

(No Model.)

F. W. STARR.
DOUBLE POINTED CORRUGATED FASTENER.

No. 406,545.

Patented July 9, 1889.

Fig. 1. Fig. 2.

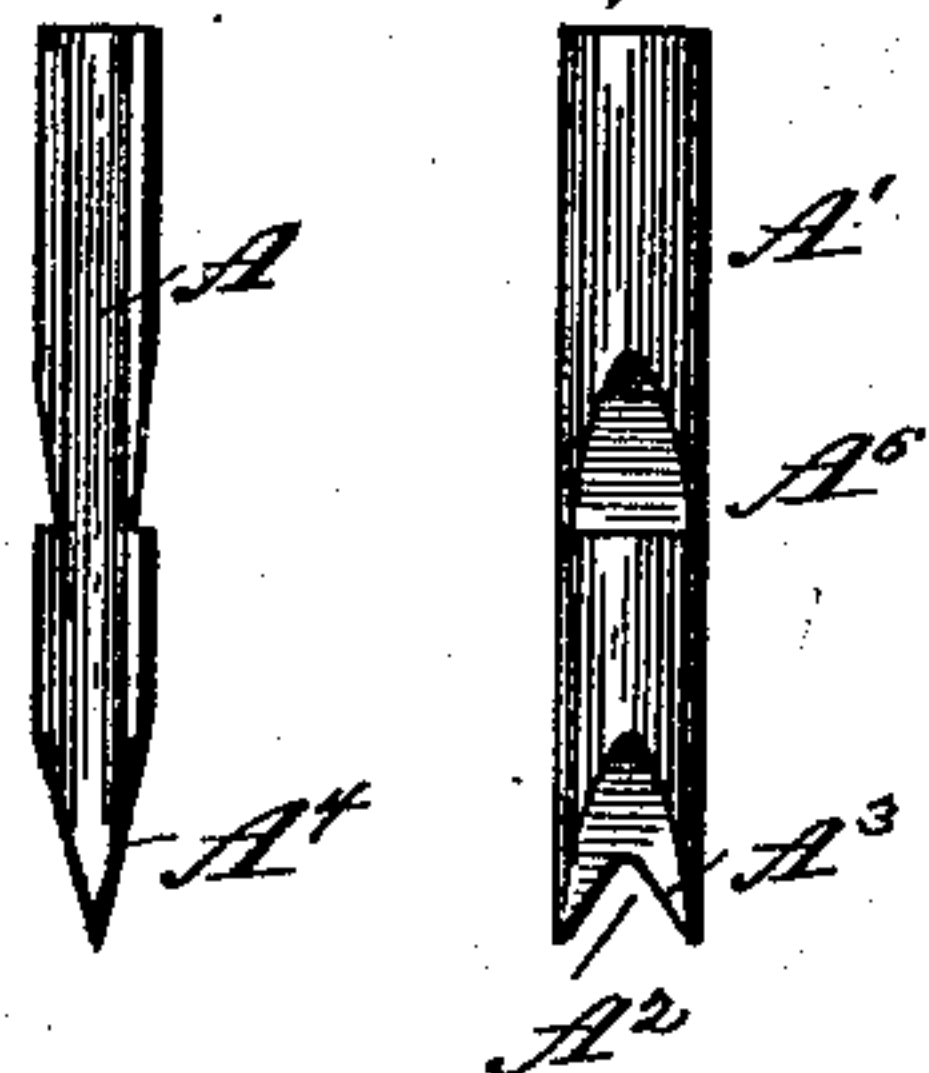


Fig. 3.

