(No Model.)

H. C. HART.

WINDOW SCREEN.

No. 254,965. Patented Mar. 14, 1882.

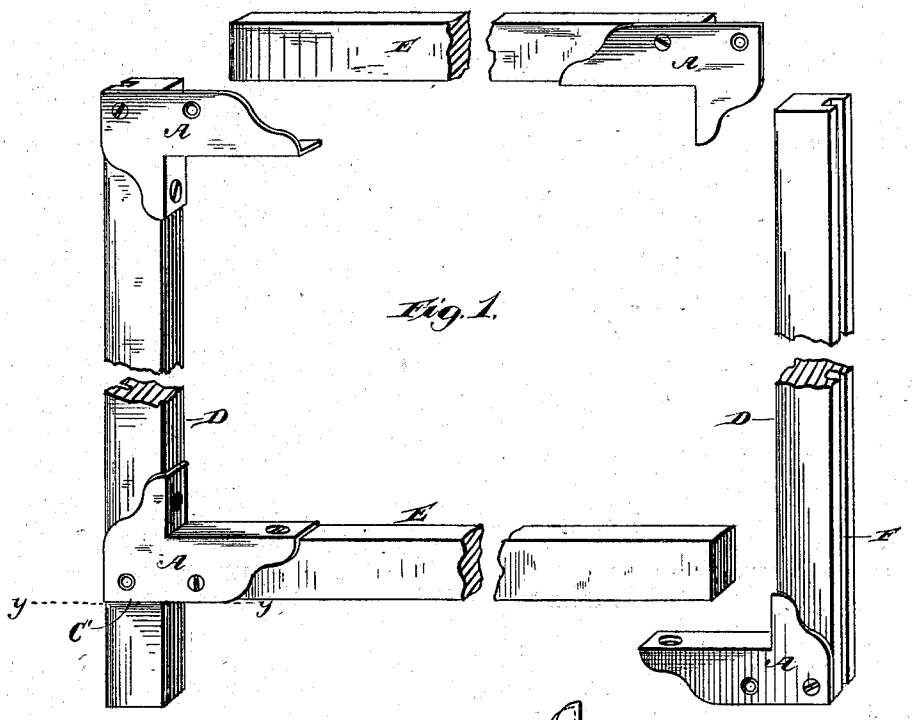


Fig. 1.

Fig. 2.

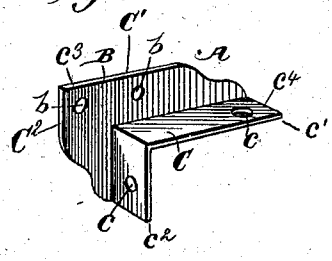


Fig. 3.

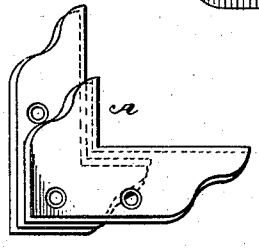


Fig. 7.

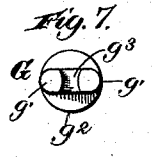


Fig. 4.

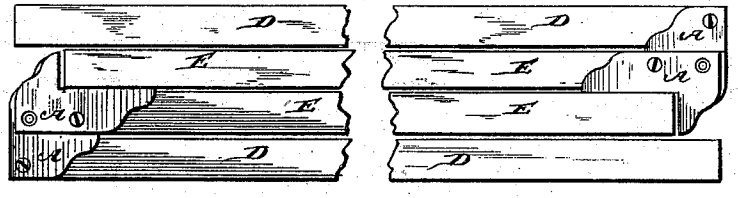


Fig. 5.

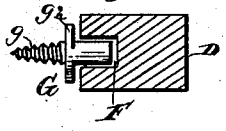


Fig. 6.



Witnesses,
Robert Everett.
J. A. Rutherford

Inventor.
Henry C. Hart.
By James L. Norris.
Atty.

N. PETERS. Photo-Lithographer. Washington. D. C.

UNITED STATES PATENT OFFICE.

HENRY C. HART, OF DETROIT, MICHIGAN.

WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 254,965, dated March 14, 1882.

Application filed December 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. HART, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Window-Screens, of which the following is a specification.

This invention relates to the construction of the bars and brackets or corner-pieces adapted to bind together the said bars to form light screen-frames, such as are commonly used for window and door screens; and it further relates to devices for retaining the window-screens in place and guiding them in their up-and-down movement, the main object being to form such brackets and frame guiding and retaining devices so that all parts requisite for the screen-frame can be packed closely together and shipped in nests, whereby an unskilled person can readily put the same together to form the complete screen-frame, and at the same time readily adapt the frame to the size of a door or window, and also apply the completed frame so that it will be retained in place and be allowed to move up and down without altering the construction of a window-frame when the screen is applied to such.

In the drawings, Figure 1 illustrates the four bars of a screen-frame, three of which are detached, with a corner or bracket secured to each bar, the fourth bar being shown with its bracket fitted to one of the vertical bars, so as to illustrate the way in which a bar can be adapted in length to the window-frame, as hereinafter explained. Fig. 2 is a perspective view of one of the bracket-pieces detached. Fig. 3 shows the bracket-pieces packed together. Fig. 4 shows the bracket-pieces and bars packed for transportation. Fig. 5 shows in horizontal section the grooved side bar of the screen-frame, and in plan view the screw with its head received into said groove. Fig. 6 is a side view of one of said screws, and Fig. 7 is a top view of the same.

