

No. 617,958.

Patented Jan. 17, 1899.

P. L. GUYENOT.

ELECTRICAL APPARATUS FOR FREEING, LIGHTING, OR EXTINGUISHING GAS BURNERS
AT A DISTANCE.

(Application filed July 30, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

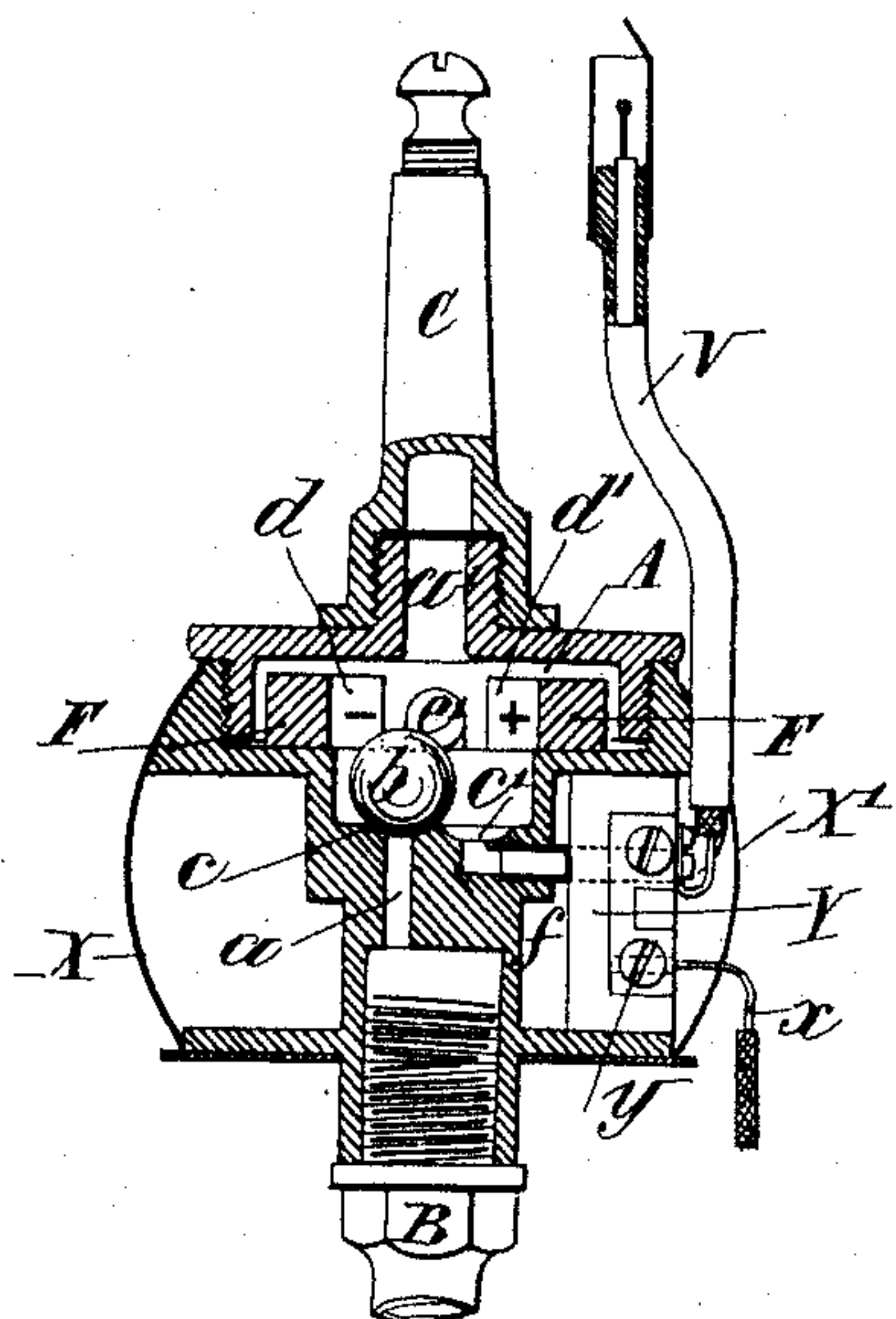


Fig. 3.

