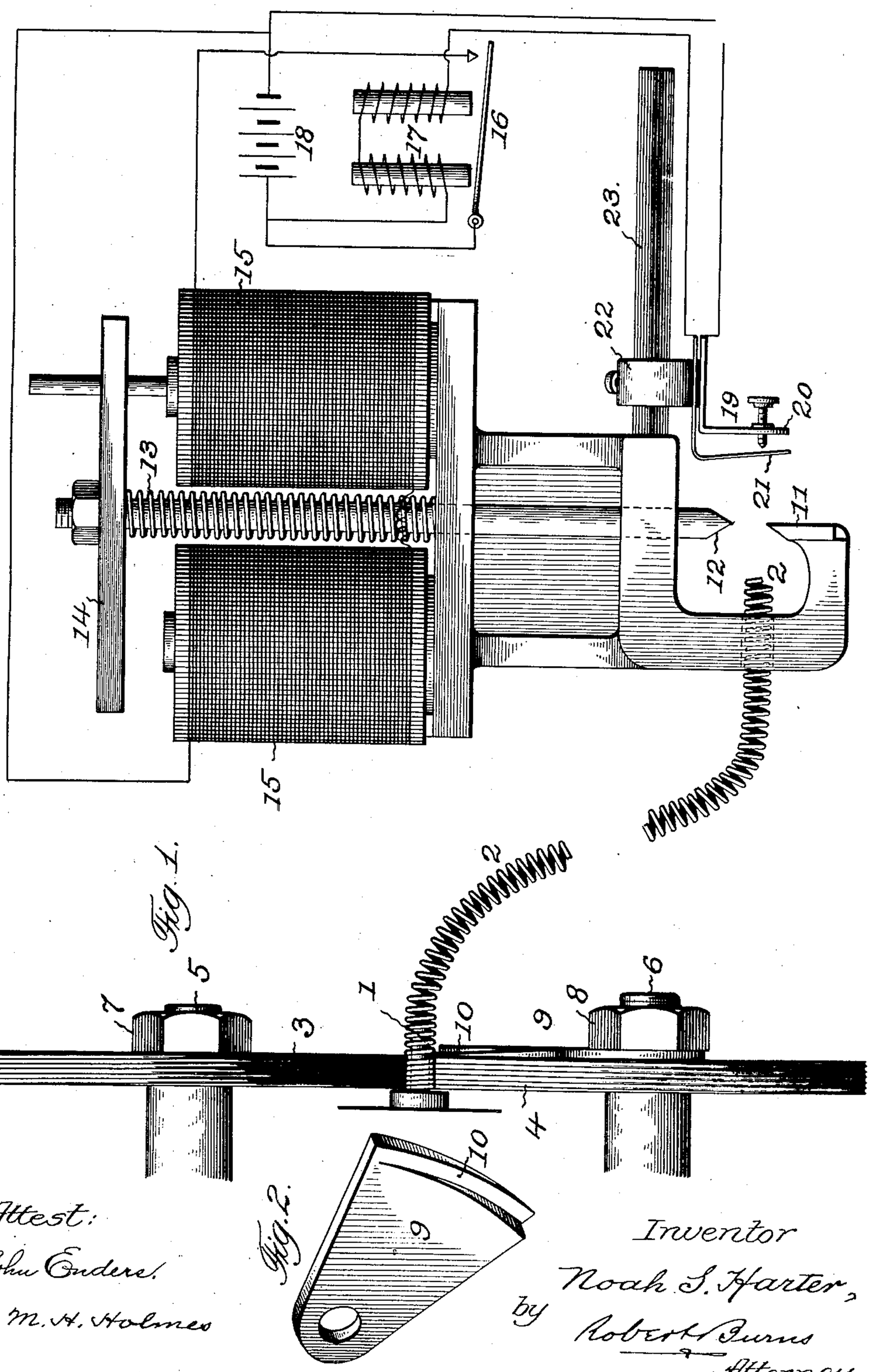
No. 805,724. PATENTED NOV. 28, 1905.

