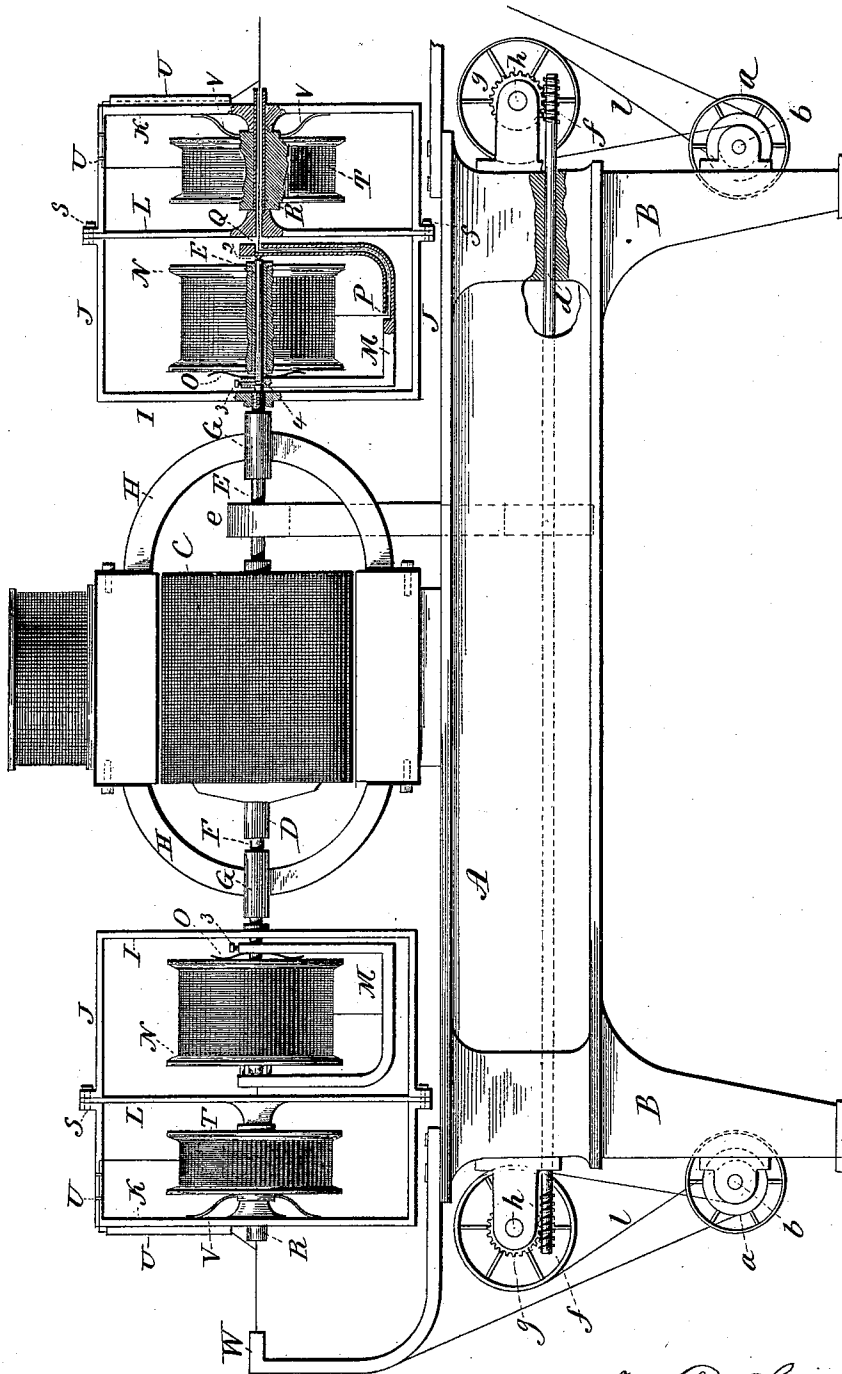


(No Model.)

M. D. LIDDELL.
MACHINE FOR COVERING WIRE.

No. 463,389.

Patented Nov. 17, 1891.



Witnesses:
J. H. Shumway.
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By Atty.
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UNITED STATES PATENT OFFICE.

MATTHEW D. LIDDELL, OF NEW HAVEN, CONNECTICUT.

MACHINE FOR COVERING WIRE.

SPECIFICATION forming part of Letters Patent No. 463,389, dated November 17, 1891.

Application filed November 3, 1890. Serial No. 370,188. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW D. LIDDELL, of New Haven, in the county of New Haven and State of Connecticut, have invented a new
5 Improvement in Machines for Covering Wire; and I do hereby declare the following, when taken in connection with accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description
10 of the same, and which said drawing constitutes part of this specification, and represents a front elevation of the machine, the winding apparatus at the right being shown in vertical section.

15 This invention relates to an improvement in apparatus for covering wire for electrical and similar purposes, in which the covering is in the form of thread wound spirally around the wire, the object of the invention being
20 the construction of a machine in which two runs of wire may be wound at the same time and the machine adapted to be driven directly from a dynamo arranged upon the machine as substantially a part of the machine
25 itself; and the invention consists in the construction, as hereinafter described, and particularly recited in the claim.

