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PATENTED APR. 4, 1905.

J. J. MORSE.
DIES FOR TYING INTERSECTING WIRES.
APPLICATION FILED AUG. 22, 1904.

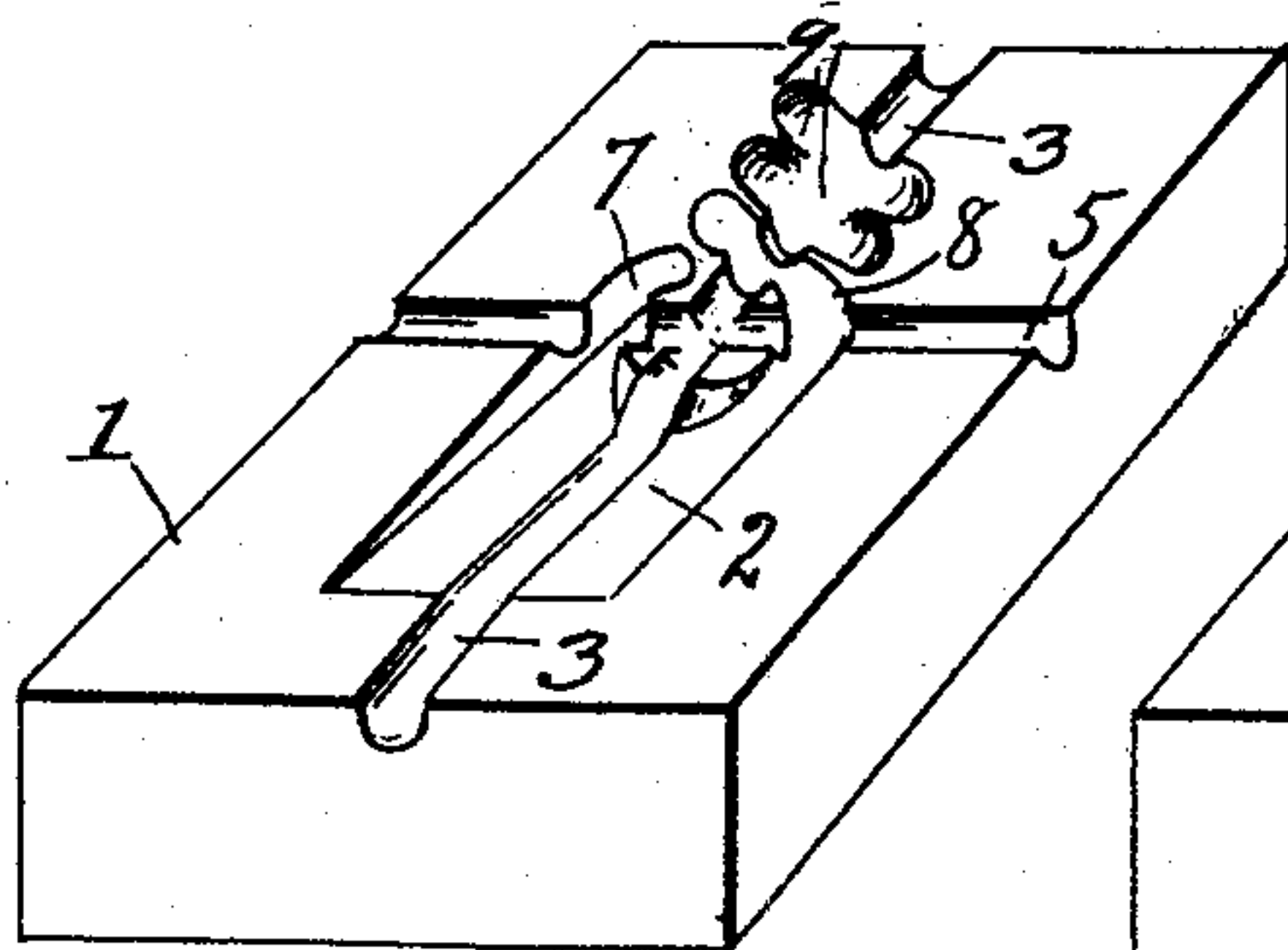


Fig. 1.

