W. E. WORTHEN.

METALLIC SASH.

No. 28,030. Patented Apr. 24, 1860.

Fig: 3.

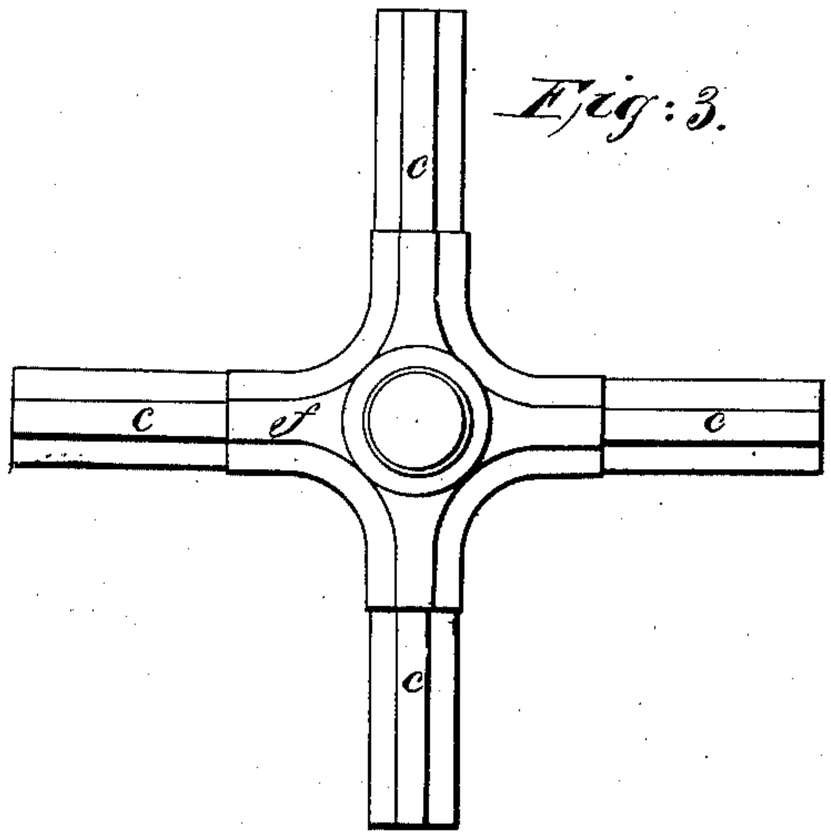


Fig: 4.

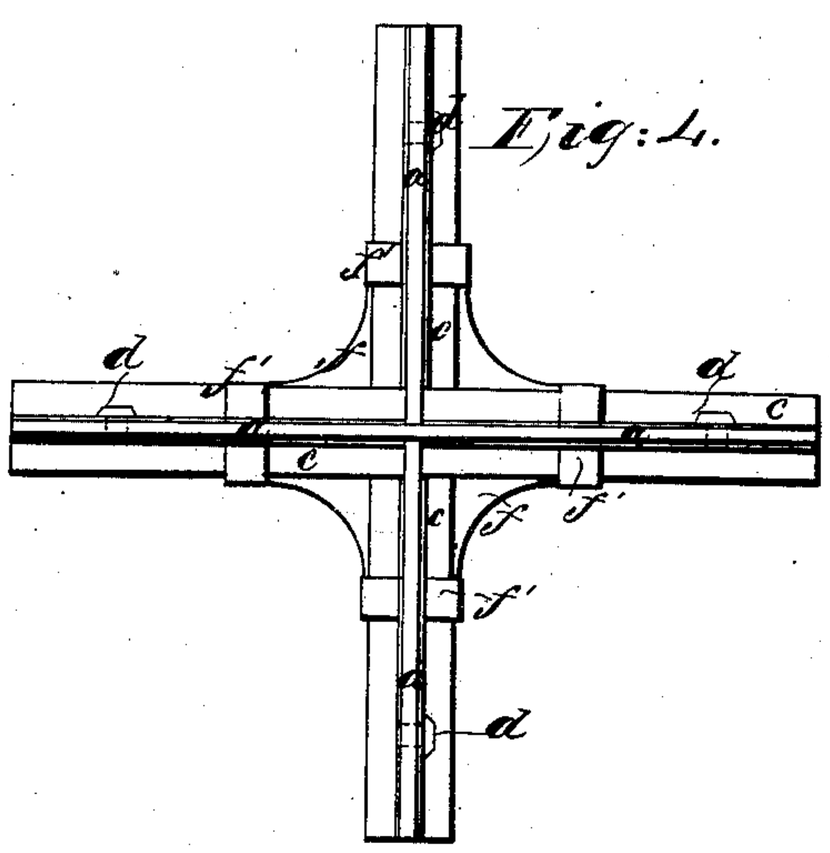


Fig: 1.