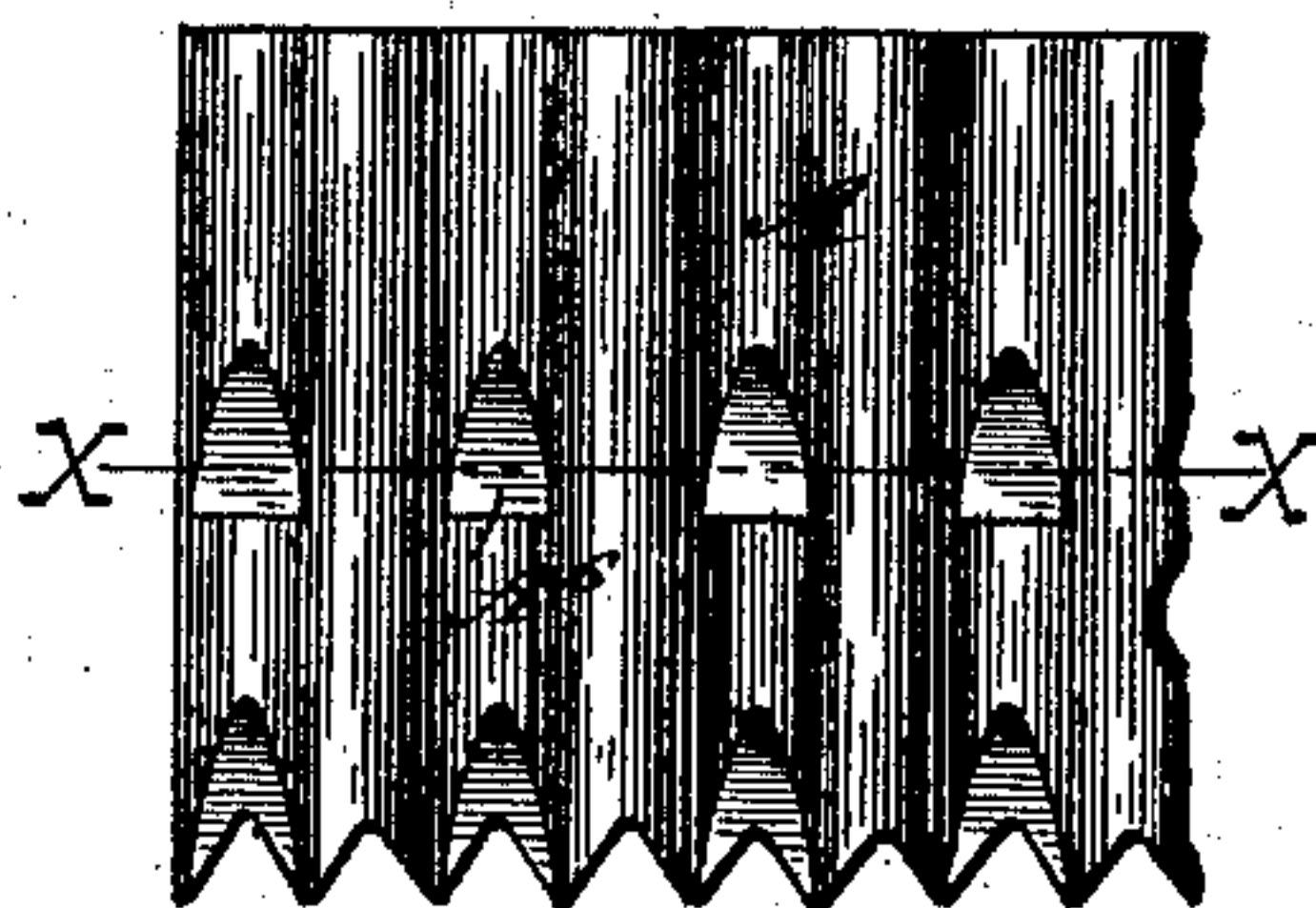


Fig. 4.

