

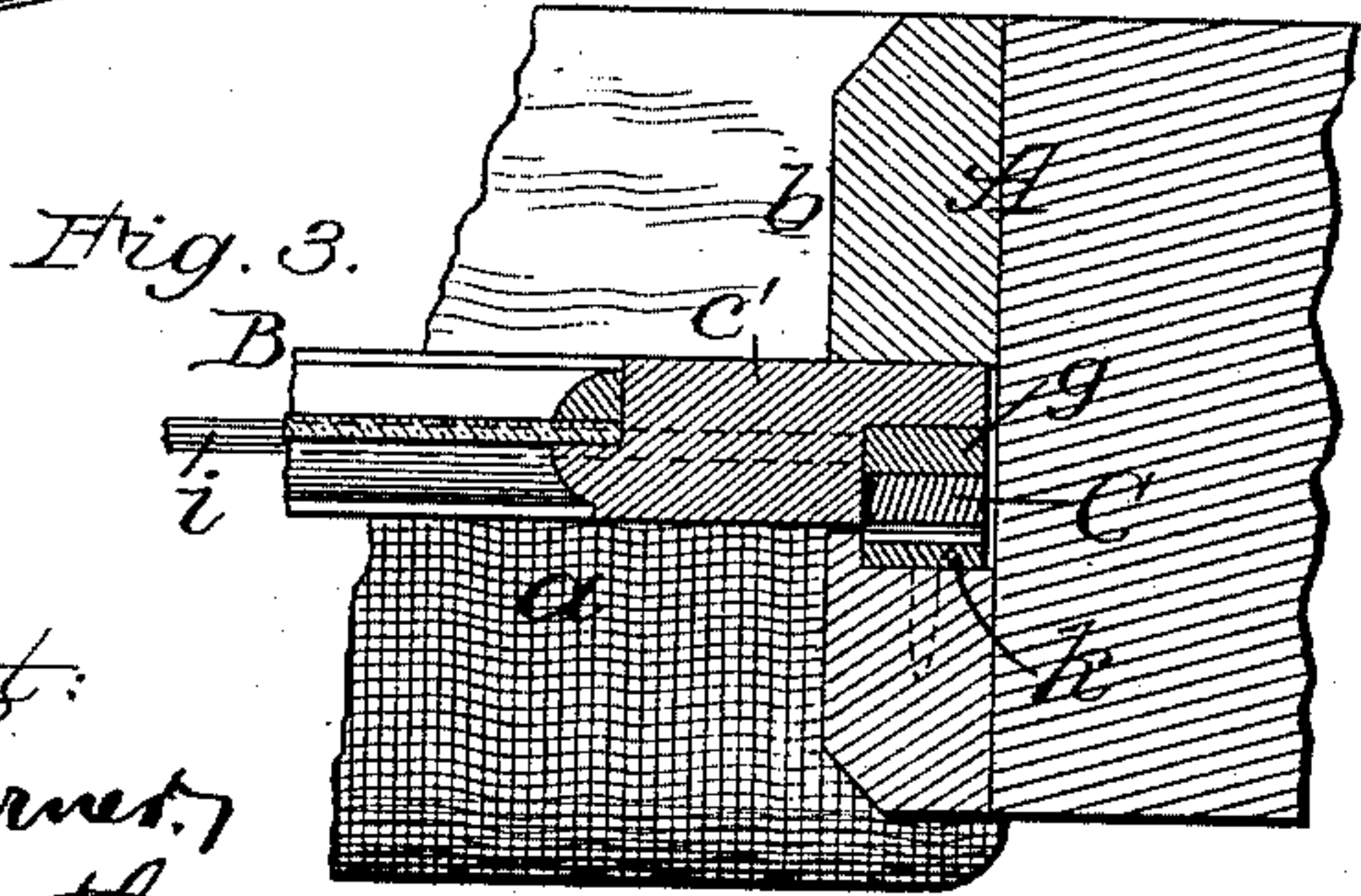
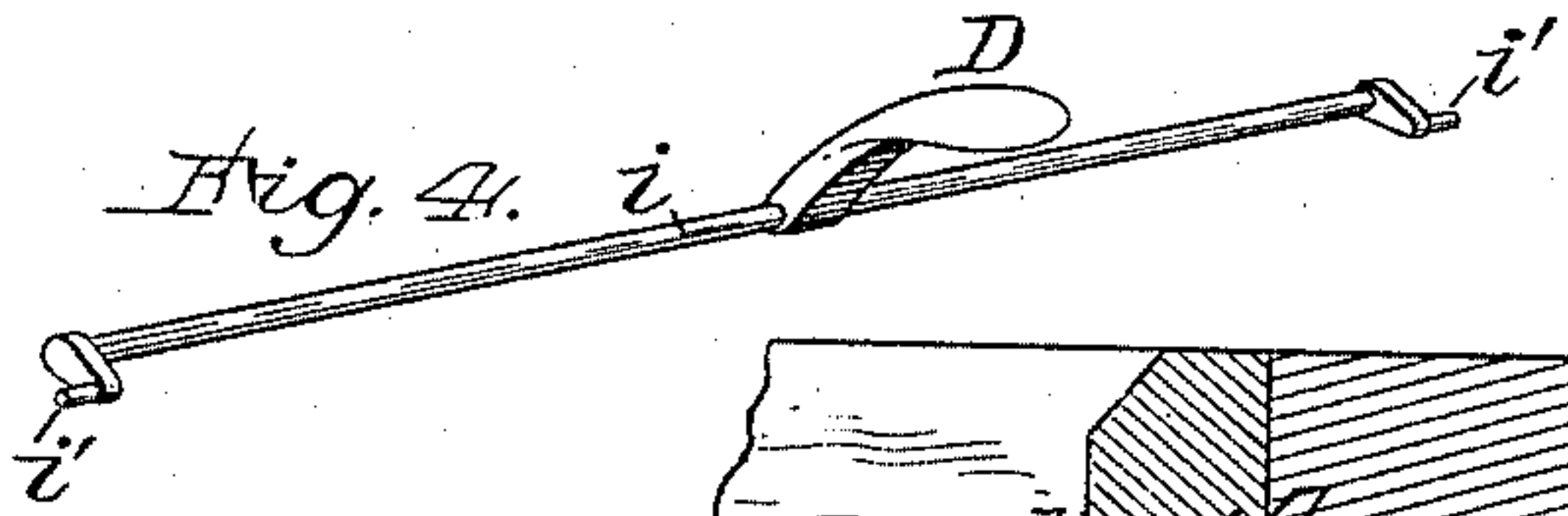
