

No. 619,782.

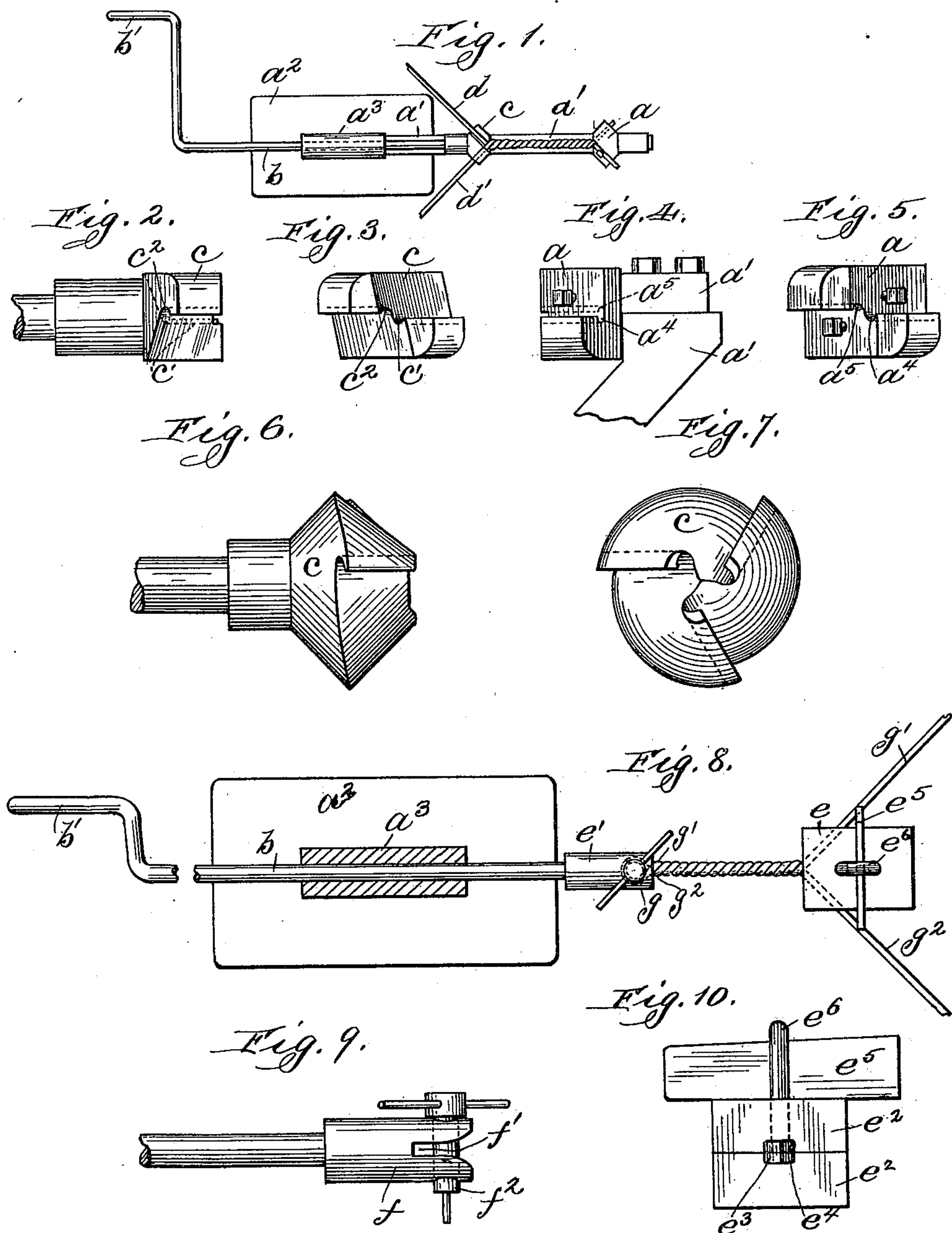
Patented Feb. 21, 1899.

LA VERNE W. NOYES.
WIRE TWISTING MACHINE.

