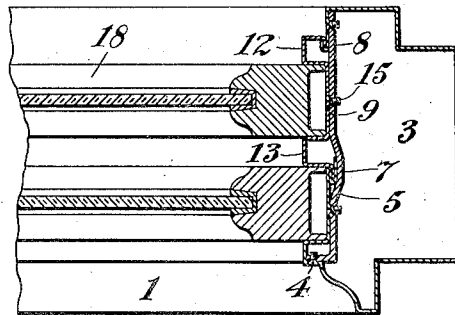
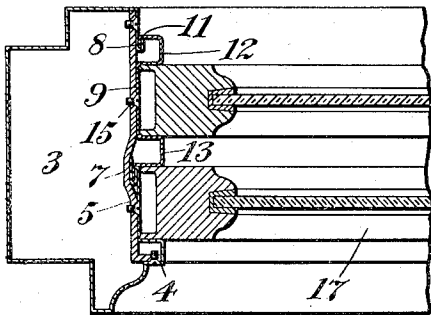
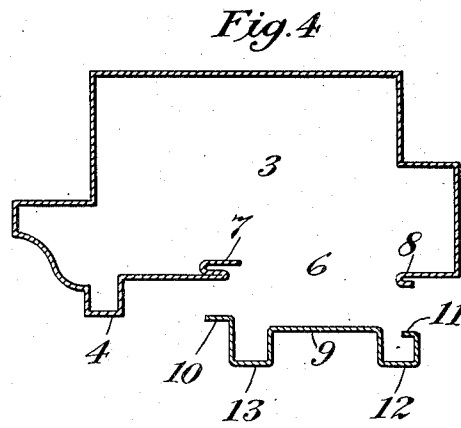
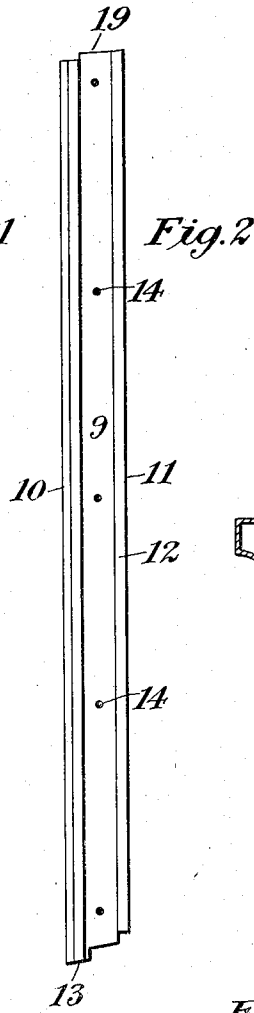
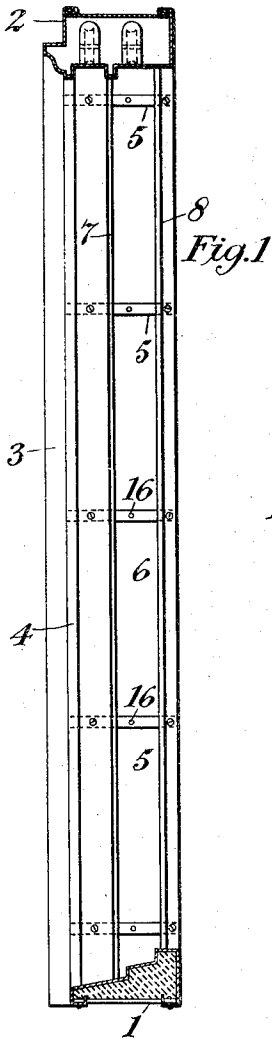


E. R. LEONARD.
METAL WINDOW FRAME.
APPLICATION FILED JAN. 24, 1912.

1,038,160.

Patented Sept. 10, 1912.



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UNITED STATES PATENT OFFICE.

ELOF R. LEONARD, OF WOODCLIFF, NEW JERSEY.

METAL WINDOW-FRAME.

1,038,160.

Specification of Letters Patent.

Patented Sept. 10, 1912.

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To all whom it may concern:

Be it known that I, ELOF R. LEONARD, a citizen of the United States and of the State of New Jersey, residing at Woodcliff, New Jersey, have invented certain new and useful Improvements in Metal Window-Frames, of which the following is a specification.

My invention relates to window frames, of what are known as the box type, which are formed of sheet metal and are provided with hollow sides; and it consists in the particulars hereinafter set forth.

In the drawings, Figure 1 is a vertical view, from the inside, of one side of a window frame embodying my invention, the top and bottom being shown in section, and the guide rails being removed. Fig. 2 is a side view of one of the guide rails; Fig. 3 is a cross sectional view of a window frame embodying my invention, with upper and lower sashes in place, and broken away in the center; and Fig. 4 is a cross sectional view, on an enlarged scale, of one side of the window frame, and of the guide rail detached, the cross stays being omitted.

The same parts are designated by the same reference numerals in all the figures.

The frame is made of sheet metal, bent into proper form, with a suitable base 1, and top 2, connected by hollow sides 3, 3, provided with front stops 4, 4, and stiffened by metal cross stays 5, 5, and having vertical openings 6, 6, the edges of which are folded over, as shown at 7 and 8, so as to provide grooves for the reception of the flanges 10 and 11 of the guide rails 9, 9. These guide rails have the stop heads 12, 12, and the parting strips 13, 13, formed integral with them; and they are also provided with holes 14, 14 for the passage of the bolts 15, 15, to enter the holes 16, 16, in the cross stays or braces 5, 5, so as to anchor the guide rails thereto.

In assembling the frame and the sashes, the top sash 17, is first put in position against the front stops 4, 4, the bottom sash 18 is then placed between the guide rails, its edges resting in the grooves therein; the lower ends of the guide rails are then placed in position upon the base or sill 1, and the tops of the guide rails are pushed into the top of the frame, the bevel 19, of the tops permitting this to be done. In this opera-

tion the flanges 10 and 11 will respectively enter the grooves 7 and 8, so that when the guide rails, with the bottom sash between them, have been pushed home, the openings 6, 6 in the frame will be completely covered, and the guide rails may be secured in place by the bolts 15, 15, threaded into the cross braces 16, 16. By this construction I secure a window frame wherein but two pieces need be detached in order to remove or insert the sashes; which is simple, strong and fire-proof; and in which, when the guide rails are removed, both sides of the frame will be open from the top to the bottom, giving direct access therinto for the arrangement, adjustment or repair of the balance weights, chains, automatic closing appliances or other attachments which may be located therein. This latter feature is a great advantage, as it saves time and labor, and, avoids the difficulties and annoyances and the use of special tools which are involved when work within the hollow sides of the window frame must be done, as is usual, through a small opening extending but part way up the frame's side.

It is obvious that the form of the interlocking parts of the guide rails and frame might be varied without departing from the spirit of my invention, and I do not desire to confine myself to the specific forms of grooves and flanges shown. But

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States is:—

The combination, with a metal window-frame, of hollow sides each formed of a single piece of sheet metal the vertical edges whereof are separated and are bent to form backwardly opening grooves the forward one lying outside of and the other inside of the plane of the bottom of the sash-groove, metal cross braces bent to accommodate the outwardly-disposed, grooved edges, metal guide rails provided with forwardly extending edges lying in different planes and engaging in said side frame grooves, and means for attaching said guide rails to said braces.

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