

E. G. BUDD.
METALLIC FRAME.
APPLICATION FILED NOV. 13, 1908.

1,042,644.

Patented Oct. 29, 1912.

Fig. 1.

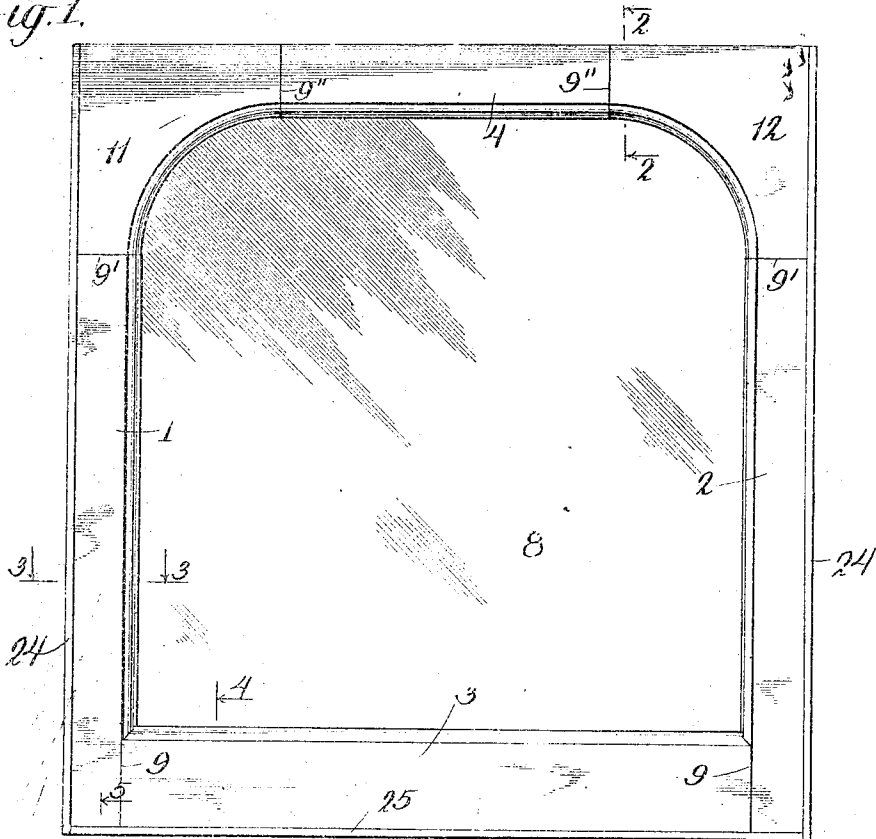


Fig. 2.

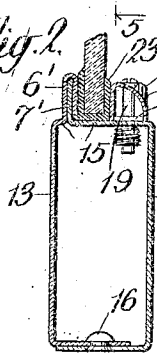


Fig. 6.

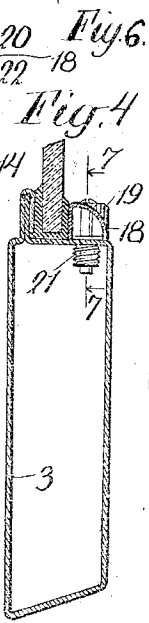


Fig. 4.

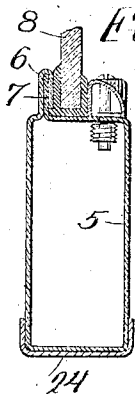
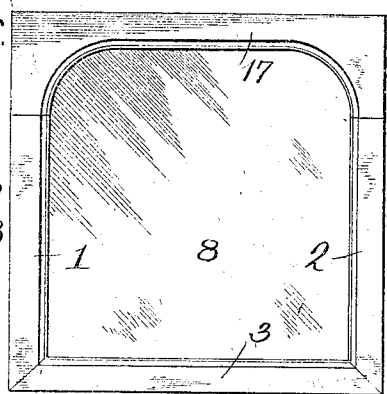
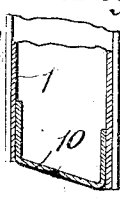


Fig. 3.