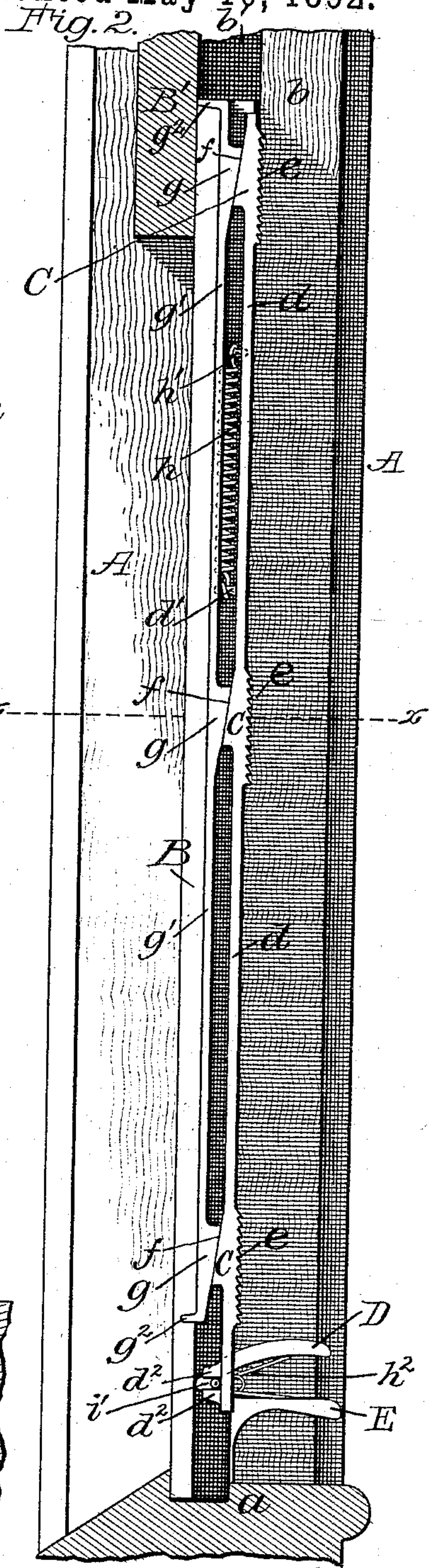
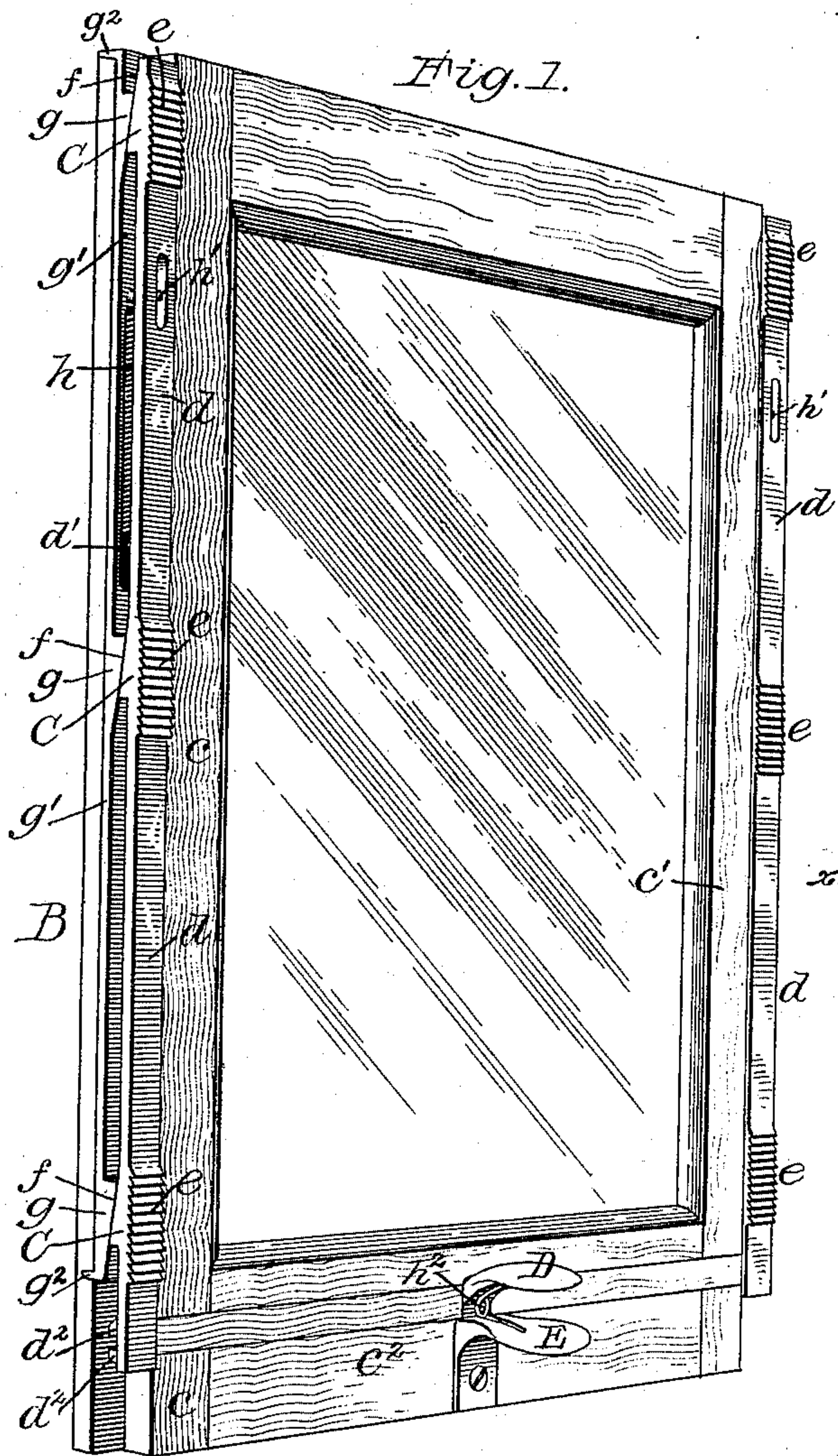
(No Model.)

