(No Model.)

W. HENDERSON.

WINDOW SASH BAR.

No. 420,510. Patented Feb. 4, 1890.

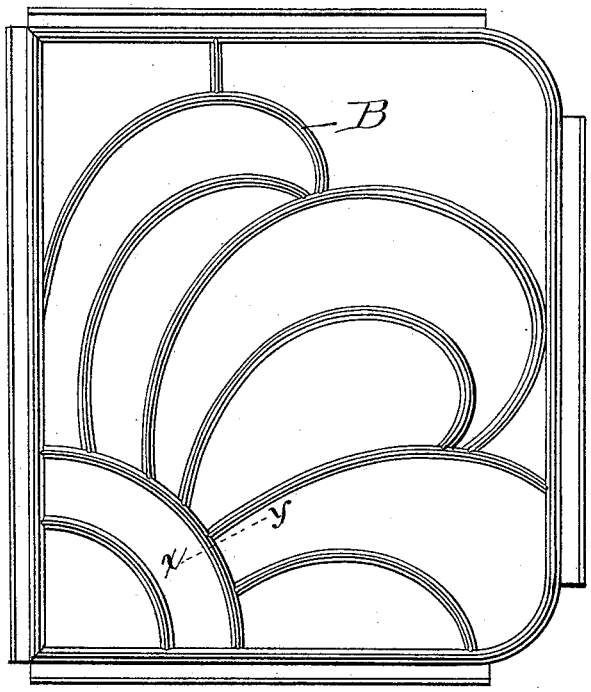

Fig. 1.

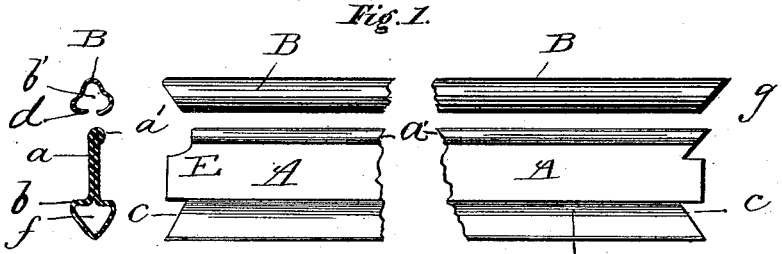

Fig. 2.

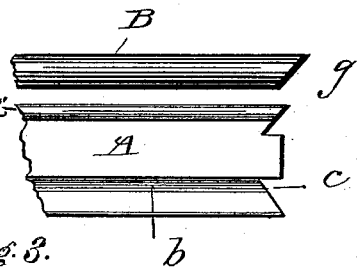

Fig. 3.

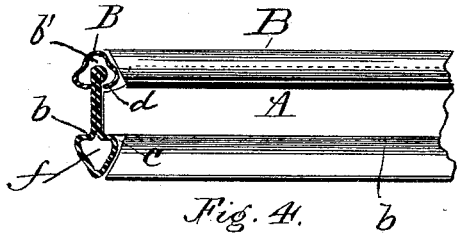

Fig. 4.

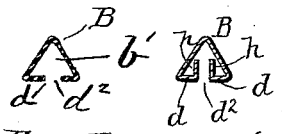

Fig. 5.

Fig. 6

Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM HENDERSON, OF CHICAGO, ILLINOIS.

WINDOW-SASH BAR.

SPECIFICATION forming part of Letters Patent No. 420,510, dated February 4, 1890.

Application filed March 15, 1889. Serial No. 303,485. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENDERSON, a subject of the Queen of Great Britain, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Window-Sash Bars, of which the following is a specification.

My invention relates to rails or cross-bars and fastening for window-sashes, and is more especially adapted to that class of sashes which contain many small pieces of glass cut in numerous configurations and designs, such as is seen in stained-glass windows and other ornamental windows; and the objects of my improvements are to furnish a strong and durable cross-bar and fastening which shall be of little weight, which will not rust or corrode, which can be easily bent into any desired form, and is readily placed in any sash and removed therefrom conveniently, and also to facilitate the operation of repairing or replacing broken parts without interfering with the other portions. I attain these objects by the peculiar construction of the bar and the removable fastening or cap; and in order to enable others skilled in the art to which my invention pertains to make and use the same I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a front view of my bar and fastening as it appears in a window-sash. Fig. 2 is a transverse section of the bar and cap. Fig. 3 is a side elevation of the bar and cap with the latter removed, showing the notched ends. Fig. 4 is a sectional view taken at the line $x\ y$, Fig. 1, and shows the manner of securing or locking one bar to another. Figs. 5 and 6 are views of modified forms of the cap.

In the drawings, A represents my bar, formed of one piece of material, and preferably made of metal.

a is the rib thereof, having its upper part made with a flange a', as seen in Fig. 2 of the drawings, for securing more firmly the cap or fastening, as will be presently explained. The lower part of this stem or rib is formed with shoulders $b\ b$ at right angles with the rib, for supporting the glass, and beneath said shoulders I preferably form a hollow f of any desired form. It will be readily understood that the hollow portion of the bar can be dispensed with, thus leaving it with a flat surface, or that portion may be solid; but I prefer to form it hollow, as shown, thereby gaining strength without materially increasing the weight of the bar. It is also evident that this form affords a better surface for finishing.

At each end of the bar A, I provide notches $c\ c$, preferably of an acute-angle form, as shown in Fig. 3. The lower notches are adapted to connect with and fit over the shoulder of the transverse bar, as seen, and will be more readily understood by reference to Fig. 4 of the drawings. By clipping off a portion of the upper notch on the rib a the bar is formed as seen at E, which form permits the cap to rest upon the surface of the glass and hold it securely in place.