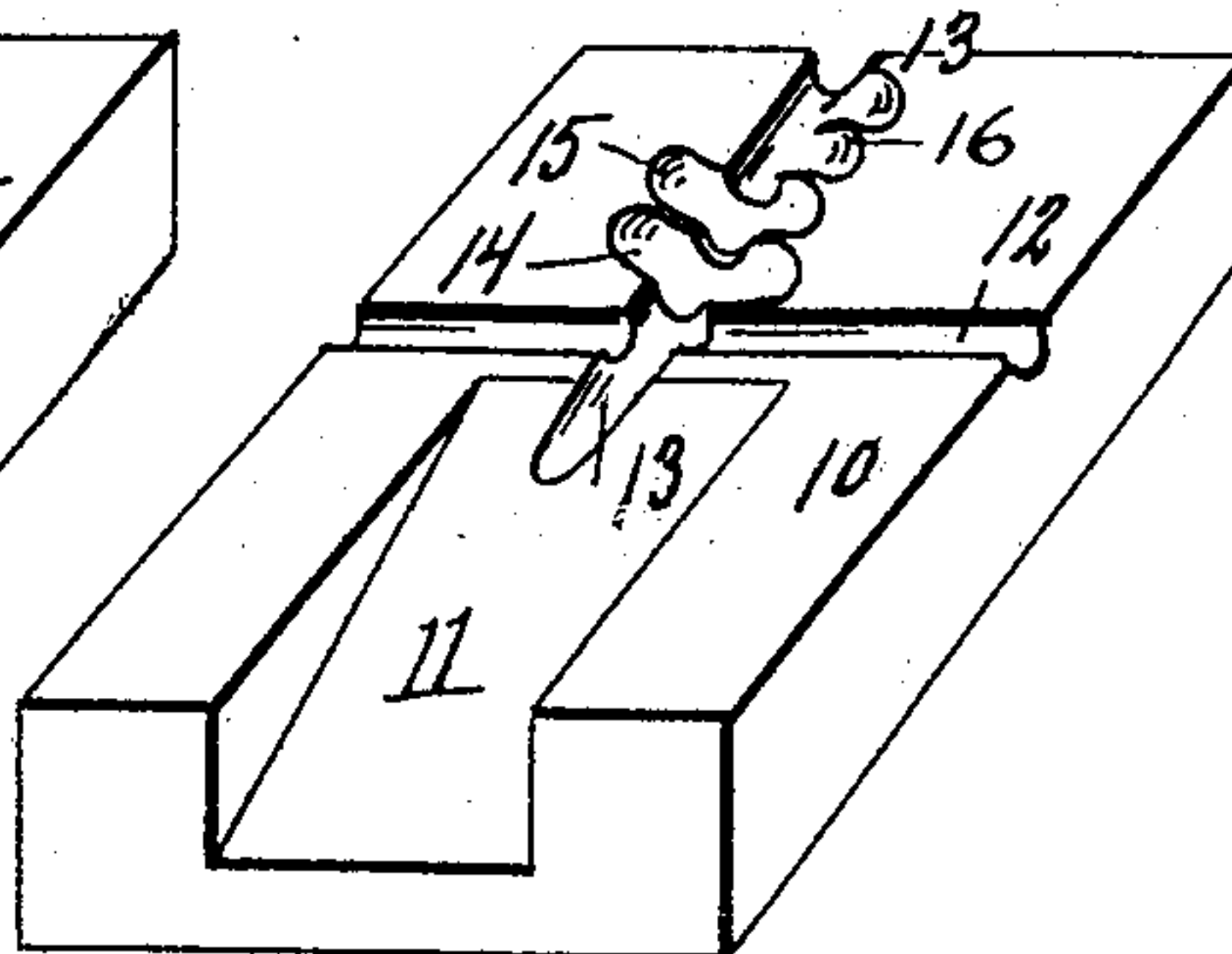


Fig. 2.

