

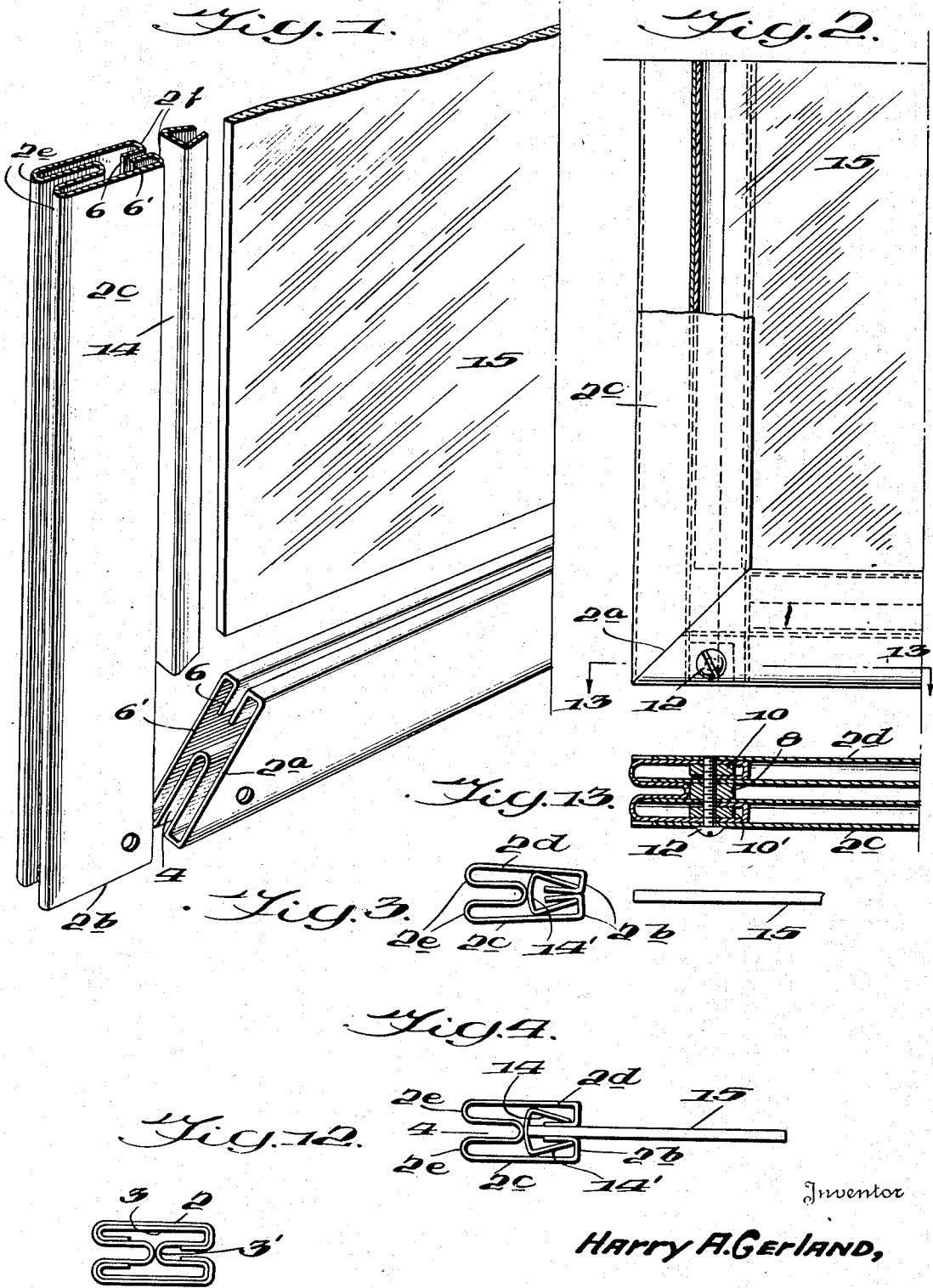
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DOOR AND WINDOW SASH

2,190,263

Filed Jan. 3, 1939

2 Sheets-Sheet 1



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Fig. 5.

