

(No Model.)

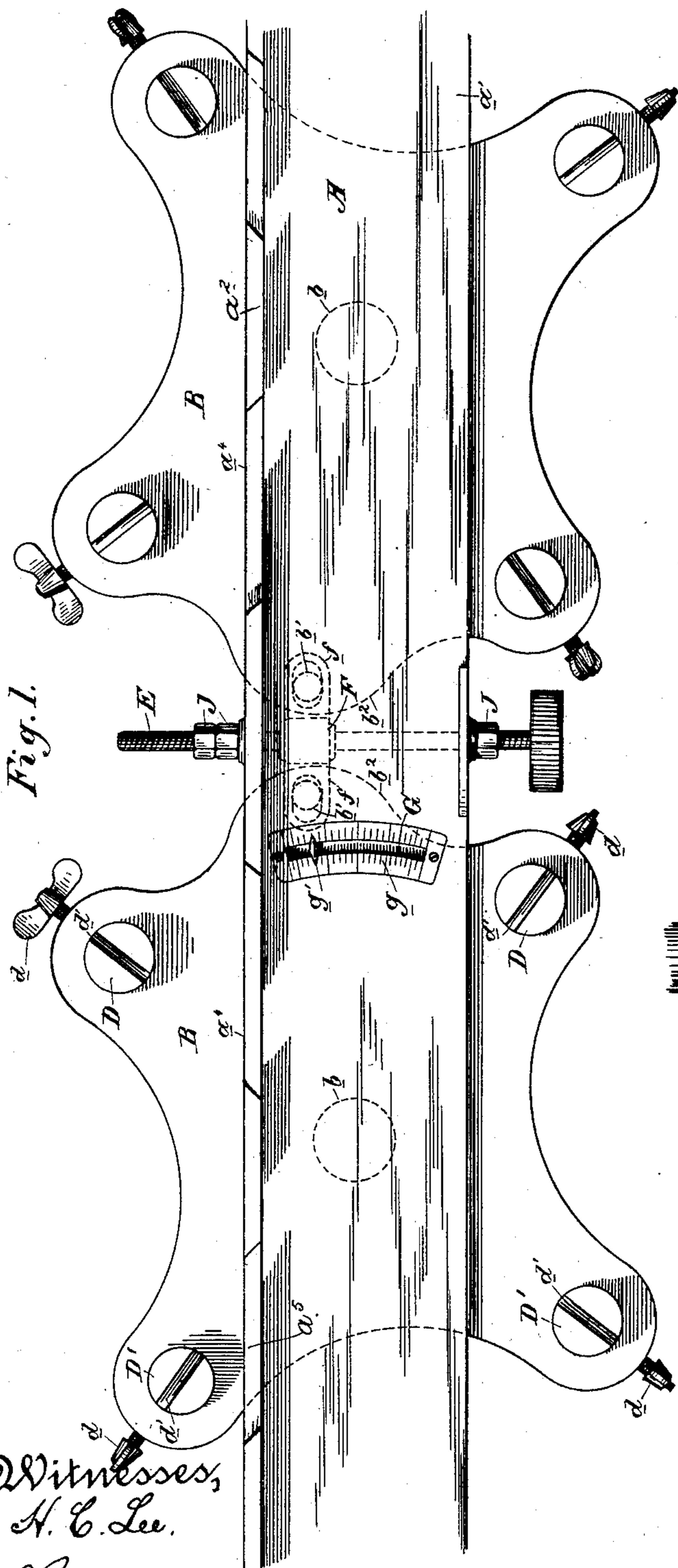
2 Sheets—Sheet 1.

