

C. W. BOLTON.
WINDOW.

(Application filed Sept. 28, 1898.)

(No Model.)

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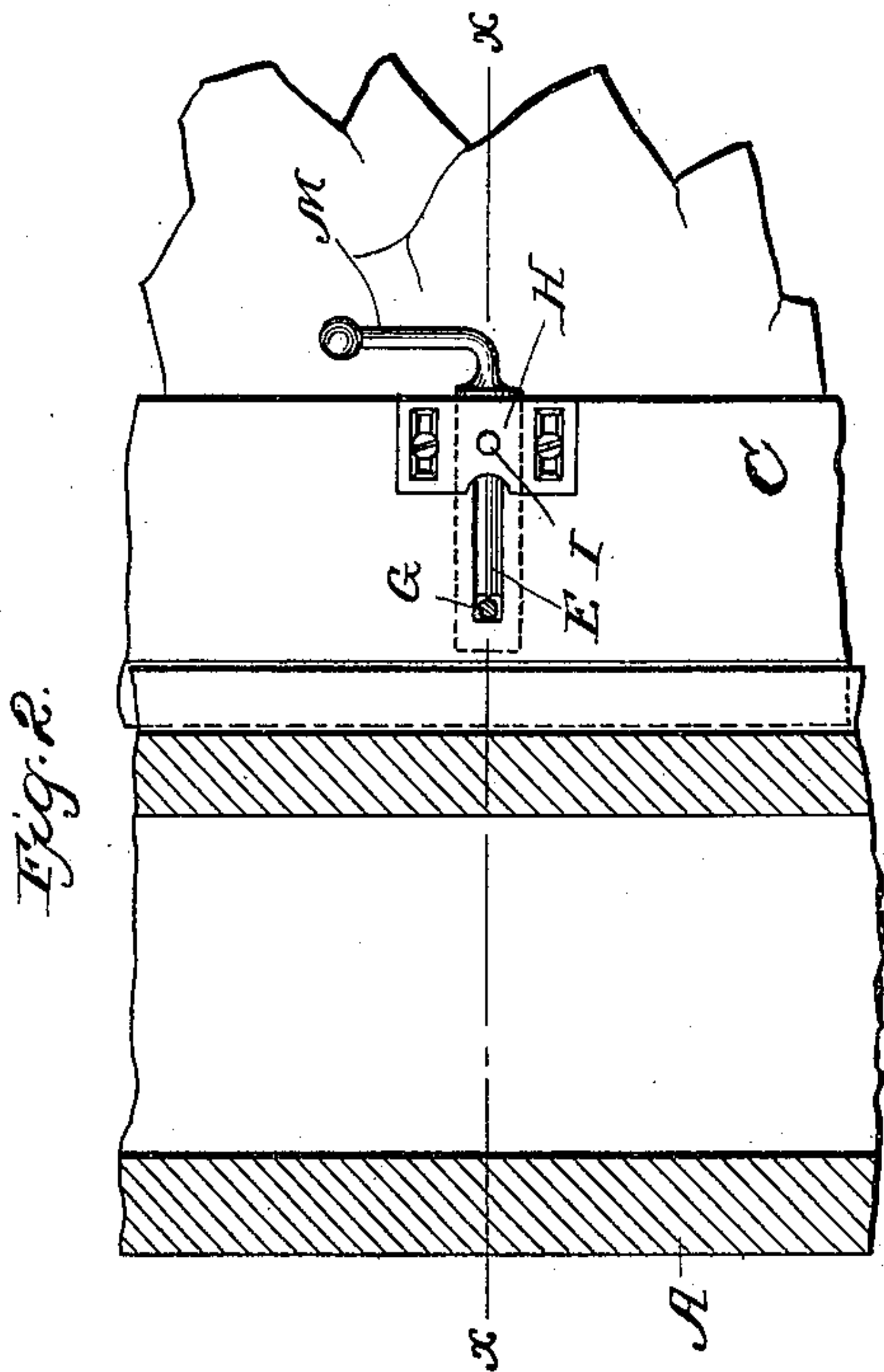
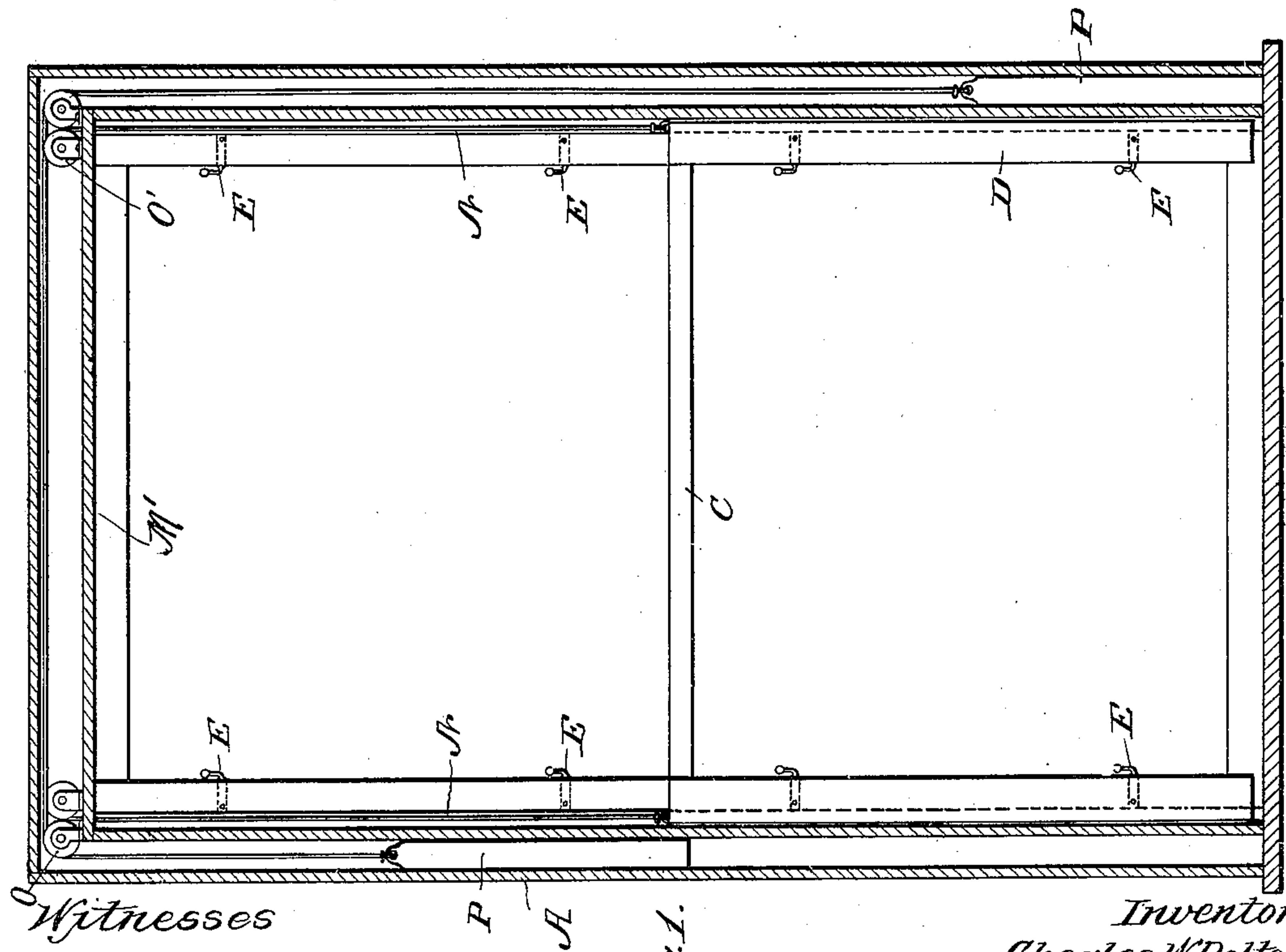
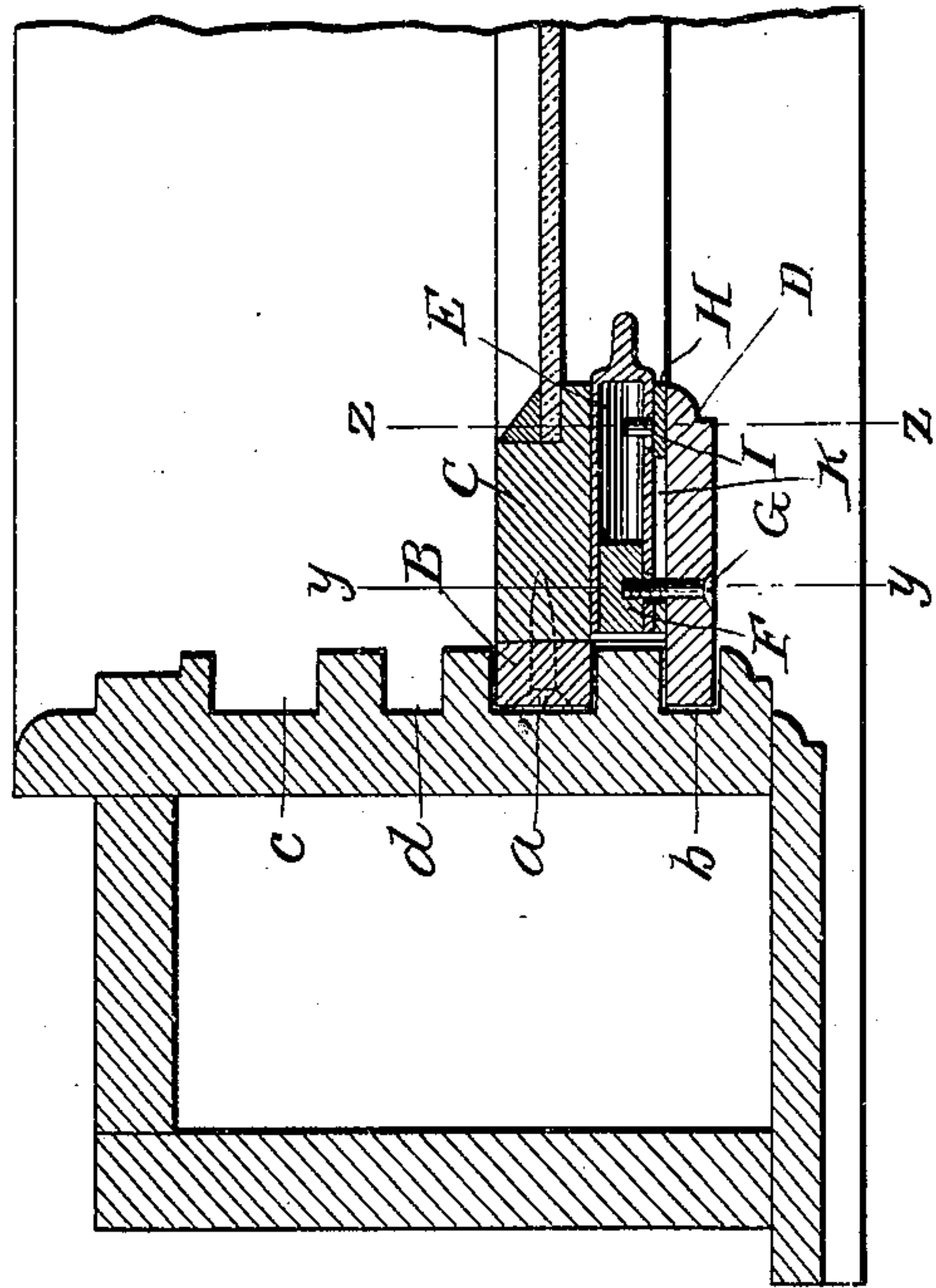


