S. C. CARTER.

Electro-Magnetic Motors.

No. 138,855. Patented May 13, 1873.

Fig. 1.

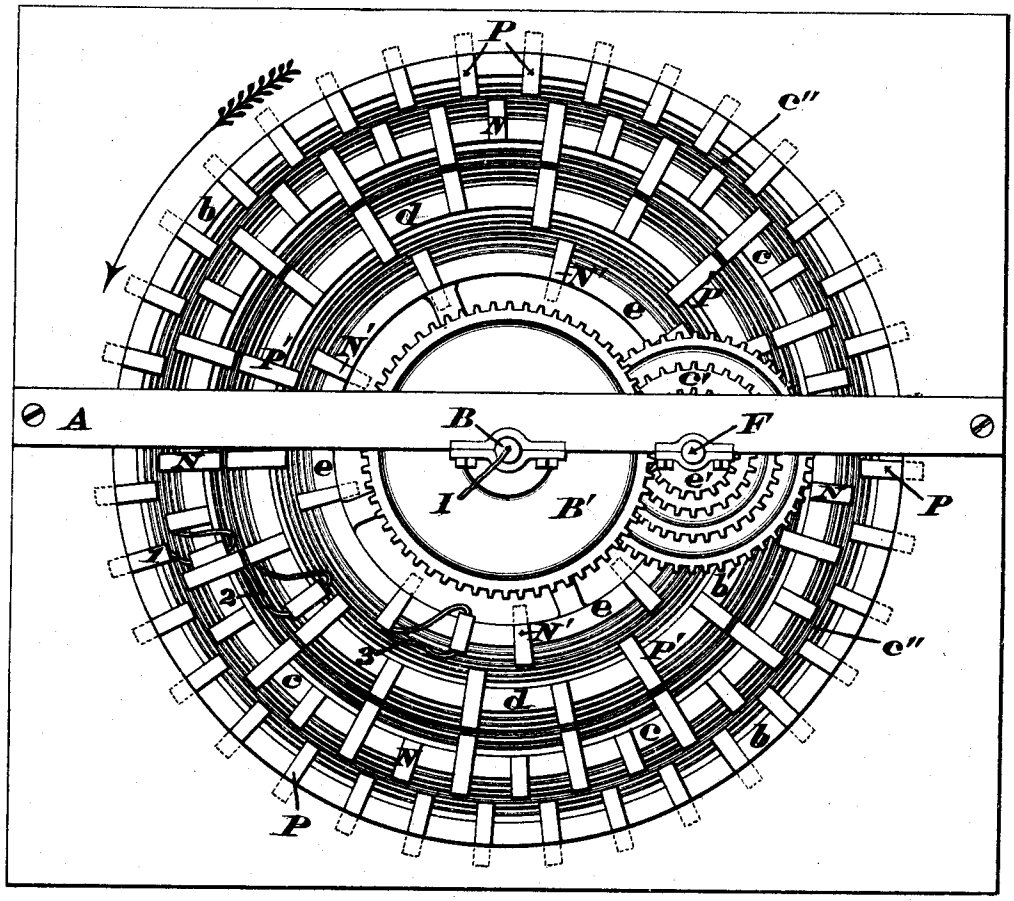
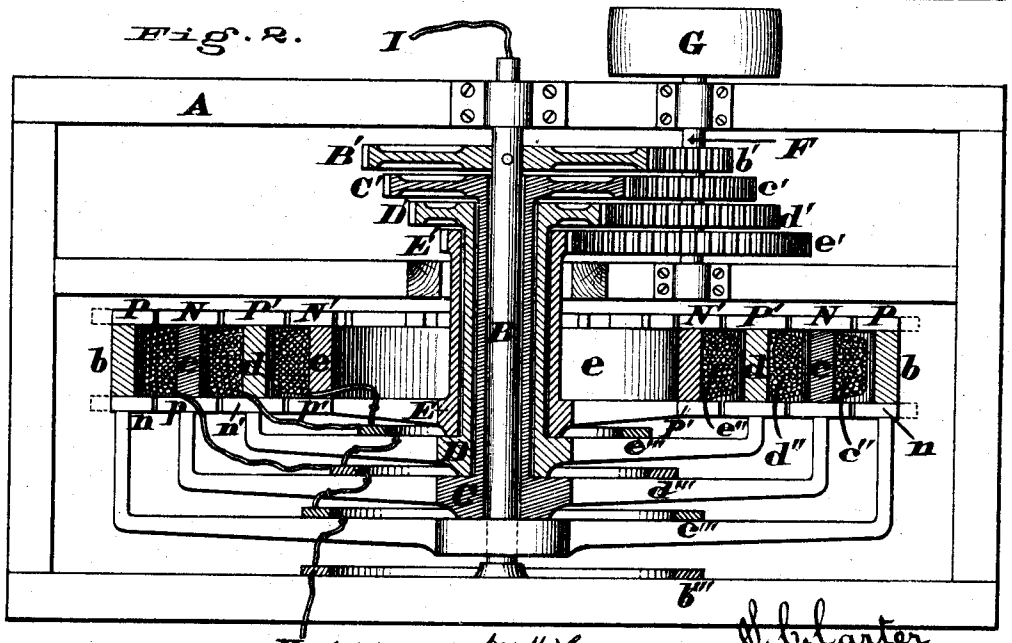


Fig. 2.



