R. E. BYRNE.

FIREPROOF WINDOW.

APPLICATION FILED MAR 18, 1908.

913,197. Patented Feb. 23, 1909.

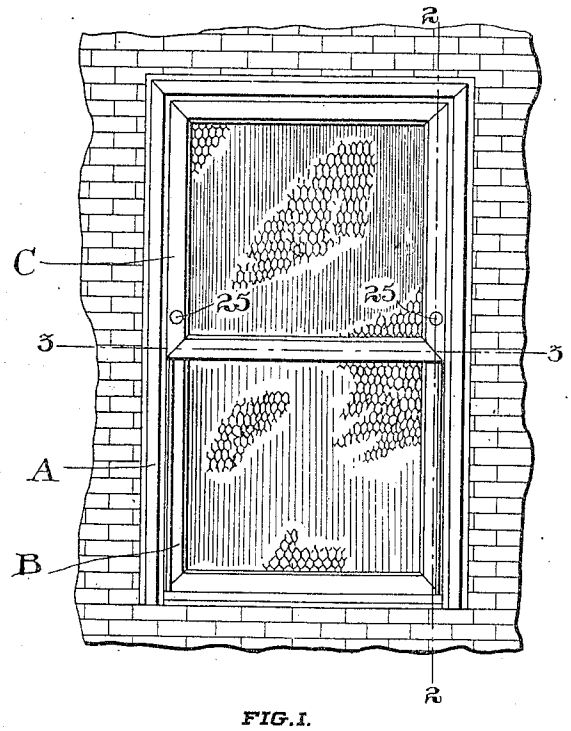


FIG. 1.

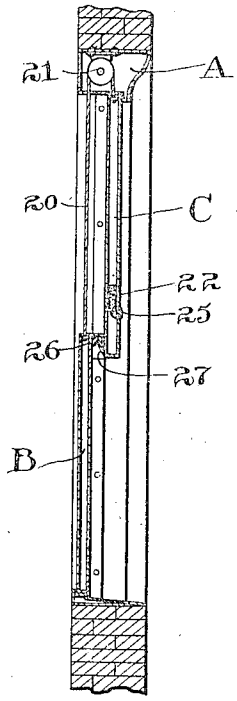


FIG. 2.

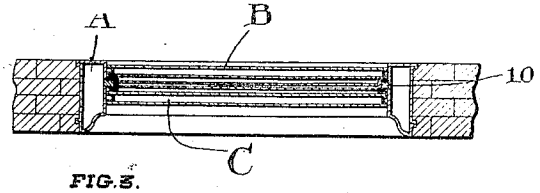


FIG. 3.

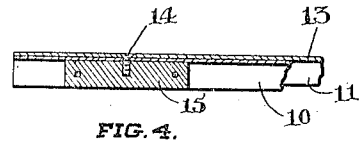


FIG. 4.

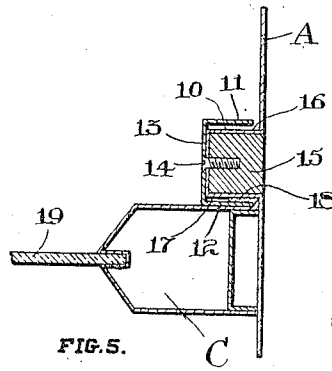


FIG. 5.

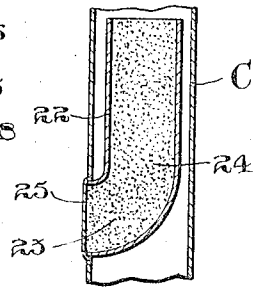


FIG. 6.

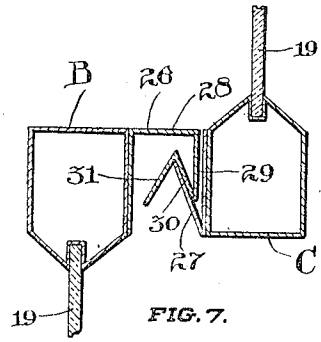


FIG. 7.

WITNESSES,

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ATT'Y.

UNITED STATES PATENT OFFICE.

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FIREPROOF WINDOW.

No. 913,197. Specification of Letters Patent. Patented Feb. 23, 1909.

Application filed March 18, 1908. Serial No. 421,835.

To all whom it may concern:

Be it known that I, RODERICK EDWARD BYRNE, of the city of Ottawa, in the county of Carleton, Province of Ontario, Canada, have invented certain new and useful Improvements in Fireproof Windows, of which the following is a specification.

My invention relates to improvements in fireproof windows and the objects of my invention are to provide simple and effective means for instantaneously closing the window in case of fire, and to form a better joint between the two sashes and between the sash and frame, thereby preventing the entrance of wind or rain through the window, and rendering the building more effectively fireproof.

Further objects are to render it practically impossible to tamper with the fusible means which operate to release the window or counterbalance of the sash in the case of fire, and such means as can not be removed or replaced by non-fusible means without detection.

A considerable objection to various forms of exteriorly located fuses or fusible links is that often through carelessness or thoughtlessness they become replaced by non-fusible wires, nails and like fastening means and consequently when the fire occurs the window fails to operate. The disadvantage of inclosing the fuse within the frame or other casing is that it is not then sensitive enough to the heat and it is always more or less uncertain whether or not the fuse is in working condition. In the present invention these defects are overcome by an improved counterbalance in the form of a receptacle filled with loose material having a discharge aperture on the exterior of the window closed by a fusible plug which, when fused, permits the loose material to flow out of the receptacle, whereby the unbalanced window closes immediately.

