2 Sheets—Sheet 1.

A. G. HOLCOMBE.

MAGNETO-ELECTRIC MACHINE.

No. 184,966. Patented Dec. 5, 1876.

Fig 1.

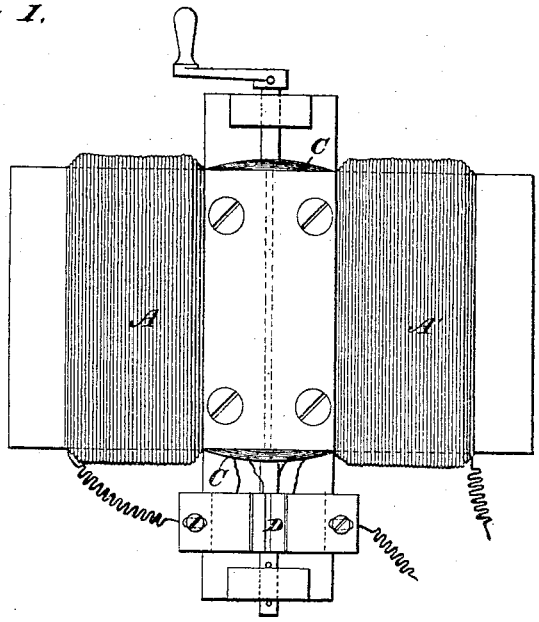
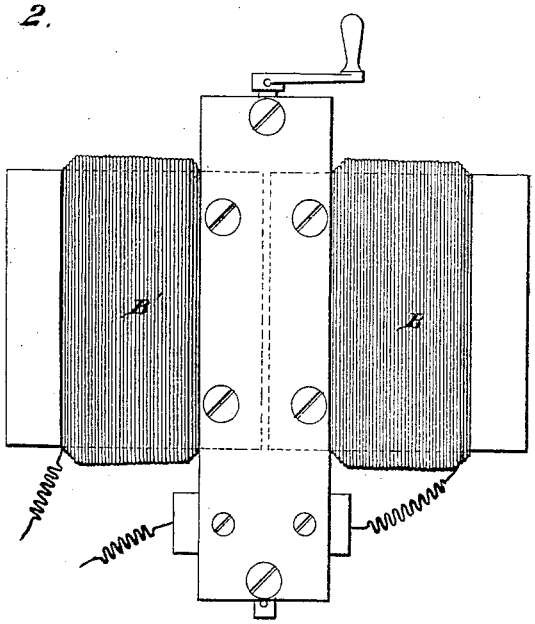


Fig 2.



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2 Sheets—Sheet 2.

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Fig 3.

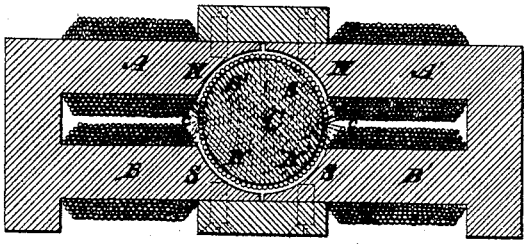


Fig 4.

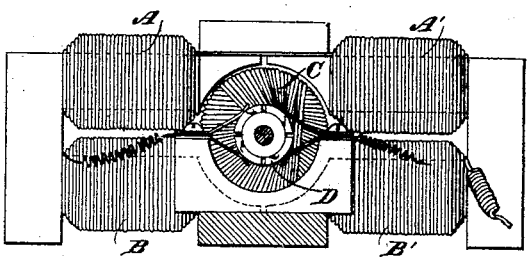
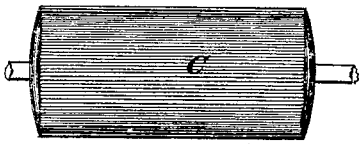


Fig 5.



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UNITED STATES PATENT OFFICE.

ALFRED G. HOLCOMBE, OF NEW YORK, N. Y.

