To all whom it may concern:

Be it known that I, Allan W. Johnson, a citizen of the United States, residing at Colton, in the county of San Bernardino and State of California, have invented certain new and useful Improvements in Joints for Metal Sashes and Methods of Forming the Same, of which the following is a specification.

My invention relates to the formation of joints at the intersection of the vertical and horizontal muntins, or cross-bars, of metallic sashes, such as are ordinarily used for windows, especially in commercial structures of fireproof construction. The object of my invention is to provide strong and rigid interlocking joints in a frame of this character, employing as cross members well-known commercial forms of iron; the sash which is constructed in accordance with my invention being simple in construction, easy to manufacture, and symmetrical and slightly in appearance. With the above and incidental objects in view I have devised the novel form of joint and the method of making such joint hereinafter described, the essential elements of my invention being pointed out in the appended claims.

In the drawings accompanying and forming a part of this specification, Figure 1 is a perspective of a portion of one of the intersecting cross-bars or muntins which enter into a joint; Fig. 2, a perspective of the other cross member; Fig. 3 a perspective view illustrating the manner in which a joint is made, and Fig. 4 is a perspective of a completed joint.

Like reference characters designate like parts throughout the description and in the drawings.

The cross-bars, or muntins, of a window sash or other structure in which my invention may be employed are formed of metal, preferably of T-bars of ordinary commercial form. One of the members of a joint, for convenience in describing the invention may be termed the lower member, or muntin, designated by the letter A, is provided with a top cut or notch 1 extending downwardly from the upper edge or the web portion of the bar, and in the present instance, though not necessarily, the base of such member is cut away on opposite sides, to form recesses 2. The other, or upper muntin B is provided with a bottom notch 3, complementary in length to the notch 1 of the lower muntin, and also with a short top notch 4 opposite such bottom notch 3. The base of the muntin B is cut away for a distance equaling the distance between the inner edges of the recesses 2 2 of the muntin A, so that the two muntins may be fitted together with corresponding upper and lower surfaces of the base and the edges of the webs flush with each other, or in the same planes. Since the notch 4, and the upper part of the notch 1 enclose the same space, it is obvious that when the muntins are interlocked a cavity or well will be formed at the intersection of the webs, the bottom of which is formed by the bottom of the notch 4, and two side walls by the sides of such notches, the other two side walls formed by the upper portions of the sides of the cut or notch 1.

The muntins A and B being assembled in the sash in the relation just described, the joints are completed by filling each cavity with molten metal which adheres to all the walls of the cavity, thus securing the two members together immovably and forming a joint of smooth finish and great strength. In practice I employ an oxyacetylene torch to bring the portions of the webs of the two muntins to a white, welding heat, and melt into the white hot cavity a sufficient portion of the end of a wire or strip of iron or steel to fill such cavity, the melted metal uniting with the metal of the webs, so that a perfect welding of the metals takes place and the intersecting webs merge into a solid, continuous mass of metal, occupying the site of the cavity. Other methods of heating the walls of the cavity and filling it with molten metal to produce a welded joint may be used, however, to accomplish the same result, and I therefore do not limit my invention to the employment of an oxyacetylene torch in connection with a strip of metal for such purpose.

While in practice I prefer to make all the intersecting muntins of the same stock, it is obvious that my invention may be applied to joints in which the thickness of the webs vary, and the proportions of the bases vary, or the bases are entirely absent, and also to joints in which the depths and proportions of the notches of the two cross members vary. I therefore do not limit my invention or claims to the particular embodiment.
of the invention which I have illustrated and described.

I claim:

1. The method of forming joints between intersecting upper and lower metal muntins which consists in forming the lower member with a top notch adapted to receive the upper member and forming the upper member with a relatively short top notch, assembling the muntins with said notches in registration at the point of intersection, thereby forming a cavity inclosed by the walls of the notches, and filling such cavity with a molten metal which unites with the metal of the strips and forms a coherent joint upon cooling.

2. The method of forming joints between intersecting lower and upper metal muntin webs which consists in forming the lower and upper webs respectively with top and bottom notches whereby the webs are adapted to be fitted together in interlocking engagement, and also forming the upper web with a top notch at the point of intersection, whereby upon assembling the muntins the walls of the top notch of such upper web and adjacent parts of the webs of the top notch of the lower web will inclose a cavity at the point of intersection, assembling the muntin members in said relation to each other and bringing the walls of the cavity to a welding heat, and filling the cavity with molten iron, whereby the metal of the muntin webs and the filling unite and become welded together to form a coherent mass of iron at the joint upon cooling.

ALLAN W. JOHNSON.

Witnesses:

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