

No. 661,922.

Patented Nov. 13, 1900.

J. F. PREUTHUN.
METALLIC WINDOW FRAME AND SASH.

(Application filed July 11, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

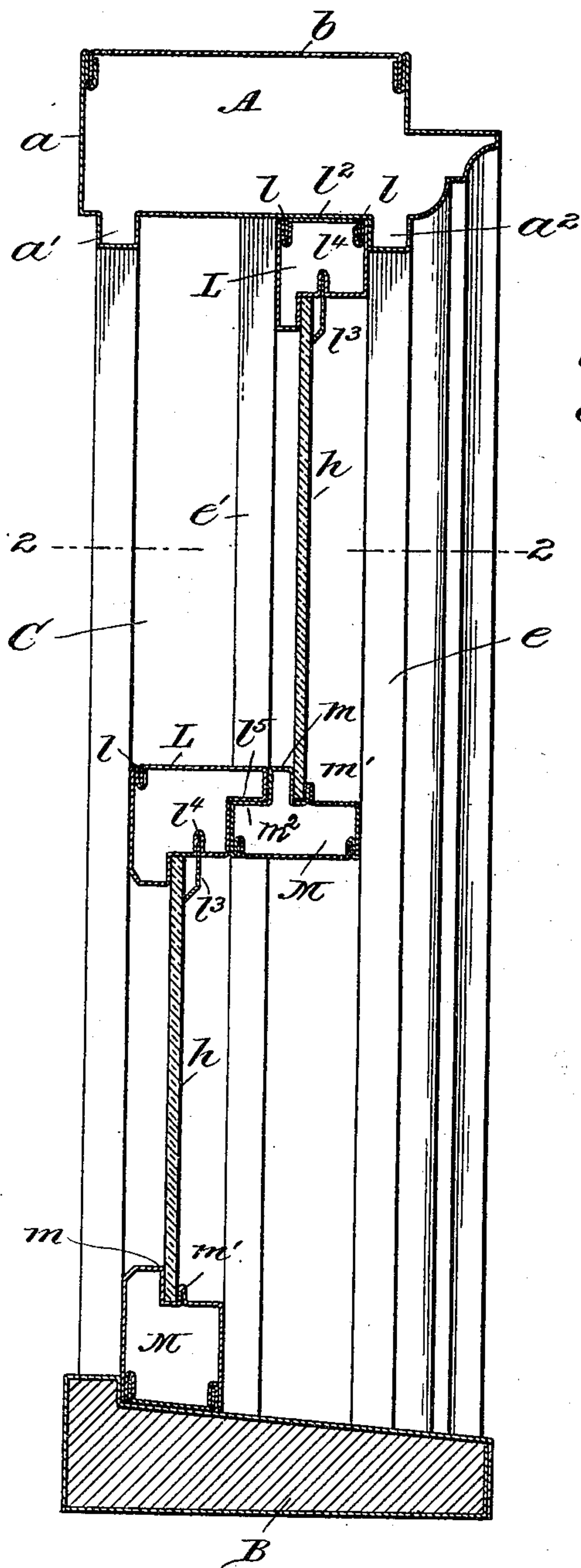


Fig. 2.

