

No. 724,682.

PATENTED APR. 7, 1903.

F. C. & A. G. EASTMAN.

WINDOW SCREEN.

APPLICATION FILED APR. 29, 1902.

NO MODEL.

2 SHEETS, SHEET 1.

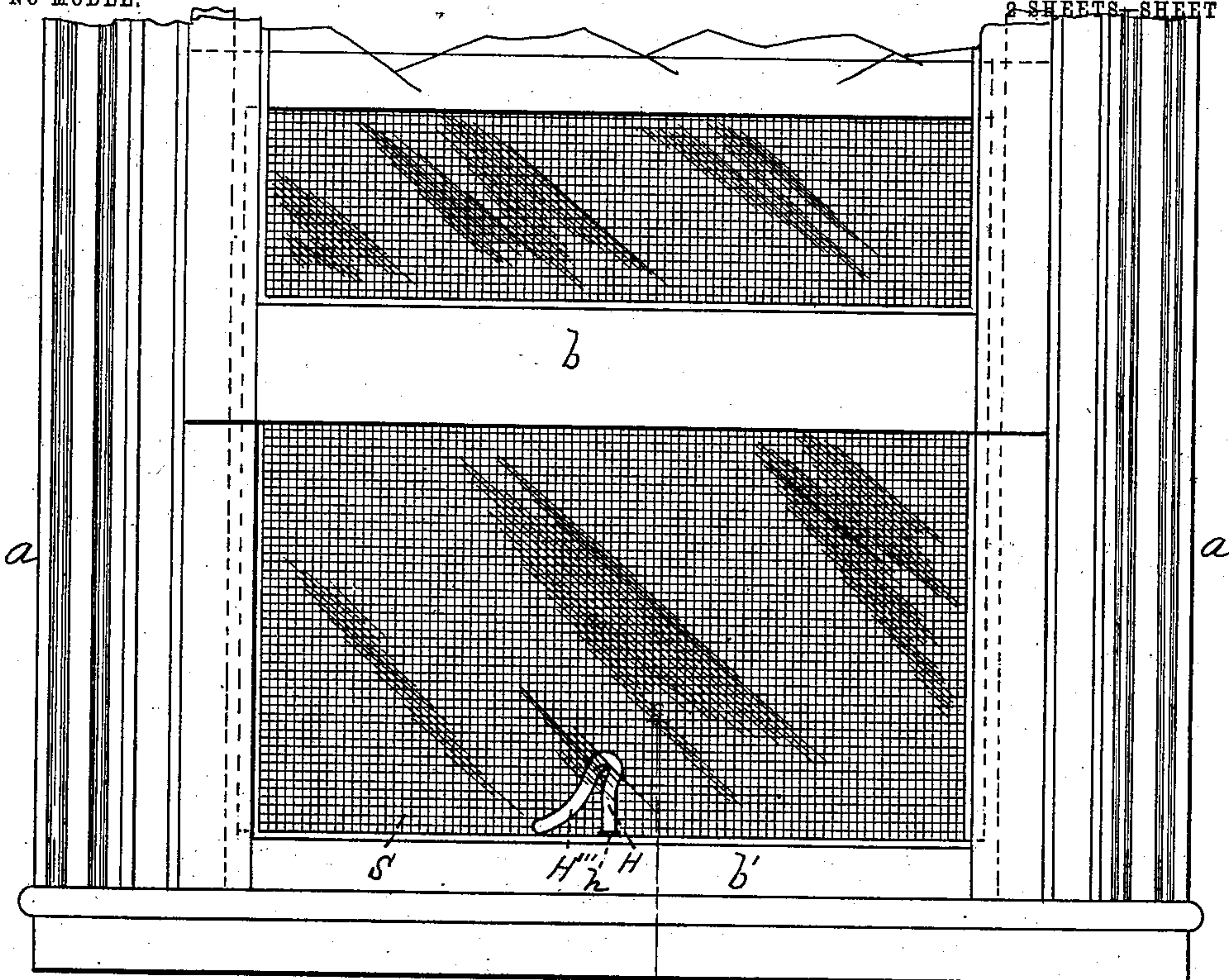


Fig. 1.