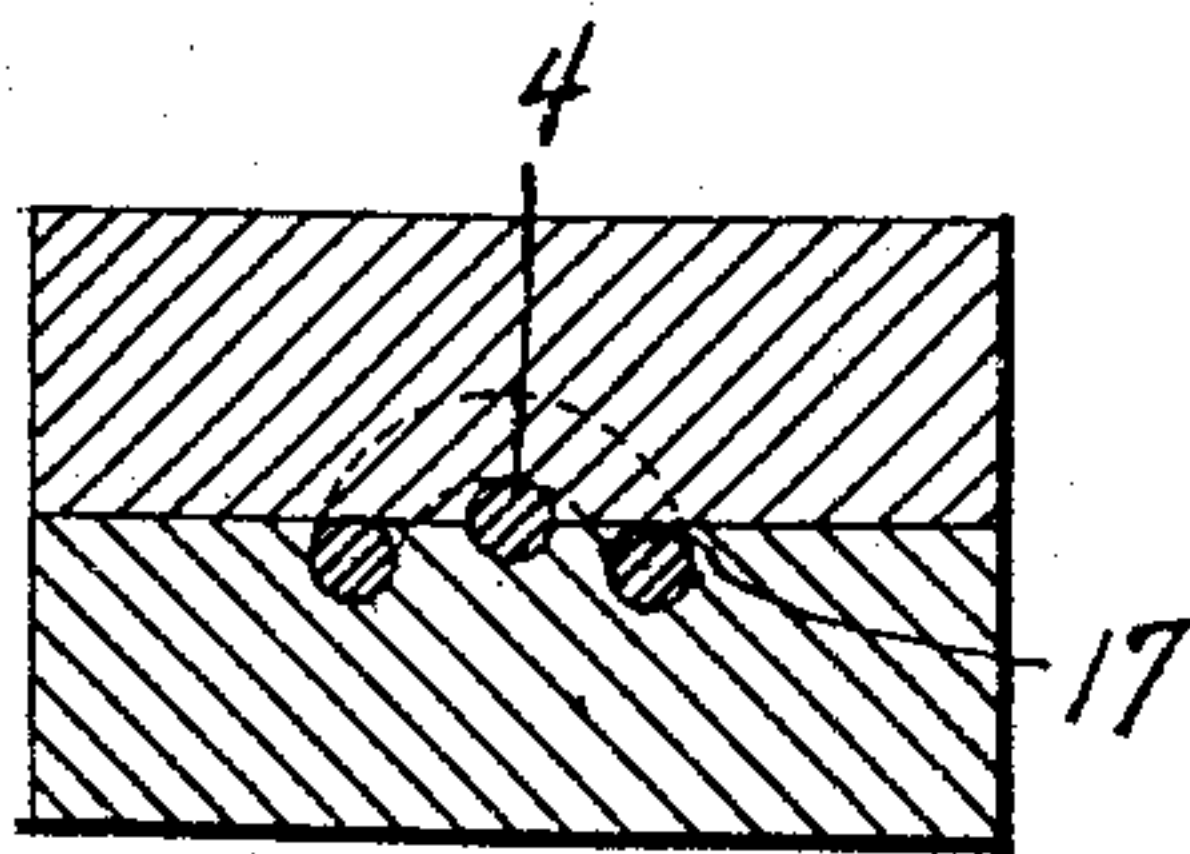


Fig. 3.