Fig. 5.



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UNITED STATES PATENT OFFICE.

EDWARD G. BUDD, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO HALE AND KILBURN COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF DELAWARE.

METALLIC FRAME.

1,042,644.

Specification of Letters Patent.

Patented Oct. 29, 1912.

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To all whom it may concern:

Be it known that I, EDWARD G. BUDD, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Metallic Frames, of which the following is a specification.

This invention relates to frames constructed largely of strips of sheet-metal and adapted for use as sashes for windows or frames for metallic doors.

The invention is of particular utility in a metallic window-sash for a building or a railway-car, and I will describe an embodiment of my invention in this form, but I wish it understood that certain of the features of my invention are equally applicable to metallic window-frames and frames for metallic doors.

The object of the invention is to provide a metallic frame for the uses above mentioned, which possesses great strength and is of light weight, which may be manufactured at low cost and which is of attractive appearance.

I have illustrated the preferred embodiment of my invention in the accompanying drawings, in which—

Figure 1 is a front view of a window; Figs. 2, 3 and 4 are sectional views on lines 2—2, 3—3 and 4—4, respectively, of Fig. 1; Fig. 5 is a sectional detail view on line 5—5 of Fig. 1; and Fig. 6 is a front view of a modified form of window.

Referring to these drawings, the frame consists of frame-members secured together at their ends forming, in the preferred embodiment of the invention, a rectangular frame consisting of side-members 1 and 2, a bottom member 3, and a top member 4.

The side-members 1 and 2 are preferably constructed as shown in Fig. 3, from which it will be seen that the frame-member consists of a single strip of sheet-metal 5 bent on lines extending lengthwise thereof to a rectangular cross-section and to provide a fold 6 at one edge of the strip inclosing a flange 7 at the other edge thereof. By this construction, a metallic frame is obtained which possesses great strength, which may be manufactured at very low cost, and which is provided with a flange extending inwardly of the frame-member and adapted

to position a panel lying within the frame, 51 as, for instance, a pane of glass 8.

The bottom member 3 of the frame may be constructed in a manner similar to that above described, but it is preferably of somewhat greater width and its lower edge is inclined somewhat, as illustrated in Fig. 4. The ends of the bottom member 3 are secured to the lower ends of the side-members 1 and 2 by welding these ends together, 52 in this way a unitary structure is produced 65 possessing great strength and a smooth surface is presented at the joint so that the line of the joint does not show when the frame is completed. Preparatory to making the weld, the inwardly extending flanges on the frame-members formed by the folds 6 and 7 are mitered as shown in Fig. 1, and the ends of the two frame-members are then brought together so that the coacting edges abut. The parts are then welded together 75 along the lines 9 of Fig. 1. The ends of the side and bottom members which are to be joined may be mitered entirely across the members if desired, but the construction which I prefer to employ is that illustrated in Fig. 1 and above described, wherein the lines of welding extend in the direction of the length of the side-members. When this construction is employed, I provide 85 means for closing the lower ends of the side-members 1 and 2. For this purpose, a strip of sheet-metal 10 of channel-section may be inserted within the end of each of the side-members, so that the lower face of this piece lies in the plane of the edge of the bottom member 3 and the flanges at the sides of this lower face are secured to the sides of the side-members 1 and 2 to hold the piece in position. 90

