

No. 696,250.

Patented Mar. 25, 1902.

E. J. McCARTY.

SCREEN.

(Application filed Aug. 23, 1901.)

(No Model.)

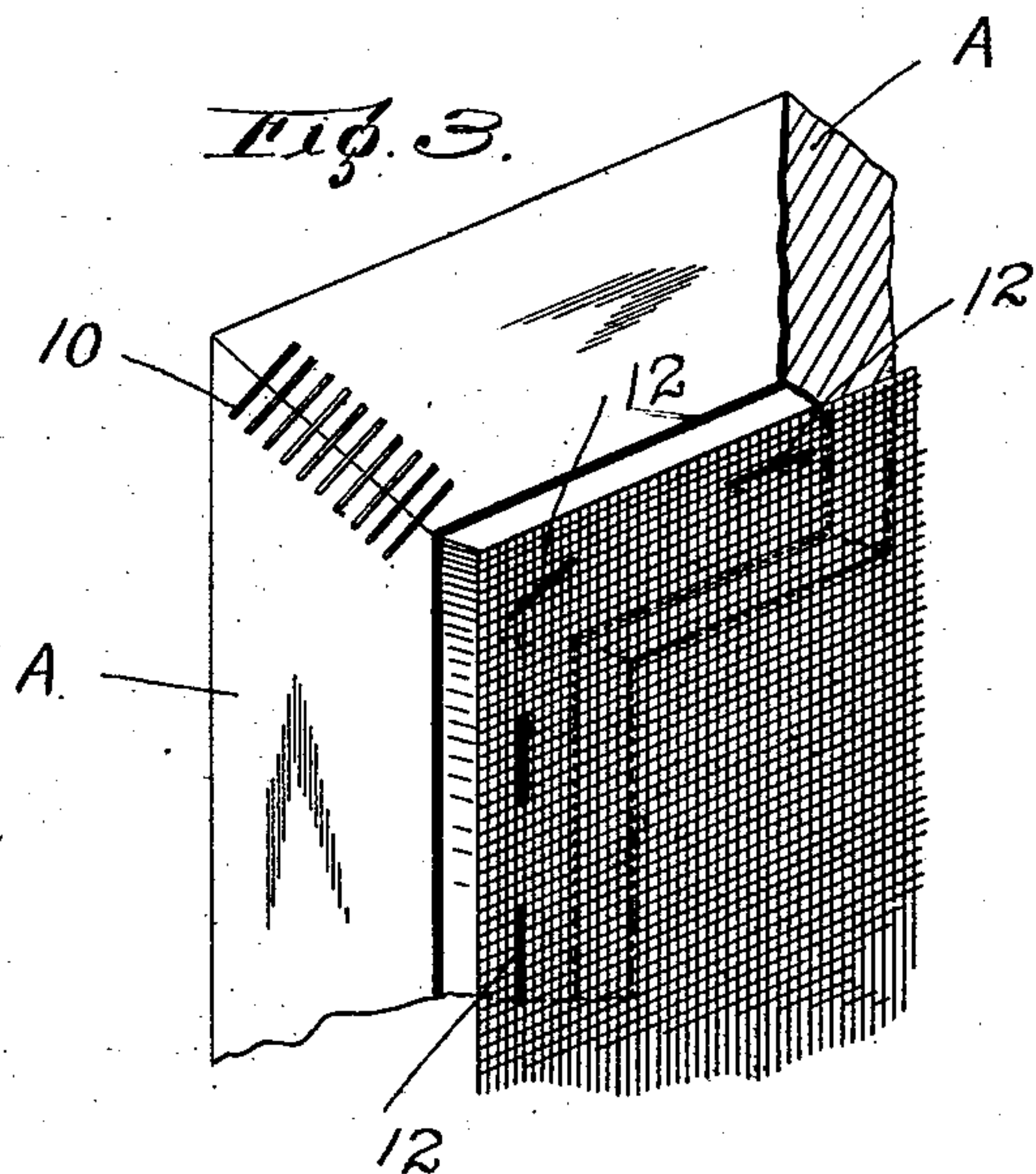
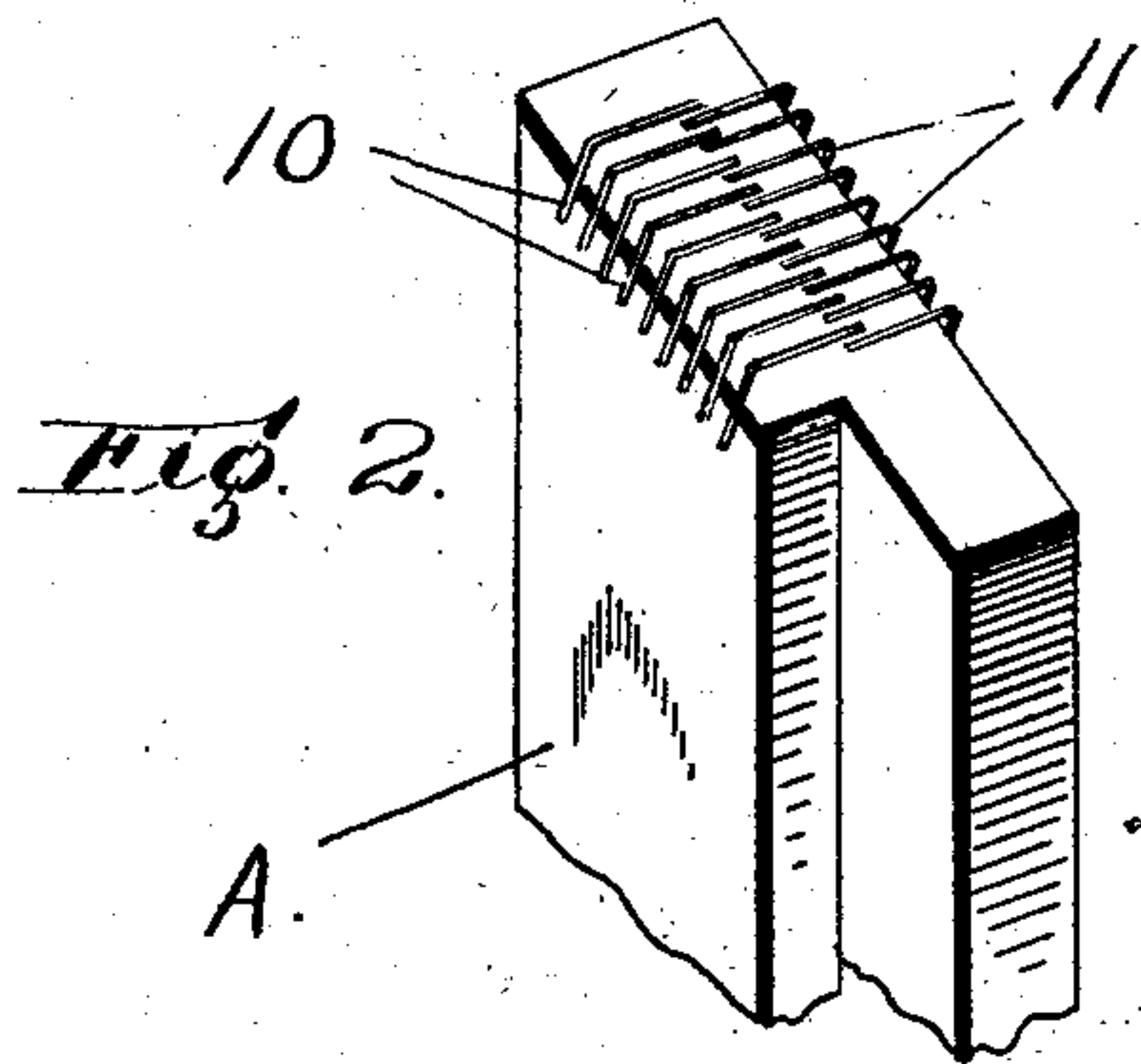
