

No. 608,225.

Patented Aug. 2, 1898.

G. E. RUTHER.
WIRE TWISTING TOOL.
(Application filed Dec. 31, 1897.)

(No Model.)

Fig. 1.

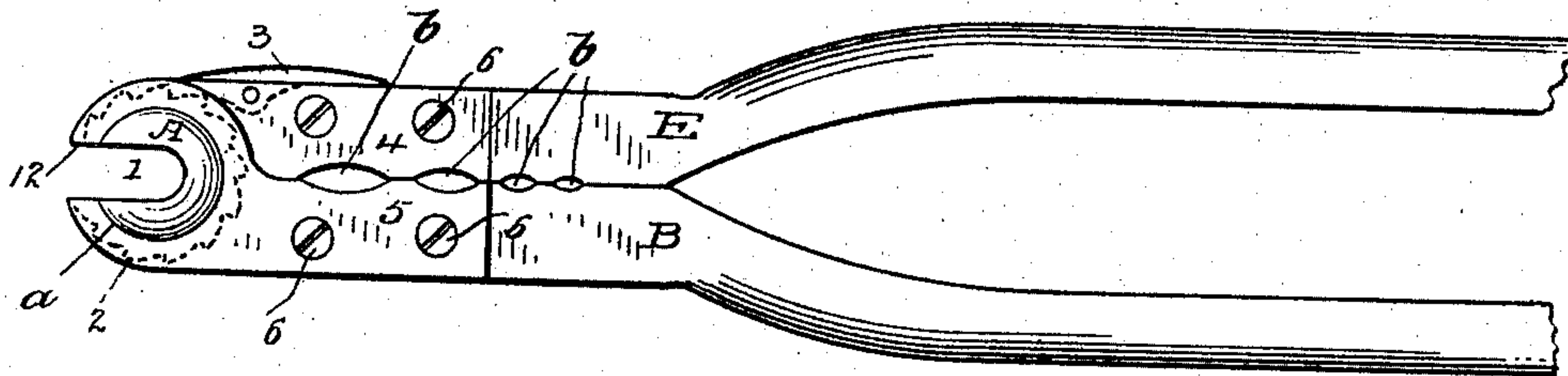


Fig. 2.

