

No. 696,110.

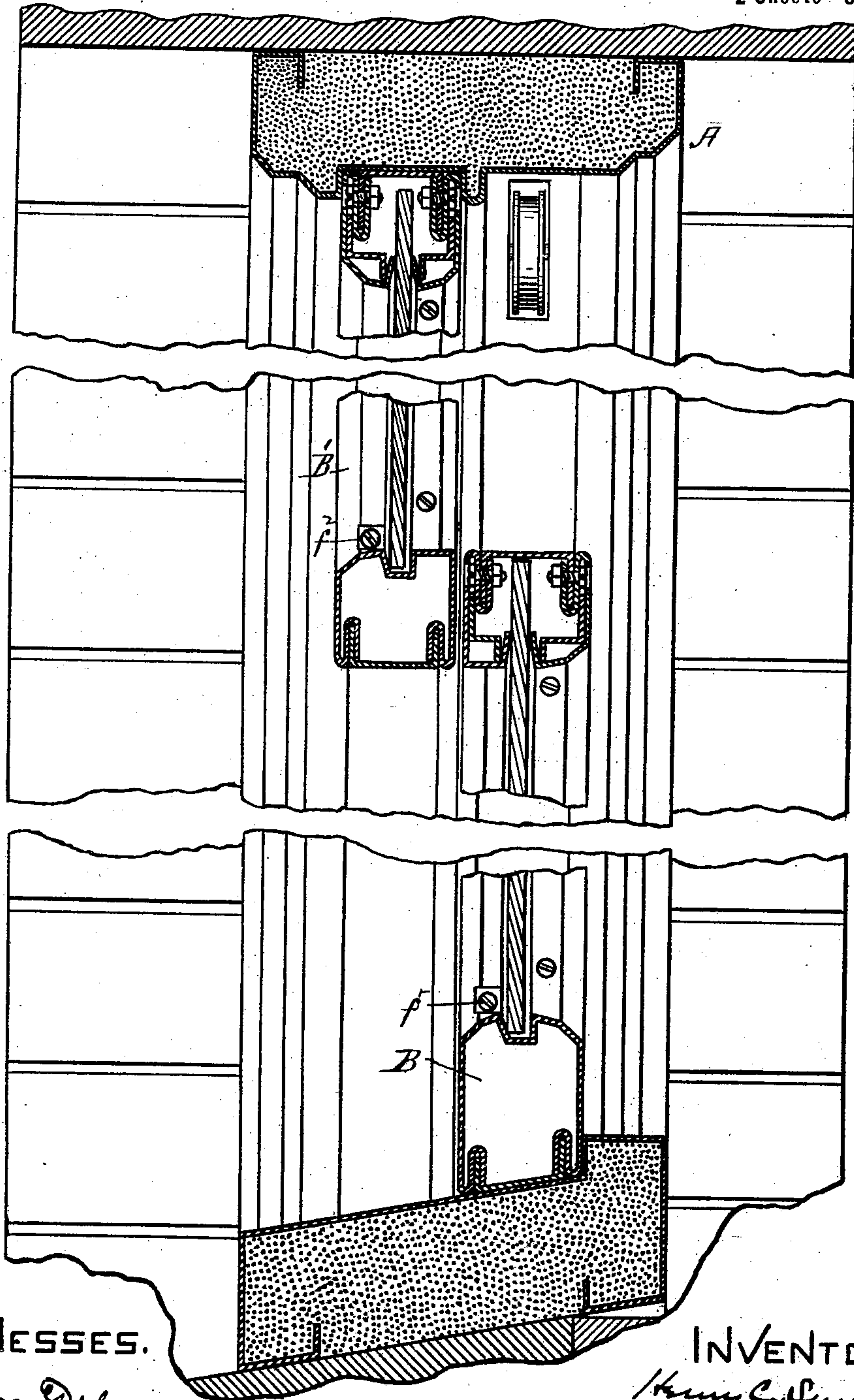
Patented Mar. 25, 1902.

H. C. SMITH.
METAL WINDOW SASH.

(Application filed June 8, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES.

J. E. R. Hayes.
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FIG. I.

INVENTOR.