N. S. HARTER.

# WIRE CUTTING MECHANISM.

APPLICATION FILED DEC. 30, 1904.




Attest:
John Enders.
M. A. Holmes

Inventor
Noah S. Harter,
by Robert Burns
Attorney.

# UNITED STATES PATENT OFFICE.

NOAH S. HARTER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO CHARLES R. BARRETT, OF CHICAGO, ILLINOIS.

## WIRE-CUTTING MECHANISM.

No. 805,724. Specification of Letters Patent. Patented Nov. 28, 1905.

Application filed December 30, 1904. Serial No. 238,935.

*To all whom it may concern:*

Be it known that I, NOAH S. HARTER, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wire-Cutting Mechanisms, of which the following is a specification.

The present invention relates to wire-coiling machines, and has for its object to provide a simple and efficient structural formation and combination of parts whereby the wire as coiled is automatically cut off in predetermined lengths in a certain and accurate manner and without interference with the normal operation of the coil-forming mechanism, all as will hereinafter more fully appear, and be more particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view, partly diagrammatic, of the present mechanism. Fig. 2 is a detail perspective view of the spreader-plate, by which the desired spread between the convolutions of the wire coil is attained.

Similar numerals of reference indicate like parts in both views.

Referring to the drawings, 1 is the central arbor, around which the wire is formed into a coil 2 by the pair of revolving forming heads or disks 3 and 4, as usual in the present class of machines. The said heads are preferably arranged to revolve upon stationary spindles 5 and 6, having confining-nuts 7 and 8 on their outer ends to hold said heads in place in the manner indicated in Fig. 1.

9 is a spreader-plate secured to one of the spindles aforesaid or to any other suitable and stationary part of the machine in a non-revoluble yet circularly-adjustable manner for the purpose hereinafter stated. In the construction shown said spreader-plate extends into closely-adjacent relation to the arbor 1 aforesaid and has a circular and tapering margin 10, adapted to fit between the individual convolutions of the wire coil 2 as it leaves the forming-heads aforesaid to effect a spreading apart of said convolutions, and the amount of such spread is governed by a circular adjustment of said spreader-plate to bring a thicker or thinner portion of the tapering margin 10 thereof into active relation to the said wire coil.

11 is the stationary cutter-blade, and 12 the movable cutter-blade, of a cutting mechanism arranged in the path of the wire coil 2 as it passes away from the coiling mechanism before described.

13 is a spring encircling the shank of the movable cutter-blade 12 and adapted to draw the same away from the stationary cutter-blade 11 aforesaid.

14 is an armature attached to the rear end of the carrying-shank of the movable cutter-blade 12, and 15 is an electromagnet adapted when energized to attract said armature and impart a positive forward or cutting movement to said movable cutter-blade to sever the coil of wire at the point between the cutter-blades.

16 is a circuit-closer operated by an electromagnet 17 and controlling a local circuit which embraces the aforesaid electromagnet 15 and a battery 18 or other source of electromotive force.

19 is a secondary circuit-closer controlling a local circuit which embraces the operating electromagnet 17 of the circuit-closer 16 and the battery 18 or other source of electromotive force.

It is within the scope of the present invention to omit the circuit-closer 16 and embrace the cutter-operating electromagnet 15 in circuit with the circuit-closer 19 in order to operate said electromagnet 15 in a direct manner in many uses of the present invention where a heavy electromotive force is not required to operate the movable blade of the cutter mechanism.