(Application filed Oct. 26, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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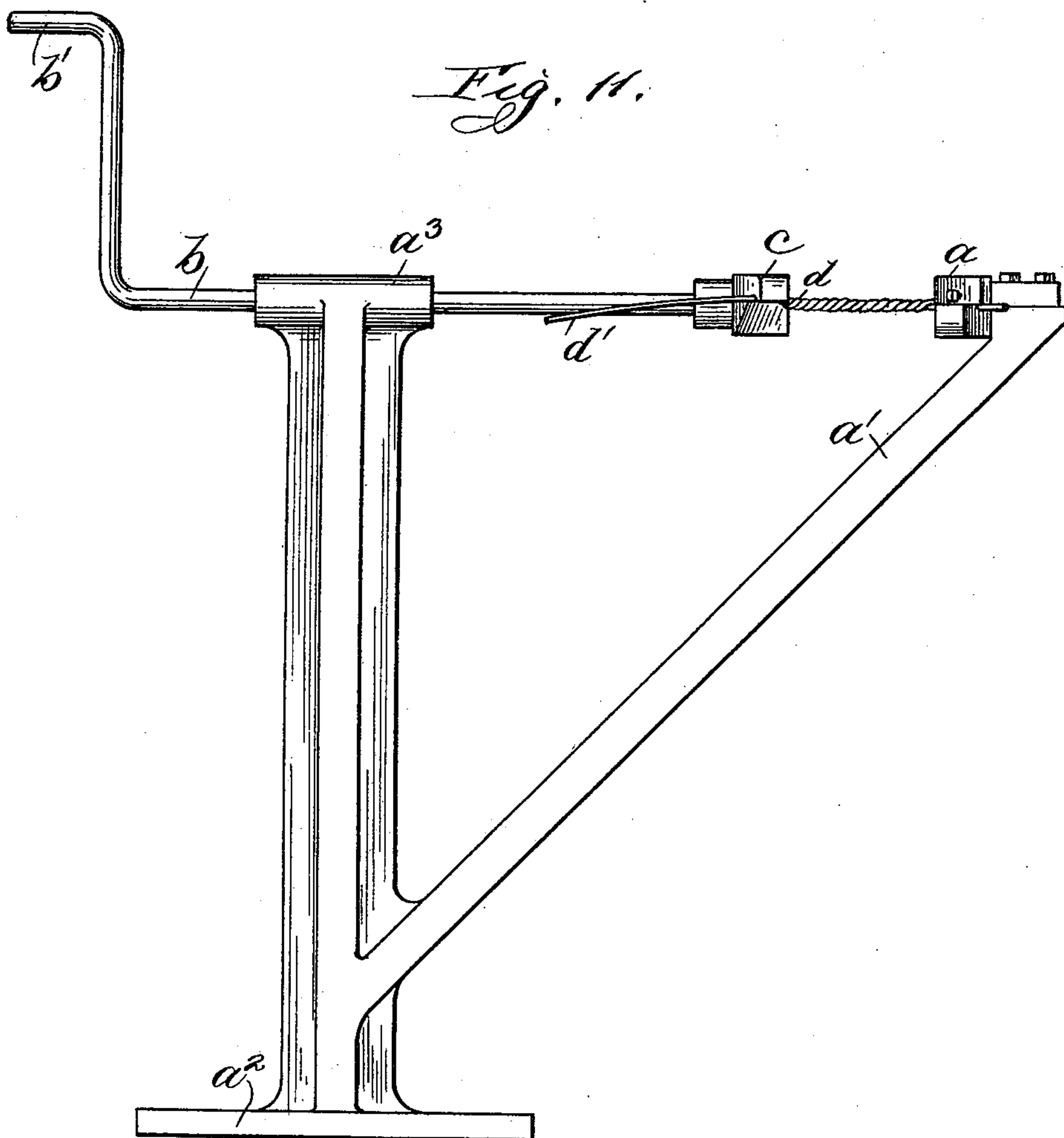
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UNITED STATES PATENT OFFICE.

LA VERNE W. NOYES, OF CHICAGO, ILLINOIS.

WIRE-TWISTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 619,782, dated February 21, 1899.

Application filed October 26, 1898. Serial No. 694,588. (No model.)

To all whom it may concern:

Be it known that I, LA VERNE W. NOYES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Wire-Twisting Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a wire-twisting machine, my object being to provide a machine whereby a plurality of wires or strands may be twisted together.

In accordance with my invention I provide a pair of grippers each adapted to engage and hold in position the several strands or wires which are to be twisted together, said grippers being capable of relative rotation to thereby twist the wires, and being capable also of separating or moving apart as the twisting progresses, one of said grippers being arranged to permit the individual wires or strands to move longitudinally as the twisting progresses. In practice I have mounted one of the grippers in a stationary position and have mounted the other upon a rotating shaft capable of a longitudinal movement, whereby the gripper carried thereon may be caused to recede from the stationary gripper during the progress of twisting or coiling the wires together. The gripper through which the individual wires are capable of being longitudinally moved may be mounted stationary or may be held upon the rotating shaft.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a plan view of the machine embodying my invention. Figs. 2 and 3 are side and end views, respectively, of the rotating gripper. Figs. 4 and 5 are side and end views, respectively, of the stationary gripper. Figs. 6 and 7 are side and end views, respectively, of the gripper adapted to twist three strands or wires. Fig. 8 is a plan view of a modification wherein the stationary gripper is arranged to permit the wires to slide longitudinally therethrough. Fig. 9 is a side view of the rotating gripper shown in Fig. 8. Fig. 10 is a side view of the stationary gripper shown in Fig. 8. Fig. 11 is a view of the machine in elevation.

