(No Model.)

A. J. POTTER.

MAGNETO ELECTRIC MACHINE.

No. 514,241. Patented Feb. 6, 1894.

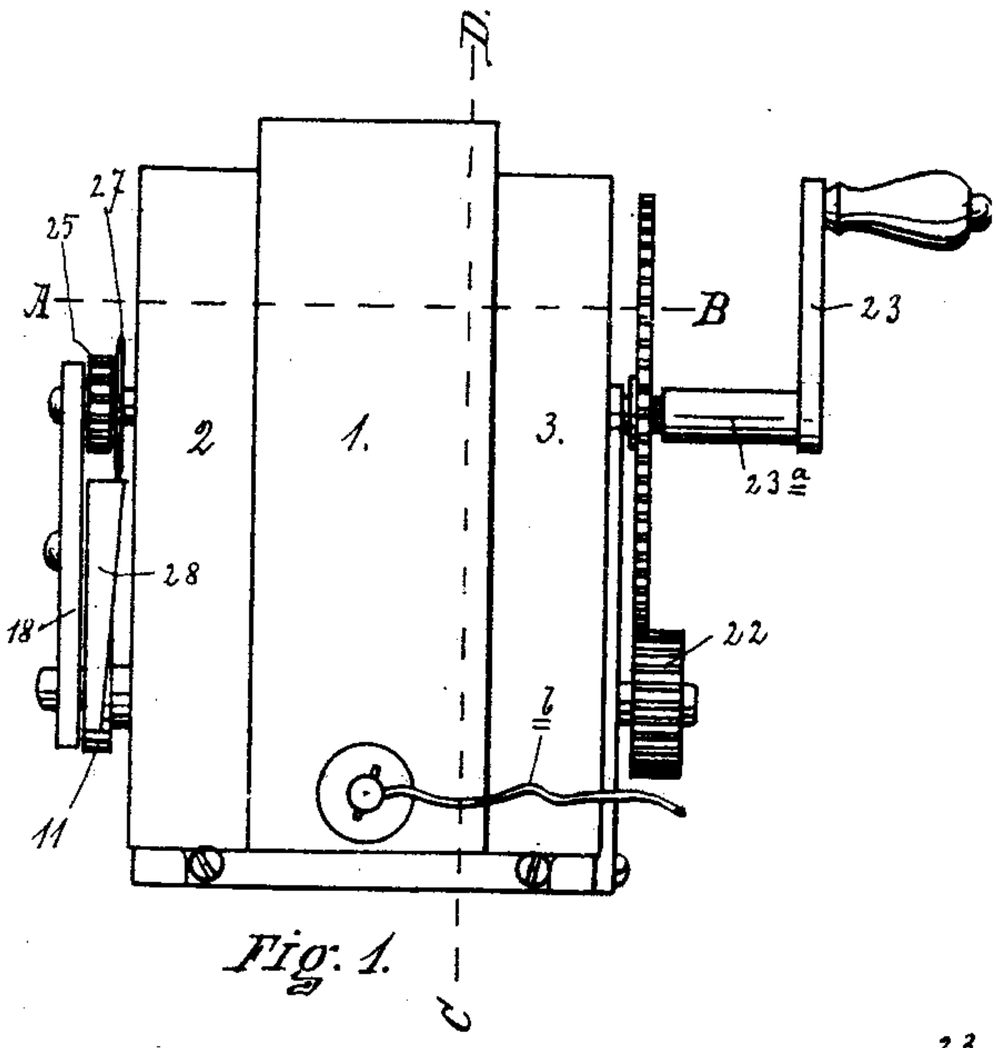


Fig. 1.

