

L. A. GIANOLI.  
SPARKING MECHANISM FOR EXPLOSION ENGINES.  
APPLICATION FILED JAN. 29, 1907.

Fig. 2.

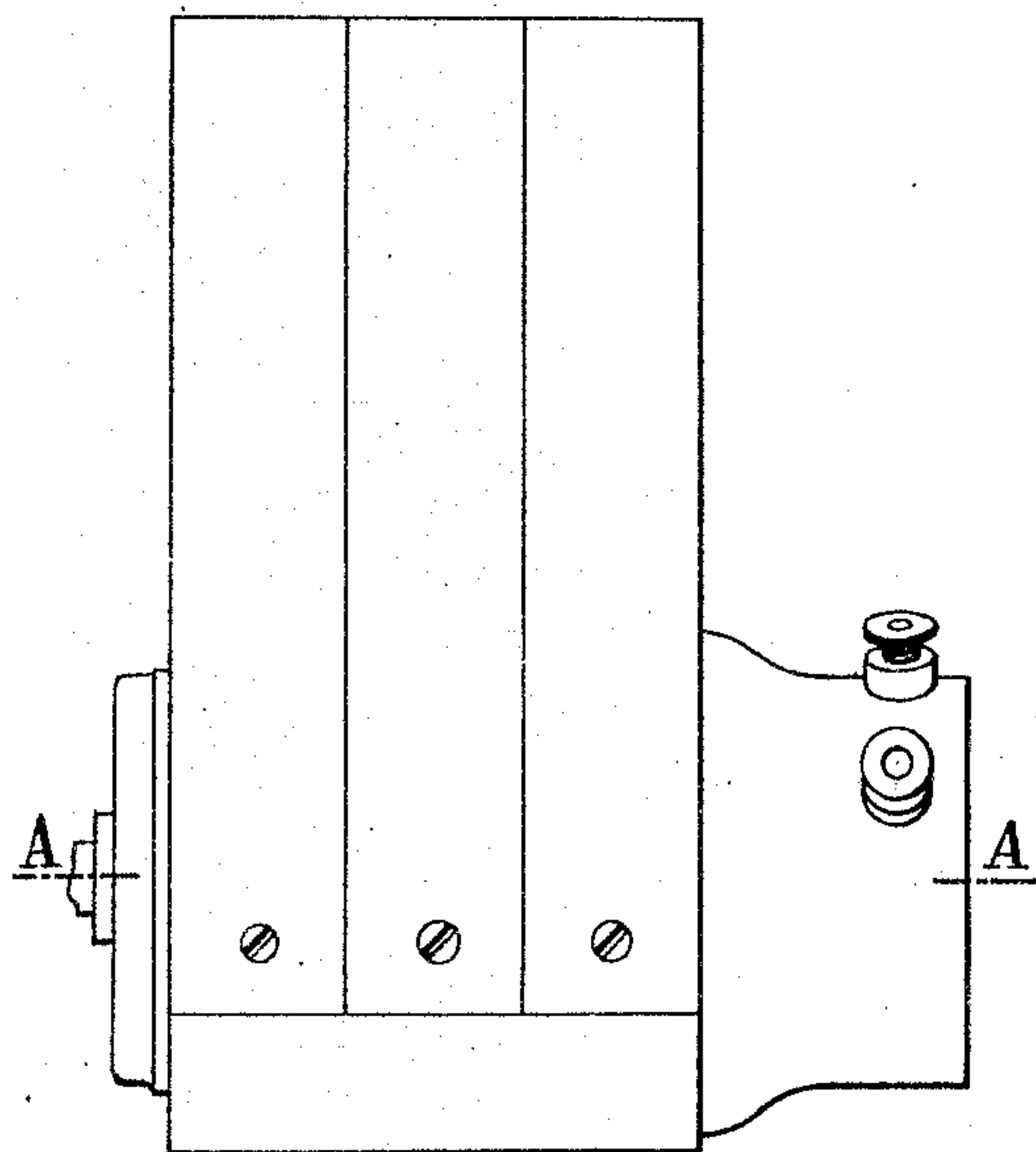


Fig. 1.