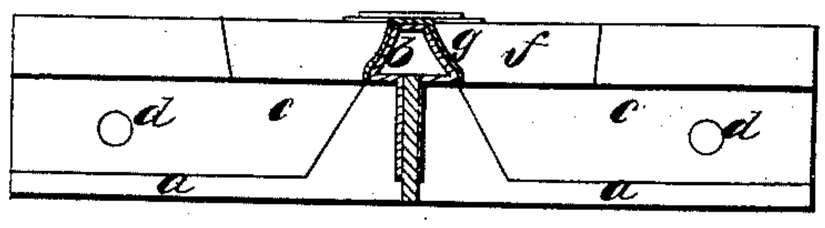
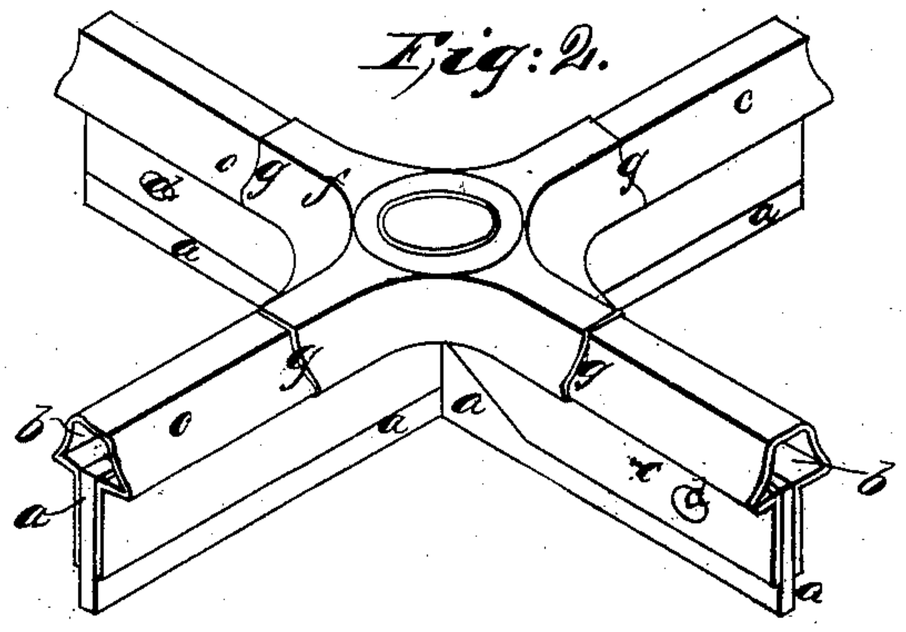


Fig: 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

WM. E. WORTHEN, OF NEW YORK, N. Y.

METALLIC SASH.

Specification of Letters Patent No. 28,030, dated April 24, 1860.

To all whom it may concern:

Be it known that I, WILLIAM E. WORTHEN, of the city, county, and State of New York, have invented a new and useful Metallic Sash, and that the same is fully, clearly, and exactly set forth in the following description and the drawing making part thereof.

In the drawings, Figure 1 is an elevation of a portion of a sash showing one bar in section. Fig. 2 is a perspective view of a portion of a sash. Fig. 3, a plan of the upper side and Fig. 4 a plan of the lower side thereof.

My object in making this invention has been to devise a light and cheap metallic sash, sufficiently strong for all practical purposes, and affording the requisite support for the panes of glass. The sash is made by taking as many lengths of flat iron or other metal as may be necessary of about the size and shape of those shown in the drawings at *a*, *a a* into each of these pieces are to be cut gains or notches reaching half through the iron, care being taken to make the notches of but little greater width than that of the iron bars and to space the notches so that they will be at the points where the bars cross in making a frame. When the bars are thus properly notched one set of them is to be laid in rows at the proper distance apart with the notches upward and the other set are to be forced down into them in such manner that the notches of the upper set clasp the iron which lies just below the notches of the lower set; and it will follow that the notches of the lower set will clasp the iron just above the notches of the upper set and that the two sets will be halved together. The metallic bars will thus form a frame having rectangular or lozenge shaped openings, and each set will sustain and hold the other set in place. Pieces of sheet iron or other metal are then to be bent by hand or any proper machinery so as to have a cross section substantially like that shown in the drawings at *b b*, the essential characteristics of the shape being that these pieces *c c c* shall embrace the bars *a a a*, closely and shall swell out so as to form a shoulder against which the panes of glass may rest. These bent pieces are to be cut into lengths that will reach from crossing to crossing of the bars, and are to be slipped down over them occupying the position shown in the drawings, and are to be secured to the bars in any convenient way, small rivets as represented at *d d d*, answering very well.

The sash is now fit to support glass and to sustain itself in shape, but the bars of one set would separate from those of the other, if pushed inward or outward as the case might be when the sash was in place. In order to make the sash secure there are to be stamped or struck up out of sheet metal, corner pieces *f f f*, of sufficient size to cover four meeting ends of the bent pieces of sheet metal. These corner pieces or bosses have four arms, and the ends of the arms should be so struck up as to fit closely upon the bent pieces of sheet metal as clearly represented at *g*, *g g* Figs. 1 and 2. When the useless parts of the metal out of which they are stamped are cut away, two ears or flaps such as shown at *f′ f′ f′* Fig. 4 are to be left attached to each arm of the boss, and after the boss is placed in position as shown in the drawings these flaps are to be bent under the shoulders of the bent pieces of sheet metal. The bosses thus shaped, fitted and secured in place perform the double duty of concealing and protecting the joints at the corners of each pane of glass and of holding each set of bars and their attached pieces of sheet metal so that the one set cannot be pulled or pushed away from the other.

If desired the sash may be made still stronger by soldering or brazing the ends of the arms of the bosses to the bent pieces of sheet metal, and I sometimes intend not to use the flaps which when bent act as clasps and to depend upon soldering or brazing only. The sash thus made is sufficiently strong for all practical purposes, is light and when proper tools are employed for striking up the bosses and bending the sheet metal shoulders it is comparatively speaking cheap.

I claim as of my own invention—

The combination of metallic bars, with bent pieces of sheet metal constituting

shoulders against which panes of glass may rest and with sheet metal bosses when the whole are joined each to the other substantially in the manner set forth and constituting a metallic sash substantially such as is herein before described.

In testimony whereof I have hereunto subscribed my name in the city of New York on this 7th day of March A. D. 1860.

W. E. WORTHEN.

In presence of—
ELIJAH P. LEONARD,
J. J. HETHAME.