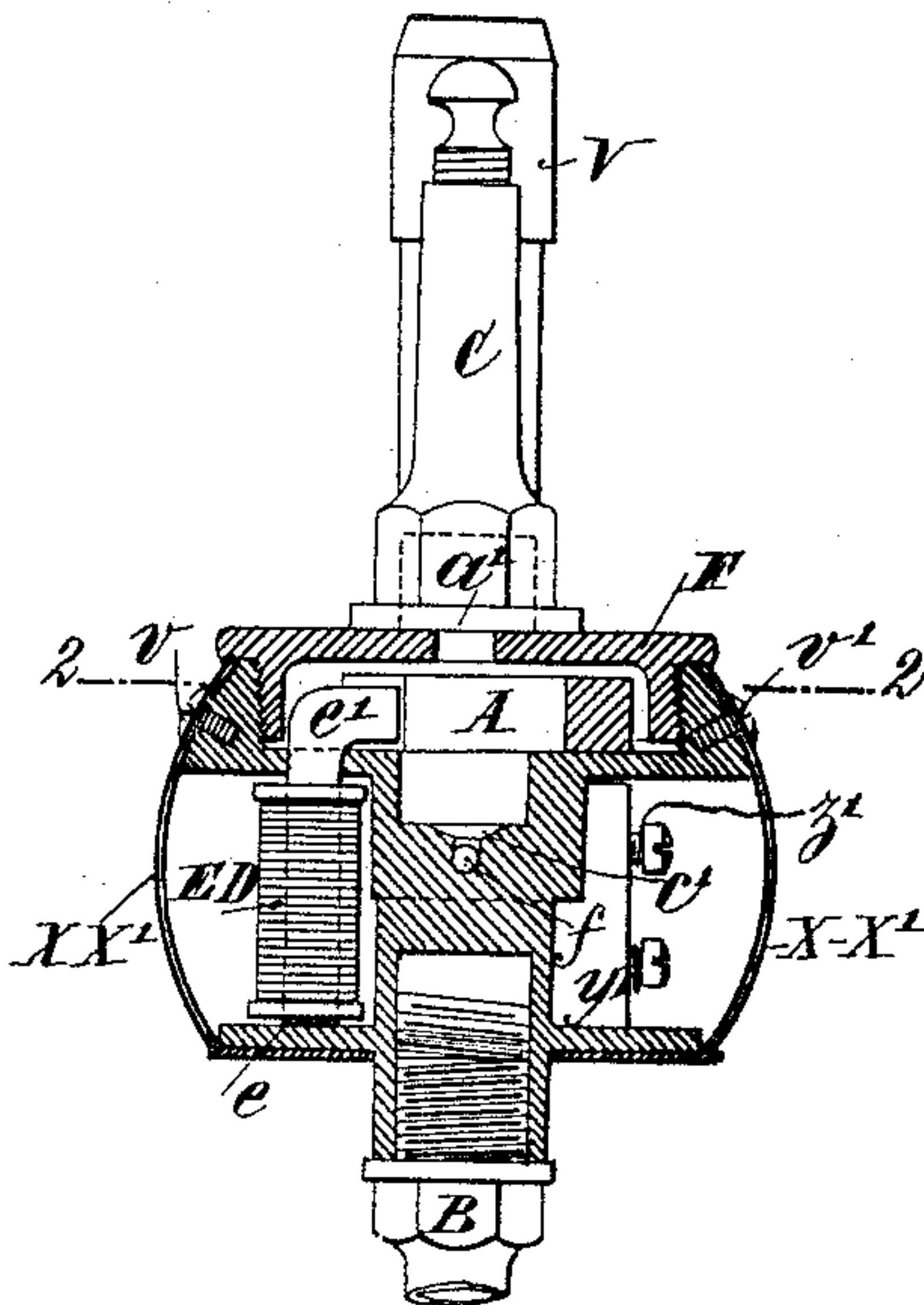


Fig. 6.

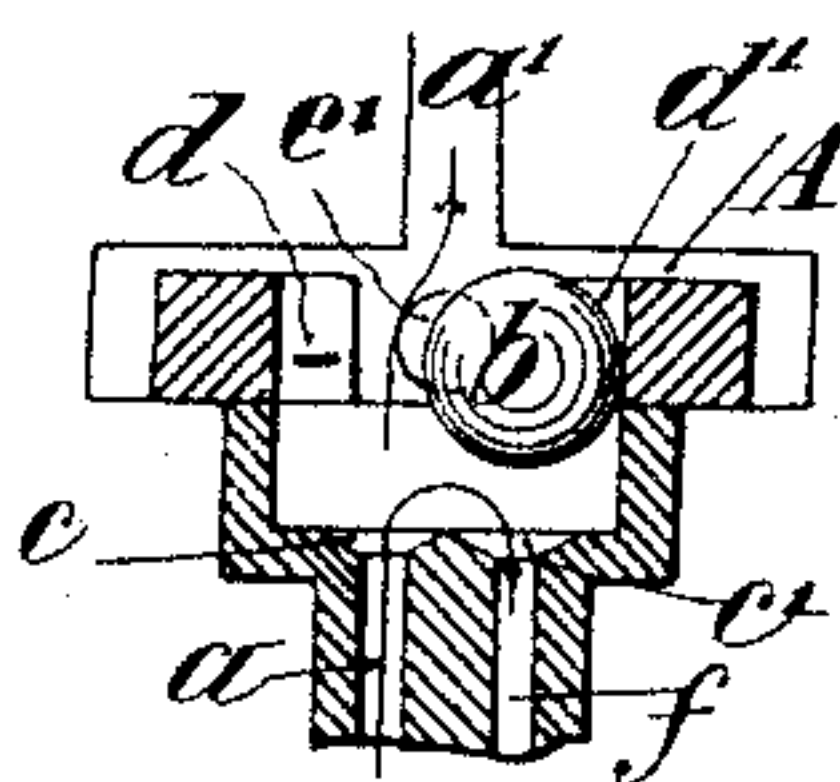


Fig. 2.