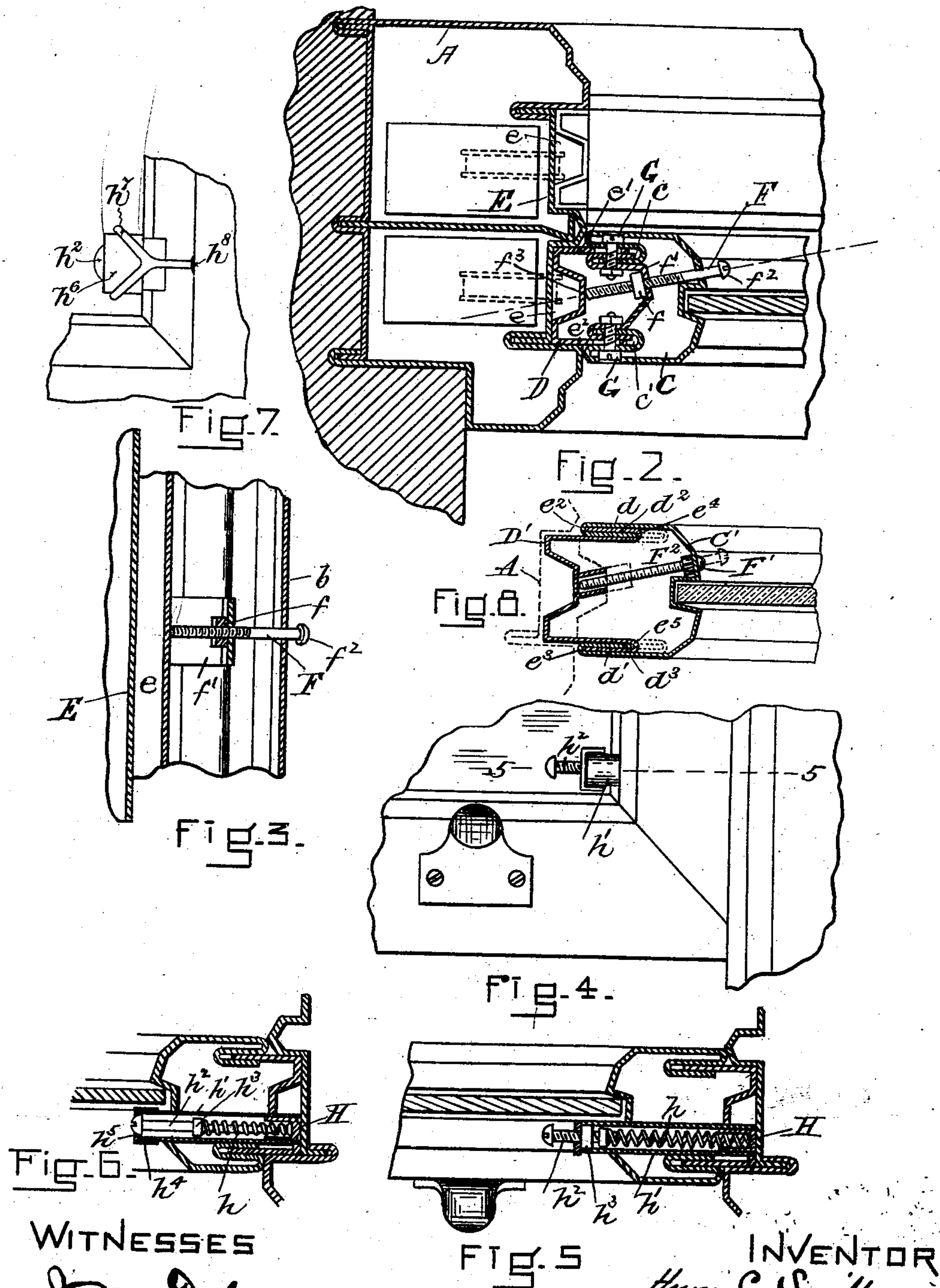
Henry C. Smith
by his attys
Charles Raymond

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2 Sheets—Sheet 2.



UNITED STATES PATENT OFFICE.

HENRY C. SMITH, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR TO SMITH-WARREN COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

METAL WINDOW-SASH.

SPECIFICATION forming part of Letters Patent No. 696,110, dated March 25, 1902.

Application filed June 8, 1901. Serial No. 63,692. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. SMITH, a citizen of the United States, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Metal Window-Sashes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to the improvement in metal window-sashes which consists in making one of the side bars of each sash in two sections, one of which is telescopically held by the other and is adjusted out and in with respect to the other to broaden or narrow the sash by means of adjusting-screws, the object of this part of the invention being to provide a metallic sash which can be fitted about the grooves of a metal window-frame without removing any part of the frame or sash.

