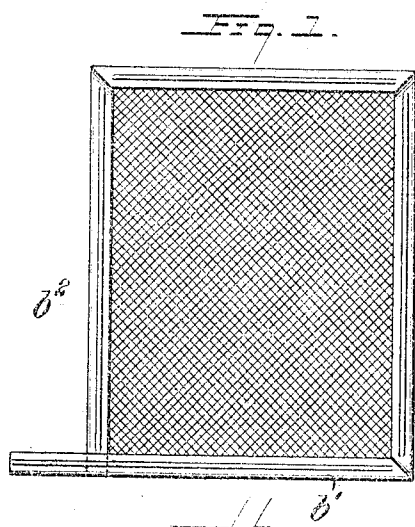
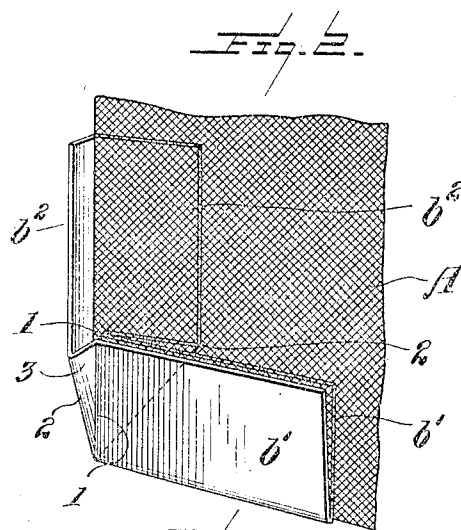
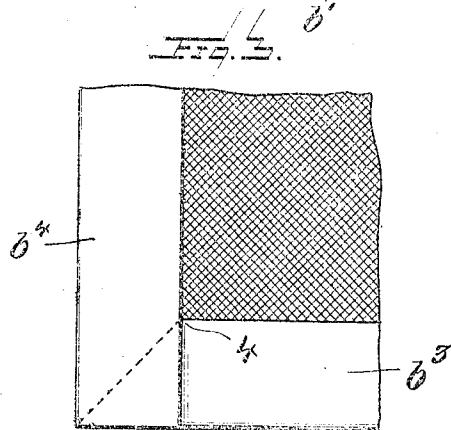
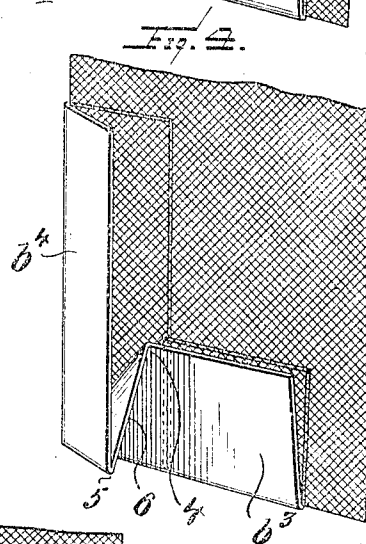
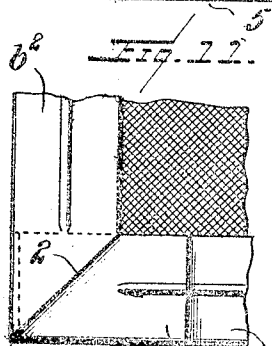
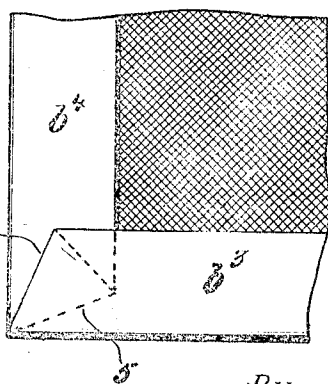


No. 869,693.

PATENTED OCT. 29, 1907.

A. A. DAY.  
WINDOW SCREEN.  
APPLICATION FILED MAR. 7, 1907.

2 SHEETS—SHEET 1.



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APPLICATION FILED MAR. 7, 1907.

2 SHEETS—SHEET 2.

Fig. 5.

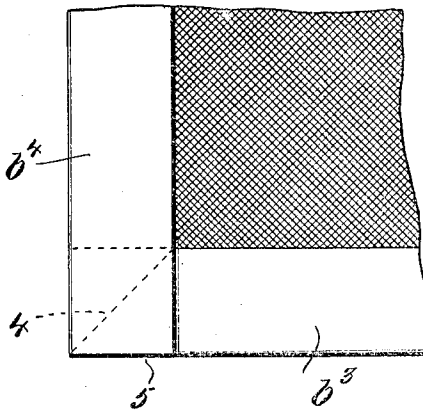


Fig. 7.

