

(No Model.)

J. M. & M. H. RICE.

MACHINE FOR COVERING WIRE.

No. 250,392.

Patented Dec. 6, 1881.

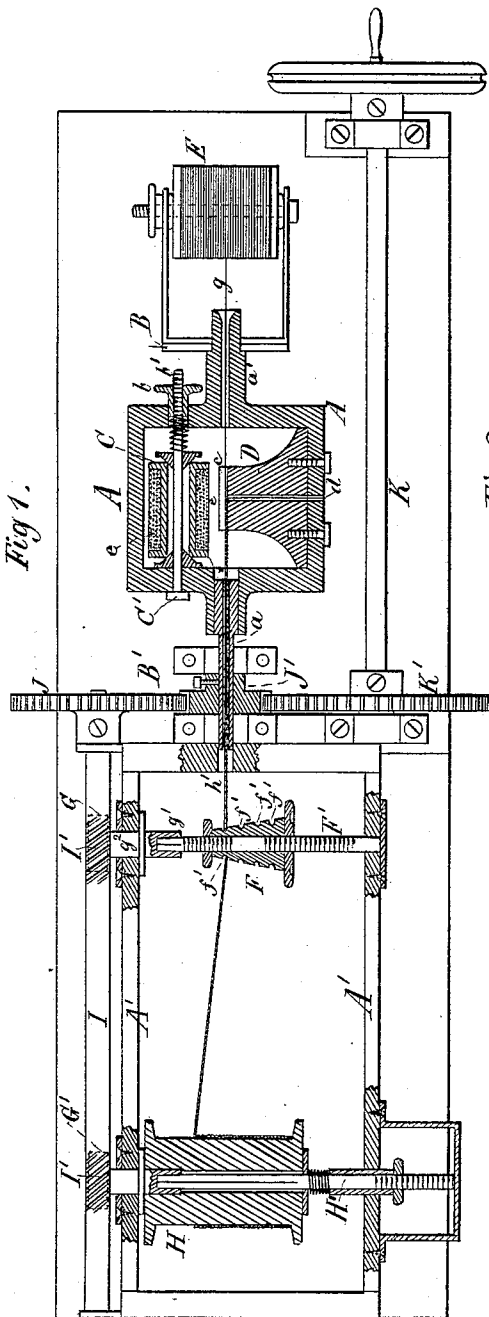


Fig 1.

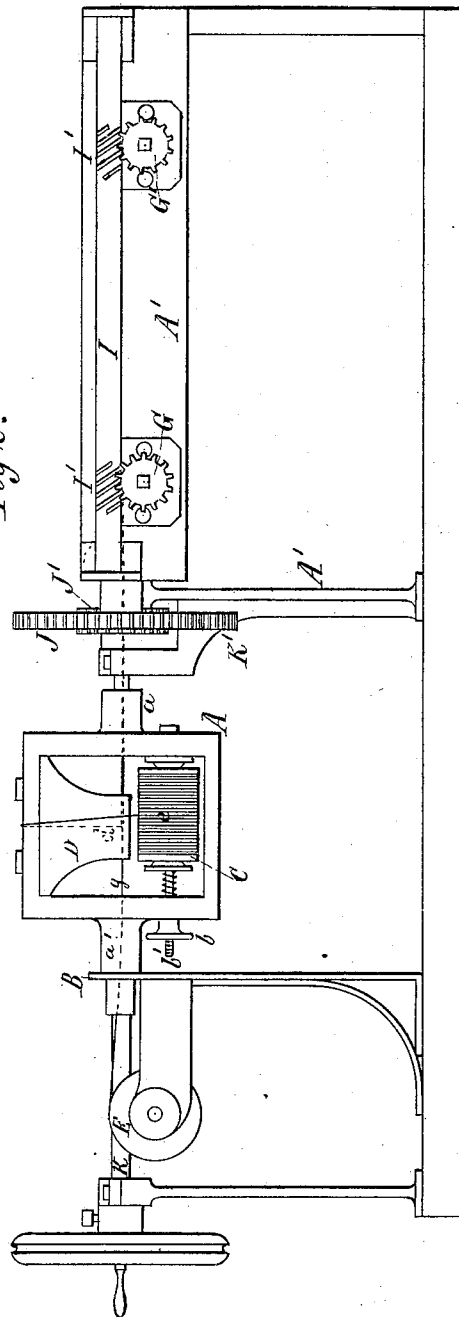


Fig 2.

Witnesses:

J. S. Theo. Lang
Robt L. Fenwick

Inventor:

James M. Rice
Merritt H. Rice
by
Mass. Fenwick Lawrence
Attys.

UNITED STATES PATENT OFFICE.

JAMES M. RICE AND MERRIT H. RICE, OF DUBUQUE, IOWA.

MACHINE FOR COVERING WIRE.

SPECIFICATION forming part of Letters Patent No. 250,392, dated December 6, 1881.

Application filed July 25, 1881. (No model.)

To all whom it may concern:

Be it known that we, JAMES M. RICE and MERRIT H. RICE, citizens of the United States, residing at Dubuque, in the county of Dubuque and State of Iowa, have invented a new and improved machine for covering or wrapping either wire, cord, or any central core with a covering of wire, cord, floss, or any other flexible material, of which the following is a specification.

The nature of our invention consists in certain combinations of mechanism, as will be hereinafter described and specifically claimed.