A. CRUM.

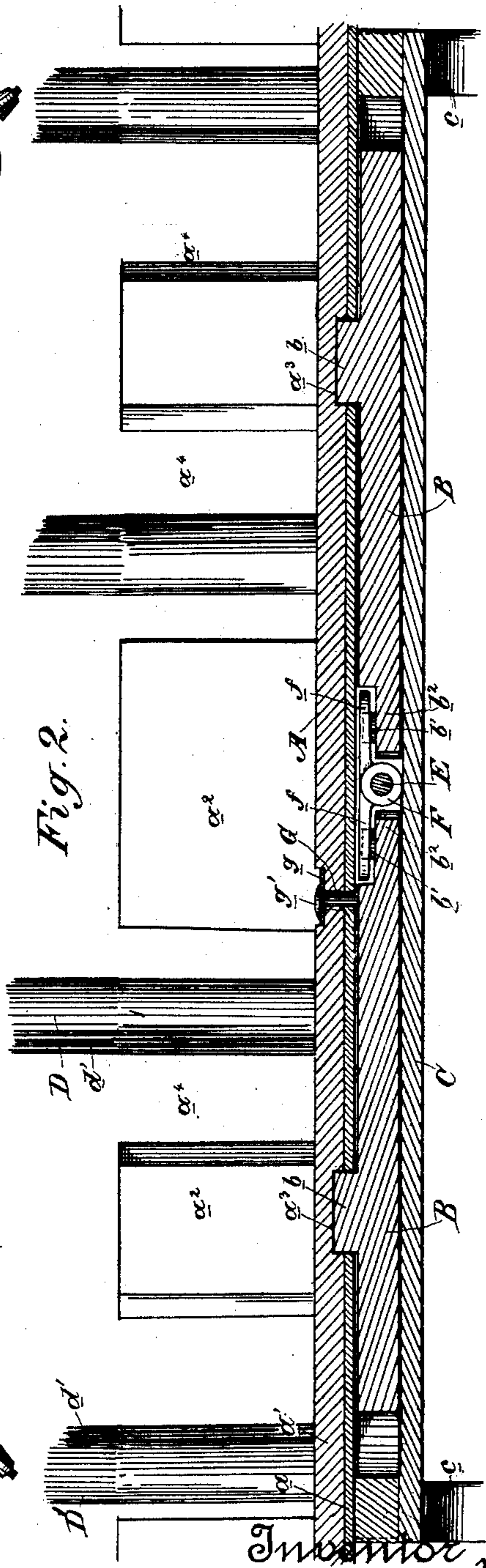
MITER BOX.

No. 367,704.

Patented Aug. 2, 1887.



Witnesses,
H. C. Lee.
J. V. Morse.



Inventor,
Albert Crum
By Devey & Co.
attys

(No Model.)

