

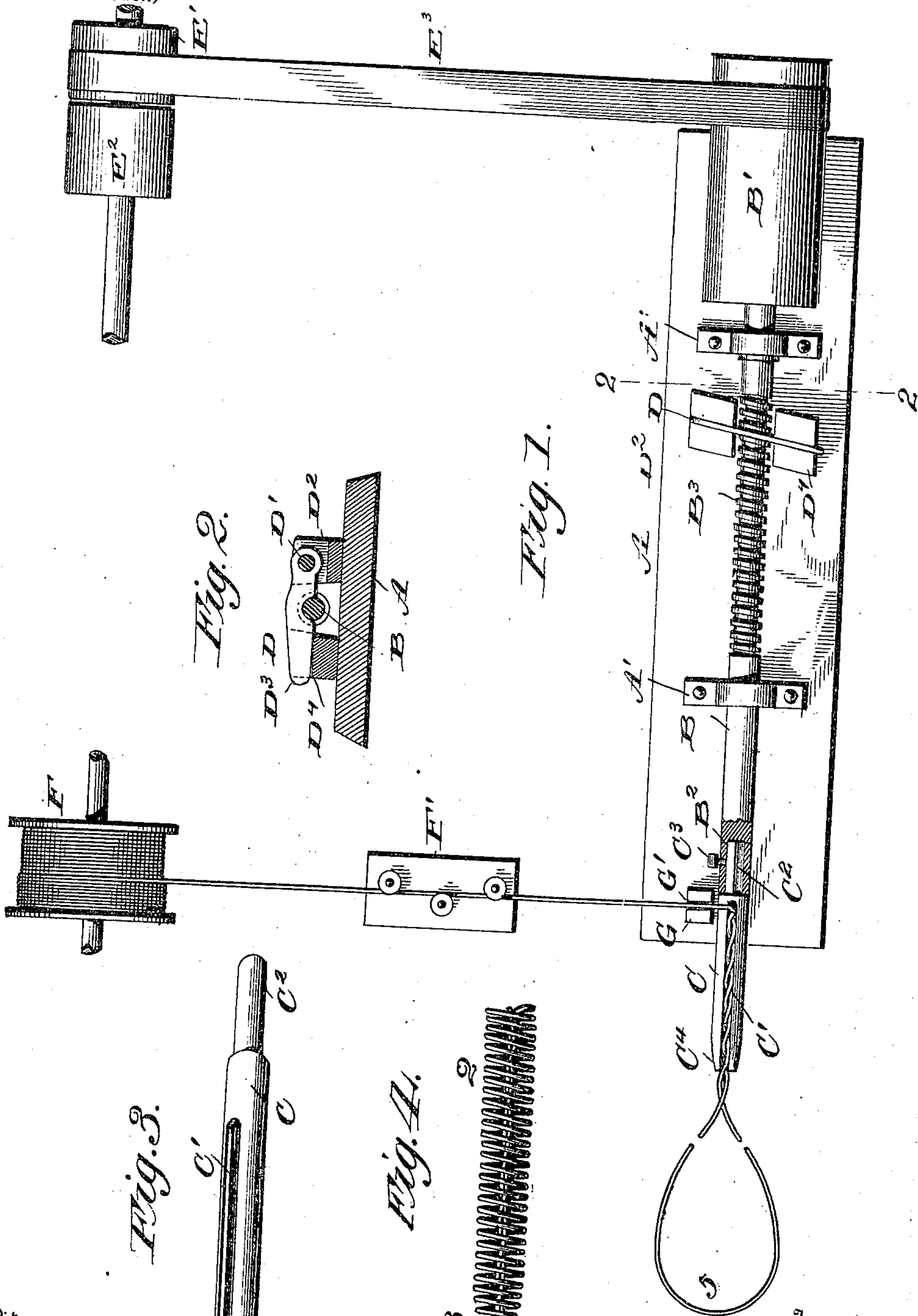
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F. E. CHURCH & W. C. ALLEN.
MACHINE FOR MAKING COILED WIRE HANDLES.

(Application filed Feb. 23, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING COILED-WIRE HANDLES.

SPECIFICATION forming part of Letters Patent No. 617,317, dated January 10, 1899.

Application filed February 23, 1898. Serial No. 671,345. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK E. CHURCH and WILLIAM C. ALLEN, citizens of the United States, residing at Cambridge, in the county of Washington, State of New York, have invented certain new and useful Improvements in Wire-Coiling Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to wire-coiling machines, and more particularly to a machine for the purpose of producing a coiled-wire handle for articles of various characters.

15 The invention has for its object to improve the form of mandrel heretofore used for this purpose, so that a coil may be formed surrounding a central shank or stem.

20 A further object of the invention is to provide mechanism by which the mandrel may be rotated and reciprocated for the purpose of producing a handle having a spiral coil.

25 Other objects and advantages of the invention will hereinafter appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

30 In the drawings, Figure 1 is a diagrammatic plan of the machine and auxiliary devices. Fig. 2 is a detail vertical cross-section on the line 2 2 of Fig. 1. Fig. 3 is detail perspective of the mandrel, and Fig. 4 is a detail elevation of the complete coil of the handle.