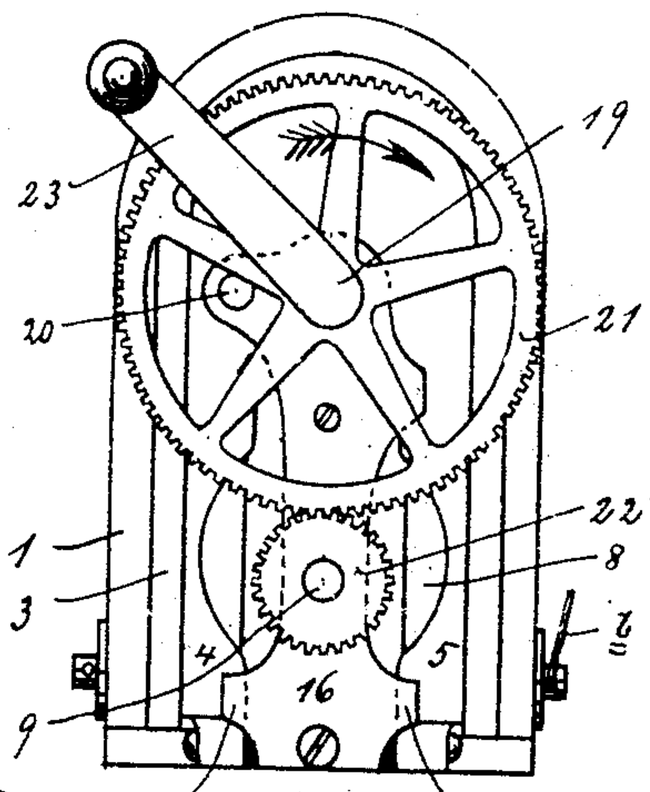


Fig. 2.

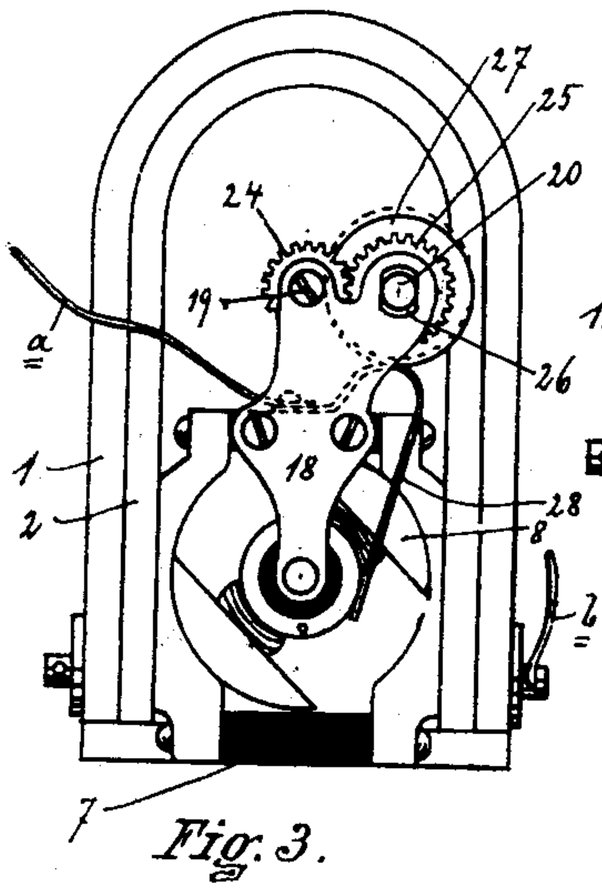


Fig. 3.

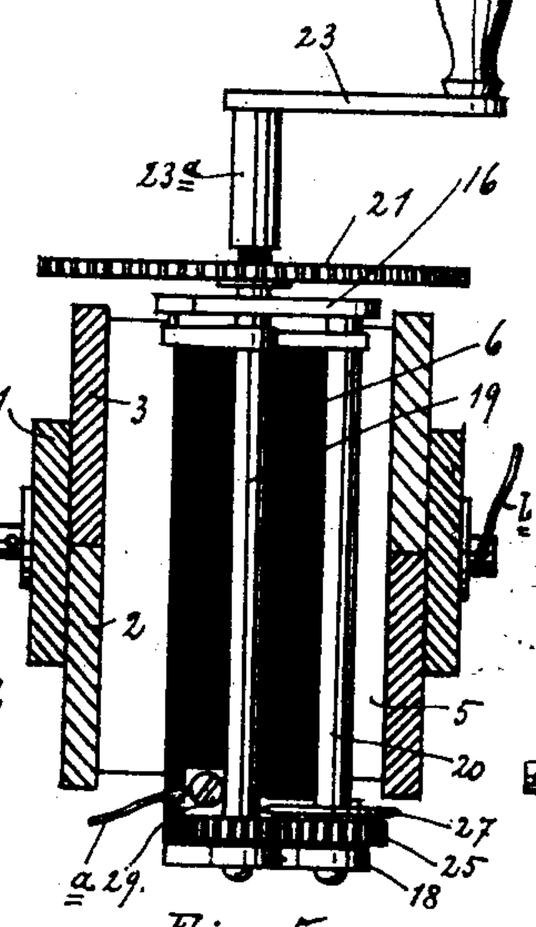


Fig. 5.

