

G. KAHN.
WINDOW SASH.
APPLICATION FILED JAN. 12, 1911.

1,018,503.

Patented Feb. 27, 1912.

2 SHEETS—SHEET 1.

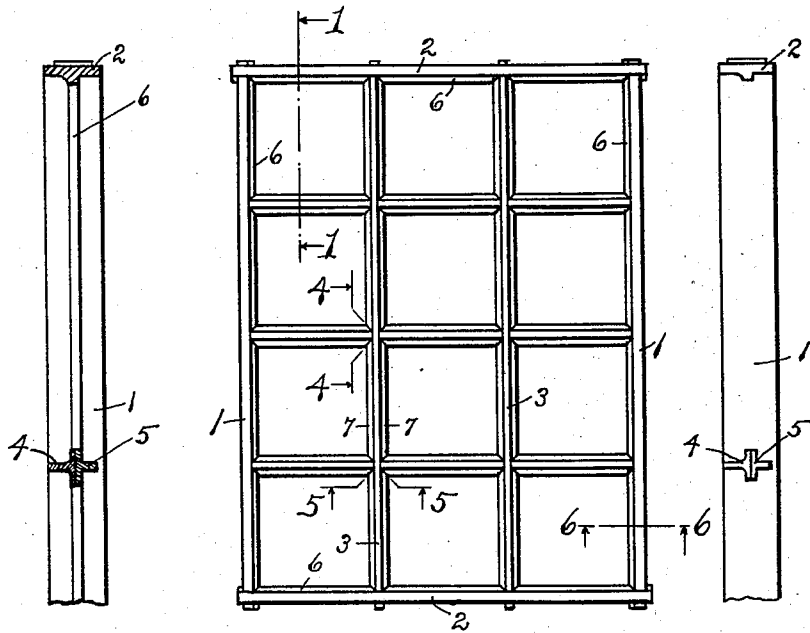


Fig. 1.

Fig. 2.

Fig. 3.

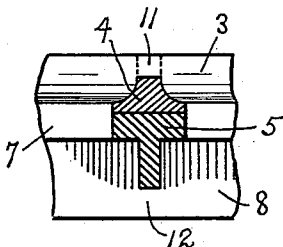


Fig. 4.

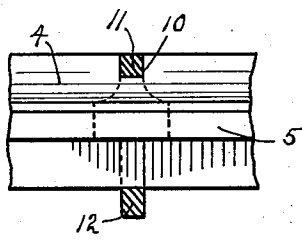


Fig. 5.



Fig. 6.

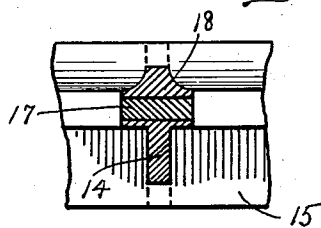


Fig. 7.

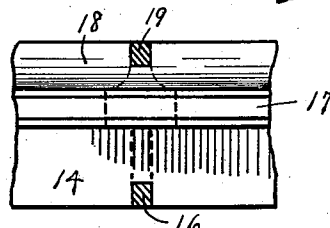


Fig. 8.