3 Sheets—Sheet 1.

E. AZE.
SASH FASTENER.

No. 474,570.

Patented May 10, 1892.



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Inventor:
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(No Model.)

3 Sheets—Sheet 2.

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Fig. 5.

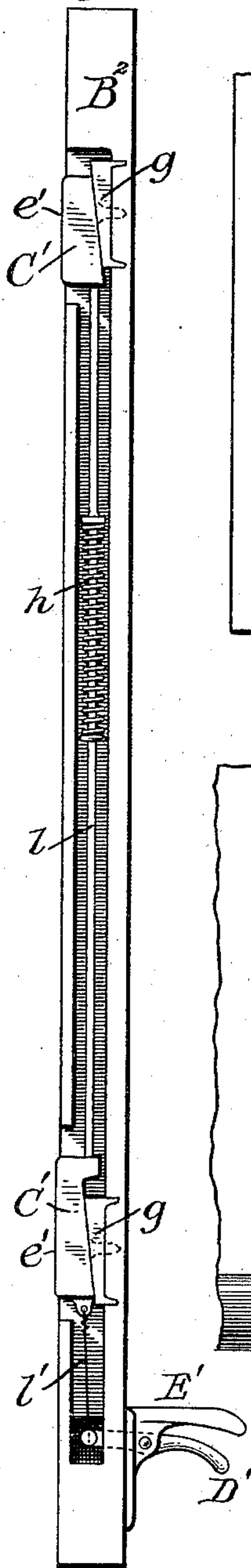


Fig. 6.