A represents the bed of the machine, which is supported upon suitable legs B B.

30 C represents a dynamo arranged centrally upon the bed, the axis D being longitudinal. In connection with the axis D is an arbor E at one side and a like arbor E upon the opposite side, supported in bearings G in the
35 frame H, the said arbors being in line with and so as to revolve with the arbor or shaft of the dynamo. On each of the arbors E a flier is arranged, which consists of one side I at right angles to the arbor, two sides J J, extending longitudinally therefrom and connected
40 at their opposite ends by a side K, as clearly shown. Midway in the length of the flier is a cross-bar L, which forms a division in the flier. The arbor E stops short of this
45 bar L, and upon it a yoke M is hung loosely, and so that by its own gravity it will rest upon the arbor, hanging down within the flier, as clearly shown. On the arbor within this yoke M the wire-spool N is loosely
50 arranged, so that it will not revolve with the arbor, and it is prevented from such possible revolution by means of suitable friction be-

tween the yoke and the spool, it may be as by frictional springs O. The yoke is tubular, and into the yoke is an opening P below the
55 wire-spool, into which the wire may be introduced, and thence, running through the tube forward and upward, will pass out through an opening Q in the yoke in line with the axis of revolution. 60

Between the cross-bar L and the side K a tubular arbor R is arranged in axial and longitudinal line with the arbor E. This arbor R opens through the cross-bar L directly in line with the opening Q of the yoke, and also
65 opens through the other side K of the yoke. The side K of the yoke is made removable (here represented as secured to the other part by screws S) and so that when removed it will expose the end of the arbor R, and when
70 so removed the thread-spool T is placed upon the arbor, then the side K replaced. Thread from the spool is run through guides U, leading radially to the center and upon the outside of the side K of the yoke. The wire coming
75 from the spool T, as before described, passes through the arbor R, and the thread led from the spool T is made fast to the wire. Both the wire-spool and the thread-spool are loose upon their arbors, so as not to partake
80 of the revolution of the arbors, but so as to revolve accordingly as the thread or wire is drawn from them. The yoke M, as represented at the right in the figure, is held upon the arbor by a male center 2, formed upon
85 the inside of the forward part of the yoke, fitting into a corresponding female center in the outer end of the arbor. The other end of the yoke is provided with a set-screw 3, which fits into a corresponding annular groove 4 in
90 the arbor, thus securing the yoke upon the arbor, but so as to leave it free to hang vertically by its own gravity while the arbor revolves. Because the yoke M remains stationary, the wire cannot revolve. As the arbor
95 of the dynamo revolves the flier revolves with it and causes the thread to be wound around the wire, and as the wire is drawn forward from the spool the thread is wound thereon, the movement of the wire corresponding to the convolutions of the thread
100 thus laid upon it.

Outside the flier a tubular guide W is preferably arranged, through which the wire will

run, and the winding is produced between this guide and the forward end of the flier.

Tension is applied to the thread-spool, (here represented as by springs *V*, arranged to frictionally bear upon the spool,) so that the desirable tension may be given to the thread in laying it upon the wire.

The wire is drawn from the spool *N* as fast as the covering is applied, and to mechanically produce this run of the wire a spool *a* is arranged upon a shaft *b* on the frame, to which rotation is communicated from the main arbor through a longitudinal shaft *d*, arranged in the machine, driven from a pulley *e* on the arbor, the shaft, by a worm *f*, communicating rotation to a gear *g* on a shaft *h*, and on which shaft there is a pulley *i*, from which a belt *l* runs to a corresponding pulley on the shaft *b*. The run of wire is connected with this spool, and so that the revolution of the spool will produce constant and steady draft upon the wire. A like arrangement of flier, spools, and arbor is made at both ends of the machine, as shown, so that both may be operated from a single shaft.

It will be understood that the electric current is connected to the dynamo in the usual manner for connecting dynamos with such a current, the power of the dynamo being adapted to the work which is to be performed.

By the machine thus constructed, and with the winding apparatus applied to the oppo-

site end of the dynamo-shaft, a very simple winding-machine is produced, one easily attended and capable of producing a great amount of work.

I claim—

In a machine for covering wire, the combination of a flier arranged upon and so as to revolve with an arbor, the said revolving arbor extending into one side of the flier, a second tubular arbor in the flier in line with the said first arbor, but so as to leave a space between the ends of the two arbors, a gravity-yoke arranged loosely upon said first revolving arbor, the tubular yoke having an opening into it below the arbor and an opening from it in line with the opening into the said second tubular arbor, a spool arranged loosely upon said first-mentioned arbor and within said yoke and so that wire therefrom may be led through said yoke and thence through said tubular arbor, a spool loosely arranged on said second tubular arbor, and guides on the flier to lead the thread from the spool to the wire, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

MATTHEW D. LIDDELL.

Witnesses:

CLARENCE P. WESTON,
JOHN E. ABBOTT.