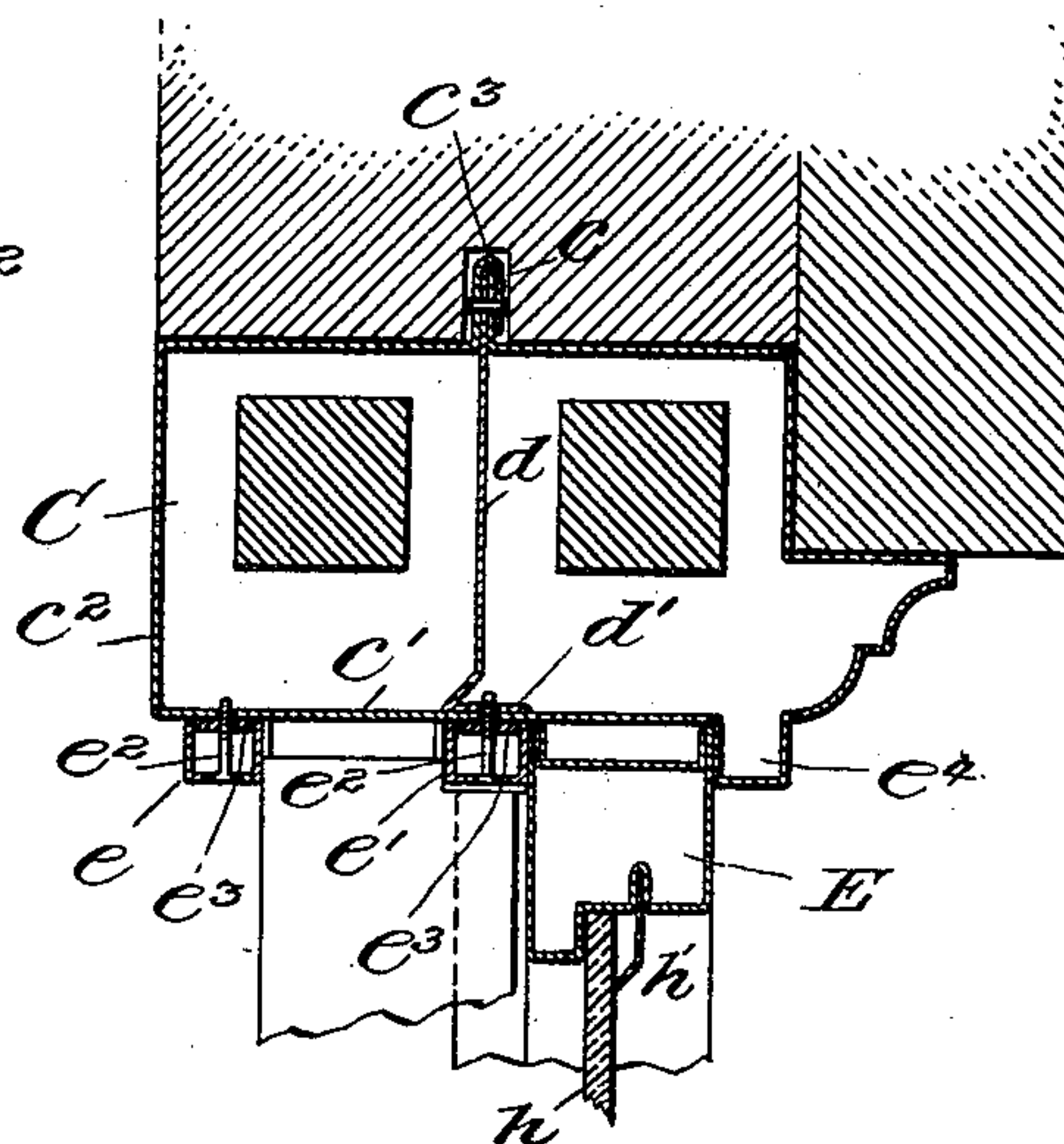


Fig. 3.