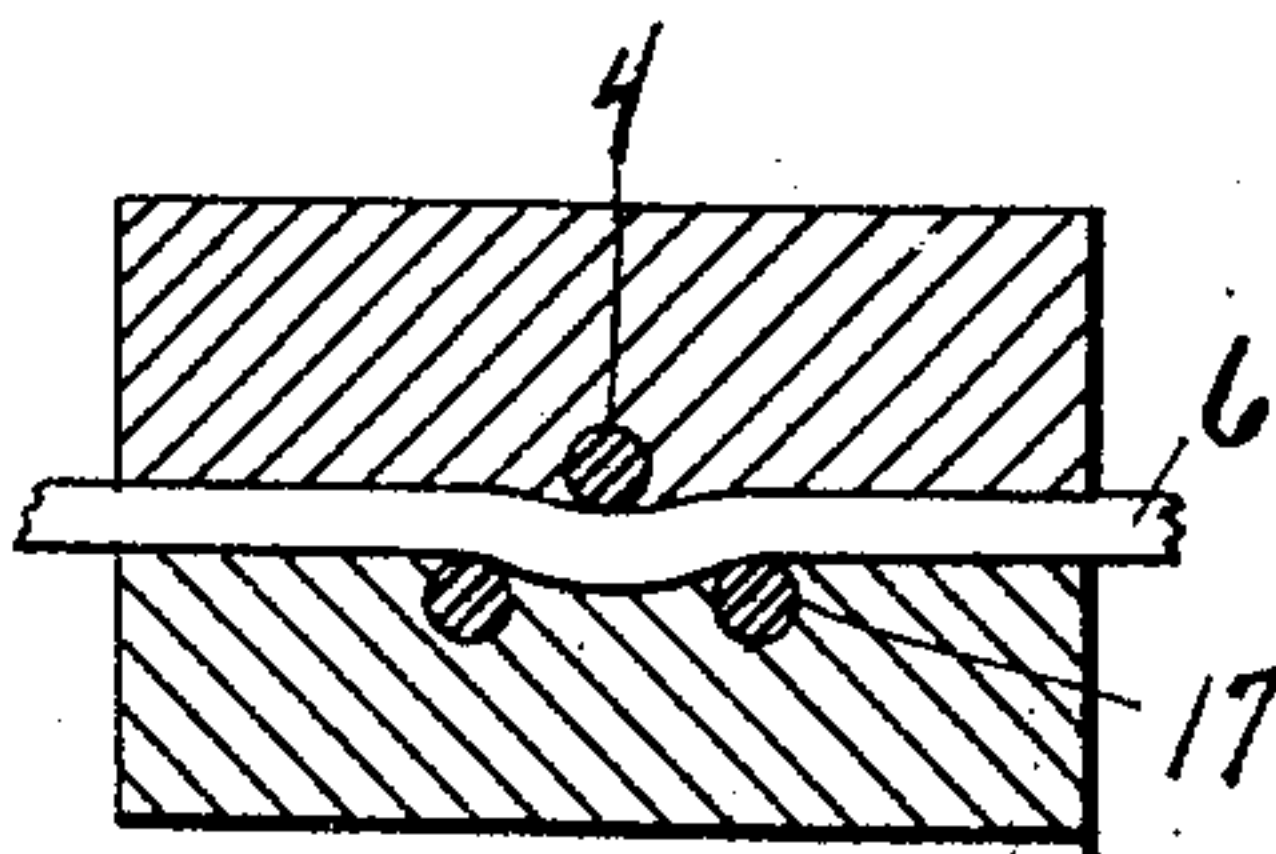


Fig. 4.

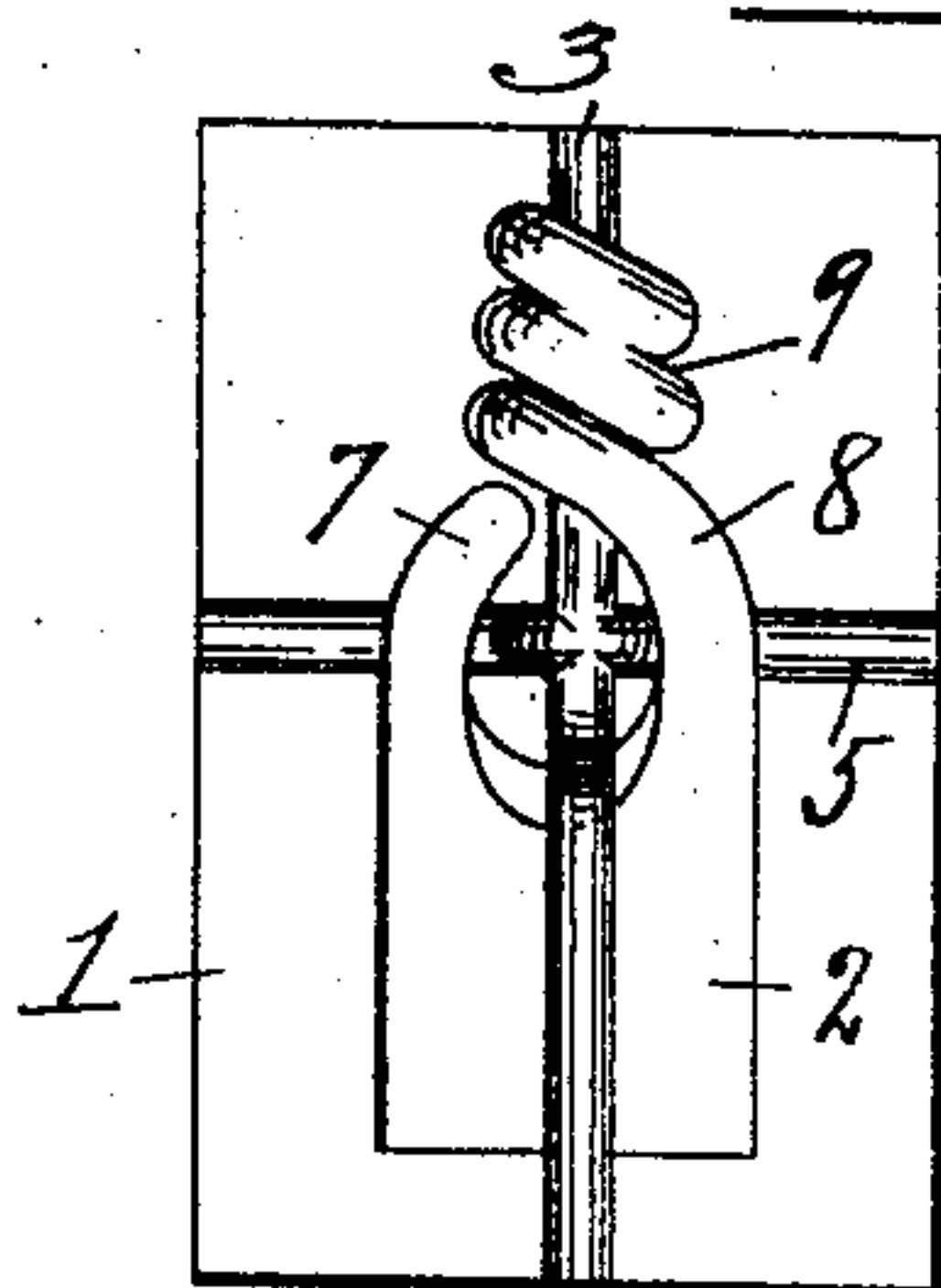


Fig. 5.