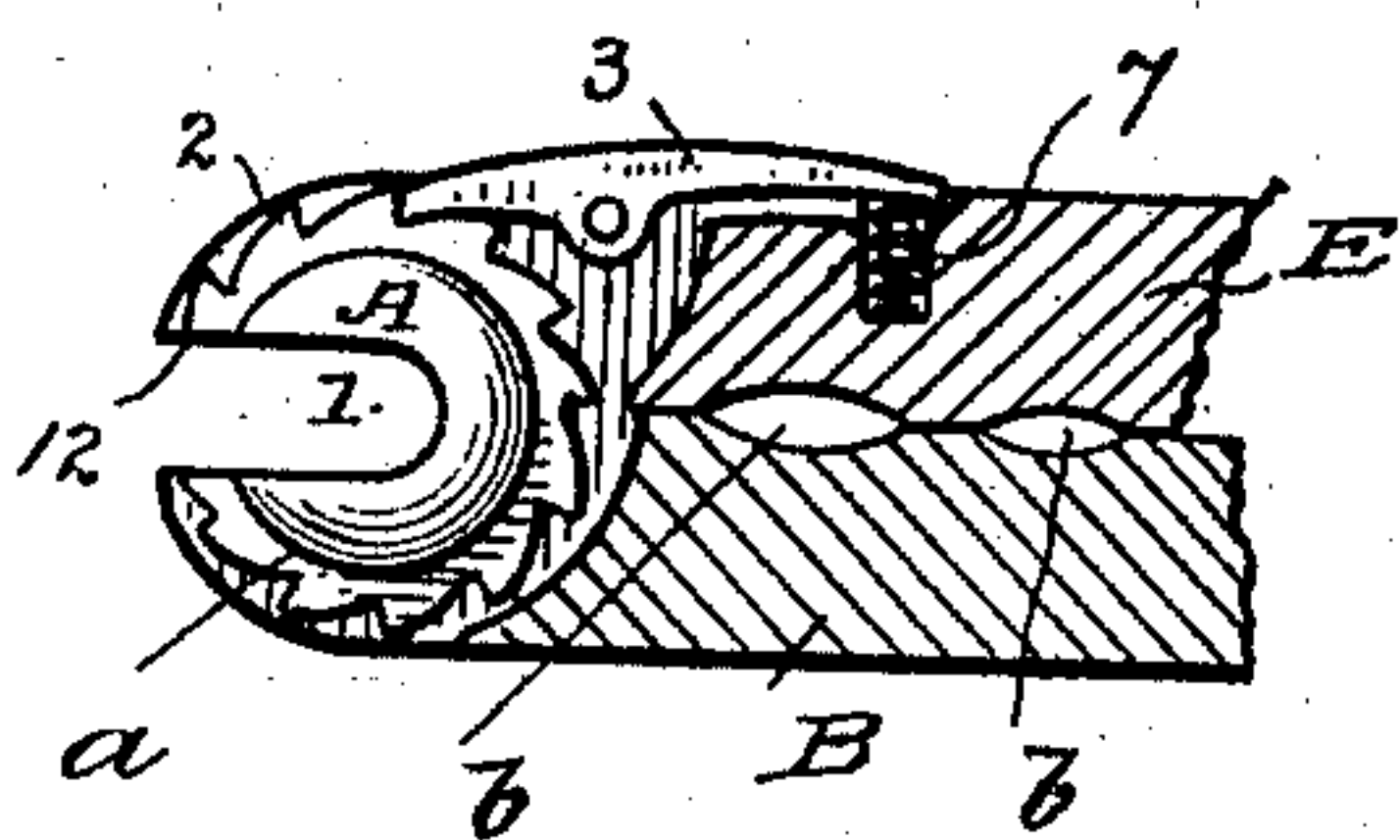


Fig. 3.