Like letters refer to like parts in the several figures.

The stationary gripper *a* is mounted upon a bracket *a'* in any suitable manner, the bracket being shown in the present instance as supported upon the base-plate *a²*, which also carries a bracket upon which is supported a sleeve *a³*, in which a shaft *b* is journaled, the shaft being capable of longitudinal movement within the sleeve and having a crank or handle *b'* or other suitable means for rotating the same. Upon the end of the shaft *b* the gripper *c* is provided, having a pair of channels *c' c²* adapted to receive the strands *d d'* of the wires which are to be twisted together. The channels *c' c²* are arranged at an angle to the axis of the shaft *b*, the angle being determined by the closeness desired for the turns of the twisted wires. The greater the angle between the axes of the channels *c' c²* the less will be the pitch of the turns of the twisted wires, and the less the angle between the axes of the channels *c' c²* the greater will be the pitch of the turns of the twisted wires. By thus varying the angles of the channels twisted wires of any desired pitch or closeness of the twist may be secured. The stationary gripper *a* is provided with any suitable arrangement for grasping and holding the ends of the wires or strands in position. As shown in Figs. 4 and 5, the stationary gripper *a* is provided with channels *a⁴ a⁵*, within which the wires or strands are adapted to rest, whereby the ends of the strands are firmly held against movement in one direction, while movement in the opposite direction will permit the withdrawal of the ends of the wires from the gripper.

When it is desired to twist two wires or strands together by means of the machine above described, the wires *d d'* are passed through the channels *c' c²* of the rotating gripper *c*, and the ends thereof are inserted in the channels *a⁴ a⁵* of the stationary gripper *a*. The gripper *c* is then rotated through the agency of the handle *b'*, and the wires or strands are twisted together, the shaft *b* partaking of a longitudinal movement through its bearing-sleeve *a³* as the twisting progresses. The wires *d d'* move longitudinally through the channels *c' c²* in the rotating gripper *c*. It will be noted that the individual wires are

capable of rotation upon their respective axes within the channels $c' c^2$ as the twisting progresses, so that the individual strands are not subjected to torsion about their own axes, as
 5 is the case when several wires or strands are grasped at the opposite ends, as in a pair of vises, and twisted together. Due to the fact that the individual strands are thus capable of rotation about their individual axes, a
 10 stronger and more uniformly-constructed coil or twist results.

Instead of twisting together two wires or strands, as shown in Fig. 1, three or any greater number of strands may be twisted together by providing suitable grippers, as
 15 shown in Figs. 6 and 7, having the required number of channels for the plurality of strands which are to be twisted together.

It is immaterial which of the two grippers
 20 is provided with the channels through which the individual wires longitudinally slide, and the rotating gripper may be provided with such channels as shown in Fig. 1, or, as shown in Fig. 8, the stationary gripper e may be provided with these channels, while the rotating gripper e' is provided with the gripper for
 25 stationarily holding the ends of the strands to the gripper. In Figs. 8 and 9 the rotating gripper mounted upon the shaft b takes the form of a head f , carrying a slot f' , through which passes a pin f^2 , the pin being adapted to pass through the loop g , formed by bending a wire upon itself to form the pair of strands $g' g^2$. This is but one specific form
 30 of gripper and instead thereof the gripper a of Fig. 1 or any other suitable gripper may be employed. The stationary gripper e comprises a pair of plates $e^2 e^2$, between which are formed the channels $e^3 e^4$ for the strands,
 35 the plates being adapted to be clamped together by means of a wedge e^5 , adapted to pass through the eye of a staple e^6 , secured

to the lower plate and passing through the upper plate.

Having described my invention, what I
 45 claim as new, and desire to secure by Letters Patent, is—

1. In combination, a pair of grippers, relatively rotatable and capable of separation one from the other, one of said grippers being
 50 arranged to permit the individual wires or strands to move longitudinally therethrough, substantially as described.

2. In combination, a pair of grippers, one held stationary and the other mounted to rotate and capable of a movement away from the stationary gripper, one of said grippers being arranged to permit the individual wires or strands to move longitudinally therethrough, substantially as described. 60

3. In combination, a pair of grippers, a rotatable shaft upon which one of said grippers is mounted, a bearing or sleeve for said shaft permitting the same to move axially there-
 65 through, one of said grippers being arranged to permit the individual wires or strands to move longitudinally therethrough, substantially as described.

4. In combination, a pair of relatively-rotatable grippers capable of separation one
 70 from the other, a plurality of channels or seats being provided in one of said grippers permitting the individual wires or strands to move longitudinally therethrough, the axes of said channels or seats being oblique to the
 75 axis of rotation of the grippers, substantially as described.

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

LA VERNE W. NOYES.

Witnesses:

ROBERT M. DYER,
 W. CLYDE JONES.