IMPROVEMENT IN MAGNETO-ELECTRIC MACHINES.

Specification forming part of Letters Patent No. **184,966**, dated December 5, 1876; application filed October 7, 1876.

To all whom it may concern:

Be it known that I, ALFRED G. HOLCOMBE, of the city, county, and State of New York, have invented certain new and useful Improvements in Magneto-Electric Machines, of which the following is a specification that will enable those skilled in the art to which my improvements relate, to make and use the same, reference being had to the accompanying drawings.

My invention belongs to that class in which the energy of a prime mover is converted into electricity; and its object is to produce, by a magneto-electric machine, a continuity of electrical pulsations that assimilate the current produced by the ordinary electric battery.

To this end I provide a rotary armature of such construction, and having such relations to a magnetic field within which it revolves, that the flow of electricity will be perfectly steady and uniform whatever may be the velocity of revolution of the armature.

A convenient form in which I have embodied my invention is represented in the drawings, in which—

Figure 1 is a front elevation of my machine. Fig. 2 is a rear view. Fig. 3 is a cross-section through the line *x x* of Fig. 1. Fig. 4 is a cross-section, showing the commutator and the electrical connections of the conductors; and Fig. 5 is a detached view of my armature.

A A′ B B′ represent inducing-magnets, so arranged and wrapped with insulated conductors as to form an annular space in the center, within which the armature C revolves. Permanent steel magnets might be substituted. The north and south polarities of the magnets of any desired number are placed opposite each other, either above or below. The armature C consists of a disk, ring, or cylinder of soft iron, either solid or hollow, wrapped longitudinally with insulated electric conductors in a series of sections or bobbins having free ends, which, when the armature is revolved, successively come in contact with stationary conductors.

It is well known that when magnetism passes through or intersects an electric conductor, a disturbance takes place in the electric condition of the conductor, and if a circuit be formed of the conductor the disturbance takes place all through it in a given direction when intersected by magnetism of one polarity, and continues as long as the magnetism continues to rise in intensity, and in the opposite direction when the intensity lowers; and the contrary effect takes place when intersected by magnetism of the other polarity. Under this law the dotted lines in Fig. 3 indicate the operation of the magnetic force as it intersects the conductors and armature in my machine.

N N denote the north poles of the inciting-magnets, and S S the south poles. N′ N′ and S′ S′ denote the polarity of the armature by induction at the magnetic centers C C. The conductors pass from north to south polarity on one side, and from south to north polarity on the other side. As the armature revolves its polar condition constantly changes, but maintains the same relative position to the inducing-magnets. As but very few of the convolutions of the wire on the armature are acted on at any one time, the resistance of the wire can be diminished by increasing the number of its free ends, or, in other words, the number of sections or bobbins. By reference to Fig. 4 it will be seen that the free ends of each section or bobbin pass through opposite insulated segments of the commutator D, which is provided with springs, one for each segment, and operates as usual in magneto-electric machines of this class.

When electro-magnets are employed as inducting-magnets, a current of electricity must be passed through the helices (which are all connected) to magnetize them. But when permanent steel magnets are employed the mere revolution of the armature is all that is required to perform the functions of telegraphing, lighting, and all others to which electricity is adapted, a continuity of pulsations or a uniform and continuous flow of the electric current always resulting.

I am aware that such an effect has heretofore been produced by other means than those I employ, but I am not aware that it has been produced by a device of equal simplicity and economy of construction.

Having thus described my invention, what

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

The revolving armature C, consisting of a soft-iron ring, disk, or cylinder, either solid or hollow, wound longitudinally, and inclosed by a series of independent sections or bobbins made of insulated electrical conductors having free ends, substantially as and for the purposes specified.

In testimony whereof I have hereunto subscribed my name.

ALFRED G. HOLCOMBE.

Witnesses:
E. S. HILL,
A. GILLETTE HOLCOMBE.