

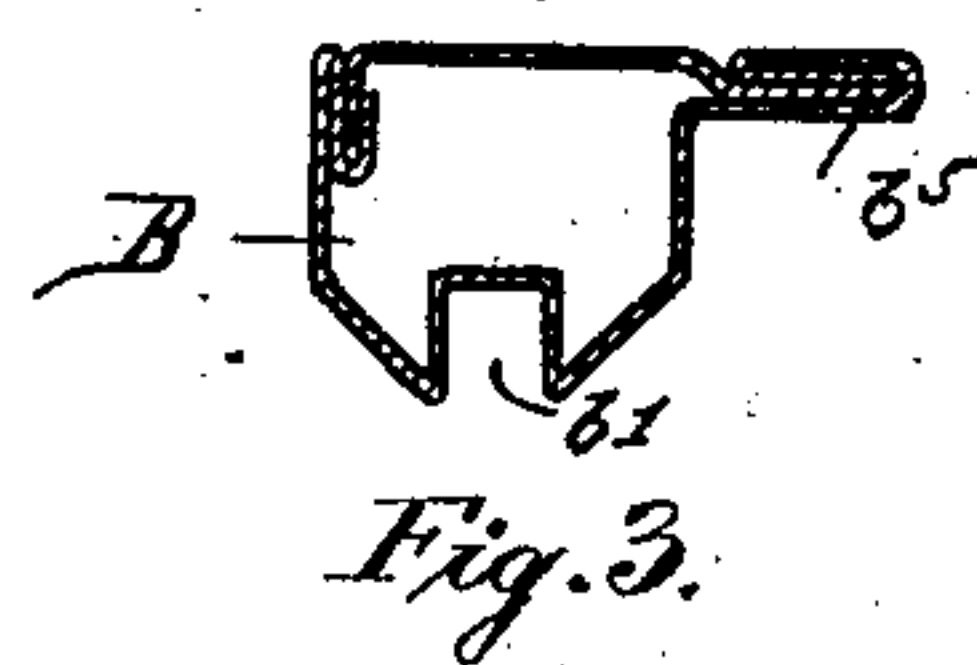
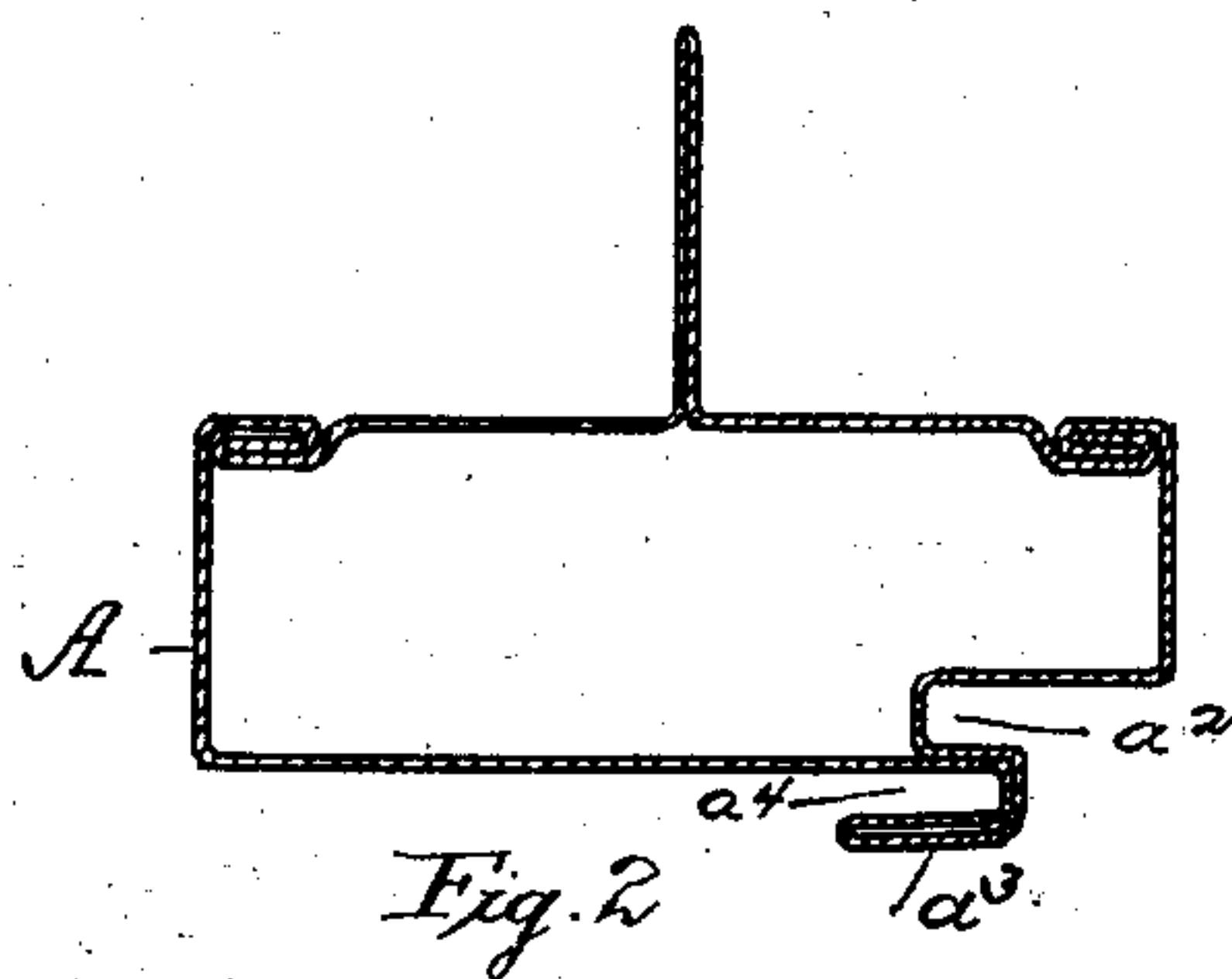