Fig. 3.



Witnesses
E. W. Wurdeman
Samuel Stuart

Inventor
Charles W. Bolton
by Geo. C. Hazellon, Attorney

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Fig. 5.

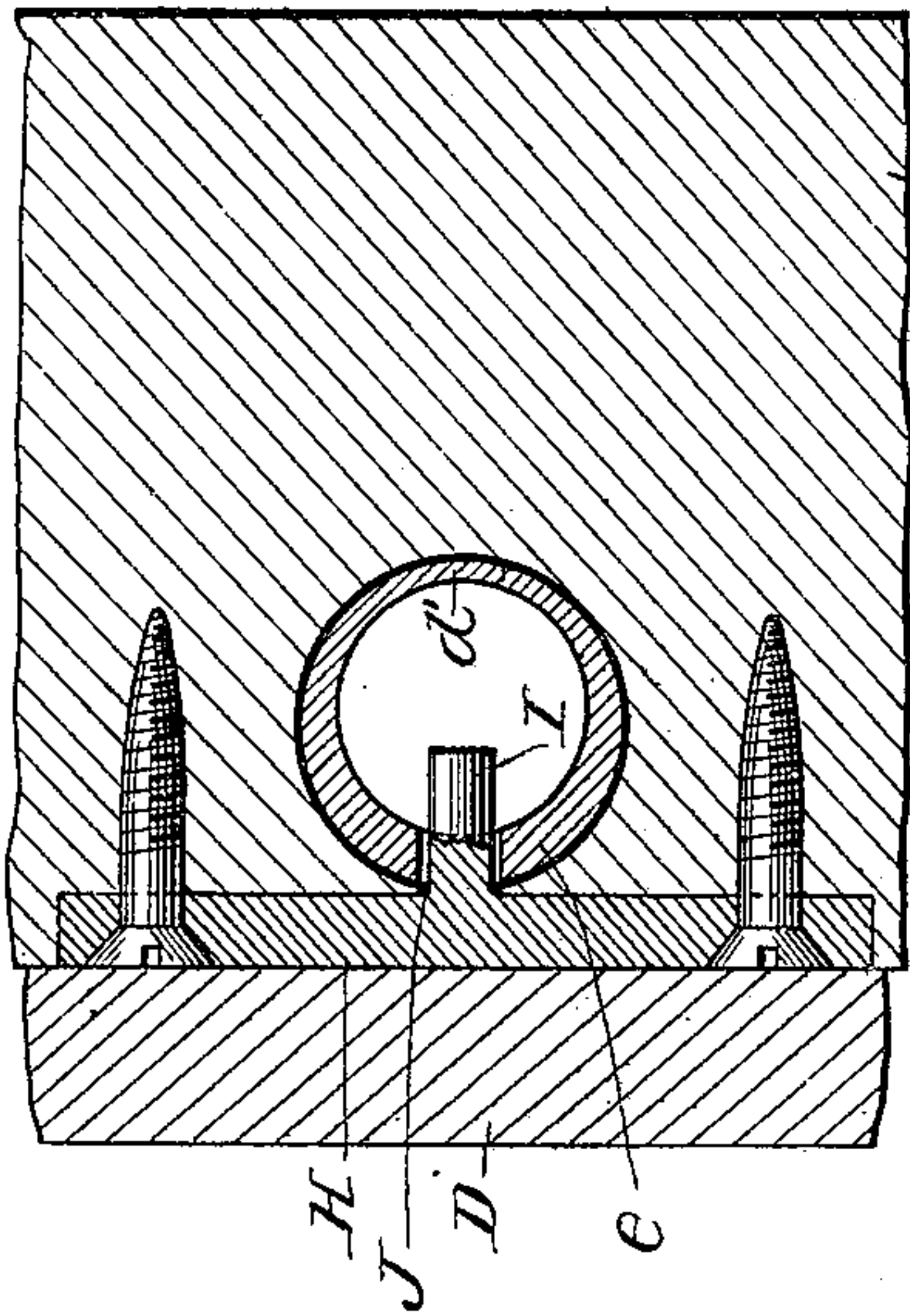


Fig. 6.

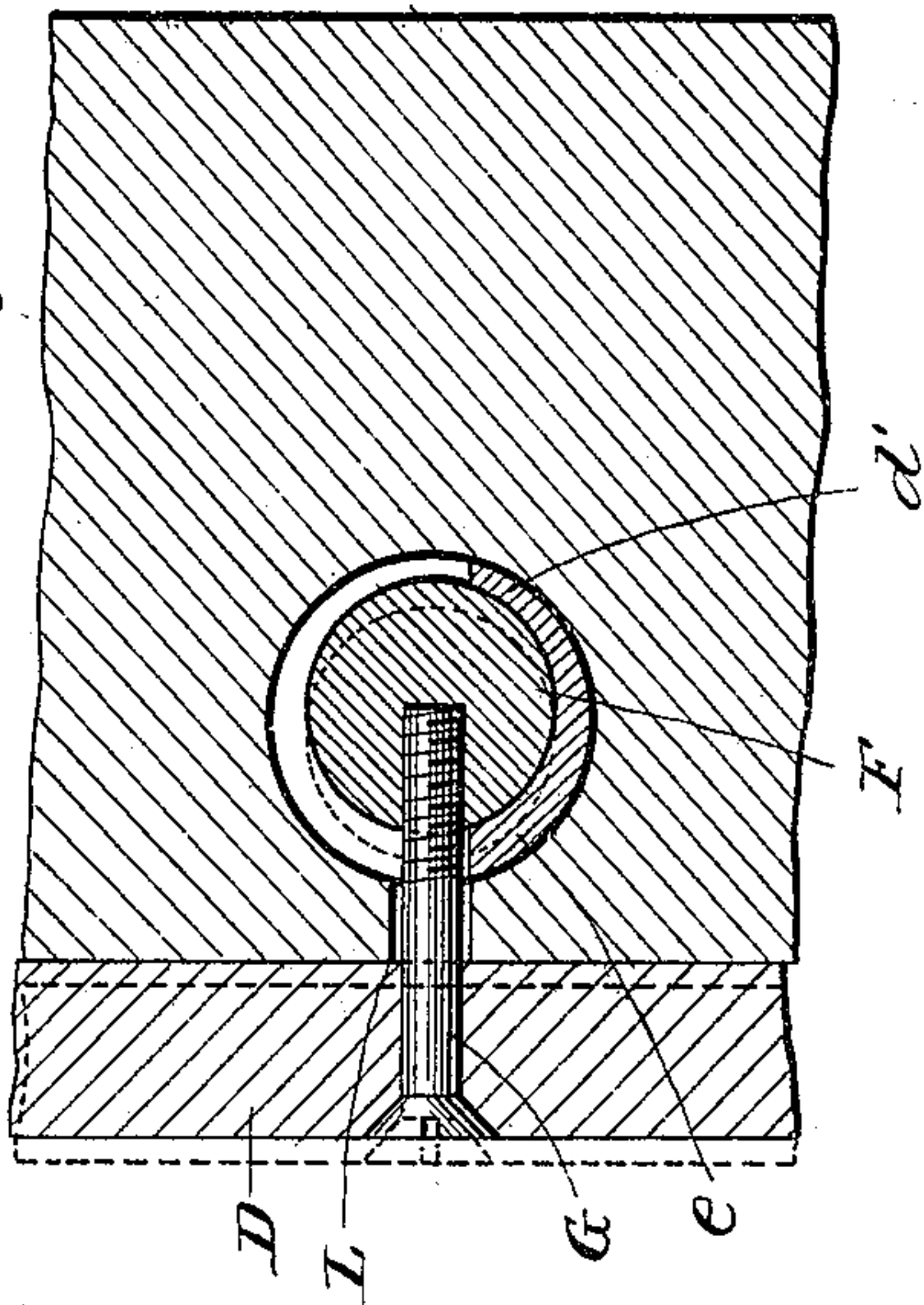


Fig. 4.