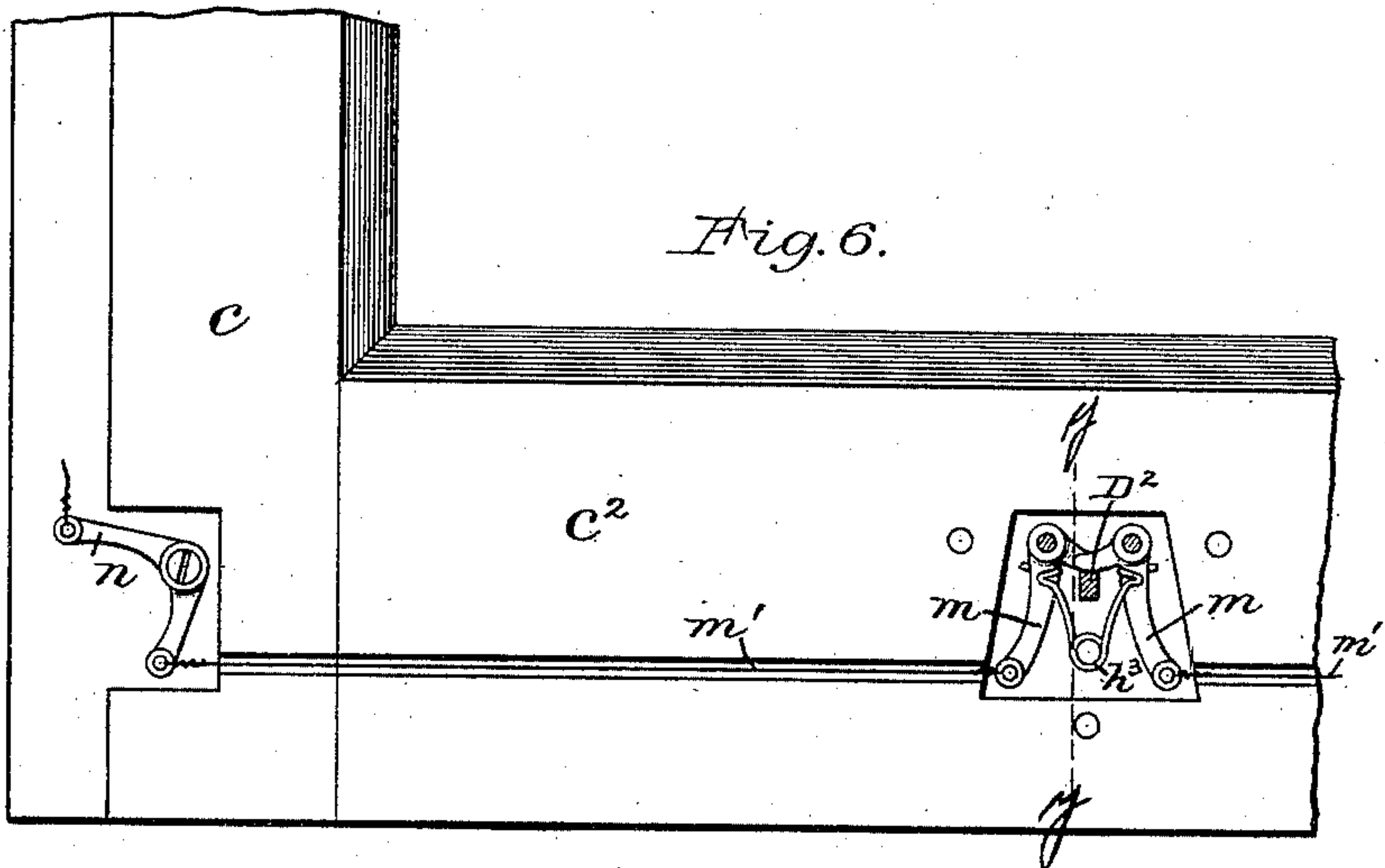
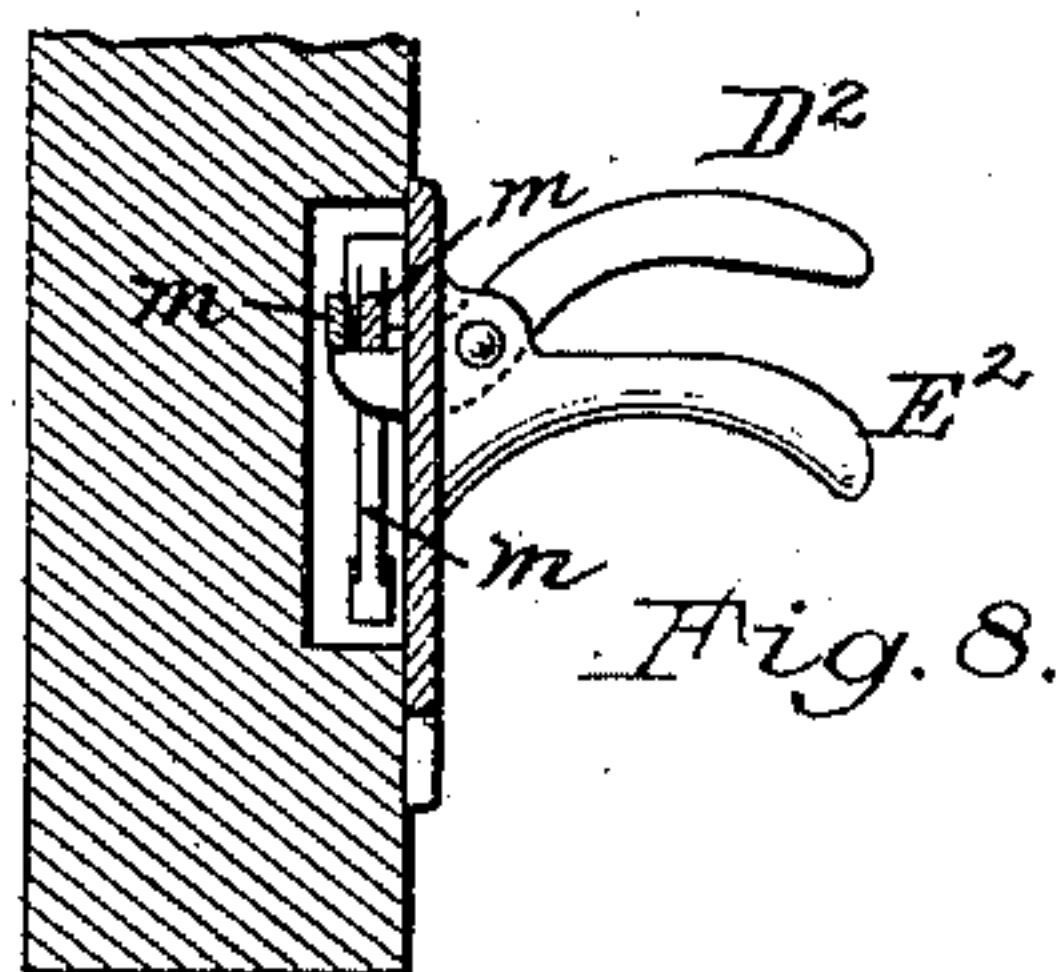
