

No. 731,636.

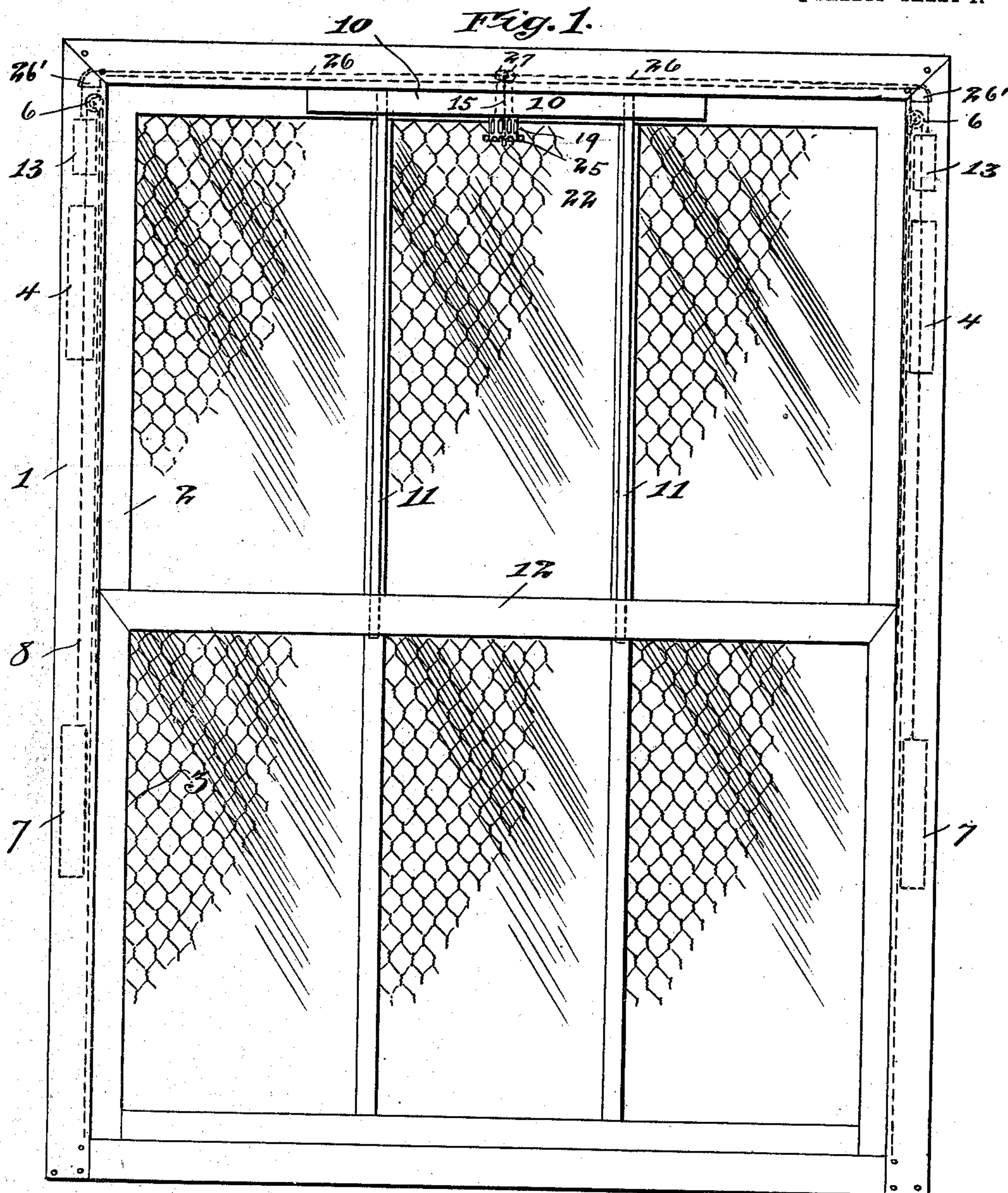
PATENTED JUNE 23, 1903.

