C. A. McGINNIS.

SHEET METAL SASH.

APPLICATION FILED AUG. 12, 1909.

961,731. Patented June 14, 1910.

Fig. 1.

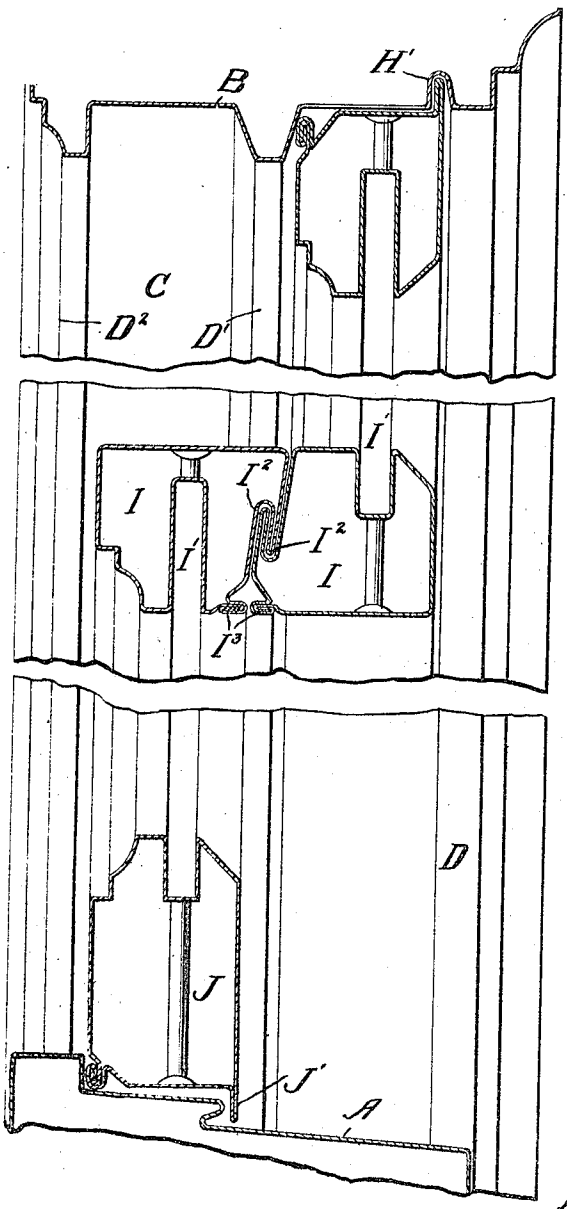


Fig. 2.

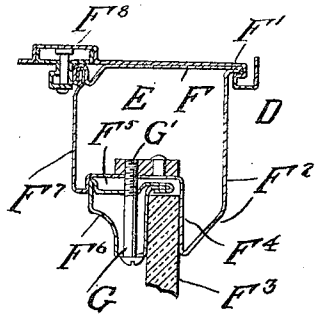


Fig. 3.

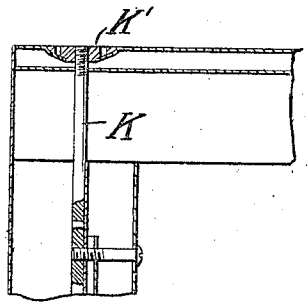
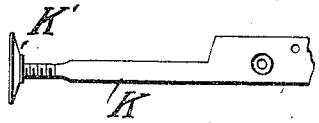


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SHEET-METAL SASH.

961,731. Specification of Letters Patent. Patented June 14, 1910.

Application filed August 12, 1909. Serial No. 512,474.

To all whom it may concern:

Be it known that I, CLAUDE A. McGINNIS, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Sheet-Metal Sash; of which the following is a specification, reference being had therein to the accompanying drawing.

The general object of this invention is to provide at low cost a hollow sheet metal sash capable of resisting fire itself and of tying the sides of the window frame together, each sash further having a meeting rail adapted to engage a companion rail in such manner that the two cannot be bent from each other to leave an open passage.