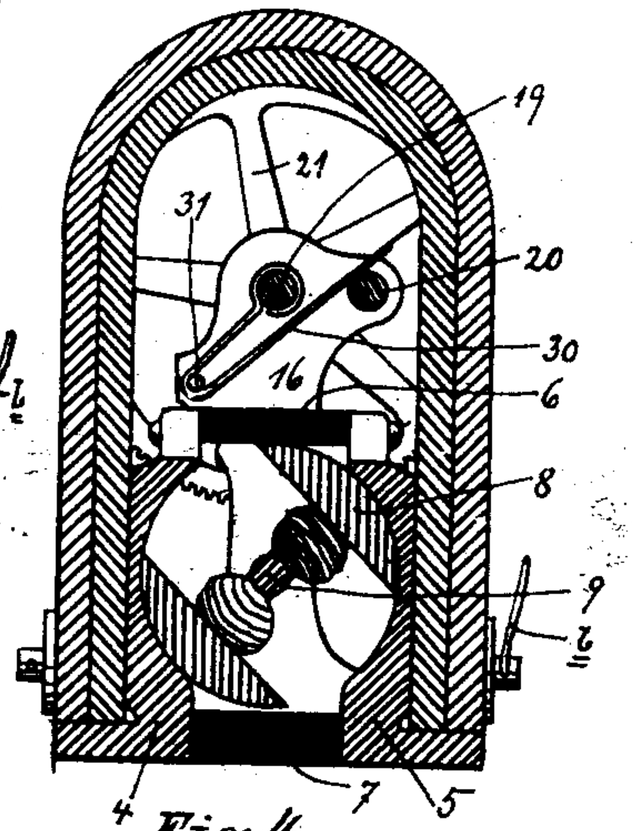


Fig. 4.

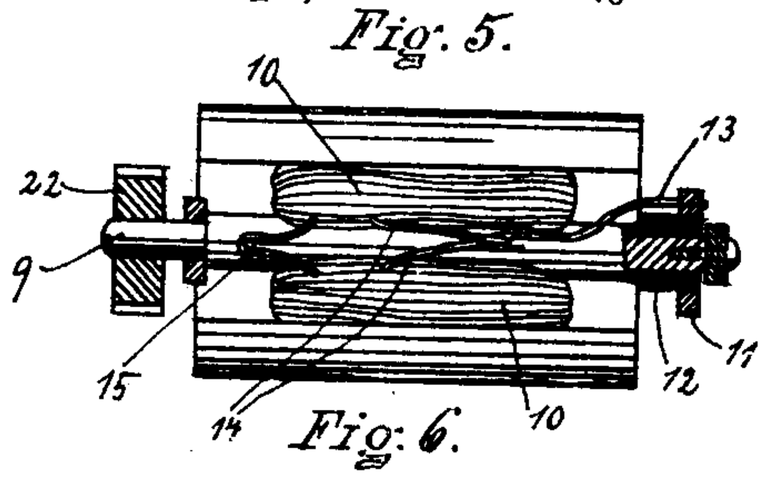


Fig. 6.

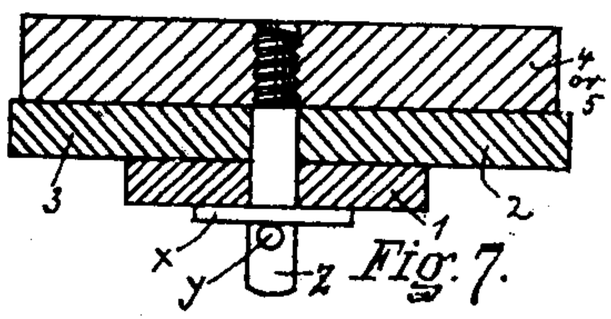
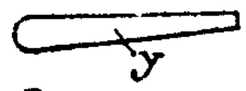


Fig. 7.



WITNESSES.
Rich. A. George.
A. Fournet-Riley

INVENTOR.
ALWARD J. POTTER.
By Risley & Robinson
ATTORNEY'S.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALWARD J. POTTER, OF NEW HARTFORD, NEW YORK.

MAGNETO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 514,241, dated February 6, 1894.