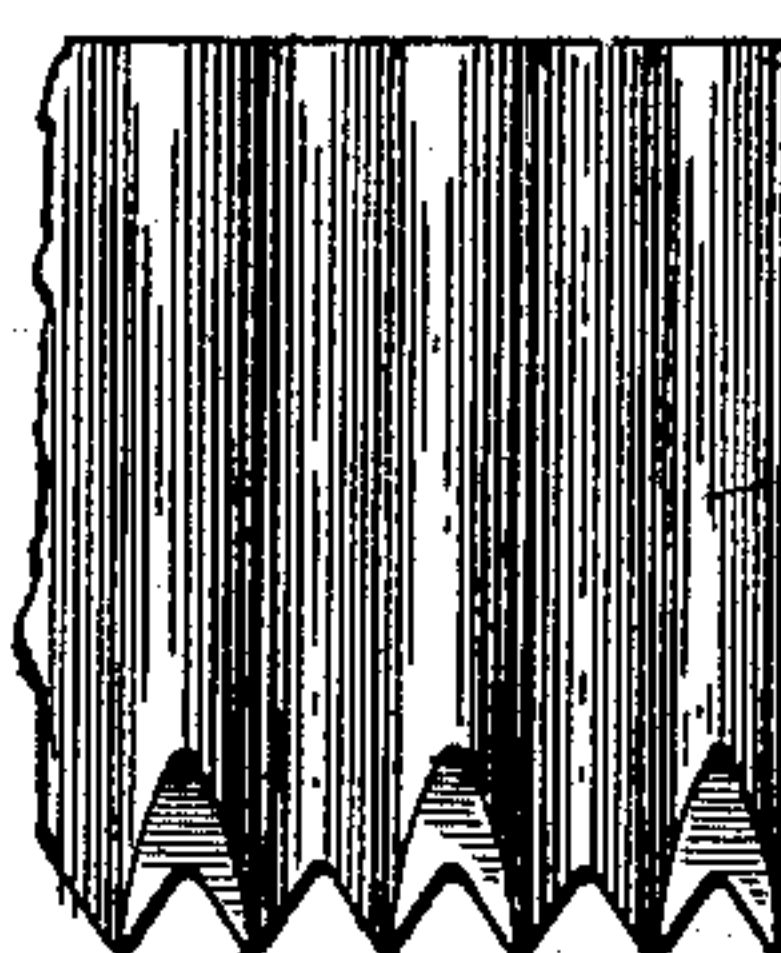


Fig. 5.



Fig. 6.

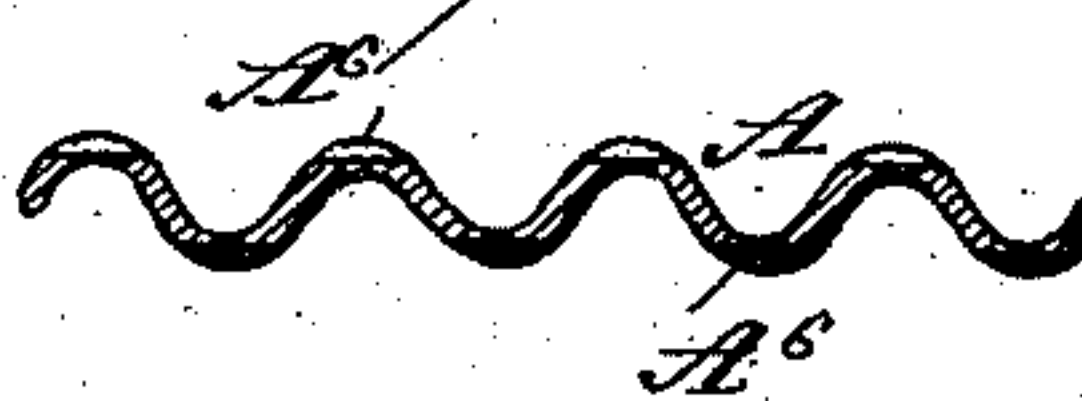


Fig. 7.



Fig. 8.

