June 11, 1935. W. E. KELLER 2,004,727

SASH CONSTRUCTION

Filed Sept. 10, 1932

Fig. 1

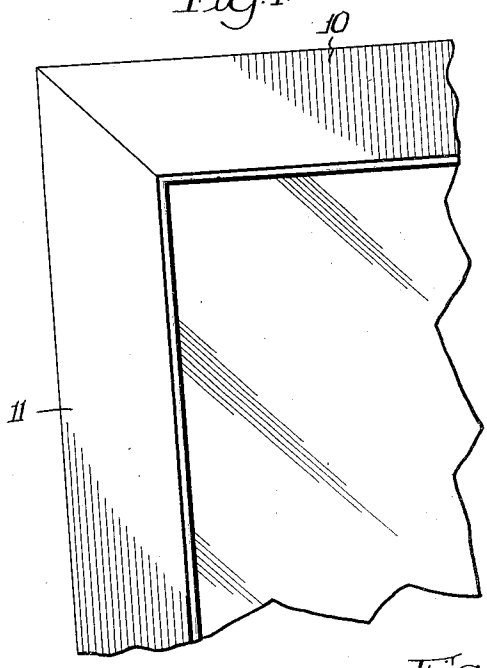


Fig. 2

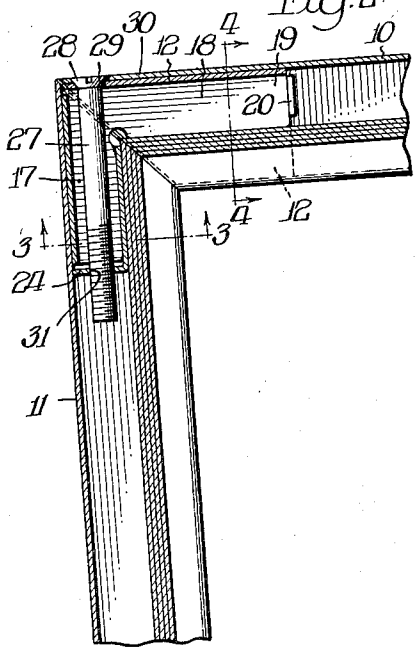


Fig. 3

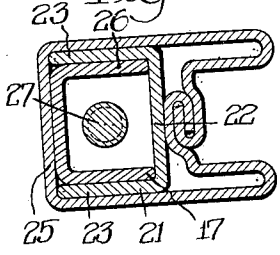


Fig. 4

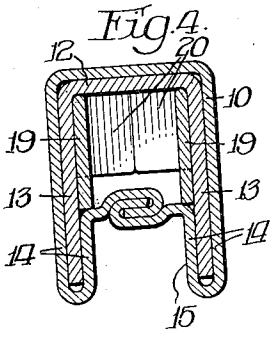


Fig. 5

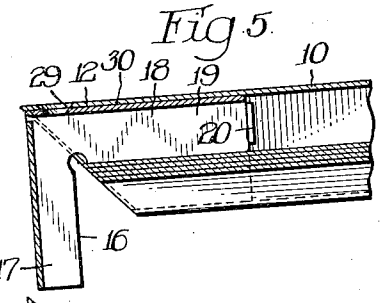
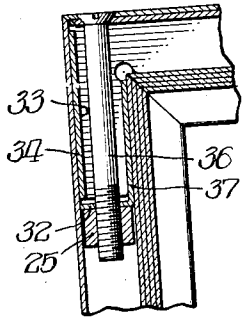
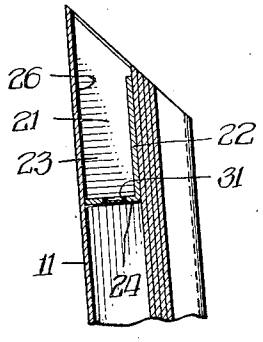


Fig. 6





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SASH CONSTRUCTION

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Application September 10, 1932, Serial No. 632,565

5 Claims. (Cl. 189—76)

The present invention relates to metal frames of the type used in window sash, doors and panels of various kinds, and is particularly concerned with the way in which the members which make up the frames are connected together at the corners.

The purpose of the invention is to provide an improved form of corner connection which permits the frame members to be easily put together or taken apart, produces a strong, rigid joint between the members, permits the mitered edges between the members to be drawn snugly together, is simple in construction, and is inexpensive to employ.

While the foregoing statements are indicative in a general way of the nature of the invention, other more specific objects and advantages of the invention will be apparent to those skilled in the art upon a full understanding of the improved corner connection.

In order that the invention may be readily understood, two slightly different structural forms of the same are presented herein, but it will of course be appreciated that the invention is susceptible of embodiment in other structurally modified forms coming equally within the scope of the appended claims.

In the accompanying drawing:

Fig. 1 is a fragmentary front view of a sash equipped with the improved corner connection of the invention;

Fig. 2 is a vertical section, taken through the sash on the median plane of the same;

Fig. 3 is a horizontal section, taken on the line 3—3 of Fig. 2;

Fig. 4 is a vertical section, taken on the line 4—4 of Fig. 2;

Fig. 5 is a vertical section, corresponding to Fig. 2, but showing the frame members in separated relation; and

Fig. 6 is a vertical section, corresponding to Fig. 2, showing a slightly modified form of the invention.