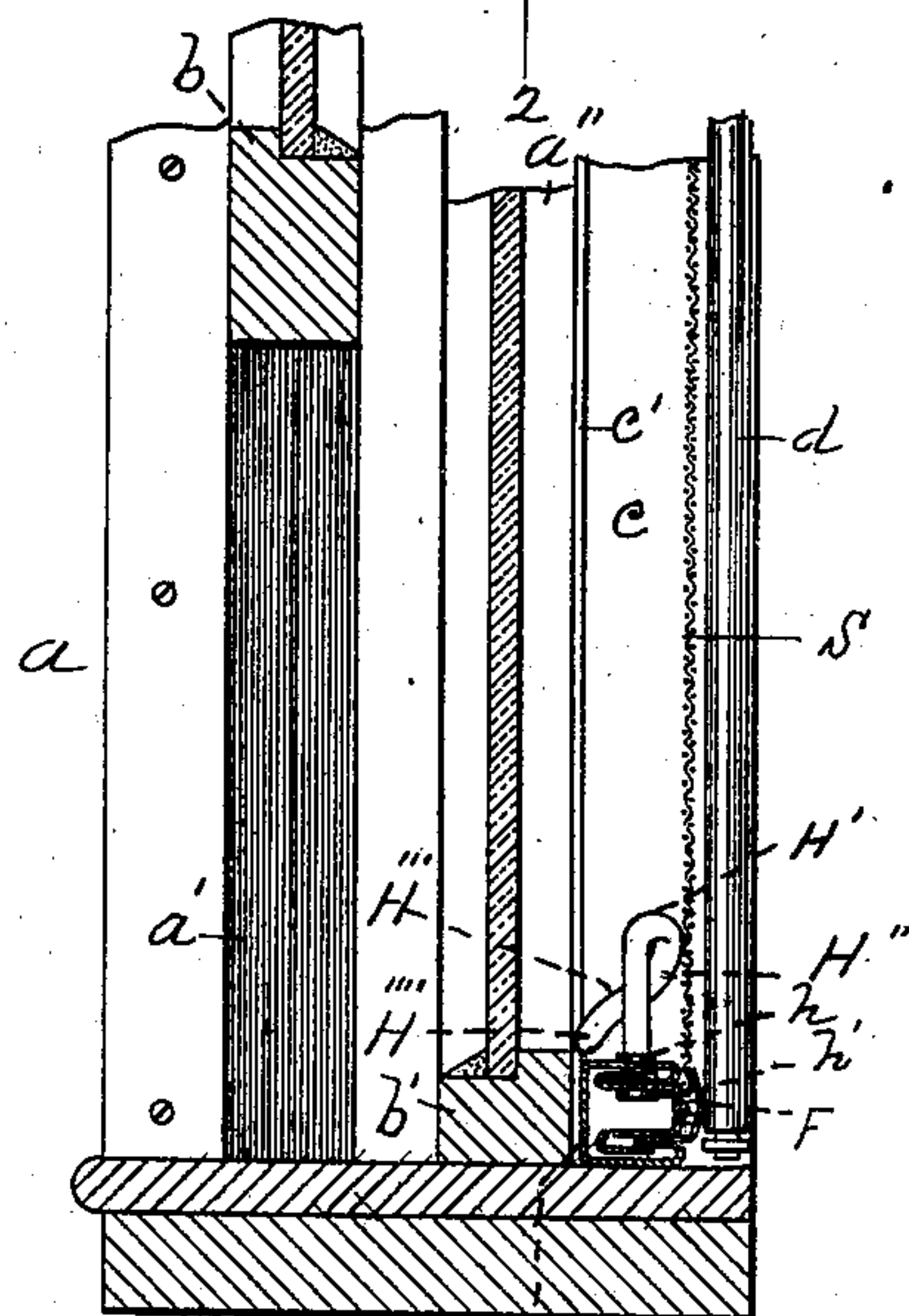


Fig. 2.

WITNESSES.

A. N. Bonney.  
A. N. Hood.

INVENTORS.

Franklin C. Eastman  
Albert G. Eastman  
By their Atty.

*Sperry & Williams*

No. 724,682.