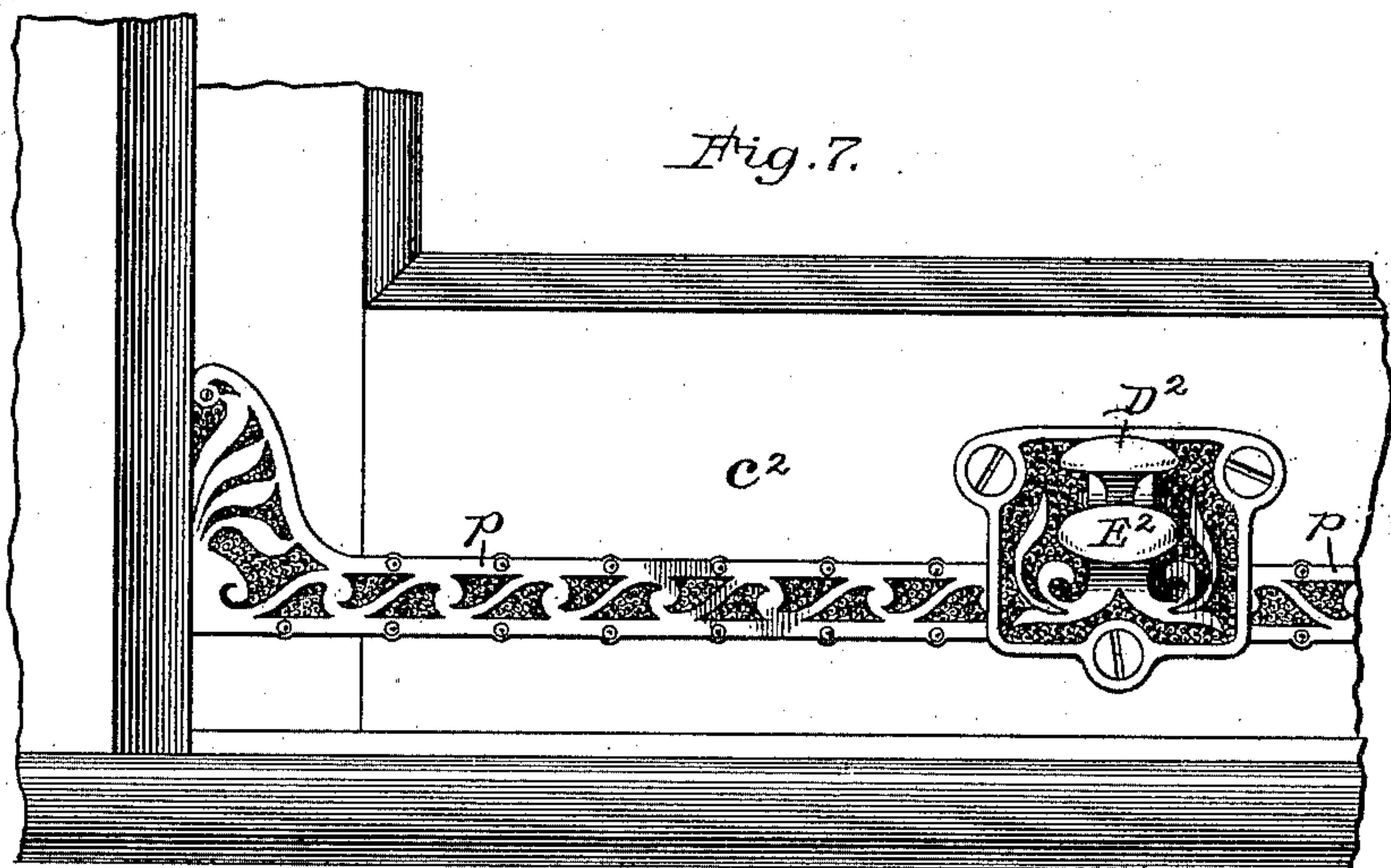