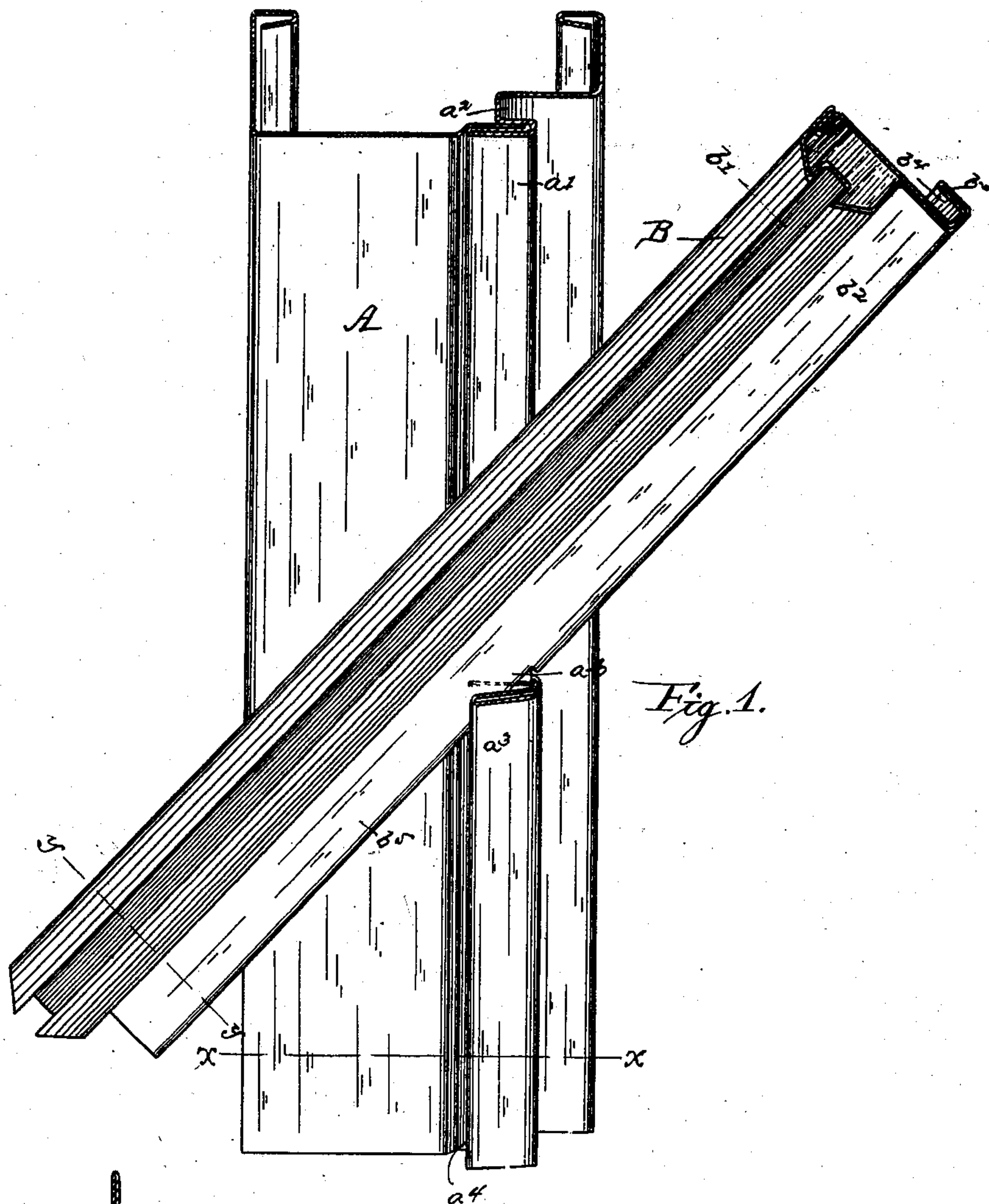
No. 751,521.