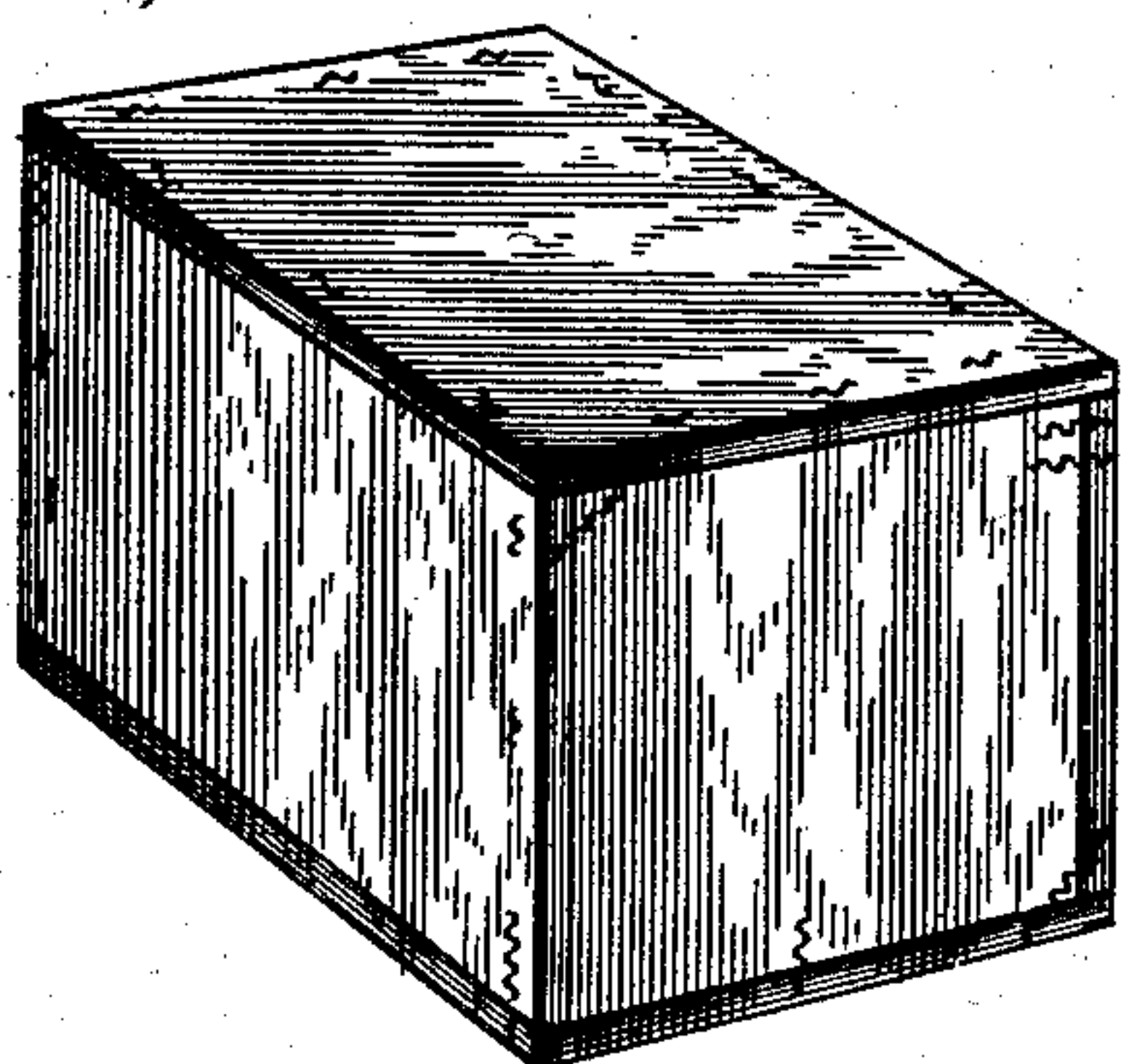


Fig. 9.