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UNITED STATES PATENT OFFICE.

SAMUEL C. CARTER, OF RICHMOND, INDIANA.

IMPROVEMENT IN ELECTRO-MAGNETIC MOTORS.

Specification forming part of Letters Patent No. **138,855**, dated May 13, 1873; application filed Jauuary 17, 1873.

To all whom it may concern:

Be it known that I, SAMUEL C. CARTER, of Richmond, Wayne county, Indiana, have invented an Improvement in Electro-Magnetic Motor, of which the following is a specification:

Nature and Objects of the Invention.

This is an improved form of those prime movers or engines which comprise a series of temporary magnets, in which electro-magnetic power is alternately induced and suspended by the making and breaking of electric circuit through suitable coils; and my invention consists of an arrangement, in concentric and rotary circles, of two or more series of armatures, in which magnetism is oppositely induced so as to cause attraction and consequent rotation of said circles, which circles are so connected, by differential gearing with a common shaft, that they rotate in the same direction, at different speeds, and all unite in propelling the slowest moving circle, to the shaft of which power may be taken, by pulley or other customary appliances, for transmitting motion.

General Description.

Figure 1 is a top view and Fig. 2 is an axial section of a machine embodying my invention.

Journaled in any suitable frame, A, is a shaft, B, upon which, as a common center, are arranged a series of concentric sleeves or hollow shafts, C D E. These shafts, B C D E, carry a series of similar drums or wheels, *b c d e*, of unequal diameters, and arranged successively in represented concentric manner, one within another, their upper surfaces being flush, or in the same plane. On the upper portion of the drum *b* are a series of equidistant radial projections, or armatures, P, and immediately underneath them, at the lower portion of said drum, are a series of exactly similar armatures *n*. Similarly, each drum has equidistant armatures, namely, N P′ N′, on their upper sides, and *p n′ p′* on their lower sides, respectively. Each shaft, B C D E, carries a spur-wheel, B′ C′ D′ E′, which gear respectively into pinions *b′ c′ d′ e′*, secured to a counter-shaft F. The relative diameters of these general connections are such as will only allow angular rotation of the drums at different speeds, and, by the magnetic action, to be presently explained, cause all the drums to unite in propelling the slowest moving drum, from the shaft of which motion may be taken. Each of the inner drums, *c d e*, is bound with a coil of insulated wire *c″ d″ e″*, whose lower extremity touches an annular-conducting-plate, insulated on the wheel or drum, next outside, and finally one on the frame. These plates are marked, respectively, *c‴*, *d‴*, *e‴*, and *b‴*. From the lowest plate *b‴* a wire, H, passes to one pole of the battery, and from the upper bearing of the shaft B a wire, I, passes to the opposite pole of the battery. The upper end of each coil is bent outward to form a rheotome-point, 1, through which, during its brief contact with the successive armatures of the next outer drum, the current flows uninterruptedly, so as to convert the armatures of the drum around which it is wound and the armatures of the next outer drum into temporary magnets, and, by their mutual attraction, induce motion in the two drums. Just as the rheotome 1 is about to leave its armature, the rheotome 2, coming into play, operates on the next succeeding drum, giving place in turn to rheotome 3, which, in turn, ceases contact just as rheotome 1 comes again into play; and inasmuch as all of the drums with the main shaft B are conductors of the electrical current, the electric-magnetic action, although intermittent through the coils around the respective drums, is constant through the main shaft B and annular plate *b‴*, thereby using the current from the the battery constantly. The drums may be made of wrought-iron, but, being of a difficult shape to make of wrought-iron, I prefer to cast them from a pattern, then malleableize the casting, and thus make them of malleable cast-iron, so called. The apparatus may be adapted for

additional outer and inner rings or drums by extending the armatures, as represented by dotted lines.

Claim.

I claim as new and of my invention—

The described arrangement of two or more concentric drums, having radial armatures, and furnished with insulated coils, having interrupted contact with one pole and continuous contact with the other pole of the battery, said drums being geared differentially to a common counter-shaft, substantially as and for the purpose set forth.

In testimony of which invention I hereunto set my hand.

SAMUEL C. CARTER.

Attest:

GEO. H. KNIGHT,

SYLVANUS COX.