Fig. 7.



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3 Sheets—Sheet 3.

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Fig. 9.

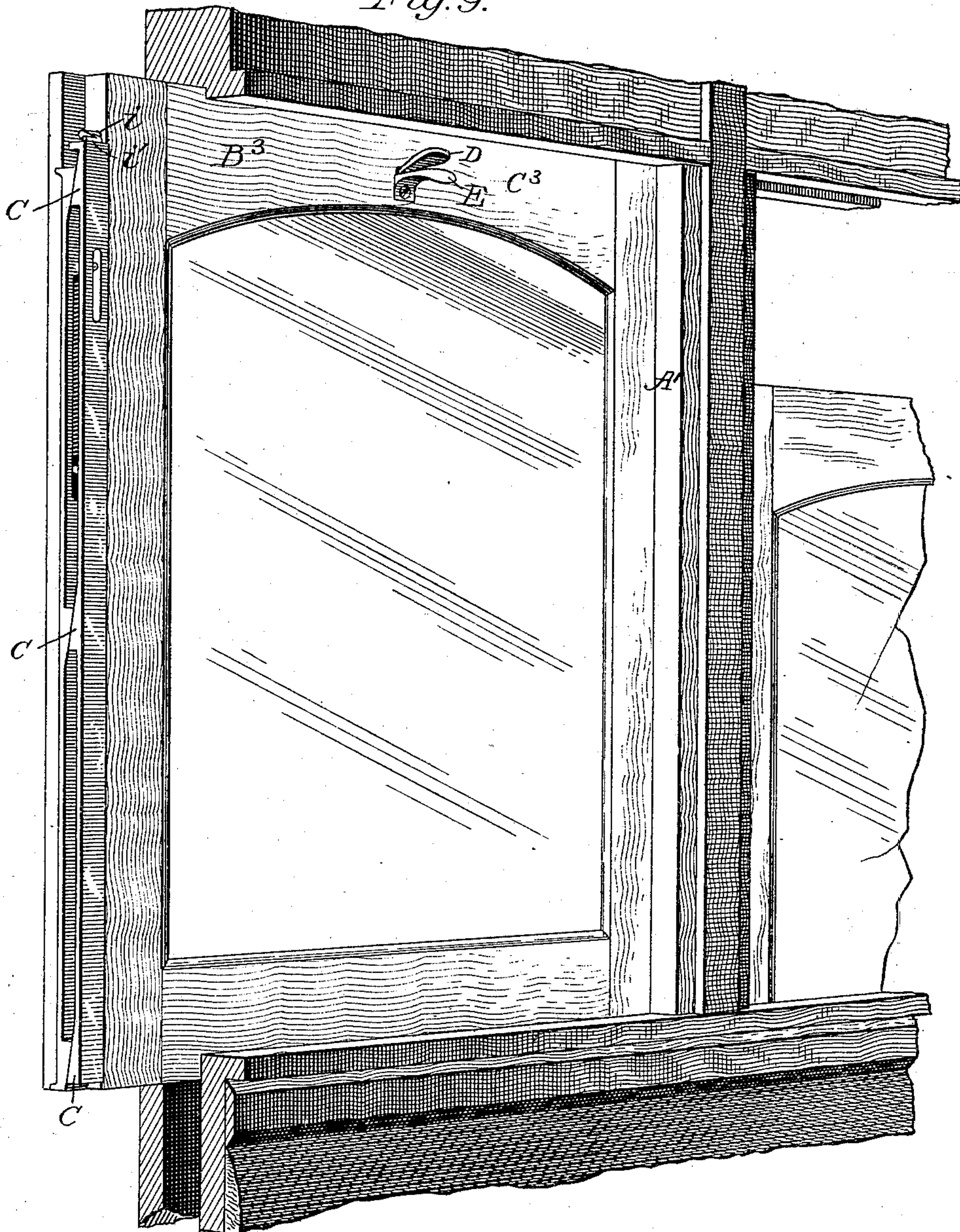
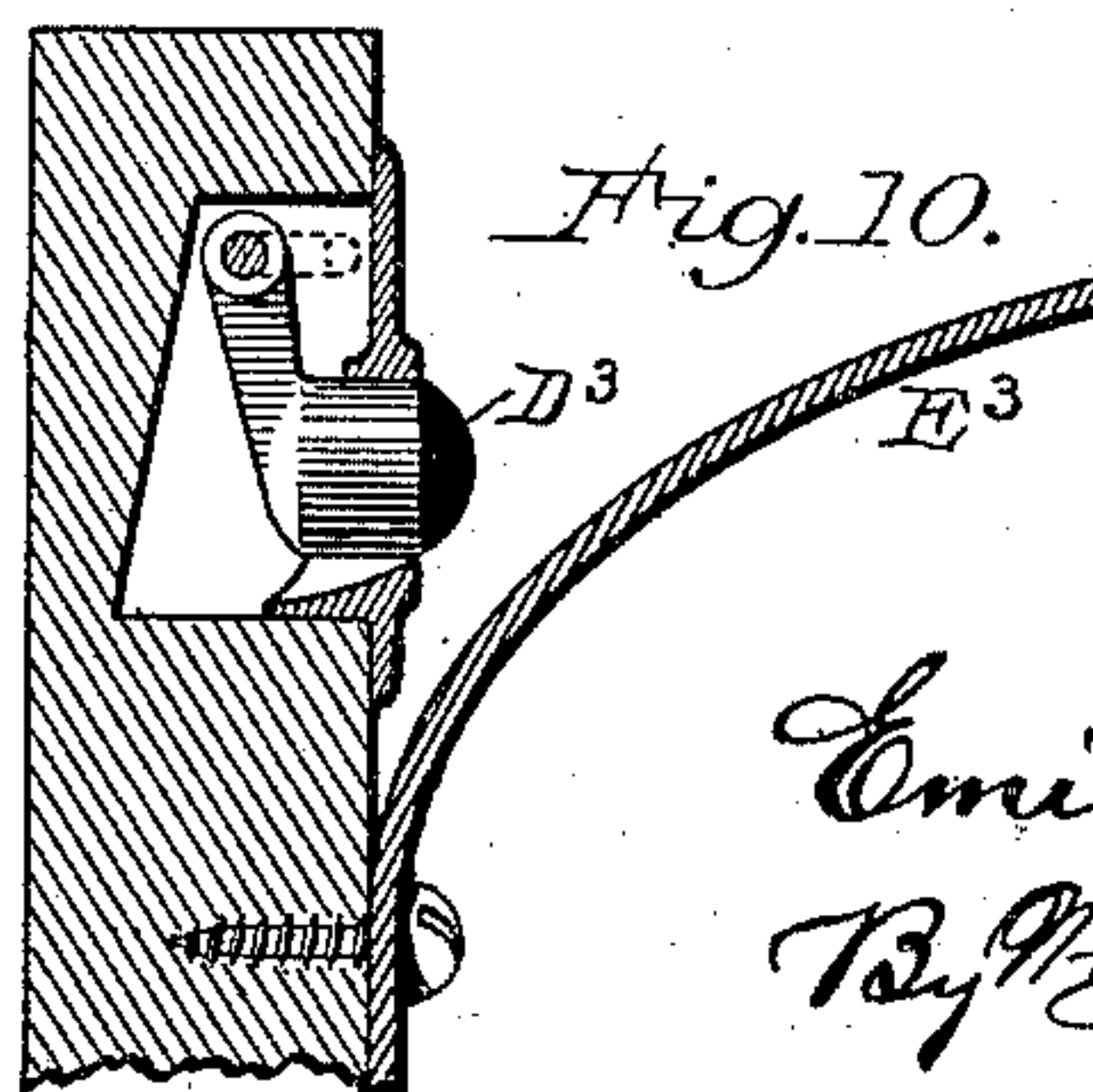


Fig. 10.



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UNITED STATES PATENT OFFICE.

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SASH-FASTENER.

SPECIFICATION forming part of Letters Patent No. 474,570, dated May 10, 1892.

Application filed March 16, 1892. Serial No. 425,114. (No model.)

To all whom it may concern:

Be it known that I, EMILE AZE, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sash-Controlling Devices; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of my invention.

While sash-controllers embodying my invention are applicable to window-sashes in general, they have been devised by me with special reference to so controlling the sliding portions of the windows of railway-cars and steamboats that they may not only be securely locked or held in any desired position and conveniently controlled, but also confined against lateral vibrations. It is well known that for avoiding lateral vibrations and the accompanying objectionable rattle it is quite common for car-sash to be so closely fitted in their guiding-grooves that the sashes can only be lifted with great difficulty, and frequently not at all during damp weather. If my novel controlling devices be employed, sashes may be initially so loosely fitted in their guiding-grooves that they will not get tightened in damp weather; but, nevertheless, the sashes whether opened or closed, will be always confined laterally and forced facewise against coincident surfaces of the window-frame, and when closed be so held as to maintain tight joints and prevent undue drafts of air. For securing the best results a sliding car-window must have both of its siderails provided with my controlling devices, and for the greatest convenience both sets of said devices are operatively connected with a thumb-piece common to both sets, said thumb-piece being located centrally at the inner side of the bottom rail of the sash and usually adjacent to an appropriate sash-lift. In some cases two separate thumb-pieces or levers will be desirable, one at each side rail.

To the ends stated, my invention consists in certain novel features in the construction, combination, and arrangement of certain readily-controlled spring-actuated wedge-

blocks carried by a window-sash and operating laterally with respect to the sash as well as of the grooves in which it slides, and the several features of my invention, after a description in detail, will be duly specified in the several clauses of the claim hereunto annexed.