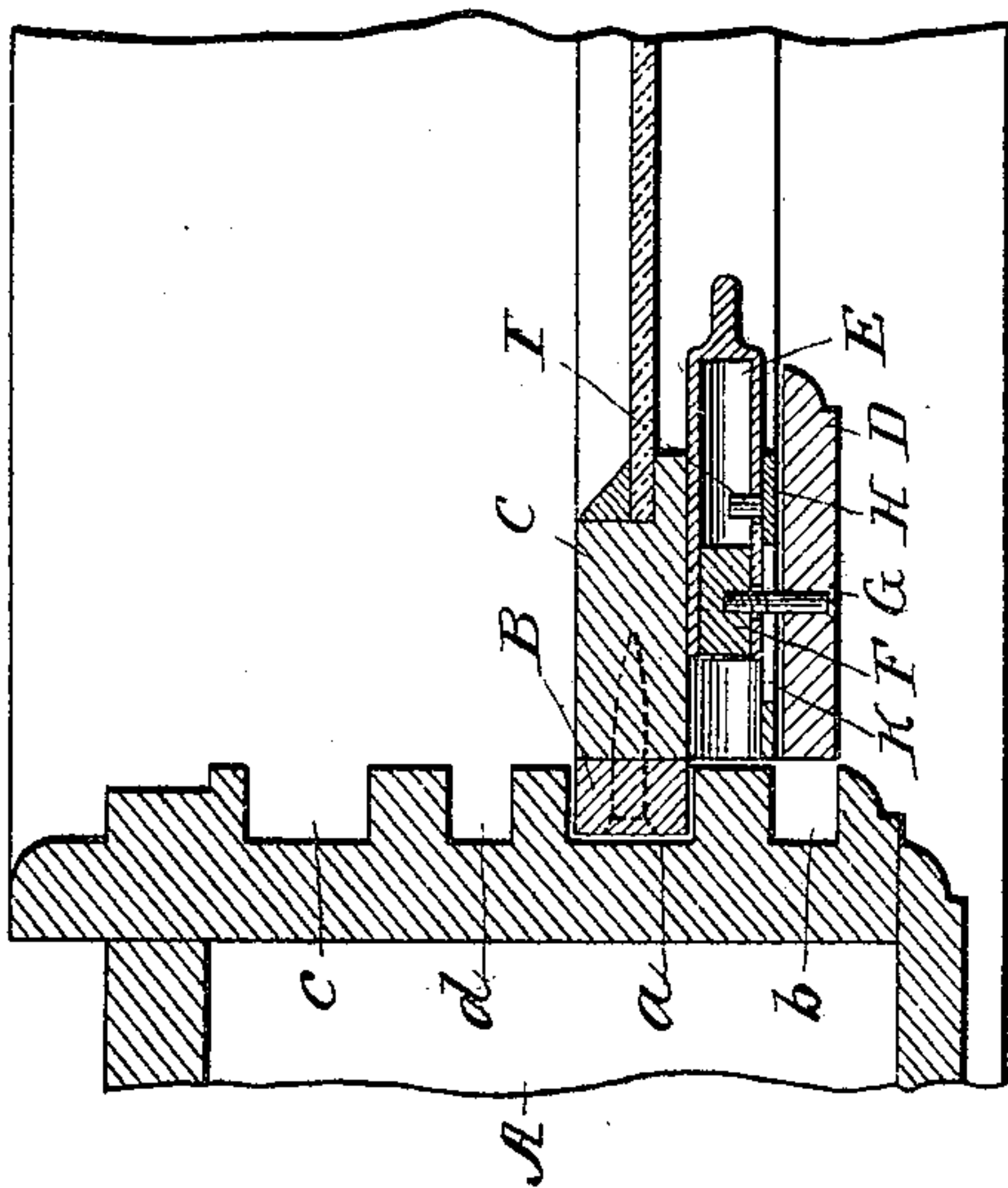


Fig. 7.

