T. H. KANE.

WINDOW.

APPLICATION FILED JAN. 8, 1915. RENEWED NOV. 8, 1916.

1,228,780.

Patented June 5, 1917.

2 SHEETS—SHEET 1.

Fig. 1

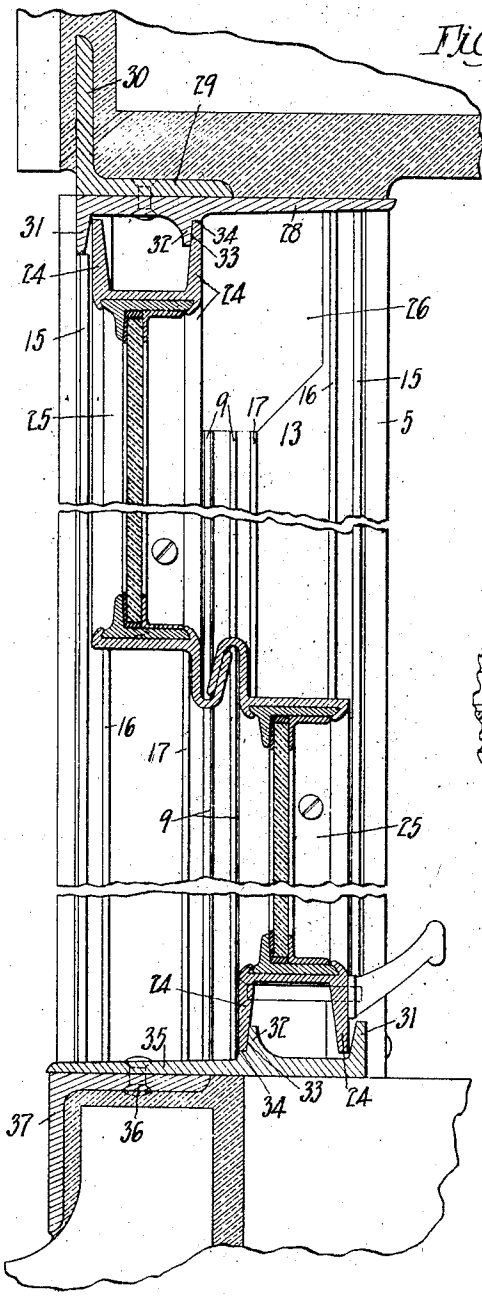
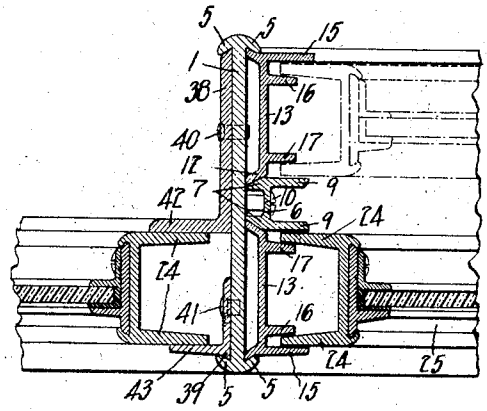


Fig. 3



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2 SHEETS—SHEET 2.

Fig 2.

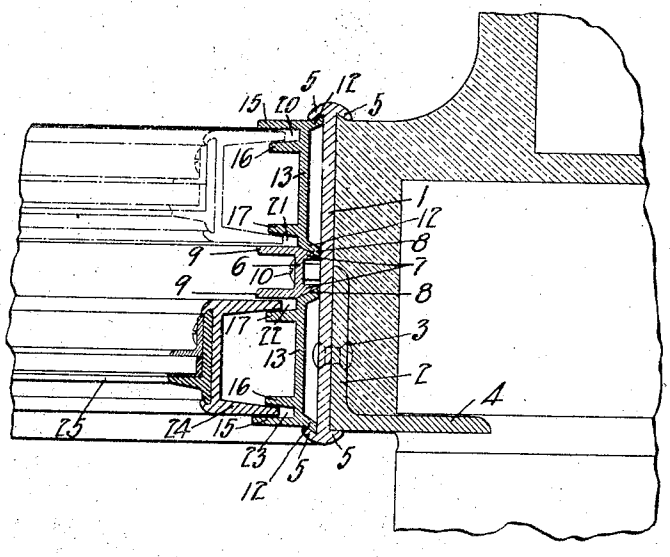
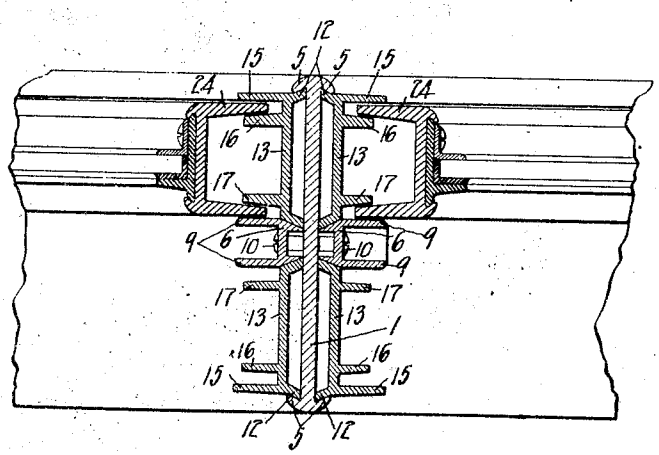


