No. 780,103. PATENTED JAN. 17, 1905.

D. H. HAYES.

DIE FOR TYING INTERSECTING WIRES.

APPLICATION FILED APR. 4, 1904.

Fig 1

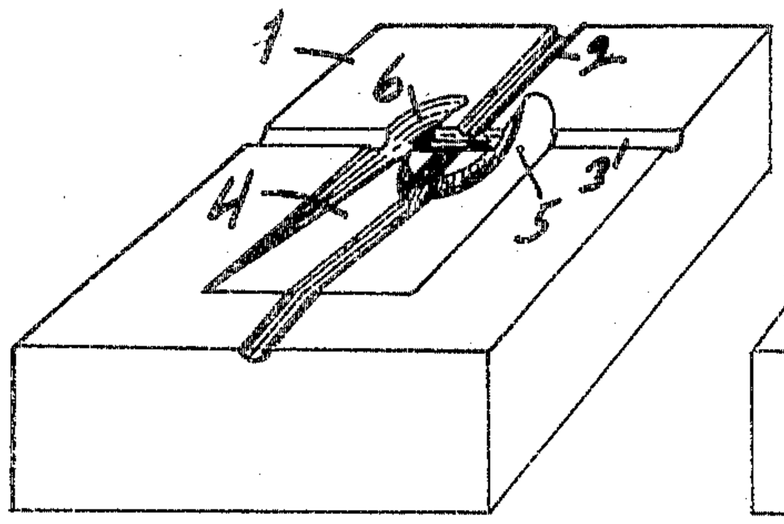


Fig 2

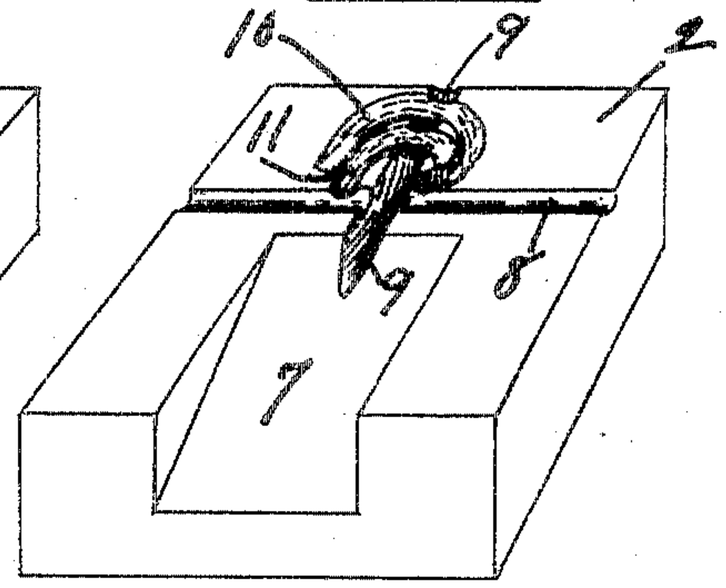


Fig 3

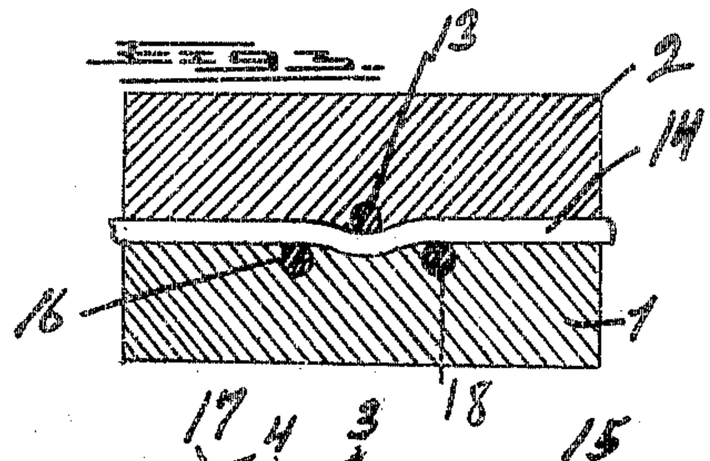


Fig 4

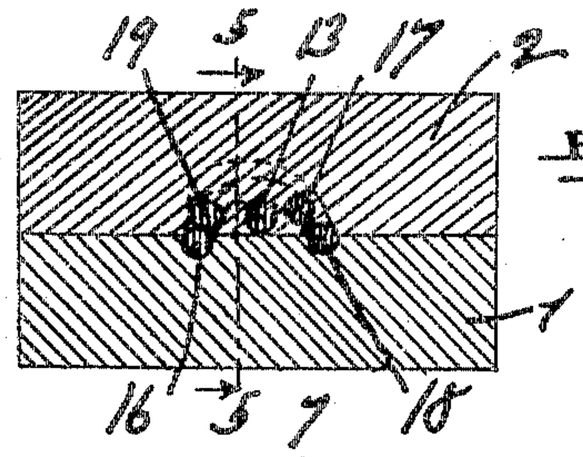


