W. D. FORSYTH.

SHEET METAL WINDOW FRAME.

APPLICATION FILED JUNE 7, 1911.

1,024,001.

Patented Apr. 23, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

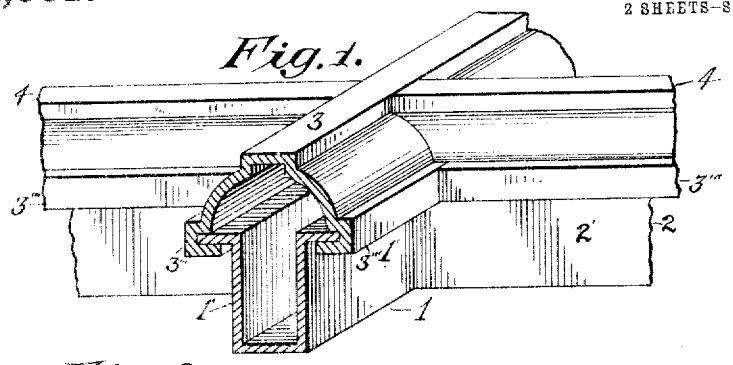


Fig. 2.

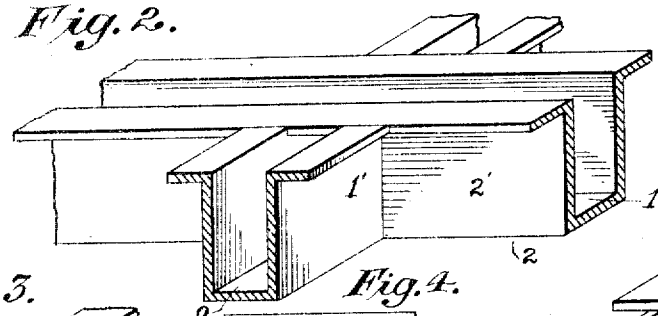


Fig. 3.

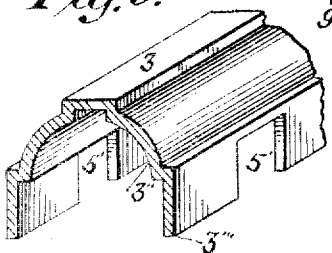


Fig. 4.

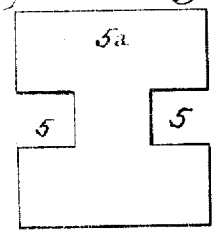


Fig. 5.

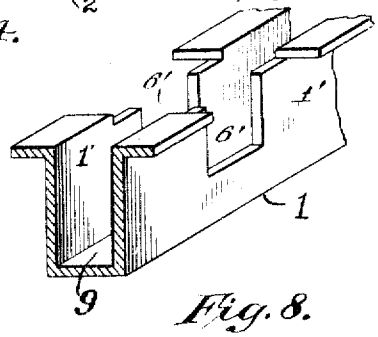


Fig. 6.

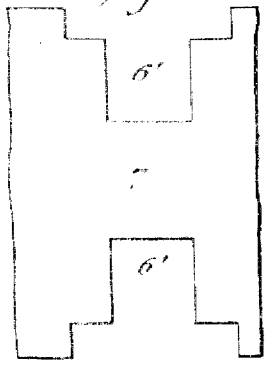


Fig. 7.

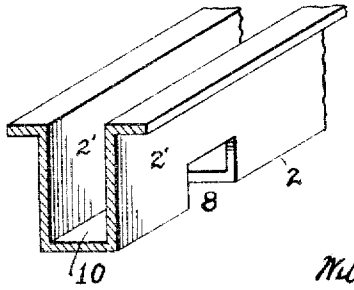
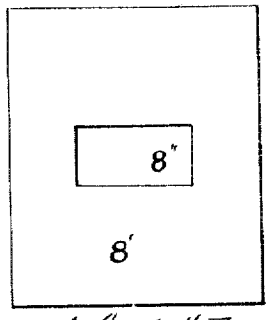


Fig. 8.



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2 SHEETS—SHEET 2.

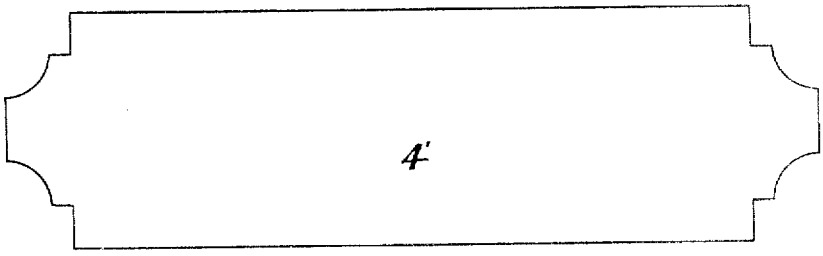

FIG. 9.