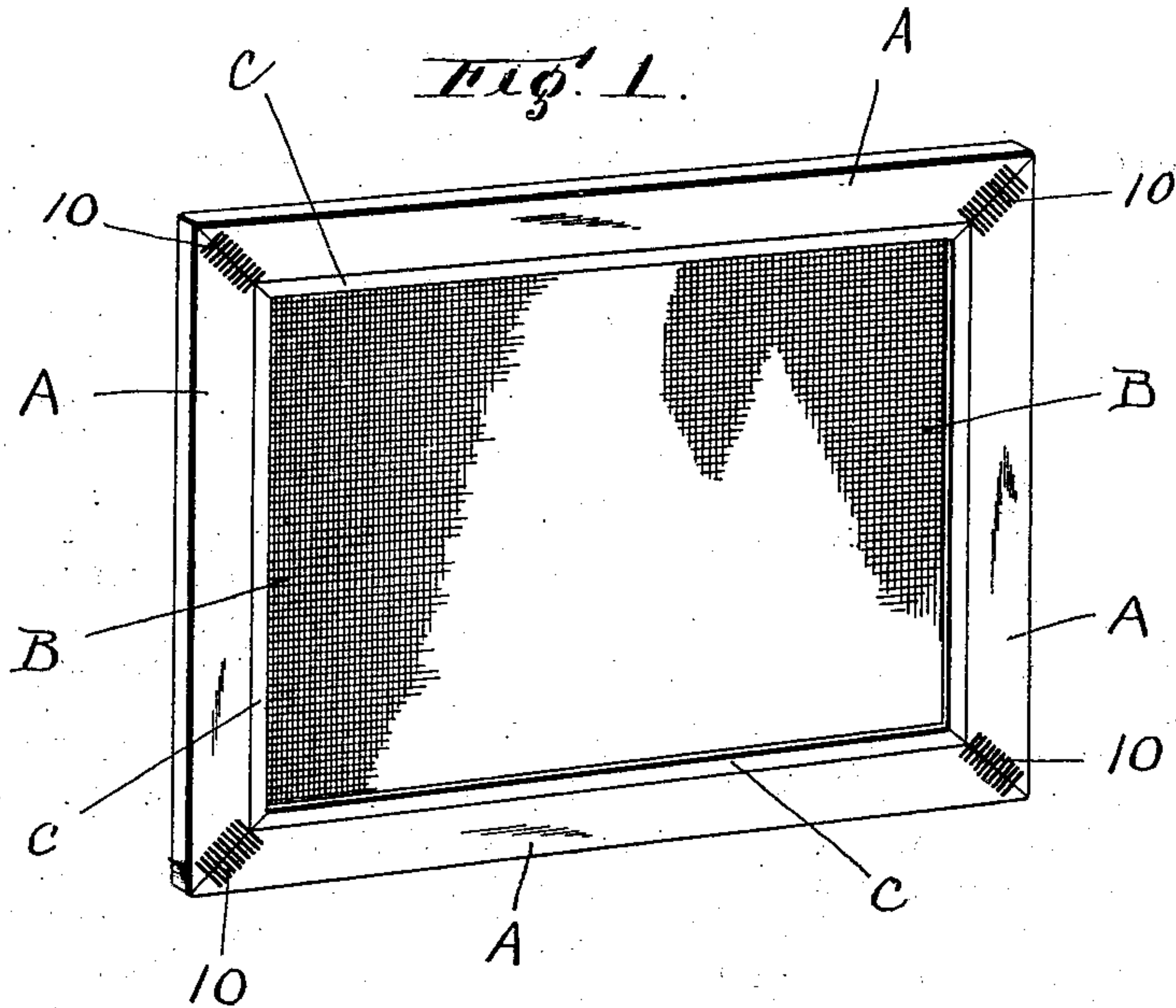
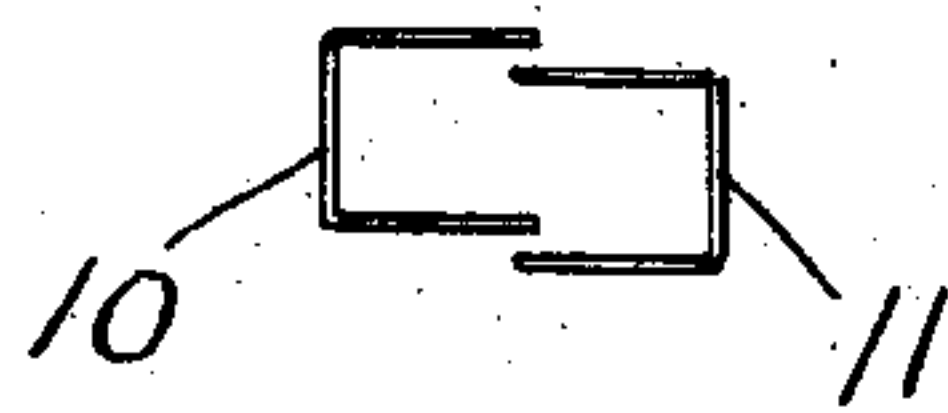