Referring to the drawings, Figure 1 in perspective illustrates a window-sash provided with controlling devices embodying my invention. Fig. 2 illustrates the same in vertical edge view with appropriate portions of a window-frame. Fig. 3 is a cross-section of a portion of the sash, one of its wedge-blocks, and an adjacent portion of the window-frame—as, for instance, on line *x*, Fig. 2. Fig. 4 is a view of the thumb-piece of Figs. 1 and 2 with a rock-shaft by means of which all of the wedge-blocks are readily controlled. Fig. 5 is an edge view of a sash provided with wedge-blocks and a thumb-piece differently constructed and arranged, but in accordance with certain portions of my invention. Fig. 6 is a front view of a portion of the bottom rail of a sash provided with bell-crank levers and rods or wires as means for communicating motion to the wedge-blocks from a thumb-piece centrally located on the inner surface of the rail. Fig. 7 is a view similar to Fig. 6, illustrating a face plate or plates for inclosing the interior mechanism and affording a foundation for a sash-lift, as well as for the thumb-piece. Fig. 8 is a cross-section of Fig. 6 through line *y*. Fig. 9 illustrates my invention as applied to windows which are dropped in opening, as in cabs, street-cars, and steamboats. Fig. 10 illustrates the thumb-piece adapted to operate after the manner of a push-button.

In the use of my invention the window-frame A requires no novel features of construction, and the portions of frame shown in the drawings are intended to fairly illustrate corresponding portions of the frame or those portions of the side wall of a car which are immediately adjacent to vertically-sliding sashes as usually employed—as, for instance, *a* denotes a portion of the sill, *b* a portion of one side of the frame, and *b'* one of the grooves of the frame in which the sash

or window B slides, the upper sash B' being, as usual in railway-cars, incapable of sliding movement.

So far as relates to my invention the frame may be indefinitely varied as to its construction so long as it has a groove or grooves b' in which the sash may slide, so that the sides of the groove which are coincident with adjacent outer and inner surfaces of one or both of the side rails of the sash are strong and capable of withstanding such transverse strains as are or may be involved.

The sash B, considered with respect to its use as a sash or window, need involve no variations in its construction out of the usual lines, although my invention requires that portions of its side rails c c' , one or both, should be so recessed at vertical corners as to afford space for the reception of an appropriate portion of the sash-controlling mechanism. The bottom rail c^2 is also chambered, bored, or recessed for the reception and inclosure of other portions of the mechanism.

The main elements in the sash-controlling mechanism are the wedge-blocks, of which in this case six are employed, three at each side rail of the sash, as at C C C, and so, also, are these three coupled together by means of a plate or bar d , which although preferably integral with the wedge-blocks in this organization may be separately constructed and applied thereto. These wedge-blocks in this instance have serrated outer or working faces, as at e ; but while such serration or other forms of roughened surface are oftentimes desirable they constitute no essential portion of my invention. The backs f of the wedge-blocks are inclined and they each engage in sliding contact with a reversely-inclined surface or bearing-face afforded by a back block or plate g , said bearing-face in this instance being integral portions of a thin metallic plate g' , having at its ends sharpened spurs g^2 , which with suitable screws enable the plate to be securely mounted at the proper side or bottom of the corner recess in the sash. All of the wedge-blocks are spring-actuated, and it is immaterial as to the form of springs employed or the manner of their application so long as the wedge-blocks are normally actuated thereby and caused to so move longitudinally that their working faces e will be projected laterally, or, in other words, transversely, to the sash. The spring-power actually required is not great, and as a thumb-latch D is employed for overcoming that power it will of course be advisable that the spring or springs shall be easily controlled. As shown in Figs. 1 to 4, inclusive, three light springs are used; but if one of said springs were strong enough the others could be dispensed with. A spiral spring h is interposed between each back plate g' and its appropriate plate or bar d and connected therewith by means of studs or pins d' and h' , the latter at its outer end occupy-

ing a vertical slot in the plate d . A third spring h^2 is here employed beneath the thumb-latch D and has for its base the top of a sash-lift E, which is, as usual, firmly secured to the inner face of the bottom rail c^2 . This spring h^2 is in this instance capable of exerting a lifting force upon the several wedge-blocks, because the thumb-piece D, as shown in Fig. 4, is rigidly secured to a rock-shaft i , having crank-arms at its ends and pins or studs $i' i''$, which loosely occupy slots afforded at the rear of each wedge-block plate d at its foot by pairs of inwardly-projecting studs, as at $d^2 d^2$.

It will be readily seen that the depression of the thumb-piece D will correspondingly rotate the rock-shaft and depress both sets of wedge-blocks for causing their working faces to retire and that when said thumb-piece is released the three springs will operate in causing the wedge-blocks to resume their elevated or normally-projected positions. The spiral springs h , arranged as shown, are, however, specially effective, because they draw the plates d and g' toward each other and maintain close contact of the coincident inclined planes. It will also be seen that if but one set of wedge-blocks were employed, as at either side rail, the thumb-piece D would operate as described, it being, as a rule, important that said thumb-piece should be located centrally on the bottom rail of the sash, so that one hand of a person may be relied upon for raising the sash, as by means of its lift E, and also for operating the thumb-latch. Whether one or both sets of wedge-blocks be employed the centrally-located thumb-latch in an appropriate combination constitutes an important feature of my invention, although without departure from other portions of my invention one or two sets of wedge-blocks may be employed in connection with thumb-pieces at or near one or both ends of the bottom rail. However the thumb-piece may be applied and operated it will be seen that when the sash is at rest upon the sill a of the frame it will be confined laterally within the grooves b' and be prevented from undue lateral vibration and noise from rattling obviated even when the sash and groove involve what may be termed a "loose fit." Upon depressing the thumb-piece the sash may be freely lifted, and upon reaching the desired height a release of the thumb-piece enables the working faces of the wedge-blocks to bear against the coincident (or inner) side of the groove b' , and when the hand is removed from the sash-lift the weight of the sash becomes a ruling factor in forcing the wedge-blocks laterally, thus rendering it impossible for the sash to drop until a release is had by way of the thumb-piece. When the sash is down on the sill, a close fit is always assured between the outer surface of the sash-rails and the coincident (or outer) side of each groove b' , thus preventing undue drafts of air.