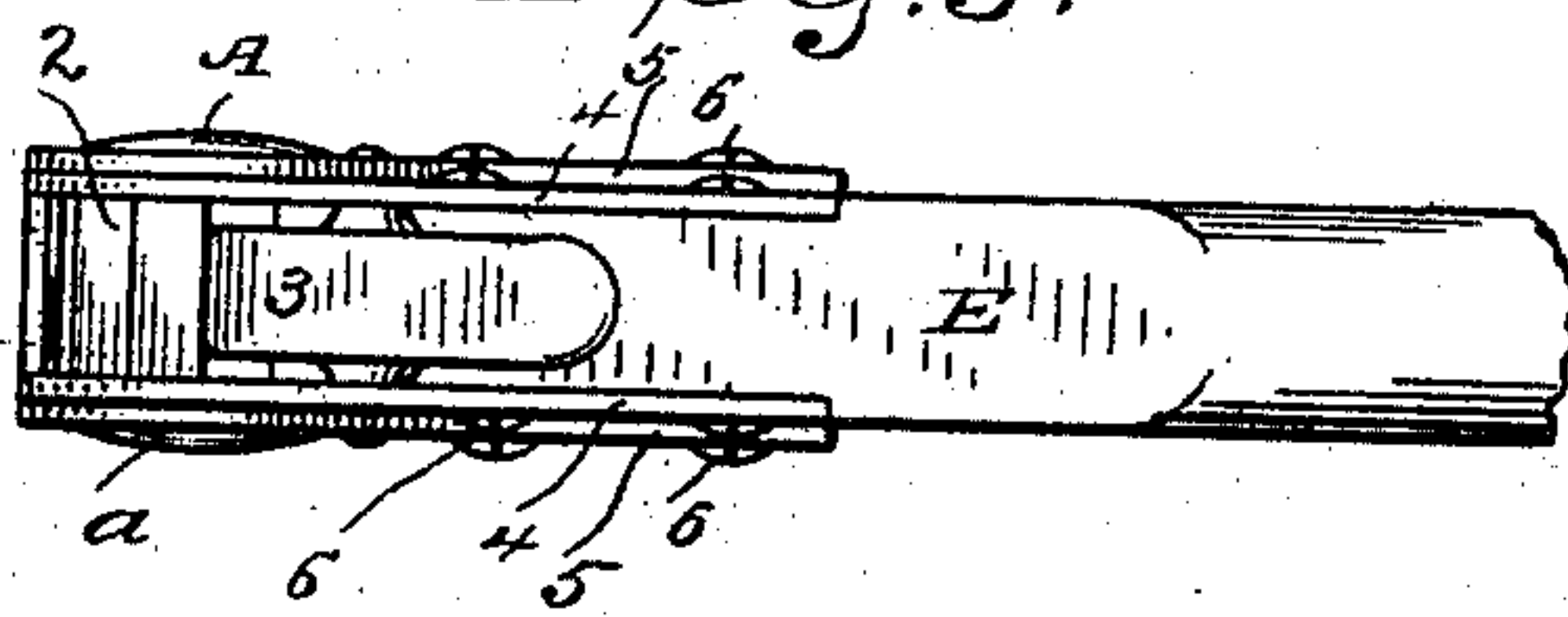


Fig. 4.

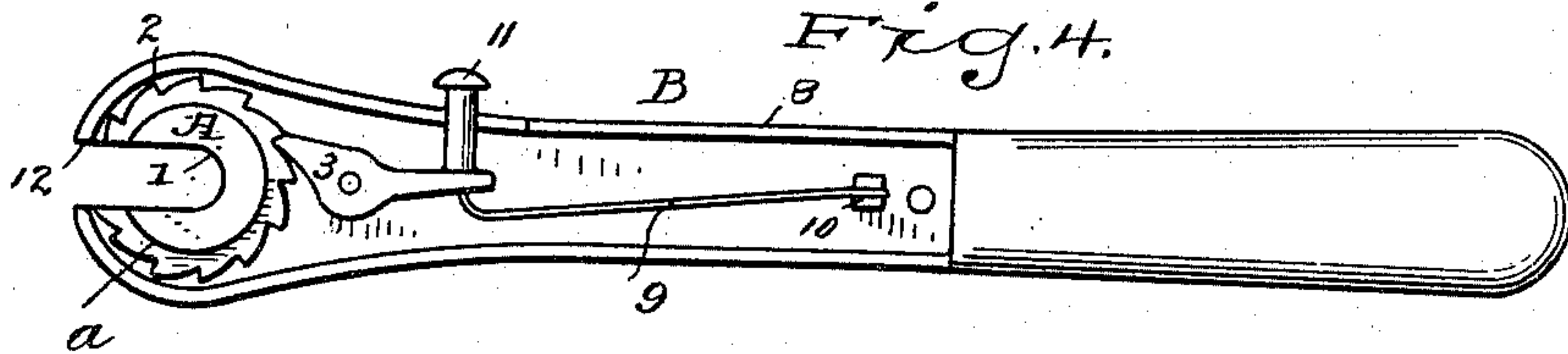


Fig. 5.