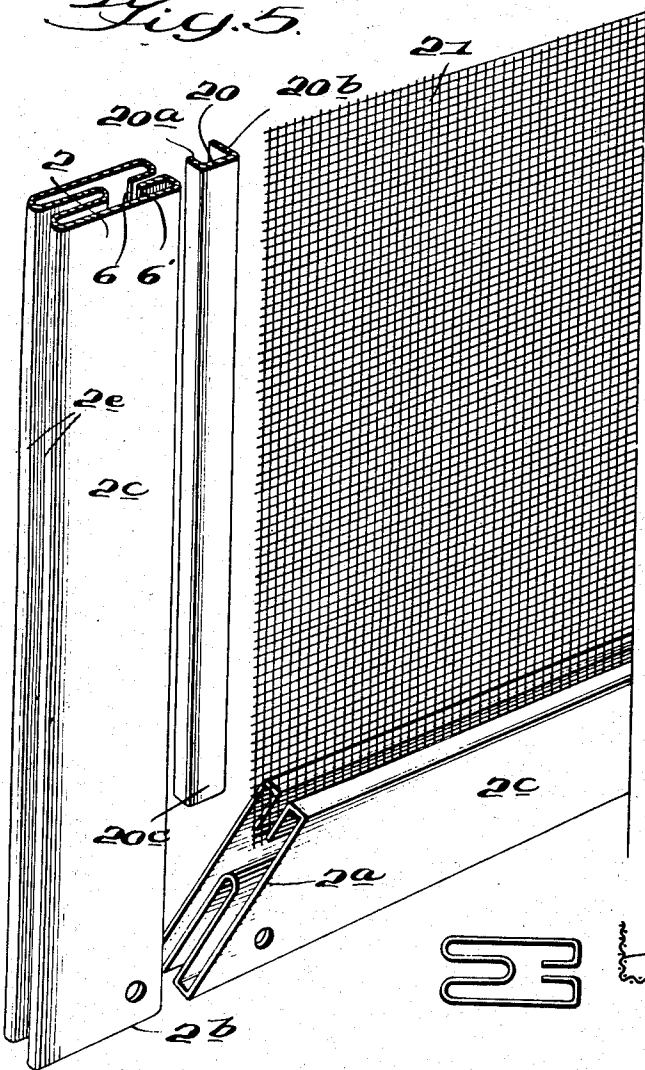


Fig. 6.

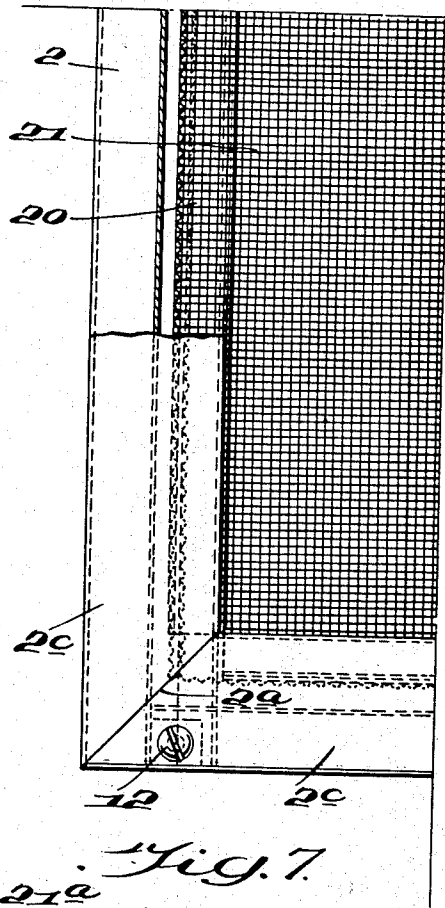


Fig. 7.

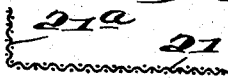


Fig. 8.



Fig. 9.

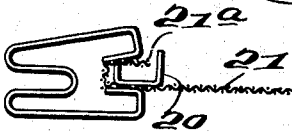
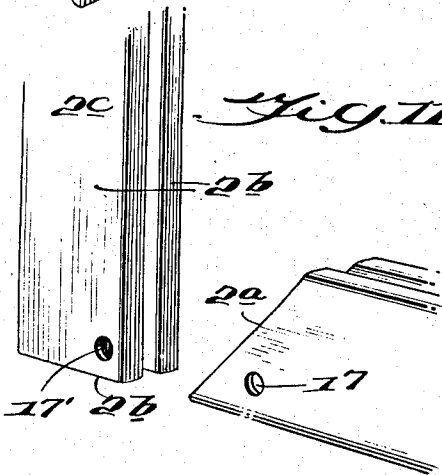
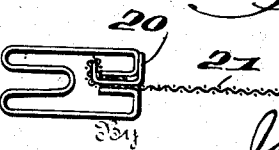


Fig. 10.



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DOOR AND WINDOW SASH

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5 Claims. (Cl. 189-76)

The present invention relates to metal door and window sashes and is particularly adapted for use with either glass or screen panels. It is not intended, however, that the frame be limited in any way to the use of these materials, as any similar material would be equally adaptable to the frame.

The primary object of the invention is to provide a metal frame which can be easily and quickly assembled in various sizes.

Another object of the invention is to provide a frame, in which both a solid and flexible panel may be equally as well secured therein.

Still another object of the invention is to construct the frame from a single sheet of metal, which would eliminate seams and similar objectionable edges.

