

(No Model.)

2 Sheets—Sheet 1.

B. F. DETTRA.

WINDOW.

No. 386,003.

Patented July 10, 1888.

FIG. 1

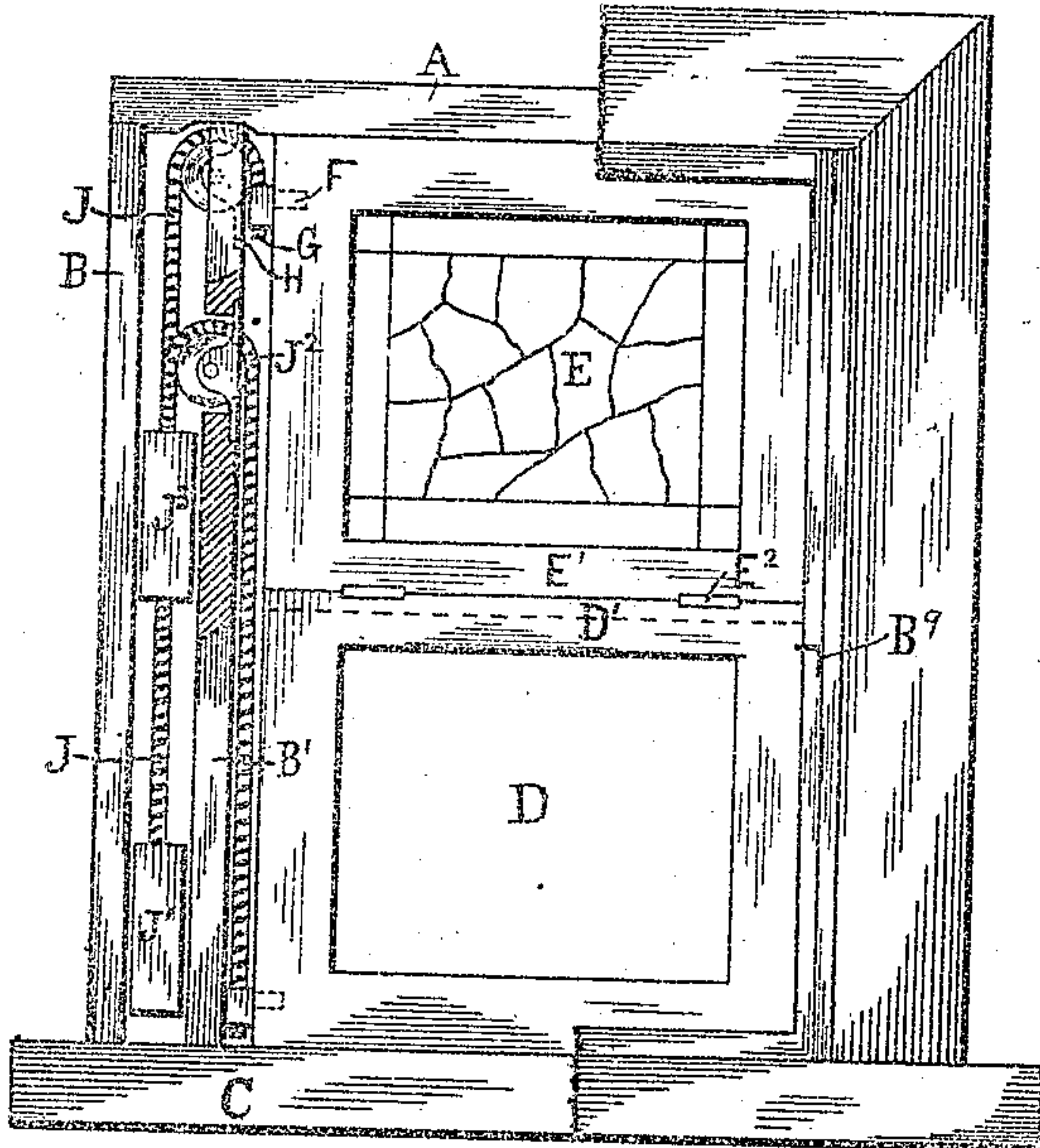


FIG. 2

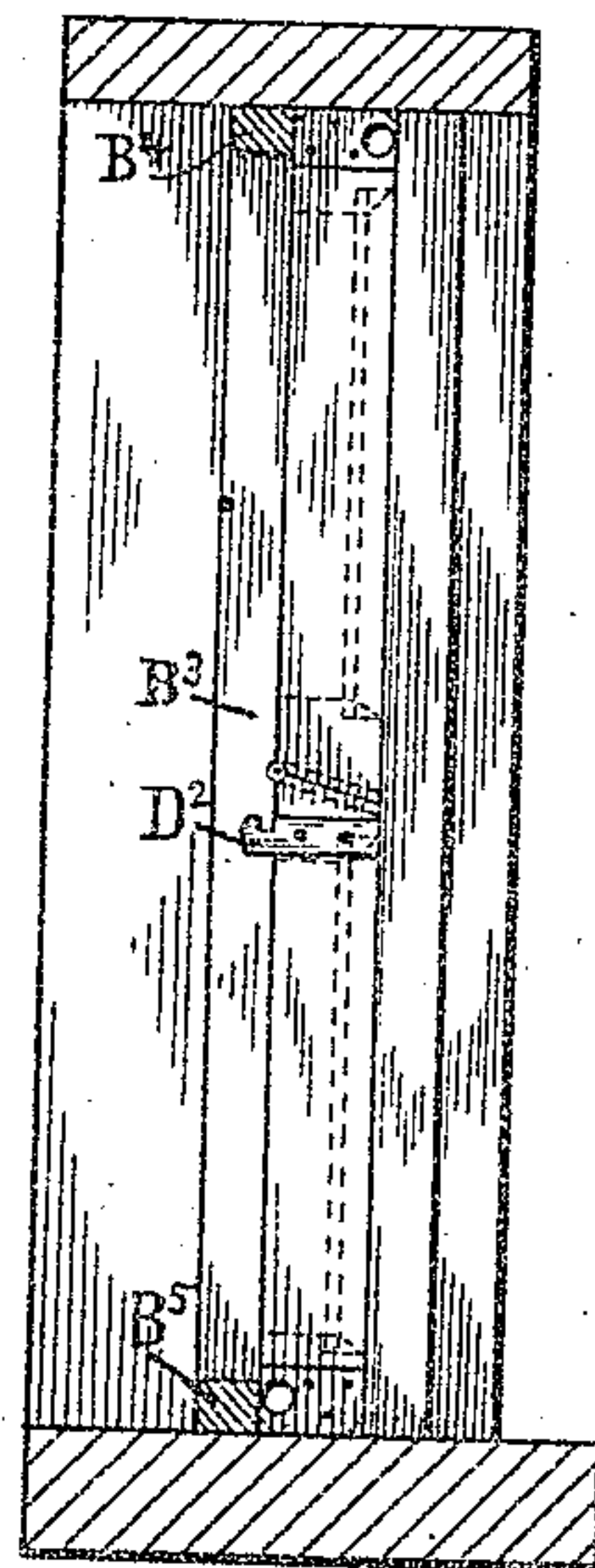