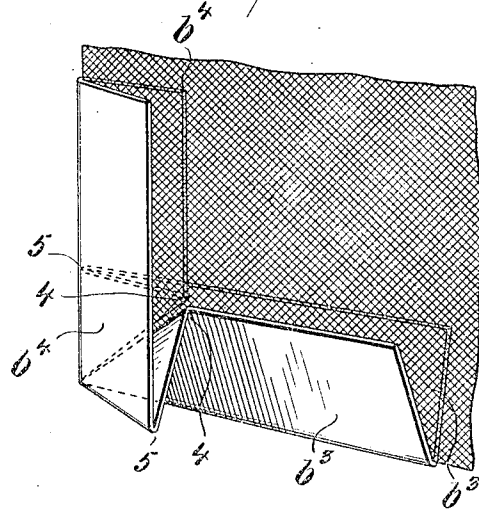


Fig. 8.

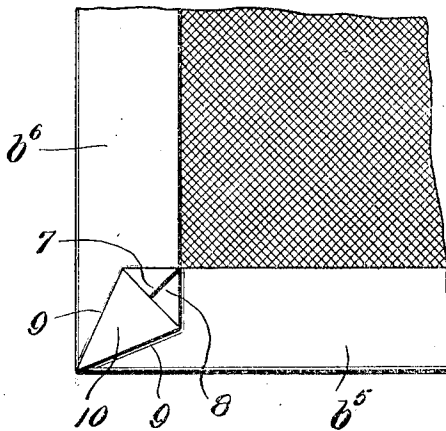


Fig. 9.

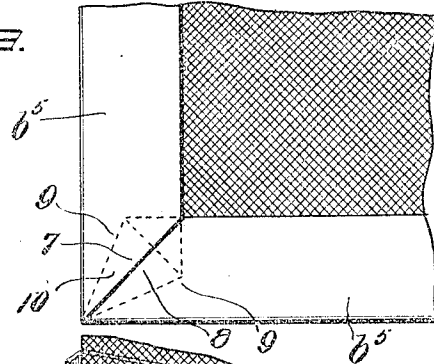
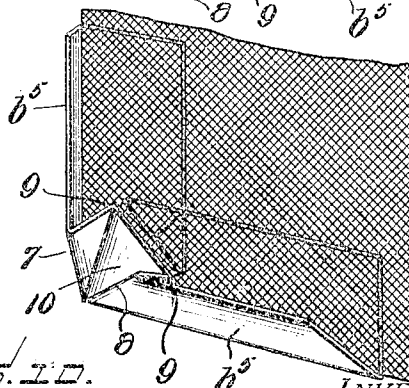


Fig. 10.

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# UNITED STATES PATENT OFFICE.

ALBERT A. DAY, OF NEW YORK, N. Y.

## WINDOW-SCREEN

No. 869,693.

Specification of Letters Patent.

Patented Oct. 22, 1907.

Application filed March 7, 1907. Serial No. 361,158.

To all whom it may concern:

Be it known that I, ALBERT A. DAY, a citizen of the United States, residing at the borough of Brooklyn, in the county of Kings, city and State of New York, have invented certain new and useful Improvements in Window-Screens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawings which illustrate several forms in which I have contemplated embodying my invention and the invention is fully disclosed in the following description and claims.

The object of my invention is to form a window screen, or screen section, provided with a frame composed of a single piece of sheet metal extending around all four sides of the central screen fabric and in which the corners are truly rectangular and strongly reinforced by predetermined interfolded portions of the metal, which are formed on lines converging toward and extending to the corners of the frame. In carrying out my invention I take a strip of sheet metal of greater width than that desired for the frame and fold it longitudinally, forming what I term a "V-d strip", which should be not less in length than the combined length of the four frame bars of the screen section for which it is intended. A section of screen fabric, preferably wire gauze, of the desired size is then placed with one edge within a portion of the V-d strip, and is secured thereto by indenting the metal of both laps and the wire gauze at separated points, or preferably by making a continuous longitudinal indentation or bead, extending substantially the whole length of the inclosed portion of fabric. The V-d strip is then bent angularly, to form a rectangular corner, and bring another portion of the V-d strip upon an adjacent edge of the fabric and the surplus metal on both sides of the longitudinal bend, is preferably interfolded, so as to permit the formation of a perfectly rectangular corner, and the interfolded portions are flattened down in any desired manner, thus causing the interfolded portions to lie closely adjacent without producing undue thickness, said interfolded portions forming integral braces which stiffen the corner, and hold the adjacent frame bars rigidly in rectangular relation to each other. The portion of the V-d frame which embraces the second edge of the fabric is secured thereto as before described, and in like manner, the remaining bars of the frame are formed and secured to the fabric. I prefer to have the end of the integral V-d strip extend beyond the contour of the frame at one edge thereof to form a guiding strip when the screen or section is to form part of a sliding extensible screen, but this is not essential. The V-d strip may be scored, creased or indented at