In the present improvement the circuit-closer 19 is arranged in the path of the wire coil 2 as it moves through the cutting mechanism and comprises a stationary contact member 20 and a movable contact member 21 insulated from each other with the movable member in front of the stationary member, and so that as the wire coil 2 in its longitudinal travel contacts with the movable member 21 it will move the same into contact with the stationary member 20 to close the circuit upon the operating-electromagnet 17 of the circuit-closer 16, to in turn close the circuit on the operating-electromagnet 15 of the cutting mechanism to force the movable blade of such cutting mechanism forward and sever the end of the wire coil 2, which extends beyond said cutter-blade.

22 is a carrier for the contact members 20 and 21 aforesaid, which in the preferred form

of the present invention is secured in an adjustable manner upon a longitudinal guide rail or way 23, so that the distance between the circuit-closer 19 and the cutting mechanism can be adjusted as required in cutting the wire coil 2 into pieces of the required length.

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

1. The combination of a mechanism adapted to feed a wire coil or the like in a longitudinal direction, a fixed cutter and a reciprocating cutter arranged in the path of said wire coil or the like, an electromagnet adapted to impart rectilinear movement to said reciprocating cutter, a circuit-closer arranged in the path of the wire coil or the like passing beyond the cutting mechanism, and a source of electromotive force embracing said electromagnetic mechanism, and controlled by said circuit-closer, substantially as set forth.

2. The combination of a mechanism adapted to feed a wire coil or the like in a longitudinal direction, a fixed cutter and a reciprocating cutter arranged in the path of said wire coil or the like, an electromagnet adapted to impart rectilinear movement to said reciprocating cutter, a circuit-closer arranged in a longitudinally-adjustable manner in the path of the wire coil or the like passing beyond the cutting mechanism, and a source of electromotive force embracing said electromagnetic mechanism and controlled by said circuit-closer, substantially as set forth.

3. The combination of a coil-forming mechanism, a fixed cutter and a reciprocating cutter arranged in the path of said wire coil or the like, an electromagnet adapted to impart rectilinear movement to said reciprocating cutter, a circuit-closer arranged in the path of the wire coil passing beyond the cutting mechanism, and a source of electromotive force embracing said electromagnetic mechanism and controlled by said circuit-closer, substantially as set forth.

4. The combination of a coil-forming mechanism, a fixed cutter and a reciprocating cutter arranged in the path of said wire coil or the like, an electromagnet adapted to impart rectilinear movement to said reciprocating cutter, a circuit-closer arranged in a longitudinally-adjustable manner in the path of the wire coil passing beyond the cutting mechanism, and a source of electromotive force embracing said electromagnetic mechanism and controlled by said circuit-closer, substantially as set forth.

5. The combination of a mechanism adapted to feed a wire coil or the like in a longitudinal direction, a cutting mechanism arranged in the path of said wire coil or the like, an electromagnetic mechanism for operating said cutting mechanism, an electromagnetic circuit-closer, a local source of electromotive force embracing the electromagnetic operating mechanism of the cutting mechanism and controlled by said electromagnetic circuit-closer, a secondary circuit-closer arranged in the path of the wire coil passing beyond the cutting mechanism, and a local source of electromotive force embracing the operating electromagnet of the electromagnetic circuit-closer aforesaid and controlled by said secondary circuit-closer, substantially as set forth.

6. The combination of a mechanism adapted to feed a wire coil or the like in a longitudinal direction, a cutting mechanism arranged in the path of said wire coil or the like, an electromagnetic mechanism for operating said cutting mechanism, an electromagnetic circuit-closer, a local source of electromotive force embracing the electromagnetic operating mechanism of the cutting mechanism and controlled by said electromagnetic circuit-closer, a secondary circuit-closer arranged in a longitudinally-adjustable manner in the path of the wire coil passing beyond the cutting mechanism, and a local source of electromotive force embracing the operating-electromagnet of the electromagnetic circuit-closer aforesaid and controlled by said secondary circuit-closer, substantially as set forth.

Signed at Chicago, Illinois, this 21st day of December, 1904.

NOAH S. HARTER.

Witnesses:
ROBERT BURNS,
M. H. HOLMES.