No. 749,201. PATENTED JAN. 12, 1904.

J. A. KNISELY.

METAL WINDOW FRAME AND SASH.

APPLICATION FILED OCT. 4, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

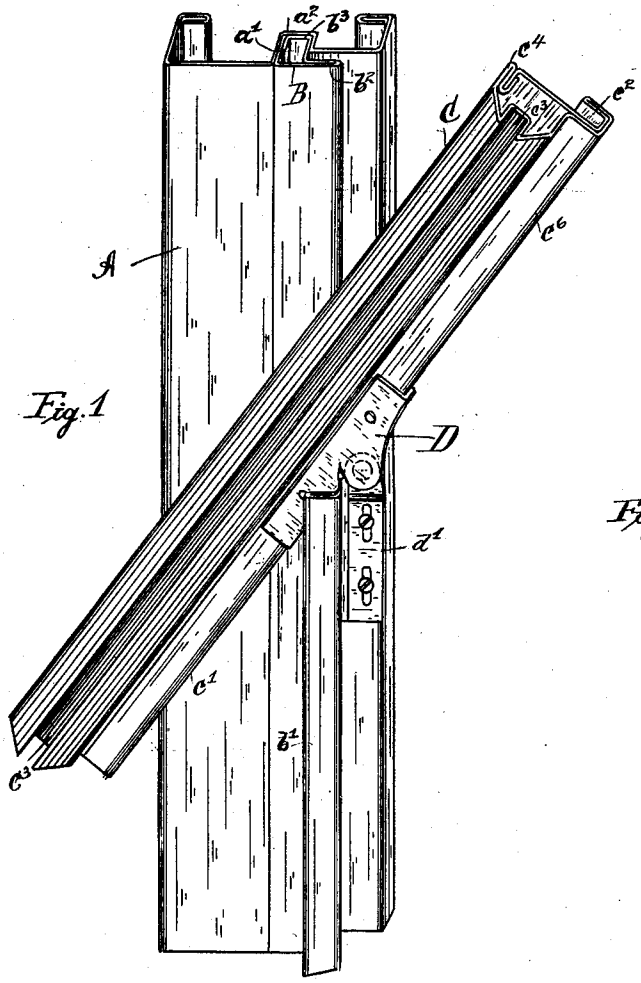


Fig. 1

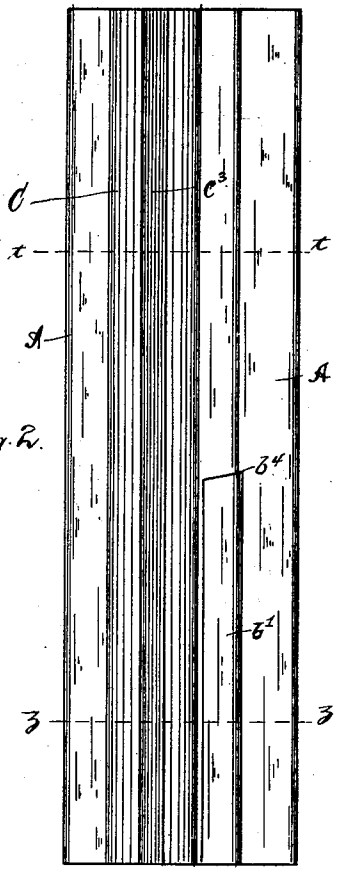


Fig. 2.

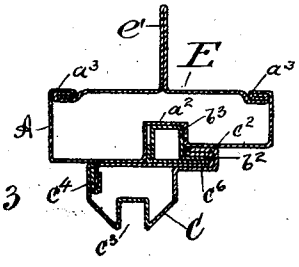


Fig. 3

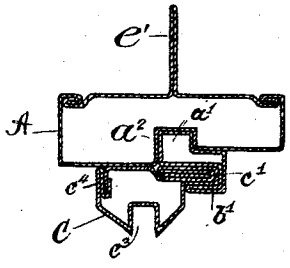


Fig. 4.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 5.