F. VOIGTMANN & S. H. POMEROY.  
AUTOMATIC FIREPROOF WINDOW.

APPLICATION FILED MAR. 10, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



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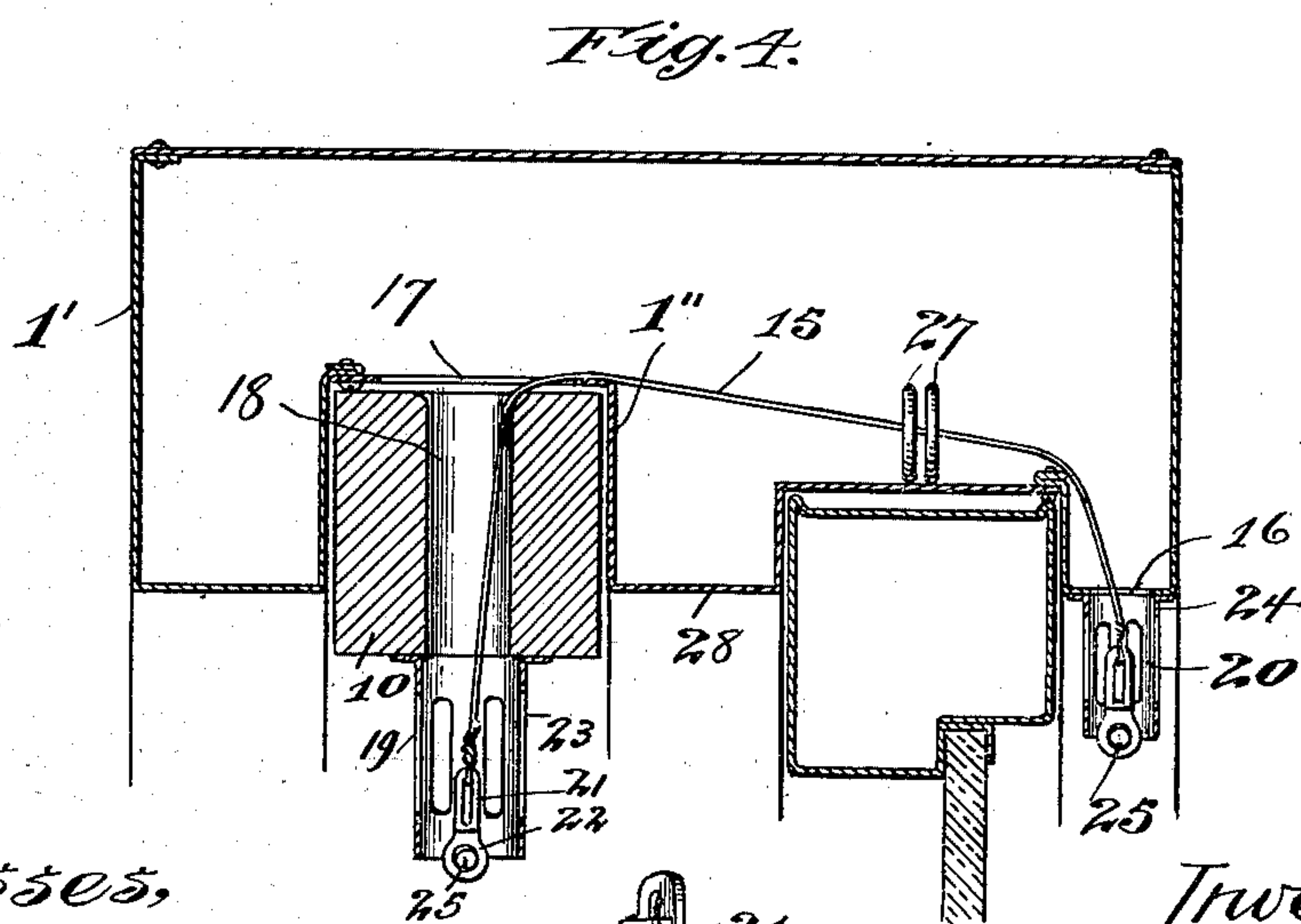
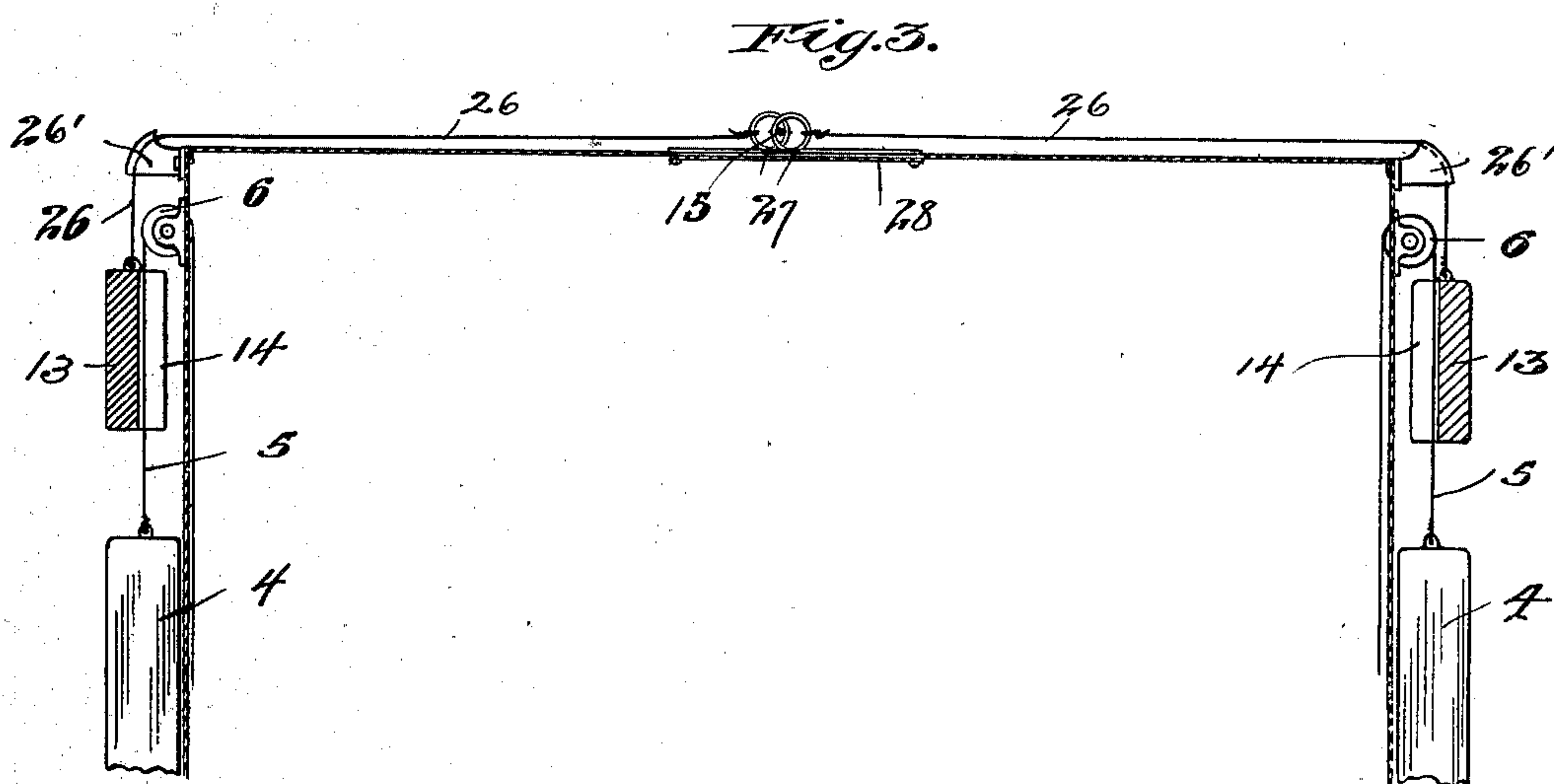
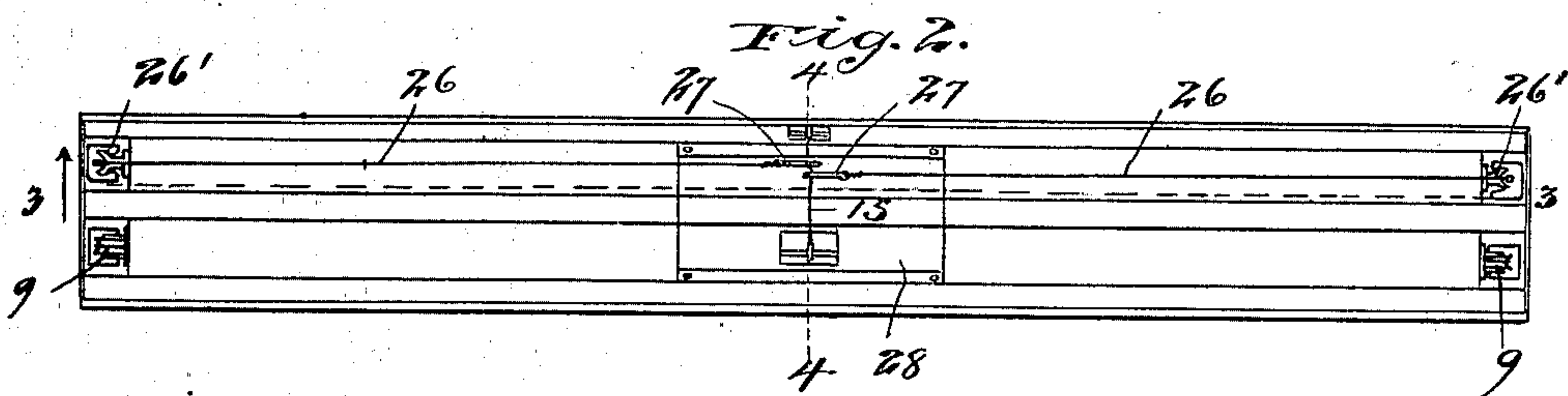