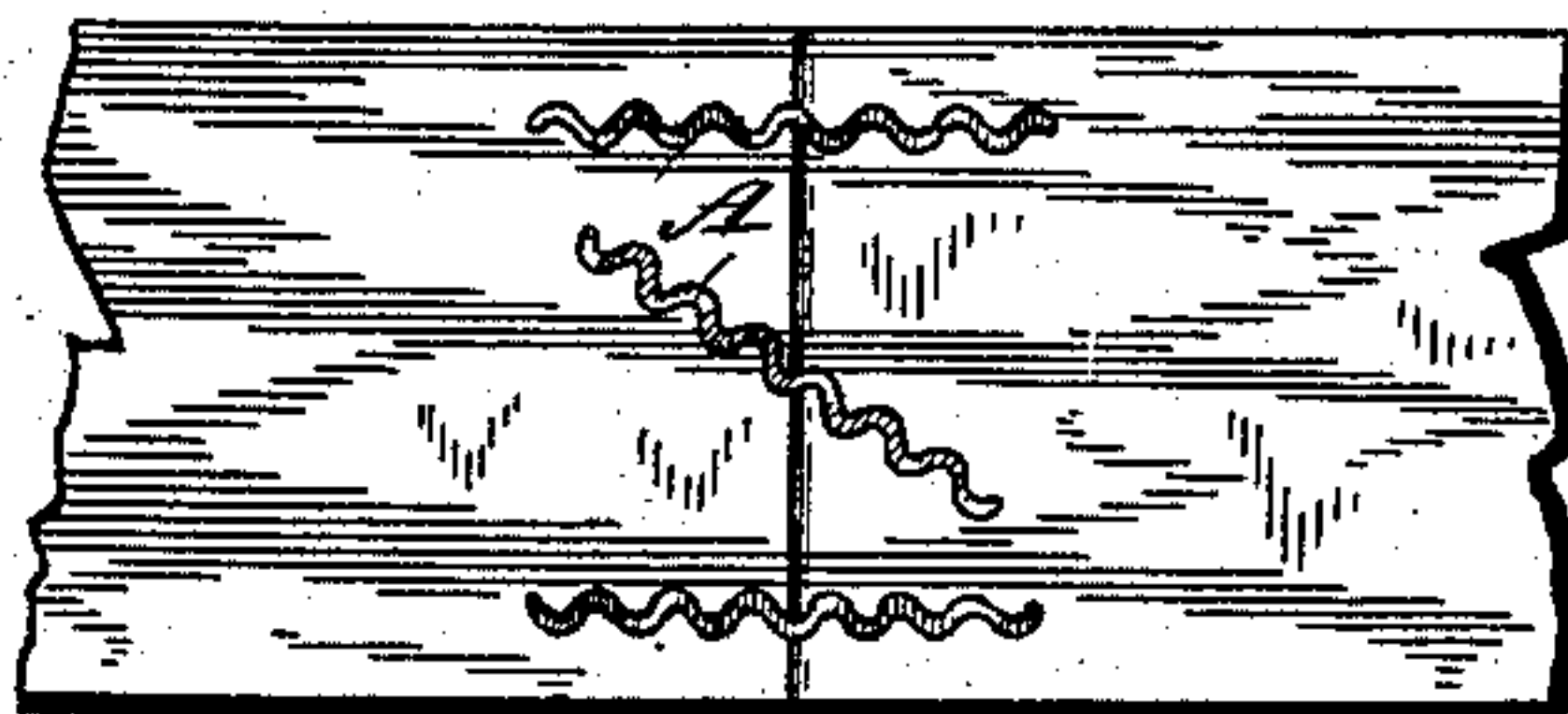


Fig. 10.

