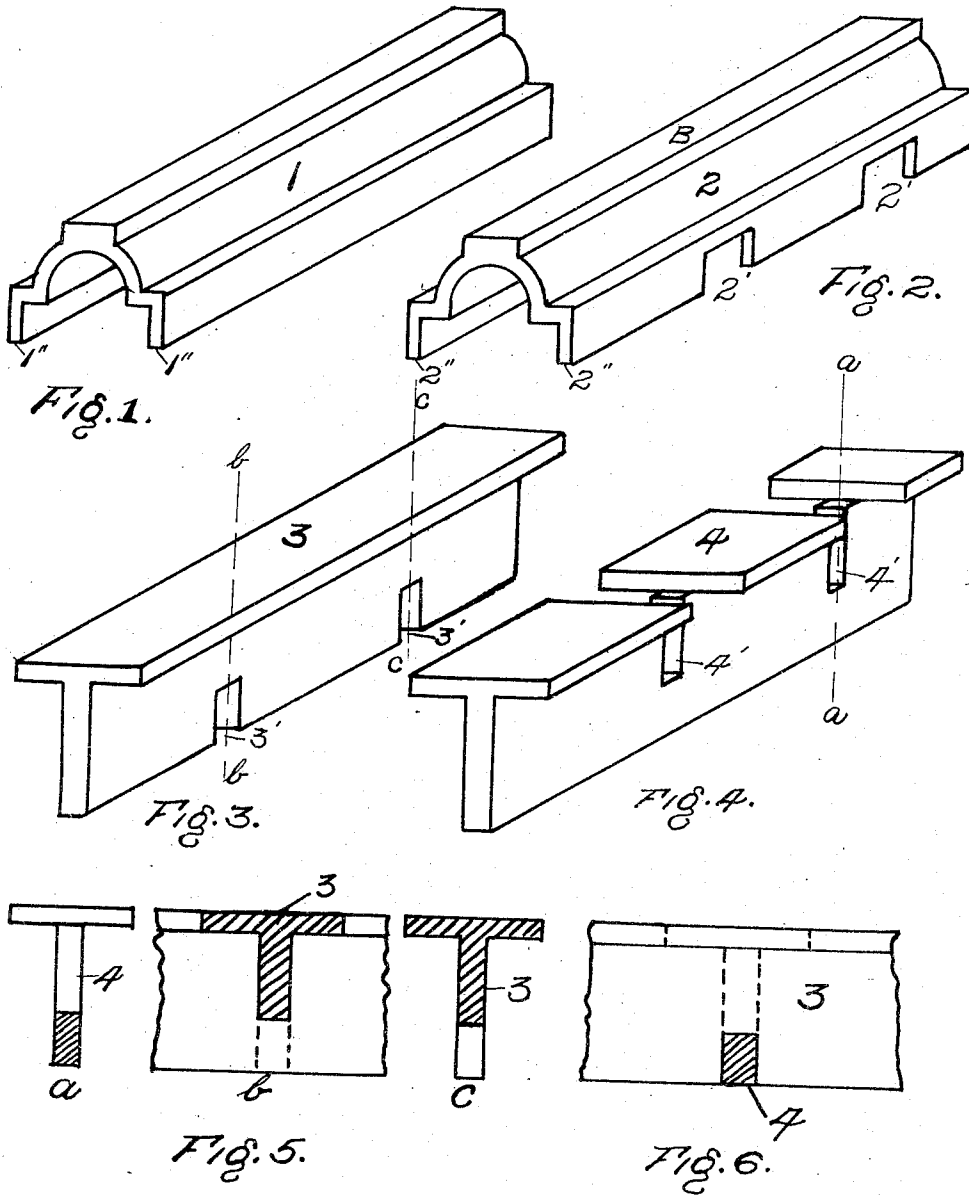


W. D. FORSYTH.
METAL WINDOW FRAME.
APPLICATION FILED DEC. 12, 1910.

1,005,012.