In the accompanying drawings, Figure 1 is a vertical section through a window made in accordance with this invention. Fig. 2 is a cross section of one of the sash stiles. Fig. 3 is a section, parallel to the glass, through one corner portion of a sash. Fig. 4 is a side view of a certain bolt used for joining the horizontal members to the vertical members, or the rails to the stiles and muntins.

In these views, A represents a portion of a window sill, B a portion of a head jamb, and C the side jamb of a sheet metal window frame provided with an integral hooked stop D, a hooked parting stop D', and an inside sash stop D^2, all without novelty herein claimed.

The body of each sash stile E is formed by bending a plane sheet to form an edge face F having at one side a projecting fold or lip F' to engage the hooked stop of the frame, whereby the sash ties the jambs together, an outer face F^2 carried in to the plane of the glass, F^3, and offset F^4 against which the side face of the glass rests, a groove F^5 as wide as the combined thickness of the glass and glass retaining stop F^6, an inner face F^7, and a double lock seam F^8 which touches the planes of the faces F, F^7, one of which is bent inward alongside the seam to form a channel for receiving a seam-forming die. The edge and inner faces of the glass are supported by the stop F^6 which is secured in place by bolts G engaging nuts G' riveted in place in the stile. The upper rail of the upper sash is folded in a similar way and has its margins interlocked at the upper inner angle, as shown. In this case there is no stop, the glass being held in a recess formed by bending the constituent sheet. At the upper outer angle this member is provided with a double integral lip H' parallel to the plane of the sash, and projecting into a groove in the head jamb of the frame. Each meeting rail I is similarly formed with a glass-receiving groove I', and the inclined meeting faces of the two rails are folded to form engaging hooks I^2 extending from end to end of the rails and securely locking them against separation under the action of heat and also barring the insertion of any instrument for tampering with such sash lock as may be provided. Each rail has the margins of its constituent sheet secured in a double lock seam I^3 at its lower inner angle. The lower rail J is formed similarly to the upper one but its lip J' projects over an offset in the sill instead of into a groove.

The stiles or vertical members are fitted to the rails or horizontal members and are secured thereto by bolts K (Figs. 3 and 4) which have their flat inner ends riveted to the stiles and at their threaded outer ends are engaged by nuts K' flush with the walls of the rails which are indented to receive them. Some of the flat inner ends of these bolts also serve as nuts for stop-retaining bolts.

Each main member of the sash being formed by bending a plane sheet along parallel lines, the member is formed, complete by first cutting and perforating the plane sheet and then simply folding it and seaming it by dies.

What I claim is:

1. A sash body member consisting of a metal sheet bent along parallel lines to form a tubular member and having its marginal portions interlocked at one angle of the member in a double lock seam lying within the general planes of the two adjacent faces of the member; said member having a depression in one face alongside said seam, whereby the seam thus within the general planes is without the tube and may be grasped by external compressing dies.

2. In sheet metal sash, a metal sheet bent along parallel lines to form a tubular meeting rail having an inclined face to meet the corresponding face of its companion and having its marginal portions formed into a double lock seam below said inclined face and within the general planes of that and

the adjacent face; said sheet being bent inward alongside said seam to permit compressing the seam by external dies alone.

3. A hollow sheet metal sash having its vertical members secured to the horizontal members which they meet by bolts within and fixed to the walls of the vertical members and passing through the horizontal members.

4. A hollow sheet metal sash having one of its main members passing over the end of the companion member at each point of intersection and secured thereto by a bolt lying wholly within the face walls of the members, and an external nut filling a depression in the sheet metal around the outer end of the bolt, substantially as set forth.

5. The combination with a sheet metal sash having at each point of intersection one of its constituent hollow members fitted against the end of the other and having its outer wall bent inward to form a depression, of a threaded bolt lying in the abutting member passing through the companion member in the axis of said depression and provided with a terminal enlargement, or head, fitting and filling said depression.

6. A hollow sheet metal sash having its rails and stiles connected by a bolt flattened at its inner end and adapted to receive a transverse stop retaining screw, and having at its threaded outer end a nut adapted to fit and fill an indentation in the outer face of the connected member.

In testimony whereof I affix my signature in presence of two witnesses.

CLAUDE A. McGINNIS.

Witnesses:

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Fair Dodd.