No. 871,229. PATENTED NOV. 19, 1907.

E. H. LUNKEN & C. M. CONKLIN.

FIREPROOF WINDOW CONSTRUCTION.

APPLICATION FILED MAR. 14, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

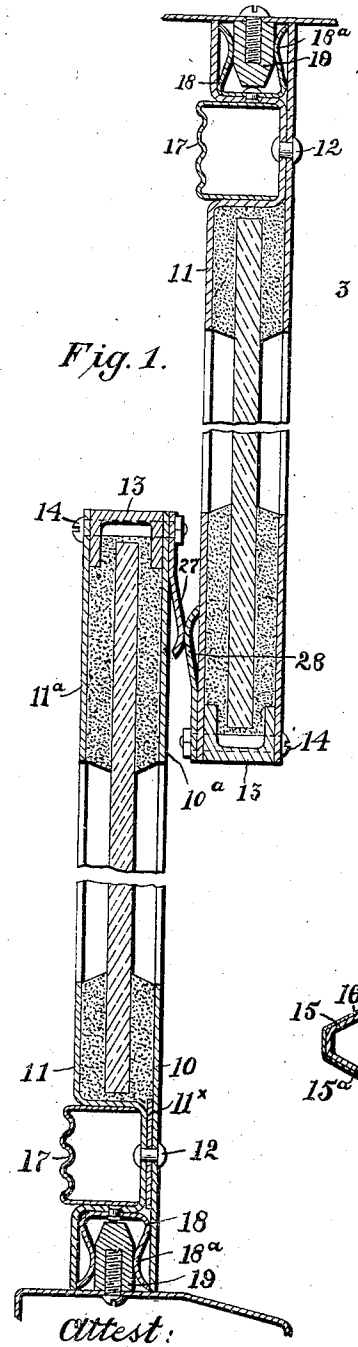


Fig. 2.

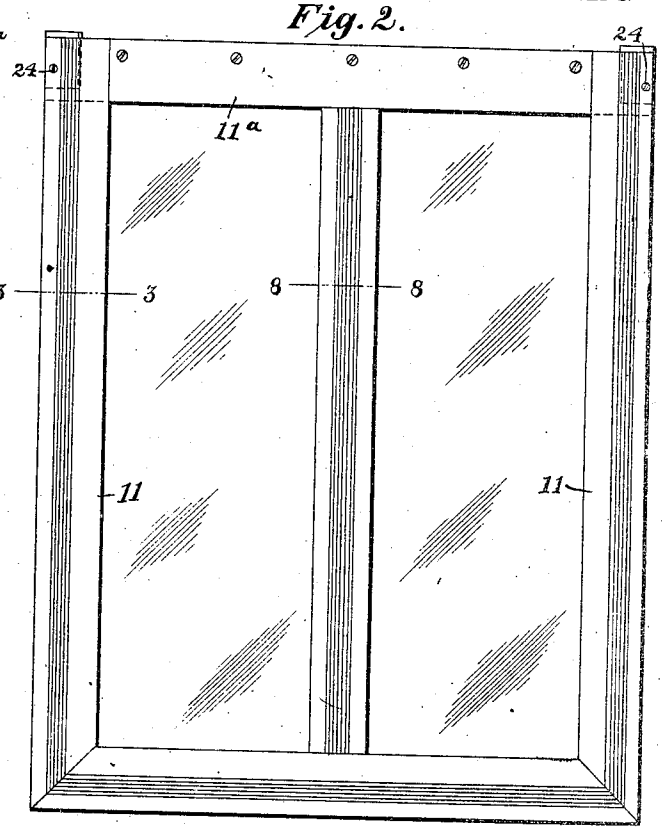
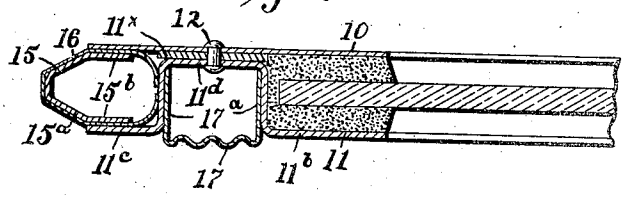


Fig. 3.



Attest:
Edwd L. Tolson
Edward N. Sutton

Inventors,
Edmund H. Lunken.
Charles M. Conklin.
By Spear Middleton Donaldson & Spear
Attys.