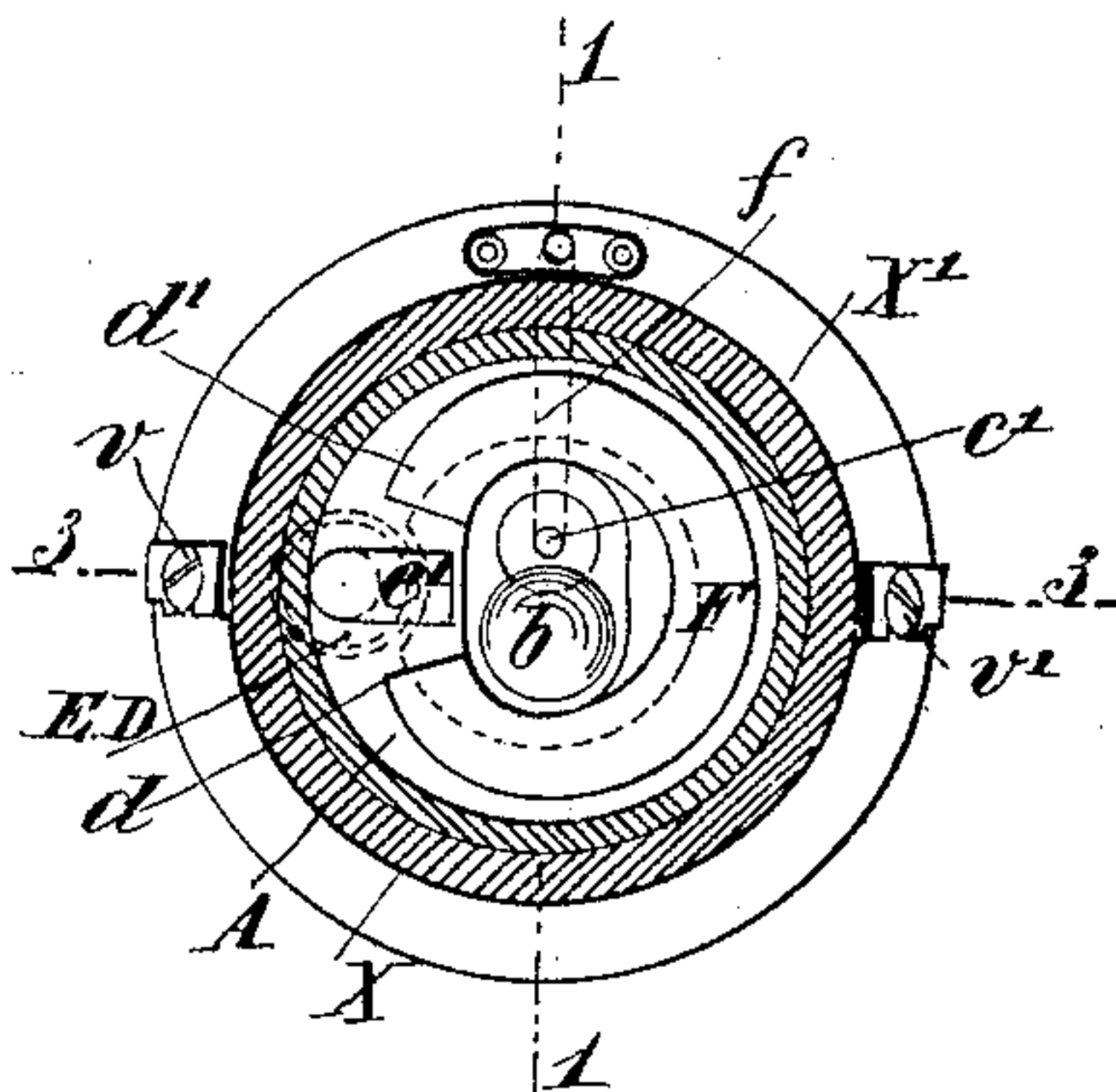
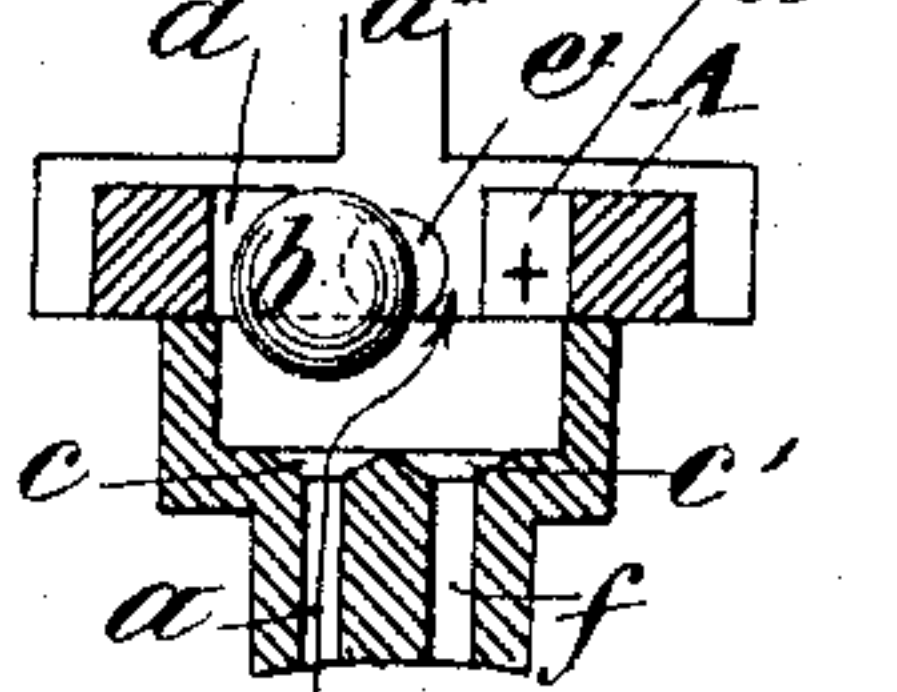