In the drawings, the letter A refers to the brackets or corner-pieces for a screen-frame. The bracket or corner-piece, which is made of metal and cast in one piece, is composed of the face-plate B, adapted to rest against the outside of the frame, and the annular inwardly-projecting flange C, adapted to fit the inner corner of the said frame. The face-plate is formed with the perforations *b b* for the screws that secure it to the two meeting-bars of the frame, and the angular flange is formed with the perforations *c c* for the screws which secure it to the said members of the screen-frame, which are indicated by the letters D and E, the former being the vertical and the latter the horizontal bars, to which the wire or other gauze will be secured after the several component parts of the frame have been fastened together. The face-plate is made solid, with the exception of its screw-holes, so as to entirely conceal the joint formed by the meeting-bars, and it is also made with the two outer straight edges, C' C^2, at right angles to each other, so as to conform to the outer corner of the frame.

As it is not always convenient to employ a skilled workman for fitting screen-frames to windows, the frame-bars, with the bracket-pieces and screw, are packed up and sold in sets, as illustrated in Fig. 4, in which four bars, with corner-brackets attached, are shown packed together, the bars being represented as broken away at the middle. In forming a set of bars for a screen-frame the bars will be of different lengths, one pair being longer than the remaining pair. A corner-bracket will be attached to one end of each bar, and the bars will then be packed closely together, as shown in Fig. 4, so as to form a flat rectangular package. The compactness and shape of the bundle or package thus formed is due both to the different lengths of the bars and to the formation of the flange C and its face-plate, which constitutes an important feature of the invention. This element of novelty consists in making one portion, c', of the flange considerably longer than the remaining portion, c^2. Hence when the bars are packed together, as in Fig. 4, it will be seen that where two brackets come together a portion of the face-plate of one bracket will lap the outer side of a portion of the face-plate of the other bracket, the bar E in this instance abutting against the inner side of the longer portion, c', of the bracket-flange.

It will also be seen that one end of a short bar, E, will rest against the shorter part c^2 of

the bracket-flange, which short part of the flange is equal in length to the diameter of the bar.

From the above it will be readily understood that the bars and brackets can be put up in compact form, and that a number of sets of four bars each can be included in one package. Although the two portions of the bracket-flange are not of the same length, yet it will be seen that the face-plate will have substantially the same area of bearing-surface upon the sides of the meeting-bars—as, for example, in Fig. 2, the extent of face-plate from the lower edge of the short part c^2 of the flange to the top edge, c^3, of the face-plate will be substantially equal to the length of the face-plate from the corner of the angular flange to the outer end, c^4, of the longer part c' of said flange.

In order to adapt the frames to windows of different sizes, such adjustment of the size of frame can readily be effected, as follows: If, for example, the vertical bar is too long, the person fitting the frame to the window can apply to said bar the corner-bracket, fitted to a horizontal bar, and then by moving up the lower bar and the bracket the latter will slide along the vertical bar until the straight edge C′ of the face-plate will arrive at the point where the bar is to be cut off.

In Fig. 1 of the drawings the above operation is illustrated by leaving a portion of the vertical bar below the bracket and indicating by dotted line $y\ y$ the line at which the bar is to be sawed off. The sides of the face portion of the bracket-piece and the faces of the angular flange, which fit against the inner corner of the frame-bars, are left perfectly plain, so that the bracket-pieces and bars can be closely packed in nests for transportation.

In order to provide means for allowing these screen-frames to be readily raised or lowered, and also for retaining the same within the window-frame without altering the construction of the latter, I form a longitudinal groove, F, in the outer side of each vertical bar, and provide the required number—say four for each frame—of guide-screws G, which will be fastened in the window-frame or the sash-strip, which retains the sash in place, said screws being arranged so that their heads will be received in the grooves of the side bars of the screen-frame. Each screw is formed with a screw-threaded shank, g, and a head, g', that is made oblong in cross-section, so that it will have long bearing sides for the groove, and further formed with a flange, g^2, at the junction of the head and shank, said flange constituting a bearing-surface for the side bars of the sash-frame and preventing friction and scraping off of paint.

A notch, g^3, is formed in the screw-head to receive the screw-driver, and these screws can be put up and sold in packages with the corner-bracket pieces and the screen-frame bars.

About two on a side of these screws will answer, although the number is not necessarily limited.

In order to provide simple and efficient means for guiding the grooved vertical bars onto the head of the screw, should said bars become warped or sprung out of a straight line, I bevel the lower ends of the grooves in the said bars to form inclines, which extend in a lateral direction away from the said grooves, and serve to guide the grooved bars onto the headed screws.

Having thus described my invention, what I claim is—

1. The herein-described cast-metal bracket or corner-piece for a screen-frame, consisting of a solid face-plate, B, adapted to conceal the frame-joint, with the angular flange C, having a plane outer surface, and formed with a long side, c', and a short side, c^2, both arranged and adapted in length with relation to each other and to the face-plate so that the distance between the corner of the flange and the outer end of its long side is equal, or nearly so, to the distance between the outer end of the short side of the flange and the outer edge, c^3, of the face-plate, whereby the frame-bars, with these brackets attached, can be closely packed together, as specified.

2. The screw, in combination with the grooved side of a screen-frame, said screw being formed with a notched head made oblong in cross-section, and having a flange at its junction with the screw-threaded shank, substantially as described.

3. The combination, in a screen-frame, of the four bars in pairs of different length with the herein-described cast-metal brackets or corner-pieces, one attached to each bar, and each of said brackets consisting of a face-plate, B, with the angular flange C, having a plane outer surface formed with a long side, c', and a short side, c^2, both adapted in length so that the distance between the corner of the flange and the outer end of the long side is equal, or nearly so, to the distance between the outer end of the short side and the outer edge, c^3, of the face-plate, whereby these bars, with brackets attached, can be closely packed, in the manner and for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HENRY C. HART.

Witnesses:
ROBT. A. LIGGETT,
WALTER S. HARSHA.