The invention further relates to means for holding a sash to any position to which it may be moved in the window-frame and by automatically releasing the sash in case of fire or undue heat in its vicinity, whereby it may then automatically close by gravity.

I will now describe the invention in connection with the drawings, where—

Figure 1 is a view, partly in vertical section and partly in elevation, of a window-frame and lower and upper window-sashes having the features of my invention. Fig. 2 is a view, principally in horizontal section, through one side of the frame and window-sash. Fig. 3 is a view in vertical section on the line 3 3 of Fig. 2. Fig. 4 is a view of the sash holding and releasing device. Fig. 5 is a view in horizontal section on the line 5 5 of Fig. 4. Fig. 6 is a detail sectional view representing a modified form of the sash holding and releasing device, to which reference is hereinafter made. Fig. 7 shows a modified means for holding the screw and spring illustrated in Fig. 6. Fig. 8 illustrates in cross-section a modification of the means for moving one part of the window-sash in relation to the other.

Referring to the drawings, A represents the metallic window-frame, B the lower metallic window-sash, and B' the upper metallic win-

dow-sash. The two sashes are made alike, and a description of one will answer for the description of the other. Each sash has a side rail made up of two sections—the one fixed, the other outwardly movable therefrom to broaden the sash. The fixed section (designated as C) is permanently secured between the top and bottom rails to the sash. It is constructed to receive the extension-section D, which bears a telescopic or slidable relation thereto, so that when section D is moved out the sash may be fitted in the runways of the frame without the removal of any part. The structure is as follows: The side C has in its edge the recesses $c\ c'$, which are relatively deep and which are formed by inward folds in the sheet metal of which the side is made. The extension D is of a width to enter the groove or recess e in the window-frame E and it has the sides $e'\ e''$, which are generally of a single thickness of metal and extend into the recesses $c\ c'$ and are movable horizontally therein to narrow or widen the side of the sash. When moved inward, the side of the sash is so narrow that the sash may be moved into a position opposite the groove e in the window-frame without removing any part of the window-frame, and after it has been so moved the movable section D may be moved outward into the groove e of the frame, and thereby connect the sash with the frame and in a manner to hold it therein.

The section D is made movable toward and from the permanent side C of the sash by means of screws F, two or more of which may be used and each of which is attached to the sash side C by a nut f , attached by a clip or bridge f' to the side. The screw extends through the side, so that its outer end f^2 is exposed, and its inner end bears at f^3 against the movable section D of the sash side. By turning the screw in one direction the movable section of the sash side is moved outward. When the screw is turned in the reverse direction, the movable section of the sash side may be moved toward the fixed section.

In Fig. 8 I have represented a modified form of the permanent side rail and extensible section. The permanent side section,

which I designate as C' , is formed to receive the extension-section D' , bearing a telescopic or slidable relation thereto, as in the previous construction. The slidable section forms an interlocking connection with the permanent side by means of the sheet metal forming the respective sections being folded upon itself along the edges to form relatively deep recesses, the metal edge of the permanent section being inbent to form the recesses $c^2 c^3$ and that of the slidable section being outwardly bent to form the recesses $c^4 c^5$. The recesses $c^2 c^3$ of the permanent section receive the edges $d d'$, respectively, of the movable section, the metal being folded back upon itself, while the recesses $c^4 c^5$ of the movable section receive the edges $d^2 d^3$, respectively, of the permanent section. It will be seen that by this construction I am enabled to make a jointed connection between the two sections, admitting of telescopic movement, the movable section sliding in and out without the possibility of disengagement.

In order that the telescopic side may project a sufficient distance, it is necessary that the depth of recess and the length of entering edge be properly maintained as the same are lengthened or shortened so the telescopic movement of the movable side is correspondingly diminished or increased.

