

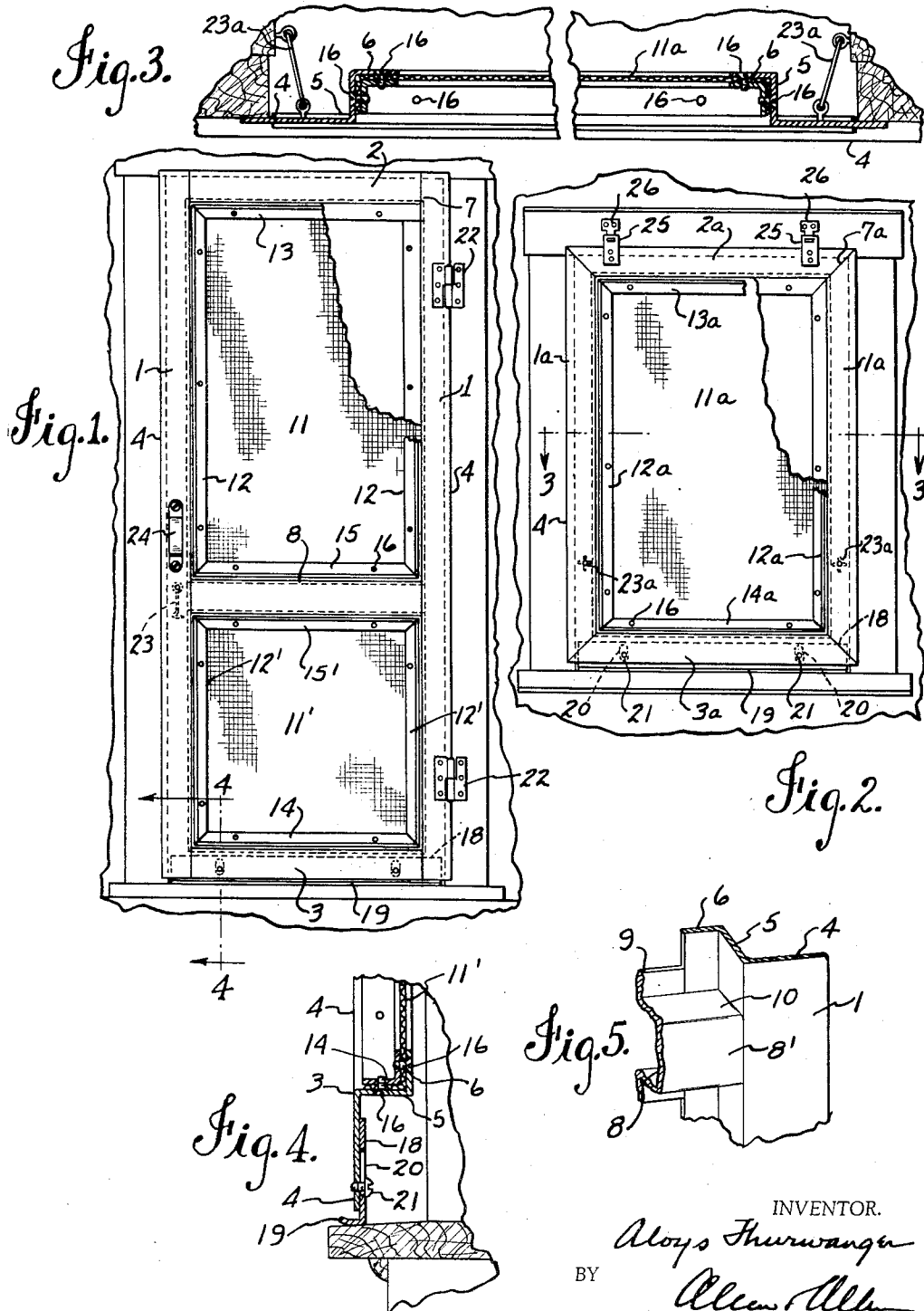
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DOOR OR WINDOW SCREEN

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DOOR OR WINDOW SCREEN

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My invention relates to screens, and more especially to screens of all metal construction.

The object of my invention is to provide a simple and light but strong construction of the screen frame, and to provide for fitting screens to door or window casings of slightly varying sizes and shapes, by simple means not requiring great mechanical skill. Other objects will appear in the course of the following description, illustrated by the accompanying drawing, in which—

Figure 1 is an exterior elevation of a door screen embodying my invention.

Fig. 2 is a similar view of a window screen embodying my invention.

Fig. 3 is a horizontal cross section on the plane of the line 3—3 of Fig. 2.

Fig. 4 is a partial vertical section on the plane of the line 4—4 of Fig. 1.

Fig. 5 is a fragmentary perspective detail of the middle rail joint of the door screen of Fig. 1.