2 Sheets—Sheet 2.

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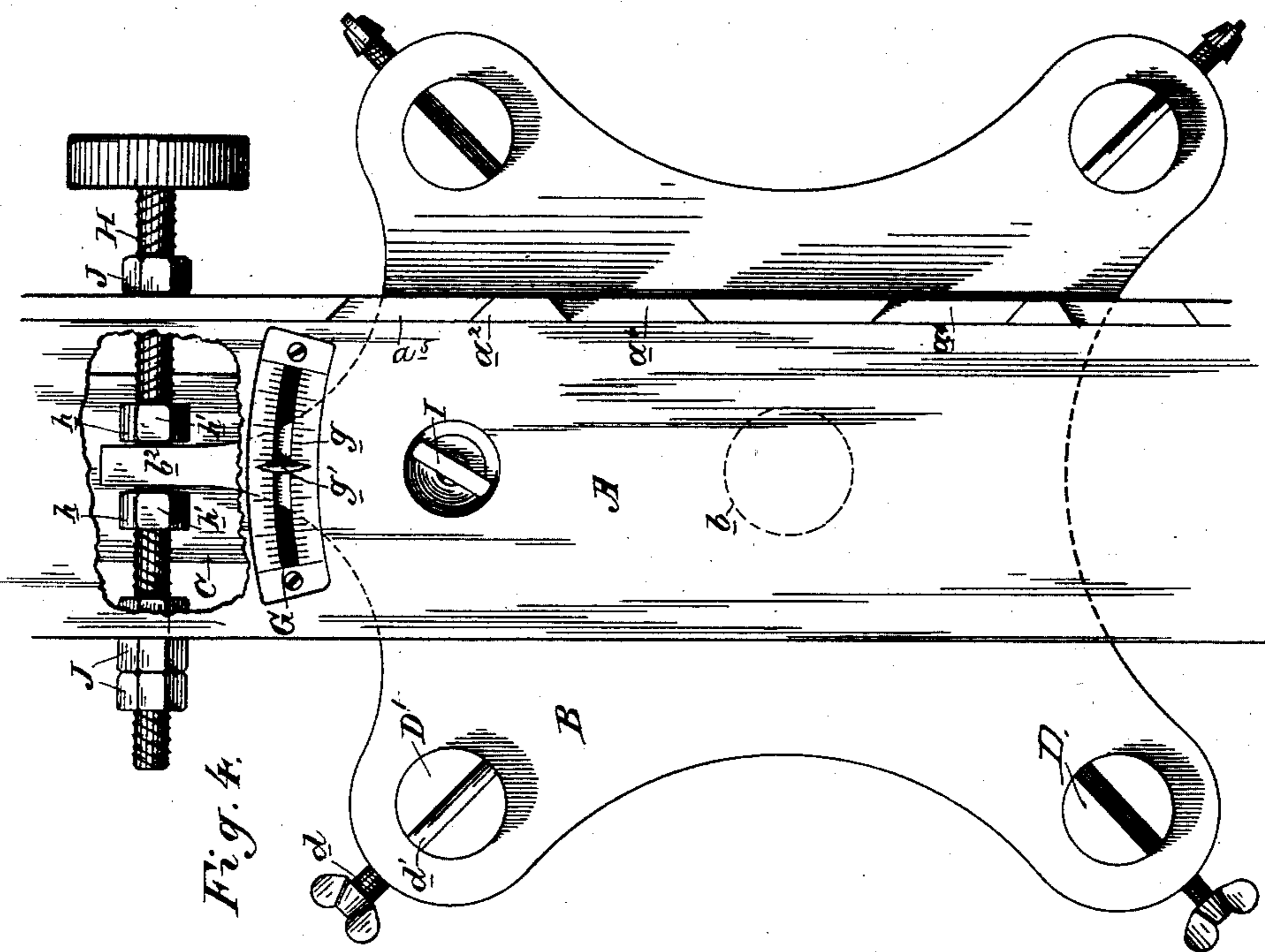