While several of the objects of the invention have been specifically set out above, other objects will appear from the specifications taken in connection with the drawings which form a part of this application and in which:

Fig. 1 is a fragmentary view of a disassembled frame and a pane of glass in perspective.

Fig. 2 is a fragmentary view in elevation showing the frame and pane assembled.

Fig. 3 is an end view of the frame and glass pane as shown in Fig. 1.

Fig. 4 is an assembled end view similar to that shown in Fig. 2.

Fig. 5 is a disassembled view of the frame and a screen similar to that shown in Fig. 1.

Fig. 6 is a fragmentary view in elevation showing the frame and a wire gauze assembled similar to that shown in Fig. 2.

Fig. 7 is a disassembled end view of the frame and screen.

Fig. 8 is an end view of the frame and screen showing the first step in assembling the two.

Fig. 9 is a view similar to Fig. 8 showing the second step in the assembling of the frame and screen.

Fig. 10 is an assembled view of the frame and screen.

Fig. 11 is a perspective of the end joint looking toward the inner edge of the frame.

Fig. 12 is an end view of a modified form of frame.

Fig. 13 is a sectional view taken along the line 13-13 of Fig. 2.

Referring now in particular to the drawings, the present embodiment of the invention comprises a frame made from a single metal sheet. The frame is comprised principally of parallel side sections 2c, 2d and edge sections 2e and 2f.

A recess 4 is formed in the outer edge section 2e for receiving a sash holding and guiding member secured to the door or window casing, which is not shown in the drawings. The opposite edge 2f of the frame has the edges 6 and 6' of the metal sheet turned inwardly toward the recess 4. The recess extends inwardly between the parallel walls 2c and 2d of the frame and toward the edges 6 and 6' to approximately one-half the distance of the side sections.

At the end joints, one end of the frame at 2a is cut at an angle of approximately 45 degrees (that is; in a right angle joint), while the corresponding end 2b of the frame is cut at right angles to the length of the frame. Within the recess 4 is a small block 8 having an aperture therein, and located between the inturned edges 6 and 6' and the outer side walls of the frame are similar blocks 10 and 10'. The 45 degree angular section of the frame 2a is adapted to fit over the corresponding end 2b and be clamped together by a suitable single screw 12, which is threaded into one of the blocks 10, or 10'.

Referring to Fig. 1 in which a solid panel 15 is secured, there is provided for use with the frame a U-shaped clamp 14, which is adapted to fit over the open end members 6 and 6' of the frame for increasing the pressure of the frame upon the glass panel 15. The closed end of the U-shaped clamp is adapted to rest against, or near the inward edge of the recess 4 as shown best in Figs. 3 and 4. This clamp may be in a single piece as shown in Figs. 1 and 5, or it may be in smaller sections, depending upon the most convenient size to use.

Fig. 2 shows the assembled frame and glass pane 15. The frame provides for considerable tolerance in fitting the pane within the open edge 2f as the position of the edge of the glass may vary between the portion 14' of the U-shaped member 14 and a point just inside the open end of the frame. The glass, however, to give the best results, should extend to a point near the portion 14' of the member 14 as shown best in Fig. 4, but as has been stated before this is not absolutely necessary. If the glass is slightly smaller, the spring in the U-clamp has sufficient gripping effect on the inturned frame portions 6 and 6' if substantially within the edge of the opening to support the glass.

Referring to Fig. 5 the frame structure is the same as that explained in detail in Fig. 1. It has been mentioned hereinbefore that the frame is adaptable to accommodate also a wire screen. In using a screen in conjunction with the frame, a

slight modification in the form of the member 14 is employed. The screen being much lighter than the glass and flexible in character creates a slightly different problem in securing the screen to the frame. This U-shaped member 20, is constructed with its side sections substantially flat. One of its sides 20a is slightly longer than its opposite side 20b. The central section 20c is slightly longer than the inturned edges 6 and 6' and is adapted to be received over one edge of the extended member 6 or 6' of the frame as shown best in Fig. 10. The sides of the U-shaped member extend parallel with the edges of the frame and its central portion 20c extending parallel with the inturned edge portions 6 and 6'.

In assembling the frame and screen, the procedure is best shown in Figs. 7 to 10. First a small portion 21a of the screen adjacent its edge is bent at right angles to the main section 21, as shown in Fig. 7. The frame is slightly opened as shown in Fig. 8 and the screen inserted into the opening. At this time the U-shaped member 20 is inserted also along with the screen, as shown in Fig. 9. When the member 20 has been inserted to the point where the side 21a comes in contact with the end of the frame 2, the frame is pressed together, or it springs together under its own springing action and locks the screen within the open end of the frame and about one side of the U-shaped member 20, as shown in Fig. 10.