The top member of the frame may be similar to the side-members in construction and may be secured at its ends to the upper ends of the side members in the manner above described in connection with the bottom member 3. However, I prefer to so construct 100 the top member of the frame as to provide rounded corners at the inside of the frame. Thus in Fig. 1, I have shown corner-pieces 11 and 12, which are welded to the upper ends of the side-members 1 and 2 along the lines 9', and a top member 4 similar to the side-members in construction and having its ends welded to the adjacent ends of the 105

corner-pieces 11 and 12 along the lines 9". In the construction of the corner-pieces 11 and 12, I employ two sheet-metal pieces, each constituting one face of the corner-piece and a portion of each of the edges thereof, this construction being illustrated in Fig. 2. The two sheet-metal pieces are shown at 13 and 14, and each is provided with a flange extending around the edges of the piece. The shape of these pieces and of the flanges 15 at the inner edges thereof is such as to provide the rounded corner shown in Fig. 1. One of the flanges 15 is provided with a fold 6' and the other with a flange 7' inclosed by this fold, so as to hold the two pieces 13 and 14 together along this edge of the corner-piece. At the other edges, the flanges on the pieces 13 and 14 overlap as shown in Fig. 2 and are secured together in any suitable manner, as by means of rivets 16.

If desired, I may modify the construction of the top-member above described by making this member and the corner-pieces integral, as shown at 17 in Fig. 6. In this form of top member, the pieces 13 and 14 are of such size and shape as to form the entire top member and corner-pieces, and these two sheet-metal pieces are secured together in the manner above described in connection with Fig. 2. This construction is of particular utility in windows of small size.

In a sash made of steel and adapted to move up and down in a frame, the rubbing of the edges of the sash on the frame sometimes wears off the enamel coating of the frame and rusting takes place quite rapidly, especially on the outer side of the sash, which is more exposed. To guard against this, I provide the opposite edges of the sash with strips of metal which will not rust. Thus in Figs. 1 and 3, I have shown U-shaped strips 24 inclosing the outer edges of the side-members 1 and 2 and secured thereto in any suitable manner, these strips being made of brass. If desired, a similar strip 25 (Fig. 1) may be secured to the lower edge of the bottom member 3. With a sash provided with such brass rubbing strips, rusting will not take place, and the inconvenience of having the sash stick in its frame by reason of the rust is avoided.

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

1. A frame consisting of sheet-metal frame-members and corner-pieces secured together, each of said corner-pieces consisting of two sheet-metal plates flanged at their edges and having said flanges secured together, said plates being so shaped as to

form rounded corners at the inner edges thereof, substantially as set forth.

2. A frame consisting of sheet-metal frame-members and corner-pieces secured together, each of said corner-pieces consisting of two sheet-metal plates flanged at their outer edges and having said flanges secured together, one of said plates being provided with a flange at its inner edge and the other a fold inclosing said flange and said plates being shaped to provide rounded corners at the inner edges thereof, substantially as set forth.

3. A frame consisting of frame-members and corner-pieces secured together each of said frame-members being formed of a single strip of sheet-metal pressed to a rectangular cross-section and having the lateral edges thereof secured together by means of a flange at one edge and a fold at the other inclosing said flange, and said corner-pieces each consisting of two sheet-metal plates flanged at their outer edges and having said edges secured together, one of said plates being provided with a flange at its inner edge and the other a fold inclosing said flange and said plates being shaped to provide rounded corners at the inner edges thereof, substantially as set forth.

4. A frame consisting of frame-members each formed of a single strip of sheet-metal bent to a rectangular cross-section and having the lateral edges thereof secured together, and sheet-metal corner-pieces of rectangular cross-section and of the same thickness as said members, each of said members and pieces having an inwardly extending flange thereon, and the edges of the sheet-metal of said members at the ends thereof abutting the corresponding end edges of said pieces and being welded directly thereto, substantially as set forth.

5. A window sash comprising end and side rails of tubing, and tubular sheet metal corner pieces formed without transverse or miter joints, the ends of said corner pieces abutting the adjacent ends of said end and side rails and united thereto to form continuations thereof.

6. A window sash comprising end and side rails of tubing, and tubular metal corner pieces formed without transverse or miter joints and having their ends welded to the adjacent ends of the end and side rails to form continuations thereof.

This specification signed and witnessed this 29th day of October, 1908.

EDWARD G. BUDD.

Witnesses:

R. M. FRIES,
JOHN LITTLE.