(No Model.)

W. S. HILL.

ELECTRIC GENERATOR.

No. 508,880. Patented Nov. 14, 1893.

Fig. 1.

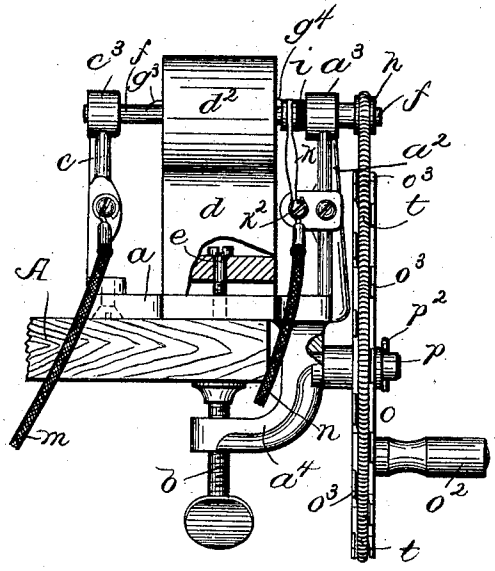


Fig. 2.

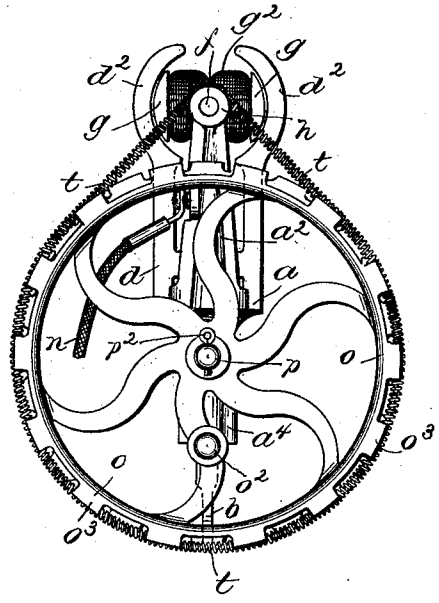
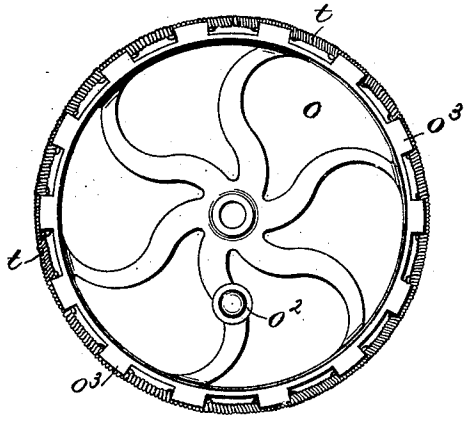


Fig. 3.



Witnesses
Jas. J. Maloney.
M. E. Hicks.

Inventor.
Warren S. Hill.
by Jos P. Livermore
Att'y.

THE NATIONAL LITHOGRAPHING COMPANY.
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WARREN S. HILL, OF HYDE PARK, MASSACHUSETTS, ASSIGNOR TO THE W. S. HILL ELECTRIC COMPANY, OF PORTLAND, MAINE.

ELECTRIC GENERATOR.

SPECIFICATION forming part of Letters Patent No. 508,880, dated November 14, 1893.

Application filed April 12, 1893. Serial No. 470,020. (No model.)

To all whom it may concern:

Be it known that I, WARREN S. HILL, of Hyde Park, county of Norfolk, State of Massachusetts, have invented an Improvement in Electric Generators, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to a magneto electric generator the object being to produce a simple and inexpensive generator that can be used for administering shocks, ringing bells, and similar purposes.

The invention consists mainly in details of construction that will be hereinafter described contributing to the simplicity and compactness of the machine, which can be put in very compact form for shipment.

Figure 1 is a side elevation partly in section of an electric generator embodying this invention; Fig. 2 an end elevation thereof, and Fig. 3 a side elevation of the driving wheel and belt detached.