As a means for adjusting and holding the movable section D' , I have shown a screw F' , the same passing through a nut F^2 , held by the frame of the permanent sash instead of by a separate holder or clip, as represented in Fig. 2, and the end of the screw enters into a tube or other opening fixed upon the movable portion of the sash and holding the end of the screw from lateral displacement. As the screw is turned outwardly the movable section is pressed out and held at the end of any outward degree of movement. As the screw is withdrawn the movable section may be pressed back. The movable section is locked to the fixed section in any position to which it is moved by the locking-bolts G , which extend across the recesses $c c'$, and slots in the sides $e' e^2$. The sash is held to the window-frame in any position to which it may be moved by means of the shoe H , pressed against the frame by a spring h , contained in the sleeve h' , carried by the inextensible side of the sash. The shoe H is in the form of a tube, the outer end of which is closed and which extends into the tube or sleeve h' . The spring enters the tubular extension of the shoe and bears against its bottom. Its tension is adjusted by an adjusting-screw h^2 , supported by a nut h^3 , attached to the window-sash. This nut is held in place by solder fusible at a relatively low temperature and is adapted to be released by the melting of the solder in case of fire or undue heat in its vicinity, and when so released the tension-screw is no longer operative and the stress upon the spring h is released, thereby releasing the pressure of the shoe against the window-frame, and the

window thus released will then fall. To make this operative with an upper sash to close it upward, the upper sash must be provided with overbalancing-weights.

In Fig. 6 I have represented a modified form of the sash holding and releasing device shown in Fig. 5. It varies from the structure therein shown in that the screw h^2 is in the cavity of the sleeve h' , which is square, and its head bears against the cap h^4 , which is the equivalent of the nut h^3 for releasing the window, in that the cap is held to the sleeve by fusible solder or a connection. The cap fits over the end of the sleeve and has in it a hole h^5 , by which access to the head of the screw h^2 is obtained for the purposes of adjusting the tension of the spring. The nut h^3 is prevented from turning, because the sleeve is square, but has an endwise movement in the sleeve upon the turning of the screw which always remains stationary. The screw is extended beyond the nut into the coil of the spring and acts as a support for it. Upon the fusing of the solder uniting the cap to the sleeve the tension upon the spring is immediately released, because the screw is no longer held, and the window automatically closes.

In Fig. 7 instead of soldering the cap to the sleeve, as represented in Fig. 6, I have shown a cap h^6 , held in position by a yoke h^7 , soldered to the sash at the point h^8 . This cap retains a screw h^2 , which upon the fusing of the solder becomes released, with the result before described.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. A window-sash having an adjustable side rail, the same consisting of a fixed section permanently secured to the top and bottom rails of the sash, a movable section parallel thereto and horizontally removable therefrom, so increasing or diminishing the width of the sash, and means for obtaining such horizontal adjustment substantially as described.

2. A window-sash having an adjustable side rail, the same consisting of a fixed section permanently secured to the top and bottom rails of the sash, a telescopic section fitting into said permanent section and horizontally movable with relation thereto, so increasing or diminishing the width of the sash, and means for accomplishing such telescopic adjustment substantially as described.

3. A sheet-metal window-sash having an adjustable side rail, the same consisting of a fixed section permanently secured to the top and bottom rails of the sash and being so formed as to provide a relatively deep recess along the outer edge, a movable section fitting into the recess aforesaid and forming with the permanent section a telescopic joint permitting of the movable section being moved in and out without disengagement, and means for obtaining such telescopic adjustment substantially as described.

4. A sheet-metal window-sash having an

adjustable side rail, the same consisting of a fixed section permanently secured to the top and bottom rails of the sash, the sides of which section project outwardly to form a relatively deep recess vertically extending along its outer edge, while the edges are folded to form a locking-joint with the edges of a telescopic section horizontally adjustable from the fixed section of the rail aforesaid, said telescopic section and means for moving the same outward and retaining the same at the end of any degree of outward movement substantially as described.

5. A sheet-metal window-sash having an adjustable side rail, the same consisting of a fixed section permanently secured to the top and bottom rails of the sash and having the longitudinal recesses c, c' formed in its edge, the movable section D having sides e', e^2 to enter said recesses in which they are horizontally movable, means such as the bolt F attached to the fixed section of the sash side and bearing against the movable section for

moving the same outward, and means like bolts for locking the movable section of the sash side to the fixed section when in its adjusted position.

6. A sheet-metal window-sash having an adjustable side rail, the same consisting of a fixed section permanently secured to the top and bottom rails of the sash and having its edges turned to enter and receive the turned edges of and so form an interlocking connection with a section telescopically movable from the fixed section aforesaid, said telescopic section horizontally movable within the limits of said locking-joint, and means like the bolt F' screwing through the reinforced edge of the fixed section and bearing against the movable section for adjusting and holding the same at any point within the range of its adjustment.

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Witnesses:

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J. M. DOLAN.