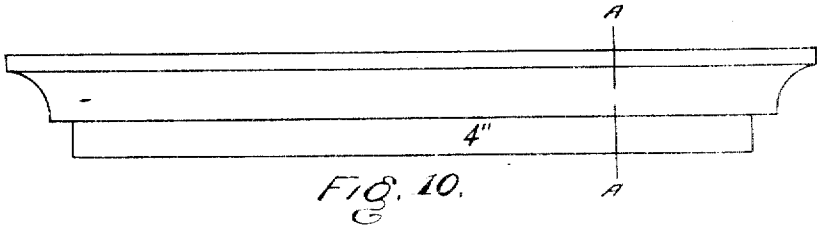

FIG. 10.

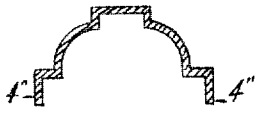

FIG. 11.

WITNESSES

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SHEET-METAL WINDOW-FRAME.

1,024,001. Specification of Letters Patent. Patented Apr. 23, 1912.

Application filed June 7, 1911. Serial No. 631,846.

To all whom it may concern:

Be it known that I, WILLIAM D. FORSYTH, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented new and useful Sheet-Metal Window-Frames, of which the following is a specification.

My invention relates to a new and useful form of metal window frames made from sheet metal, adapted to be used in dwellings and buildings of minor construction.

My invention consists of an improved metal window frame made from sheet metal by stamping and forming blanks from sheet metal and assembling said blanks so as to form a window frame light in weight, cheap as to cost of materials and manufacture and capable of being made from sheet metal by the use of presses and cutting and forming dies.

My improved metal window frame is illustrated in the accompanying drawings, in which like figures of reference refer to like parts throughout.

Figure 1 is a perspective view of the joint between the bars in my improved metal window frame, in which 1 is a U shaped section notched in its flanges and upper part of its web; 2 is a U shaped section notched at the lower part of its web; 3 is a continuous molding mounted on 1; 4, 4 are sectional moldings extending between the continuous molding 3 mounted on parallel sections 1. Fig. 2 is a perspective view of the U shaped sections 1 and 2 at their joint, without moldings 3 and 4, 4 being placed on it. Fig. 3 is a perspective view of molding 3; Fig. 4 is a plan view of blank 5^a punched to form notches at 5, 5, so as to permit the formation of notches 5′, 5′, in molding 3, Fig. 3. Fig. 5 is a perspective view of U shaped section 1 having the notches in its flanges and upper portion of its web at 6, 6. Fig. 6 is a plan view of blank 7 punched from a strip of sheet metal from which molding 1 is formed having notches 6′, 6′. Fig. 7 is a perspective view of U shaped section 2 having the notch 8 extending through the lower part of its web. Fig. 8 is a plan view of blank 8′ from which U shaped section 2 is formed, in which is punched a hole 8″, to permit of the forming of notch 8 in U shaped section 2 when blank 8′ is pressed in a press equipped with proper dies. Fig. 9 is a plan of the blank from which sectional molding 4 is formed. Fig. 10 is a side elevation of sectional molding 4 after the same has been shaped. Fig. 11 is a cross section of Fig. 10 on section line A—A.

The blanks 5^a, 7 and 8′ are short sections of suitable strips of sheet metal which may be of any length for the purpose of forming the U shaped members and moldings hereinbefore mentioned. The blanks as shown in the drawing show but a single notch in the members of the frame formed from them.

In making my improved sheet metal window frames suitable strips of suitable metal are cut to desired lengths and then punched to form the various members of said frame, as follows: To form section 1, the strip is punched at predetermined intervals with notches 5, 5, as shown in Fig. 4, and when thus notched is placed in a press with suitable dies and is pressed into U shaped section 1 in the form shown in Fig. 5. The opening 9 in U shaped section 1 may be of any width, either wider or narrower than shown in the drawings, as is the case with the opening 10 in the U shaped section 2 in Fig. 2; but in all cases, said openings 9 and 10 in said U shaped sections 1 and 2 when used in the same frame must be of the same size. It will be noted that notches 6, 6, in the U shaped section 1, Fig. 5, are notched through its flanges and the upper portion of its sides 1′, 1′. In making U shaped section 2, a suitable strip of suitable metal is cut to the desired length and then notched at 6′, 6′, as in blank 7, Fig. 6, to a predetermined number of times, the strip thus notched is then placed in a press with suitable dies and is formed into U shaped section 2, Fig. 7, with notches 8 along its lower edge and through its sides 2′, 2′. The opening 9 in U shaped section 1 and 10 in U shaped section 2, and the notches 6′, 6′ and 8 in said sections respectively, must be of such dimensions that when said U shaped sections are placed together at their respective notches they will assume the position and relation to each other shown in Fig. 2.