Application filed June 15, 1893. Serial No. 477,647. (No model.)

To all whom it may concern:

Be it known that I ALWARD J. POTTER, of New Hartford, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Magneto-Electric Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form part of this specification.

My invention relates to electro magnetos.

In the drawings, Figure 1 shows a side view of a magneto having my improvements. Fig. 2 shows an end view of the same. Fig. 3 shows the opposite end. Fig. 4 shows a section taken on line C—D of Fig. 1. Fig. 5 shows a section taken on line A—B with a plan view of the parts below the line. Fig. 6 shows the armature removed with attached parts in section. Fig. 7 shows the means for securing the pole pieces and magneto together.

Referring more particularly to the reference numerals in a more specific description of the device, 1, 2 and 3 indicate horseshoe magnets, and at their extremities attached to the pole pieces 4 and 5. The pole pieces are firmly secured to the magnet and the magnets secured together by a pin or post *z* screw-threaded to engage the pole piece, and passing through recesses in the edges of the magnets 2 and 3 and through an opening in magnet 1. To the outer end of the post or pin *z* is applied a washer *x*, and the pin is provided with an opening for a key or taper pin *y* which draws the parts firmly together. Between the pole pieces are introduced the insulators 6 and 7 suitably secured in position and adapted to hold the pole pieces accurately with reference to each other. The pole pieces have their adjacent faces hollowed out forming a cylindrical opening for the reception of the cylindrical armature 8. The armature is mounted on shaft 9 and is provided with coils as 10, 10 substantially in the usual manner. On one end of the shaft 9 is provided a contact ring 11 insulated from the shaft by an insulating collar 12. From the contact collar 11 extends a wire 13 to which is attached one end of each of the coils 10 as shown at 14. The opposite ends of the coils 10 are attached to a stud as shown at 15, which is in circuit with the shaft 9. The armature shaft 9 has bearing at one end in an end frame plate 16. The end plate 16 has projecting ears 17, 17 which rest upon the ends of the pole pieces 4 and 5. The pole pieces 4 and 5 are preferably of cast iron or soft metal and the end piece 16 of brass. The opposite end of the shaft 9 has bearing in a frame plate 18 secured upon the end of the insulator 6.

In the upper end of the frame plate 18 and strap end plate 16 upon the opposite ends of the device are journaled the main driving shaft 19, and a supplemental shaft 20. On the shaft 19 is secured the main driving gear 21 which meshes with pinion 22 secured on the end of the armature shaft 9. There is also provided on the end of the shaft 19 a crank 23 secured on the shaft by right-hand threaded screw contained in the sleeve 23^a, so that when the handle 23 is turned to the right it will screw on, and when completely on will turn the shaft 19; but when the device is turned to the left or in the wrong direction, the handle will screw off. On the opposite end of the shaft 19 is secured a small gear pinion 24 which meshes in a larger pinion 25 mounted on the shaft 20 and rotating with the shaft. The bearing of the shaft 20 in the frame-plate 18 is arranged to permit a slight vertical movement of the shaft, 20, with reference to the plate. I accomplish this by simply providing a slotted opening as shown at 26 to permit that end of the shaft 20 to play up and down, although their equivalent and more complicated means may be provided for accomplishing the same end.

Adjacent to the gear or pinion 25 on the shaft 20 I secure a contact plate or disk 27, which when the device is not in use rests normally upon the shank portion of the spring 28. The spring 28 is secured by means of suitable screw 29, or other device, upon the insulation 6, and to the same screw may be attached one of the circuit wires *a*. From its point of attachment to the insulation 6 the spring 28 bows upward in a position adapted to be engaged by the disk or plate 27 and

thence extends downward and engages with the contact ring 11 on the end of the armature shaft.

Within the bow of the magnet and adjacent to the end plate 16 is provided a double armed spring 30 with an eye on one of the arms adapted to engage the shaft 19 and having its opposite arm bearing on the shaft 20. Between the arms, the spring laps around a pin 31 secured in the end plate 16.

At *b* is shown the other circuit wire.