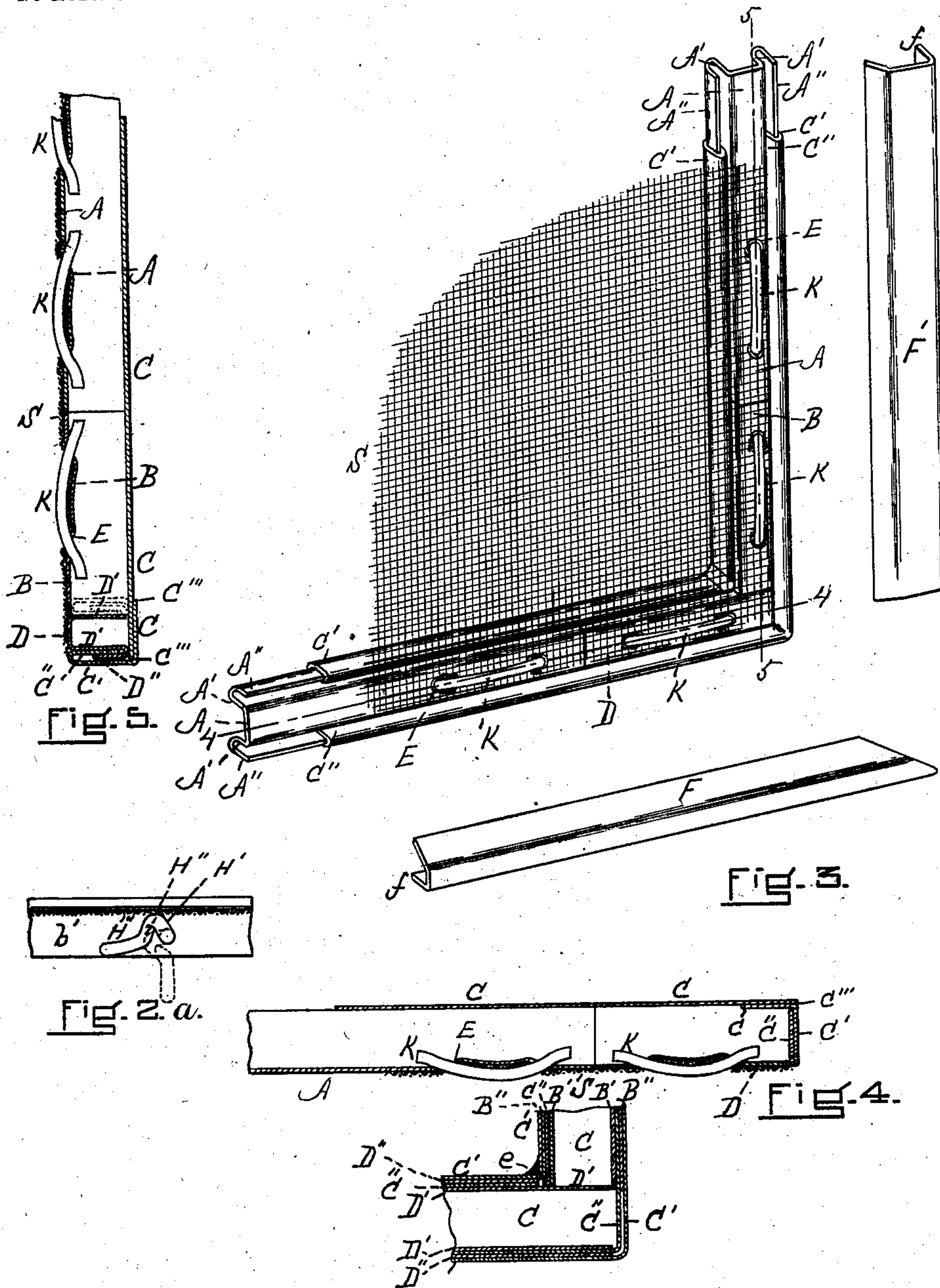
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2 SHEETS—SHEET 2.



WITNESSES.

A. N. Bonney.  
A. K. Hood.

Fig. 6.

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# UNITED STATES PATENT OFFICE.

FRANKLIN C. EASTMAN, OF CAMBRIDGE, AND ALBERT G. EASTMAN, OF  
BROOKLINE, MASSACHUSETTS.

## WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 724,682, dated April 7, 1903.

Application filed April 29, 1902. Serial No. 105,203. (No model.)

*To all whom it may concern:*

Be it known that we, FRANKLIN C. EASTMAN, residing in Cambridge, in the county of Middlesex, and ALBERT G. EASTMAN, residing in Brookline, in the county of Norfolk, State of Massachusetts, citizens of the United States, have invented new and useful Improvements in Window-Screens, of which the following is a specification.