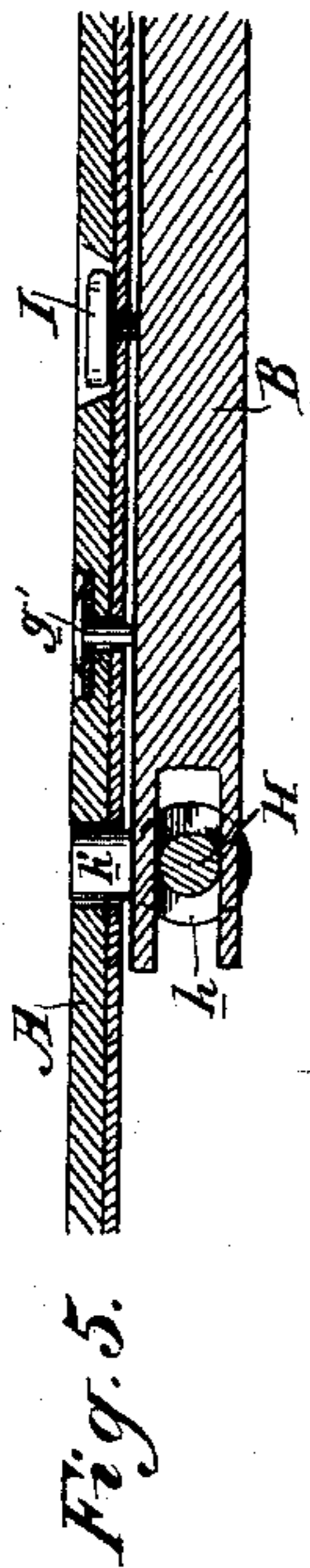
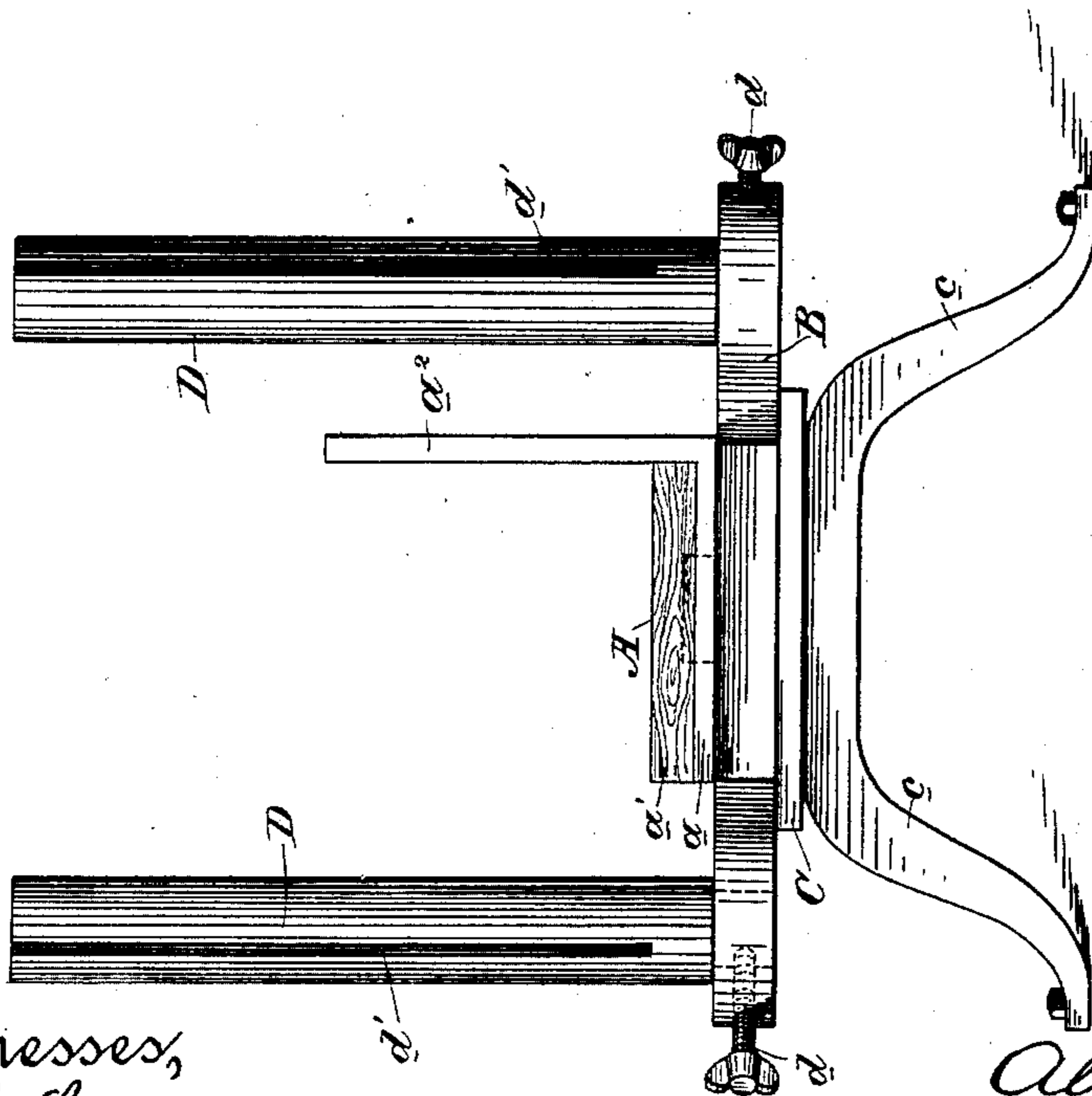