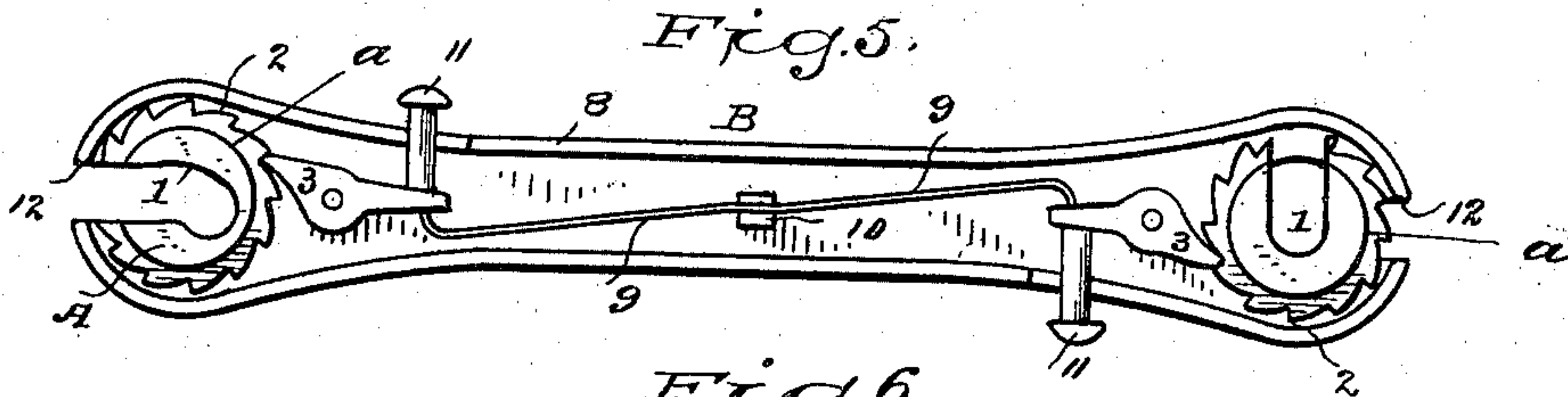


Fig. 6.

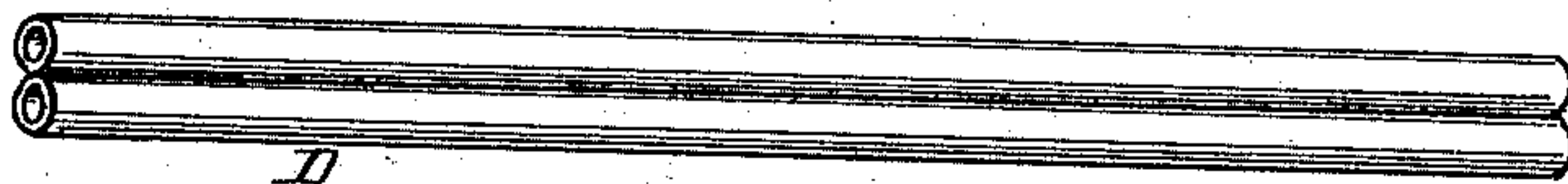


Fig. 7.

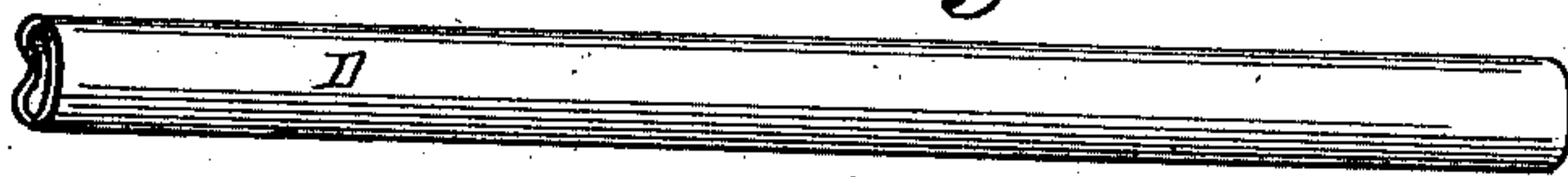


Fig. 8.



WITNESSES

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UNITED STATES PATENT OFFICE.

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WIRE-TWISTING TOOL.

SPECIFICATION forming part of Letters Patent No. 608,225, dated August 2, 1898.

Application filed December 31, 1897. Serial No. 664,886. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV E. RUTHER, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Wire-Twisting Tools; 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 has for its object to provide a wire-twisting tool which shall be simple and inexpensive to produce and which shall comprise a rotatable gripping-hub, a carrier or handle therefor, and a locking device to prevent backward movement of the hub, so that the operator may be enabled to give any amount of twist in joining two ends of wire by oscillatory movements of the tool and without releasing the original grip upon the wire or sleeve.

With these ends in view I have devised the simple and novel wire-twisting tool of which the following description, in connection with the accompanying drawings, is a specification, letters and numbers being used to designate the several parts.