The form of the invention which is illustrated in Figs. 1 to 5 inclusive will first be described. As will be observed in those views, the sash includes two tubular sheet metal frame members 10 and 11 which are mitered at their adjoining ends in order to fit together at right angles to each other. The frame member 10 is provided, within its mitered end, with a correspondingly mitered sheet metal reinforcement 12 of U-shaped cross section, which reinforcement is held securely in the frame member 10 by soldering or by any other suitable means, with the side flanges 13 of the reinforcement positioned between the reversely bent side portions 14 of the frame member at opposite sides of the glazing groove 15.

The frame member 10 is detachably fastened to the frame member 11 by an L-shaped connecting member 16 of hollow sheet metal construction. One leg 17 of the connecting member is of U-shaped cross section and projects from the end of the frame member 10 at right angles thereto while the other leg 18 is composed of two spaced parallel tongues 19 which extend from the sides of the leg 17. The leg 18 of the connecting member is positioned in the hollow end of the frame member 10, with the tongues 19 which form the leg secured by soldering in contiguous engagement with the side flanges 13 of the reinforcement 12. The inner ends 20 of the tongues 19 are bent toward each other into abutting relation.

The other frame member 11 is provided, in its open mitered end, with a sheet metal reinforcement 21 of U-shaped cross section. The center web 22 of the reinforcement 21 extends a little beyond the sides 23 of the same and is bent at right angles to form an ear 24 which engages with the ends of the sides 23. The reinforcement 21, with the edge wall 25 of the frame member, forms a socket 26 of rectangular cross section into which the leg 17 of the connecting member carried by the frame member 10 will snugly telescope.

After the leg 17 of the connecting member has been inserted in the socket 26, a long screw 27 with a beveled head 28 is passed through a countersunk aperture 29 in the edge wall 30 of the frame member 10, at a point in alignment with the center of the leg 17, and is screwed into a threaded aperture 31 in the center of the ear 24. When the screw 27 is turned in as far as it will go, it will draw the mitered ends of the frame members 10 and 11 tightly together, producing a strong and rigid yet readily separable and inconspicuous corner joint between the frame members. It will of course be appreciated that the same type of joint may be employed at one or more of the other corners of the frame, whereby to permit the latter to be easily taken apart or put together.

In the form of the invention which is shown in Fig. 6, the apertured ear 32 which forms the bottom of the socket 33 for the reception of the leg 34 of the connecting member is provided with a solid block 35 into which the fastening screw 36 is adapted to screw. This construction permits the reinforcement 37 to be made of very light gauge sheet metal.

I claim:

1. In metal frame construction, two frame

members which together form a corner of the frame, and means for establishing a rigid but readily separable connection therebetween comprising an elongated tongue which projects from one end of one of the members at right angles thereto, an elongated socket in the adjoining end of the other member for the reception of the tongue, which socket is provided with a threaded aperture in the bottom thereof, and a screw which has its head seated in the back of the first member and extends longitudinally of the tongue into the aperture in the bottom of the socket with the screw supported only at its head whereby to permit sidewise movement of the lower threaded end of the screw into registration with the aperture.

2. In metal frame construction, two hollow sheet metal frame members which together form a corner of the frame, and means for establishing a rigid but readily separable connection therebetween comprising a hollow tongue which projects from one end of one of the members at right angles thereto, a socket in the adjoining end of the other member for the reception of the tongue, which socket is provided with a threaded aperture in the bottom thereof, and a screw which has its head seated in the back of the first member and extends longitudinally through the tongue into the aperture in the bottom of the socket with the screw supported only at its head whereby to permit sidewise movement of the lower threaded end of the screw into registration with the aperture.

3. In metal frame construction, two tubular sheet metal frame members which are mitered to form a corner of the frame, and means for establishing a rigid but readily separable connection therebetween comprising a hollow tongue which projects from one end of one of the members at right angles thereto, a socket in the adjoining end of the other member for the reception of the tongue, which socket is provided with a threaded aperture in the bottom thereof, and a screw which has its head seated in the back of the first member and extends longitudinally through the tongue into the aperture in the bottom of the socket with the screw supported only at its head whereby to permit sidewise movement of the lower threaded end of the screw into registration with the aperture.

4. In metal frame construction, two tubular sheet metal frame members which are mitered to form a corner of the frame, and means for establishing a rigid but readily separable connection therebetween comprising a hollow tongue which projects from one end of one of the members at right angles thereto, a socket in the adjoining end of the other member of somewhat greater length than the tongue for the reception of the latter, which socket is provided with a threaded aperture in the bottom thereof, and a screw which has its head seated in the back of the first member flush with the latter and extends longitudinally through the tongue into the aperture in the bottom of the socket with the screw supported only at its head whereby to permit sidewise movement of the lower threaded end of the screw into registration with the aperture.

5. In metal frame construction, two tubular sheet metal frame members which are mitered to form a corner of the frame, and means for establishing a rigid but readily separable connection therebetween comprising a hollow tongue of channel cross-section which projects from one end of one of the members at right angles thereto, a socket in the adjoining end of the other member for the reception of the tongue, a block which is secured to the socket at the bottom thereof and is provided with a threaded aperture, and a screw which has its head seated in the back of the first frame member and extends longitudinally through the tongue into the aperture in the block with the screw supported only at its head whereby to permit sidewise movement of the lower threaded end of the screw into registration with the aperture.

WALTER E. KELLER.