Fig. 7.



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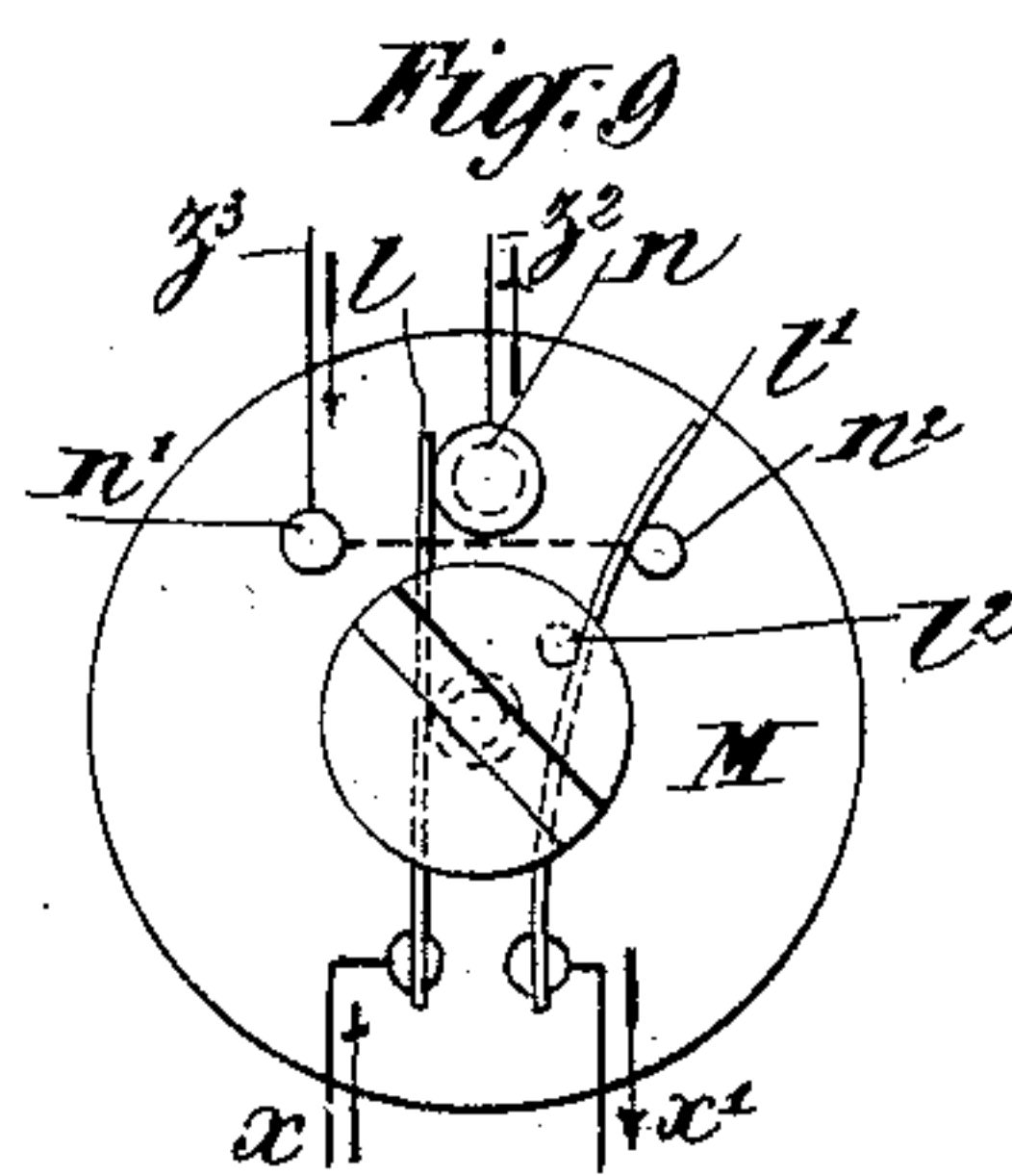
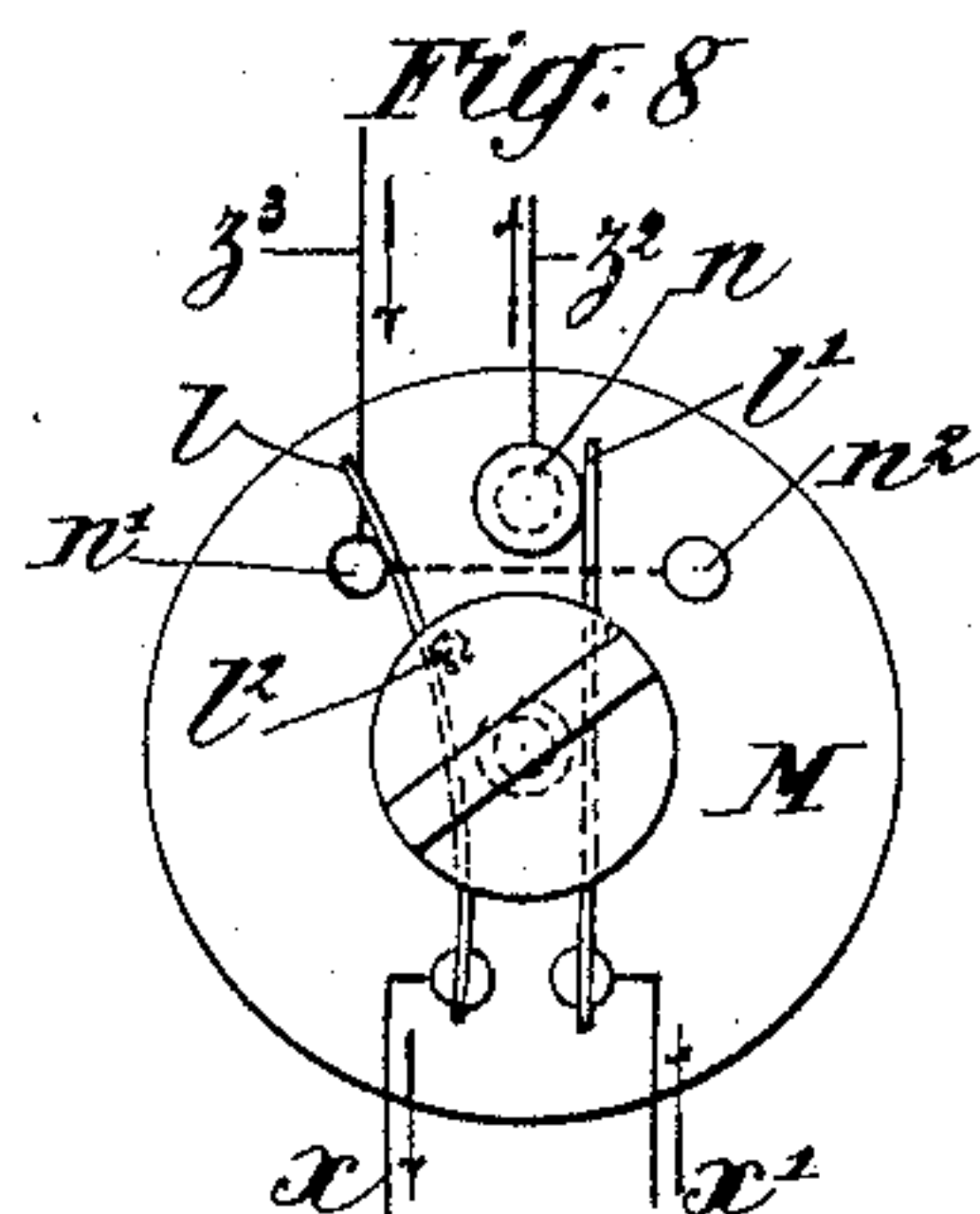