Electro magnetos of the description herein shown and described are usually used in circuits wherein it is desired to cut the magneto out when not in use, and one of the objects of my improvement and the construction herein shown and described is to automatically cut the magneto into circuit when it is operated. Therefore, the operation of the device so far as the cut-out is concerned, is as follows: When the crank 23 is turned to rotate the wheel and shaft in the direction indicated by the arrow in Fig. 2, the armature of the magnet is rotated to generate a current and at the same time the cog-wheel 24 engaging with the cog-wheel 25 raises it and the end of the shaft 20 and the contact disk or plate 27 so that the contact plate is carried out of contact with the spring 28. In effecting this movement, the rotation of the shaft 20 is braked sufficiently by the pressure of the spring 20 upon it to cause the movement just described when the gear 24 is rotated. When the movement ceases, the swinging end of the shaft 20 together with the plate 27 drop into their normal position and establish the circuit from wire *a* through the mechanism to the wire *b*, thus cutting out the armature. When the device is in operation the circuit will then be from the wire *a* through the spring 28, the contact ring 11, the armature, the end plate 16 and magnets to the wire *b*, or the reverse of this. The spring 30 while acting as a brake on the shaft 20 and the attached parts may also have a partially downward pressure which will tend to return the cut-out disk to its normal position when the mechanism is at rest. I find that this magneto will develop a much stronger current than magnetos of the same size constructed as heretofore, in common use, and as accurately constructed as this one, and I ascribe this extra force in whole or in part to the manner in which the end plate 16 engages upon the pole pieces at one end of the magneto only, although I may be in error as to this. It is also evident that the construction can be varied and modified in numerous particulars without departing from the equivalents of my invention.

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

1. In an electrical device having a rotating shaft, a pinion mounted on the shaft, a vibratory pinion engaging with the pinion on the shaft and connected with and operating the switching plate which is moved by the forward rotation of the shaft and allowed to fall back into its normal position when the rotation ceases, substantially as set forth.

2. In an electrical device, the combination of a shaft having a pinion mounted thereon, a vibrating shaft on which a second pinion is mounted, engaging with the first pinion, a switching disk operating in unison with the vibrating shaft whereby as the driving shaft is rotated in a forward direction the vibrating shaft is moved to brake the circuit through the switching disk, and when the movement ceases, the shaft and disk will return to their normal positions and complete the circuit.

3. In an electrical device, the combination of a pinion mounted on a rotating shaft, a supplemental shaft vibrating at one end and carrying on the vibrating end a pinion engaging with the pinion of the driving shaft, a switching disk or plate also mounted on the supplemental shaft and engaging when the parts are at rest with contact plate or spring, and adapted to be moved out of contact with it in the forward movement of the driving pinion and allowed to return to its normal position and engage it when the movement ceases substantially as set forth.

4. The combination of an electrical apparatus, of a pinion 24, a vibrating pinion 25 engaging with the pinion 24, a movable circuit making and breaking device connected with the pinion 25, and a braking mechanism acting on the pinion 25 whereby the pinion 25 is raised and the circuit making and breaking device operated by the forward movement of the pinion 24, and the parts are allowed to return to their normal positions when the movement of the pinion 24 ceases, substantially as set forth.

5. The combination in a magneto electric machine of a permanent horse-shoe magnet, a pair of grooved faced pole pieces insulated from each other secured between the arms of the permanent magnet and extending transversely to the arms, a rotary armature operating between the pole pieces and mounted on a shaft transversely to the arms of the armature an end plate extending between and engaging with the ends of the pole pieces at one end only, and an end or bearing plate at the opposite end of the pole pieces and insulated therefrom, the armature shaft having bearings in the end plates, substantially as set forth.

6. The combination in a magneto electric machine of permanent magnets, pole pieces secured between the arms of the magnets a rotary armature operating between the pole pieces on a shaft transverse to the arms of the magnet, an end plate 16 engaging on the ends of the pole pieces at one end only and an end bearing plate 18 insulated from the pole pieces and located at the other end thereof, the armature shaft and driving mechanism having bearings in the end plates, substantially as set forth.

7. The combination in a magneto electric

machine of one or more permanent magnets, pole pieces secured between the arms of the magnets and having curved grooved faces transverse to the arms of the magnets, insulators between the pole pieces holding them accurately, a rotary armature located between the pole pieces on an axis at right angles with the arms of the magnets an end plate 16 engaging on one end only of the pole pieces and an end or bearing plate 18 mounted on the insulation between the pole pieces at the other end of the pole pieces, the armature shaft having bearing in the end plates, substantially as set forth.

In witness whereof I have affixed my signature in presence of two witnesses.

ALWARD J. POTTER.

Witnesses:

CHARLES G. IRISH,

E. M. ROBINSON.