F. B. WORDEN & E. CARLSON.

SHEET METAL FRAME.

APPLICATION FILED NOV. 6, 1914.

1,233,432.

Patented July 17, 1917

Fig. 1.

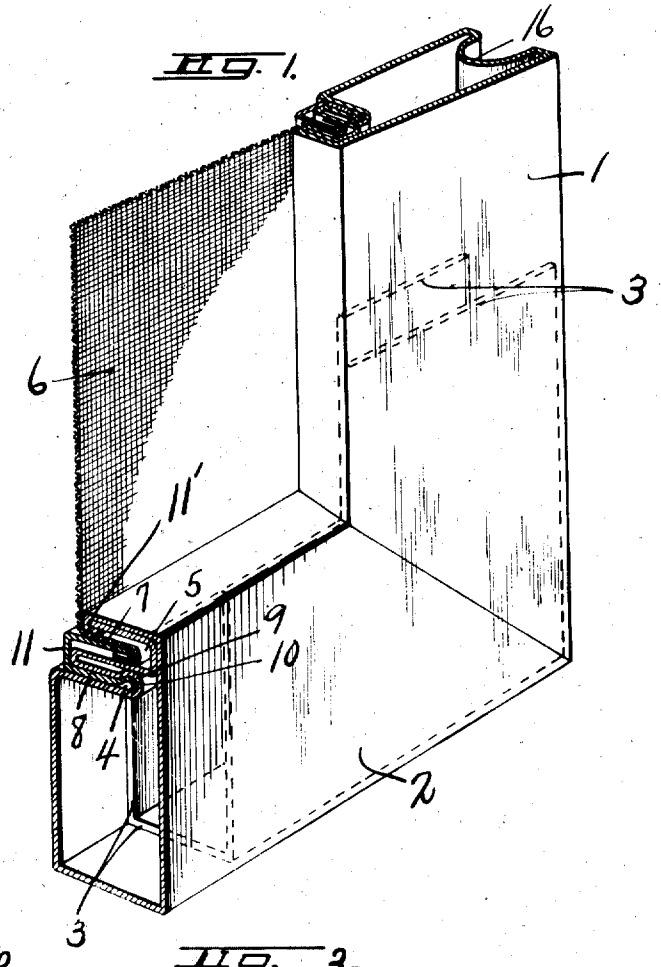


Fig. 5.

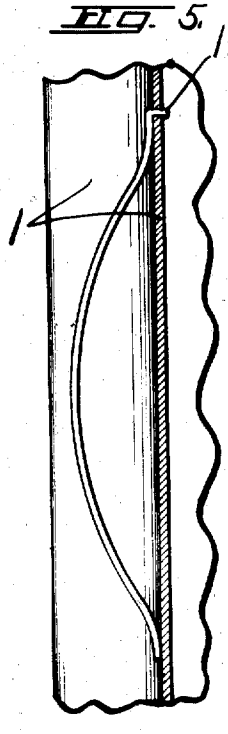


Fig. 2.

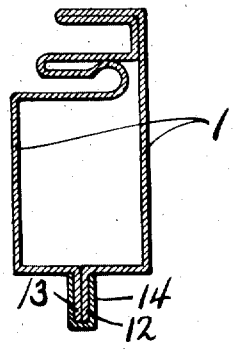


Fig. 3.

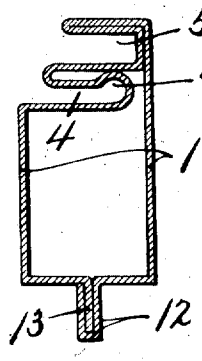
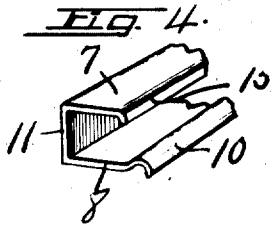


Fig. 4.



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SHEET-METAL FRAME.

1,233,432. Specification of Letters Patent. Patented July 17, 1917.

Original application filed February 9, 1914, Serial No. 817,559. Divided and this application filed November 6, 1914. Serial No. 870,679.

To all whom it may concern:

Be it known that we, FRANK B. WORDEN and EDVARD CARLSON, citizens of the United States, and residents of Jamestown, in the county of Chautauqua, and Buffalo, county of Erie, respectively, in the State of New York, have invented new and useful Improvements in Sheet-Metal Frames, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in sheet metal frames, and more particularly to a sheet metal frame for screens for doors, windows and the like.

