

No. 626,698.

Patented June 13, 1899.

G. HAYES.
FIRE RESISTING WINDOW.

(Application filed Mar. 19, 1898.)

(No Model.)

2 Sheets—Sheet 1.

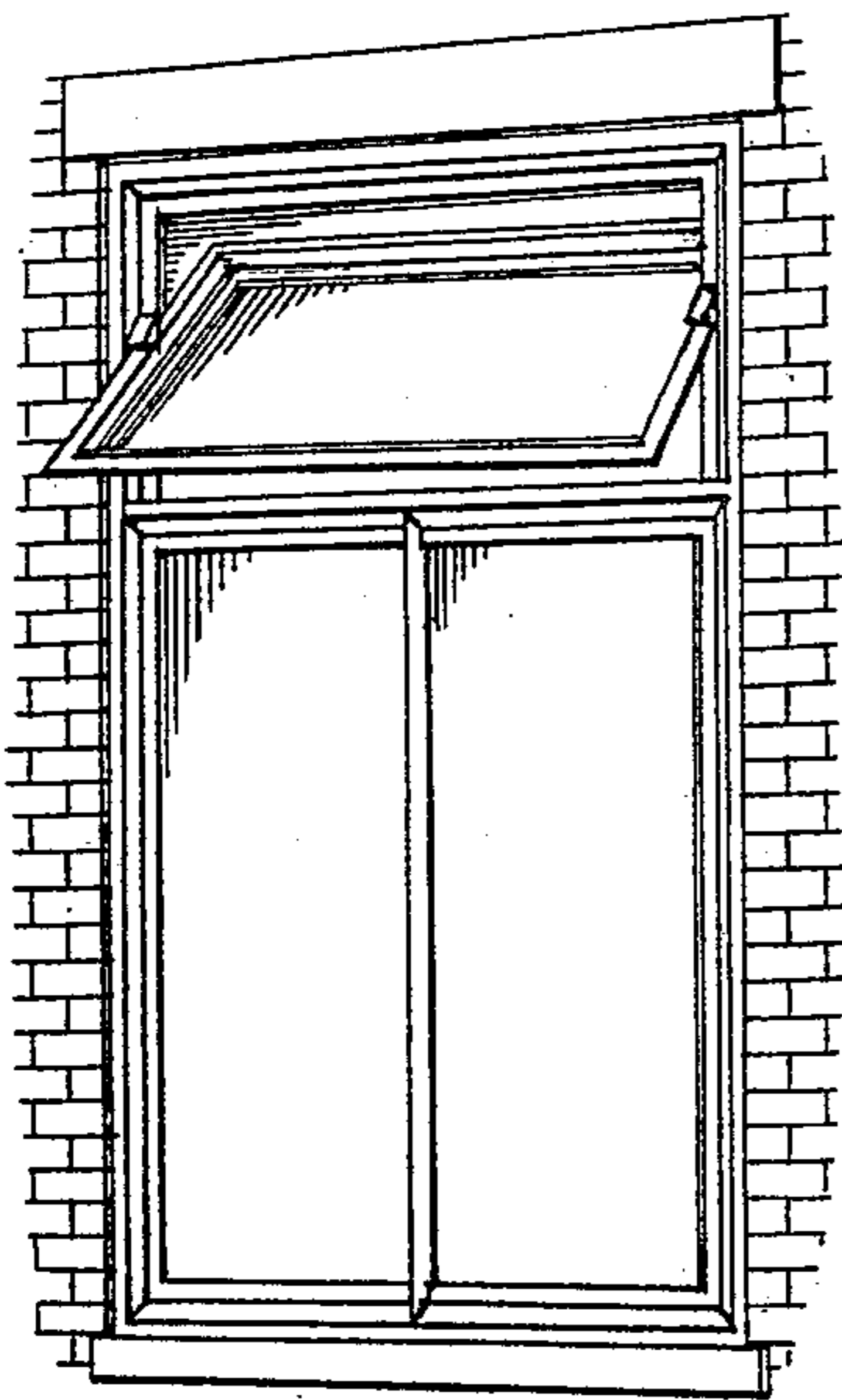


Fig. 1.