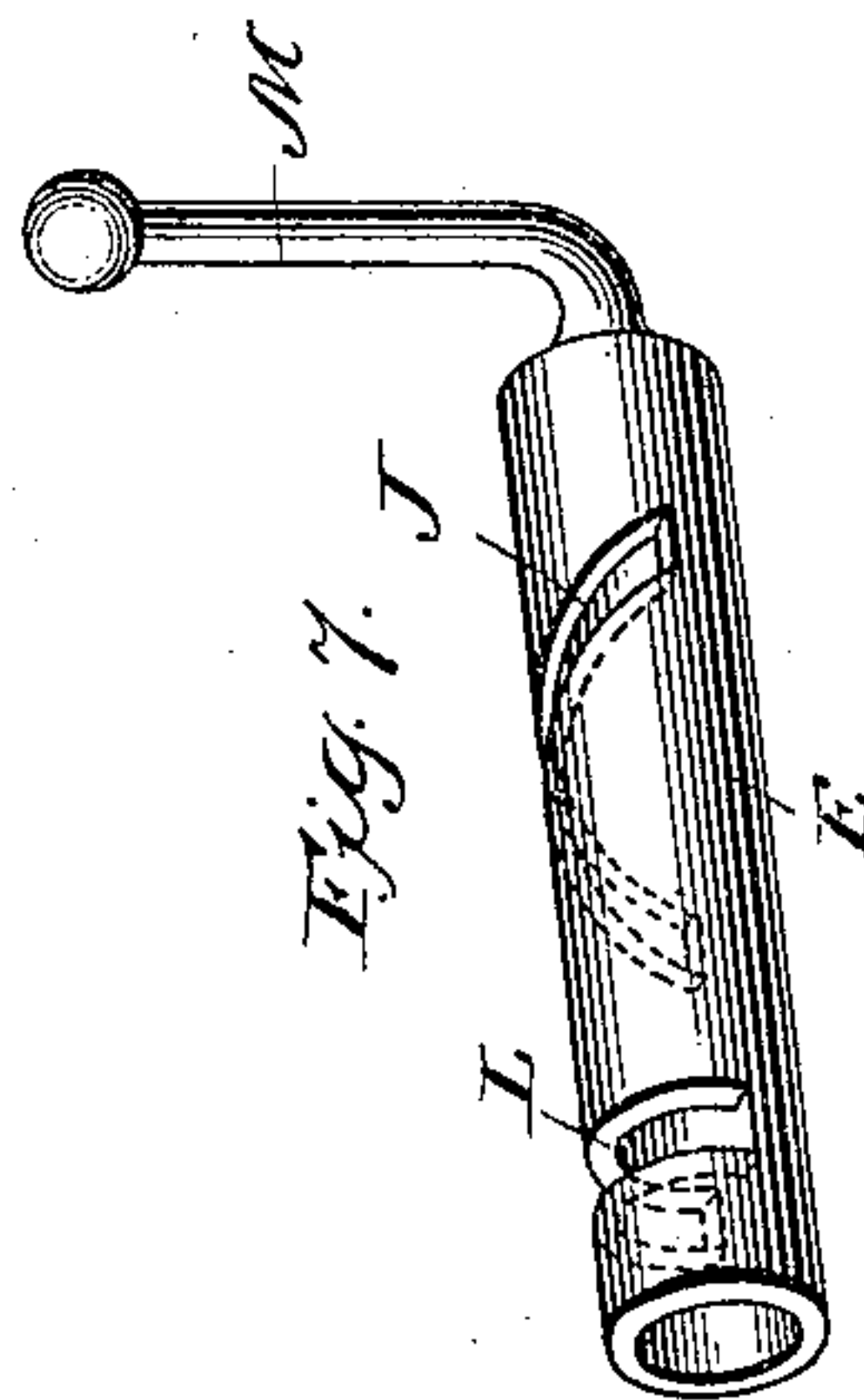
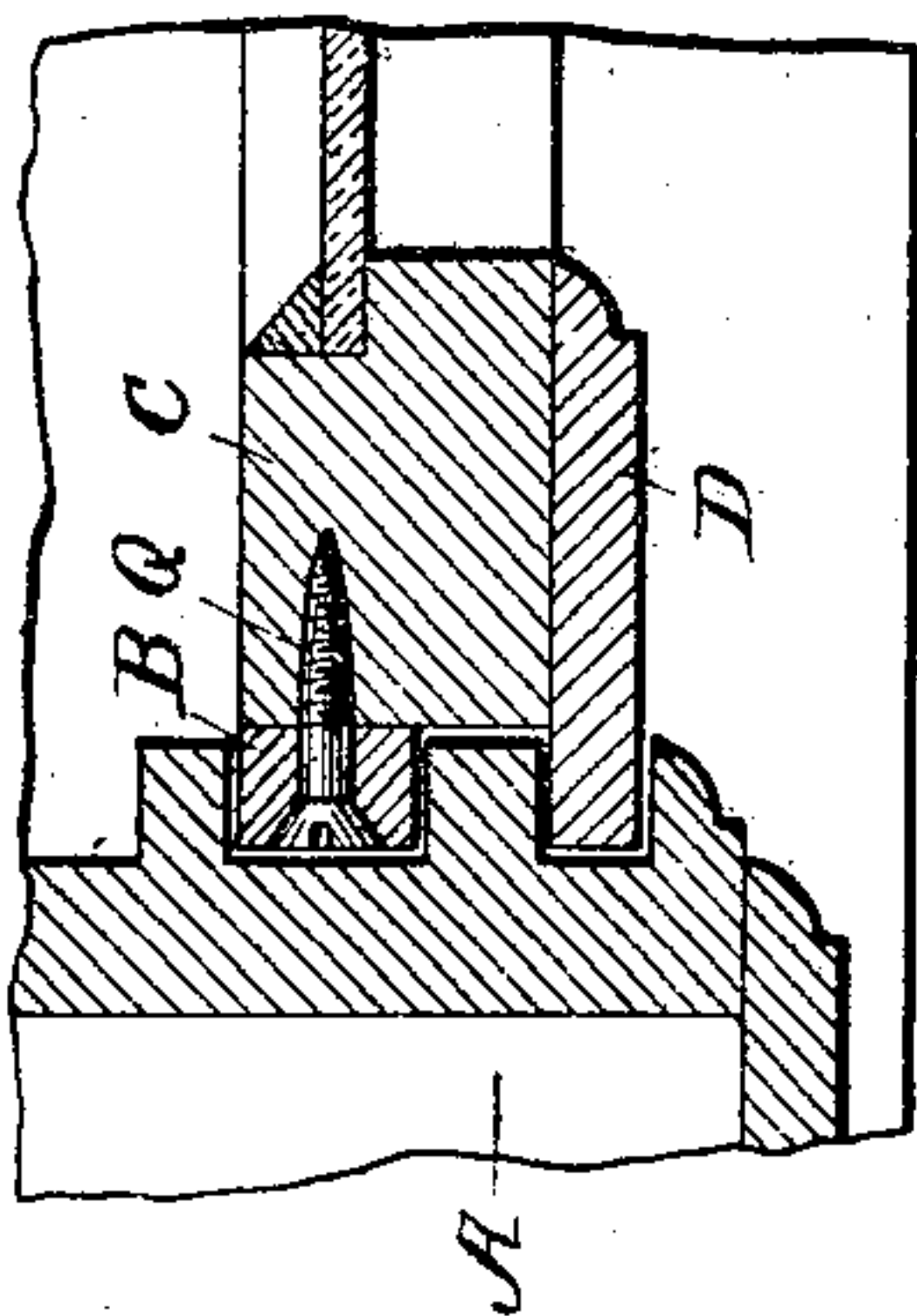


Fig. 8.