intervals where the interfolding corner portions occur, before or at the time of applying it to the fabric, if desired, to facilitate the formation of the corners.

In the accompanying drawings I have shown several forms of corner structures comprehended within my invention and formed by interfolding the metal of the V-d strip, and others will doubtless occur to those skilled in the art.

In the said drawings, Figure 1 is an elevation of a screen or screen section embodying my invention. Fig. 2 is an enlarged detail view of one of the corners of the one-piece frame shown in Fig. 1, portions of the frame being bent apart or opened for the better understanding of the construction and arrangement of the interfolded parts. Fig. 3 is an enlarged side elevation of one corner of a one-piece frame showing a slight modification of my invention. Fig. 4 is a view similar to Fig. 2 showing the corner structure illustrated in Fig. 3. Fig. 5 is a view similar to Fig. 3 showing another slight modification of my invention. Fig. 6 is a view similar to Fig. 2 showing another modification of my invention. Fig. 7 is a view similar to Fig. 2 showing the construction illustrated in Fig. 6. Fig. 8 is a view similar to Fig. 3 showing another modification of my invention. Fig. 9 is a similar view showing still another modification of my invention. Fig. 10 is a view similar to Fig. 2 showing the form of corner illustrated in Fig. 9. Fig. 11 is a detail view showing one arrangement for making the fourth or last corner of the frame, the corner structure shown being the same as that shown in Figs. 1 and 2.

The beading or indentations for holding the screen fabric in the frame bars is omitted in Figs. 2 to 10 for greater clearness.

In the drawings A represents a section of screen fabric, usually wire gauze, and B represents the one-piece metallic frame, formed of a single piece of sheet metal folded longitudinally or V-d, and extending around all four edges of the fabric, and secured thereto by indenting or beading the frame bars, as indicated at *b*, the indentation or bead extending through both thicknesses of the metal frame, and the inclosed fabric, and stretching the latter tightly while at the same time rigidly securing it in the frame without the use of solder or other means. In the form of corner shown in Figs. 1 and 2, each thickness or lap of one of the frame bars, as the horizontal frame bar *b'* is given a transverse interior bend as at 1 and each lap of the other frame bar as vertical frame bar *b''* is given an exterior diagonal fold at substantially 45°, as indicated at 2, both folds 1 and 2 converging at the corner, so that the vertical laps *b'' b''* can be folded together with interfolded triangular portions 3, 3, upon the horizontal laps *b' b'* and hammered or otherwise flattened down into a neat, strong and durable corner, which will hold the bars *b'* and *b''* rigidly at right angles to each other

without the use of solder or rivets or any other auxiliary means.

In Figs. 3 and 4 I have shown a modified form of corner, which is practically the converse of that shown in Figs. 1 and 2. In these figures one frame bar, as horizontal bar  $b^3$  is provided on both sides with the interior diagonal bend 4 at substantially  $45^\circ$ , and the other bar, as the vertical bar  $b^4$  is provided on both sides with an external transverse bend 5, said last named bar having its sides or laps folded together with the interfolded triangular portions 6, 6 upon the bar  $b^3$ , and the parts are then flattened down in any desired manner. In this form the transverse exterior bend 5 will be in line with the outer edge of the bar  $b^3$ , and the diagonal bend 4 will lie inside and out of sight.

In Fig. 5, I have shown a slight modification of the corner, which is formed exactly like that shown in Figs. 3 and 4 except that the concealed bend 4 is made at an angle of more than  $45^\circ$  to the horizontal bar  $b^3$ , and the exterior bend 5 is made at an angle to the vertical bar  $b^4$  less than a right angle, the interfolding of the parts being otherwise identical with that illustrated in Figs. 3 and 4.