10 This invention relates to window-screens, preferably to that class in which the screen is located in a runway beyond or outside of the bead or strip which constitutes the farther side of the runway for the upper sash, whereby the screen may be raised and lowered and the sashes of the window raised and lowered without the sashes interfering with the screen or the screen interfering with either of the sashes.

20 The invention relates particularly to an improved construction of the corners of the metallic frame, whereby the screen is made stiffer and stronger at those points and less liable to be indented or bent in to an improved method or device for fastening the wire-netting to the metallic frame of the screen, and to an improved lifting contrivance making a part of the screen, whereby a lift can be swung forward for use or rearward out of the path of the outer or upper sash.

The nature of the invention is fully described in detail below and illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of our improved screen in position in the window-casing looking from the inside of the building and with the upper sash down at its lowest point and the lift swung back out of the path of said sash. Fig. 2 is a cross vertical section taken on line 2, Fig. 1. Fig. 2<sup>a</sup> is a plan view of a portion of the lower rail of the screen, showing the lift in two positions. Fig. 3 is a view in perspective and in detail, showing one corner of the screen with the covering-plates separated therefrom. Fig. 4 is a horizontal section taken on line 4, Fig. 3. Fig. 5 is a vertical section taken on line 5, Fig. 3. Fig. 6 is a view in vertical section of one of the corners, the section being taken on a plane parallel with the wire-netting.

Similar letters of reference indicate like parts.

*a* represents the casing of a window, of which *b* and *b'* are respectively the upper and lower sashes, moving in the runways *a'* and *a''*, respectively. The screen is located immediately beyond or outside the upper sash *b'* and moves in a runway of its own formed in any suitable manner. In Fig. 2 in the drawings the runway consists of a vertically-placed angle-shaped plate *c c'* and a spring-guard *d*, the frame of the screen running between the said portions *c'* and *d*. This construction is, however, described in a separate application executed by us, filed April 29, 1902, Serial No. 105,204, the present application relating solely to the screen and not to the casing or runway.

The frame of our improved screen comprises four corner portions which are substantially similar and which are intended to be connected with each other by intermediate bottom, top, and side rails, the corner portions and connections being provided with covering-plates below described. The inner ends of the corner-pieces preferably meet, and each connecting-bar (which is an inner bar) consists of a channel-shaped metallic plate comprising a web *A*, upper and lower folds *A'*, and upper and lower lips *A''*, the said bar interlocking reversely with the opposite ends of a corner channel-shaped metallic plate consisting of the web *C*, opposite folds *C'*, and opposite lips *C''*. The general construction and arrangement of these bars is substantially as illustrated and described in Letters Patent of the United States issued to us May 6, 1902, and numbered 699,157, to which reference is made. These connecting-bars, which are for the purpose of connecting the four corner-pieces, do not extend completely to the corners, but abut against similar bars which meet at the corners. The horizontal connecting-bars abut against bars consisting each of the web *D*, opposite folds *D'*, and lips *D''*, while the vertical connecting-bars abut each against a vertical bar consisting of the web *B*, opposite folds *B'*, and opposite lips *B''*. The shape in cross-section of the bars *A A' A''*, *B B' B''*, and *D D' D''* is the same. In the



construction of the corners we have endeavored to improve upon the construction referred to in our application for Letters Patent filed October 7, 1901, the principal object of the improvement being to strengthen the corners and to avoid the space left at each corner by the cutting of the web of the internal channel-shaped bar. In this improvement, therefore, we bend the outer portion of the outer bar around the corner, but not the inner bar, two inner bars being used instead of a bent inner bar. By this means we are able to extend the web D of the inner horizontal bar snugly up into the corner against the lips C' of the outer bar, as shown in Figs. 3 and 6, which, with the fold C', is bent around the corner, the web C being cut at C'' and overlapping, as shown in Figs. 4 and 5. The web B of the vertical inner bar extends down against the upper lip D' of the horizontal bar, and hence there is no space left by the webs of the inner bars at the corner, the closing of the corner greatly strengthening the frame and preventing indentation or bending inward of the coverings below described. The only portions which extend around the corners are the outer lip C'' and the outer fold C' of the outer bar. The outer lip D'' and outer fold D' are cut off even with the web D at their inner ends, while both lips B' and both folds B'' are cut off at their lower ends even with the web B. The inner or upper lip D'' and fold D' of the inner horizontal corner-bar and the inner lip C'' and fold C' of the outer corner-bar are all cut off to meet, as indicated in Fig. 6, solder e being applied at that point to join the parts.