The specific construction of the invention and the various improvements in detail thereof, are fully set forth and described in the following specification and drawings.

In the drawings, Figure 1 is an elevation of the front of the window. Fig. 2 is a sectional view along the line 2—2, Fig. 1. Fig. 3 is a section along the line 3—3, Fig. 1. Fig. 4 is an enlarged sectional detail through a flange which extends between the two sashes. Fig. 5 is an enlarged sectional detail showing the connection between one of the sashes and the flange on the window frame. Fig. 6 is an enlarged sectional detail of the weight or counterbalance. Fig. 7 is an enlarged sectional detail of the connection between the two sashes.

In the drawings, like characters of reference indicate corresponding parts in each figure.

Referring to the drawings, A represents the window frame of any suitable or desirable construction, preferably as shown of hollow sheet metal.

B and C represent the lower and upper sashes respectively, which operate on each side of the central flange 10 provided on the frame, which flange, in the embodiment illustrated, is substantially U-shaped in cross-section and pressed in the frame itself. The connection between the flange and each sash is formed by interlocked flanges so as to effectively exclude the wind and water. In the embodiment illustrated, the flanges 11 and 12 adjacent to the sides of the flange 10 are formed by the sides of a plate 13 U-shaped in cross-section, and firmly secured to the flange 10 as by the screws 14 engaging blocks 15 riveted to the flanges. It is desirable that separate plates should be provided for the upper and lower parts of the window, that in the lower part being removable, permitting the sash to be easily removed for cleaning or other purposes. The flanges 11 and 12 extend parallel to the sides 16 and 17 of the flange 10 and are engaged on their inner sides by flanges 18 formed on the sides of the sashes, which sashes, as shown, are formed of hollow sheet metal and preferably provided with panes 19 of fire-proof glass.

The two sashes are connected together in the usual manner by chains or wire cords 20, which extend over pulleys 21 in the top of the frame. The upper frame is made less in weight than the lower and provided with counterbalancing weights, which enables the sashes to normally remain in any desired relative position. When the counterbalancing weights are removed, however, the windows are adapted to at once close on account of the heavier weight of the lower sash. Fusible means are provided for releasing the counterbalancing weight in the case of fire and the improved means which I have devised for accomplishing this consist of receptacles 22 located within the upper sash C and having openings 23 on the

exterior thereof. These receptacles are filled with loose material 24 such as dry sand or shot, and the opening 23 is normally closed by a fusible plug 25 adapted to melt in case of fire and permit the loose material to flow out and thereby unbalance the window. It will be seen that by these means the counterbalancing weight is located wholly within the sash, while the fusible means for releasing the same is on the exterior thereof and if any attempt is made to tamper with the fusible plug, the contents of the receptacle will be discharged causing the window to remain closed.

It is evident, that if desired the loose material 24 might be simply located within the hollow sash C, the essential feature being that it is normally retained by fusible means, which are externally exposed.

The juncture between the sashes B and C is formed by interlocked flanges 26 and 27, the flange 26 comprising a portion 28 externally horizontal, a portion 29 adjacent thereto extending downwardly, a portion 30 extending upwardly at an angle and a portion 31 extending downwardly at an angle, the two portions 30 and 31 being at an angle to each other and the portion 30 being engaged by the flange 27 which is inclined at a suitable angle for that purpose. By this means a double contact is established on the interlocking flanges, that is to say, the edge of the flange 27 abuts the portion 31 of the flange 26, while the portion 29 on the said flange abuts the flange 27. It will also be seen that as the flanges 26 and 27 have their outer edges free and disconnected from the window, they may yield slightly when they meet and thereby form a tighter joint.

As many changes can be made in the above construction and many apparently widely different embodiments of my invention can be made without departing from the spirit thereof, I intend that all matter contained in the above description or shown in the accompanying drawings, should be interpreted as illustrative and not in a limiting sense. It is therefore, to be understood that the language used in the following claims is intended to cover all the generic and specific features of the invention, herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

What I claim as my invention is:—

1. In a window, the combination with a hollow sash, of a receptacle having separate walls from those of the sash, and having a discharge opening through the sash, freely flowing material in the receptacle, and a fusible plug closing the discharge opening.

2. In a fire proof window, the combination with a hollow sheet metal sash, of a vertically extending tubular receptacle therein having separate walls therefrom, and having a horizontally-turned end with a discharge opening through the sash, freely flowing material within the receptacle and a fusible plug closing the discharge opening.

3. In a fire-proof window, the combination with the two sashes, of interlocking flanges on each, one flange being formed with an inner portion extending outwardly, a downwardly extending portion adjacent thereto, an upwardly inclined portion adjacent to the downwardly extending portion and a downwardly inclined portion adjacent to the upwardly inclined portion, the opposite flange being adapted to extend between the two said inclined portions the said flanges being connected at their inner edges alone to the window, whereby the outer edges may be free and the flanges themselves may yield slightly with respect to each other.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

RODERICK EDWARD BYRNE.

Witnesses:

RUSSEL S. SMART,

MARY C. LYON.