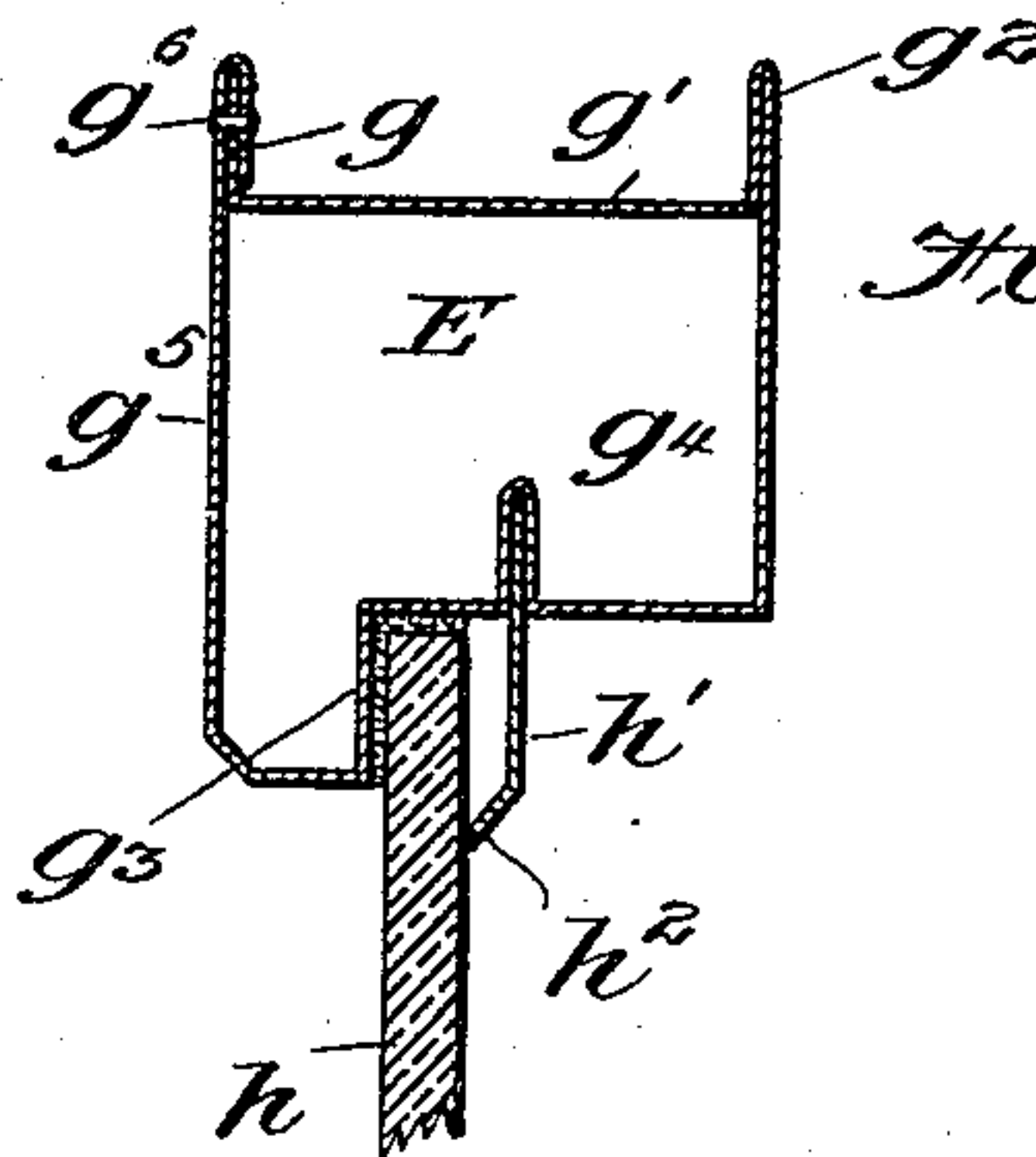