Fig 5

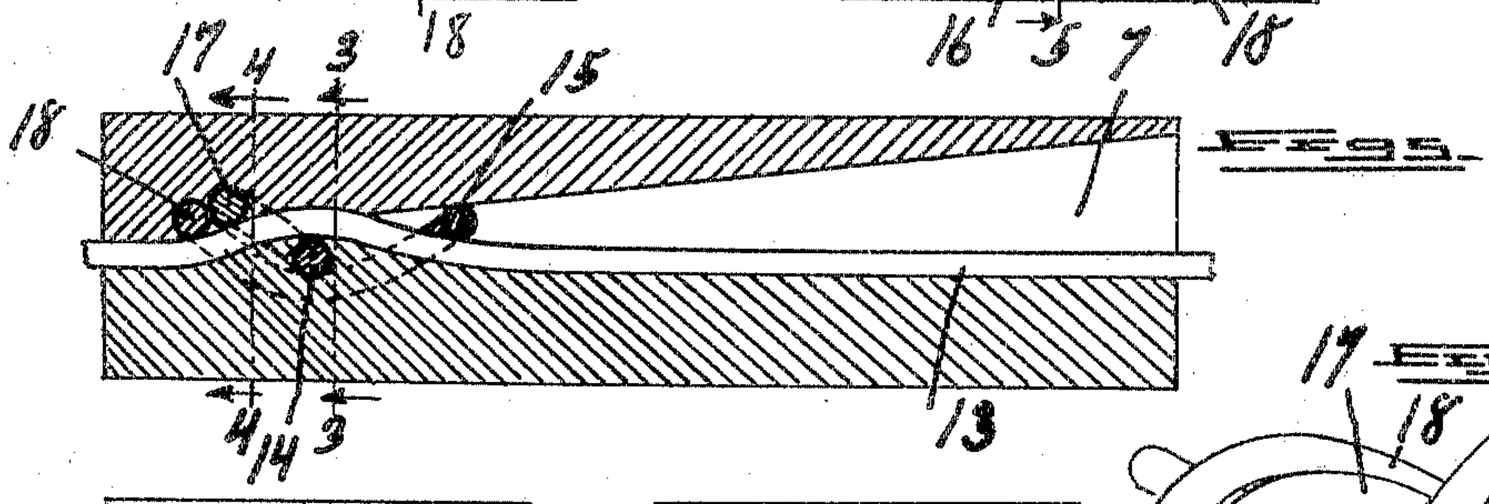


Fig 6

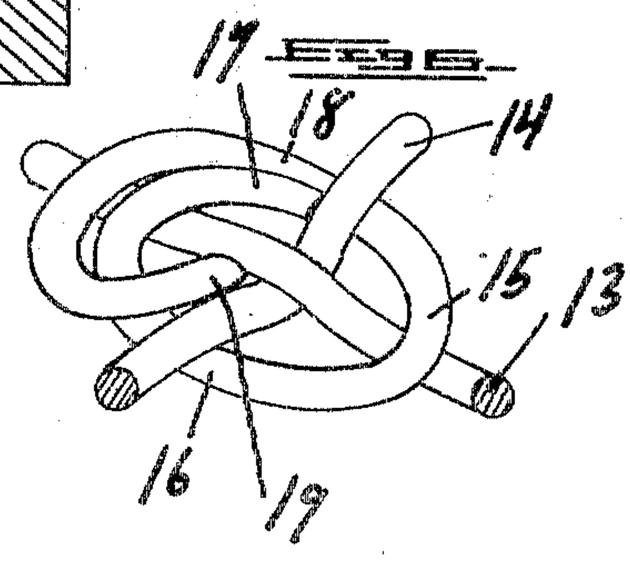


Fig 7

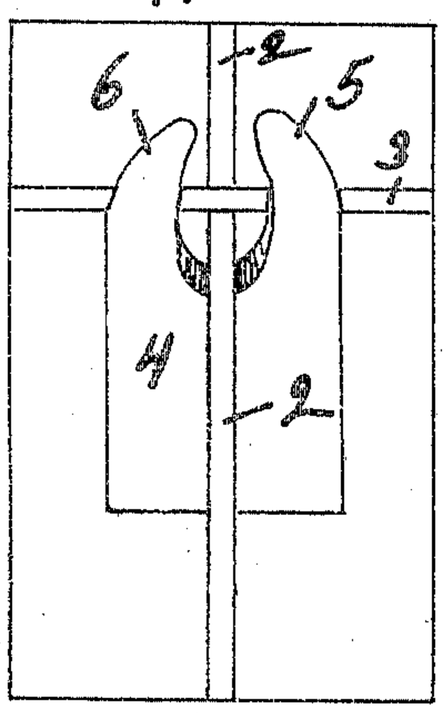
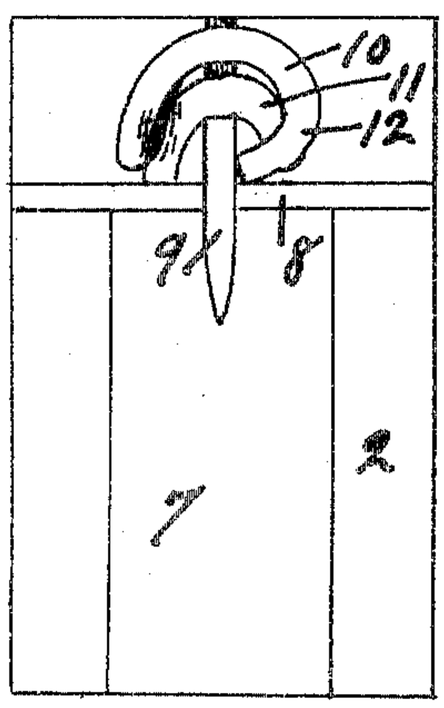


Fig 8



Witnesses:
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No. 780,103. Patented January 17, 1905.