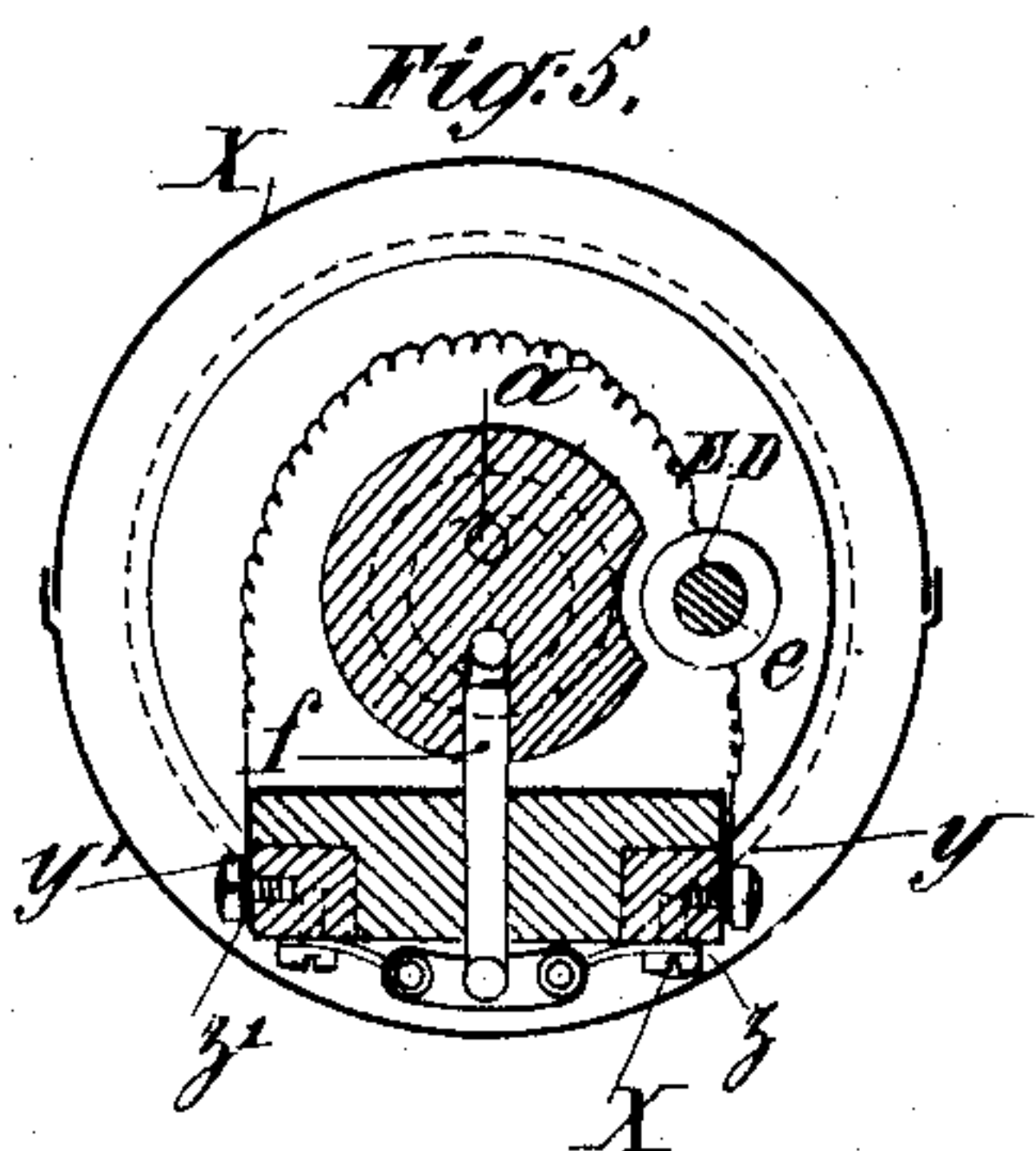
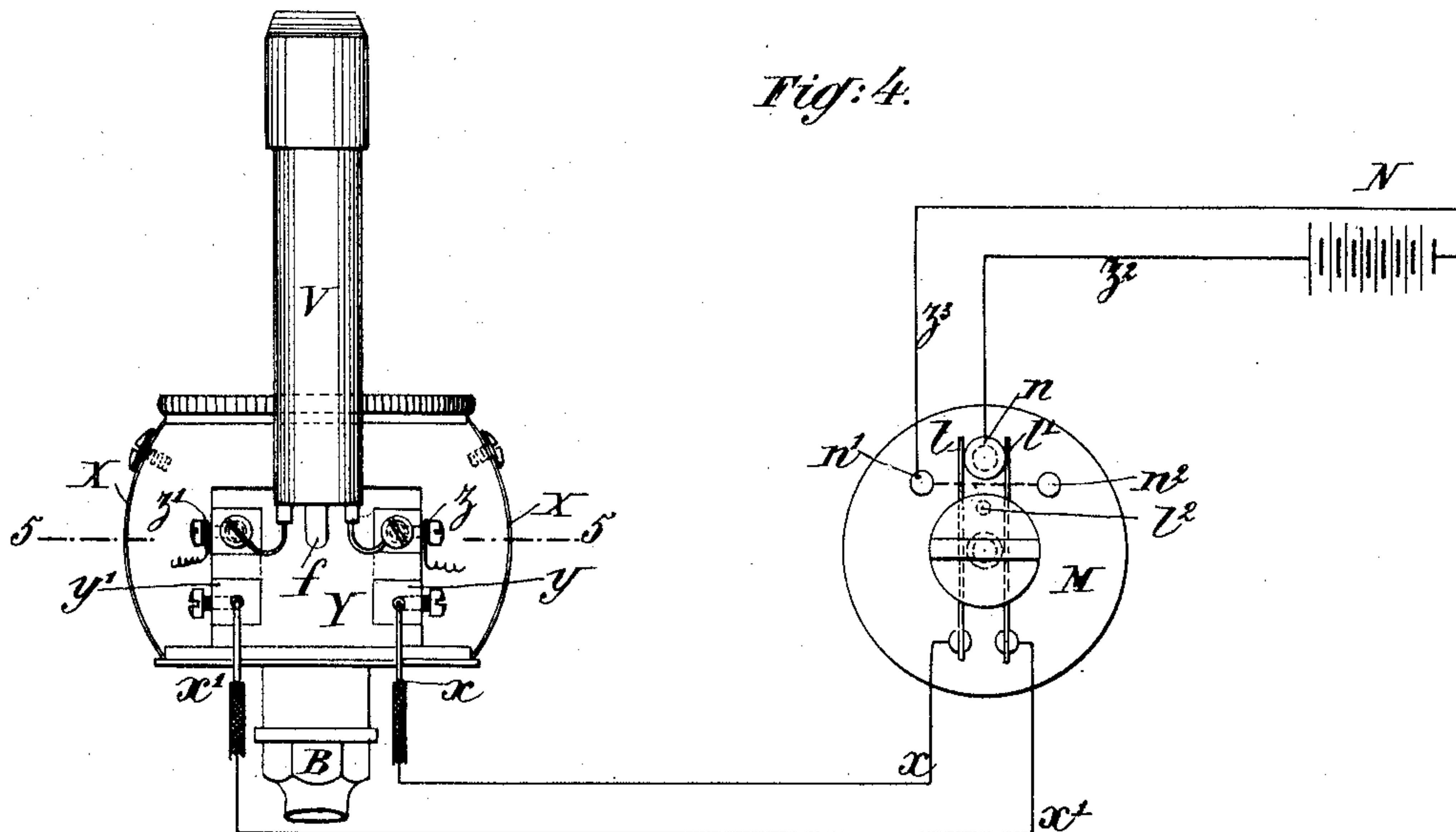
HIS ATTORNEYS.