FIG. 3

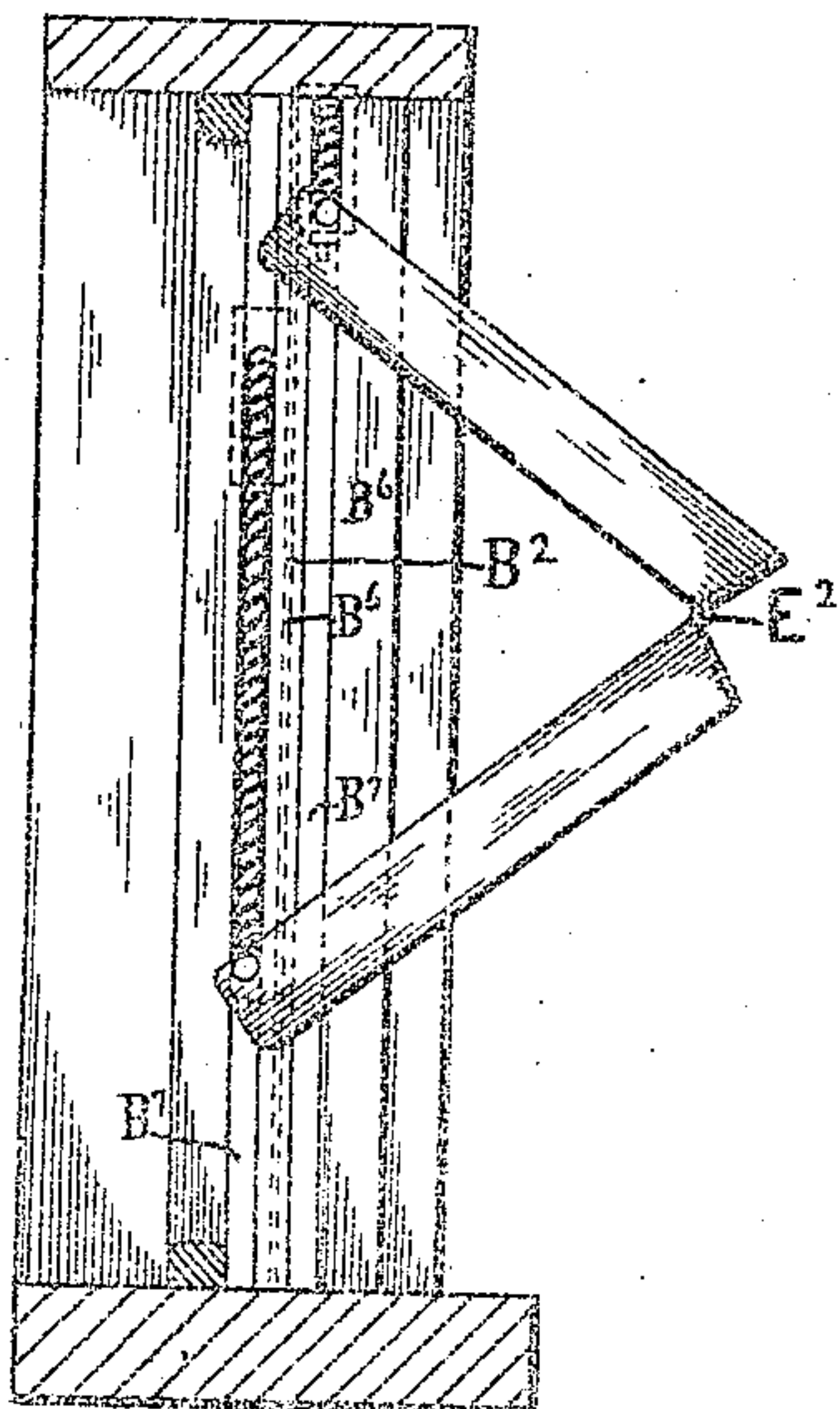
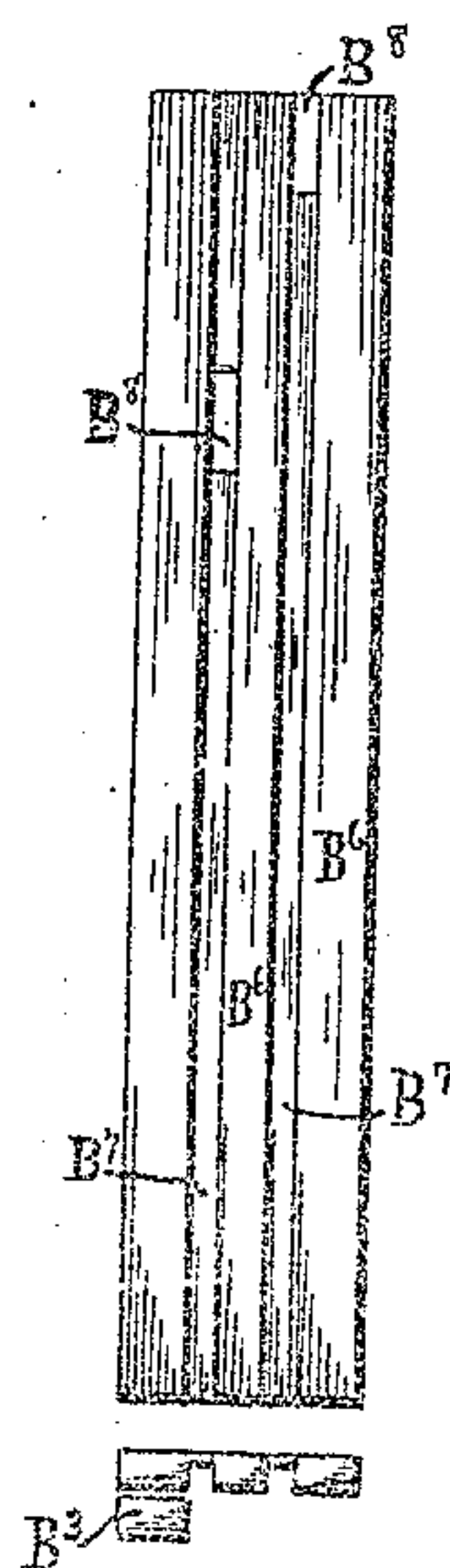