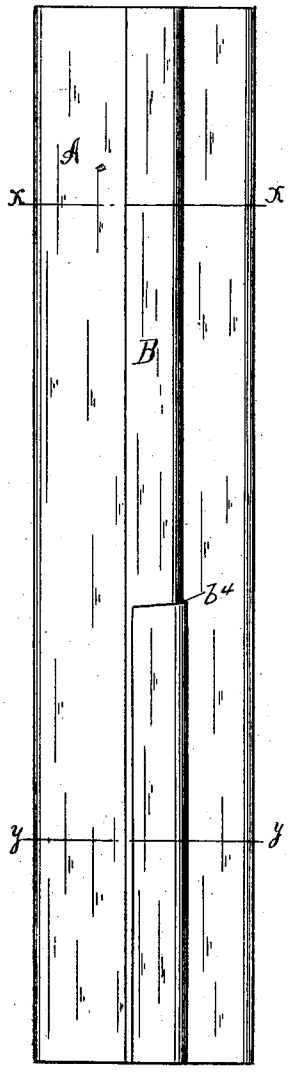
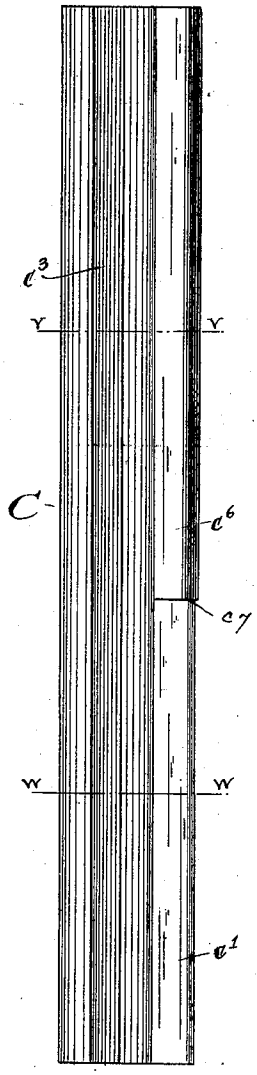


Fig. 8.



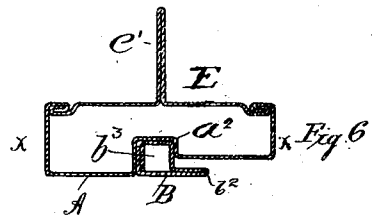


Fig. 6

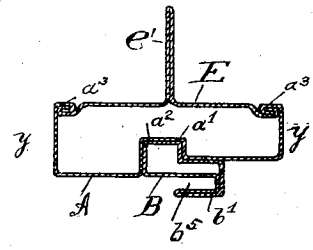


Fig. 7.

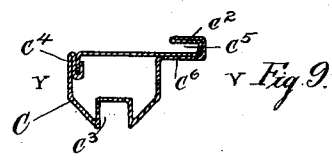


Fig. 9.

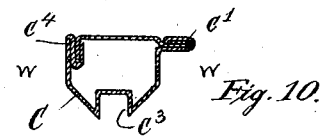


Fig. 10.

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No. 749,201. Patented January 12, 1904.

UNITED STATES PATENT OFFICE.

JOHN A. KNISELY, OF CHICAGO, ILLINOIS.

METAL WINDOW FRAME AND SASH.

SPECIFICATION forming part of Letters Patent No. 749,201, dated January 12, 1904.

Application filed October 4, 1902. Serial No. 125,970. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. KNISELY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Methods of Constructing Metal Window Frames and Sash, of which the following is a specification.

My invention relates to improvements in methods of constructing sheet-metal window frames and sash of the pivoted interlocking type.

The chief objects of my improvements are to so form, assemble, and connect the parts composing sheet-metal frames and sash that the parts which interlock will be able to stand lateral strain or twist, remain stiff under the weight of the fireproof glass usually used in this type of window, which will not bind between sash and frame and yet will afford a weather-tight joint between said parts when the window is closed, in which but little solder is used, and last and most important of all in which even though the solder should melt the parts secured thereby will hold together, and thus substantially retain the integrity of the structure even though fire should assail the parts involved.

The commonly-sought objects of economy of construction, neatness of appearance, durability, and general efficiency are attained through my improvements, which will be described in detail and which are illustrated in the accompanying drawings, which form a part of this application.

Figure 1 shows in perspective a section of a window frame and sash constructed according to my invention. Fig. 2 is an elevation of the same parts in the position taken when the window is closed. Fig. 3 is a cross-section on the line *t t* of Fig. 2. Fig. 4 is a cross-section on the line *z z* of Fig. 2. Fig. 5 is an elevation of the central portion of the window-frame alone. Figs. 6 and 7 are cross-sections, respectively, on the lines *x x* and *y y* of Fig. 5. Fig. 8 is an elevation of one side or stile of the window-sash alone. Figs. 9 and 10 are cross-sections, respectively, on the lines *v v* and *w w* of Fig. 8.

