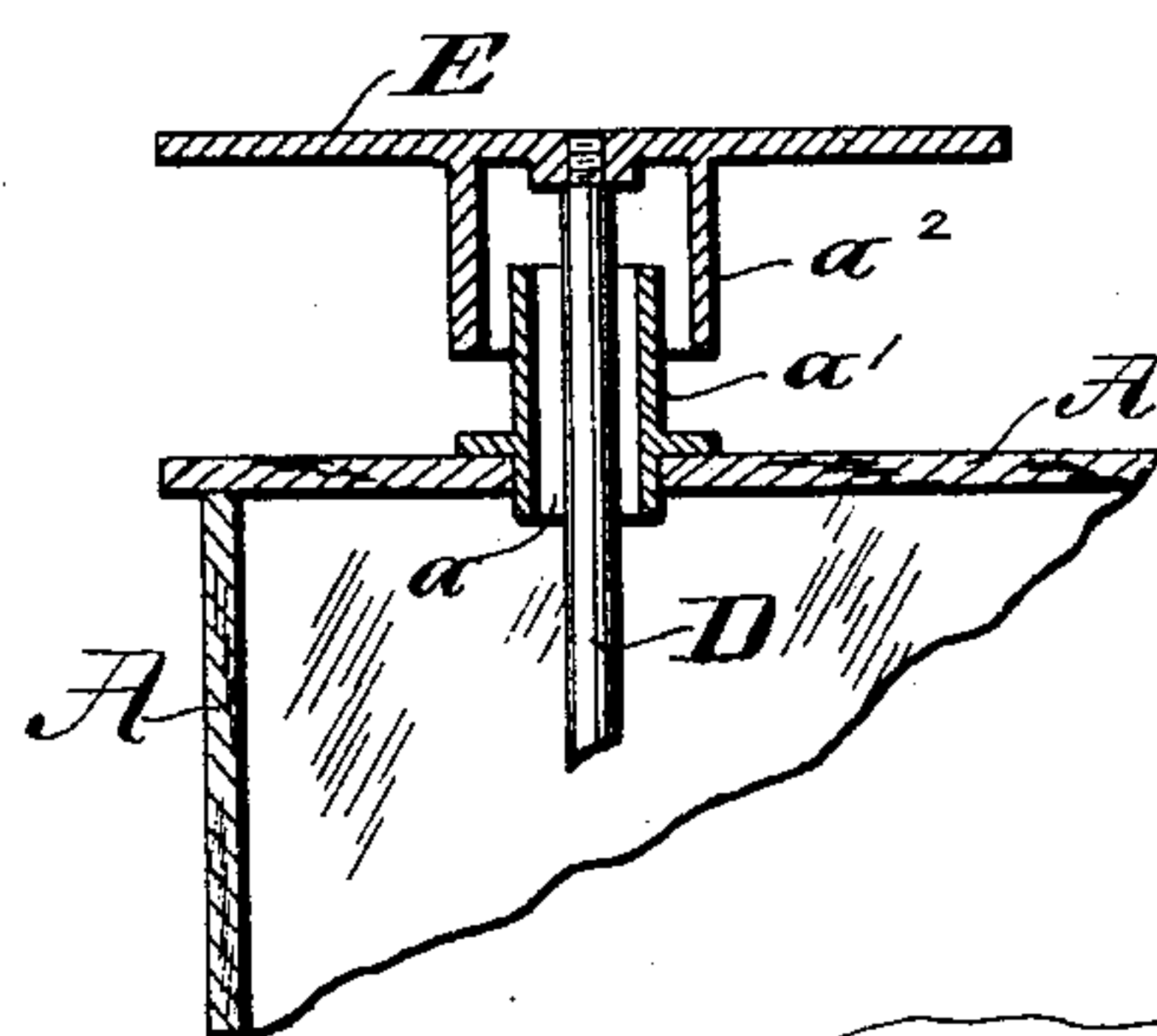
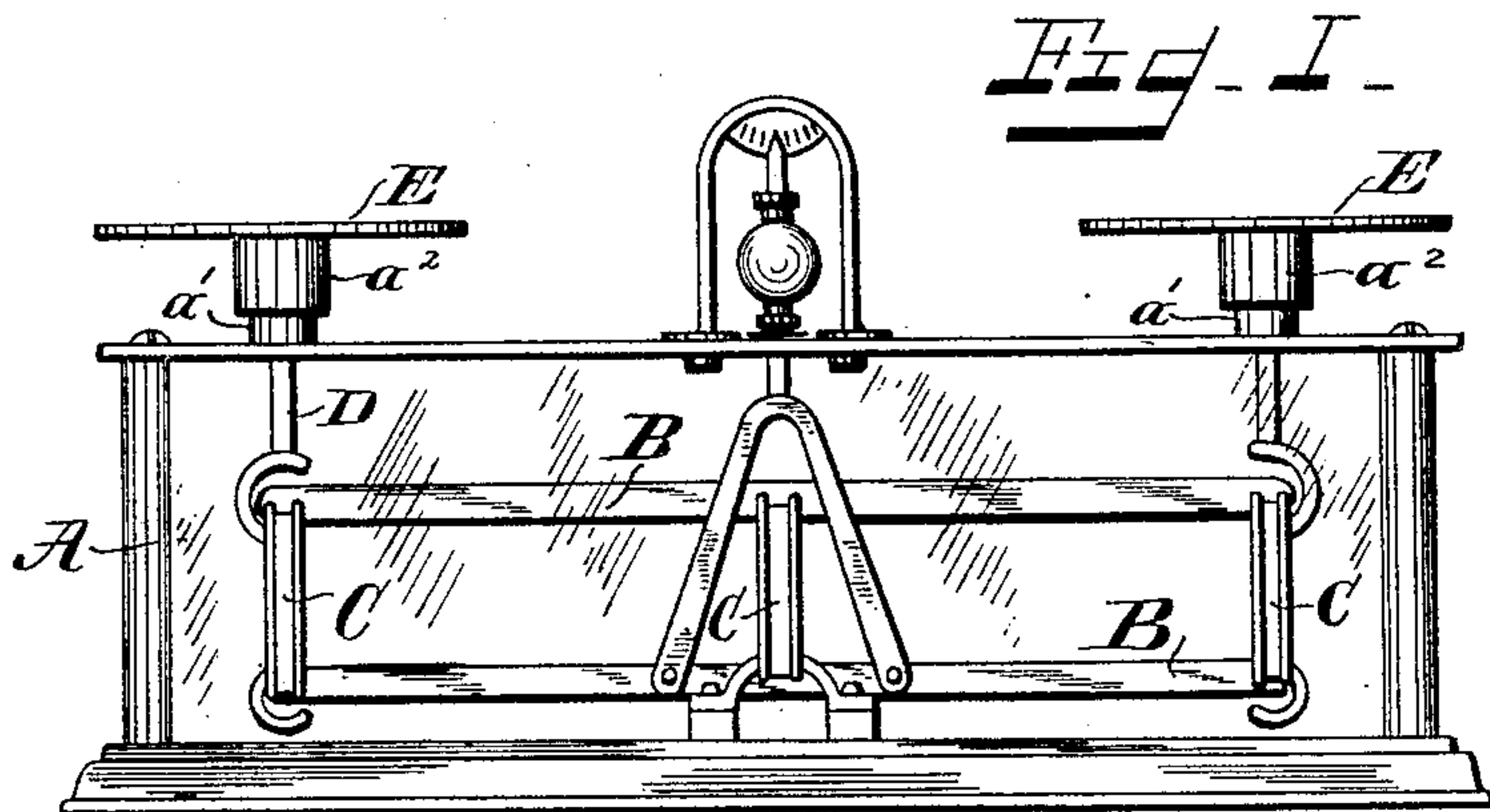