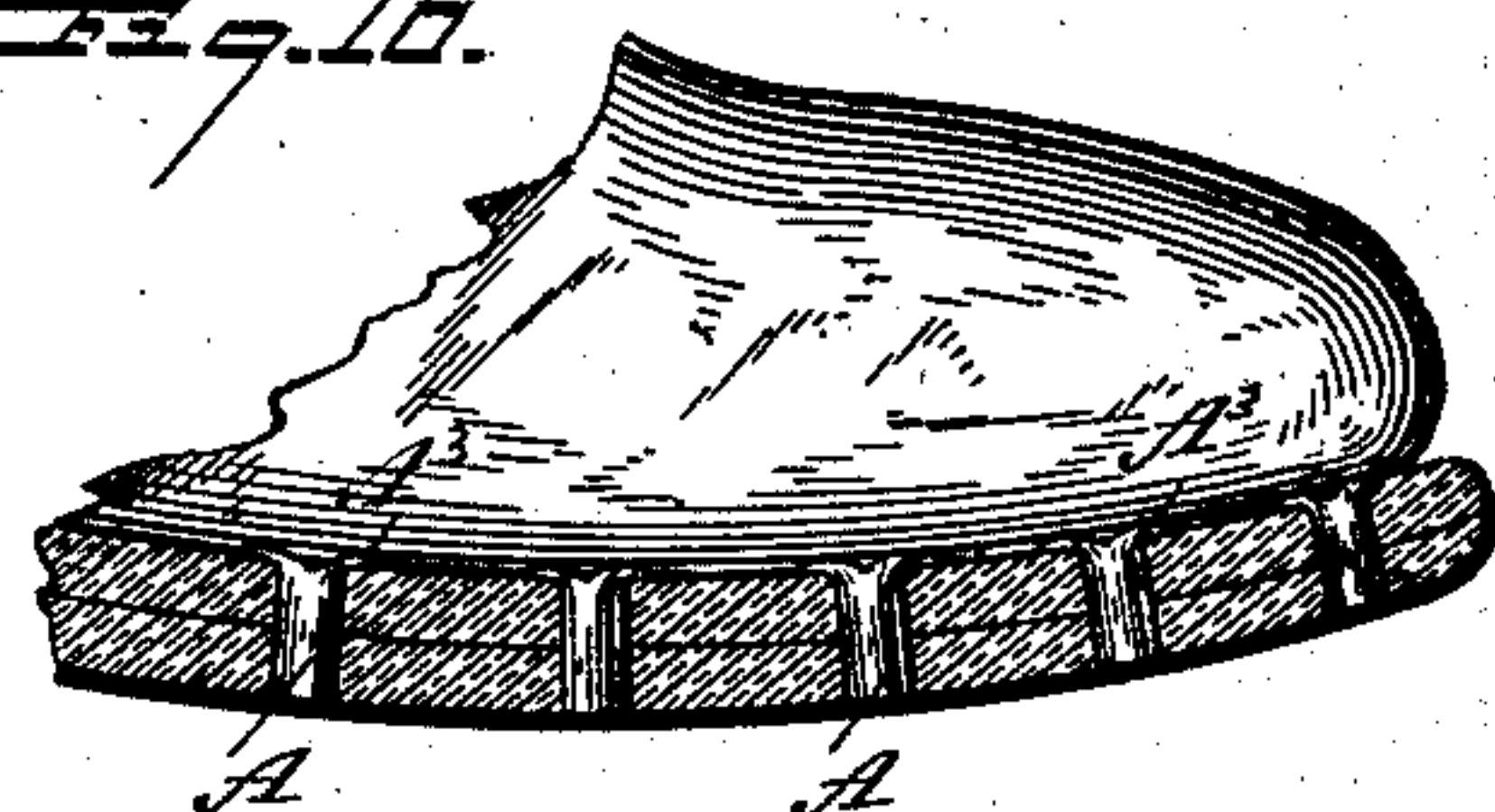


Fig. 11.