Referring to the drawings in detail, A represents a portion of the side members of a sheet-metal window-frame, with which is pivotally connected, through hinge D, a sheet-metal window-sash C, the latter and the frame having portions which interlock when the sash is moved to a vertical or closed position, as will be more particularly described. The frame side member, as shown in Fig. 7, is constructed from two pieces of sheet metal, one piece forming the portion A and the other forming the meeting-strip B, which is fitted to A and when assembled forms a part of the frame. The sheet of metal is bent longitudinally into the rectangular form shown, and in the face or middle part between the two bends is formed by a suitable die a channel a^2, which extends throughout the length of the frame and is rectangular in cross-section, but with one of its side walls of less height than the opposite wall.

In Figs. 3, 4, 6, and 7 is shown a piece E, which is formed with a center flange e' and has its edges interlocking the edges a^3 of the member A, thus completing the weight-box.

Seated in the channel a^2 is the meeting-strip B, which is formed by bending a strip of sheet metal in the two forms shown in cross-sections in Figs. 6 and 7, the dividing-line being at a point b^4, (shown in Fig. 5,) which represents the pivotal point for the sash. Above said point the metal is bent to form a tongue b^2, which projects in the plane of the face of the frame, the metal being returned upon itself and bent at right angles to form the part b^3, which fits into the channel a^2, with the edges of the strip overlapping, as clearly shown. The normal pressure of the portions of the strip inclosed in the channel against the walls of the latter will serve to hold the portion B in place under ordinary conditions; but in order to insure against displacement I solder the portion B to the portion A at several points of contact. Below the pivotal point b^4 the strip is bent to form an outwardly-projecting tongue or flange b', between which and the main portion of the strip is left sufficient space, as b^5, to receive the flange c' of the sash-stile C. The portions of the strip adjacent to the edges are bent to conform to the walls of the channel, forming a hollow box a', fitting

snugly within the channel a^2, which will retain its position through the normal pressure of the metal sides of the meeting-strip B against the walls of said channel. It will be noted that the construction described provides for retaining the portion B in juxtaposition with the portion A against strain in every direction, except at right angles to the face of the frame, and there is no chance for displacement in this direction when the sash is in position, as will be readily understood.

The sash which I adapt to the frame constructed as above described is formed from a single sheet of metal bent to form a seat c^3 for the window-glass and with interlocking edges c^4. Above the pivotal point c^7 the strip is bent to form an inwardly-extending flange c^2, between which and the strip is a space c^5, which is adapted to receive the tongue b^2 of the part B of the frame. Below the pivotal point the strip is folded upon itself to form the flange or tongue c', which is adapted to fit under the flange b' of the frame in the channel b^5 when the window is closed, it being understood that the tongue extends at right angles from the side walls of the box portion of the sash-stile and in substantially the same plane with the outside face of the stile. It will also be understood that the coöperating tongue b^2 and groove or way c^5 and tongue c' and groove b^5 are so proportioned that the edges of the tongues will strike against the bottoms of the respective channels or grooves when the sash is in its closed position, thus effecting a close joint at such points. By constructing the sash-stile from a single strip of metal I do away with the necessity of soldering any of its joints or seams and effect a much stronger and stiffer construction than would be possible if any portions, and especially the tongues, were soldered on.

Though I have shown a peculiar form of pivot or hinge, as D d', the same forms no part of this application and is therefore not described in detail.

Having thus described my invention, what I claim as new, and desire to obtain by Letters Patent, is—

1. In a window-frame, a side member composed of a sheet of metal bent to form a rectangular channel extending throughout the length of the member, a meeting-strip composed of a single sheet of metal bent to form a rectangular and closed portion adapted to fit within said channel, also bent for a portion of its length to form a tongue projecting in the plane of the face of the frame, and for the rest of its length bent to form an overhanging flange.

2. In a window-frame, a side member composed of a sheet of metal bent to form a rectangular channel extending throughout the length of the member, a meeting-strip composed of a single sheet of metal bent to form a rectangular and closed portion adapted to fit within said channel, also bent for a portion of its length to form a tongue projecting in the plane of the face of the frame, and for the rest of its length, bent to form an overhanging flange, in combination with a sash-stile having a channel to receive the tongue on said frame member and a tongue to fit under the overhanging flange of the frame member.

3. In a window-frame, a side member composed of a sheet of metal bent to form a rectangular channel extending the full length of and in the face of said member, and a meeting-strip composed of a single sheet of metal bent to form a rectangular portion fitting said channel and adapted to be held in place by frictional engagement with the walls of said channel.

4. A sheet-metal window-frame composed of a sheet of metal bent to form a channel extending longitudinally throughout, and a separate strip of metal having portions seated in said channel and engaging the walls of the latter, said strip bent upon itself to form the tongue b^2 and the flange b', all substantially as shown and described.

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

JOHN A. KNISELY.

Witnesses:
F. BENJAMIN,
R. G. ROBERTS.