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2 SHEETS—SHEET 2.

Fig. 4.

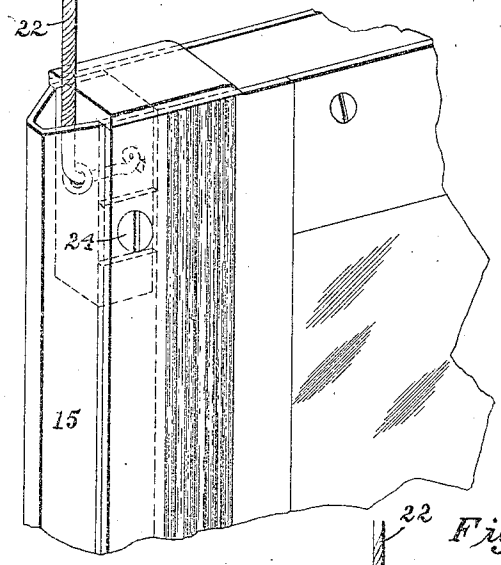


Fig. 5.

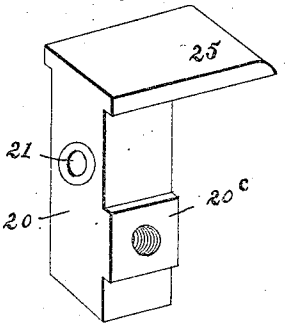


Fig. 6.

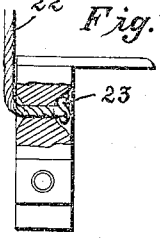


Fig. 7.

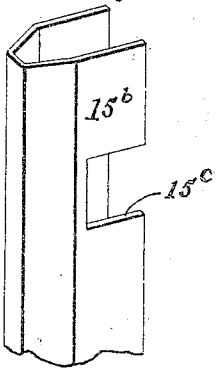


Fig. 8.

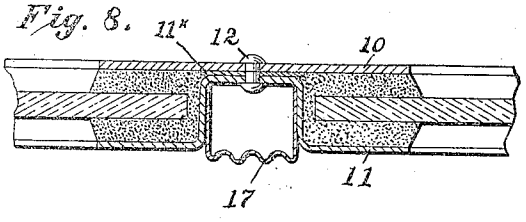
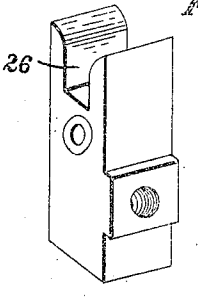


Fig. 9.



Attest:
Edwd C. Tolson.
Edward N. Sarton

Inventors,
Edmund H. Lunken.
Charles M. Conklin.
By Spear Middleton Donaldson & Spear
Attys.

UNITED STATES PATENT OFFICE.

EDMUND H. LUNKEN AND CHARLES M. CONKLIN, OF CINCINNATI, OHIO, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE LUNKEN STEEL WINDOW CO., A CORPORATION OF OHIO.

FIREPROOF WINDOW CONSTRUCTION.

No. 871,229. Specification of Letters Patent. Patented Nov. 19, 1907.

Application filed March 14, 1907. Serial No. 362,423.

To all whom it may concern:

Be it known that we, EDMUND H. LUNKEN and CHARLES M. CONKLIN, citizens of the United States, residing at Cincinnati, Ohio, have invented certain new and useful Improvements in Fireproof Window Construction, of which the following is a specification.

Our present invention relates to improvements in a fire proof window sash. These improvements are applicable in the main to either sliding or swinging sashes, although in the present drawing they are shown as embodied in a sliding sash designed with particular reference for use in connection with fire proof windows, such as shown and described, for example, in the application filed by us Nov. 22/06, #344643, although of course not limited to use in connection with such window frames.

Among the objects of the invention are to provide an improved construction of sash which will be very compact, will be strong and rigid at the corners, will present an extremely neat and finished appearance, and will permit of the ready insertion and removal of the glass.

With these and other objects in view, the invention includes the various features of construction and arrangement and combination of parts hereinafter described and particularly set forth in the appended claims.