UNITED STATES PATENT OFFICE.

DENNIS H. HAYES, OF ADRIAN, MICHIGAN.

DIE FOR TYING INTERSECTING WIRES.

SPECIFICATION forming part of Letters Patent No. 780,103, dated January 17, 1905.

Application filed April 4, 1904. Serial No. 201,374.

To all whom it may concern:

Be it known that I, DENNIS H. HAYES, a citizen of the United States, residing at Adrian, in the county of Lenawee, State of Michigan, have 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 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, designed more expressly to be employed in the manufacture of wire fencing; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out particularly in the claim.

The object of the invention is to provide means for uniting the cross-wires of a wire-fencing or fabric in a manner to securely join said wires and at the same time so shape the tie-wire and so dispose of the ends thereof as to lock the tie in position and prevent said ends from unduly protruding.

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

Figure 1 is a perspective view of the working face of one of said dies. Fig. 2 is a perspective view of the working face of the other of said dies. Fig. 3 is a transverse section through the dies in working relation with the cross-wires between them and the tie driven into place to unite said wires as on line 3 3 of Fig. 5. Fig. 4 is a similar section as on line 4 4 of Fig. 5. Fig. 5 is a longitudinal section as on line 5 5 of Fig. 4. Fig. 6 is a perspective view of the knot or tie formed by the dies. Fig. 7 is a plan view of the die shown in Fig. 1. Fig. 8 is a plan view of the die shown in Fig. 2.

Referring to the characters of reference, 1 designates one of the dies employed to form said tie, in the working face of which are the cross-channels 2 and 3, channel 2 being longitudinal of the die to receive the longitudinal fence-wire and channel 3 being transverse to receive the stay or vertical wire. Formed at the geometric center of the die is an inclined recess 4, which terminates at one end in concaved branches 5 and 6, respectively, which cross the transverse channel 3 below the plane thereof on opposite sides of the longitudinal channel 2 and whose terminals curve inwardly toward said channel.

Die 2, as illustrated in Figs. 2 and 8, is provided with an inclined way 7, opening through one end thereof, affording an entrance for the introduction of the tie in the form of a staple and for the following plunger, (not shown,) which drives said staple into the dies to form the knot or tie. (Shown in Fig. 6.) In the face of die 2 is the transverse channel 8, which registers with channel 3 in die 1 when the working faces of the dies are brought together. Also formed in the face of die 2 is a longitudinal channel 9, intersecting channel 8 and registering with channel 2 in die 1. Crossing the longitudinal channel 9, below the plane thereof, between the transverse channel 8 and the end of the die are the curved and approximately parallel channels 10 and 11, channel 10 curving sharply inwardly near one end, as at 12, and crossing channel 11 below the plane thereof, its end terminating at the junction of the channels 8 and 9. Channel 11 lies within the area of channel 10 and terminates at the transverse channel 8 on the opposite side of channel 9 to that of the terminal of channel 10.

When the dies are brought together upon the crossed strands, of which 13 indicates the longitudinal wire and 14 the transverse or stay wire, they are crimped at their point of crossing and the end of branch 6 in die 1 is caused to register with the initial end of the curved branch 11 in die 2, while the end of curved branch 5 is caused to register with the initial end of the curved branch 10, so that when the staple of which the tie 15 is formed is driven into said dies one leg, 16, of said staple will be directed under the cross-wire 14 and over the longitudinal wire 13, the curved end 17 thereof terminating against or adjacent said cross-wire, while the leg 18 of the staple will be directed under said cross-wire and over the longitudinal wire more remote from the cross-wire than the curved end of

the leg 16, the terminal of said leg 18 being directed across and above the leg 16 and terminating in the angle at the junction of the cross-wires, as shown at 19 in Fig. 6, whereby the cross-wires are firmly united and the knot or tie is securely fixed in place thereon. After the tie has been formed the dies are separated to allow the joined strands to pass therefrom.

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

Dies for tying intersecting wires having registering channels in their opposed faces which cross at right angles and receive said wires, one die having in its face an inclined recess provided with concaved branches crossing the transverse channel below the plane thereof, the other die having curved channels approximately parallel, one more remote from the transverse channel than the other and crossing near its initial terminal the other curved channel below the plane thereof, said crossing channel terminating at the junction of the channels which receive the crossed wires, the initial ends of said curved channels registering with the terminals of the concaved branches in the first-mentioned die.

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

DENNIS H. HAYES.

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