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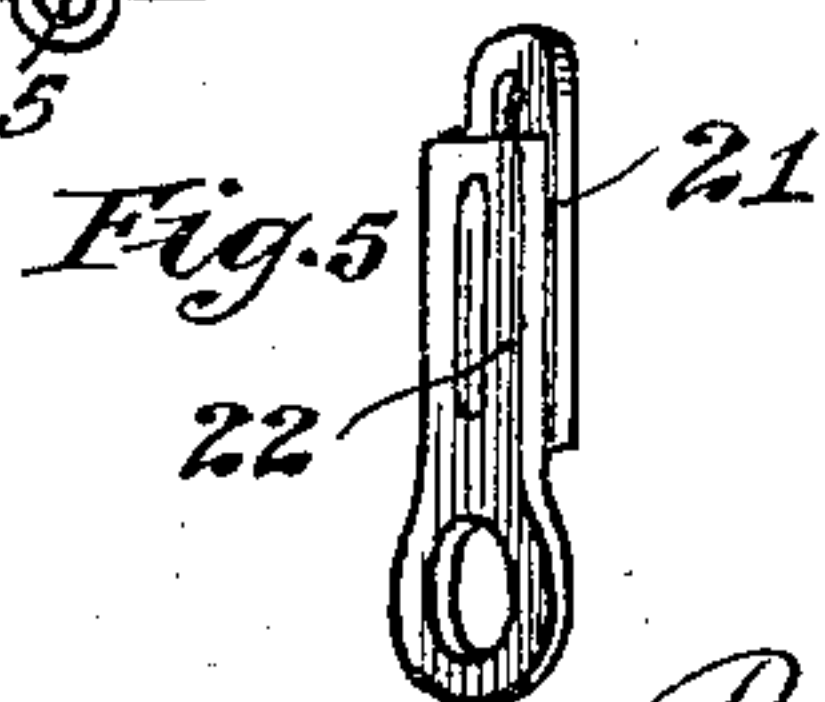
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NO MODEL.