Patented Oct. 3, 1911.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

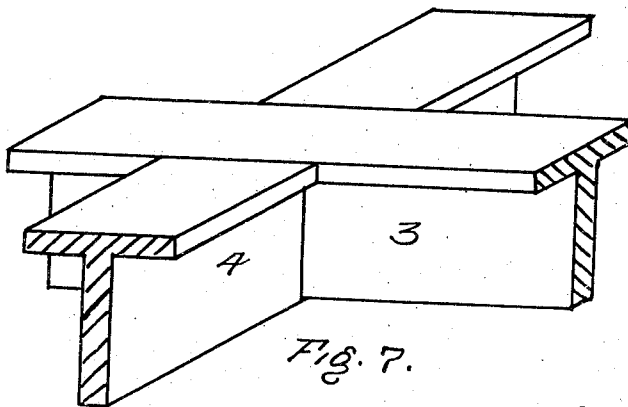


Fig. 7.

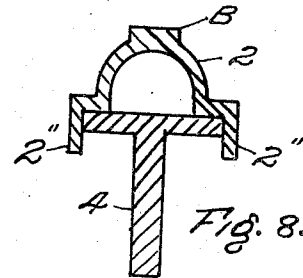


Fig. 8.

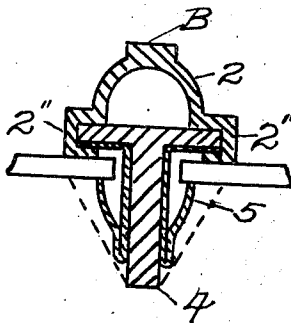


Fig. 9.

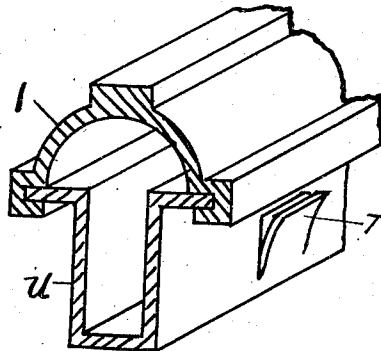


Fig. 10.

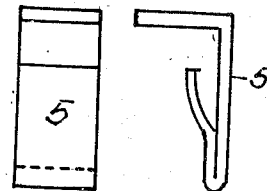


Fig. 11.

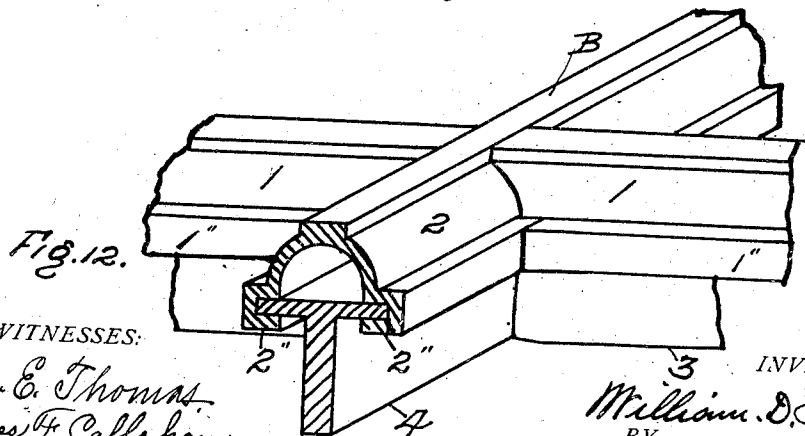


Fig. 12.

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METAL WINDOW-FRAME.

1,005,012.

Specification of Letters Patent

Patented Oct. 3, 1911.

Application filed December 12, 1910. Serial No. 596,762.

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 a new and useful Metal Window-Frame, of which the following is a specification.

My invention relates to a new and useful form of metal window frames, adapted to be used in place of wood or other material heretofore used in making sashes for windows.

My invention consists in an improved metal window frame of easy and cheap manufacture, it is strong, flexible and adaptable in use in making and operating windows.