Figure 1 is an elevation illustrating the application of my invention to an ordinary wire-twisting tool or plier; Fig. 2, a sectional view, and Fig. 3 an edge view, corresponding with Fig. 1; Fig. 4, a view of another form of wire-twisting tool embodying my invention, the side plate being removed; Fig. 5, a similar view illustrating a double-ended tool with two forms of wire-receiving sockets and also illustrating the manner in which the carrier or handle may be oscillated independently of the hub; and Figs. 6, 7, and 8 are views illustrating different forms of sleeves used in joining the ends of wire.

The essential features of my invention are a rotatable gripping-hub, which I have indicated by A, and which is provided with a socket 1, and a carrier therefor, which I have indicated by B, and which is provided with a slot 12, which in the receiving position registers with the socket 1. The carrier B has its bearings on projecting pivots *a* on the hub A, as clearly shown in Figs. 2 and 3, and said carrier B completely houses the hub A

and its ratchet-and-pawl mechanism. The socket 1 in hub A extends inward from the periphery, so that the hub will readily pass over a joining sleeve or two ends of wire, and the shape of the socket may, if the tool is required for a special purpose, be so shaped as to adapt it for that purpose, as indicated at the left in Fig. 5, in which a special form of socket is shown.

C indicates ends of wire, and D different forms of sleeves into which the ends of the wire may be inserted from opposite directions and which may be twisted with the ends of wire to join them securely together. The hub is also provided on its periphery with a series of ratchet-teeth, (indicated by 2.) These ratchet-teeth are engaged by a pawl 3, which holds the ratchet against movement in one direction, so that it will move with the carrier when the latter is manipulated, but leaving it free when the movement of the carrier is in the opposite direction, the carrier then moving independently of the hub and the pawl passing freely over the teeth of the ratchet.

In Figs. 1, 2, and 3 I have shown my novel rotatable hub as used in connection with an ordinary wire-twisting tool or plier, one of the jaws of the plier serving as the carrier B and the other jaw, which I have indicated by E, being also pivoted on the hub. Jaw E is shown as pivoted upon the hub by means of plates 4 and jaw B by means of plates 5, these plates being rigidly secured to the jaws by means of screws 6 or in any suitable manner. In this form the pawl is pivoted in one of the jaws and is held in operative position by a spring 7.

It will be seen that the pliers may be utilized to perform their usual functions, as the jaws B and E are provided with gripping apertures *b* of different sizes, so that when the hub A at the forward end of the jaws B and E is not in use as a twister the jaws may be opened, said hub A serving as a pivotal bearing and the pliers used in their ordinary capacity. When said jaws are closed, as shown in Fig. 1, the tool then becomes a twister, the hub A no longer acting merely as a pivotal bearing for the plier-jaws B and E, but rotating within its socket and performing its functions as a twister.

From the foregoing it is apparent that a very convenient and compact device is provided, which will serve both in the capacity of pliers and wire-fence-strand twister.

5 In Fig. 4 I have illustrated a form in which the rotatable hub is socketed in a simple form of carrier or handle, the carrier in this form being simply a handle and comprising side plates 8, which are riveted or otherwise firmly
10 secured together, one of the side plates in Fig. 4 being shown as removed. In this form the pawl is pivoted wholly within the handle and is retained in operative position by another form of spring, which I have indicated
15 by 9, said spring being carried by a hub 10 and the pawl being operated by a push-pin 11, which extends through the side of the handle, as clearly shown.

The form illustrated in Fig. 5 is simply a
20 double-ended tool constructed on the same principle as the single-ended tool illustrated in Fig. 4. In this form a single spring may operate both pawls, but an independent push-pin is provided for each pawl. It will be
25 noted in Fig. 5 that I have illustrated the rotatable hubs as provided with different forms of sockets to receive ends of wire or differently-shaped sleeves.