Fig. 3.



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UNITED STATES PATENT OFFICE.

ALBERT CRUM, OF THE DALLES, OREGON.

MITER-BOX.

SPECIFICATION forming part of Letters Patent No. 367,704, dated August 2, 1887.

Application filed October 7, 1886. Serial No. 215,626. (No model.)

To all whom it may concern:

Be it known that I, ALBERT CRUM, of The Dalles, Wasco county, State of Oregon, have invented an Improvement in Miter-Boxes; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of miter-boxes; and my invention consists in the constructions and combinations which I shall hereinafter fully describe and claim.

The object of my invention is to provide a simple and effective miter-box adapted for all possible uses, for the cutting of any angle, and especially adapted for use in ship-joiners' work where there are what is known as "diamond panels," as it provides for the necessary four cuts.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a plan view of my miter-box. Fig. 2 is a vertical longitudinal section of same. Fig. 3 is an end elevation. Fig. 4 is a plan showing a single table. Fig. 5 is a cross section of same.

A is the frame for holding the molding. This may be made in any suitable manner, though I prefer to have a metal base-plate, a , provided with a wood face, a' , and a back piece, a^2 .

B are tables, preferably castings, formed with a central upwardly-projecting hub or pivot, b , which fits within a circular aperture or seat, a^3 , in the base-plate of the frame A. These tables are held in their places by a plate, C, below, the ends of which are connected with the legs c of the miter-box. The tables are therefore so mounted that they can have a rotary movement imparted to them, turning on their central hubs or pivots.

D D' are the saw-guides, here shown as pins or standards, though they may be of any other suitable character. There are four of these in each set, and they are secured to the movable tables at equidistant points thereon, thus forming the four corners of a square. They may be secured in the tables in any suitable manner, though I prefer to let them into sockets therein and hold them in place by set-screws d . Each pin is provided with a vertical slot, d' , for the reception of the saw, and the back plate, a^2 , of the molding-box is cut out, as shown at a^4 , for the passage of the saw.

E is an operating screw which is mounted in suitable bearings and passes transversely under the box or frame A. Upon this screw is threaded a nut, F, having the side wings, f , which are slotted loosely over pins or lugs b' , secured upon the adjacent portions or necks b^2 of the centrally-pivoted tables B. Through the box A is made a curved slot, G, the face of which is provided with a degree-scale, g , as shown. Upon the table B which is under this slot is secured a pointer, g' , which passes upwardly through the slot and moves over the degree-scale. It will now be seen that by operating the adjusting-screw the tables are turned on their pivotal centers, and the amount of this movement is accurately indicated by the pointer upon the degree-scale.

Referring, now, to a single set of saw-guiding pins or standards, D', it will be seen that by turning these pins on their own axes so that their guide-slots are in the same straight line and properly adjusting the table carrying said pins by means of the screw E a straight cross-cut may be made through the opening a^3 . By adjusting the diagonally-opposing pins in such a way that their slots shall be in the same straight line and adjusting the table on which the pins are mounted by means of the screw a true miter may be made. By again adjusting the screw so as to move the table farther a longer cut may be made through two of the diagonally-opposing pins and its complementary short cut may be made through the other two. In some classes of work four cuts have to be made. Thus in ship-joiners' work, on account of the shear of the ship, the panels in the wood-work are all what are known as "diamond shape;" in other words, either a rhombic or a rhomboidal shape, the angles at the corners being oblique. For cutting moldings for such panels there are four cuts necessary—namely, the right and left hand long cut and the right and left hand short cut. These cuts may be made by the guides of a single table by turning said table in one direction to the proper position for making the right long cut and left short cut, and then turning it back again to a corresponding position on the other side of its initial point to make the left long cut and the right short cut. This, it will be observed, requires two setting of the box; but in order to effect this result by a single set-