An embodiment of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a sectional elevation of both the upper and lower sash, the central portion of each being broken away. Fig. 2 is a front elevation of the lower sash. Fig. 3 is a part horizontal section on line 3—3 of Fig. 2. Fig. 4 is a perspective detail of the upper left-hand corner of the lower sash. Fig. 5 is a perspective detail view of the corner block for the lower sash to which the sash cord is connected. Fig. 6 is a side elevation of the same partly in section. Fig. 7 is a perspective view of the upper portion of one of the guide strips removed. Fig. 8 is a section on line 8—8 of Fig. 2. Fig. 9 is a perspective detail of the corner block for the upper sash.

The sash shown in these drawings comprises outer strips 10 and 10^a and inner strips 11 and 11^a. The outer strips are of plane metal, as also is the inner strip 11^a. The inner strips 11 are formed of the shape shown more clearly in cross section in Fig. 3, having portions 11^b and 11^c designed to lie parallel with the strips or plates 10 and having the inwardly struck channeled portions 11^d secured to the corresponding surface of the strips 10 in any suitable manner, as by riveting, strips of asbestos, or similar material, being preferably interposed as shown at 11^x. The strips or plates 10 and 11 are mitered at the lower corners and the abutting edges secured together by welding to produce a strong integral connection. The side strips or plates 11 are shown as carried straight to the top of the sash and to their inside edges at the top are welded the ends of the cross strip or plate 11^a. The strips or plates 10 however are shown as cut shorter by an amount equal to the width of the cross plate or strip 10^a so that this latter extends the entire width of the sash and has its lower edges adjacent and welded to the end edges of the side strips 10.

In the space provided between the strip 11^a and the corresponding strip 10 is located a removable bar 13 which is preferably of channel shape and is removably secured in place by bolts 14 as shown. The removable bar is located on the upper edge of the lower sash as shown in Fig. 1. The upper sash is constructed in substantially the same manner as is the lower, but is reversed in position, the removable bar 13 being in this instance on the bottom of the sash, as also shown in Fig. 1. A spring weather strip is provided on one of the meeting rails, of the form shown in said figure and is secured in place by the bolts 14.

The glass occupies the space between the portion or flanges 11^b and the strip or plate 10, while in the channels at the sides of the sash formed by flanges 11^c and the strips 10 are located the removable guides 15. These consist preferably of metal strips having substantially **V** or wedge shaped portions 15^a and parallel portions 15^b which lie between the side walls of the channel. These guides are conveniently made of pressed steel, and in order to form a non-corrosive bearing surface they are preferably enveloped in a thin sheet of spring brass, as indicated at 16, the ends being continued in and curved toward each other to bear against the bottom of the groove or channel, thereby acting as a spring to press the guides out into

engagement with the guiding channels of the window frame. In order to give the sash on the inside a finished appearance, the channels formed by inwardly struck portions 11^d are closed by ornamental strips 17, which have parallel flanges or walls 17^a extending and resting against the bottom of the channel formed by inwardly struck portions. Where it is desired to use more than one glass in a single frame we provide a muntin, as shown in Figs. 2 and 8, this being formed by the plane back strip 10, which forms an integral part of the back frame and channeled front strip 11 forming an integral part of the front frame, these two being secured together in the same manner as by rivets 12, with an interposed asbestos strip and the glass panes being seated in the grooves or channels formed by the parallel portions or flanges. The central channel formed by the inwardly struck portion of the strip 11 is closed by a similar molding strip 17. The channels at the bottom of the lower sash and at the top of the upper sash are provided with spring strips 18, preferably of brass, suitably secured in the channels and having rounded portions 18^a which are designed to engage with the ribs or beads 19 secured at the top and bottom of the window frame, as indicated in Fig. 1. It is desirable that one of the guides 15 at least should be removable longitudinally so as to permit the sash to be removed from the window frame. We provide a very simple means for effecting this and also for connecting the sash cord, as shown in Figs. 4, 5 and 6. This comprises a corner block 20 having a vertical portion of a suitable size to fit in the channel between the flanges 15^b of the guides. One of these flanges is provided with a cut-away portion as indicated at 15^c in Fig. 7, and the corner block has a corresponding projection 20^c (Fig. 5) which fits in this cut-away portion when the parts are in the position shown in Fig. 4. The corner block has a transverse opening 21 through which the end of the sash cord 22 passes, the opening having rounded edges on the outside to prevent wear of the sash cord and a counter-sunk portion on the inside to receive the knot of the sash cord as indicated at 23. After the parts are assembled in the position shown in Fig. 4, they are held together by a set screw 24 passing through the flange 11^c and engaging the block which prevents movement of the block, and the block by reason of its shoulder or enlargement 20^c engaging the cut-away portion 15^c of the guide likewise prevents longitudinal movement of the guide but does not interfere with the lateral movement of same. When, however, the guide is to be removed, upon the taking out of the screw 24, the corner block and guide may be moved longitudinally out of the groove or channel by simply pulling upon the sash cord. The corner block for the lower sash is provided with the horizontal extending portion or flange 25 which covers the open end of the channel 11^d. The corner blocks for the upper sash operate to connect the sash cord and retain the guide in exactly the same manner, but are slightly modified, as shown in Fig. 9. This modification consists in omitting the flange portion 25 and forming a groove or bifurcation 26 to receive the ribs or beads 19 of the window frame.