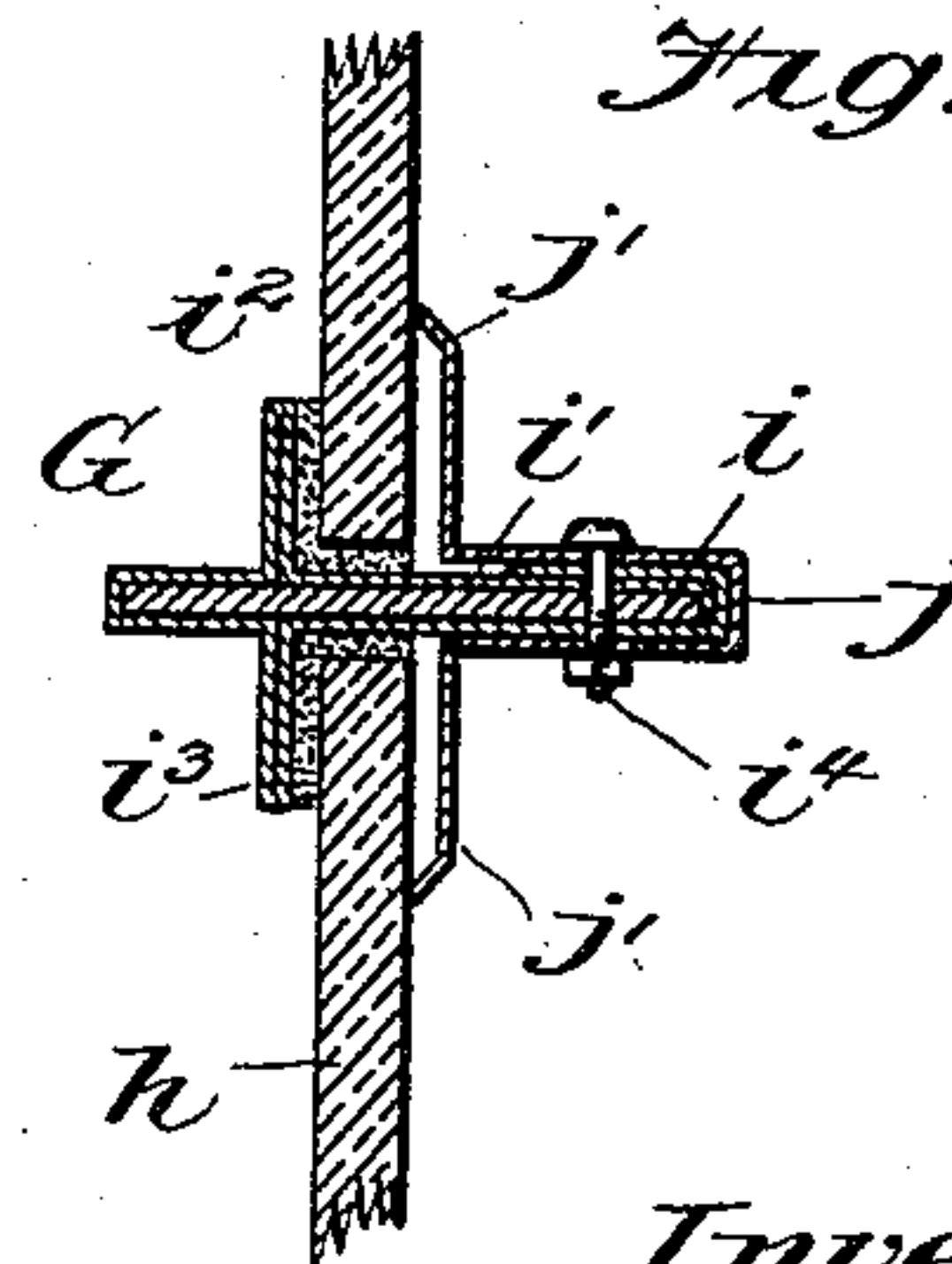