Witnesses
C. W. Wurdeman
Samuel Stuart

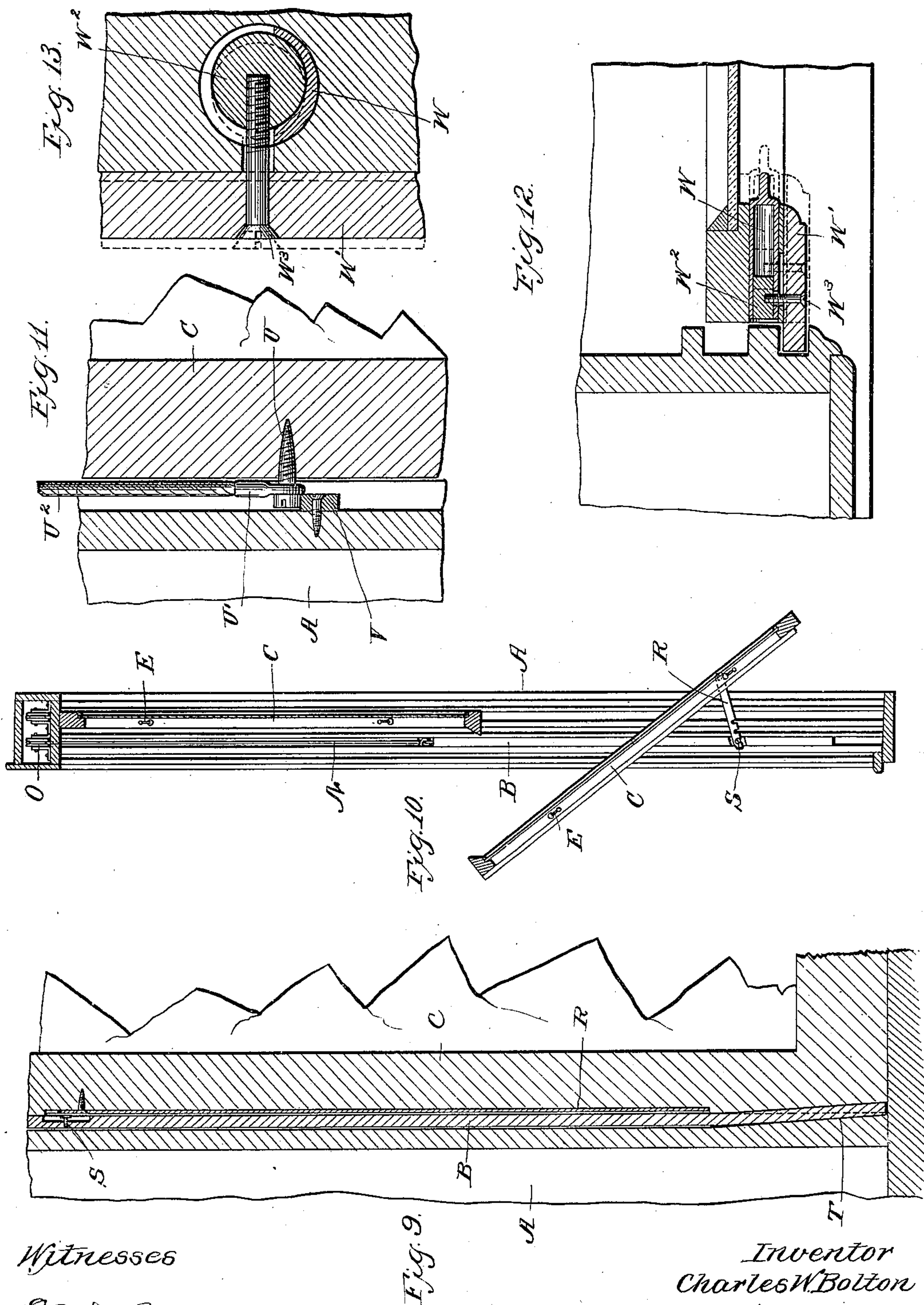
Inventor
Charles W. Bolton
by Geo. C. Haydock, Jr.
Attorney

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3 Sheets—Sheet 3.



Witnesses
E. C. Durdman
Samuel Stuart

Inventor
Charles W. Bolton
By *W. C. Haystack* Attorney

UNITED STATES PATENT OFFICE.

CHARLES W. BOLTON, OF PHILADELPHIA, PENNSYLVANIA.

WINDOW.

SPECIFICATION forming part of Letters Patent No. 629,419, dated July 25, 1899.

Application filed September 28, 1898. Serial No. 692,083. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. BOLTON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Windows, of which the following is a specification.

My invention relates to a new and useful improvement in windows, and has for its object to so construct a window and the sashes thereof as to provide for the turning of the sashes upon pivots without interfering with the raising and lowering of the same in the ordinary manner.

A further object of my invention is to provide means for firmly locking each sash in its vertical position and rendering the sliding joints weatherproof.

A still further object of my invention is to so arrange the devices that when the sashes are closed they will not rattle; and a still further object of my invention is to so connect the weight cord or bands with the weights as to prevent the cramping of the sashes in their revolving movements.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a vertical section of a window-frame, showing the sashes in elevation and illustrating the manner of balancing said sashes by the weights and cords or bands, also showing the locking-strips in position; Fig. 2, an enlarged view of a portion of the side of one of the sashes, the locking-strip being removed to expose to view one of the cam-barrels for actuating the locking-strip; Fig. 3, a section at the line *xx* of Fig. 2, showing a portion of the window-sash in position, the locking-strip being held in its closed position; Fig. 4, a view similar to Fig. 3, the locking-strip being retracted; Fig. 5, an enlarged section at the line *zz* of Fig. 3, showing the cam-barrel and the escutcheon-pin projecting

therein; Fig. 6, a similar view at the line *yy* of Fig. 3, showing the keeper within the barrel and illustrating the cam action of the barrel upon this keeper to draw the locking-strip tightly against the window-sash; Fig. 7, a perspective of the cam-barrel, showing the slots therein; Fig. 8, a section taken upon the line of one of the pivot-screws upon which the sash turns; Fig. 9, a section showing the form of strip and window-casing for jamming the sash to one side, so as to prevent it from rattling when lowered; Fig. 10, a central vertical section of a window-frame and the sashes thereof, showing the lower sash swung upon its pivot-point out of the perpendicular and there secured by a latch-bar; Fig. 11, an enlarged section of a portion of the window sash and frame, showing a modified means of hanging the sash, showing a block for limiting the downward movement of the sash, whereby said sash may be swung open without the liability of being farther lowered. Fig. 12 is a section of a portion of an ordinary window, showing my improvement applied thereto; and Fig. 13, a view similar to Fig. 6, showing the manner of drawing the locking-strip against the window-sash when the cam-slot is not formed in the barrel, as shown in Fig. 12.

