

No. 649,081.

Patented May 8, 1900.

H. C. SMITH.
WINDOW.

(Application filed Sept. 20, 1899.)

(No Model.)

2 Sheets—Sheet 2.

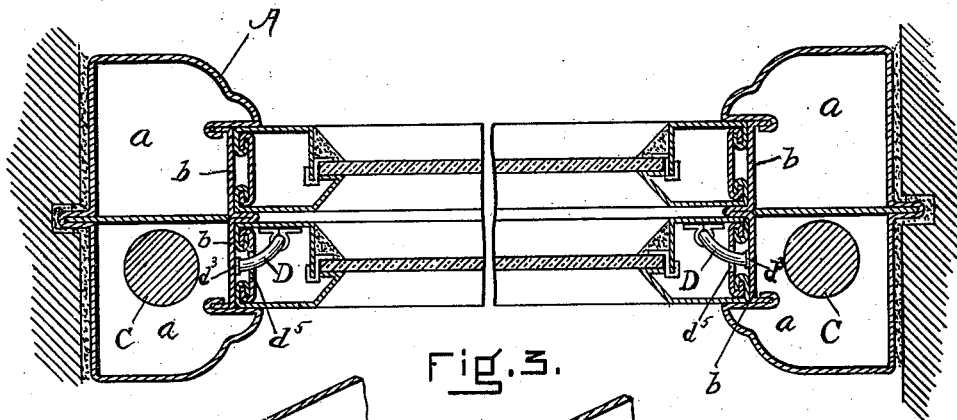


Fig. 3.

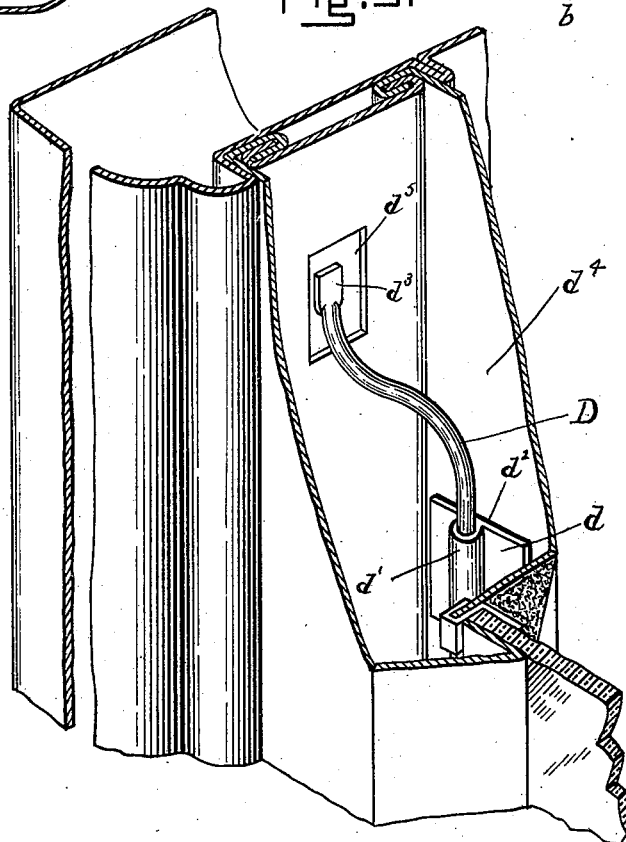


Fig. 4.

WITNESSES

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WINDOW.

SPECIFICATION forming part of Letters Patent No. 649,081, dated May 8, 1900.

Application filed September 20, 1899. Serial No. 731,061. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. SMITH, a citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Windows, 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 means whereby windows may be hung by cords and weights, to be opened and closed in the usual manner, and whereby in case of a fire they may automatically close. It is applicable to ordinary wooden sashes and to metallic window-sashes. I have represented it in the drawings as applied to the latter, as the invention is more appropriate therewith.

The invention consists in combining with the sash or sashes the hanging or window cords and weights, which, unlike the usual weights, do not entirely balance the weight of the sash, but are made heavier or lighter than the sash in order that they may serve to close the window when unrestrained. They approximate, however, the weight of the sash, and to make them operative in sustaining the sash in an opened position restraining springs or devices are also used and interposed between the sash and the window-frame to cause friction between the two, this friction, added to the sash-weights or sash, being sufficient to cause the weights to exactly balance the weight of the sash. These frictional devices or springs are attached to the sash or the window-frame by solder which is fusible at a relatively-low temperature, so that in case of heat arising from a fire either inside or outside the building the solder is fused, the spring or frictional devices released, and the weights then made to overbalance the sash, or vice versa, and operate to automatically close it or permit it to close.

In the drawings I have represented the employment of springs attached to the window-sash by clips soldered by the fusible solder to the window-sash, and the springs are moved with the sash and are arranged to bear against the side of the window-frame between the stop-heads.