Fig. 4.



Witnesses.

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Inventor,
John F. Preuthun,
per *John F. Preuthun,*
his Attorney.

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(No Model.)

2 Sheets—Sheet 2.

Fig. 5.

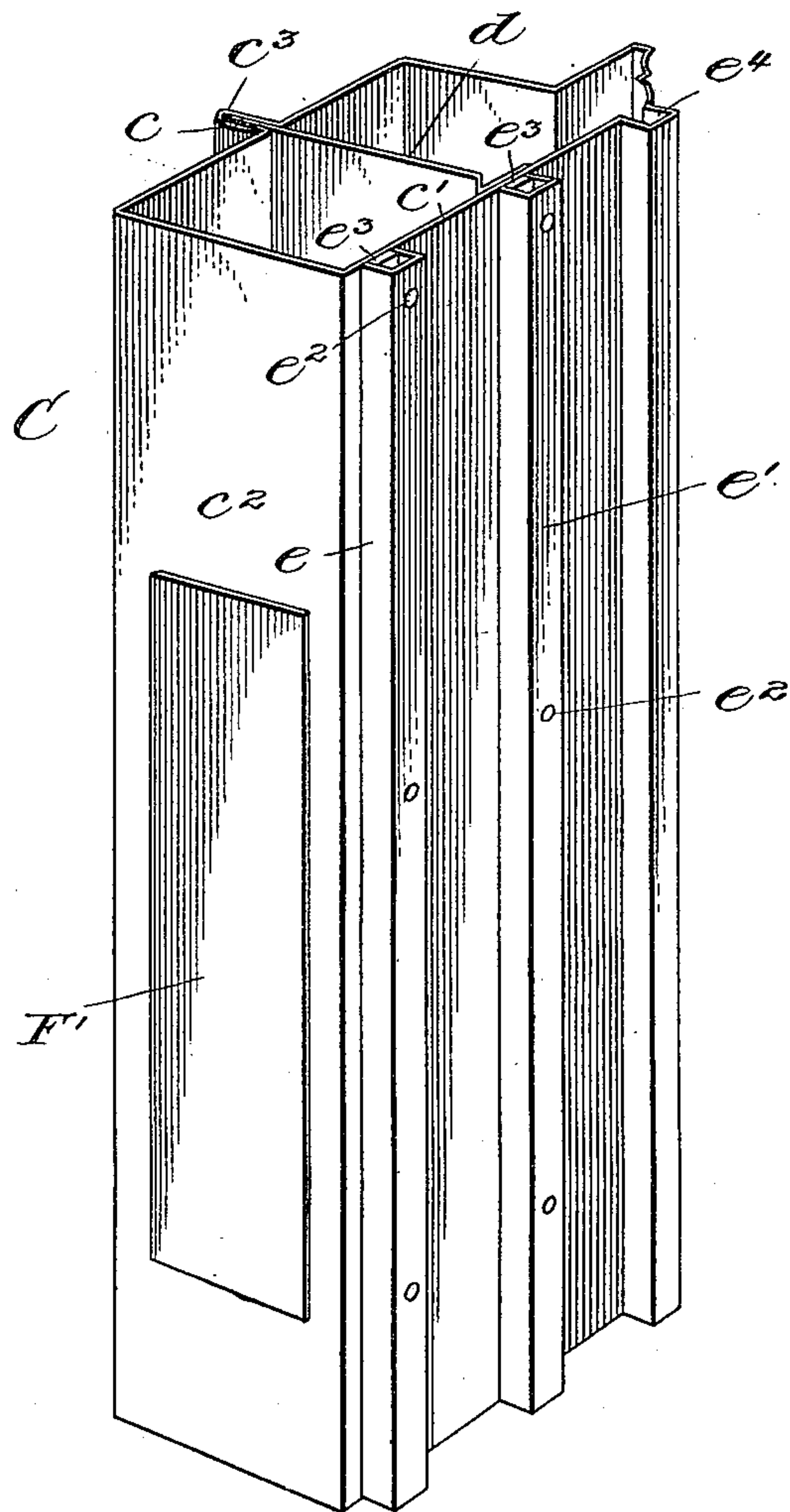


Fig. 6.

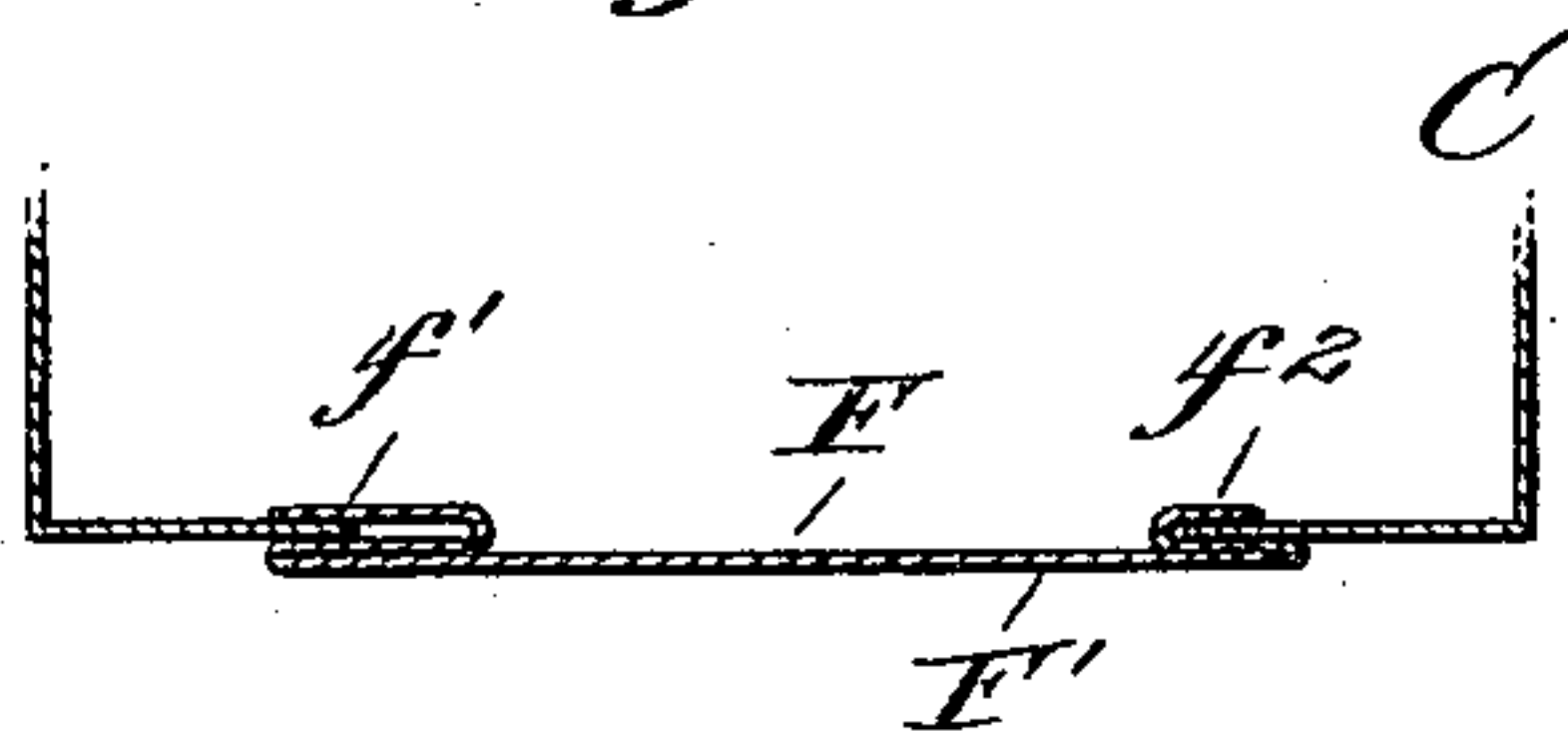
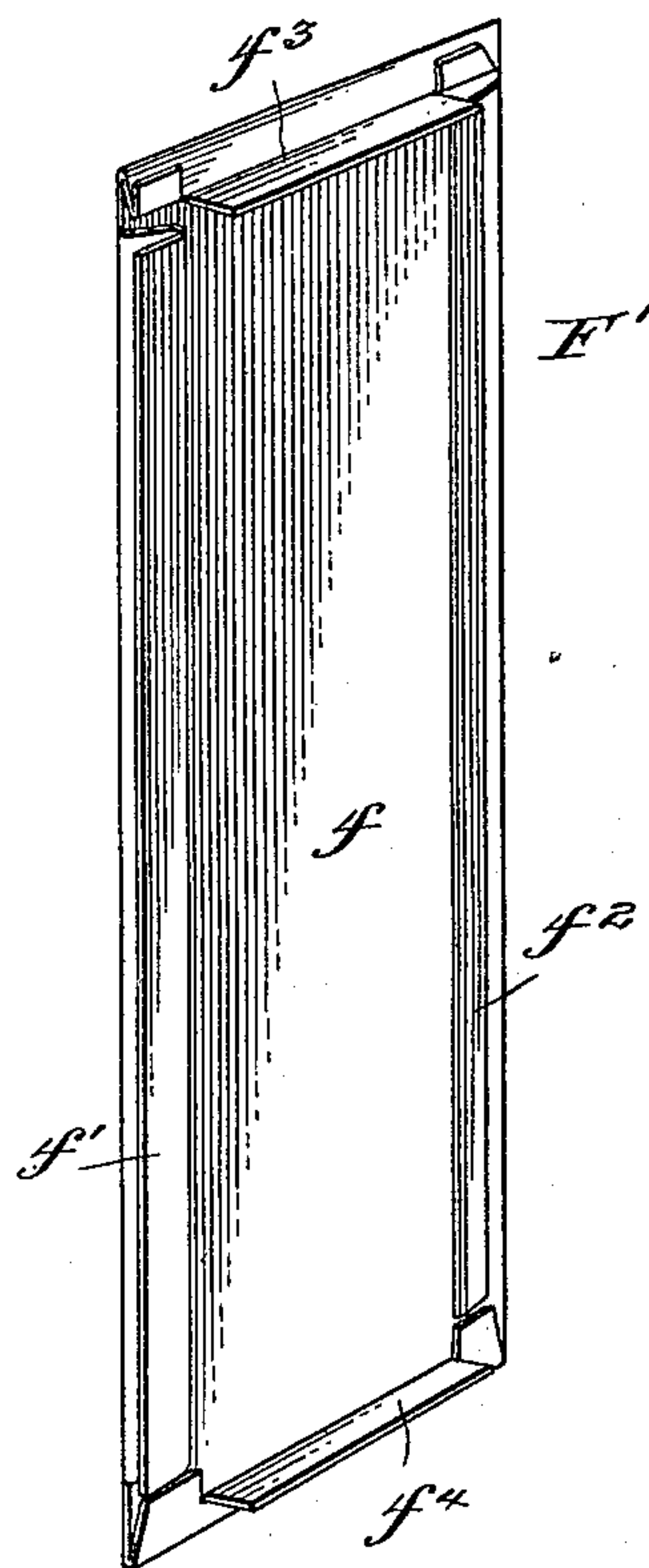