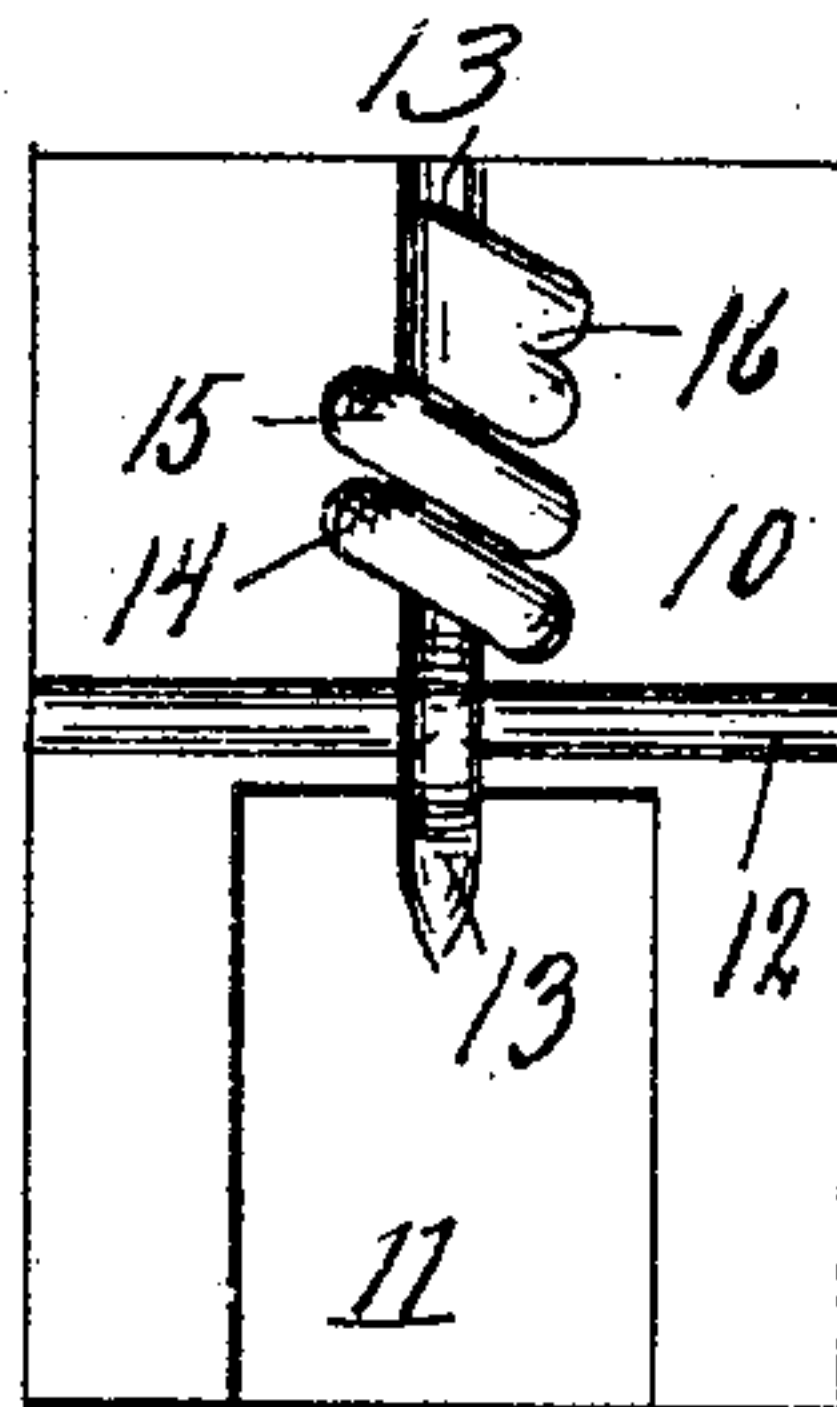


Fig. 6.