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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

PAUL LOUIS GUYENOT, OF AIX LES BAINS, FRANCE.

ELECTRICAL APPARATUS FOR FREEING, LIGHTING, OR EXTINGUISHING GAS-BURNERS AT A DISTANCE.

SPECIFICATION forming part of Letters Patent No. 617,958, dated January 17, 1899.

Application filed July 30, 1898. Serial No. 687,252. (No model.)

To all whom it may concern:

Be it known that I, PAUL LOUIS GUYENOT, doctor of medicine, of Aix les Bains, Savoie, France, have invented certain new and useful Improvements in Electrical Apparatus for Freeing, Lighting, or Extinguishing Gas-Burners at a Distance, of which the following is a full, clear, and exact specification, reference being had therein to the accompanying drawings.

This invention relates to apparatus for freeing, lighting, and extinguishing gas-burners at a distance by means of electricity, and more particularly to improvements applicable to the apparatus described in the specification of my Patent No. 613,990, dated November 8, 1898.

It consists of an arrangement of apparatus of simpler and more economical construction, as well as of absolutely certain or reliable working.

In the following description I refer to the annexed drawings, on which—

Figure 1 is a vertical section on line 1 1 of Fig. 2 of an apparatus of a simplified construction for lighting and extinguishing gas. Fig. 2 is a horizontal section on line 2 2 of Fig. 1. Fig. 3 is a vertical section at right angles to that shown in Fig. 1—i. e., on the line 3 3 of Fig. 2. Fig. 4 is a side elevation of the apparatus with a part of its outer covering removed and illustrates the connection of the apparatus to an electric battery and switch or commutator for reversing the current. Fig. 5 is a horizontal section on line 5 5 of Fig. 4. Figs. 6 and 7 are diagrams explaining the working. Figs. 8 and 9 show the reversing-commutator in positions corresponding to those of Figs. 6 and 7.

The apparatus shown consists of, as in my previous invention, a closed chamber A, communicating with a service-pipe B and burner C by means of a tube *a* and pipe *a'*, respectively, a cap or cut-off device *b*, capable of being located in the seat *c* of the aforesaid tube *a* or in an adjoining seat *c'*, which latter is formed at the outlet or end of a pipe *f*, to which is connected a jack-light or pilot-light device, (represented as a whole by the letter V.)

The modifications carried out consist in replacing the two electromagnets originally described by a single one E D, the core *e* of which is curved at *e'*, so that its end is between

the two seats *c* and *c'*, but somewhat above them; in combining this electromagnet with a source of electricity and a commutator or switch for reversing the current, and in arranging in the chamber A a permanent magnet F, resembling in shape a crown, affording a continuous current in the curved narrow part of the electromagnet E D.