(No Model.)

A. FRIES.  
INCLOSED WEIGHING BALANCE.

No. 452,371.

Patented May 19, 1891.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ALBERT FRIES, OF NEW YORK, N. Y.

## INCLOSED WEIGHING-BALANCE.

SPECIFICATION forming part of Letters Patent No. 452,371, dated May 19, 1891.

Application filed December 12, 1890. Serial No. 374,504. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT FRIES, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Inclosed Weighing-Balances, of which the following is a specification.

My invention relates to inclosed weighing-balances of the class in which balance-beams and their supports are incased while the weighing-platens are carried above the case upon projecting standards. In such balances the platen-supporting standards project above the casing through apertures of sufficient area to allow a free movement without contact, thereby affording opportunity for access of dirt, &c., which, owing to the inclosure of the balance, is difficult to remove. In the class of "torsion" balances this condition is peculiarly objectionable, especially in respect to liquids or acid matters, which produce serious injury to the parts by rusting.

My invention seeks to remedy these conditions; and it consists in the construction hereinafter described embodying the combination of a skirt-flange depending from the weighing-platen with an inner curb or grommet raised above the aperture of the case through which passes the platen-standard, the two constituting a protecting-shield for the opening of the case, preventing the entrance of any extraneous matters, whether solid or liquid, in the ordinary uses of the balance.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of an ordinary form of torsion-balance to which my invention is applied. Fig. 2 is a detail cross-section of the parts immediately constituting the invention, showing their construction and relation; Fig. 3, a partial side view and corresponding cross-sectional elevation of an outside indicating-beam and sliding-weight connection, showing the application of the invention thereto.

Referring now to the drawings, A designates the case inclosing the working parts of the balance, consisting of balance-beams B B torsion-frames C C C, and platen-standards

D D. The standards D D project upward through apertures *a a* in the top of the case and carry the weighing-platens E E.

To carry out the objects of my invention I attach to the top of the case A a curb or grommet *a'*, surrounding each aperture *a*, and attach to each of the platens E a depending skirt-flange *a''* sufficiently large to surround the grommet *a'* without contact and project below the upper margin thereof, so that in all positions of the balance-beams the standards will be inclosed by the flanges and curbs.

It will be obvious that the construction is such as to prevent any access of dirt through the apertures *a*, and especially to prevent any spattering of liquids through the same, or even the settling of dust to any extent; also, that any liquid trickling downward from the platens will be carried downward by the skirt-flanges *a''* and entirely prevented from reaching the standards D. There is thus formed a protecting inclosure without frictional contact of the parts. Where, as shown in Fig. 3, there is an aperture *a* in the side wall of the casing, as required by the connecting-standard *b*, attached to the scale-beam E and supporting an outside indicating-beam F, having a sliding weight *w*, the grommet *a'* is bent laterally, as indicated, to surround the aperture, and the skirt-flange *a''* is connected to the beam F or the vertical portion of the standard *b*, the parts acting in the same relation, as already indicated.

I claim as my invention and desire to secure by Letters Patent of the United States—

In an incased weighing-balance, in combination with the projecting standards and weighing-platens, curbs or grommets raised above and around the margins of the standard-apertures, and corresponding skirt-flanges depending concentrically from the weighing-platens, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALBERT FRIES.

Witnesses:

ALFRED SPRINGER,  
CHARLES FRIES.