2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

FRANK VOIGTMANN AND SILAS H. POMEROY, OF CHICAGO, ILLINOIS.

## AUTOMATIC FIREPROOF WINDOW.

SPECIFICATION forming part of Letters Patent No. 731,636, dated June 23, 1903.

Application filed March 10, 1902. Serial No. 97,529. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK VOIGTMANN and SILAS H. POMEROY, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Fireproof Windows, of which the following is a specification.

This invention relates to improvements in automatic fireproof windows, and refers more specifically to an improved construction and arrangement wherein vertically-sliding sashes are placed under the control of automatic closing mechanism adapted to be released by a destructible retaining device.

Among the salient objects of the present invention are to provide a construction and arrangement in which vertically-sliding sashes are adapted to be closed by weights normally held suspended by destructible retaining devices; to provide a construction and arrangement of the character referred to in which the weights are so located as to insure the most effective action upon the respective sashes to close the latter when released and in which the destructible retaining device or devices is or are so located as to be best exposed to the heat of an accidental fire; to provide in a construction of the character referred to an arrangement which does not interfere in any wise with the normal opening and closing of the window; to provide a construction and arrangement in which two destructible or fusible retaining devices are employed, one located on the outside and the other on the inside of the window and in which the release of either effects the closing of the sash; to provide a construction in which both the upper and lower sashes are counterbalanced, so that the arrangement is well adapted for abnormally-large windows and are nevertheless adapted to be certainly and effectively closed upon the release of the automatic closing devices, and in general to provide a simple, practical, and efficient arrangement of the character referred to.

To the above ends the invention consists in the matters hereinafter described, and more particularly pointed out in the appended claims, and the same will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is an inside elevation or face view

of a window and the casing thereof embodying a preferred form of the invention. Fig. 2 is a top plan view of the window with the outer or upper wall of the casing removed. Fig. 3 is a view, partly in transverse section, taken approximately on line 3 3 of Fig. 2 and looking in the direction of the arrows. Fig. 4 is a cross-sectional view taken through the upper horizontal window-casing member on line 4 4 of Fig. 2. Fig. 5 is a detail of one of the fusible links.

Referring to said drawings, 1 designates as a whole the window-casing, which may be of any suitable construction, being desirably made of sheet metal, as usual in fireproof structures; and 2 and 3 respectively designate the upper and lower sash members mounted to slide vertically in the window-casing in a usual manner.

Each sash is provided with suitable counterbalance-weights, the upper sash being connected with the weights indicated at 4 by means of cables 5, trained over the pulleys 6, (see Fig. 3,) while the lower sash member is similarly connected with the weights designated at 7 by means of cables 8, trained over the pulleys 9. In practice the sashes are so counterbalanced that in normal operation they will remain in equilibrium at any point to which they are adjusted.

In order to overweight and automatically close the lower sash, a weight, preferably taking the form of a bar, as indicated at 10, is supported vertically above the said lower sash and against or adjacent to the lower side of the top casing member, as best indicated in Fig. 4, suitable guides being provided to direct said weight positively into position upon the upper edge of the sash when released. In the preferred construction shown these guides take the form of a pair of parallel rods 11, seated at their upper ends in the top window-casing and extending vertically downward through guide-apertures in the top rail 12 of the lower sash, as indicated clearly in Fig. 1. Desirably the weight 10 is apertured and mounted to slide upon the rods 11.

In order to overweight the upper sash 2, a pair of supplemental weights is provided, one suspended at each side of the window-casing and normally held at points just above the upward limits of movement of the weights 4



and vertically above the latter, as indicated at 13. The weights 13 are designed when released to fall upon the weights 4, pertaining to the same sash, so as to cooperate with the latter in forcing the upper sash into closed position. To this end said supplemental weights 13 are longitudinally slotted or apertured, as best indicated in Fig. 3 at 14, to receive the suspending cables 5 of the main weights 4, so that the latter serve as guides to insure the proper engagement of the supplemental weights with the main weights. It will be understood that when the window-casing is installed in position the side wall of the aperture within which the window is seated will serve to confine the supplemental weight from tilting over out of engagement with the main weight, notwithstanding the engagement of the supplemental weights with the cables 5 is a slotted one.