In many cases it will be advisable to pro-

vide a metallic surface at the inner side of the groove b' , with which the working faces of the wedge-blocks may engage, and to that end a plate or bar k may be secured in position, as clearly indicated in Fig. 3.

In Fig. 5 I have illustrated the spring-actuated wedge-blocks $C' C'$, connected by means of a rod or link l , and the side rail of the sash B^2 is correspondingly recessed for their reception. Each wedge-block has its appropriate back block g securely fixed in position, and in this instance the working faces e' of the wedge-blocks are not serrated, and they are located so as to operate against the outer side of a groove, thus forcing the sash inwardly against the inner side of the groove. These wedge-blocks, being provided with a spring h and coupled as described, are connected with the thumb-piece D' , which in this instance is in itself a lever coupled at its inner end with the wire or link l' , which is connected to the lower wedge-block. The sash-lift E' in this instance is located near the side of the sash and the thumb-piece is beneath it, and therefore after lifting the sash the hand should be quickly removed, whereupon the wedge-blocks will promptly operate for holding the sash. With a sash-lift at the center of the bottom rail and with only one set of five wedge-blocks and one thumb-piece two hands would of course be required in raising the sash.

With a centrally-located thumb-piece the rock-shaft-connecting mechanism will as a rule afford the most satisfactory results; but, as hereinbefore indicated, other well-known forms of connecting mechanism may be employed without departure from certain portions of my invention—as, for instance, as illustrated in Figs. 6, 7, and 8. As therein shown, the thumb-piece D^2 is a lever pivoted on the face-plate, which carries the lift E^2 , and at its inner end it engages with the free ends of two bell-crank levers $m m$, which at their lower ends are coupled by wires m' with other bell-crank levers $n n$, (at the two lower corners of the sash,) which are in turn connected by wires or links with the wedge-blocks. This thumb-piece has no spring; but a spring h^3 is applied to the lower ends of the levers $m m$ for maintaining them in their normal position and to that extent relieving the springs which directly actuate the wedge-blocks. In this organization the bottom rail c^2 is recessed for the reception of the levers and wires, and ornamented face-plates p , applied by means of screws to the inner surface of the rail will close the recesses, but afford ready access to the interior mechanism and strengthening the rail.

In applying my invention to horizontally-sliding sashes, as sometimes used on steamboats, the wedge-blocks need be employed on the upper rail only for preventing rattling; but with sash adapted to be dropped in opening, as often used on steamboats and always

on street-cars and cabs, the wedge-blocks are, as already described, located at one or both side rails, but the thumb-piece and sash-lift are located on the top rail, as illustrated in Fig. 9. In this instance the sash B^3 has the wedge-blocks $C C C$ applied as in Fig. 1, but the sash-lift E is applied to the top rail C^3 , the thumb-piece D being above the sash-lift also, as in Fig. 1. The thumb-piece, with its rock-shaft i and crank-arms i' , are as in Fig. 4, and, as before described, they are here arranged to depress the wedge-blocks. When applied to street-cars and cabs, the window-frames A' are of course appropriately provided with suitable guiding-grooves and not so arranged that the bottom of the sash can be swung inwardly and outwardly, as is usual in street-cars.

When inside sliding blinds or screens are employed, it will sometimes be impracticable to use rigid sash-lifts, owing to the limited space usually afforded between the blind and the sash, and for the same reason an unduly projected thumb-piece should be avoided, and for use in such connection I organize the sash-lift and thumb-piece as illustrated in Fig. 10. In this instance the thumb-piece D^3 has a face like a push-button recessed in the top rail, so that on forcing it inwardly the wedge-blocks will be operated as before, the thumb-piece depending from the rock-shaft to provide for the horizontal vibrations of the thumb-piece. The sash-lift is mounted immediately below the thumb-piece, and it may be composed of metal and hinged so as to normally drop and lie against the sash, or, as is usual, it may be a flexible strap E^3 , which may be grasped by the thumb and finger for lifting the sash, leaving the end of the thumb free to press against the thumb-piece D^3 . It will be obvious that my invention is equally applicable to sliding window-blinds.

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

1. The combination, substantially as hereinbefore described, with a suitable frame and a sash adapted to slide in grooves therein, of a spring-actuated and readily-controlled wedge-block carried by the sash, movable transversely to the sash and to its groove in the frame and adapted to engage with coincident guiding portions of the frame for holding the sash in any desired opened position, and whether closed or open for confining the sash against lateral rattling vibrations.

2. The combination, substantially as hereinbefore described, of a frame, a sash adapted to slide therein, a set of vertically-connected spring-actuated wedge-blocks carried by the sash within the groove of the frame and operating transversely thereto, and a thumb-piece or lever operatively connected with said blocks for overcoming the spring by which they are actuated and rendering them inoperative.

3. The combination, with a thin narrow metallic plate provided at its side with several inclined bearing-faces, of a set of wedge-blocks connected together, each in contact
5 with an appropriate bearing-face, and a spring which couples said wedge-blocks to said plate, substantially as described, said several parts being adapted as a whole to be applied to the side rail of a sliding sash and to cause said

wedge-blocks to operate transversely to the sash and in controlling contact with the frame in which the sash is intended to operate.

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Witnesses:

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