The wire-netting S is secured to the metallic frame by means of short spring-rods or fastening-ties K, whose opposite ends extend through holes E in the webs A, D, and B, thus firmly uniting the netting to the frame. In practice the portions of the webs between the holes E are forced in by the spring-ties K, so that said ties are practically flush with the webs, and hence allow the covering-plates F F' to be forced closely against and over the netting, such covering-plates being applied by forcing their flanges f between the lower lips C'' and the lower folds A' and between said lips C'' and the folds D' and B'. The spring of the rods or ties K forces and binds the netting and frame firmly together and holds it taut and smooth.

The lifting-handle or "lift" consists of a heavy piece of wire or rod whose vertical portion H extends down through the layers C' A' C' A' at the upper portions of the lower bar of the frame on the innerside of the wire-netting and is held rotatively therein by means of suitable flanges h h', as shown in Fig. 2. At H' this wire is bent downward at an acute angle, and at H'' the vertical plane of the downward angle is changed; but the portion H''' thus produced is also at a downward acute angle with the portion H. The

extreme lower end of the portion H''' is doubled inward, as shown at H'''. To raise the screen, the lift is swung out and the finger applied under the part H'''. Should the upper sash b' be lowered with the lift in the path of the sash, the sash would strike the part H''' and push it out of the way, swinging it back into the position shown in Figs. 1 and 2 and in full lines in Fig. 3. By reason of the double bend or two bends H' H'' the direction of the pressure of the sash on the part H''' is always one side of the pivotal point. Hence the lift cannot bind, but is sure to rotate. The doubled-back or inwardly-bent end H''' prevents any scratching or injury to the sash.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a window-screen of the character described, corner-pieces, each comprising a longitudinally channel-shaped plate, a portion of which extends around the corner; and two longitudinally channel-shaped plates disposed with their webs and channels opposite the web and channel of the plate which extends around the corner, thereby producing a hollow corner-piece, the web of one of the two said plates which do not extend around the corner extending across the end of the web of the other and substantially to the outer flange of the plate extending around the corner, whereby the corner is filled with oppositely-disposed webs, substantially as described.

2. In a window-screen of the character described, the corner-pieces, each consisting of the bar comprising the web C cut transversely at C'', the outer fold and lip C', C'' extending around the corner, and the inner fold and lip C', C'' cut off at the corner; the bar comprising the web D and inner and outer folds and lips D', D''; and the bar comprising the web B and the inner and outer folds and lips B', B'', the web D extending across the corner substantially to the outer fold of the bar C, C', C'', and the web B extending to and substantially abutting against the web D, whereby the corner is closed and provided with two oppositely-disposed webs, and the folds and lips B', B'', D', D'' being severed at the corner, substantially as set forth.

3. In a window-screen of the character described, in combination, a metallic frame provided with holes arranged in pairs; a netting; and spring-fastening ties each consisting of the slightly-curved spring-rod K inserted in and extending through said holes and through corresponding holes in the netting, the central portion of the spring-rod pressing tightly against the portion of the netting between the holes, and the end portions of the spring-rod extending from each other in opposite directions and pressing tightly against the opposite surface of the frame on opposite sides of the portion of the frame located between the holes, the pressure of the central and end



portions of the spring-rod being opposite to each other, substantially as set forth.

4. In a window-screen of the character described, in combination with the bottom rail thereof; the lift comprising the substantially vertical portion H extending upward from and swiveled in said rail, the portion H'' bent downward at substantially an acute angle with the portion H, and the portion H''' bent downward at substantially an acute angle with the portion H but on a different vertical plane from said portion H'', substantially as and for the purpose described.

5. In a window-screen of the character described, in combination with the bottom rail thereof; the lift comprising the substantially vertical portion H extending upward from and

swiveled in said rail, the portion H'' bent downward at substantially an acute angle with the portion H, and the portion H''' bent downward at substantially an acute angle with the portion H but on a different vertical plane from said portion H'', the said portion H''' being formed with the inwardly-doubled end H''', substantially as and for the purpose set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANKLIN C. EASTMAN.

ALBERT G. EASTMAN.

Witnesses:

HENRY W. WILLIAMS,  
A. N. BONNEY.