

Patented Aug. 22, 1911.

2 SHEETS—SHEET 1.

1,001,147.

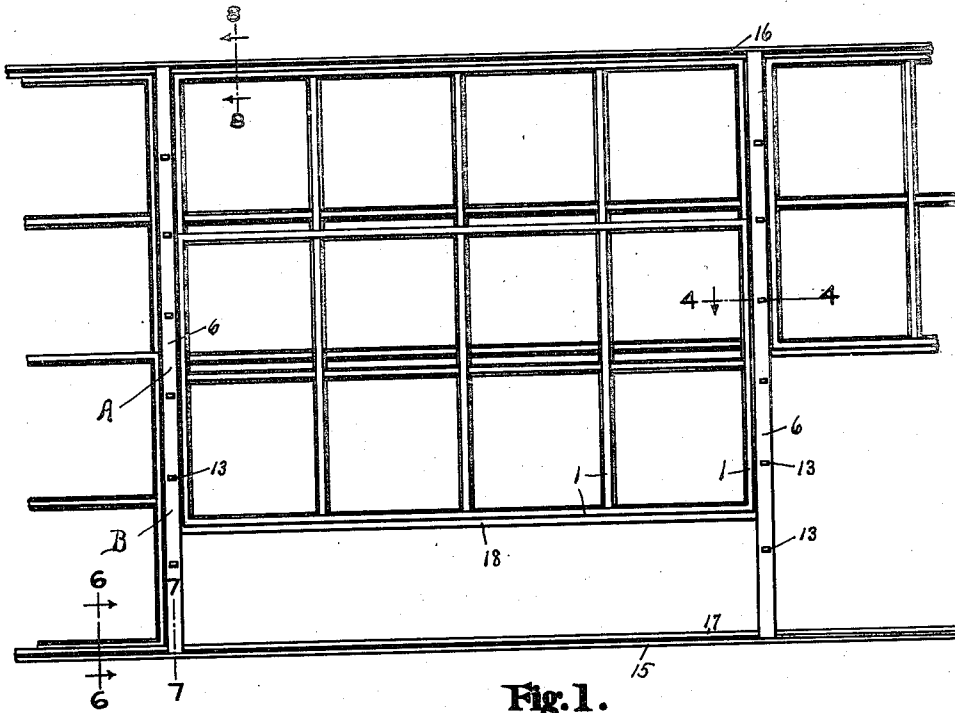


Fig. 1.

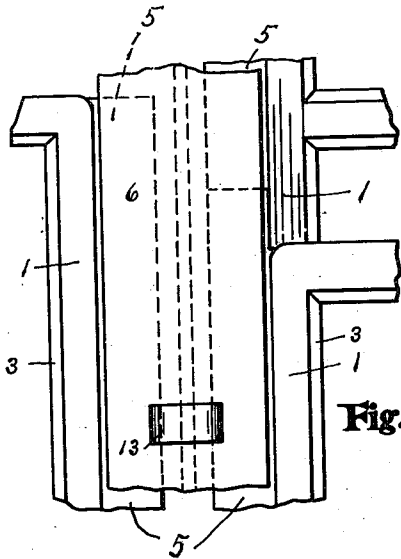


Fig. 2.

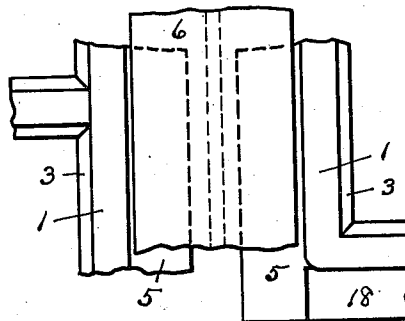


Fig. 3.

