No. 704,992. Patented July 15, 1902.

# C. B. WARNER.

## WINDOW SCREEN.

(Application filed Oct. 14, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

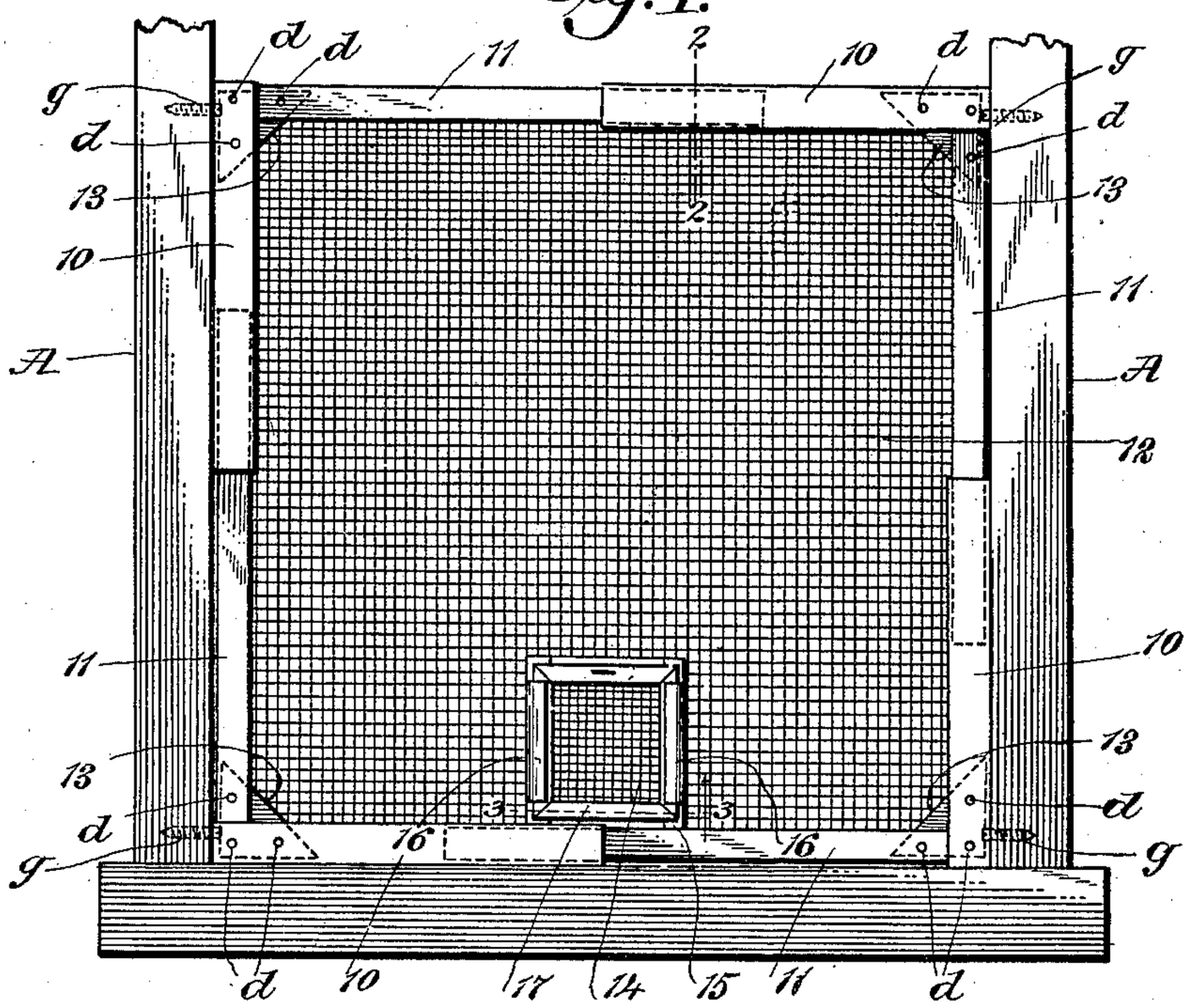



Fig. 2.