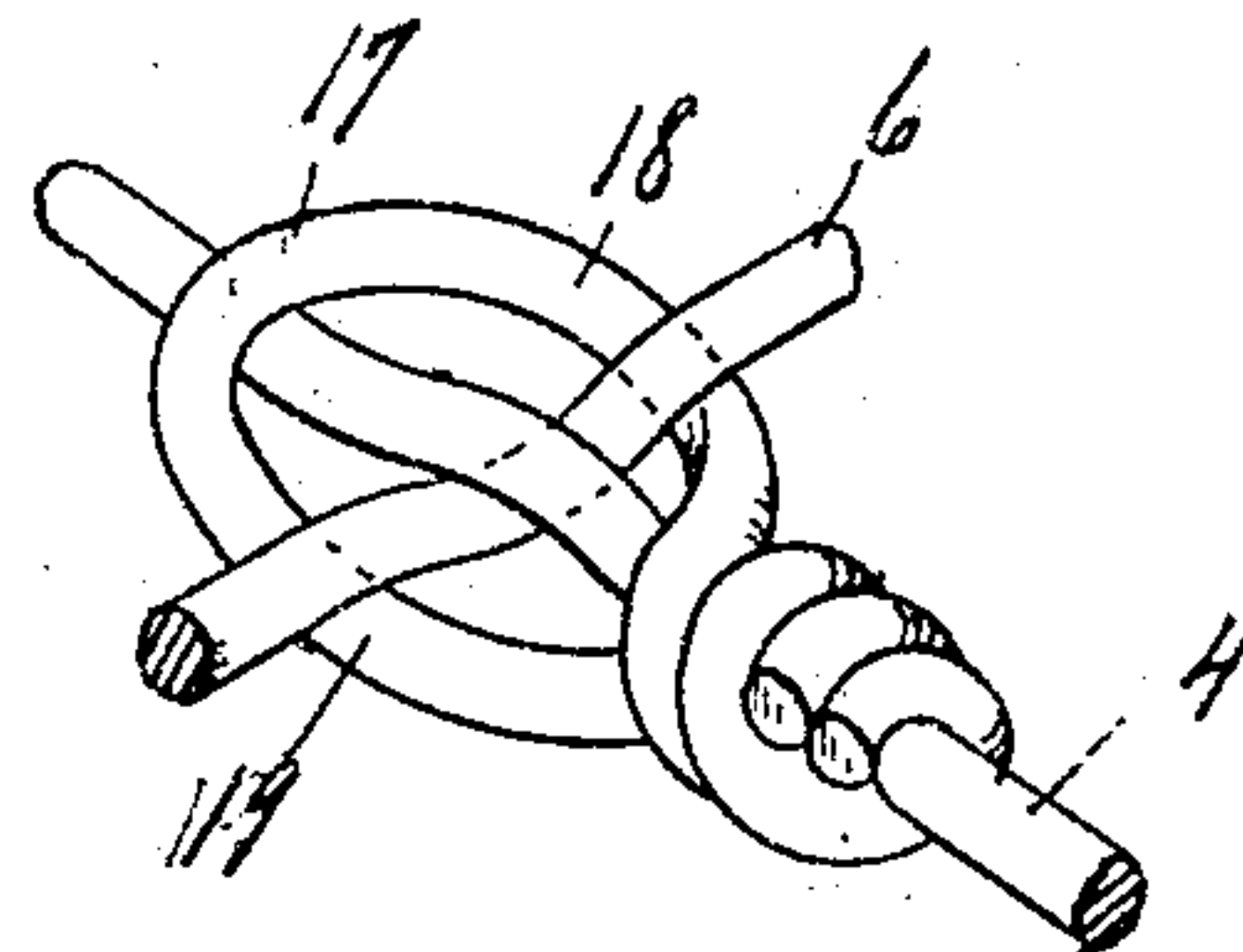


Fig. 7.