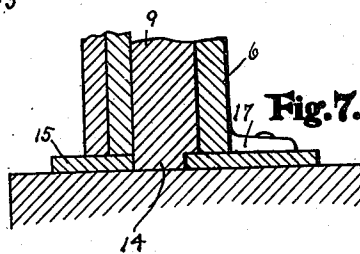
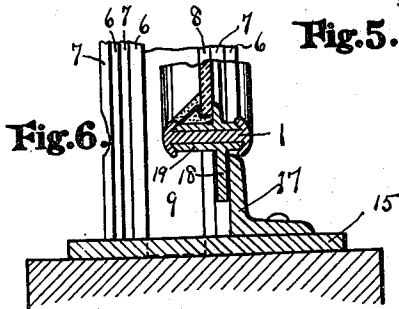
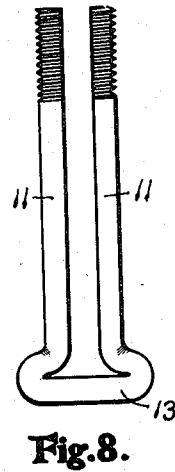
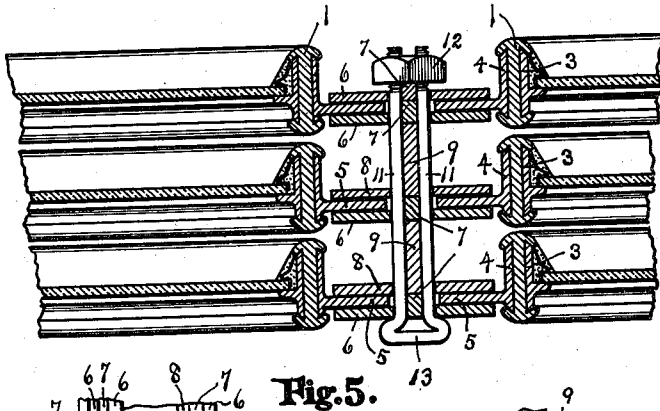
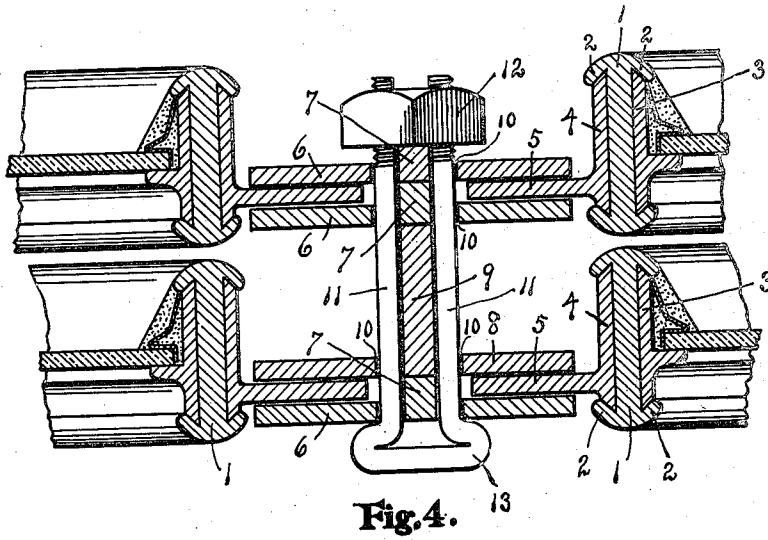
Inventor

T. H. Kane.

Witnesses
Albert A. Hoffmann
Elizabeth M. Brown

By Edward N. Pagelsen
Attorney

1,001,147.



Witnesses
Albert A. Hofmann
Elizabeth M. Brown

Inventor
T. H. Kane.
By Edward M. Pagelsen, Attorney

UNITED STATES PATENT OFFICE.

THOMAS HENRY KANE, OF YOUNGSTOWN, OHIO, ASSIGNOR TO TRUSSED CONCRETE STEEL COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

WINDOW-FRAME.

1,001,147.

Specification of Letters Patent. Patented Aug. 22, 1911.

Application filed July 1, 1911. Serial No. 636,512.

To all whom it may concern:

Be it known that I, THOMAS H. KANE, a citizen of the United States, and a resident of Youngstown, in the county of Mahoning and State of Ohio, have invented a new and useful Window-Frame, of which the following is a specification.

This invention relates to metal frames for windows, particularly the construction of the side bars of slidable sashes, and to the construction of the vertical members or mullions between the sashes; and its object is to provide a strong construction which may be readily built up from standard rolled bars with the aid of few and simple tools.

This invention consists in the combination of bars of novel cross sections united by novel bolts, together with sash side bars of novel cross section.

While not limited to sash constructed according to the former Patent No. 933,908 dated September 14, 1909, reference is made to this patent for the details of a sash which is adapted for use with my present invention.

In the accompanying drawings, Figure 1 is an outside elevation of sashes and mullions embodying this invention. Fig. 2 is an enlarged view of a portion of Fig. 1 at the point A. Fig. 3 is a similar view at the point B. Figs. 4, 6 and 7 are sections on the lines 4-4, 6-6, and 7-7 of Fig. 1, respectively on a larger scale. Fig. 5 shows an arrangement of three sashes in one frame. Fig. 8 is a plan and Fig. 9 an end view of the bolt employed in this construction on a large scale.