The operation will be readily understood
30 from the drawings. The hub is placed in position, so that the socket will register with slot 12 in the carrier. The operator then simply grasps the sleeve or the ends of wire by placing the hub over them, so that the ends of
35 wire or sleeve will lie within the socket in the hub, which must of course register with the slot in the carrier. The tool is then oscillated in the proper direction, the pawl engaging the ratchet-teeth and locking the hub
40 against backward movement, so that it will turn with the carrier. The operator then, without removing the tool from the joint, swings the carrier backward, the pawl slipping over the teeth of the ratchet freely, the
45 hub, however, remaining in the position in which it was placed, as indicated at the right in Fig. 5. It is obvious that by continued oscillatory movement of the carrier or handle any required amount of twist may be given
50 to ends of wire or a sleeve, the hub rotating in the carrier and retaining the ends of wire or sleeve, which cannot slip out of the socket after the first movement of the carrier, as will be clearly understood from
55 Fig. 5. To remove the tool from the sleeve or ends of wire after the twisting operation, it is simply necessary to disengage the pawl from the ratchet and turn the carrier until the socket in the hub registers with slot 12
60 in the carrier.

Having thus described my invention, I claim—

65 1. In a wire-twisting tool, the combination with a hub having a wire-receiving slot or socket formed therein, a head or carrier within which said hub is completely housed, projec-

tions on said hub which form pivots or bearings for said carrier, said carrier having a slot formed therein which registers with the slot in the hub in a certain position, means
70 for locking said hub and carrier so that they will move together in one direction and operate independently during movement in the opposite direction, and means for throwing said locking mechanism out of action. 75

2. The combination, in a wire-twisting tool, of a slotted hub having ratchet-teeth formed on its periphery, pivots or bearings on said hub, a head or carrier mounted on said hub, and completely housing the latter, a spring-
80 pawl engaging the ratcheted hub so as to lock the latter to the carrier when the latter is moved in one direction and leave it free when the carrier is moved in the opposite direction, and means for throwing the said pawl
85 out of operative position.

3. In a wire-twisting tool, the combination with a pair of gripping-jaws, pivoted together at their forward ends, of a wire-twisting hub at the forward end of said gripping-jaws. 90

4. In a wire-twisting tool, the combination with a pair of gripping-jaws pivoted together at their forward ends, of a wire-twisting hub rotatably mounted at the forward end of said gripping-jaws. 95

5. In a wire-twisting tool, the combination with a pair of gripping-jaws, of a wire-twisting hub at the forward end of said jaws, said hub serving as a pivotal bearing for said gripping-jaws. 100

6. In a wire-twisting tool, the combination with a pair of gripping-jaws having a wire-receiving slot in their forward ends, of a slotted hub adapted to register with and serve as a pivotal bearing for the said slotted jaws. 105

7. In a wire-twisting tool, the combination with a pair of gripping-jaws pivoted together at their forward ends, of a wire-twisting hub rotatably mounted at the forward end of said tool, and means for locking said hub to said
110 gripping-jaws.

8. In a wire-twisting tool, the combination with a pair of gripping-jaws pivoted together at their forward ends, of a wire-twisting hub rotatably mounted at the forward end of said
115 tool, and means for automatically locking said hub to said tool when the tool is moved in one direction.

9. In a wire-twisting tool, the combination with a pair of gripping-jaws having a wire-receiving slot formed in their forward ends, a slotted hub rotatably mounted between said gripping-jaws at their forward ends, said slotted hub forming the pivotal bearing for said gripping-jaws, and a spring locking-pawl
120 pivoted to one of said jaws to lock said hub to the jaws during movement of the jaws in one direction. 125

10. In a wire-twisting tool, the combination with a pair of gripping-jaws slotted at their
130 forward ends, of a slotted hub rotatably mounted between the forward ends of said

5 jaws so as to form a pivotal bearing for said jaws, said hub being completely housed within the forward ends of said jaws, and a spring-pawl pivoted to one of said jaws and engaging ratchet-teeth on the said hub so as to lock said hub and gripping-jaws together when the said jaws are moved in one direction.

11. A wire-twisting tool comprising two gripping-jaws and a pivot pin or bearing se-

curing said jaws together at their forward ends, said pivot-pin being slotted to serve as a wire-twisting device.

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

GUSTAV E. RUTHER.

Witnesses:

A. M. WOOSTER,
H. SINCERBEAUX.