In the accompanying drawings, Figure 1 is a partial plan view and partial horizontal section of our improved machine as organized for wrapping wire or a core of any material of any desired length, for the purposes of insulation, or preservation, or ornamentation, or for any other object. Fig. 2 is a side elevation of the machine, the flier being in a vertical instead of a horizontal position.

A represents a flier-frame provided with hollow arbors a a' , which are fitted to revolve in standards BB' of the machine. This flier-frame carries a spool, C, and a guide, D. The spool contains the covering thread, wire, or other material, and its revolution is controlled by ordinary tension devices applied to the shaft C' of the spool, and regulated by a nut, b , on the screw-threaded portion b' of said spool-shaft, as shown. The guide D is a fixture upon the flier-frame, being fastened to one of the side bars by means of screws or otherwise. The inner end of the guide is grooved, as at c , longitudinally and parallel with the axis of the spool-shaft C' . At right angles, or nearly so, to the groove c an eye or passage, d , is bored through the guide D, and also through the bar of the frame to which the guide is attached. The covering material e from the spool C passes through the eye or passage d from the outside of the flier-frame, and its end enters the groove c of the guide, ready to be wrapped around the core which is to be covered.

E is a drum, upon which the wire or cord, or other material to be covered, is placed. It is kept under proper tension by means of ordinary tension devices.

F is a conical tension-roll, provided with a series of grooves, f' , around its periphery. This

roll is adjustable longitudinally on its spindle F' , for the purpose of changing the speed of the feed, as occasion may require. If a groove, f' , on the larger diameter of the roll is brought into position for use, instead of a groove, f' , which is on the smaller diameter, the feed will be faster than when the latter-mentioned groove is employed. One end of the spindle of this roll is supported in the frame A' of the machine, while its other end enters a square socket, g' , of an arbor, g^2 , of a screw-wheel, G, as shown. Suitable adjusting devices are provided on the shaft or spindle of the roll, for the purpose of securing the roll in any desired position.

H is a receiving-drum supported in the frame of the machine upon a shaft, H' . This drum receives the covered wire, and it is held under proper tension by suitable tension-regulating devices. On the same side of the frame where the screw-wheel G is located another screw-wheel, G' , is applied, it being placed upon one end of the shaft H' , and serving as the means for transmitting motion to said drum. The wire core g , or other material supplied from the drum E, is passed through the hollow arbors of the flier, so as to run in the groove c of the guide D. From the arbors of flier it is carried through a passage, h' , of the frame A' , and then wound once or more around the conical roll F, and from thence around the drum H, and fastened thereto. The covering material is now attached to the wire or core to be covered, and this done the machine is ready to be set in motion. For giving a uniform positive motion to the roll F and drum-shaft H' , and thereby securing a proper supply from the drum E, a worm-shaft, I, having two worms, I' I' , formed on it, is mounted upon the frame A' , and made to gear with the screw-wheels G G' , as shown. On one end of this worm-shaft a cog-wheel, J, is applied, and this wheel gears with a pinion, J' , on one of the hollow arbors of the flier. On the opposite side of the frame of the machine a power-shaft, K, is applied, and by means of a cog-wheel, K' , on this shaft the pinion J' is set in motion. The pinion, in revolving, causes the flier A to revolve, and at the same time causes the worm-shaft I and the screw-wheels G G' to revolve. Thus the whole machine is set in motion and the wire to be

covered is drawn off its drum by the tension of the roll F and drum H, while the covering material is drawn off the spool by the combined action of the feed mechanism of the core and the revolution of the flier.

In operating the machine it is essential that the feeding action upon the core-wire shall be a little in advance of the wrapping action—that is, the core-wire shall have “lead,” or be fed along fast enough to insure the regular and proper wrapping of the covering material upon it; and this being so, it will be seen that the closeness of one spiral wind to another can be regulated by feeding the core-wire relatively fast or slow with respect to the speed of the flier or supply-feed from the spool containing the covering-wire. The position on the conical roll for the wind or coil of the core-wire will be determined by the size thereof and the velocity of progression desired, and as the coil on the drum H increases in diameter the drum slips gradually on its shaft H', and thus compensation is made for an increase of the leverage of the coil.

With a machine embodying our invention cores can be covered in the most rapid and uniform manner, and at a very slight cost.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The guide D, having a groove, *c*, in its in-

ner edge, and a passage, *d*, which leads into said groove, in combination with a flier-frame perforated to coincide with the passage in the guide, a spindle adapted to support a supply-spool carrying covering material, a tension device for the spool, a supply-drum, which supplies the wire or other core to be covered, a tension-roll, a receiving-drum, and mechanism for revolving the flier, tension-roll, and receiving-drum, substantially as and for the purpose described.

2. A revolving flier provided with a grooved guide, D, and with a spindle adapted for supporting a supply-spool, said flier and guide having a passage, *d*, which leads the supply covering material from the spool to the core-wire, which passes in the groove *c* of the guide, substantially as and for the purpose described.

3. The combination of the receiving-drum H, tension-roll F, shafts H' and F', wheels G G', shaft I, provided with worms I', wheels J J' K', flier A, provided with a guide and spindle for a supply-spool, drum E, and a suitable power-shaft, substantially as and for the purpose described.

JAMES M. RICE.
MERRIT H. RICE.

Witnesses:

M. H. BEACH,
C. J. WALSH.