In carrying out my invention as here shown, A represents the window-casing, having its inner vertical sides grooved, as indicated at *a*, *b*, *c*, and *d*, and within the grooves *a* are fitted to slide the carrier-strips B. Between these strips is pivoted the lower sash C, so that it may be turned horizontally or at any angle between the perpendicular and the horizontal, and D are locking-strips arranged against the inner face of the side sash, so as to move into engagement with the groove *b*, and when these strips are in this engagement, as shown in Figs. 1 and 3, the lower sash will be held against any swinging movement, but will be free to move vertically with the carrier-strips B, both these carrier-strips and the locking-strips serving to guide the sash in this movement. The locking-strips are secured against the sash and operated in the following manner: Cam-barrels E are fitted in the side rails of the sash so as to revolve therein by holes being drilled in the sash, and the plugs F are fitted within the barrels

so that the latter may turn without affecting said plugs, the locking-strips being attached to the plugs by the screws G, passed through the strips and threaded into the plugs, as clearly shown. An escutcheon-plate H is secured upon the face of the sash side so as to be flush therewith, there being one of said plates for each of the barrels, and the pin I projects inward from each of the escutcheon-plates, passing into the cam-slot J, formed in the barrel, so that when the latter has turned upon its axis this escutcheon-plate, being stationary, will cause the barrel to move in or out, as the case may be. If the barrel is moved in by its rotation, the locking-strip will be carried therewith on account of its connection with the plug, this movement of the screw G being permitted by the slot K, while the barrel is permitted to revolve without interfering with the screw by the slot L formed therein, as will be readily understood. Each of the barrels has a handle M formed thereon, turned at right angles thereto, so as to facilitate the manipulation of the barrel, and thus the actuation of the locking-strips.

The cam-slots in the barrels should be of such shape that when each pair of barrels on which the locking-strip is attached has been properly operated the locking-strip will be forced into the groove *b* and there held in such manner as to permit the raising or lowering of the sash without the displacement of the locking-strip. When the locking-strip is moved into the groove *b*, it is advantageous that it at the same time be drawn tightly against the face of the sash, and this is accomplished by the eccentricity of the hole in the barrel in which the plug is located. When the handle M of each barrel is turned outward, the locking-strip will have been retracted, and this position of the handle also brings the thin side of the barrel, which is indicated at *d'*, next to the locking-strip, and this permits a slight movement of the plug toward the inner face of the sash, which will free the locking-strip from pressure against the face of the side; but when the handle M is turned to a vertical position the thick side (indicated at *e*) will be brought next the face of the sash, and thereby draw the plug inward, which in turn will draw the locking-strip tightly against the face of the sash.

Each of the carrier-strips has attached to its upper end a rope, band, or chain N, which passes upward, the one upon the left side in Fig. 1 passing over the pulley O and downward to the weight P, which is attached thereto, while the rope upon the right side of the sash passes first over the pulley O' and then along through the top of the casing over the pulley O and downward to the weight P, to which it is attached. This arrangement suspends the entire lower sash from the weight P, and as both sides of the sash are attached to this weight through the ropes it follows that the sash will not cramp, since at all times it is evenly drawn upon both sides in coun-

terbalancing, and should the strain to move it upward or downward be exerted upon one side alone the weight will be actuated, and through it the opposite side will be caused to move in unison. This is of considerable advantage in my improvement, since the carrier-strips are not rigidly secured to the sash and therefore would otherwise have a tendency to move out of unison, which would result in the cramping of the window-sash when revolving.

In order that the sash when adjusted to swing upon the pivot-screws Q may be held in the desired position, I provide a latch R, which is pivoted to the edge of the sash, said sash being cut away, so as to permit this latch to lie flush therewith. A pin or screw S is secured in the strip B and the latch provided with notches for engagement with this screw, as clearly shown in Fig. 11, and when these notches are thus engaged the sash will be firmly held at its adjusted angle, as will be readily understood; but when the sash is secured in its vertical position this latch is turned into the cut-away portion of the sash, as shown in Fig. 9, thus filling this space and preventing the ingress of air at this point. As a further means of binding the window-sash tightly within the frame when closed the lower portion of the groove, in which one of the carrier-strips B slides, is deflected, as indicated at T, so that when this strip reaches this portion of the groove it is crowded into a groove of the window-sash, as clearly shown in Fig. 9, thereby jamming said sash against the opposite side of the window-frame, and thus firmly holding it against rattling.

In case the carrier-strips are not used a stationary deflected strip may be placed at the lower end of the groove, so that when the sash is closed it will likewise be jammed and held against vibration.

Under some circumstances it will be found advantageous to dispense with the carrier-strips, and when this is done the construction shown in Fig. 11 will answer the purpose of said strips, the result being accomplished by the pivot-screw U being passed through the eye U', which is attached to the weight-cord U², the head of the screw falling within the groove in the window-frame for guiding the sash, or a shoe may be used to attach the cord, through which the screw may pass, and when this construction is utilized a stop-block V is secured in each of the grooves in the window-frame in order that when the sash is lowered the heads of the screws U will rest upon this stop, thereby permitting the swinging of the sash upon the pivot-screws without liability of cramping or the sash becoming displaced. This arrangement is also advantageous when the sash is balanced in the usual manner—that is, by separate weights for each side of the sash.

It will of course be understood that the upper sash in any case will be arranged in the same manner as the lower sash and with

the same contrivances to effect the same result, and I have therefore not deemed it necessary to enter into a detailed description of this duplicate mechanism.

5 In Figs. 12 and 13 I have shown the arrangement whereby my improvement may be utilized without forming a cam-slot in the barrels and which is especially adapted for use in connection with ordinary factory and like
10 windows, in which W represents a barrel fitted in the side of the window-sash, as before described, and W' the locking-strip attached to the block W² by a screw W³; but no other connection is made between the barrel and
15 the sash, so that when the locking-strip is to be retracted the handle of the barrel is grasped and turned, so as to relieve the locking-strip of its pressure against the sash, when the barrel is thereafter pulled inward toward the
20 center of the sash, drawing with it the locking-strip. The barrel may then be again turned upon its axis, so as to draw the plug inward by reason of the eccentricity of the bore of the barrel, as clearly shown in Fig.
25 13, the full lines being the position of the locking-strip and barrel when said strip is drawn against the sash and the dotted lines representing the position of these parts when the locking-strip is loosened so as to be moved
30 back and forth. This, as will be seen, accomplishes the same result as the arrangement before described, requiring an extra hand movement to draw the locking-strip from the groove when being retracted or forcing it within the groove when the reverse is
35 being accomplished. The pulleys O and O' are attached to the upper side of the board M, which is loosely fitted within the upper portion of the window-casing, the only means
40 for holding it in place being the downward draft of the weights P and the sashes; but in practice it has been found that this is entirely sufficient, and a great advantage is had by this arrangement of the board and the pulleys, since no strips or fasteners are needed,
45 and the board may be readily removed at any time, carrying with it the pulleys for repair or other purposes. Another advantage of this arrangement is that the pulleys are entirely out of sight, and yet easy access may
50 be had thereto, and they may be readily placed in position when finishing the window and hanging the sash.