Describing now the destructible retaining devices whereby the several overweights are normally held suspended and released by heat, and referring more particularly to Figs. 2 and 4, 15 designates a wire or flexible cable arranged to extend transversely through the top window-casing member and to overlie the lower wall of the latter, one end of said cable being extended downwardly through a suitable aperture 16 at the rear lower side of the casing and the other end being similarly arranged to extend downwardly through a suitable aperture 17, vertically above or in register with the weight 10 and through a corresponding aperture or passage 18, formed through said weight. The protruding ends of the wire or cable 15 are each suitably engaged with a destructible or fusible retaining device, severally designated as a whole 19 and 20. The specific form of fusible device employed in the present instance is a common one and comprises a pair of plate-like links 21 and 22, soldered face to face by means of a readily-fusible solder. The respective ends of the wire or cable 15 are each connected with one member of each of the two-part fusible links, while the other member of each link is permanently attached to a suitable support. In the present instance and as a preferable construction the fusible links are inclosed in skeleton housings 23 and 24, consisting of open-ended tube-like members, to which the lower ends of the links are made fast by means of cross-bars 25, extending therethrough and suitably engaged with the housings, the housing member 23 being mounted directly upon the lower side of the weight 10 concentric with the aperture 13 thereof, while the housing 24 is mounted upon the lower face of the window-casing concentric with the aperture 16 in the latter.

The supplemental weights 13 are suspended by means of cables 26, which extend upwardly around guides 26', located at the upper angles of the window-frame, and thence horizontally across and through the interior of the top member of the window-frame to the center of

the latter, at which points they are respectively provided with rings or eyes 27, through which the retaining-cable 15 is extended, as shown clearly in Figs. 2 and 4. The guides 26', over which the cables 26 are trained, are Y-shaped and open, so that the rings 27 will pass freely by the same without danger of being arrested, and it may also be noted in this connection that the size of the rings or eyes 27 is such that the members 21 of the fusible links, with which the ends of the cable 15 are connected, will run or slip through the rings freely and without danger of being caught.

In the preferred construction shown herein the top member 1' of the window-casing is provided in its under face with a recess 1'' to partially receive the overweight 10, so that the latter may be supported in a position entirely above the glazing of the upper sash. In order that the retaining devices may be replaced or readjusted after a fire has occurred, and in order also that they may be originally installed after the window-casing has been put in place, if desired, we provide a removable plate or section 28 in the central part of the top window-casing member 1', through which the connecting-cable 15 may be adjusted to position and the rings 27 of the suspending cables 26 connected therewith.

The operation of the device constructed and arranged as described is probably entirely obvious from the foregoing description, but may be briefly described as follows: Normally either one of the sashes may be adjusted into open position at will, the counterbalancing-weights of the respective sashes holding the latter in equilibrium, or substantially so, in any position of adjustment. Should it happen that either or both of the sashes be open at the time a fire occurs in the vicinity of the window, either out or inside of the latter, that one of the said fusible links exposed to the greatest heat will be fused, thereby releasing both sets of overweights simultaneously. Whichever one of the ends of the connecting-cable happens to be released will be instantly drawn upwardly by the tension of the oppositely-pulling cables attached to the rings 27, the latter being drawn over the released end of the cable. The overweights 13 being thus released will drop downwardly into engagement with the counterbalancing-weights 4, and thus overweight the upper sash and raise the latter into closed position. It will further be observed that the automatic closing of the sash by the overweights will be equally certain whether one or both be open at the time the fire occurs. By reason of the provision of the removable plate 28 the several weights, their cables, and the connecting-cable may be replaced and readjusted into their normal condition after a fire has occurred without the removal of the window-casing or the sash, for while it is possible for the ropes 26 and the rings 27 to pass over the guide-pulleys 26'



and fall into the weight-chamber this chamber so snugly fits the weights that the rings would rest upon the top of the weights 13, respectively, and could be reached by means  
5 of any sort of grappling instrument—as, for example, a magnet attached to a cord.