35 Like letters and numerals of reference indicate like parts throughout the several figures of the drawings.

40 The letter A designates the base-plate or foundation, from which extend suitable bearings A, adapted to receive and support a driving-shaft B. This shaft is provided at one end with an elongated driving-pulley B', and the opposite end of the shaft is formed with a socket B², adapted to receive and retain the mandrel C of any suitable construction. The shaft B is provided with a feeding-screw B³, which when engaged by a permanently-located latch D will produce a gradual longitudinal movement of the shaft B. This latch D is pivoted at D' upon a support D², permanently located upon the base A, and at its opposite end is provided with a finger-piece D³, adapted to seat between the opposite lugs

D¹, raised from the base A. By this means the latch may be thrown into and out of engagement with the screw, so that the shaft can be shifted by hand from one extreme of its movement to the other, or when the latch is in engagement with the screw a gradual feeding movement will be produced. The shaft B may be driven by any suitable means—for instance, from a power-shaft E, provided with a fast pulley E' and a loose pulley E². From these pulleys the power will be transmitted by means of a belt E³, which in the reciprocation of the shaft will slip upon the elongated driving-pulley carried by said shaft.

45 The wire from which the handle or article is to be produced is led from a suitable coil F through any desired form of straightening or tension device—for instance, as shown at F'—and thence through a holder G, provided with a seat G', within which the wire will rest. By this means the wire is held against movement, and when suitably secured upon the mandrel the rotative and reciprocative movement of the mandrel will produce a spiral coil upon the same. The diameter of the coiled handle will be governed by the diameter of the different portions of the mandrel. During this gradual rotative and reciprocative movement of the mandrel to produce the spiral coil the latch is in engagement with the threads of the shaft. When the article is completed, the end of the wire severed from the main portion thereof, and the article removed from the mandrel, the shaft may be returned to its initial position by simply raising the latch and moving the same by hand or by any preferred mechanism. By this means the mandrel can be at once returned to its initial position and ready for a further coiling operation.

50 While any character of mandrel may be used upon this device, we have illustrated an improved form of hollow mandrel provided with a longitudinal slot C', extending part way of its length, and with a stem C², adapted to seat in the socket provided at the end of the shaft B and to be secured therein by any suitable means—for instance, a set-screw C³, as illustrated. To prevent any possible slipping of the mandrel in this socket, the stem

may be formed angular and adapted to seat in a corresponding angular socket.

The form of mandrel just described is particularly adapted for the formation of a handle for carpet-beaters or other devices in which the handle is composed of a twisted shank 1 and surrounded by a spirally-coiled portion 2, reduced in diameter at one end 3 to engage the shank. For the purpose of producing this reduced portion 3 of the handle the mandrel is tapered, as at C⁴, the inclination of which tapering portion determining the taper of the handle.

For the purpose of producing a carpet-beater provided with the handle just described the end of the wire is first formed into a loop 5, the ends of which loop are twisted to form the portion 1. When in this condition, the portion is centered within the hollow of the mandrel C, and the end of the wire extends through the slot C' and rests upon the base. The shaft now being rotated and simultaneously reciprocated produces the spiral coil forming the handle. When the end of the wire passes beyond the end of the mandrel, it is tightly coiled around the shank-body, and thus the finished handle is produced.

It is obvious that different forms of mandrels may be used with the machine just described and that the mandrel specifically described may be applied to other forms of operating mechanisms. The details of construction and the auxiliary parts may likewise be altered without departing from the spirit of the invention as defined by the appended claims.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a wire-coiling machine, the combination with a base, of a shaft provided with a feeding-thread and adapted to rotate and reciprocate, a pivoted gravity-latch supported upon the base to engage the upper face of said thread, a projecting finger-piece to said latch for releasing the same from the thread, and supports at opposite sides of the shaft to retain said latch against lateral movement; substantially as specified.

2. In a wire-coiling machine, the combination with a base, of a shaft provided with a feeding-thread and adapted to rotate and reciprocate, a pivoted latch supported upon the base to engage said thread, a stationary holder, and a hollow mandrel provided with a longitudinal slot; substantially as specified.

3. In a wire-coiling machine, the combina-

tion with a base, of a shaft mounted thereon, means for rotating and reciprocating said shaft, a wire-holder located on said base, and a hollow cylindrical mandrel adapted to receive the shank of a handle to be coiled and provided with a longitudinal slot or recess communicating with the center of the mandrel; substantially as specified.

4. In a wire-coil machine, a hollow cylindrical mandrel having a tapering end portion and provided with a longitudinal slot; substantially as specified.

5. In a wire-coil machine, the combination with a support, of a driving-shaft adapted to rotate and simultaneously reciprocate, a hollow mandrel provided with a longitudinal slot and carried by said shaft, a wire-holder supported upon the base, and a straightening device through which the wire passes before reaching said holder; substantially as specified.

6. In a wire-coil machine, the combination with a support, of a driving-shaft adapted to rotate and simultaneously reciprocate, a hollow mandrel provided with a longitudinal slot and carried by said shaft, a wire-holder supported upon the base, an elongated driving-pulley upon one end of said shaft, and a belt extending from said pulley to a driving-shaft; substantially as specified.

7. In a wire-coil machine, the combination with a base, of a reciprocating and rotating shaft supported thereon and provided with a socket at one end, means to produce the reciprocation and rotation of said shaft, a hollow cylindrical mandrel provided with a longitudinal slot and removably carried by said shaft, and a stationary wire-holder adjacent to said mandrel; substantially as specified.

8. In a wire-coil machine, the combination with a base, of a reciprocating and rotating shaft supported thereon, means to produce the reciprocation and rotation of said shaft, a hollow cylindrical mandrel provided with a longitudinal slot and carried by said shaft, a stationary wire-holder adjacent to said mandrel, a feeding-thread upon said shaft, and a stationary pivoted latch to engage said thread; substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

FREDERICK E. CHURCH.
WILLIAM C. ALLEN.

Witnesses:—

GEORGE W. EVANS,
JAMES G. CLASSONS.