B is a cap, made of one piece of material and preferably of metal shaped to form a hollow b', which may be of any form, but preferably of triangular form, as shown in Fig. 5. It will be observed that at the bottom of the cap and opposite the apex of the hollow b' I provide a longitudinal slot d^2, which extends the entire length of the securing-cap. Into this slot the rib a is inserted, and the cap is pressed down over the same until the lips d rest upon the surface of the glass. Of course the cap may be made of any size and the exterior of any form which may be found to be best adapted to receive a polish or finish. While I prefer to form the cap with a triangular hollow and have found from experience that such a form is more desirable, yet I may use a hollow of the form shown in Fig. 2 or any other shape without departing from the spirit of my invention.

In Fig. 6 I have shown a modified form of a cap which I may sometimes use, and in this modification I form the cap of one piece of material, as before, with the longitudinal slot d^2, and lips d at right angles with the slot, as shown. The edges of the lips d are bent upward within the hollow of the cap at substantially right angles with the lips, and form the parallel sides $h\ h$ of the groove or slot. These parallel sides will clasp the rib a firmly and prevent a rocking or lateral

movement of the cap on the rib, as will be understood by reference to the drawings.

In bending the cap B to conform to the curve of the bar, and so that the adjustment of the cap on the rib of the bar can be easily effected, I place the rib *a* within the groove d^2 of the cap and bend both cap and bar at the same time, and in order to prevent the cap slipping from the rib while thus working the material I sometimes form the rib with a slight enlargement *a'* at the top thereof. This enlargement also assists in retaining the cap in place after the glass is in position, and gives additional strength to the whole bar; but it is not absolutely necessary to hold the cap in place, as this is done by soldering the ends of the cap to its transverse cap, which it overlaps and interlocks, as is seen in Fig. 4 of the drawings. It will be further noticed that each end *g* of the cap is cut at a suitable angle to conform to the side of the cap with which the end meets, thus allowing it to fit snugly against the transverse cap and to press against the surface of the glass. In forming the notches on the ends of the bar the cap is placed over the rib *a*, and with a suitable machine the notches are made. The cap is then removed, and the portion of the upper notch is clipped off to form the ends, as at E. By this operation I am enabled to cut the cap and bar of corresponding length, thus making the adjustment of the cap an easy matter.

My object in clipping the upper end of the rib *a*, as seen at E in Fig. 3, is in joining the parts together the lower portion of the transverse bar will fit in the angular notch *c*, and the transverse cap will rest on the glass when it (the glass) is thick; but when thin glass is used the cap will rest on the clipped end E of the rib *a*.

In manufacturing my bar and cap I may use a die of proper form and "draw" the metal through the same, or I may take strips of metal of suitable dimensions and form the same as desired by folding or otherwise. It is also evident that I can make them of various kinds of sheet metal and other material, and that the contour of the cap and of the lower portion of the bar may be made in numerous designs.

In use my bars and caps are easily applied to any window-sash, and are especially adapted to be used in doors or windows where sudden shocks or jars occur, as my construction secures the glass very firmly. The application is evident. The bars and caps are cut in suitable lengths and bent into any desired form. The cap is then removed, and the edge of the glass rests upon the shoulders of the bar. The cap is then placed on the rib *a* and pressed down until the lower portion rests upon the surface of the glass. The ends of the caps may then be soldered to the connecting one, thus making the fastening more secure.

It is readily understood that I can form the cap B with a groove or channel having parallel sides, or may form it with a core; but I prefer the formations above named. It is also obvious that I may form the rib *a* with a flange on each side of the same at the top, or I may use only one flange, as shown.

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

1. The cross-bar A, having the shoulders *b b* and rib *a* at right angles therewith, the hollow projection *f* beneath the shoulders, the ends formed as at *c c* and E, and the vertically-adjustable cap B, substantially as shown and described, and for the purpose set forth.

2. The combination of the cross-bar A, having the rib *a* and shoulders *b b* at right angles with the rib, the hollow projection *f*, the ends formed as at *c c* and E, with the vertically-adjustable cap B, having slot d^2 and lips *d d* at right angles with the rib when in the slot, substantially as shown and described.

3. The combination of the cross-bar A, having the rib *a* and shoulders *b b* at right angles with the rib, the hollow projection *f*, the ends formed as at *c c* and E, with the vertically-adjustable cap B, having slot d^2, lips *d* at right angles with the slot, and parallel sides *h h*, substantially as shown and described.

4. In window-sash and analogous structures, the cross-bar A, having the notches *c c*, shoulders *b b*, and rib *a*, having its ends formed as at E, in combination with the cap B, having the hollow *b'*, lips *d d*, slot d^2, and both ends cut at an angle, as at *g*, substantially as and for the purpose set forth.

5. In window-sash and analogous structures, the cross-bar A, having the notches *c c*, shoulders *b b*, and rib *a*, having the flange *a'* and ends formed as at *e*, in combination with the cap B, provided with a triangular hollow *b'*, and having lips *d d*, slot d^2, and angles *g*, substantially as shown and described, and for the purpose set forth.

In testimony whereof I have hereunto set my hand and affixed my seal, at Chicago, Illinois, this 12th day of March, 1889.

WILLIAM HENDERSON. [L. S.]

In presence of—
CHAS C. TILLMAN,
W. P. SHAW.