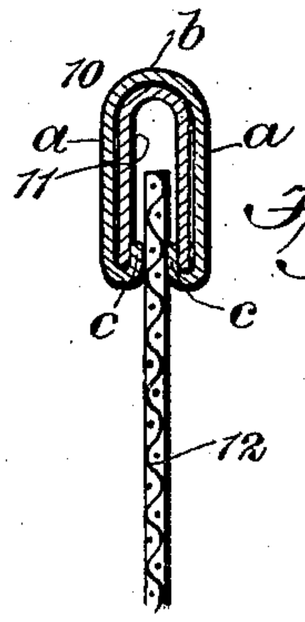
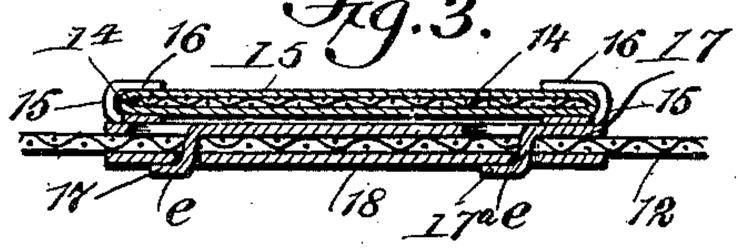



Fig. 5.


Fig. 3.



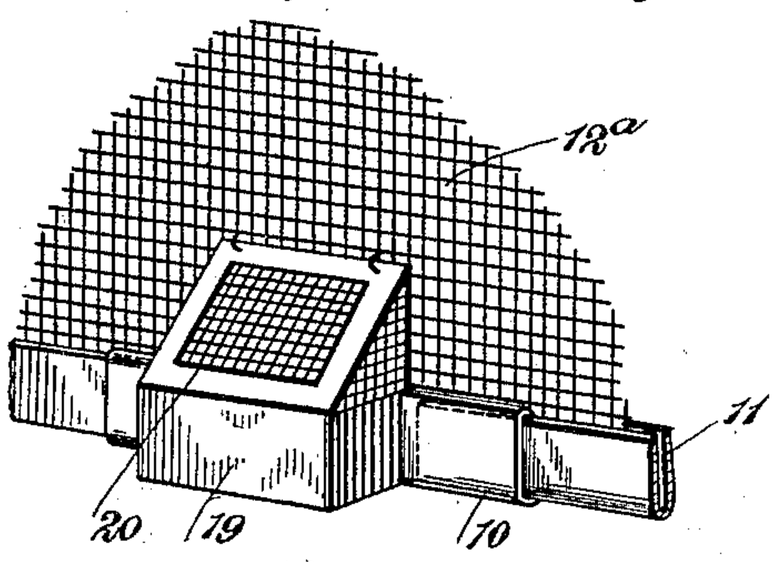




Fig. 4.

WITNESSES:

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No. 704,992.

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# C. B. WARNER.

## WINDOW SCREEN.

(Application filed Oct. 14, 1901.)

(No Model.)