Fig. 4.



Witnesses.

C. F. Wesson.

R. H. Southgate

Inventor.
E. J. McCarty.

By

Southgate & Southgate
Attorneys.

UNITED STATES PATENT OFFICE.

EUGENE J. McCARTY, OF CLINTON, MASSACHUSETTS.

SCREEN.

SPECIFICATION forming part of Letters Patent No. 696,250, dated March 25, 1902.

Application filed August 23, 1901. Serial No. 72,995. (No model.)

To all whom it may concern:

Be it known that I, EUGENE J. McCARTY, a citizen of the United States, residing at Clinton, in the county of Worcester and State of Massachusetts, have invented a new and useful Screen, of which the following is a specification.

This invention relates to a window-screen or similar construction; and the especial object of this invention is to provide an improved joint for connecting the bars of a screen-frame.

To this end this invention consists of the screen and of the combinations of parts therein, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a perspective view of a window-screen constructed according to this invention. Fig. 2 is an enlarged perspective fragmentary view illustrating the formation of a joint between the bars of the screen-frame. Fig. 3 is a fragmentary perspective view illustrating the manner in which the screen-cloth is secured to the frame, and Fig. 4 is a detail view illustrating the relative position of the wire stitches which are inserted from opposite sides of the frame.

To provide a strong, durable, and efficient form of window-screen, it is essential to provide a construction in which the joints of the screen-frame are extremely strong and rigid in order to stand the rough handling to which window-screens are frequently subjected and which on account of their exposure to the weather do not depend upon glue or other cement. To accomplish these objects in a window-screen constructed according to my invention, the bars of the frame are mitered at their ends and are fastened together by fine-wire stitches which extend across the joints and are inserted both from the front and rear faces of the frame. The ends of the wires which form the stitches do not extend completely through the frame, and hence do not require to be turned back or clenched, so as to mar the construction, and in practice the wire stitches inserted from opposite sides of the frame are preferably slightly offset with respect to each other, so that their ends are not brought into contact, although

in practice I have made use of such fine gage wire that the stitches do not materially interfere with each other, even when inserted upon the same lines from opposite sides of the frame.

To fasten the screen-cloth to the frame of a window-screen constructed according to my invention, I preferably employ the same form of wire stitches which are used at the joints of the frame.

Referring to the accompanying drawings and in detail, a window-screen constructed according to my invention, as herein illustrated, comprises wooden frame pieces or bars A, which are rabbeted to receive the screen-cloth B, which screen-cloth B may consist of cotton or linen netting or preferably of the ordinary wire-cloth. Fitting into the rabbets of the frame on top of the screen-cloth are the ordinary finish-beads C. The joints which are preferably employed for connecting the bars A of a screen constructed according to my invention are most clearly illustrated in Figs. 2 and 3. As shown in these figures, the bars A are mitered at their ends and are fastened together by fine-wire stitches 10 and 11.

As shown most clearly in Fig. 4, the series of stitches 10, which are inserted from one side of the frame, are slightly offset with respect to the wire stitches 11, which are inserted from the opposite side of the frame.

The wires which form the stitches 10 and 11 are not long enough to extend completely through the frame, and hence do not require to be bent back or clenched, while by employing stitches inserted from both sides of the frame a strong rigid construction is provided which cannot be bent or twisted.

As distinguished from the ordinary double-pointed tacks or staples, which are used for different purposes and which can be bought in quantity on the market, the wire stitches 10 and 11 in a screen constructed according to my invention are formed from the finer grades of soft annealed steel wire. Each one of these stitches consists of a U-shaped piece of fine wire of uniform diameter at all points of said stitch. In the use of these fine-wire stitches of uniform diameter a different result is produced from what could be secured by the use of ordinary double-pointed tacks or staples—