The primary object of the invention is to provide means whereby the panel or screen retaining strips will firmly retain the screen or panel in operative position, and at the same time allow such strips to be easily and quickly removed or replaced in operative position without displacing, destroying or otherwise mutilating any of the parts of the frame, to allow, if used in connection with screen frames, the rewiring of the frame.

A further object is to provide novel means operating upon a novel principle for removably retaining the panel or screen in operative position.

Other objects and uses will appear from the following description taken in connection with the accompanying drawings, in which—

Figure 1 is a view of one corner of a metal frame showing a portion of one of the end and one of the side rails, all constructed in accordance with this invention.

Figs. 2 and 3 show slightly varied ways in which the frame may be formed from a single strip of sheet metal.

Fig. 4 illustrates a slightly varied form of retaining strip.

Fig. 5 shows a retaining spring as applied to the frame of Fig. 1.

The frame is formed of separate hollow side and end rails —1— and —2— respectively having their meeting ends mitered and abutting and held in operable position by an internal corner brace —3— shown in dotted lines Fig. 1. The inner side of both the side and end rails —1— and —2— respectively is provided with substantially parallel grooves or channels —4— and —5— respectively, the inner groove —5— adapted to receive the panel or screen —6— and one arm —7— of a retaining strip having a second arm —8— seated in the channel —4—, which channel is provided as shown with a circular and laterally extending recess —9— offset from the channel —4— to receive the circular end portion —10— upon the arm —8— of the locking strip, and the arms —7— and —8— are provided with a connecting portion —11— extending across both channels —4— and —5—.

The fabric or panel is placed in the inner recess —5— and the arm —7— of the retaining strip is pressed in to hold the panel or screen, and the circular portion —10— of the arm —8— is snapped into the circular and laterally extending groove —9— of the channel —8— and locks the retaining strip in operative position.

It will be apparent that the pull of the fabric upon the arm —7— tends to draw the circular portion —10— more tightly into engagement with the wall of the recess —9— so that the locking means becomes more positive as the tension upon the fabric becomes greater, and any increased strain upon the panel —6— merely draws the retaining strip more firmly into locking position.

As shown, the end and side rails —1— and —2—, respectively, are each formed of a single strip of sheet metal, the parallel channels —4— and —5— being formed near one edge as shown in Fig. 1, the end portions being brought into contact and the outer one being bent around the inner one to form the flange —11'— extending into inner groove —5—. By forming the inner groove —5— with two of its walls in contact with the outer wall of the frame sides and ends, the construction is greatly strengthened at the point of greatest strain.

In Figs. 2 and 3, the channels —4— and —5— are formed in the intermediate portions of the sheet metal strips of which the frame sides and ends are made and the lengthwise edges of the strips may be bent together at the outer edge of the frame and the edge —12— may be bent around the edge —13—, as shown in Fig. 3, or a separate U-shape bar —14— may be utilized to unite the edges as shown in Fig. 2, the projecting portions formed by the edges —12—

and —13— with or without the addition of the bar —14— constituting a guiding means for the screen in a suitable window or door frame.

In Fig. 4 a slightly different form of locking strip is illustrated in that the inner edge of the arm —7— is offset or bent toward the arm —8— to form a laterally extending flange —15— which in certain cases is more efficient for holding the panel in the channel —5—.

Fig. 5 illustrates a spring —16— as applied to the side rail —1— of the frame shown in Fig. —1— and is mounted in the groove —16—, one end —17— being offset and inserted through a slot in the metal frame, the other end being movable to allow the proper movement of the spring under pressure.

It will be apparent that many changes may be made in the details of construction and arrangement of the features hereinbefore described without departing from the spirit of this invention as set forth in the appended claim, the essential feature of which is the use of two channels in combination with a two-armed retaining strip, one arm adapted to be seated in each of said channels.

What we claim is:

A frame having its side rails consisting of sheet metal bent to form a closed tube, each side rail having a pair of substantially parallel channels embodying an interposed rib, said channels formed by depressing adjacent portions of one side of the rails toward the opposite side, the inner of said channels adapted to receive the marginal portion of a panel, the wall of the interposed rib bordering the outer channel provided with a portion laterally offset into substantial contact with the wall of said rib bordering the inner of said channels, and a retaining strip having an arm in each channel, the arm in the outer channel provided with a laterally offset portion adapted to interlock with the laterally offset portion of the adjacent wall of the rib.

In witness whereof we have hereunto set our hands this 29th day of October, 1914.

FRANK B. WORDEN.
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