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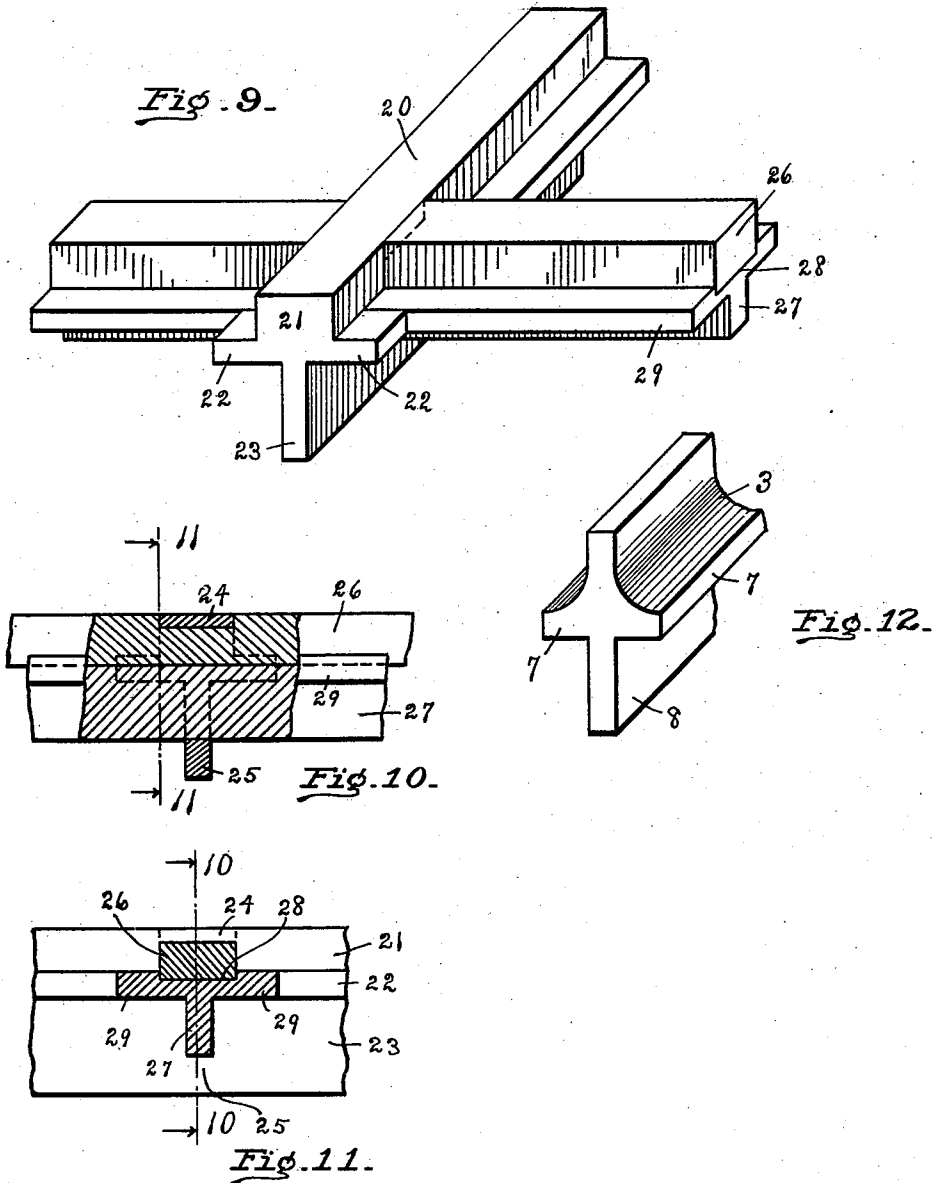
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2 SHEETS—SHEET 2.



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WINDOW-SASH.

1,018,503.

Specification of Letters Patent.

Patented Feb. 27, 1912.

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To all whom it may concern:

Be it known that I, GUSTAVE KAHN, a citizen of the United States, and a resident of Detroit, county of Wayne, and State of Michigan, have invented a new and Improved Window-Sash, of which the following is a specification.

This invention relates to metallic window sashes, and its object is to provide a construction which shall be light and strong, which can be produced at moderate cost, and which may be taken apart without damage to the constituent members.

In the accompanying drawings, Figure 1 is a cross section on the line 1—1 of Fig. 2 on a larger scale. Fig. 2 is an elevation of the complete sash. Fig. 3 is an elevation upper portion of the right hand side of the sash on a larger scale. Figs. 4, 5 and 6 are cross sections on the lines 4—4, 5—5 and 6—6 of Fig. 2 respectively. Fig. 7 is a cross section similar to that on the line 4—4 of Fig. 2 of a modified form of sash. Fig. 8 is a cross section similar to that on the line 5—5 of Fig. 2 of a modified form of sash. Fig. 9 is a perspective of a cross formed of two members of another modified form of sash. Fig. 10 is a cross section of the same on the line 10—10 of Fig. 11. Fig. 11 is a cross section on the line 11—11 of Fig. 10. Fig. 12 is a perspective of a section of muntins shown in Figs. 2, 4 and 5.

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

In the usual construction of metallic sashes for windows, the main members are cut or punched, and a portion of the remaining metal is distorted to permit the cross bars or auxiliary members to pass through the openings thus produced. The distorted metal is then brought to normal position to lock the cross bars in position. As a result, when it is desired to remove any of the members, the repeated distortion and returning of the metal is often fatal to the strength of the structure; so much so, that such changes and repairs are often considered impossible. The present construction is such that the changes may be made without endangering the strength of the various members.

The sash shown in the drawings is formed

by side members 1, top and bottom members 2, muntins 3 and cross bars or auxiliary members comprising the parts 4 and 5. While the members 3 are termed muntins, it should be understood that this term is only relative, as the sash may be constructed so that the members 3 extend horizontally and that the cross bars 4—5 will then be the muntins.

The cross section of the top, bottom and side members may be such as shown in Fig. 6, but any other design may be employed so long as a flange 6 is provided to support the window pane. Holes may be punched into the top and bottom members and the reduced ends of the side members thrust through the holes and riveted over to hold the parts together, or any other desired method may be employed to unite the sides and ends of the frame. In this description, the upper side of the parts shown in Figs. 4 to 12 inclusive will be termed the front, although it will be understood that the side may face inward or outward when the sash is in place.