In practice I have found that a window fitted with my improvement is exceedingly simple of operation and may be used as the ordinary window for raising and lowering, and yet when it is to be cleaned the sashes thereof may be swung upon their pivot-points, so as
55 to gain access to both sides thereof without having to lean from the window, and thus avoid the possibility of accident; also, when the maximum ventilation is needed the swinging of the sashes upon their pivot-points and
60 their proper adjustment will give the full open space of the window, and the fact that the

sashes may be adjusted at various angles will greatly facilitate the ventilation of a room, and they may be so adjusted as to shed water, thus avoiding having to close the window on
70 account of rain.

It is obvious that my improvement may be used in connection with transoms, in which case the locking-strips would serve the two-fold purpose of forming a tight joint when
75 the transom is closed and of locking the same against being opened from the outside, and the advantage of my improvement when thus applied is that the stop-beads do not have to be divided to allow for the swinging of one
80 half of the transom in while the other half swings out.

Having thus fully described my invention, what I claim as new and useful is—

1. In combination with a window, the inner sides of which are grooved, carrier-strips
85 adapted to travel within certain of said grooves, a sash fitted to each pair of carrier-strips, a locking-strip arranged against the face of each side of the sash, said strip adapted to run in one of the grooves of the window-frame, two or more barrels set in each of the
90 sides of the sash so as to turn therein, said barrels having cam-slots and cross-slots, a plug loosely fitted in each of the barrels, a screw passing through the locking-strip, the cross-slot in the barrel and threaded into the plug,
95 an escutcheon-plate for each of the barrels secured flush against the side, and a pin projecting from the escutcheon-plate into the cam-slot whereby when the barrel is revolved it is caused to move longitudinally and carry
100 therewith the locking-strip, as specified.

2. In combination with a window-frame having the vertical sides thereof grooved, a
105 window-sash adapted to slide between said sides, means for guiding said sash in its sliding movement, two locking-strips, one fitted against each of the sides of the sash and adapted to fit within certain of the grooves in the
110 window-frame, two barrels fitted in each of the sides of the sash, screws passed through each locking-strip and through the slots in the barrels, and plugs loosely fitted within the barrels into which the screws are threaded
115 whereby the locking-strips will be caused to move with the barrels in their longitudinal movement but not in their rotary movement, as and for the purpose set forth.

3. In combination with a swinging and sliding window-sash, two or more barrels fitted
120 in each side of said sash, said barrels having a cross-slot and a cam-slot, a locking-strip fitted against the face of each side, a screw passing through said locking-strip and cross-slot, a plug fitted loosely in each barrel into
125 which the screws are threaded, and a handle formed upon each of the barrels to turn the same upon their axes, an escutcheon-plate for each barrel secured flush upon the sides, and
130 a pin projecting from the escutcheon-plate into the cam-slot whereby longitudinal move-

ment is given to the barrel when turned upon its axis to move the locking-strips, as specified.

4. In combination with a window-frame, carrier-strips adapted to slide therein, a sash pivoted to said strips, locking-strips slidable with the sash for holding said sash in its vertical position, cords and weights for balancing the sash, barrels arranged in the sash, plugs in the barrels, to which the locking-strips are connected and means for operating the barrels to cause a withdrawal of the locking-strips, substantially as described.

5. In combination, two carrier-strips adapted to slide in suitable grooves in a window-frame, a sash pivoted to said strips, a latch pivoted to the sash, and lying in a recess therein that the side of the latch may be flush with the edge of the sash and a pin secured in a recess of one of the strips to engage the notched end of the latch, substantially as described.

6. In combination with a sliding and swinging window-sash, means for supporting and guiding said sash, a locking-strip attached to each side of the sash, two barrels fitted in each side, plugs loosely fitted within the barrels, and screws attaching the said locking-strips to the plugs, as and for the purpose set forth.

7. In combination with a window-sash of the character described, barrels fitted to revolve in the sides thereof, a bore in each of said barrels being eccentric, locking-strips plugs loosely fitted within the eccentric bores, means for attaching the plugs to the locking-strips whereby when the barrels are turned upon their axes the locking-strips will be drawn against the face of the sash or freed therefrom, as shown and described.

8. A device for interlocking strips upon window-sashes, consisting of a barrel having a cross-slot and a spiral slot therein, said barrel having a bore therein for the reception of a plug, means such as a screw attached to the locking-strip through the cross-slot and threaded into the plug, said bore and plug being so arranged as to draw the locking-strip

against the sash when the barrel is operated in one direction, and free the strip from the sash when operated in the opposite direction, and a stationary pin projecting into the spiral slot for giving the barrel a longitudinal movement when being turned, as specified.

9. In a window and sash of the character described, a strip adapted to travel in a groove in the frame of the window, and a wedge-shaped deflection at the lower end of said groove, so arranged that when the sash is lowered the strip will be jammed against the beveled portion of the sash for preventing rattling, as shown and described.

10. In combination with a window-frame of the character described, a board adapted to be inserted within the upper portion of the window-frame, said board being left loose, two sets of pulleys being secured upon the upper surface of this loose board, two cords attached to each sash and so passed over the pulleys as to terminate parallel with each other in one stile of the window, and a weight to which both of these cords are rigidly attached, whereby the sash will be balanced and held level in its movements, as specified.

11. In combination with a window-frame of the character described, a board adapted to be inserted within the upper portion of the window-frame, said board being left loose, two sets of pulleys being secured upon the upper surface of the loose board, one pulley at each end being so mounted as to allow its periphery to extend beyond the end of the board, and the other pulley at each end being set in and having their peripheries in alinement with openings in the board, weight-cords attached to the sash and operating over the pulleys and weights on the opposite ends of the cords, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

CHARLES W. BOLTON.

Witnesses:

MARY E. HAMER,
E. H. FORSYTH.