Fig 4.



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UNITED STATES PATENT OFFICE.

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

WINDOW.

1,228,780. Specification of Letters Patent. Patented June 5, 1917.

Application filed January 8, 1915, Serial No. 1,087. Renewed November 8, 1916. Serial No. 130,274.

To all whom it may concern:

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

This invention relates to metal windows and some of its objects are to provide a frame construction from which the sashes and sash guides may be conveniently removed and to which they may be quickly secured; to form tight and waterproof joints along the sides, top and bottoms of the window; to overcome rattling; and to provide a construction, the various members of which may be formed of rolled metal shapes, with resultant economy in manufacture.

The invention consists in the details of construction shown, described and pointed out in the subjoined claims.

In the drawings, Figure 1 is a vertical section through a window showing one embodiment of my invention. Fig. 2 is a horizontal section through one side of the window. Fig. 3 is a similar section through one side of a modified form of window. Fig. 4 is a horizontal section through a second modification.

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

For convenience the outside of the window or building will be termed the "forward" side and the inside, the "rear;" while those portions of the frame that project into the window opening will be said to extend "inwardly," and those that project toward or into the wall will be said to extend "outwardly."

In the embodiment of my invention shown in Figs. 1 and 2, the side members of the frame are each formed from a rolled I- or channel-section 1 and an angle bar, one flange 2 of which may extend along the outer rear face of the I-beam and be attached thereto by the rivets 3, or otherwise. The other flange 4 of the angle bar is turned outwardly and embedded in the wall, whereby proper anchorage is secured. The flanges 5 of the I- or channel-section preferably project from the web but a short distance; and the inner flanges, at least, are inclined inwardly toward a vertical plane centrally of the window and parallel to the sashes thereof. In some cases the outer flanges may be omitted.

Mounted upon the inner faces of the side members is a parting or wedge strip 6 that is provided with the outwardly projecting spaced flanges 7 having oppositely inclined surfaces 8; the strips 6 may be provided also with the inwardly projecting flanges 9, that serve to form a parting strip. The wedge strip is adjustable toward and from the I-section, for example, by the screws 10. This strip and the inner flanges 5 together inclose the inclined flanges 12 of the sash guides 13, and securely clamp the latter in position against the web of the I- or channel-section. Said guides each preferably include an outer flange 15, an intermediate flange 16, spaced slightly from the outer flange, and an inner flange 17, it being desirable to make both of the latter of less depth than that of the corresponding outer flange.

The inwardly projecting flanges on the guides and wedge strip form grooves 20, 21, 22 and 23 in which are received the flanges 24 of a well known type of window sash 25; these flanges do not extend to the bottom of the corresponding grooves but terminate therefrom a distance sufficient to allow the guides, when the wedge strips are unscrewed, to be moved inwardly to clear the edge of the flange 5, after which they may be drawn into the building. It will be seen, therefore, that this construction allows the sashes and guides to be conveniently removed, and to be readily and rigidly secured in position on the fixed members of the frame.

If desired, the upper portion of the wedge strip and a part of the upper portion of the rear guide may be removed, as indicated at 26 (Fig. 1) for the attachment of a pulley (not shown) of the counterbalancing device. If no such device is used the members are, of course, continued to the top of the window.

Joining the upper ends of the side members is a top-plate 28 that may be riveted or otherwise secured along its upper forward face to the flange 29 of an angle bar, the other flange 30 of which is embedded in the wall. The top-plate is preferably provided along its lower forward edge with a depending flange 31, and at a point somewhat rearwardly therefrom with a second depending flange 32 that may have an inclined rear face 33 and be shouldered at 34. When the outer

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sash is in its uppermost position, its forward flange is received behind the flange 31 and the rear flange bears against the face 33 and shoulder 34, whereby a tight joint is formed.