The jack-light or pilot device, the construction of which remains as before, has its wires connected to the electromagnet or its derivative branches in the ordinary manner, so that its lighter or platinum wire becomes incandescent when the electric circuit is closed. With regard to the connections, the line-wires *x* and *x'* abut against and are secured to two metal blocks *y* and *y'*, situated or inserted in any suitable insulating block or material Y, and the electromagnet E D has the ends of its wire or selenoid attached to the said blocks at *z* and *z'*, and, further, the isolated wires of the jack-light are attached to the same points, as shown on Figs. 4 and 5. It will further be seen that the envelop or casing of the apparatus is formed of two semicircular shells X and X', the edges of one slightly overlapping the other, Figs. 2 and 5, and secured by means of two screws *v* and *v'* to the body of the apparatus. One of these shells X is permanently attached to the apparatus, while the other, X', is adapted to be removed on withdrawing one of the screws *v* *v'*, so that the connections above mentioned may be got at readily. Finally, although the reverser commutator or switch M, which is employed to reverse the current, may be of any pattern whatever, it is preferable to form it, Fig. 4, by means of two plate-springs *l* and *l'*, normally bearing upon a little brass block *n*, connected by a wire *z*² to the negative pole of the battery N and between which is a stud *l*², which by rotation to the left or right presses on the plate-spring *l* or the other *l'* in such a manner as to cause the particular one to make contact with the brass block *n'* or *n*². These blocks are in metallic communication with and are connected by a wire *z*³ to the positive pole of the battery N. The line-wires *x* and *x'* are respectively connected to the points of attachment of the plate-springs *l* and *l'*. Suppose the apparatus to be in the state of rest, the ball or cap closer *b* being situated in

the seat *c*, Fig. 1, and let us see how the operations of freeing and lighting the burner, as well as closing and extinguishing the same, are performed. In the state of rest the commutator or switch *M* occupies the position shown on Fig. 4.

To free and to light the burner, the stud *l*² of the commutator or switch *M* is caused to put into contact the plate-spring *l* and the brass block *n*¹, which effects not only the closing of the circuit, but also causes the battery-current to travel from the battery *N* in the direction indicated by the arrows in Fig. 8, and in this direction to pass through the magnet *E D* and along the platinum wire of the jack-light or by-pass *V*. Under the influence of this current the core *e e* of the electromagnet is magnetized and attracts the ball *o*, which acquires the same polarity. This latter is then under the action of the magnet *F*, Fig. 6, one of the poles, *d'*, of which attracts it, while the other, *d*, repels it. The direction of the current sent through the electromagnet is such that the ball is attracted by the pole *d'*. The attraction being effected at the side of the seat *c'*, Fig. 6, it will be perceived that upon the opening of the circuit the ball will naturally fall into the seat *c'*, so as to close or cut off the jack-light. Between the closing and opening of the electrical circuit the ball *b* rests in neither seat and gas has free access from the service-pipe *B* to the burner *C* and to the jack-light or auxiliary lighting-burner *V*, the platinum wire of which latter is rendered incandescent, and under this condition lighting of the burner is effected. Once the burner is lighted, the ball falls back, as we have seen above, onto the seat *c'*, thus closing the auxiliary burner *V*, while gas continues to escape up and from the burner *C*.

To close the burner and put out the light, the stud *l*² of the commutator or switch *M* is caused to act on the other plate-spring *l'*, putting it into contact with its block *n*², which

operation entails the closing of the circuit and reversal of the direction of the current, as illustrated on Fig. 9. The ball is again attracted by the core *e e'*, and by reason of the polarity which it assumes it is toward the pole *d* of the magnet, Fig. 7—that is to say, toward the seat *c*. The final opening of the circuit determines or causes the fall of the ball onto the said seat, and gas is completely cut off, the burner *C* being consequently extinguished.

The above-described freeing, lighting, and extinguishing apparatus may be made of any suitable size or proportions and of any convenient shape. It may be used in conjunction with all kinds of gas-burners, and any suitable source of electricity may be employed to actuate the working parts of the apparatus. Any other convenient switch or commutator than the one above described can be used.

I claim as my invention—

1. In electrically-operated apparatus for freeing, lighting and extinguishing gas-burners by means of a ball-valve, the combination of a ball-valve having a plurality of valve-seats, with an electromagnet adapted to operate the valve and a permanent magnet for determining which valve-seat is to remain open, substantially as described.

2. In electrically-operated apparatus for freeing, lighting and extinguishing gas-burners by means of a ball-valve, the combination of a ball-valve having a plurality of valve-seats, with an electromagnet adapted to operate the valve, a permanent magnet for determining which valve-seat is to remain open, and a reversing-commutator, substantially as described.

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

PAUL LOUIS GUYENOT.

Witnesses:

LÉON JAHLET,
F. DUBOIS.