It will be seen from the foregoing description that the normal operation of the sash in no wise affects the automatic closing mechanism and cannot disarrange the latter or  
10 render it less liable to operate properly in case of fire. In fact, there is absolutely no movement of any of the parts constituting the automatic closing mechanism during the normal operation of the sash, so that if the parts  
15 be made of suitable non-corrodible and durable material the mechanism will remain in perfect condition for instant operation for years or indefinitely. This is obviously a feature of prime importance.

It is further to be noted that the location of the fusible links is particularly favorable to their exposure to the heat, either on the outside or inside of the building, since in case  
25 the upper sash be slightly lowered the draft through the opening thus formed will carry the heat directly into the vicinity of the fusible links, whether the draft be outwardly or inwardly. Furthermore, the fusible links are  
30 so exposed that they may be dusted off conveniently from time to time, and thus maintained in perfect condition to fuse readily.

While we have herein shown and described a highly-efficient and practical embodiment  
35 of the invention, yet the details of construction and arrangement may obviously be modified in numerous respects without in any sense departing from the spirit of the invention, and we do not, therefore, limit ourselves to  
40 these details of construction except to the extent that they are made the subject of specific claims.

We claim as our invention—

1. In a fireproof window, the combination  
45 with the window-casing and a sash arranged to slide vertically therein, of a pair of destructible retaining devices located one on the outside and one on the inside of the window, a connection extending between said retaining  
50 devices, and automatic closing mechanism operatively connected with said connection and operable to close the sash when released.

2. In a fireproof window, the combination with the window-casing and a sash arranged  
55 to slide vertically therein, of a pair of fusible links secured one upon the outside and the other upon the inside of the window-casing at the upper end of the latter, a connection extending between said links forming  
60 part of a suspension mechanism, and automatic closing mechanism operatively connected with said connecting device and said sash, as and for the purpose set forth.

3. In a fireproof window, the combination

with the window-casing, of upper and lower  
65 sashes and counterbalancing-weights connected therewith, whereby they are normally in substantial equilibrium in their various positions of adjustment, separate independently-acting overbalancing-weights arranged  
70 to act upon respective sashes when released, and a destructible retaining device common to both sets of overweights and normally holding the latter suspended.

4. In a window, the combination with an  
75 automatically-closing fireproof sash, of two destructible retaining devices located respectively outside of and inside of the sash, a connecting device extending between and held by said retaining devices, and an operative connection between said connecting device and the automatic closing mechanism,  
80 for the purpose set forth.

5. In a fireproof window, the combination with the window-casing and a vertically-sliding  
85 sash therein, of a pair of fusible links mounted at the upper side of the window-opening, and respectively inside and outside of the sash, a cable connected with and extending between said fusible links, an overbalancing-weight arranged to act upon said  
90 sash and a supporting device holding said weight suspended and operatively connected with the cable extending between the fusible links.

6. In a fireproof window, the combination with the window-casing and the upper and lower counterbalancing-sashes arranged to slide vertically therein, of automatic closing  
100 mechanism comprising an overbalancing-weight suspended vertically above the lower sash adjacent to the lower side of the top casing member, a pair of overweights arranged one at each side of the window-casing vertically above the counterbalancing-weights  
105 of the upper sash and means for suspending all of said overweights, comprising a pair of fusible links one upon said overweight which is suspended above the lower sash, and the other upon the upper part of the window-casing and at that side of the sash remote  
110 from said last-mentioned overweight, a connecting-cable connected with the fusible links, and extending over a fixed part of the top casing and a pair of supporting-cables  
115 connected with the respective side overweights, extending thence upwardly over suitable guides and to the connecting-cable extending between the links and severally provided with rings through which said connecting-cable is extended, substantially as  
120 described.

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