To make continuous molding 3, a suitable strip of suitable metal is cut to a desired length and notched at 5, 5, as shown in the blank 5^a, at Fig. 4, the notches 5, 5, being repeated as many times as may be desired to make said molding of the desired length. When the blank 5^a has thus been

notched it is placed in a suitable press equipped with suitable dies and pressed into form of the continuous molding 3 shown in Fig. 3. The notches 5′, 5′ must be of sufficient width to pass over the flange of U shaped section 2. To make sectional molding 4, a suitable strip of metal is cut of sufficient length to extend between the adjacent parallel continuous moldings 3 when said continuous moldings are mounted upon the U shaped section 1, as shown in Fig. 1; when the strip is thus cut to the length desired both ends are cut so as to take the form shown in Fig. 9. The ends of the blank 4′, Fig. 9, having been formed as aforesaid, said blank is placed in a suitable press, equipped with suitable dies, and pressed into the shape shown in Fig. 10, with the cross section shown in Fig. 11 having the downwardly extending ends 4″ which may be bent around the flanges of U shaped section 2 shown in Fig. 1. When the members have thus been formed, the U shaped sections 1 and 2 are placed across each other so that their respective notches will coincide and so that when pressed together said U shaped sections will assume the position shown in Fig. 2. Continuous moldings 3 are then placed parallel with one another so that said continuous moldings 3 shall extend along U shaped section 1, said continuous moldings are then pressed in a suitable press equipped with proper dies so that the downward extending ends 3‴, 3‴ of said continuous moldings 3 will be bent around the flanges of U shaped section 1, as shown in perspective Fig. 1. The sectional moldings 4 are then placed at right angles to the continuous moldings 3 and the downward extending portions 4″ of sectional molding 4 are pressed so that they shall be bent around the flanges of the U shaped section 2. The U shaped sections and moldings when thus assembled form the rectangular apertures in which the lights of glass with which the frame is to be glazed may be placed and secured, the end bars or styles of the frame may be of any suitable construction, which are to be fastened to the bars formed by the U sections and continuous and sectional moldings in the usual and ordinary way.

On December 12, 1910 I filed an application for Letters Patent for improvements in metal window frames, Serial No. 596,762, in which the bars of the window frame there described and claimed were formed of rolled T shaped sections and the moldings were rolled in the cross sections shown in the drawings forming part of the specification of said application. The frame shown in said application was heavy in weight and could only be manufactured from special shapes rolled specially for the purpose of fabricating it and the frame manufactured in accordance with the specification of said application was suitable practically only for large factory buildings and public buildings where windows of large area and great strength are required. The improved window frame which I have described and claimed in this application needs no special shape for its fabrication but can be made out of sheets of different gage in any shop that has an ordinary stamping press, with dies to form the several members of the frame, and its members, unlike the members of the frame described in my application filed December 12, 1910, can be varied to suit the requirements of the places where frames made in accordance with my present invention are to be used. In other words, the frame made in accordance with my present invention may be varied in its several dimensions, weight and the material from which it is to be made, which material is the ordinary commercial sheet metal of any desired thickness or specification as to its chemical composition, while the frame described and claimed in application 596,762, must be made, if made at all, from a predetermined cross section with the material contained therein applicable only to the manufacture of the frame as described and claimed in that application.

What I claim as my invention is:

1. A sheet metal window frame consisting of series of parallel U shaped frame bars notched in their flanges and webs; a second series of parallel U shaped frame bars, notched in their webs only; said series of frame bars being pressed together at their respective notches so that the lower surfaces of their flanges are substantially in the same plane; continuous notched moldings mounted upon those bars which have notched flanges and webs and sectional moldings mounted between said continuous moldings upon those bars which have notched webs only.

2. A sheet metal window frame composed of two series of bars made from strips of sheet metal bent so that parts thereof forming the longer edges of said strips shall be in parallel planes and each of said parallel parts of said strips shall have a flange formed thereon; the bars of one of said series of bars formed from said strips being notched in their flanges and upper part of their parallel parts; the bars of other series of said bars being notched in the lower part of their parallel parts only; said series of bars being adapted when pressed together at said notches to form apertures in said frame for the reception of panes of glass with the under surfaces of the flanges of said bars in the same plane; continuous sheet metal moldings fixed to those bars which are notched in their flanges and parallel parts maintaining said bars of both of

said series in position when pressed together at their notches as aforesaid and sectional sheet metal moldings fixed between said continuous moldings to those bars which are notched in their parallel parts only.

In witness whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

WILLIAM D. FORSYTH.

Witnesses:
W. A. MILLIKEN,
A. M. NEEPER.