Fig. 7.



Witnesses.

Geo. T. Cross.

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UNITED STATES PATENT OFFICE.

JOHN F. PREUTHUN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
JOSEPH E. BROWN, OF SAME PLACE.

METALLIC WINDOW FRAME AND SASH.

SPECIFICATION forming part of Letters Patent No. 661,922, dated November 13, 1900.

Application filed July 11, 1900. Serial No. 23,186. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. PREUTHUN, a citizen of the United States, and a resident of the city of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Window Frames and Sash, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to certain improvements in window frames and sash of a fire-proof nature; and it consists in the construction and arrangement substantially as herein specified.

The objects of my invention are to provide a metallic window frame and sash so constructed as to render it practically indestructible by heat and to provide a frame and sash which is simple in construction, inexpensive to manufacture, and which may be quickly and easily assembled and placed in position.

In the accompanying drawings, Figure 1 is a vertical sectional elevation of a window frame and sash constructed in accordance with my invention. Fig. 2 is a horizontal sectional view through the pulley-stile or side jamb of the window-frame about on the line 2-2 of Fig. 1. Fig. 3 is a similar view on a slightly-enlarged scale through the side stiles of the sash, illustrating the manner of holding the glass in said sash. Fig. 4 is a horizontal section through the mullion of the sash. Fig. 5 is a detail perspective of a section of the side frame. Fig. 6 is a sectional detail taken through the door of the side frame, and Fig. 7 is a perspective view showing the inner side of the door.

Referring particularly to said drawings, A designates the top frame, which is composed of a thin sheet-metal casing comprising the section *a*, which forms the sides and bottom of said top frame, suitable guide-rails *a'* *a''* being formed on the bottom of said section and a suitable molding formed on the outer side of same. The upper free ends of the section *a* are bent over upon themselves to form U-shaped flanges into which fit the bent-up ends of the top section *b*. The sill B of the frame is also formed of sheet metal bent into the desired shape, as illustrated in Fig. 1 of

the drawings, and is provided with a filling of wood or other suitable material to give it strength and rigidity.

C designates the side frames or pulley-stiles, which are hollow and also formed of thin sheet metal. These side frames C are constructed of a single piece of sheet metal, starting with the flange *c*, formed at the center of the outer side and bent to the desired shape to form the rear face of the sash, the inner jamb-section *c'*, and the front face *c''* and terminating in a U-shaped flange *c'''* at the central portion of the outer side of the sash, as illustrated in Fig. 2 of the drawings. A central partition *d* is provided for dividing the stile C into two separate sash-weight chambers, one end of said partition being bent to form a flange *d*, which bears against and is riveted to the inner face of the jamb-section *c'*, while the other end extends into the groove formed by the U-shaped flange *c'''*, and these parts are riveted together. The guide-strips *e* and *e'* are made in hollow box-like form of sheet metal and are secured to the inner wall of the side frame C by means of screws *e''*. The reinforcing-strips *e'''* are provided back of each of the strips *e* and *e'*, said strips *e'''* being riveted to the frame-section C and having threaded apertures provided therein for the reception of the screws *e''*. The outside guide-strip *e''''* is formed integral with the frame-section C.

On the inner front face *c''* of the frame C, I provide an opening F, by means of which access may be had to the sash-weight chambers. A door or covering F' is provided for closing said opening, consisting of a flat metallic plate *f*, having a deep U-shaped flange *f'* formed on its inner vertical edge and a similarly-shaped flange *f''* formed on its opposite edge, as illustrated in Figs. 6 and 7 of the drawings. At the top and bottom of the door F' are provided the outwardly-projecting flanges *f'''* and *f''''*, which serve as ledges upon which the said door rests when in position. In placing the door F' in position the deep groove formed by the flange *f'* is slid over the edge of the opening F by drawing the door to one side and then sliding or drawing the door in an opposite direction until the groove formed by the flange *f''* fits over the opposite

end of the opening F. The flanges f^3 and f^4 support the door and prevent the vertical movement of the same.

The sash-stiles E are made in hollow form comprising a single sheet of metal commencing with the flange g , which is bent at right angles to the section g' , and then bent up upon itself to form the flange g^2 , thus forming an open space between the jamb and the sash for the sash-weight chains. On the inner face of the stile E, I form a shoulder g^3 , against which the glass h rests, and a short distance to one side of the shoulder g^3 is formed a U-shaped flange g^4 , extending inwardly and in which is fitted a retaining-strip h' , the outer edge h^2 of which is bent over to bear against the glass h . The strip h' is forced into the groove g^4 and securely holds the glass in position against the shoulder g^3 . The free end of the face g^5 of the stile E is bent over the flange g and when clenched together forms a tight joint and is preferably riveted by the rivet g^6 . The glass h is divided in its center and provided with a mullion G, which comprises a metallic plate i , passing between the two panes having a metallic casing i' , which starts at one edge and is bent outwardly after it passes between the two panes to form a flange i^2 on one side and the flange i^3 on its opposite side, leaving a slight space between said flanges and the glass, which is filled with putty, as illustrated in Fig. 4 of the drawings. A cap j , consisting of a strip of sheet metal bent at its center to form a U-shaped flange, fits over the outer edge of the portion i' and has its edges j' bent inwardly to contact with the glass pane on each side of the mullion and on the opposite side to the flanges i^2 i^3 , and a bolt i^4 preferably holds these parts together.