The lower ends of the side members may be joined by a sill-plate 35, the counterpart of the top-plate except that it is reversed to bring the flanges inside and in line with those of the inner sash. Its forward edge may, as before, be secured by rivets 36 to an angle plate 37, the outer flange of which preferably extends downwardly along the face of the wall to insure drainage.

Fig. 3 illustrates one manner of attaching a fixed sash to the frame on the side opposite to the movable sashes. In this case the flanges 5 of the I-section or mullion that project toward the fixed sash inclose the rear edge of the flange 38 of a rear angle bar and the corner rib 39 of a front angle bar that may be secured to the I-section by screws 40 and 41, respectively, and the inwardly projecting flanges 42 and 43 of these angle bars embrace the flanges 24 of the fixed sash.

The construction shown in Fig. 4 is that preferably employed in joining two adjacent pairs of sliding sashes, and is formed by providing guides 13 and wedge strips 6 on each side of the I-section or mullion. The necessary support for the mullion is, of course, obtained by attaching it to the upper and lower cross members of the frame.

It is clear that many changes may be made in the details of construction without departing from the spirit of my invention. I do not, therefore, wish to be limited otherwise than as indicated in the subjoined claims.

I claim:—

1. In a stile construction for windows, a side member including retaining means, a detachable sash guide mounted on the side member, a wedge strip also mounted on the side member, and means for causing said wedge strip to force the sash guide into engagement with the retaining means.

2. In a stile construction for windows, a sash guide having a flange thereon arranged to guide a sash vertically and to prevent movement thereof in a plane at right angles to the plane of the window, a side member, means carried by the side member for retaining the sash guide in position, and wedge means for forcing the sash guide in a direction at right angles to the window into operative engagement with the guide-retaining means.

3. In a stile construction for windows, a sash guide having a flange thereon arranged to guide a sash vertically and to prevent movement thereof in a plane at right angles to the plane of the window, a side member, means carried by the side member for retaining the sash guide in position, and means for wedging the sash guide into operative engagement with the guide-retaining means, said wedging means being adjustable toward the side member in a plane at an angle to the window opening.

4. In a stile construction for windows, a sash guide having a pair of spaced flanges thereon arranged to guide a sash vertically, a side member, means carried by the side member for retaining the sash guide in position, and means for wedging the sash guide in a direction at an angle to the plane of the window, whereby it is caused to operatively engage with the retaining means.

5. In a window construction, a sash guide having a vertically extending groove therein, and a window sash received in the groove, a side member including sash guide retaining means, means for wedging the sash guide in a direction at an angle to the plane of the window, whereby it is caused to operatively engage with the retaining means.

6. In a window construction, a side member comprising a main section having a web arranged in a plane perpendicular to the plane of the window and also having a longitudinal inwardly projecting flange, a metal sash guide mounted on the main section, a wedge strip mounted on the main section, means for drawing the wedge strip toward the main section, the arrangement of the parts being such that the sash guide is thereby forced laterally against the flange on the main section and secured rigidly in place, the guide strip having spaced inwardly extending longitudinal flanges thereon that serve to determine portions of two spaced longitudinal grooves so arranged as to receive spaced flanges of a window sash.

7. In a side bar construction for windows, a metal side member having an overhanging longitudinal flange, a metal sash guide mounted on the side member, a portion of the sash guide being arranged to be received between the flange and the rest of the side member, said guide also having an inclined surface along the side remote from the flange, a wedge strip carried by the side member and adjustable toward the latter into engagement with the inclined surface to force the sash guide laterally into operative relation to the flange, said sash guide including a spaced inwardly extending flange arranged to guide and prevent movement of the sash in a direction at right angles to the plane of the window.

8. In a window construction, a sash guide having a pair of flanges slightly spaced from each other to form a longitudinal groove and also having a third flange parallel to the two first mentioned flanges, a side member, means carried by the side member for retaining the sash guide in position, and means for forcing the sash guide into operative engagement with the guide-retaining means, said forcing means including a wedging member arranged to engage with

the guide, said wedging member having a flange spaced slightly from the third flange on the guide member to form a second longitudinal groove, and a sash having two spaced flanges, one received in each of the grooves, whereby the sash is guided for vertical movement and a tight joint between the sash and the rest of the window is formed.