ting I use the two tables and sets of saw-guides. The screw E turns the two tables simultaneously and in opposite directions to corresponding angles, so that through the pins of one the right long cut and left short cut may be made, while through the pins of the other the left long cut and the right short cut may be made. In this box it will be seen that all the moldings lie parallel with the box and bench, and any good handsaw can be used.

Very short angles may be cut by simply turning the end pins or standards, D', on their own axes to the proper line and then adjusting the tables on which they are mounted. If it is preferred to use but a single table for making the four cuts necessary in diamond-shaped panel-work, I would modify the adjusting mechanism, as shown in Fig. 4. The screw H is right and left hand threaded, and carries correspondingly threaded nuts h, mounted suitably, so that they may be made to travel by the rotation of the screw, said nuts having short lugs h', (see Fig. 5,) which engage slots in the table, whereby their movement is guided. Between these nuts, or between short lugs h' on said nuts, the neck b² of the table B plays. A set-screw, I, is adapted to hold the table in position where adjusted.

The operation of the mechanism is as follows: By turning the screw H in one direction the nuts are caused to approach each other and to bind or clamp the neck b² of the table between them, said nuts being so adjusted as to effect this clamping when the table is set for a true miter. Now, by turning the screws H in the opposite direction the nuts h separate to a distance on each side of the neck of the table required to allow said table to be turned to the proper angle. The table may now be turned in one direction by hand rapidly until it is stopped by its neck coming in contact with the nut h, in which position it may be fixed by the set-screw I. The right-hand long cut and the left-hand short cut are now made through the saw-guide. Then the set-screw I is loosened and the table turned back until limited by the other nut, in which position, when fixed, the left long cut and the right short cut are made.

It will be seen that the table may be operated by these means much more rapidly by simply swinging it back and forth than by the screw and nut shown in Fig. 1, and the oper-

ation is equally accurate, for the two nuts acting as limiting-stops are set in corresponding positions by the rotation of the screw. The nuts J on the screws E and H are for the purpose of accurately adjusting the primary position of the screws.

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

1. In a miter-box, and in combination with a frame for holding the molding, a centrally-pivoted table and the slotted guiding-standards mounted in sockets at the four corners of said table and adjustable about vertical axes with relation to each other and to the molding-frame, substantially as herein described.

2. In a miter-box, the frame for holding the molding, in combination with the centrally-pivoted table, the guiding-standards carried by said table at the four corners of a square and adjustable about vertical axes, and an adjusting-screw for moving said table on its central pivot in order to vary the angle of the saw-guiding standards with relation to the molding-frame, substantially as herein described.

3. In a miter-box, and in combination with the molding-frame A, the independent centrally-pivoted tables B, the slotted guiding-standards D, carried by said tables at the corners of a square and on each side of the frame A, and the means for turning said tables simultaneously through equal arcs and in opposite directions, consisting of the screw E, the traveling nut F thereon, having the slotted wings f, and the pins or lugs b' on the tables engaging said wings, substantially as herein described.

4. A miter-box comprising the molding-holding frame A, the independent centrally-pivoted tables B under said frame, the saw-guiding pins or standards D, carried by said tables at the corners of a square and on each side of the molding-frame, the screw E, the winged nut F, and the pins b', engaging the winged nut, the curved degree-scale g, and the pointer g', all arranged and adapted to operate substantially as herein described.

In witness whereof I have hereunto set my hand.

ALBERT CRUM.

Witnesses:

S. H. NOURSE,
H. C. LEE.