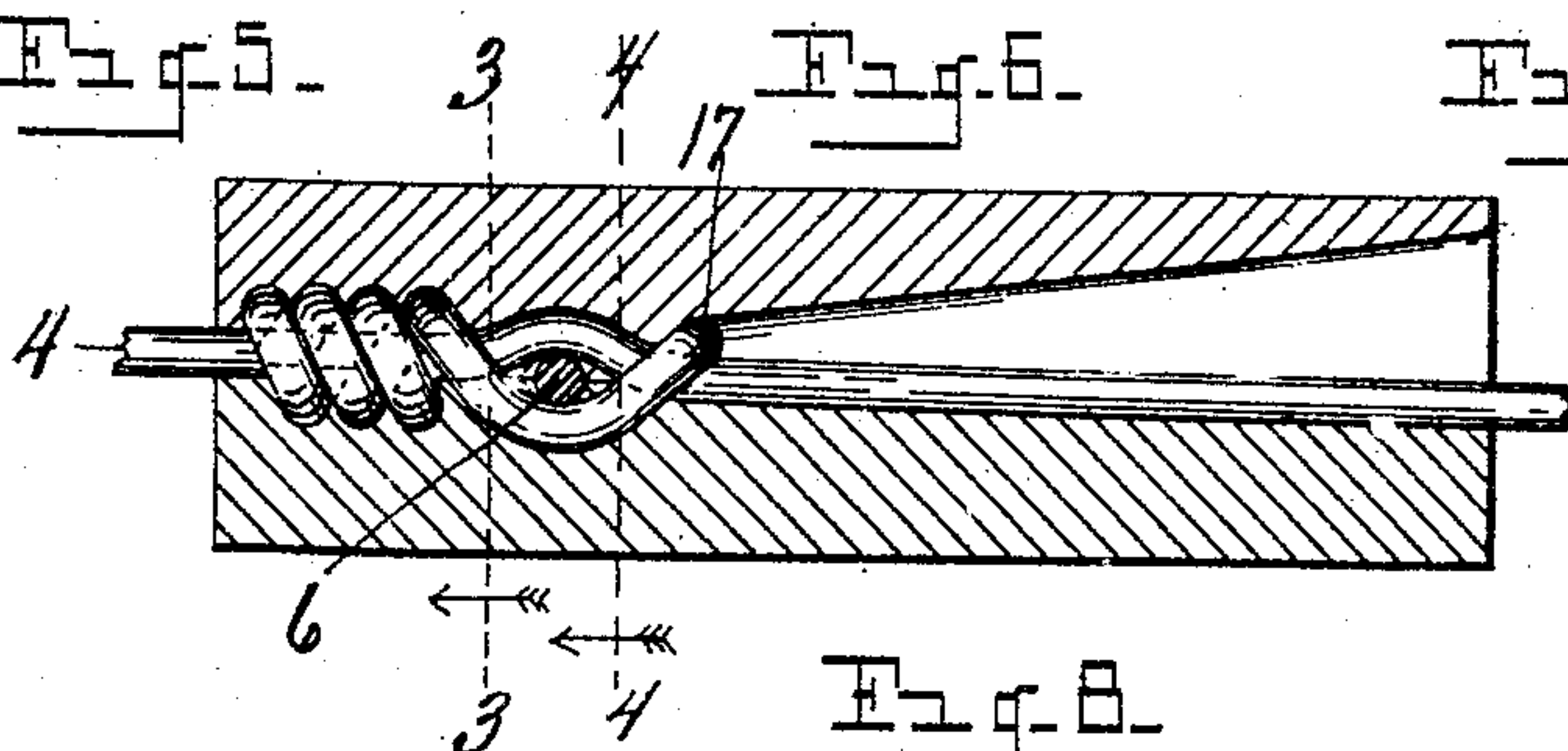


Fig. 8.

Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN J. MORSE, OF ADRIAN, MICHIGAN.

DIES FOR TYING INTERSECTING WIRES.

SPECIFICATION forming part of Letters Patent No. 786,374, dated April 4, 1905.

Application filed August 22, 1904. Serial No. 221,639.

To all whom it may concern:

Be it known that I, JOHN J. MORSE, a citizen of the United States, residing at Adrian, in the county of Lenawee, State of Michigan, have
5 invented certain new and useful Improvements in Dies for Tying Intersecting Wires; and I do 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
10 it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to dies for tying intersecting wires; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out particularly in the claims.

The object of the invention is to provide
20 simple and effective means for forming the tie-wires around the intersecting wires of a wire fencing in a manner to firmly tie said intersecting wires together.

The above object is attained by the structure
25 illustrated in the accompanying drawings, in which—

Figure 1 is a perspective of the working face of one of the dies. Fig. 2 is a perspective of the working face of the other of said dies.
30 Fig. 3 is a transverse section through the dies and wires confined therebetween, as on line 3 3 of Fig. 8. Fig. 4 is a similar section, as on line 4 4 of Fig. 8. Fig. 5 is a plan view of the die shown in Fig. 1. Fig. 6 is a plan view of the die shown in Fig. 2. Fig. 7 is a perspective
35 view of the tie or knot uniting the crossed strands of a wire fabric or fencing. Fig. 8 is a longitudinal section through the dies, showing in elevation the tie uniting the crossed
40 strands between the faces of said dies.