Figs. 6 and 7 show another modification in which each side or lap of the V-d frame bar is interfolded exactly in the manner shown in Figs. 3 and 4, but the relative positions of the interfolded portions is reversed on the opposite laps or sides of the frame bar.

In Figs. 8, 9 and 10 a slightly different arrangement of the interfolded portions, is shown, Fig. 8 showing the converse of the form shown in Figs. 9 and 10. In these figures the side portions or laps of the frame bars  $b^5$  and  $b^6$  are each folded diagonally from the corner, at an angle of  $45^\circ$  to form meeting edges, as at 7 and 8, and the surplus metal is flattened down, so as to form folds 9, 9, leaving a triangular portion 10 between them, which is preferably located centrally with respect to the meeting edges 7 and 8. In Fig. 8, the folds at 7 and 8 are interior and those at 9, 9 exterior, and the part 10 is, therefore, disposed exteriorly and covers a portion of the meeting edges 7 and 8. In Figs. 9 and 10 the meeting edges 7 and 8 are formed by exterior folds and the folds 9, 9 are interior folds, thus causing the triangular part 10 to lie beneath the edges 7 and 8 and be entirely concealed.

In all the forms of the invention herein shown and described, it will be seen that the interfolded portions of the metal at the corners form a lock which positively holds the adjacent frame bars perpendicular to each other, and when the corners are flattened down, any strain on the frame bars tending to move them out of their rectangular relation will be resisted by the interfolded portions in a direction parallel to their planes, or surfaces, and as the interfolding and flattening of the corners reinforces them against any lateral displacement, extremely strong and durable corners result.

It will be seen from an examination of all the figures, that the folds are made along lines which converge to the exterior corners of the frame. As previously stated, one end of the V-d strip may be extended be-

yond the edge of the frame to form a guiding extension. Where this is not done, the fourth corner is preferably made like all the others and a short portion of the strip is overlapped upon the first frame bar and held in place by indenting or beading as shown at  $b^x$  in Fig. 11.

I do not limit myself to the exact details of construction herein described and shown, as variations may be made therein without departing from the spirit of my invention.

When the frame is provided with the extension, as shown in Fig. 1, the last corner formed in making the frame need not be interfolded, in which case the portion of the V-d strip which forms the fourth side of the frame and the extension, will simply embrace the end of the part forming the first side and extend beyond the same, the two frame bars being held firmly together in such case by the beading, as indicated in Fig. 1.

What I claim and desire to secure by Letters Patent is:—

1. A window screen section comprising a piece of screen fabric and an inclosing frame consisting of an integral strip of sheet metal, folded longitudinally and having portions bent angularly with respect to each other to form frame bars, which inclose the marginal portions of the screen fabric, the surplus metal at the corners being folded on a line disposed at an angle of  $45^\circ$  to an adjacent frame bar, said fold extending to the exterior corner of the frame, and said surplus metal being flattened, to bring it substantially into the plane of the frame and lock the adjacent frame bars in their relative angular positions, substantially as described.

2. A window screen section comprising a piece of screen fabric and an inclosing frame consisting of an integral strip of sheet metal, folded longitudinally and having portions bent angularly with respect to each other to form frame bars, which inclose the marginal portions of the screen fabric, the surplus metal at the corners being folded on a line disposed at an angle of  $45^\circ$  to an adjacent frame bar, said fold extending to the exterior corner of the frame, the said corners being flattened, and portions of said surplus metal being inclosed within longitudinally folded portions of the adjacent frame bars, substantially as described.

3. A window screen section consisting of a piece of screen fabric, and an integral frame consisting of a piece of sheet metal folded longitudinally, and bent rectangularly with respect to each other to form frame bars which inclose marginal portions of said fabric, the surplus metal at the corners, being folded along lines converging toward and extending to the exterior corners of the frame, interfolded within both of the adjacent longitudinally folded frame bars, and locking adjacent frame bars in their relative angular positions whereby truly rectangular exterior corners are produced, substantially as described.

4. A window screen section comprising a piece of screen fabric, and a frame therefor comprising an integral strip of sheet metal folded longitudinally and having portions bent rectangularly to form the frame bars, the surplus metal at the corners being folded on a line extending at an angle of  $45^\circ$  to each of two adjacent frame bars, to form meeting edges, said surplus metal being interfolded within the adjacent frame bars and locking them in their relative angular positions, substantially as described.

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

ALBERT A. DAY,

Witnesses:

EDWARD CORNING AVILA,  
JOHN WESLEY DIXON.