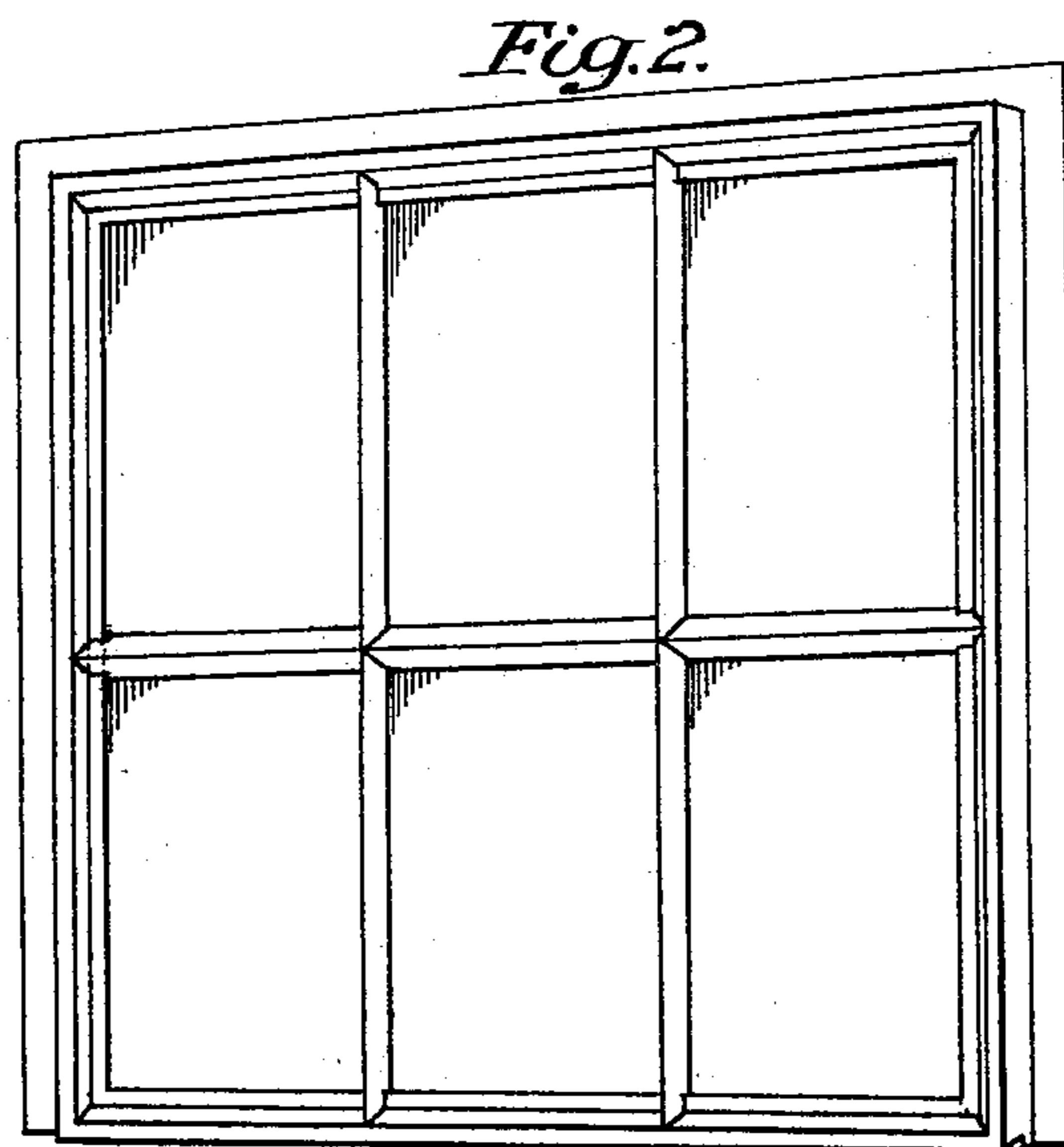


Fig. 2.