Referring in particular to Fig. 12, the frame may be made in order that it may adjustable by telescoping a section of the frame upon a corresponding section. It will be noted that both the frame sections are shaped substantially alike, one being slightly smaller than the other. Frame 2 in this instance is adapted to fit over frame 3, which is slidable on the inside of frame 2. The recess 3' of the inner frame 3 is arranged adjacent the open edge of the frame 2 and has an action similar to the U-shaped member 14 on the inturned edge members 6 and 6'.

With a sash frame of this construction, the frame may be made in long lengths by comparatively cheap methods. The user may obtain these lengths and cut them to the desired size and fit them together by the simple method set forth herein. Practically any size and shape frame may be made from this framing. The shape may be varied by changing the angle of the section cut at 2a and 2b. The blocks 8, 10, and 10' are furnished separately and are inserted at the joints as shown and described above. In order to insert the screw 12, it is necessary to punch or drill the proper holes as shown at 17 and 17' through the frame members. The block member inserted on the side of the frame opposite the head of the screw 12 is threaded to receive the screw thread of the screw 12. With this arrangement it is easily understood that when the screw is tightened the sides of the frame will be drawn together and spaced apart by the block members 8, 10, and 10' to form a comparatively tight joint.

While the invention has been illustrated and described in a particular form, it is not intended that the same be limited to this particular description of use, as the scope of the invention is best defined in the following claims.

I claim:

1. In a metal sash frame comprising a plurality of sections, each section being formed from a single sheet of sheet metal, said sections being of hollow rectangular cross-sectional form, a

narrow recess in one of the narrow edges of the said frame section extending inwardly to a point substantially one-half the distance of the longer side of the said rectangular sections and having its two longer sides parallel with the sides of the frame having the greatest cross-sectional dimension, the corresponding narrow edges of the sections having the free edges of the metal sheet bent inwardly toward and terminating in close proximity of the bottom of the said recesses and substantially parallel with the said sides thereof for receiving a panel element and means for joining the ends of said sections.

2. In a metal sash frame comprising a plurality of sections, each section being formed from a single sheet of sheet metal, said sections being of hollow rectangular cross-sectional form, a narrow recess in one of the narrow edges of the said frame section extending inwardly to a point substantially one-half the distance of the longer side of the said rectangular sections and having its two longer sides parallel with the sides of the frame having the greatest cross-sectional dimension, the corresponding narrow edges of the sections having the free edges of the metal sheet bent inwardly toward and terminating in close proximity of the bottom of the said recesses, and substantially parallel with the said sides thereof for receiving a panel element and means for joining the ends of said sections, a clamping means extending over the said inturned edges for urging the said edges together upon said panel.

3. In a metal sash frame comprising a plurality of sections, each section being formed from a single sheet of sheet metal, said sections being of hollow rectangular cross-sectional form, a narrow recess in one of the narrow edges of the said frame section extending inwardly to a point substantially one-half the distance of the longer side of the said rectangular sections and having its two longer sides parallel with the sides of the frame having the greatest cross-sectional dimension, the corresponding narrow edges of the sections having the free edge of the metal sheet bent inwardly toward and terminating in close proximity of the bottom of the said recesses and substantially parallel with the said sides thereof, a U-shaped clip adapted to be inserted in the end of said sections having its sides parallel with the narrow edges of the sections and the distance between the sides of the clip being substantially that of the inturned free edges for retaining a flexible panel element within said sections and means for joining the ends of said sections.

4. In a metal sash frame comprising a plurality of sections each section being formed from a single sheet of sheet metal, said sections being of hollow rectangular cross-sectional form, a narrow recess in one of the narrow edges of the said frame section extending inwardly to a point substantially one-half the distance of the longer side of the said rectangular sections and having its two longer sides parallel with the sides of the frame having the greatest cross-sectional dimension, the corresponding narrow edges of the sections having the free edge of the metal sheet bent inwardly toward and terminating in close proximity of the bottom of the said recesses, a second section of similar construction adapted to telescope said first section, means extending through the end portions of said sections for fastening the said sections together and means associated with the said fastening means for

preventing the said portions from collapsing when the said fastening means are tightened upon the ends of the said frame sections.

5 In a hollow sash frame comprising a plurality of sections, said sections being constructed from a single sheet of metal having a recess formed about its outer edge for receiving a weather strip and an opening within its inner edge for receiving a panel member, said sections
10 being fastened adjacent their end portions by a single screw member, the end of one of the

said sections abutting against the inner wall of the adjoining section for rigidly supporting the said sections and prevent the same from pivoting about said screw, and means insertable within the said hollow spaces of the said frame sections and adjacent the said fastening means for preventing the collapsing of the said ends when the fastening means is tightened upon the frame.

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