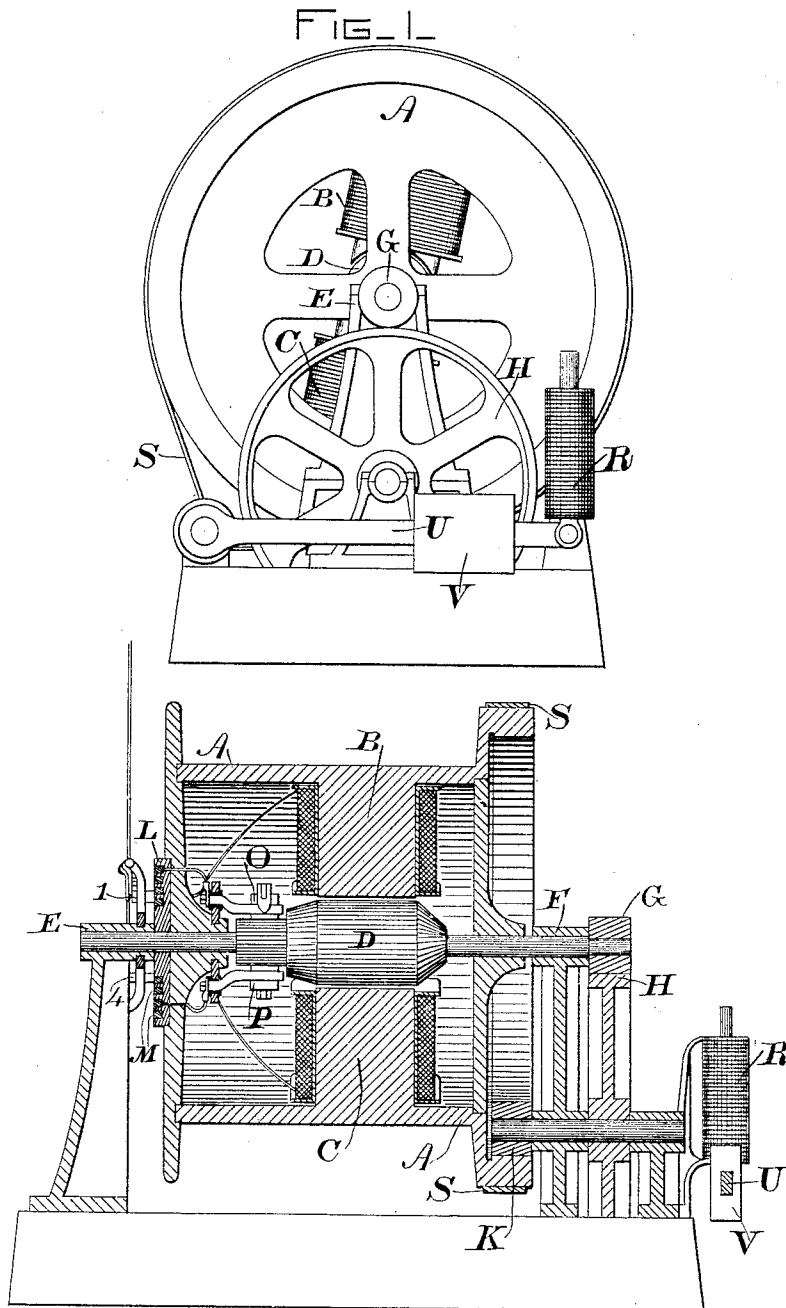


H. C. SPAULDING.
ELECTRICAL HOISTING APPARATUS.

No. 516,843.

Patented Mar. 20, 1894.