Referring to the characters of reference, 1 designates one of the dies employed in forming the tie illustrated in Fig. 7, in the working face of which is an inclined depression 2,
45 which is crossed longitudinally by the channel 3, which extends longitudinally of the die and is adapted to receive the longitudinal or strand wire 4 of the fencing. Crossing the die transversely is a channel 5, which intersects channel 3 at right angles and is adapted to receive

the vertical or stay wire 6 of the fencing. Leading from the inner end of the inclined depression 2 are the curved concaved branches 7 and 8, which cross the channel 5 below the plane thereof, the branch 8 curving obliquely
55 across the channel 3 and extending therebeyond between the transverse channel and the end of the die and the branch 7 curving inwardly and terminating adjacent the channel 3 and the terminal portion of the branch 8.
60 Formed in the face of die 1, parallel with the terminal portion of branch 8, is a concaved double recess 9, which crosses obliquely the channel 3 below the plane thereof, as does the terminal branch 8. The other of the dies, 10,
65 has an inclined way 11 in its working face for the reception of the driving-plunger (not shown) employed to drive the tying-staple into place between the dies. Crossing said die 10 transversely is a channel 12, which registers
70 with the channel 5 in the die 1 and is also adapted to receive the vertical or stay wire 6. Leading from the inclined way 11 is a channel 13, which crosses channel 12 and traverses the face of the die between said channel and
75 the end of the die, registering when said dies are placed together with the channel 3 in the die 1 and receiving the longitudinal or strand wire 4.

Formed in the face of die 10 across the
80 channel 13, between the channel 12 and the end of said die, are the oblique parallel concavities 14 and 15, which pass below the plane of channel 13. Also formed in the face of die 10 is the short oblique double concavity 16,
85 which stands parallel with concavity 15 and opens into one side of channel 13, but does not cross said channel, said concavity being also below the plane of channel 13.

The tie-wire is made, preferably, of a staple
90 which is driven into the registering dies after they have been brought together upon the crossed wires 4 and 6, which are confined therebetween in the registering channels 3 and 13 and the registering channels 5 and 12.
95 As said staple is driven into the dies the loop end 17 thereof lies upon the strand-wire 4 and the legs 18 and 19 are directed by the curved branches 7 and 8 under the cross-wire 6. As the tie or staple is still farther driven
100

into the dies the branch 7, which curves inwardly and inclines upwardly at its inner end, directs the leg 18 over the strand-wire 4, while the branch 8, which is deeper and
 5 continues across the channel 3, directs the leg 19 under the strand-wire 4 and upwardly at the opposite side, whereby the end of leg 18 is caused to enter the oblique concavity 14 and the end of the leg 19 the oblique con-
 10 cavity 15 in die 10, which concavities crossing the channel 13 and being below the plane thereof direct the ends of the legs of the staple around the strand-wire 4, which lies in channel 13. The discharge ends of the chan-
 15 nels 14 and 15 direct the ends of the staple into the double concavity 9 in die 1, wherein they are directed around that side of the strand 4 which lies in channel 3 and are passed from the double concavity 9 into the short double
 20 concavity 16 in die 10, whereby a double wrap of the legs of the staple about the strand-wire is effected, as clearly shown in Fig. 7.

After the staple or tie-wire has been driven into the dies to complete the tie, as shown,
 25 the dies are separated by any suitable means to allow the fabric to pass therefrom and are again brought together for a succeeding operation.

Having thus fully set forth my invention,
 30 what I claim as new, and desire to secure by Letters Patent, is—

1. Dies for tying intersecting wires, one of which is provided with a transverse and a longitudinal channel crossing at right angles,
 35 and an inclined centrally-disposed depression having curved branches leading therefrom which cross the transverse channel below the plane thereof, the longer of said branches crossing obliquely the longitudinal channel,
 40 there being in the face of the die parallel to the longer of said branches an oblique con-

cavity crossing the longitudinal channel below the plane thereof, the other of said dies having an inclined way and a longitudinal and a transverse channel crossing at right angles, 45 there being in the face of said die oblique parallel concavities which cross the longitudinal channel, and there being adjacent one of said oblique channels a short channel which enters, but does not cross the longitudinal 50 channel.

2. Dies for tying intersecting wires, one of which is provided in its face with a longitudinal and a transverse channel crossing at right angles, a centrally-disposed depression 55 having curved branches leading therefrom which cross the transverse channel below the plane of its bottom, the longer of said branches curving obliquely across the longitudinal channel between the transverse chan- 60 nel and the end of the die, there being in the face of the die parallel with the longer of said curved branches a double concavity which also crosses the longitudinal channel below the plane of its bottom, the other of said dies 65 having a longitudinal and a transverse channel crossing at right angles, oblique concavities crossing the longitudinal channel between the transverse channel and the end of said last-mentioned die, there being in the 70 face of said last-mentioned die a short double concavity adjacent one of said oblique concavities which intersects the longitudinal channel at an oblique angle and is formed below the plane thereof, but does not cross said 75 channel.

In testimony whereof I sign this specification in the presence of two witnesses.

JOHN J. MORSE.

Witnesses:

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