The machine comprises a frame piece which may be a single casting comprising a base portion a and upright a^2 affording one of the bearings at a^3 for the armature shaft and a clamp arm a^4 provided with a clamping screw b by which the machine may be clamped to an ordinary table a portion of which is indicated at A, Fig. 1. Another upright c is secured by a screw or otherwise to the end of the base plate a remote from the upright a^2 said upright c being provided with a bearing c^3 for the other end of the armature shaft. The field magnet d is a casting forming a magnet of the usual horse shoe type having broad curved pole pieces d^2, see Fig. 2, said magnet being fastened in proper position on the base plate a by a screw e as shown in Fig. 1.

The armature shaft f may be a piece of iron having an H-shaped armature core g fixed thereon, said armature shaft running in the bearing a^3 and c^3 and being confined in proper position longitudinally by the pulley h fixed upon the said shaft f at the outside of the bearing a^3 and the insulated collar i fixed on said shaft at the inside of said bearing a^3.

The armature core g has a coil g^2 wound upon it, one end of which is connected as shown at g^3 Fig. 1, with the armature shaft f and thus with the entire metallic frame work of the machine, while the other terminal of the armature coil is connected as shown at g^4 with the collar i which is insulated from the machine, from which collar the current is taken by a spring k supported upon an arm or bracket k^2 of insulating material fastened to the upright a^2 of the frame work.

The current may be taken from the machine by wires m and n the former connected with the upright c and thus with the terminal g^3 of the armature coil, and the latter connected with the spring k and thus with the terminal g^4 of the armature coil. The said wires m and n may terminate in metallic handles when the machine is to be used for giving shocks or may be connected to any instrument that is to be operated by an alternating current of moderate strength such as is generated in the coil g^2 when the armature is rotated.

The armature is rotated by means of a driving wheel o provided with a crank or handle o^2 and journaled on a pin p permanently fixed in the clamp arm or bracket a^4 of the base of the machine. The driving wheel o is secured in working position on the bearing pin p by a linch pin p^2 which may be easily withdrawn permitting the driving wheel to be removed from the bearing and laid at the side of the machine for convenience in packing and shipment. The power is transmitted from the driving wheel to the armature pulley h by a belt t composed of spiral spring wire which when contracted fits closely around the periphery of the driving wheel o as shown in Fig. 3, but which is readily stretched so as also to pass over the pulley h as shown in Figs. 1 and 2, in which condition it has a good frictional hold on said pulley which can thus be driven at high speed. The belt groove in the driving wheel o is formed by providing the periphery of the wheel with projections o^3 alternating with one another at the opposite side of the wheel the inner faces of which projections being inclined to that altogether they form a substantially V-shaped groove, but afford considerable stronger traction on the belt than would be afforded by a

smooth V-shaped groove extending uninterruptedly around the periphery of the wheel.

The machine is very simple and inexpensive being made up mainly of five castings, namely, the base plate (including the upright a^2); the upright c; the field magnet; the armature; and the driving wheel, these parts requiring no machine work except the boring of the bearings a^3 and c^3 and of the hub of the driving wheel, and the turning of the outside of the armature and preferably the boring of the inner faces to field magnet poles. An effective generator for currents of moderate strength can thus be produced at very low cost.

I claim—

1. A magneto electric machine comprising a frame piece or casting having a base, clamping arm, and an upright provided with one bearing for the armature shaft; the field magnet, and an upright containing the other bearing for the armature shaft fixed upon said base; the armature and its shaft running in said bearings, and the driving wheel belted to the armature shaft and the bearing pin therefor fixed to the main frame piece, substantially as described.

2. A magneto electric machine comprising a frame-piece or casting having a base, and an upright provided with one bearing for the armature shaft; a field magnet and an upright containing the other bearing for the armature shaft, fixed upon the said base; the armature and its shaft running in said bearings, and provided with a driving pulley; and the driving wheel and bearing pin therefor fixed to the main frame piece; the periphery of said driving wheel being provided with projections o^3 with inclined inner faces; and a belt of spiral spring wire for connecting said driving wheel and pulley, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WARREN S. HILL.

Witnesses:
JOS. P. LIVERMORE,
JAS. J. MALONEY.