FIG. 4



WITNESSES.

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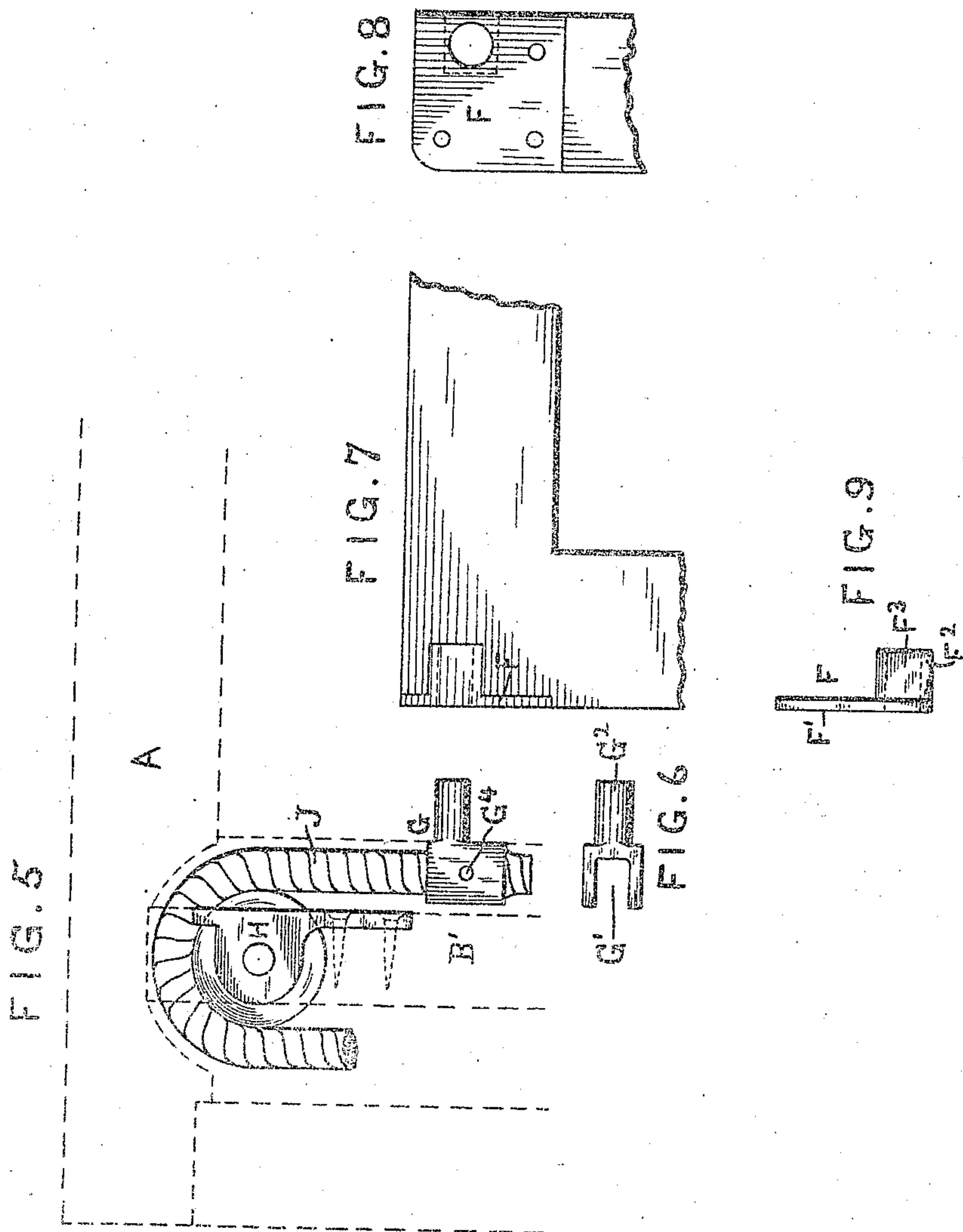
2 Sheets—Sheet 2.

