

the wire or coil the more powerful the result, one thousand or more feet being preferable. The poles of the two helices being connected the action is the same as in the compound helices, there being but four currents developed, two initial and two terminal currents, the latter flowing constantly in the same direction—in effect there being but one current in the same direction.

The mode of producing or starting the action in the helices consists in the use of a steel or electro-magnet, or a helix, around one of the helices, and causing a secondary current in the inclosed helix by means of a battery current in the outer one; the action then in either the simple or compound helices increases in quantity to the maximum capacity of the wires to conduct with the existing tension of the current. If, now, the circuit is broken the current instantly ceases, and can only be restored by the same means that it was first produced; hence to allow the use of the main circuit for common purposes I introduce a rheostat or a resistance of any kind into the circuit, so that a small portion of the current only will flow along the resistance, by which means the action

in the helices is feebly maintained when the main circuit is broken, and instantly restored when it is closed to its full force. By this means the action becomes in effect the same as the common battery currents, and may be used for similar purposes. For the purpose of preventing the heating of the helices caused by the intensity of the action, and to prevent circulation of the initial secondary currents in the main circuit, a rheostat of any convenient form may be made to constitute a part of the main circuit D. The alternate changes of the iron cores or magnets may be used for producing electro-magnetic motion, or motion to a wheel of any suitable device.

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

The combination of two or more simple or compound helices, in the manner and for the purpose set forth.

DANIEL McFARLAND COOK.

Witnesses:

A. J. MACK,

J. W. JENNER.