9. In a window construction, a side member comprising a main metal section having a web arranged in a plane perpendicular to the plane of the window and also having a pair of longitudinal flanges, one of which projects from the forward portion of the web and the other of which projects from the rear portion of the web, said flanges being inclined toward the central plane of the window, a longitudinal metal wedge strip supported by the main section and adjustable in respect thereto at a point intermediate of the inclined flanges, said wedge strip being provided with opposed surfaces that incline away from the central plane of the window, a pair of metal sash guides each of which includes a pair of diverging flanges, one of the diverging flanges of each pair being received behind the corresponding inclined flange of the main section, and the other of which is received behind the corresponding inclined surface of the wedge strip, and means for drawing the wedge strip toward the main section whereby the sash guides are forced apart laterally against the flanges of the said main section, and are secured rigidly in place thereon.

10. In a window construction, a side member comprising a main metal section having a web arranged in a plane perpendicular to the plane of the window and also having a pair of longitudinal flanges, one of which projects from the forward portion of the web and the other of which projects from the rear portion of the web, said flanges being inclined toward the central plane of the window, a longitudinal metal wedge strip supported by the main section and adjustable in respect thereto at a point intermediate of the inclined flanges, said wedge strip being provided with opposed surfaces that incline away from the central plane of the window, and with a pair of spaced flanges that extend in a direction away from the main section, and a pair of metal sash guides each of which includes a pair of diverging flanges, one of the diverging flanges of each pair being received behind the corresponding inclined flange of the main section, and the other of which is received behind the corresponding inclined surface of the wedge strip, each of the sash guides also including a flange parallel to and spaced slightly from the corresponding flange on the wedge strip, whereby grooves are formed for the reception of flanges on the window sashes, and means for drawing the wedge strip toward the main section whereby the sash guides are forced apart laterally against the flanges of the said main section, and are secured rigidly in place thereon.

11. In a stile construction for windows, a side member including retaining means, a detachable sash guide mounted on the side member, a wedge strip also mounted on the side member, and a screw having its axis in a plane parallel to the plane of the window for drawing the wedge strip toward the side member, the arrangement of the parts being such that the sash guide is thereby forced laterally into engagement with the retaining means.

12. In a stile construction for windows, a side member including retaining means, a detachable sash guide, a detachable strip, said sash guide and strip constituting two members and being supported by the side member, one of the two members having a longitudinal surface inclined to the plane of the window, the other of the two members being arranged to engage therewith, and means for drawing one of the two members toward the side member for forcing the other of the two members laterally of the window and into engagement with the retaining means.

13. In a stile construction for windows, a side member including retaining means, a detachable sash guide, a detachable strip, said sash guide and strip constituting two members and being supported by the side member, one of the two members having a longitudinal surface inclined to the plane of the window, the other of the two members being arranged to engage therewith, and a screw having an axis parallel to the plane of the window for drawing one of the two members toward the side member, whereby the other of the two members is moved laterally into engagement with the retaining means.

14. In a stile construction for windows, a sash guide having a flange thereon arranged to guide a sash vertically and to prevent movement thereof in a plane at right angles to the plane of the window, a side member, means carried by the side member for retaining the sash guide in position, and movable means for forcing the sash guide in a direction at right angles to the window into operative engagement with the guide retaining means, said movable means, when in one position of its movement, allowing the sash guide to be detached from the side member by a force substantially parallel to the plane of the window.

15. In a stile construction for windows, a side member, a detachable sash guide mounted on the side member, the side member including sash guide retaining means

for preventing the sash guide from being removed therefrom by a movement in a direction parallel to the plane of the window, said retaining means allowing the sash guide to be freely removed from the side member by a movement in a direction at an angle to the plane of the window, wedge means mounted on the side member and movable in a direction substantially parallel to the plane of the window, said wedge means contacting with said sash guide and serving to force the sash guide into engagement with the retaining means.

16. In a stile construction for windows, a side member including retaining means, a detachable sash guide, a detachable strip, said sash guide and strip constituting two members and being supported by the side member, said guide having a longitudinal surface inclined to the plane of the window, said strip being arranged to engage therewith, and a screw having an axis parallel to the plane of the window for drawing one of the two members toward the side member, whereby the other of the two members is moved laterally into engagement with the retaining means.

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

THOMAS HENRY KANE.

Witnesses:
O. W. CHAFFEE,
W. M. SMITH.