The door screen of Fig. 1 and the window screen of Fig. 2 are alike in frame construction; the door screen frame being made up of the sides 1, top 2 and bottom 3, and the window screen of the sides 1a, top 2a and bottom 3a, each made of rather heavy sheet metal formed to Z-shaped cross section assembled with one flange 4 of each member lying outwardly as the outer edge part of the frame and the web 5 extending interiorly and forming with the inner flange 6 an angle or rabbet. In the door screen as shown, the members are joined at the corners with abutting edges, preferably electrically welded, which are formed by cutting and fitting the flanges of the side members 1, as shown at 7.

The door screen frame also preferably has the middle rail 8 of sheet metal like that of the side, top and bottom members, bent into a channel with flanges 9 extending out from its side flange edges and cut away at the ends leaving end portions 10 of the channels fitting in the rabbets of the side members 1 with the channel web 8' even with the exterior faces of the outlying flanges 4 and the channel edge flanges 9 alined with the inner flanges 6 of the sides 1, forming rabbets continuous with

those of the side members 1 above and below this middle rail 8.

The pieces 11 and 11' of screen material have their edge portions crimped into the rabbets by side angles 12 and 12', the top angle 13 and the bottom angle 14, and angles 15 and 15' at the middle rail 8, held in place by screws 16 passing inward through the webs 5 and flanges 6 of the frame members and tapped into the respective members of the angles; the screws preferably having flat heads countersunk into the flanges and webs. As the screen material is sharply bent around the angles and the screws pass through it, it is very firmly held in tightly stretched condition.

The window screen of Fig. 2 is of similar construction, with sides 1a, top 2a and bottom 3a. Here the corner joints are shown as miters 7a, and no middle rail is shown; the single piece 11a of screen material being held by the angles 12a at the sides and top and bottom angles 13a and 14a respectively, secured in the rabbets by the screws 16 as in the door screen.

The outlying flanges 4, owing to the abutting edge joints 7 or 7a, have plane smooth faces all around the frame, so that the outer edge portions of these faces, at 17, may lie snugly against the outer faces of the door or window casing at the sides and top, with the bottom of the frame over the projecting sill of the door or window, as shown. Here, on the interior face of the outlying flange 4 a sheet metal member 18, in the form of a flat strip with a flange 19 along its lower edge, has vertical slots 20 through which pass the screws 21, tapped into the flange 4 and clamping the member 18 thereto. The flange 19 extends outward under the lower edge of the flange 4, and the slots 20 and screws 21 are near the respective ends of the strip 18, permitting either end part of this strip to be adjusted up or down relatively to the other. Thus, after the screen has been fitted to the jamb and lintel parts of the door or window frame, this strip or member 18 may be adjusted to lie closely along the top of the window or door sill although this sill may not be square with the upper parts of the window or

door frame, as in old buildings. Also, this relieves the person installing the screen of the need of great care in fitting the screen to the upper parts; as, if it is not quite squarely fitted, the member 18 may be adjusted to fit the sill.

The door screen is shown as mounted with hinges 22 of the kind having their leaves readily detachable for demounting the screen, and there is a hook 23 for fastening the screen in closed position, and the usual handle 24. The window screen is shown with top hasp like hangers 25 engaging hook parts 26 fastened to the lintel of the window frame, and hooks 23a at its opposite sides near its bottom. It will be understood that the window screen may be hinged as is the door screen. The hangers permit demounting where head room for raising the screen off of hinges would be insufficient, as in the case of a spout, coping, eave or the like over the window.

The wide outlying flanges 4 with their plane surfaces presented inwardly to the window or door casing permit of fitting the screen to a door or window without particular skill, as there is nothing to be fitted inside the window or door frame, and the bottom adjustable member may be made to compensate for any inaccuracy of fitting as above described. As only the edge portions of these flanges 4 are lapped outside the window or door frame, the wider inner portions thereof permit of mounting the hooks for fastening the screen in position. The ample lateral depth of the frame members affords a rigid anchorage for the stretched screen material; the dimensions of the members being approximately those of the conventional wooden frame members, which, with the use of metal affords much more rigidity than is afforded by wooden members.

It will be understood that either the window or the door screen frame may be made either with the joints 7 of Fig. 1 or the miter joints 7a of Fig. 2; or joints of other forms may be used, with welding or other kind of attachment. The principle of my invention is the abutting edge structure at the corners, leaving the faces, especially the interior faces, of the outlying flanges 4 plane and smooth all around the frame. Modifications as to other details also may occur, and I am not limited to the specific disclosure of preferred examples of my invention, but claim:

1. In a door or window screen, a frame comprising members of Z-shaped cross section with outlying flanges having abutting edges joined at the corners of the frame and thereby affording a continuous plane surface at the sides, top corners and top of the frame to lie close to the side and top exterior faces of the door or window frame, the webs and the other flanges of the members forming inner angles, screen material secured in said angles, and screen material secured in said angles.