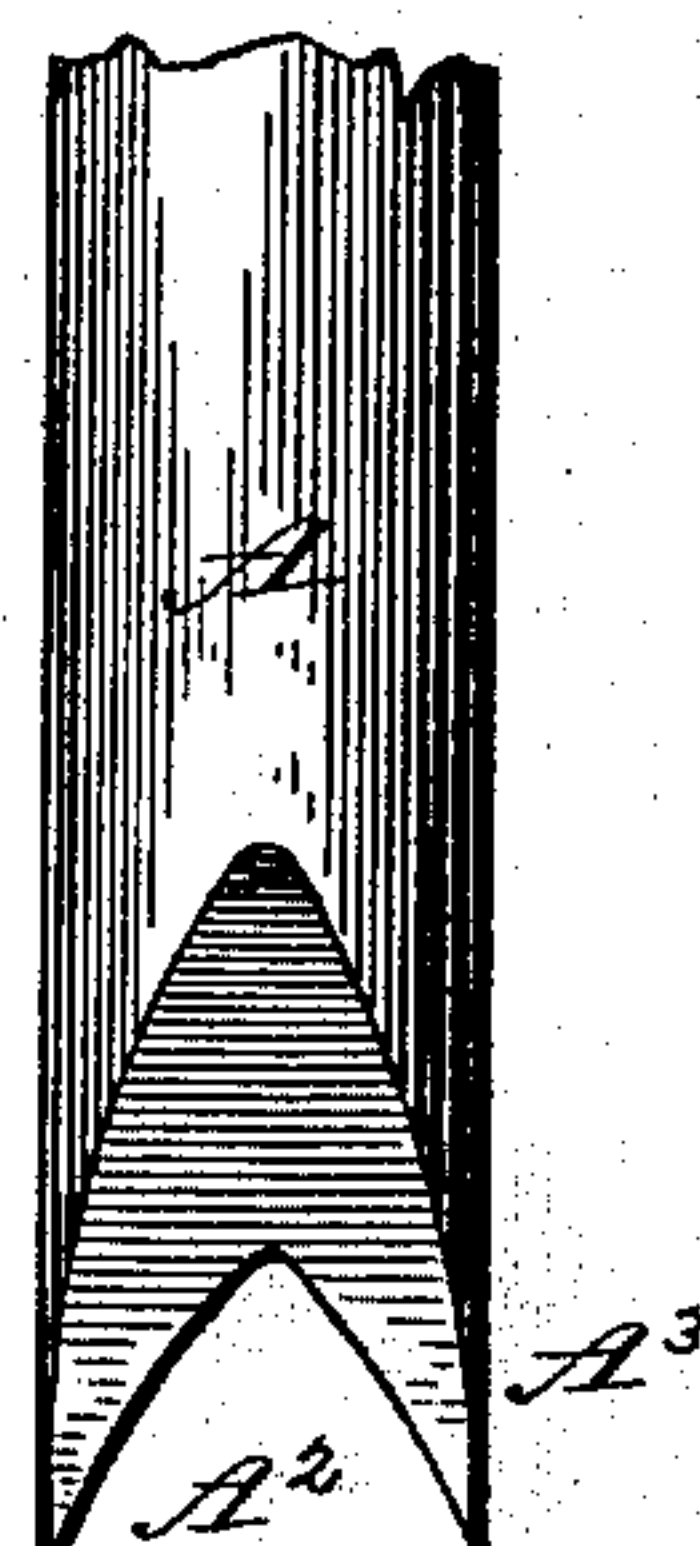


Fig. 12.



Witnesses

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UNITED STATES PATENT OFFICE.

FERDINAND W. STARR, OF SPRINGFIELD, OHIO.

DOUBLE-POINTED CORRUGATED FASTENER.

SPECIFICATION forming part of Letters Patent No. 406,545, dated July 9, 1889.

Application filed March 20, 1889. Serial No. 304,011. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND W. STARR, a citizen of the United States, residing at Springfield, in the county of Clark, State of Ohio, have invented certain new and useful Improvements in Double or Multiple Pointed Corrugated Fasteners, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The object of my invention is the provision of an improved form of fastener for use particularly with shoes, which device is an improvement on the form of fastener patented to me January 29, 1889, No. 390,900.

15 To this end I construct my fastener in the manner described in the following specification, and with such novel features as will be particularly set forth in the claims at the end of the same.

20 In the drawings, Figure 1 is an edge view of my fastener. Fig. 2 is a front view of one of my fasteners, having one corrugation only. Fig. 3 is a front view of one of my fasteners having more than one corrugation, showing the notches for the purpose of holding the fasteners in the wood or leather. Fig. 4 is a front view of one of my fasteners without the notches. Fig. 5 is a front view of one of the same, having only one corrugation. Fig. 6 is a section through Fig. 3 on the line xx . Fig. 7 is an edge view of Fig. 4, showing the form of the entering-edge. Fig. 8 is a perspective of a box fastened by means of my fasteners, showing the directions in which the same may be driven into the wood. Fig. 9 is a plan of a board or leather belt or strip formed of two pieces joined by means of my fasteners. Fig. 10 is a side view of a portion of a shoe, showing the mode of driving and securing my fasteners in the case of use in shoe-soles. Fig. 11 is an enlarged detail of the end of one of my fasteners, showing the advantageous form of the draw cutting-edge obtained by my method of forming the edges and points. Fig. 12 is a side view of one of the fasteners shown in actual size of use.

30 The device herein shown and described is also shown in my application for a method or process of making the same, filed March 20, 1889, Serial No. 304,009.