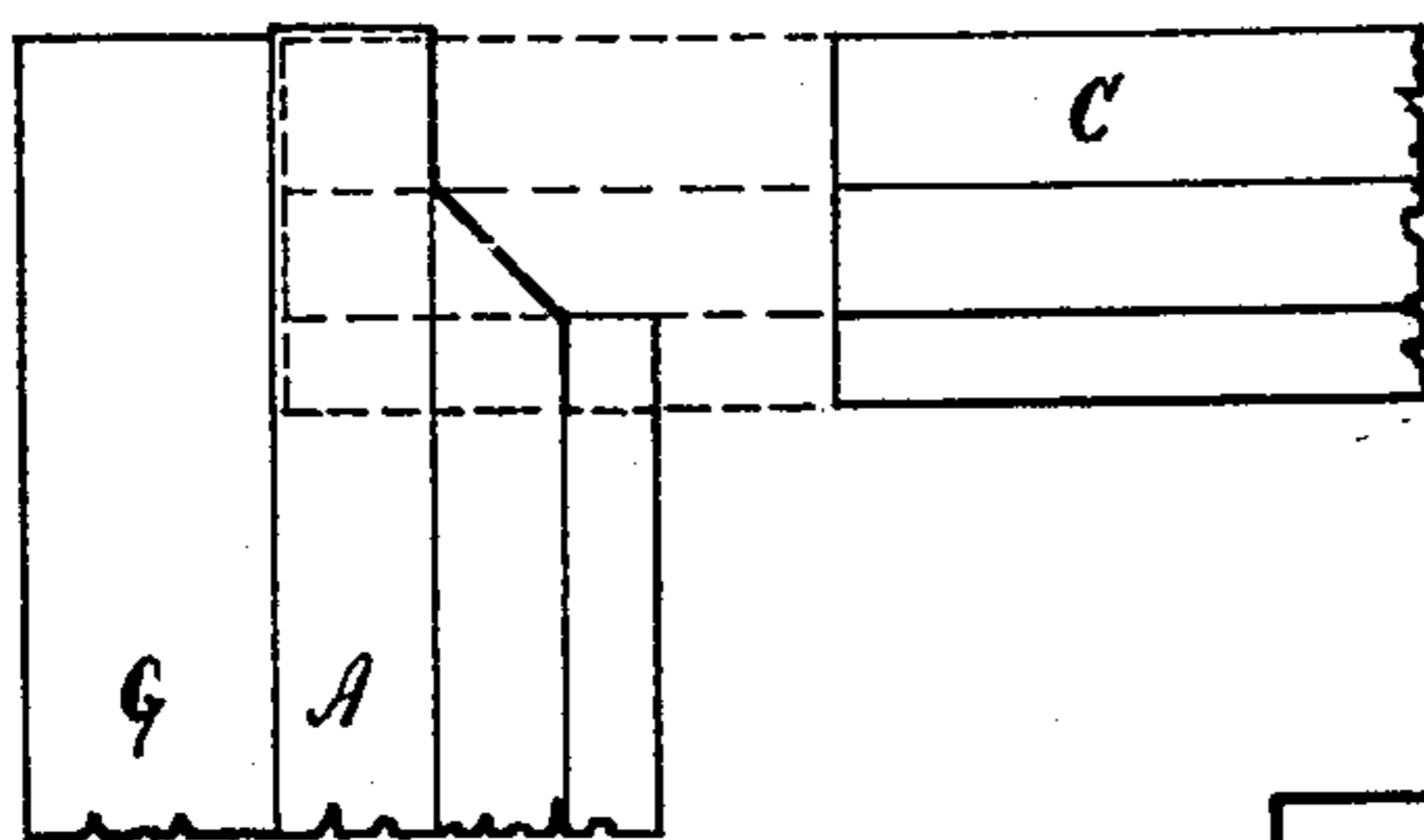


Fig. 3.