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# UNITED STATES PATENT OFFICE.

BENJAMIN F. DETTRA, OF READING, PENNSYLVANIA.

## WINDOW.

SPECIFICATION forming part of Letters Patent No. 386,003, dated July 10, 1888.

Application filed August 26, 1887. Serial No. 247,936. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN F. DETTRA, a citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Windows; 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 and figures of reference marked thereon, which form a part of this specification.

This invention relates to windows provided with top and bottom sashes, which are connected at their meeting-rails in such a manner that they may be projected or drawn inward at their meeting line, the outside corners being suitably supported in the window-frame. The invention consists in the features of construction and combinations of parts hereinafter described and claimed.

Figure 1 is an inside elevation of a window-frame with the combined sash in position. One side shows the finished appearance of the frame. The other side has the inside lining removed, revealing the sash-weights, pulleys, &c., and the method of attaching the cords to the sashes. Fig. 2 shows the sill and head of sash-frame in section, the sashes closed tight against the inside bead. Fig. 3 is the same view of frame, but with the sashes projected, showing very plainly the guide-strips, grooves, cords, &c. Fig. 4 shows a single strip in which the guide-grooves are formed, leaving sufficient material back of them to unite the strips. This may be used against the pulley-piece of the sash-casing, instead of the separate strips shown in other figures. Fig. 5 is an enlarged view showing the top pulley-piece, the cord for the top sash rounding the pulley, and the sash-support attached to the end of the cord. The head-piece and pulley-piece of the sash-frame are indicated by dotted lines. Fig. 6 is a plan view of the sash-support. Figs. 7 and 8 show the socket-piece attached to the corner of the sash, and Fig. 9 is a plan of the socket-piece alone.

In the drawings, A represents the head and sill, B the back lining, and B' the pulley-piece, of the sash-casing.

B<sup>2</sup> is a thin partition-piece separating the

sash-weights J' and J<sup>2</sup>. This partition is not shown in Fig. 1.

B<sup>3</sup>, B<sup>4</sup>, and B<sup>5</sup> are the inside beads; B<sup>6</sup>, guide-strips; B<sup>7</sup>, guide-grooves, and B<sup>8</sup> apertures for the pulleys and cords when a single strip is used, as in Fig. 4.

D is the lower sash, and E the upper, the latter being glazed with cathedral glass. Hinges E<sup>2</sup> unite the two sashes, the meeting-rails of which are so beveled on the butting edges as to throw the outside parting line below the inside line when closed, thus insuring a water-tight joint. A weather strip of rubber or wood can be used instead, if preferred.