Referring to the drawings, Figure 1 is a view,

partly in vertical section and partly in elevation, of a window having two window-sashes equipped with my invention and showing portions of the two sashes and also portions of the window-casing. The view is taken upon the dotted line 1 1 of Fig. 2. Fig. 2 is a view in cross vertical section upon the line 2 2 of Fig. 1. Fig. 3 is a view in horizontal section upon the dotted line, 3 3 of Fig. 1. Fig. 4 is a detail view in perspective, enlarged, to represent one of the retarding-springs, the manner of its attachment to the window-sash, and the relation of its bearing end to the window-casing.

Referring to the drawings, A is a window-casing. It is represented in the drawings as made of sheet metal and as having the runways or pockets *a* for the window-weights. These pockets are arranged in the casing on each side of the sashes and in substantially their usual place with respect to them.

B represents the lower window-sash, and B' the upper window-sash. They have metal frames and slide in the casing. The lower sash B is connected with its operating-weights C (one only of which is shown) by connecting-cords *c*, one being shown, and which may be of metal or fibrous material. The cords pass over pulleys *c'* near the top of the window-casing (one shown) to the weights. The upper sash B' is similarly connected by cords *c''*, passing over pulleys *c''*, with the weights C'. The weights C are less in weight than the weight of the lower sash B and do not serve alone to hold it in a raised or open position. They, however, very nearly balance the weight of the sash. The weights C', attached to the upper sash B', are heavier than the sash and serve to close it and hold it closed when unrestrained.

D is the compensating frictional device or spring, and preferably each sash is provided with two, one upon each side, to bear against the window-casing; but one only need be employed. Upon the lower sash B they act with the weights C to make up the difference in weight between them and the weight of the sash. With the upper sash B' they act with the sash against the weights C' to resist the tendency of said weights to close the sash. Each spring or frictional device is attached to its sash by a clip *d*. (See Fig. 4.) This

clip embraces rigidly or securely the shank of the spring by the part d' , which forms a sleeve about it, and the clip is secured to the sash-frame by fusible solder d^2 , interposed
 5 between it and the sash-frame. The bearing end d^3 of the spring is made flat and relatively wide and bears against the runway of the casing with any degree of stress, the bearing-spring providing such stress in any desired way.

For convenience I have represented the springs as largely contained in the cavities d^4 of the side sections of the sash and as attached to the inner surface thereof and as extending outward to bear against the window-casing through the hole d^5 , formed in the sash-frame. I do not wish to be understood, however, as confining myself to this form of compensating spring or restraining device or to
 15 the method of attachment shown or to its use upon the window-sash as distinguished from its use upon the window-casing. It may be applied to one sash only.

The advantage of the invention arises from the fact that the window-sash as commonly used is elevated and shut or opened and closed in the ordinary manner of balanced window-sashes, the sashes remaining in the position to which they are moved, requiring no buttons or additional supports for maintaining them in an open or closed position. In case of fire in or about the window the operation is immediately changed, and the sashes then are automatically closed when the heat caused
 25 by the fire is sufficient to melt or fuse the connections between the compensating device or spring and their holders, the raised lower sash then automatically closing by falling, because its weight is superior to that of its sustaining-weights, and the lowered upper sash automatically closing, because its sustaining-weights are superior in weight to that of the sash.

Of course each sash may have one weight instead of two, if desired.

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

1. In a window the combination of a window-casing, a window-sash arranged to slide therein, one or more weights within the cas-

ing connected with the sash by a flexible connection or connections extending over pulleys, the sash and the weight or weights being out of balance with respect to each other
 55 and a compensating device interposed between the window-sash and window-casing united to one of them by means destructible at a relatively-low temperature caused by the presence of fire in the vicinity of the window. 60

2. The combination of a lower window-sash, a window-casing in which the sash is movable, a weight or weights contained in said casing lighter than the weight of the sash, a flexible connection or connections attaching
 65 the sash to the weight or weights and a brake or brakes interposed between the sash and the window-casing to combine with the weight or weights in maintaining the sash in an open position, which brake is held in place by
 70 means destructible at a relatively-low temperature caused by a fire in the vicinity of the window.

3. The combination of an upper window-sash, a window-casing, a weight or weights in the casing heavier than the weight of the sash, a flexible connection or connections attaching the sash to the weight or weights and one or more brakes interposed between the sash and the casing to assist the sash in balancing
 80 the weight or weights whereby it may remain in the position to which it may be moved, the said brake or brakes being held by means destructible at a relatively-low temperature caused by fire in the vicinity of the window, 85 and the release of which permits the weight to automatically lift the window.

4. The combination of a window-sash, a window-casing, a weight contained in said window-casing connected with the sash to partially balance the same, a spring largely contained in a cavity in the window-sash, a spring-holding clip for holding said spring, fusible solder connecting said clip to the window-sash, the said sash having a hole through
 90 which the bearing end of the spring extends to bear against the window-casing.

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Witnesses:

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