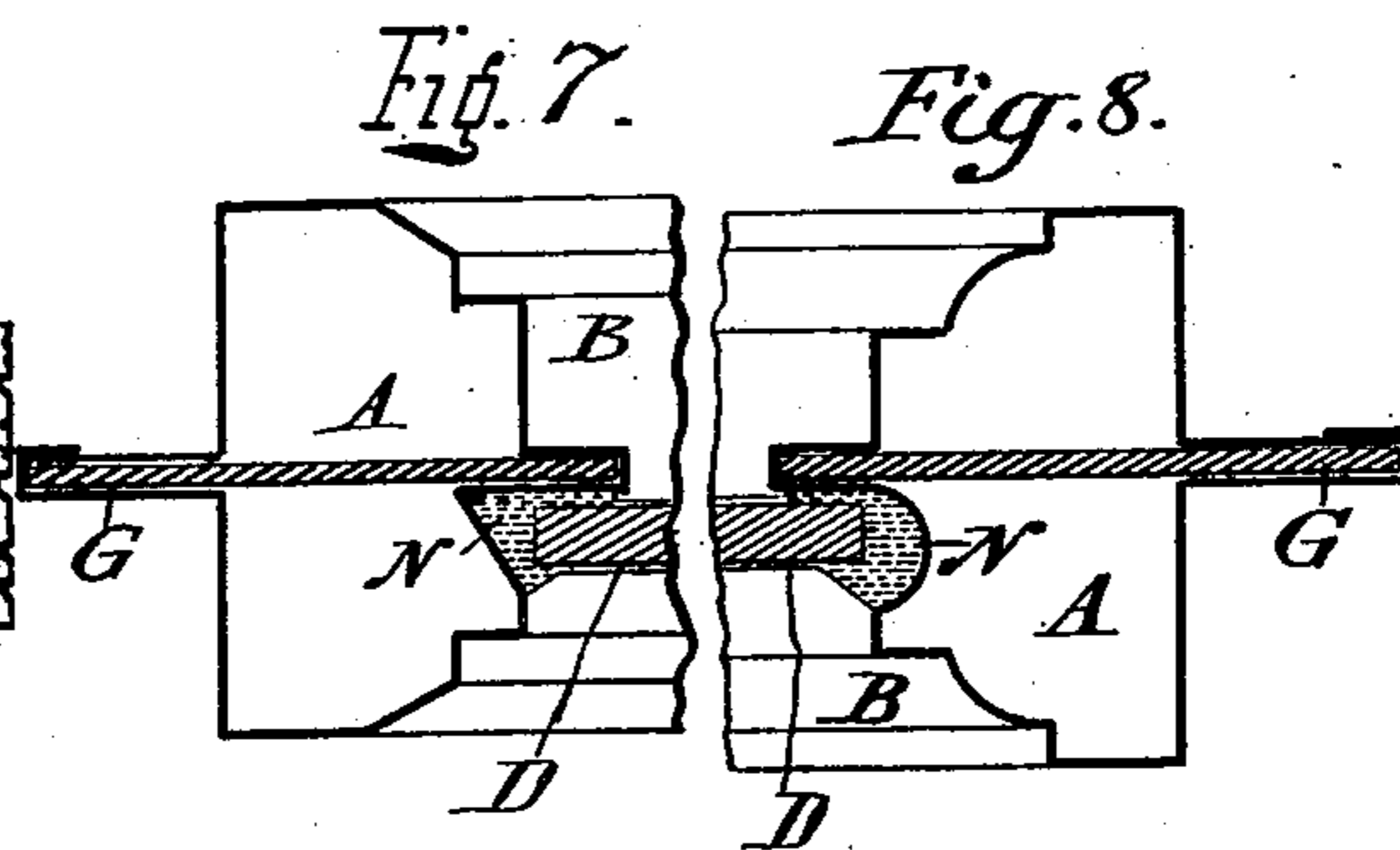


Fig. 7.

Fig. 8.