PATENTED FEB. 9, 1904.

J. A. KNISELY.  
METAL WINDOW.

APPLICATION FILED OCT. 2, 1902.

NO MODEL.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JOHN A. KNISELY, OF CHICAGO, ILLINOIS.

## METAL WINDOW.

SPECIFICATION forming part of Letters Patent No. 751,521, dated February 9, 1904.

Application filed October 2, 1902. Serial No. 125,639. (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 Metal Windows, of which the following is a specification.

My invention appertains to the construction of sheet-metal window frames and sash, and in which the sash is horizontally pivoted on the frame.

The object of my invention is to provide a sheet-metal frame of box form and with interlocking and projecting flanges constructed from a single sheet of metal and to provide a window-sash pivotally mounted on such frame and said sash of the box or inclosed form provided with seats for the light or glass and having interlocking flanges which coöperate with the flanges on the frame and constructed from a single sheet of metal.

In the accompanying drawings, which form a part of this application, Figure 1 is a perspective view of the central portions of the stiles of a window-sash and window-frame constructed according to my invention and showing the sash in a tilted position. Fig. 2 is a cross-section on the line  $xx$  of Fig. 1, and Fig. 3 is a cross-section on the line  $yy$  of Fig. 1.

Referring to the drawings in detail, A represents the stile or vertical portion of a sheet-metal frame, in the outer face of which is formed by bending the metal a longitudinal channel  $a^2$ , which extends the full length of the frame. The folded or bent portion of the metal is cut horizontally, as indicated by dotted lines at the pivotal point  $a\ b$ , and above such point the fold is doubled upon itself and pressed together, forming a tongue  $a'$ , which projects in substantially the same plane with the outer face of the frame and overhangs the channel  $a^2$ . As there are four thicknesses of metal along this tongue, it will be apparent that a stiff construction is thereby secured and one in which no solder is required to maintain the integrity of the tongue under all conditions to which it may be subjected in use. Below the pivotal point  $a\ b$  the folded

portion of the metal is doubled upon itself, but not pressed together, thus leaving a channel  $a^4$  between the outer face of the frame and the flange  $a^3$ , formed by the fold, as shown in Fig. 2. The tongue  $a'$  extends from the pivotal point to the head of the frame, while the flange  $a^3$  and groove  $a^4$  extend from said point to the sill.

The sash-stile B is formed from a single sheet of metal bent to form a channel  $b'$  for the glass and the metal folded above the pivotal point  $a\ b$  to form a flange extending at right angles to the channel  $b'$ , as  $b^2$ , and said fold doubled upon itself to form a channel  $b^4$  and overhanging flange  $b^3$ , parallel with the flange  $b^2$ . Below the pivotal point the folded metal is doubled and pressed together to form a tongue  $b^5$ , as shown in Fig. 3, said tongue extending at right angles from the box-like body of the sash-stile.

When the sash is pivotally mounted on the frame, it is so placed that the tongue  $a'$  of the frame will enter the channel  $b^4$  of the sash, and the tongue  $b^5$  of the sash will enter the channel  $a^4$  of the frame when the sash is moved to its closed or vertical position.

From the construction as above described it will be seen that no soldering is required to retain the parts in the shapes given them by the several bends in the metal and that the coacting or interlocking portions of the frame and sash are made so stiff that they will withstand all lateral pull or pressure or tendency of the sash to twist. It will also be apparent that there will be no rough or unsightly joints, such as inevitably occur when the flanges or tongues are soldered on in the manner common in the art. These advantages are especially important when the sash and frames are constructed from sheet-copper, which by reason of its ductility and comparative lightness is more sensitive to the weight and strain to which it is subjected than the sheet-iron commonly used.

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

A window-frame having its side members each composed of a single sheet of metal bent

to rectangular form in cross-section, also bent  
to form a channel, extending the full length  
of the member, also bent to form a tongue  
projecting in the plane of the face of the mem-  
5 ber, and bent to form a flange overhanging a  
portion of said tongue with a channel between  
said overhanging flange and the tongue.

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

JOHN A. KNISELY.

Witnesses:

F. BENJAMIN,  
R. G. ROBERTS.