50 I am aware that fasteners have been made hitherto with corrugated bodies and zigzag

entering-edges; but the use of these fasteners has been hitherto entirely confined to driving the same into the ends of wooden pieces, and hence with the grain of the same, and in my improvement I have devised a means of driving fasteners of this general class across the grain of the wood, and hence to join wood and leather in any position desired. This object is attained by providing every corrugation with a draw cutting-edge, registering exactly with said corrugation and forming by intersection with the curved surface thereof a V-shaped entering edge or point. As thus made, the V appears in viewing the fastener from either the face or side view, as shown in Figs. 1 and 2.

A is one of my fasteners, as provided with multiple corrugations and the holding-notches. Of course the number of corrugations is immaterial, and I may use fasteners of one or more corrugations, it being as easy to produce the draw-edge, which is peculiar to my form of fastener, with one corrugation as with many.

At A' is shown a fastener having but one curve or corrugation therein.

The point which comprises the gist of my invention, produced by shaving or grinding after the corrugation of the metal, is shown and described in the application for a method or process above alluded to. By this means the bevel which is imparted to the individual corrugations gives a double-V point, as shown in the two views of the same shown in Figs. 1 and 2. The precise form of the point edges is shown in Fig. 11, where A² is the cutting V, of which the edges A³ are either sloped straight or curved, the curved form being shown in the figure. These edges can be given a razor-edge, making it possible to drive the fasteners across the grain of wood and through the toughest leather used in soles, &c. This formation is all that enables me to use my fastener in this manner, as all the fasteners hitherto used with the ordinary driving-edges invariably double under when sought to be driven, and it is only found possible to drive them into the wood with the grain at the end of the piece. For the production of the V, I bevel my fastener upon both sides, as shown in Fig. 1 at A⁴.

Now, my fastener may be made thus and

without further elaboration, as shown in Fig. 4 at A⁵, or there may be further completion and perfection of the fastener, as shown in Fig. 3. This elaboration consists of a notch-
 5 ing of the corrugation above the entering edge or point, as at A⁶. This form of notch is produced with a sloping surface something like the bevel of a whistle, and the end of the notch nearest the point of the fastener is approxi-
 10 mately perpendicular to the axis of the corrugation in order that the said end may hold in the wood or leather and prevent the falling out in case of shrinkage of the material into which the spike is driven.

15 As shown in Fig. 8, the fastenings may be driven into the wood across the grain squarely or diagonally, as well as with the same, and hence a box may be entirely made with my fastener, as therein shown.

20 One of the main uses of my fastener is in the jointing of boards or pieces of various hard materials edge to edge, as shown in Fig. 9. This is accomplished, as shown, by driving the fastener with its length in the direction
 25 of the boards, or diagonally to the same. By this means the zigzag of the fastener is employed to hold the boards together in the same manner as the staple-nails already well known; but the advantage of this means of
 30 fastening over the staple is that there is no danger of the breakage or bending of the fastener by striking one-half of the same oftener than the other, as the whole thing moves as a whole and is far stronger than the
 35 stoutest staple of the same size.

The use of my fasteners in making shoes, and particularly in fastening the soles of the same to the welt, is shown in Fig. 10, and as
 40 may be there seen, I generally employ only a single corrugation in the fasteners employed

for this purpose. This spike I drive through the sole, as shown, and then turn over or upset the points in opposite direction, and thus absolutely secure the spikes within the sole, so as to prevent all possibility of the removal
 45 of the same except when desired, when the points may be straightened out again.

The actual size of these fasteners as usually employed is shown in Fig. 12.

What I claim is—

1. A corrugated fastener, each corrugation of which is provided with a double point, substantially as specified. 50

2. A corrugated fastener, each of the corrugations of the same having a double point
 55 comprising a draw cutting-edge intermediate the points, substantially as described.

3. A corrugated fastener, each of the corrugations of which is provided with a double point comprising a draw cutting-edge, and
 60 having beveled notches in the sides of said corrugations, substantially as described.

4. A fastening device consisting of a single corrugation having a double point, substantially as described. 65

5. A fastening device consisting of a single corrugation having a double point, comprising a draw cutting-edge, substantially as described.

6. A fastening device consisting of a single
 70 corrugation having a double point, comprising a draw cutting-edge intermediate said points, and having a beveled notch on the side of said spike, substantially as described.

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

FERDINAND W. STARR.

Witnesses:

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 H. SUTHERLAND.