that is to say, in a joint constructed according to my invention the wire stitches are forced into place between the fibers of wood without at all cutting or severing the material—and it is on account of the fact that wire stitches in a screen constructed according to my invention can be inserted without affecting the grain of the wood that I am enabled to set the wire stitches so closely together in practice, these wire stitches being set less than an eighth of an inch apart, whereas if it were attempted to use the ordinary double-pointed tacks or staples formed from sheet metal it would be impossible to construct a joint in this manner without splitting the material. Furthermore, instead of relying upon the stiffness or resistance of the body portion of the stitches to bending a joint constructed according to my invention relies upon the tensile strength or breaking strain of the stitches. This is due to the fact that two rows of wire stitches 10 and 11 are employed, one row of stitches being inserted from one side of the screen and the other row of stitches being inserted from the opposite side of the screen, so that a strain tending to bend the joint of a screen constructed according to my invention will be resisted by the tensile strength of the row of stitches on the opposite side of the joint from that on which the pressure is exerted, whereas if a line of stitches were inserted from one side only the joint would only have for stiffness to resist a transverse bending strain the stiffness of the body portion of the wire, or, in other words, the crack between the sections of the frame on the opposite side from that on which the stitches are inserted, if but a single row were employed, could readily be spread or opened, whereas by employing two rows of staples, one row being inserted from each side, the staples mutually support and strengthen each other, so that no matter from what side a flexing or bending strain is applied it will be resisted by the tensile strength of the row of staples upon the opposite side.

To secure the screen-cloth B to the frame, I preferably employ the same character of wire stitches 12 as the stitches 10 and 11, which are employed at the joints of the frame.

In practice I have devised special machinery for setting the wire stitches 10, 11, and 12, which is so constructed as to enable me to use extremely fine gages of wire, producing neat, strong, and attractive screen-frames which can be manufactured considerably cheaper than any of the ordinary forms of window-screens with which I am familiar. In this application for patent, however, I do not wish to be limited to any particular manner of setting the wire stitches 10, 11, and 12.

I am aware that changes may be made in the relative proportions and construction of the parts of my window-screens by those who are skilled in the art without departing from the scope of my invention as expressed in the

claims. I do not wish, therefore, to be limited to the construction I have herein shown and described; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. As an article of manufacture, a screen-frame having wooden bars, the ends of which are mitered and fastened together by wire stitches extending across the joint, each of said stitches consisting of an unclenched U-shaped piece of fine wire, which is inserted between the fibers of the wood without cutting or splitting the material, the ends of said stitches not extending through the bars, whereby said stitches may be set close together by machinery, substantially as described.

2. As an article of manufacture, a screen-frame having wooden bars, the ends of which are mitered and fastened together by fine-wire stitches extending across the joints, and inserted from both the front and rear faces of the frame, so that the tensile strength of one line of stitches will resist strains tending to bend the joints in one direction, and the tensile strength of the other line of stitches will resist strains tending to bend the joints in the opposite direction, each of said stitches consisting of an unclenched U-shaped piece of fine-gage wire of uniform diameter from end to end, which is forced into place between the fibers of the wood without splitting or cutting said fibers, the ends of said stitches not extending through the frame, whereby said stitches may be set closely together by machinery, substantially as described.

3. As an article of manufacture, a screen-frame having wooden bars, the ends of which are mitered and fastened together by fine-wire stitches extending across the joints and inserted both from the front and rear faces of the frame, the stitches inserted from one face of the frame being offset with respect to the stitches inserted from the opposite face of the frame, so that the tensile strength of one row of stitches will resist strains tending to bend the joints in one direction, and the tensile strength of the other row of stitches will resist strains tending to bend the joints in the opposite direction, each of said stitches consisting of an unclenched U-shaped piece of fine-gage wire of uniform diameter from end to end, which is inserted in place between the wooden fibers without cutting or splitting the material, the ends of said stitches not extending through the frame, substantially as described.

4. As an article of manufacture, a screen comprising a frame, having rabbeted wooden bars, the ends of which are mitered and fastened together by fine-wire stitches extending across the joints, and inserted both from the front and rear faces of the frame, so that strains tending to bend the joints in one direction will be resisted by the tensile strength of one line of stitches, and strains tending to

bend the joints in the other direction will be resisted by the tensile strength of the other line of stitches, each of said stitches consisting of an unclenched U-shaped piece of fine-gage wire of uniform diameter from end to end, which is inserted in place between the wooden fibers without cutting or splitting said fibers, the ends of said stitches not extending through the frame, and screen-cloth secured to said frame by wire stitches in-

serted directly through said screen-cloth, substantially as described.

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

EUGENE J. McCARTY.

Witnesses:

JOHN F. CROWELL,

PHILIP W. SOUTHGATE.