My improved metal window frame is illustrated in the accompanying drawings in which—

Figure 1 is a perspective view of the top molding of my window frame. Fig. 2 is another view of the same top molding notched for the reception of the stiles or bars of a window frame. Figs. 3 and 4 are perspective views of the metal sections used to form the stiles or bars of the frame. Fig. 5 at *a* is a vertical cross section of 4 at section line *a— a*. Fig. 5 at *b* is a joint formed by 3 and 4 with 4 shown in elevation and 3 in cross section at a line flush with the web of 4. Fig. 5 at *c* shows a cross section of 3 at section line *c— c*. Fig. 6 is a joint formed by 3 and 4 with 3 in elevation and 4 in cross section at a line flush with the web of 3. Fig. 7 is a perspective view of the joint of the frame formed by the bars or stiles 3 and 4. Fig. 8 is a cross section of molding 2 mounted upon stile 4. Fig. 9 is a cross section of molding 2 and stile 4, with the slips C, C, holding panes of glass in place; dotted lines showing position of putty. Fig. 10 shows a perspective view of molding 1 with a U section used for the stile or bar and substituted for the T section shown in the preceding figures. Fig. 11 shows the clip C in elevation and end view. Fig. 12 shows a joint in my improved window frame with T section used for the bars or stiles thereof and top molding attached thereto, part of said molding being notched and continuous and the other part of said molding being parted at said continuous molding.

The top molding of my improved frame and the T section form of the stiles or bars

thereof are preferably formed by rolling metal to the cross section of said molding and the said T section of said stiles or bars shown in Figs. 1, 2, 3, and 4. After said molding has been rolled of a suitable metal of suitable dimensions, it is notched as at 2', Fig. 2, so that it may be passed over the flange of 3 when the same is placed on 4 to form a joint as in Fig. 7. The bar or stile shown in Fig. 3 is preferably rolled in T section of suitable metal and dimensions and is notched at 3' as shown in Fig. 3, so that it may be joined with bar or stile 4. Bar or stile 4 as shown in Fig. 4 is made of suitable metal by rolling in the T section and is notched at 4' 4', Fig. 4, so as to form with 3 the joint or cross shown in Fig. 7.

When the T section stiles or bars 3 and 4 are notched and assembled by placing them so that the notches therein coincide so as to form the structure shown in Fig. 7, with the top surface of their flanges flushed with one another and with the bottom parts of said flanges in substantially the same plane; the top molding shown in Fig. 2 is placed longitudinally with stile 4 so as the flange of 3 is inserted in the notches 2' 2' of said top molding. The bars or stiles 3 and 4 as thus assembled with the notched top molding 2 are placed in a press and the ends 2'' 2'' of molding 2 are pressed around the flanges of 4 as shown in Figs. 9 and 12. After stiles or bars 3 and 4 have been assembled in any desired number and the notched molding 2 is placed thereon and the ends thereof 2'' 2'' are pressed around the flanges of said stiles or bars 4, lengths of molding 1 are cut of sufficient length so that the bead 1' thereof will extend from bead B of molding 2 in one member of the frame to the next adjacent molding 2 over the next parallel stile of the frame. Said short lengths of molding 1, Fig. 12, are fitted and formed at both ends so as to conform to the lines and curves of molding 2. Said short lengths of molding 1 are then placed over the flanges of stile or bar 3 and the ends 1'' of said molding 1 are pressed around the flanges of stile 3. When the T section stiles or bars 3 and 4 are connected together at their notched portions and molding 2 is placed over the flanges of stile or bar 4 and the ends of molding 2 pressed around the flanges of said bars and the short lengths of

molding 1 are cut and fitted and placed over and pressed around the flanges of moldings 3, the construction shown in Fig. 12 results.

Clip C is made of sheet metal and is pressed and cut in the shape shown in Fig. 11; when it is used in connection with my frame before the ends of moldings 1 and 2 are pressed around the flanges of 4 and 3 respectively, said clip C is placed at intervals under said flanges and next to the web of said stiles or bars 3 and 4, and when the ends of moldings 1 and 2 are pressed around the flanges of said bars or stiles, said ends are made to include the ends of said clip so as to form the construction shown in Fig. 9; putty may then be placed under the flanges of the stiles 3 and 4 so as to occupy the space shown in dotted lines, Fig. 9.

Fig. 10 shows a U shaped section substituted for the T section of the other figures the clip C being substituted by the tongue T punched from the U shaped stile.