Similar reference characters refer to like parts throughout the several views.

As in the former patent, the sashes may be built up with side and end bars formed of special rolled bars 1 of I beam pattern, having their flanges 2 rolled down onto the edges of the interior bars 3 and the guide bars 4. These latter have guide flanges 5 slidable between the bars forming the mullions.

The structure shown in Figs. 1 and 4 is designed for upper and lower slidable sashes, but the construction may be duplicated as desired, that shown in Fig. 5 being designed for three slidable sashes. In Fig. 4, two rolled sections are shown, the smaller being used three times. This section is

formed of a flat plate 6 having a low central rib 7. The other section has a flat plate 8 and a high rib 9 of sufficient height to permit adjacent sashes to pass each other as shown in the figure. Holes 10 in pairs are punched through the flat plates, one of each pair on either side of the central rib, preferably of the exact form of the cross section of the metal forming the bolts, although such exactness is not necessary, being desirable however to make a good appearance.

The bolt is preferably formed by bending a bar of steel, flat on one side and curved to the desired circle on the other, as shown in Figs. 8 and 9, and threading the end. Or if desired, a slot may be cut into an ordinary bolt. The bars are then assembled as indicated in Fig. 4 and the bolts introduced, one side 11 extending along one side of all the ribs 7 and 9. A nut 12 is then screwed on, drawing all the bars together into a rigid structure of great stiffness. The heads 13 are preferably on the weather side.

The larger bars are machined at their ends by cutting away the plates 8, leaving tongues 14, which tongues extend into slots in the sill plates 15 and lintel plates 16. If Fig. 6 were turned upside-down, it would be a cross section on the line 8-8 of Fig. 1.

Angle bars 17 may be secured to the sill and lintel plates and between the outer plates 6. The guide flanges 5 on the guide bars of the sashes are preferably formed to extend up and down as far as the outer edges of similar flanges 18 on auxiliary top and bottom bars 19 of the sashes. As shown in Fig. 6, these flanges 18 extend down within the angle bars and assist in making tight joints. The upper and lower ends of the flanges 5 of the guide bars complete the corners of the sashes.

By merely perforating the flat plates 6 and 8, little of the strength of the bars forming the mullions is lost for when considered as beams with reference to stresses in lines parallel to the window, these holes are near the neutral axes where the remaining metal is of ample strength. When considered with reference to wind pressures, the central ribs are entire from top to bottom and are not affected by the perforations of the plates 6 and 8. It is therefore unnecessary to roll the bars with additional metal to provide strength lost by perforating.

The design and proportions of the various parts may be modified without departing from the spirit of my invention.

Having now explained my construction, what I claim as my invention and desire to secure by Letters Patent is:—

1. In a window construction, the combination with the sill and lintel, of a mullion extending between them comprising assembled bars consisting of plates formed with central longitudinal ribs, and slotted bolts having their sides extending through holes in the plates on either side of the ribs, the ribs of the bars being so proportioned as to space the plates to form guide ways for window sashes, and guide flanges on the sides of the sashes extending into the guide ways of the mullion.

2. In a mullion for guiding window sashes the combination of bars in pairs, one pair for each sash, one bar of each pair formed with a rib of sufficient height to space the bars to form guide ways for the sashes, and the bar of the pair which faces the adjacent pair having a rib of sufficient height to permit such guided sashes to pass each other, and bolts to unite the bars.

3. In a window construction, the combination with vertically slidable sashes, of upright mullions comprising narrow vertical plates in pairs, one of the plates of each pair formed with a longitudinal spacing rib

of such height that the adjacent portions of the sashes may freely slide between the plates, one of the plates of adjacent pairs having an integral longitudinal rib of such height that adjacent sashes may pass each other, and means to hold the plates forming the mullions rigidly united.

4. In a window construction, the combination with the sill and lintel, of a mullion between the same comprising narrow plates in pairs, one of the plates of each pair formed with a longitudinal spacing rib of such height that the adjacent flange of a sash may freely slide between the plates, one of the plates of adjacent pairs having a longitudinal rib of such height that adjacent sashes may pass each other, means to hold the plates rigidly united, angle bars secured to the sill and lintel, flanges formed on the sides of the sashes to slide between the plates of the mullion, and flanges on the bottom of the lower sash and the top of the upper sash to move into sliding contact with the angle bars on the sill and lintel respectively.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

THOMAS HENRY KANE.

Witnesses:

T. J. HADDON,

H. B. JONES.