WITNESSES

A. A. McBride
W. H. McAllister

INVENTOR

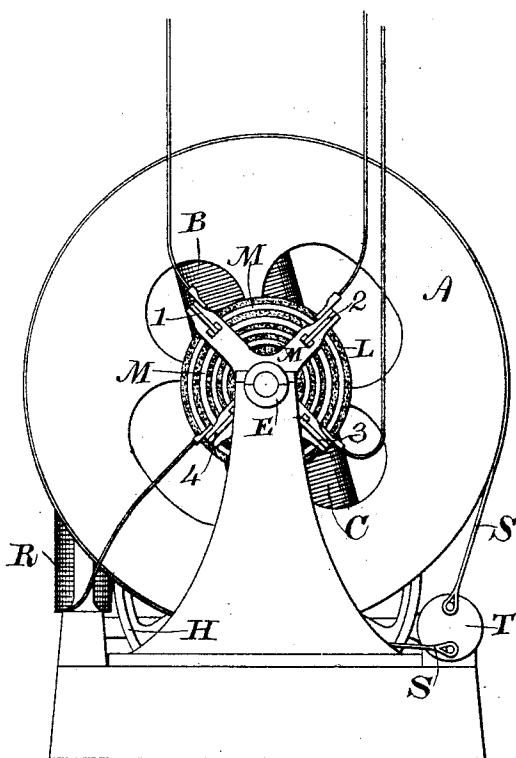
Hollon C. Spaulding
by Bentley & Bloodstock
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FIG. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

HOLLON C. SPAULDING, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
THOMSON-HOUSTON ELECTRIC COMPANY, OF CONNECTICUT.

ELECTRICAL HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 518,843, dated March 20, 1894.

Application filed February 12, 1890. Serial No. 340,224. (No model.)

To all whom it may concern:

Be it known that I, HOLLON C. SPAULDING, a citizen of the United States, residing at Boston, Massachusetts, have invented certain new and useful Improvements in Electrical Hoisting or Winding Apparatus, of which the following is a specification.

My invention consists in inclosing the operating motor within the drum upon which the cable is adapted to be wound.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation of a machine embodying my invention. Fig. 2 is a vertical, axial section thereof. Fig. 3 is an end elevation opposite to that in Fig. 1.

Referring to the drawings, A is a drum adapted to wind up a rope or cable. Within this drum is a motor, having its armature shaft concentric with the drum; the drum having a bearing upon said shaft. The motor has its field magnets, B and C attached to the drum, so that the material of the drum forms the yoke or neutral part of the magnet. These magnets are, in the illustration shown, two in number and are placed diametrically opposite one another, and extend radially to the drum. Between the two magnets is an armature D, having its shaft prolonged, and resting in external bearings E and F. Upon one end of the armature shaft is a pinion G engaging with a gear H, the shaft of which has its pinion K engaging with an internal gear, outside of the flange of drum A. By this arrangement it will be seen that the armature and the drum carrying the field magnets, both rotate relatively to each other, and it therefore becomes necessary to provide a traveling contact for introducing the current. This is constructed as follows. Upon drum A is fastened an insulating disk L carrying four concentric metal rings M. Two of these rings are permanently connected through the drum with the field magnets B and C, while the other two rings are connected respectively to the two commutator brushes O and P which are carried by the drum. These rings are shown more plainly in Fig. 3 where it will also be observed, that they are each provided

with a brush resting constantly upon them, so that while the drum rotates, the current is constantly introduced to the drum from the stationary brushes. These brushes are marked 1, 2, 3 and 4 respectively. These brushes may be connected up in any desirable way, so that the motor may have its field and armature in series, or in shunt. The drum A is provided with a strap brake S, the opposite ends of the strap being brought to a cam T, Fig. 3. The cam T, is provided with a lever U, upon which is a weight V. The outer end of the arm U is attached to the core of a magnet R which is in series with the motor. Whenever the current is on, the weight V is lifted, and the strap brake is released. Whenever the current is shut off the brake is instantly applied, and the drum stopped.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination in an electric hoisting or winding machine of a drum, radial field magnets on opposite sides of the armature projecting from the drum and having the latter for their yoke or neutral part, and an armature concentric with the drum and geared thereto.

2. The combination of the armature mounted in bearings and rotating in a given direction with the winding drum rotating in the opposite direction whose ends have bearings on the armature shaft, and radial field magnets extending in from the surface of the winding drum, the latter forming the yoke or neutral part for completing the magnet circuit and gearing interposed between the armature and the drum.

3. The combination of the armature and inclosing winding drum forming the field of an electric hoisting or winding machine, with gearing between the armature and drum, outside of the latter, as described.

In witness whereof I have hereunto set my hand this 8th day of February, 1890.

HOLLON C. SPAULDING.

Witnesses:

E. M. BENTLEY,
G. R. BLODGETT.