2. In a window or door screen, a frame

comprising members of Z-shaped cross section with outlying flanges having abutting edges joined at the corners of the frame and thereby affording a continuous plane surface at the sides, top corners and top of the frame to lie close to the side and top exterior faces of the door or window frame, the webs and the other flanges of the members forming inner angles, screen material secured in said angles, and an element mounted on the bottom outlying flange with its bottom edge extending below the bottom edge of said bottom flange, said element being adjustable on said flange to lie closely along the tops of door or window sills of varying angularity to the screen frame when the screen frame is held to the door or window frame.

3. In a window or door screen, a frame comprising members of Z-shaped cross section with outlying flanges having abutting edges joined at the corners of the frame and thereby affording a continuous plane surface at the sides, top corners and top of the frame to lie close to the side and top exterior faces of the door or window frame, the webs and the other flanges of the members forming inner angles, screen material secured in said angles, and an element mounted on the bottom outlying flange with a flange extending under the lower edge of said bottom flange, said element being adjustable on said outlying flange whereby its under extending flange may lie closely along the tops of door or window sills of varying angularity to the screen frame when the screen frame is held in the door or window frame.

4. In a door or window screen frame comprising outlying flanges having continuous plane surfaces at the sides, top corners and top of the frame to lie close to the side and top exterior faces of the door or window frame, and a bottom outlying flange, an element adjustable on said bottom flange to lie closely along the tops of door or window sills of varying angularity to the screen frame when the screen frame is held to the door or window frame.

5. In a door or window screen frame comprising outlying flanges having continuous plane surfaces at the sides, top corners and top of the frame to lie close to the side and top exterior faces of the door or window frame, and a bottom outlying flange, an element adjustable on said bottom flange whereby its bottom edge may lie closely along the tops of door or window sills of varying angularity to the screen frame when the screen frame is held to the door or window frame, and having a flange along said lower edge extending under the lower edge of the outlying bottom flange of the frame.

6. In a door or window screen frame comprising outlying flanges having continuous plane surfaces at the sides, top corners and top of the frame to lie close to the side and

- top exterior faces of the door or window frame, and a bottom outlying flange, an element having upright slots near its respective ends, and fastening means extending through the respective slots and securing said element to said bottom flange, whereby said element may be adjusted on said bottom flange to bring its lower edge closely along the tops of window or door sills of varying angularity to the screen frame when the screen frame is held to the door or window frame.
7. In a door or window screen, a frame comprising members of Z-shaped cross section with outlying flanges to lie close to the sides and top exterior faces of the door or window frame, the webs and inwardly lying flanges forming rabbets, and screen material with its edge portions held in said rabbets.
8. In a door or window screen, a frame comprising members of Z-shaped cross section with outlying flanges to lie close to the side and top exterior faces of the door or window frame, the webs and interiorly lying flanges forming rabbets, angle bars secured in the rabbets, and screen material secured in said rabbets around the corners of the angle bars.
9. In a door or window screen, a frame comprising members of Z-shaped cross section with outlying flanges to lie close to the side and top exterior faces of the door or window frame, the webs and interiorly lying flanges forming rabbets, angle bars in said rabbets, screen material in said rabbets, crimped around the corners of the angle bars, and fastening elements passing through the webs and flanges that form the rabbets, into respective members of the angle bars.
10. In a door or window screen, a frame comprising members of Z-shaped cross section with outlying flanges to lie close to the side and top exterior faces of the door or window frame, the webs and interiorly lying flanges forming rabbets, angle bars in said rabbets, screen material in said rabbets, crimped around the corners of the angle bars, and fastening elements passing through the webs and flanges that form the rabbets, and through the screen material, into the respective members of the angle bars.
11. In a door or window screen comprising a frame with side and top members to fit against the side and top members of a door or window frame and having a downwardly extending bottom flange, a member mounted on said bottom flange for adjustment to lie closely along the tops of door or window sills of varying angularity to the screen frame when said screen frame is fitted to the side and top members of the door or window frame.
12. In a door or window screen comprising a frame with side and top members to fit against the side and top members of a door or window frame and having a downwardly extending bottom flange, a member mounted on said bottom flange having a flange extending under the lower edge of said bottom flange, said member being adjustable on said bottom flange to fit said flange closely along the tops of door or window sills of varying angularity to the screen frame when said screen frame is fitted to the side and top members of the door or window frame.
13. In a door or window screen, a frame comprising interior screen material receiving elements of L-shaped cross section, screen material having its edge portions crimped inside said elements, members inside said elements around which said material is crimped, and fastening elements extending through both flanges of the elements of L-shaped cross section, through the screen material and into said members.

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