The upper cross-rails L of the sash are formed of a hollow casing constructed substantially in the same manner as the stiles E, with the exception that the U-shaped flanges l are bent within the casing, as illustrated in Fig. 1 of the drawings, and the flanges formed on the edges of the section l^2 are bent inwardly to engage the U-shaped grooves l . The retaining-strip l^3 is formed and operates substantially in the same manner as the side strips h' and is held in position by means of the groove formed by the U-shaped flanges l^4 .

The lower cross-rails M comprise a hollow casing made of two pieces of sheet metal, the main section being bent in the form illustrated in Fig. 1, having a shoulder m formed on its upper side, against which the inner face of the pane bears, and a flange m' bearing against the opposite face of the pane. The free edges of this main section of the casing M are bent over to form U-shaped flanges, which receive the flanges formed on the bottom section and form a tight joint after being compressed together.

The upper rail L of the lower sash is provided with a projecting shoulder, as l^5 , which bears against a similar shoulder m^2 , formed

on the rail M of the upper sash for the purpose of making a tight joint between the two sashes when the same are closed.

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

1. In a metallic window-frame, a hollow metallic side frame comprising a single sheet of metal bent to the desired form having an outer guide-rail formed therein, a U-shaped flange formed on one of the meeting edges of the sash-frame, a perpendicular flange formed on the other meeting edge adapted to engage the U-shaped flange, and a central partition for dividing the frame into sash-weight chambers having one edge clamped between the flanges on the meeting edges of the frame and its other edge provided with a flange adapted to be riveted to the frame, substantially as described.

2. In a metallic window-frame, a hollow metallic side frame comprising a single sheet of metal bent to the desired shape and seamed at its meeting edges, removable guides comprising hollow three-sided sheet-metal strips secured to the jamb-section of the frame, and metallic reinforcing-strips rigidly secured to the jamb of the frame over which the guide-strips fit for affording a hold for the securing-screws and giving rigidity to the guide-strips, substantially as described.

3. In a metallic frame, the combination of a hollow metallic side frame composed of sheet metal bent to the desired shape and seamed at its meeting edges, a central longitudinal partition for dividing the side frames into sash-weight compartments, an opening formed in the front face of said frame to provide means of access to the sash-weight compartments, and a removable door for said opening having U-shaped side flanges adapted to engage the sides of the opening for holding the door in position, substantially as described.

4. The combination of a hollow metallic box-like side frame, a longitudinal partition provided in said frame for a portion of its length, an opening provided on the inside or front face of the side frame, a removable door for said opening, a deep U-shaped flange provided on one side of the door forming a longitudinal groove adapted to engage one edge of the opening, and a groove of a less depth formed on the other side of said door adapted to engage the opposite edge of the door-opening, substantially as described.

5. The combination with a hollow metallic side frame for windows, of an opening, F, provided in the front face of same to provide access to the interior, a removable door, F', for said opening, a U-shaped flange bent in on one edge of the door forming a deep longitudinal groove adapted to engage one edge of the opening, F, a similarly-shaped groove formed on the opposite edge of said door of less depth adapted to engage the other edge of the opening, F, and a flange, f^4 , formed near the bottom of the door to provide a ledge

which bears against the lower edge of the opening, F, for the purpose substantially as described.

5 6. The combination with the side stiles of a window-sash of a mullion for dividing the panes comprising a metal strip passing between the panes, a sheet-metal casing, i' , bent around the same having flanges, i^2 , and i^3 , extending on one side of the panes, and a metal
10 cap, j , clenched around the projecting end opposite the flanges, i^2 , i^3 , said cap having flanges, j' , adapted to bear against the panes, substantially as described.

15 7. A mullion for metallic window-sashes comprising a flat metallic bar, i , extending transversely between the panes of glass, a sheet-metal casing, i' , bent around said bar, i , having flanges, i^2 i^3 , formed by bending the metal upon itself on opposite sides of the bar,
20 i , a cap, j , formed in U shape adapted to em-

brace the end of the mullion on the side opposite the flanges, i^2 , i^3 , and be clenched thereon, and flanges, j' , formed on said cap having bent edge, adapted to bear against the glass, substantially as described.

25 8. In a metallic window-sash, the combination with the sides and top rails, of lower rails, M, comprising hollow box-like sections formed of sheet metal, shoulders m , formed on the upper edges of said rails, against which
30 one side of the glass bears, and projecting flanges, m' , formed in the rail adapted to bear against the glass on the side opposite the shoulder, substantially as described.

In witness whereof I have hereunto set my
hand this 9th day of July, 1900.

JOHN F. PREUTHUN.

Witnesses:

JOSEPH E. BROWN,

JNO. T. CROSS.