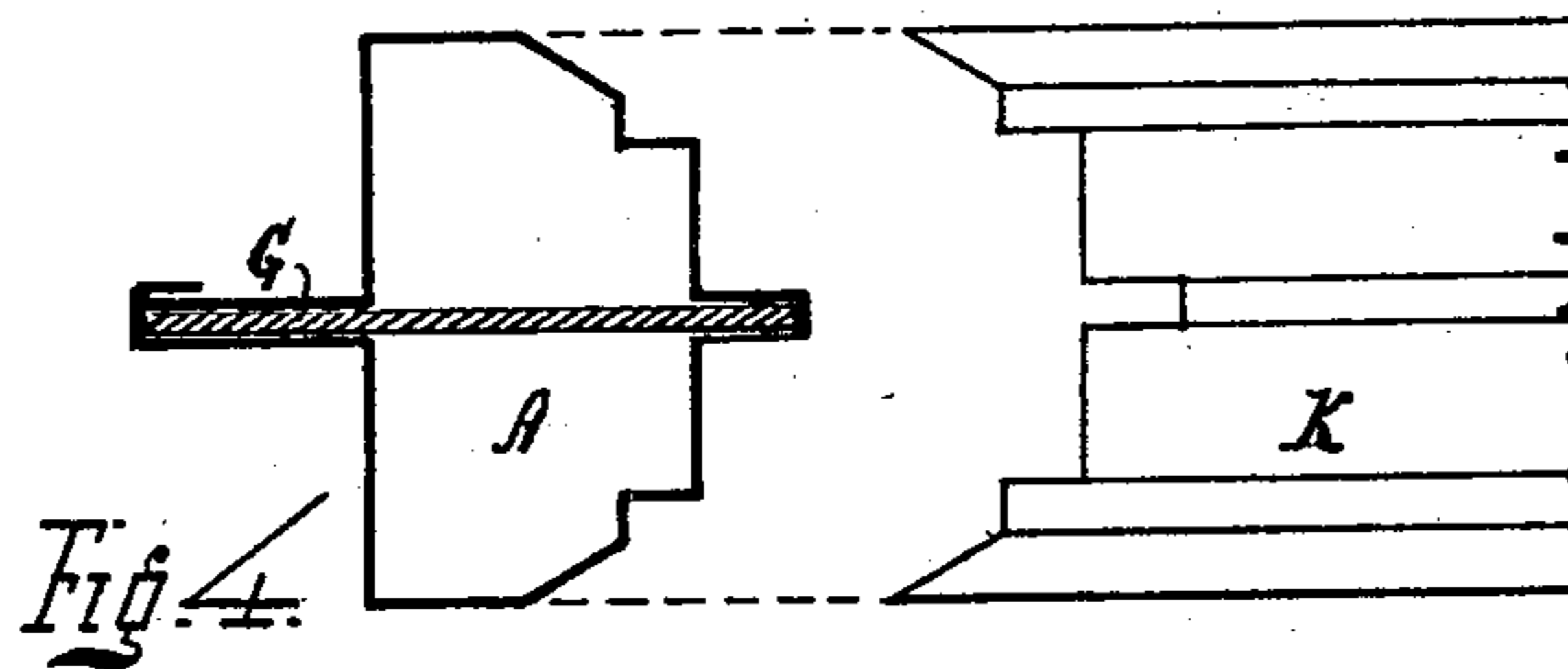


Fig. 4.

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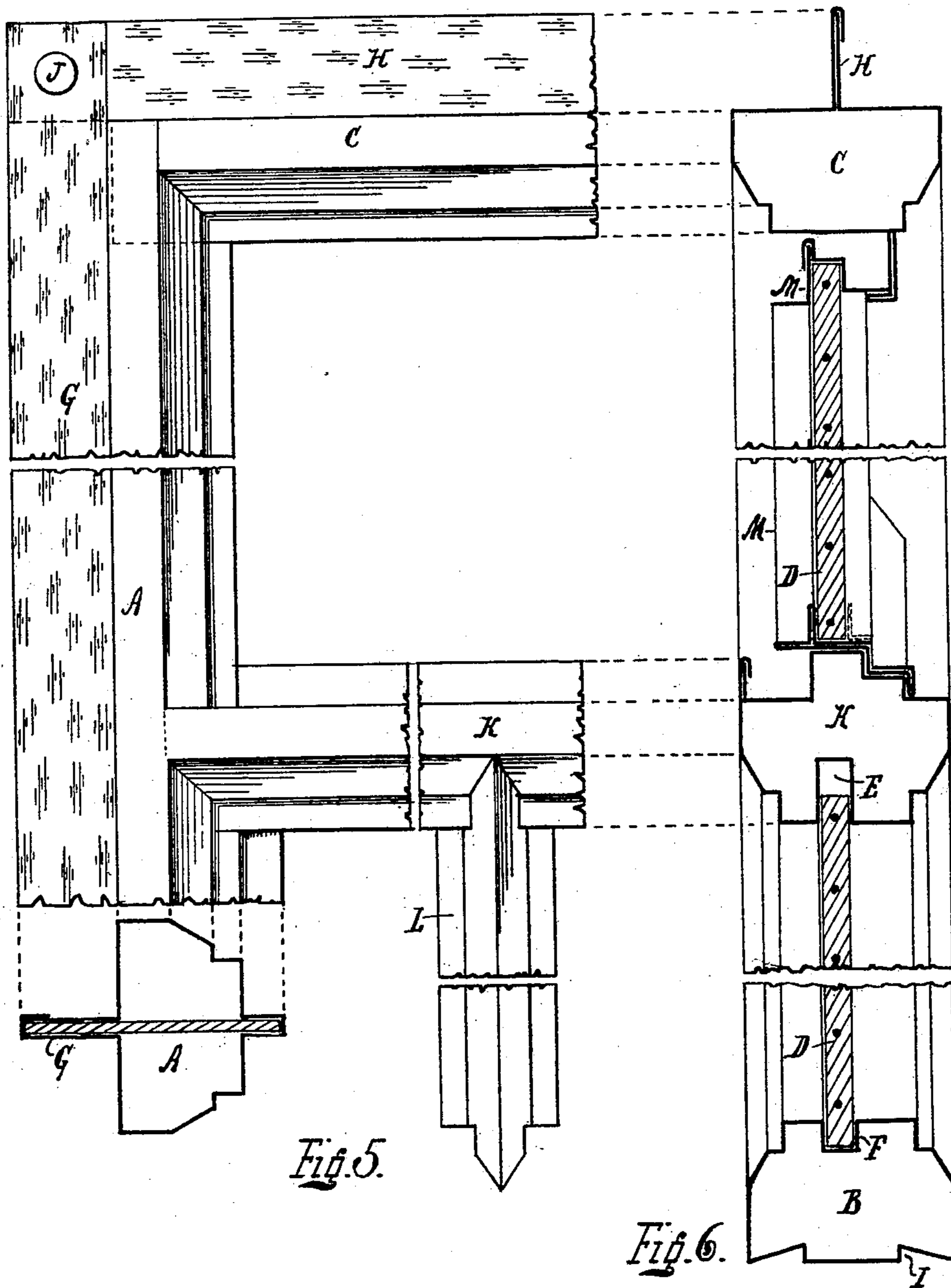
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