What I claim as my invention is:

1. In a metal window frame, the combination of series of stiles of T-shaped sections, notched in the lower edges of their webs; a second series of stiles of T-shaped section notched in their flanges and the upper portions of their webs, said series of stiles being adapted when placed across one another and pressed together at their respective notches to form rectangular apertures in said window frame with the tops of the flanges of both of said series of bars being substantially in the same plane; continuous notched moldings adapted to be placed longitudinally along said stiles having notched flanges and notched in the upper portions of their webs and formed to pass over the unnotched flanges of the other series of stiles having webs notched at their lower edges only; said continuous notched moldings having downwardly extending ends adapted to be bent around the flanges of the stiles having notched flanges and notches in the upper portions of their webs; and sectional moldings adapted to be placed over the flanges of the bars having notched webs only and having downwardly extending ends adapted to be bent around the flanges of said last mentioned bars, being made of such length and being fitted so as to extend along the stiles having notched webs only between the lines of continuous moldings mounted upon the flanges of the stiles having notched flanges and webs.

2. In a metal window frame the combination of series of T-shaped bars notched at the lower edges of their webs only; a second series of T-shaped bars notched in their flanges and in the upper parts of their webs; continuous moldings mounted on said bars notched in their flanges and the upper parts of their webs, said continuous moldings being notched so as to pass over the entire

flanges of the other series of bars; and sectional moldings of the same cross section as the continuous moldings, adapted to be mounted upon said series of T-shaped bars, having notches in the lower portions of their webs only, between the lines of said continuous moldings, both said series of T-shaped bars being so notched as to webs and flanges that when placed across one another the top surfaces of their flanges will be substantially in the same plane.

3. In a metal window frame the combination of series of T-shaped bars notched in their flanges and the upper parts of their webs; a second series of bars, having continuous flanges notched at the lower edges of their webs only; continuous moldings mounted longitudinally on said series of bars notched at their flanges and the upper portions of their webs, said continuous moldings being notched so as to pass over the continuous flange of said series of bars notched at the lower edges of their webs only, said moldings having downwardly extending ends adapted to be bent around the notched flanges of said first series of bars; sectional moldings of the same cross section as said continuous moldings with downwardly extending ends adapted to be mounted upon said bars having continuous flanges and notched at the lower edges of their webs only between said continuous moldings, having downwardly extending ends being adapted to be bent around the continuous flanges of said second series of bars; and glass-holding clips attached to the under side of the flanges of both of said series of bars by the downwardly extending ends of said continuous and sectional moldings bent around the flanges of said bars; both of said series of T-shaped bars being so notched as to webs and flanges that when placed across one another the top surfaces of their flanges will be substantially on the same plane.

4. In a metal window frame the combination of series of T-shaped notched bars so formed that when placed across one another at their notches the top surfaces of their flanges are substantially in the same plane; moldings mounted upon said series of bars; and glass-holding clips attached to the under side of said flanges of said bars by the bending of the downwardly extending ends of said moldings.

5. In a metal window frame the combination of two series of T-shaped notched bars so formed that when placed across one another at their notches, the top surfaces of their flanges will be substantially in the same plane; with continuous top moldings notched at their lower edges affixed to one of the series of said bars and sectional top moldings affixed to the other series of said bars, between the parallel lines of continuous top moldings, both of said moldings be-

ing affixed to the flanges of said bars at their lower downwardly extending ends.

6. In a metal window frame the combination of two series of T-shaped bars notched
5 so that when placed across one another the bottom surfaces of the flanges of both of said series of bars adapted for the reception of panes of glass are substantially in the same plane; and series of moldings mounted
10 upon said series of bars, the one series of moldings being continuous and notched at their lower edges and attached to one series of bars, and the other series of moldings being
15 continuous notched moldings and attached to the other series of bars.

7. In a metal window frame the combination of series of T-shaped bars notched so
20 that when placed across one another the bottom surfaces of the flanges of both of

said series of bars adapted for the reception of panes of glass are substantially in the same plane; series of moldings mounted upon said series of bars; the one series of moldings being continuous and notched at
25 their lower edges and the other series of moldings being sectional and extending between said continuous notched moldings mounted as aforesaid; and glass-holding
30 clips attached by the downwardly extending ends of said moldings to the under side of the flanges of said bars.

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

WILLIAM D. FORSYTH.

Witnesses:

M. E. THOMAS,
JAMES F. CALLAHAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."