2 Sheets—Sheet 2.

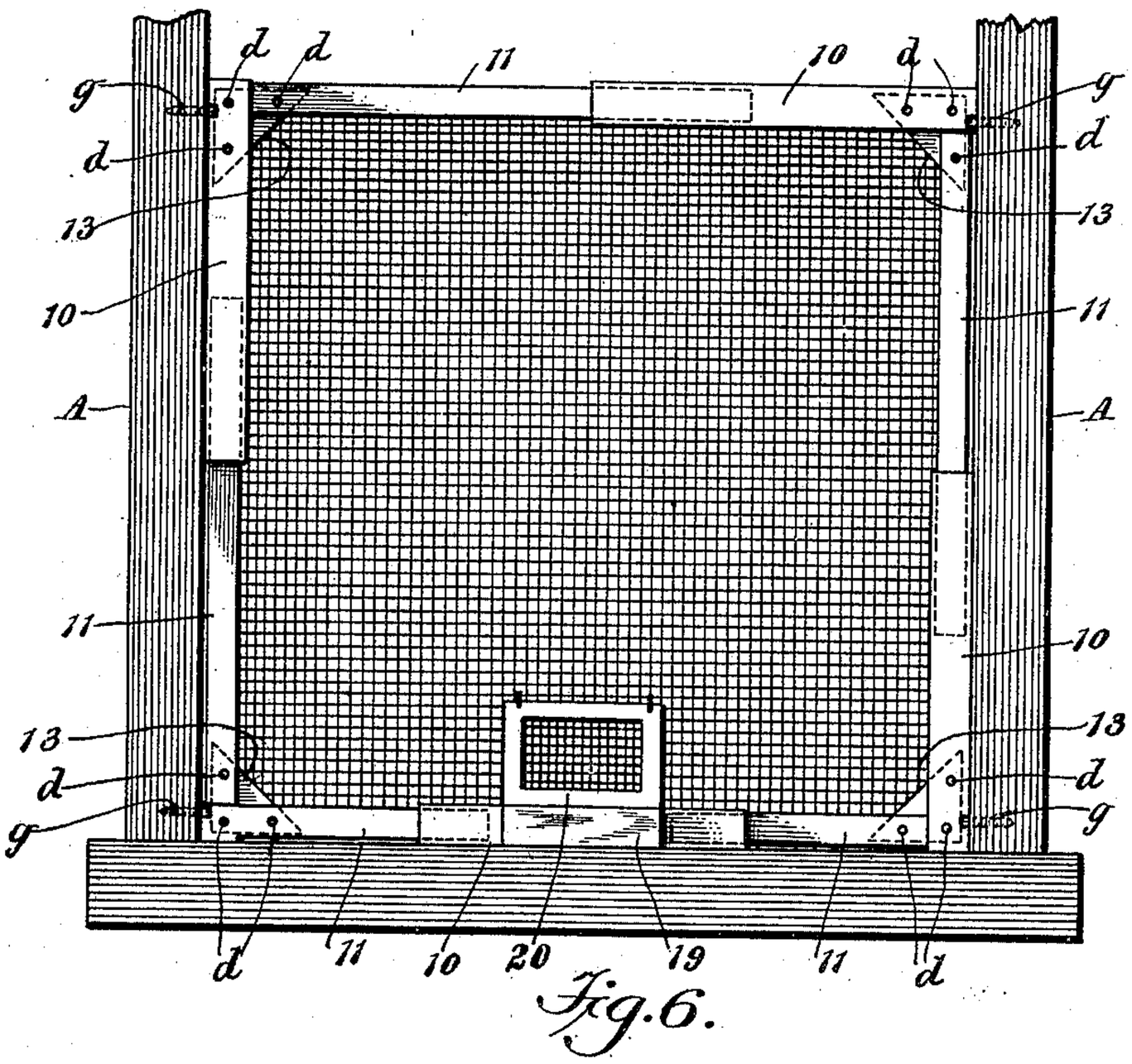


Fig. 6.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

CLAUDE B. WARNER, OF AVON, ILLINOIS.

## WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 704,992, dated July 15, 1902.

Application filed October 14, 1901. Serial No. 78,561. (No model.)

*To all whom it may concern:*

Be it known that I, CLAUDE B. WARNER, a citizen of the United States, and a resident of Avon, in the county of Fulton and State of Illinois, have invented a new and Improved Window-Screen, of which the following is a full, clear, and exact description.

This invention has for its object to provide novel details of construction for window-screens having sheet-metal frames that adapt the screen-frame for adjustment to fit it for use in windows of different widths.

A further object is to provide the screen with a hand-hole opening and a closure therefor of novel construction.

The invention consists in the novel construction and combination of parts, as hereinafter described, and defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the lower portion of a window-casement and an inner view of the improved screen held therein. Fig. 2 is an enlarged transverse sectional view of one of the frame-bars of the screen, substantially on the line 2 2 in Fig. 1. Fig. 3 is an enlarged sectional plan view showing the construction and connection of a hand-hole closure for the screen substantially on the line 3 3 in Fig. 1. Fig. 4 is a perspective view of a modified hand-hole closure in position on the lower portion of a screen. Fig. 5 is a view of a split key which may be employed; and Fig. 6 is a like view with Fig. 1, but showing the hand-hole closure represented in Fig. 4 positioned on the screen.

The rectangular border-frame of the screen is constructed of sheet metal that is rust-proof, such as galvanized iron or steel plate of suitable thickness. Each side, top, and bottom frame-bar is composed of two sections 10 11, that have slidable engagement one with the other. The section 10, as best shown in Fig. 2, is bent from a plate-metal strip, so as to provide two parallel side walls *a a*, that are spaced apart by an integral transverse wall *b* and at their free edges are return bent to produce two clip-flanges *c*, which are adjacent to and extend parallel with each other toward the spacing-wall *b*. The complementary frame-bar member 11 is bent into U shape from a sheet-metal strip, the sides thereof being so spaced apart in parallel planes as to adapt said member to have a closely-fitted slidable engagement within the section 10, and enter its free edges in the channels that intervene the clip-flanges *c* and sides *a*.

It will be seen that the telescopic engagement of the members 10 11, comprising each of the four frame-bars, may be longitudinally adjusted, so as to afford them proper length, and they are so arranged that the outer end of the frame member 10 on each bar will form a corner with the outer end of a member 11 on the frame-bar to which it is at right angles, and said ends are joined by the introduction of the end of the bar member 11 between the sides *a a* of the bar member 10, so as to effect a lapped engagement of these sides with the part 11.