F is a socket-piece attached to the outside corners of the combined sash, and is composed of a plate for securing it to the sash, and a square body, the whole adapted to be set into the sash flush. A hole, F<sup>3</sup>, extends through the body, and is adapted to receive the round bearing G<sup>2</sup> of the sash-support, which latter has a bifurcated body, G', formed integral with said bearing, and is adapted to permit the sash-cord, when the latter is slightly flattened, to be pushed into the open jaws when the latter may be clinched upon it, thus securely attaching it. A pin at G' may be used in addition, if desired.

The pulleys and pulley-pieces H are the same as are ordinarily used, except that the top pulley-piece, being pushed up into the head of the sash-frame, so as to allow the top sash to be closed against the head before the sash-support G comes in contact with the pulley, has the top of its screw-plate partly cut off. The upper sash-cord, J, connects to the weight J', and the lower sash-cord to the weight J<sup>2</sup>.

Any suitable lock may be used to secure the sash when closed. I prefer one which shall lock automatically, and the whole of which will be concealed when the sash is closed, excepting a suitable finger-piece, B<sup>9</sup>, a notched plate, D<sup>2</sup>, being all that need be attached to the sash. A lock substantially as described is already in use and may be readily applied.

My improvement may be attached to an old window having counterbalance-weights but little trouble and expense. Ordinarily the top and bottom rails of the old sash are wide enough to allow sufficient reduction to permit one to be placed on top of the other. The



socket-pieces F must then be attached to the top and bottom corners. The old pulleys, pulley-pieces, weights, and cords can be used, all that is necessary to introduce my improvement being a rearrangement of the pulleys, so as to get the top one close up against the head of the sash-frame, and the distance between cords such that the thickness of the sash shall cover both. The ends of the cords are provided with the sash-supports G and new strips substituted for the old beads, so as to form guide-grooves adapted to guide the sash-support. The inside beads may then be attached; and, if desired, as a further protection against the weather, rubber strips may be fastened to the outside edges of the sash. An automatic lock, as shown, or any other suitable device, may then be attached to secure the sash when closed and all is complete.

The operation of the device is evident from the drawings and the preceding description. The sashes may be closed perfectly tight and secure against rain or dust and readily locked. When unlocked, they may be thrown open either from above or below, or both, being projected outwardly to any extent desired. When the top sash is kept up and the lower one raised, an awning is formed. When the top and bottom rails are brought close together, practically the whole window is opened. When the meeting rails are merely pushed outward slightly, a side opening, affording ventilation without a draft, is provided. With the sashes in the position shown in Fig. 3, the side strain on the sash-supports, forcing them against the guide-strips, causes an amount of friction which tends to make the sash move hard, and thus offsets the greater effectiveness of the weights in this position, and insures a practically uniform and easy movement.

It is not necessary that the two sashes should be of exactly equal size.

If desired, the parting line may be thrown above or below the center.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. The combination, with a window frame having guide-grooves, of sashes hinged together at their meeting-rails, sash-cords having counterbalancing-weights, sash supports secured to the cords, and having a pivotal connection with the upper end of the upper sash and the lower end of the lower sash, as set forth.

2. A top and bottom sash hinged together at the meeting-rails, and the outside corners of the combined sash provided with socket-pieces, in combination with a sash-casing having the top sash-pulley arranged adjacent to the head-piece of the sash-casing, and guide-grooves formed in the face of the pulley-piece, and with sash-cords having counterbalance weights or springs attached to one end and sash supports to the other, said sash-supports having bearings adapted to fit said socket-pieces, and integral with said bearings a body adapted to be secured to said cords and to be guided in said guide-grooves, all substantially as shown, and for the purposes set forth.

3. The combination, in a window, of a sash-casing provided with counterbalancing-weights, cords J J', sash-supports G, sash-pulleys H, guideways B', and inside beads, B' B' B', with a combined sash, B E, hinged together and having the meeting-rails beveled, substantially as shown, and a locking device, as set forth.

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

BENJAMIN E. DETTRA.

Witnesses:

E. FREEMAN BOAS,

E. PIERCE HUMMEL.