GEORGE HAYES, OF NEW YORK, N. Y.

FIRE-RESISTING WINDOW.

SPECIFICATION forming part of Letters Patent No. 626,698, dated June 13, 1899.

Application filed March 19, 1898. Serial No. 674,528. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HAYES, a citizen of the United States, and a resident of the city, county, and State of New York, have invented a Fire-Resisting Window, of which the following is a specification.

My invention consists of a fire-resisting window having its frame composed of sheet metal formed with an interior dead-air chamber, glazed with wired glass, and possessing such novel features as are hereinafter more fully explained, and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of one form of the window set in brickwork. Fig. 2 is a perspective view of another form of the window without brickwork. Fig. 3 is a view illustrating the manner of lock-jointing stiles and rails. Fig. 4 is a view illustrating the manner of lock-jointing transoms or interior bars with stiles or rails. Fig. 5 is an elevation of one corner, piece of top rail, portion of stile, with transom and mullion and with horizontal section of stile, the parts connected by dotted lines. Fig. 6 is a vertical section through top rail, bottom rail, mullion, opening sash, and glass. Figs. 7 and 8 are horizontal sections of stiles, glass, and adjuncts, illustrating a formation of stiles providing pockets for reception of asbestos, asbestos putty, mineral wool, or the like.

On the drawings, A indicates the vertical stiles, B the bottom rail, and C the top rail. The stiles and rails are formed of sheet metal bent and folded, inclosing a hollow, as a dead-air chamber, joined together by miter and interlock and, wherever necessary, the addition of rivets.

I do not confine myself to the exact form of molding shown, as variations in design may be made without affecting the character of the constructive features. Solder is not used anywhere constructively, but may be employed in finishing off edges to render them smooth and jointings tight. Wired glass of any suitable kind and thickness is used for glazing.

D indicates the glass panes.

E indicates grooving formed in the framing or bars to receive the head of the pane and is of sufficient depth to allow the edge of the

pane to be slid upward therein until the lower edge of the pane will pass over the molding of the rail or bar below.

F indicates a groove formed in the lower rail or bar to receive the lower edge of the pane. It is of lesser depth than the groove above, and the pane after it is past the molding is allowed to drop to its depth, while its head is still within the groove above. In this manner of glazing the panes are all securely held in place without additional means. The side edges of the panes rest against rabbets formed to receive them. So placed they will withstand a very great heat and will not give way though subjected to great pressure from within or without.