It is desirable to provide means for securing a tight joint between the meeting rails. A very desirable form of means for accomplishing this is shown in Fig. 1 and comprises metal weather strips, preferably of non-corrosive metal such as brass. One of these, 27 for example is constructed and applied so as to be capable of spring or yielding action. It has a flat or plane portion secured to the meeting rail of the lower sash and a rounded or curved portion spaced from the rail to permit yielding or spring action. The other strip 28 is secured in a similar manner to the meeting rail of the upper sash, but its inclined or curved end need not be spaced from the meeting rail as a spring or yielding action in one strip is sufficient.

What we claim is:

1. In fire proof window construction, a sash comprising inner and outer frames, one of said frames having an inwardly struck portion bearing against the other frame and secured thereto, and a glass pane seated in the channel formed between said frames, substantially as described.

2. In fire proof window construction, a sash comprising inner and outer frames, one of said frames having on three sides inwardly struck portions secured to the other frame, a glass pane seated in the channels formed by said frames, and a removable bar for the insertion and removal of the glass, substantially as described.

3. In fire proof window construction, a sash comprising inner and outer frames, one of said frames having on three sides inwardly struck portions secured to the other frame, and forming channels for receiving the edge of the glass pane, and on the other side a plane strip leaving a space for the insertion of the glass, and a removable bar between said frames for retaining the glass in place, substantially as described.

4. In fire proof window construction, a sash comprising inner and outer frames composed of strips welded together at the corners, one of said frames having inwardly struck portions spacing it from the other frame and forming channels a glass pane seated in said channels, and means for securing said frames together, substantially as described.

5. In fire proof window construction, a

sash comprising inner and outer frames, the bars or strips of one of said frames having approximately centrally arranged ribs or flanges secured to the face of the other frame and forming the interior glass receiving channels and exterior guide channels, substantially as described.

6. A sash comprising inner and outer frames, one of said frames comprising substantially plane strips and the other of strips having inwardly struck portions suitably secured to the first mentioned frame, and providing glass receiving channels, and molding strips closing the channels formed by said inwardly struck portions, substantially as described.

7. A sash comprising inner and outer frames, one of said frames being composed of substantially plane strips and the other of strips having inwardly struck portions suitably secured to the first mentioned frame and providing glass receiving channels, and molding strips having inwardly extending flanges seated in the channels formed by said inwardly struck portions, substantially as described.

8. A sash composed of inner and outer frames, each comprising two horizontally and two vertically disposed members, the members of one frame being of substantially plane material, the two vertical members and one horizontal member of the other frame being provided with a longitudinal, centrally arranged rib or projection suitably secured to the other frame, the other horizontal member of said frame being also plane material and forming with the corresponding bar of the other frame a glass inserting opening, and a removable bar in said opening, substantially as described.

9. In fire proof window construction, a sash having a channeled edge, a hollow guide strip seated in said channel, and having a recessed wall, a block within said hollow guide having a projection engaging with the recess in the guide, a sash cord connected to said block, and means for securing the block to the sash, substantially as described.

10. In fire proof window construction, a sash having a channeled edge, a hollow guide strip seated in said channel, a block within the guide strip, means for locking the guide and block together to prevent independent vertical movement thereof, means for locking the block to the sash, and a sash cord connected to the block, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

EDMUND H. LUNKEN.
CHARLES M. CONKLIN.

Witnesses:
FRED HOEHN,
BEN B. DALE.