The muntins 3 are preferably of the cross section indicated in Fig. 12, having side flanges 7 projecting laterally from the central body 8. Holes are punched in the muntins and in the side members 1, the form of which is shown by the cross-sectioned portion of Fig. 4. The cross members are formed in two parts, 4 and 5. The former is formed with notches 10 to receive the front portions 11 of the muntins and sides, remaining after the punching. The second part 5 is a T shaped bar, adapted to slide through the punched openings in the side bars and the muntins after the part 4 is in position. The rear connecting portions 12 of the side bars and muntins, which also remain after the punching, together with the front parts 11, determine the strength of the upright parts of the sash. As the parts 11 and 12 are so far from the neutral axis of the sides and muntins, when considered as beams, their comparatively small area is very effective.

To assemble a sash, the properly punched sides 1 and muntins 3 are laid parallel, with the front side down. The bars 4 are then slipped through the punched holes, until

the notches 10 receive the parts 11 of the muntins and sides. These bars 4 will hold the sides and muntins properly spaced at all times. The key bars 5 are then slipped into place and will hold the bars 4 in position so the parts 11 will always be in the slots 10. A light blow with a hammer on a corner of the projecting ends of the bars 5 will upset them sufficiently to hold them in position. Usually, this will not be necessary, as there is no stress to move the bars 5 endwise. The top and bottom end pieces 2 are then positioned, the tongues on the ends of the muntins and sides extending through properly punched openings in the end pieces 2. These tongues can be slightly upset, locking the members of the sash in position. Three sets of punches and a notching die are all the tools required to properly form the parts.

To separate the frame, the upset ends may be filed or chipped straight so that no parts of the members project, whereupon the frame may be readily taken apart.

A modified construction is shown in Figs. 7 and 8.

In Figs. 1 to 6 inclusive, the muntins and side bars project rearwardly beyond the cross bars, a distance equal to the depth of the part 12. In order to bring the rear edges of the cross bars 14 to the same plane as the rear edges of the other bars 15, they must be notched so as to fit over the connections 16. This necessitates a key bar 17 which is slid in between the bars 14 and 18, holding them separated so their notches receive the parts 16 and 19 of the muntins and side bars. These key bars 17 alone need be upset at their ends to lock the muntins, side and cross bars together, and even this upsetting is rarely necessary.

Another desirable modification is shown in Figs. 9, 10 and 11, wherein the front of the cross bars and muntins is wider than in the preceding figures. The muntins have bodies 21, side flanges 22 to support the panes of glass, and rear ribs 23. The muntins are punched to admit the cross bars, leaving the connecting members 24 and 25. The rectangular bars 26 are notched at the proper places to receive the parts 24, and in the assembling are slid through the openings in the muntins and then forward so that the parts 24 will fit in these notches. The keys 27 are then slid through these perforations, the grooves 28 receiving the bars 26. The flanges 29 for the glass will be flush with the flanges 22 on the muntins. Any proper side and end bars may be employed for the outer frame work of the sash.

Many other changes can be made in the details of construction and proportions of the parts without departing from the spirit of this invention.

Having now explained the construction and the manner this improvement in window sashes may be embodied, what I claim as my invention and desire to secure by Letters Patent is:—

1. In a window sash, the combination of side and end bars forming the outer frame, muntins extending between the end bars and secured thereto, said muntins having perforations, and bars in pairs extending across through the perforations in said muntins, one bar of each pair having notches to receive portions of the muntins, and the other bar of each pair being smooth and acting as a key to lock the parts in position, said notched bars and key bars both connecting at their ends to the side bars and together forming the cross bars of the sash, said key bars, muntins, side bars and end bars all having flanges in the same plane to support panes of glass.

2. In a window sash, the combination of side and end bars forming the outer frame, muntins extending between the end bars and secured thereto, said muntins having perforations, and cross bars in pairs extending through the perforations in the muntins, one bar of each pair having notches to receive portions of the muntins, and the other bar of each pair acting as a key to lock the parts in position, said end bars, side bars, muntins and key bars having lateral flanges in the same plane to support panes of glass.

3. In a window sash, the combination of connected side and end bars forming a frame, muntins connecting at their ends to the end bars and provided with perforations, notched bars extending through said perforations and engaging said muntins and side bars to hold the same in position, and slidable key-bars to hold the notched bars in position, said notched bars and key bars together forming the cross bars of the sash, said key bars, muntins, side bars and end bars all having flanges in the same plane to support panes of glass.

4. In a window sash, the combination of side and end bars forming a frame, muntins connecting at their ends to the end bars and provided with perforations, said muntins, side, and end bars having flanges to support panes of glass, notched bars extending through said perforations and engaging said muntins to hold the same in position, and slidable key-bars to hold the notched bars in proper position, said notched bars and key bars extending together between the side bars of the sash.

5. In a window sash, the combination of connected side and end bars forming a frame, muntins connecting at their ends to the end bars and provided with perforations, notched bars extending through said perforations and engaging said muntins

and side bars to hold the same in position, and slidable key-bars to hold the notched bars in position, said key bars having flanges to support the panes of glass, said
5 key bars, muntins, side bars and end bars all having flanges in the same plane to support panes of glass.

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

GUSTAVE KAHN.

Witnesses:

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ELIZABETH M. BROWN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."