Putty may be used, if desired, as an extra precaution at the joints and to secure against rattling all around, preference, however, being given to some fire-resisting composition, as asbestos putty, for instance. The side joints may be covered with added edge strips riveted or screwed to the frame or bars. Such appliances are not usually necessary, but may be advantageous in some cases. The cross-bars, as transoms or mullions, have their ends cut after the manner shown in Fig. 4, so that they saddle the molding with which they join. When the window is finished, it is impossible to press outward or inward the bars by any reasonable means, and the construction is rigid and the glass thoroughly secured.

At the corners of the frame, as shown in Fig. 3, one bar is partly cut to a miter, and the other, ending straight, is pressed into it to the extreme and the unmitered portions of the first overlapping. Of course it does not matter which bar is mitered and which is left straight. Thus the frame becomes lock-jointed.

G indicates vertical flanges formed by bending outwardly and clenching the metal of the stile to which it belongs. Core-plates of any desired thickness are inclosed within the metal, as shown.

H indicates a top flange, not always used, but sometimes useful. It corresponds with the side flanges.

All the exterior flanges G and H are located within the front and rear faces of the stiles, so as to admit of their being built in between courses of brickwork in a wall. Underneath

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the bottom frame or rail are formed, as shown in Fig. 6 at I, indents wherein putty, asbestos putty, or other suitable filling material may be tightly pressed when resting upon a sill, &c.

5 J indicates rivets which may be placed, as shown, wherever desired, through the flanges G and H for extra security.

K indicates transoms, L mullions, and M opening sash, of which there may be any desired number, and the window may thus be divided off to suit any design and with any number of opening sashes. The sashes may also be hung to swing vertically or horizontally, to suit circumstances. The grooving also for the reception of the glass plates may be arranged at the vertical sides, as well as horizontally, with the remaining sides adjusted to suit. The glass may also be readily removed for repairing, &c., while no serious obstacle stands in the way should firemen find it necessary to enter the building through the window.

All opening sashes are provided with internal and external flanges to cover the joints to render them waterproof and fireproof. They also may be provided with locks to render them secure.

The fire-retarding qualities of a window constructed as herein set forth are immense, amounting almost to fireproofing when glazed with wire-glass, and the windows afford a perfect substitute in place of iron and metal-covered wooden shutters, and the hollow lock-jointed galvanized-iron frames possess every requisite of strength and endurance and they will withstand fire without warping or disintegration.

N indicates inward depressions or grooves formed in the lateral face of the rabbet of the stiles, constituting pockets in which I press when desirable a filling of asbestos, asbestos putty, mineral wool, or other suitable material, after the manner shown in Figs. 7 and 8, thus bedding the glass edges and securing the joining against passage of wind, rain, or fire.

What I claim, and desire to secure by Letters Patent, is—

1. A fire-resisting window glazed with wired glass, and having its entire framework formed of sheet metal bent to inclose hollows, as dead-air chambers; and provided with rabbets for two edges of the glass, and also grooves into which two edges of the glass panes are secured, one groove formed deeper than the other in manner and for the purpose set forth.

2. A window in which grooves are provided oppositely for reception of glass plates, one groove formed of greater depth than the other, glazed with wired glass, said panes having edges secured within and by the grooves, essentially as set forth.

3. A window-frame of sheet metal folded to inclose wholly within itself, a hollow, as a dead-air chamber; also formed with an outwardly-projecting fold serving as a lateral flange to fit into brickwork, essentially as set forth.

4. A window-frame of sheet metal folded to inclose within itself, hollows as dead-air chambers, and with an outwardly-projecting fold serving as a lateral flange inclosing a core-plate which extends inwardly across the frame through its hollow, essentially as set forth.

5. A window constructed as a complete whole in portable form with frame of sheet metal, glazed with wired glass, and provided with lateral flanges adapting it to be secured in the wall-opening, with the flanges inserted within the joints of the brickwork, essentially as set forth.

6. In a fire-resisting window, a sash-frame constructed with two grooves oppositely arranged, one of which is formed with greater depth than the other, with a pane of glass having edges inserted and thereby held in place as set forth.

GEO. HAYES.

Witnesses:

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