The reticulated screen wire-cloth 12 is cut of proper size and form to permit each edge thereof to be introduced between the clip-flanges *c* on a member 10 of a corresponding frame-bar, this being obviously effected before the frame-bars are assembled to provide a border-frame for the screen material.

A triangular corner-piece 13 of plate metal is provided to strengthen each corner of the screen-frame, and each corner-piece is slidably inserted between the screen material 12 and a respective corner of the border-frame. Perforations *d* are formed in the frame members 10 11 at each corner, and the corner-piece 13 is similarly perforated in alinement therewith, so that small split keys *d'* or other available securing devices may be passed through the perforations *d* and clenched or otherwise fastened therein, which will secure the frame-bars together and upon the screen material 12. After the frame and corner-pieces have been secured upon the screen-cloth 12 the frame-bars may be flattened thereon, so as to stiffen the screen-frame and assist in holding the screen-cloth by the use of a mallet or hammer in an obvious manner.

Assuming that the screen is to be placed in a window-frame provided with window-shutters or exterior slatted blinds which must be opened and closed, a hand-hole is formed in the screen-cloth 12, near the lower edge

thereof, and a small door is slidably held thereat for the closure of the hand-hole when not in use as a means for reaching through the screen to manipulate the blinds. The hand-hole closure may be a flat piece of screen-cloth 14, (shown in Fig. 1,) having a rectangular frame 15 of sheet metal clipped upon the edge of the screen-cloth, said border-frame being held to slide vertically in the guide-flanges 16, formed or secured oppositely on the border-frame 17, secured on the screen-cloth 12, so as to surround the edge of the rectangular opening cut therein. Preferably tongues *e* are formed on the border-frame 17 by cutting the edges loose from the frame material, said tongues 17ª passing through perforations in a mating border-frame 18, located oppositely on the screen-cloth at the opening therein, the ends of the tongues that project through the opening being bent so as to flatten them against the frame-piece 18, which serves to bind the border-frame firmly upon the screen-cloth.

It will be seen that by the described construction the closure or door composed of the piece of screen wire-cloth 14 and border-frame 15 thereon and the loose engagement of said frame with the guide-flanges 16 will afford a convenient means for obtaining access to the blinds of a window having the improvement for their manipulation, as before mentioned.

In Fig. 4 another construction of the hand-hole closure is shown, consisting in the provision of a box-like frame 19, having a sloped upper edge whereon a small screen-door 20 is imposed, said box-frame being secured over an opening in the screen-cloth material 12ª, and the door 20 is hinged thereon, so as to be adapted for easy elevation to permit the protrusion of the hand through the opening in the screen material to manipulate the window shutters or blinds, as occasion may require.

When the screen is positioned outside of the sash, it may with advantage be removably held in place, as indicated in Fig. 1, screw-studs *g* being inserted into the window-casement A at proper points, so that two of said studs may enter small perforations in the frame members of the screen at the upper corners thereof and another pair of the studs enter like perforations at the lower corners of the screen-frame, the outer ends of these studs projecting from the casement sufficiently to adapt them for such an engagement. As the material of the screen-frame is measurably resilient, it may be bent laterally and then be sprung over the projecting ends of the studs *g*, which upon engagement therewith will bear on the adjacent edges of the corner-pieces 13, that will have contact with the studs when the screen-frame assumes its normal condition.

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

1. A window-screen, comprising a rectangular piece of screen wire-cloth, and a sheet-metal border-frame therefor, each bar of said frame comprising two telescoping sections, substantially U-shaped in cross-section, one section having return-bent flanges extended inward and upward and embracing the edges of the other section that slides between them, said flanges also clamping upon an appropriate edge of the screen material.

2. A window-screen comprising a rectangular piece of screen wire-cloth, a border-frame of sheet metal, each side bar of the frame comprising two substantially U-shaped sections that slide one upon the other, a triangular corner-plate for each corner of the frame, secured between the screen-cloth and the lapped ends of the frame members, and means for securing said corner-plates to the frame members.

3. The combination with a window-screen, of a hand-hole closure therefor, comprising a rectangular box-like frame open on top and projected from the screen over a hand-hole, and a flap-door hinged at one edge on the frame so as to cover its opening when seated thereon.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CLAUDE B. WARNER.

Witnesses:
ARTHUR MERRILL,
ANSON W. CHILCOTT.