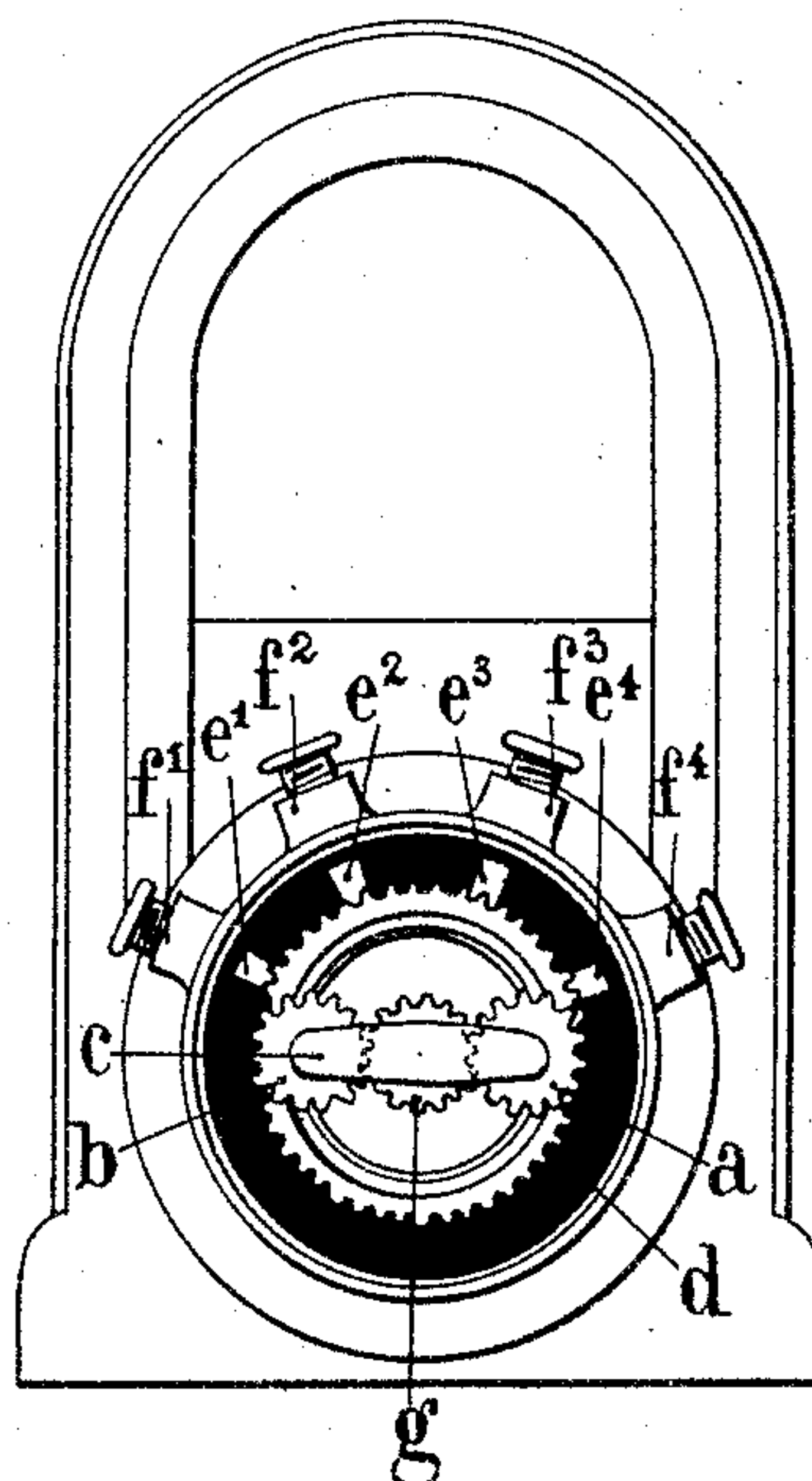


Fig. 3.

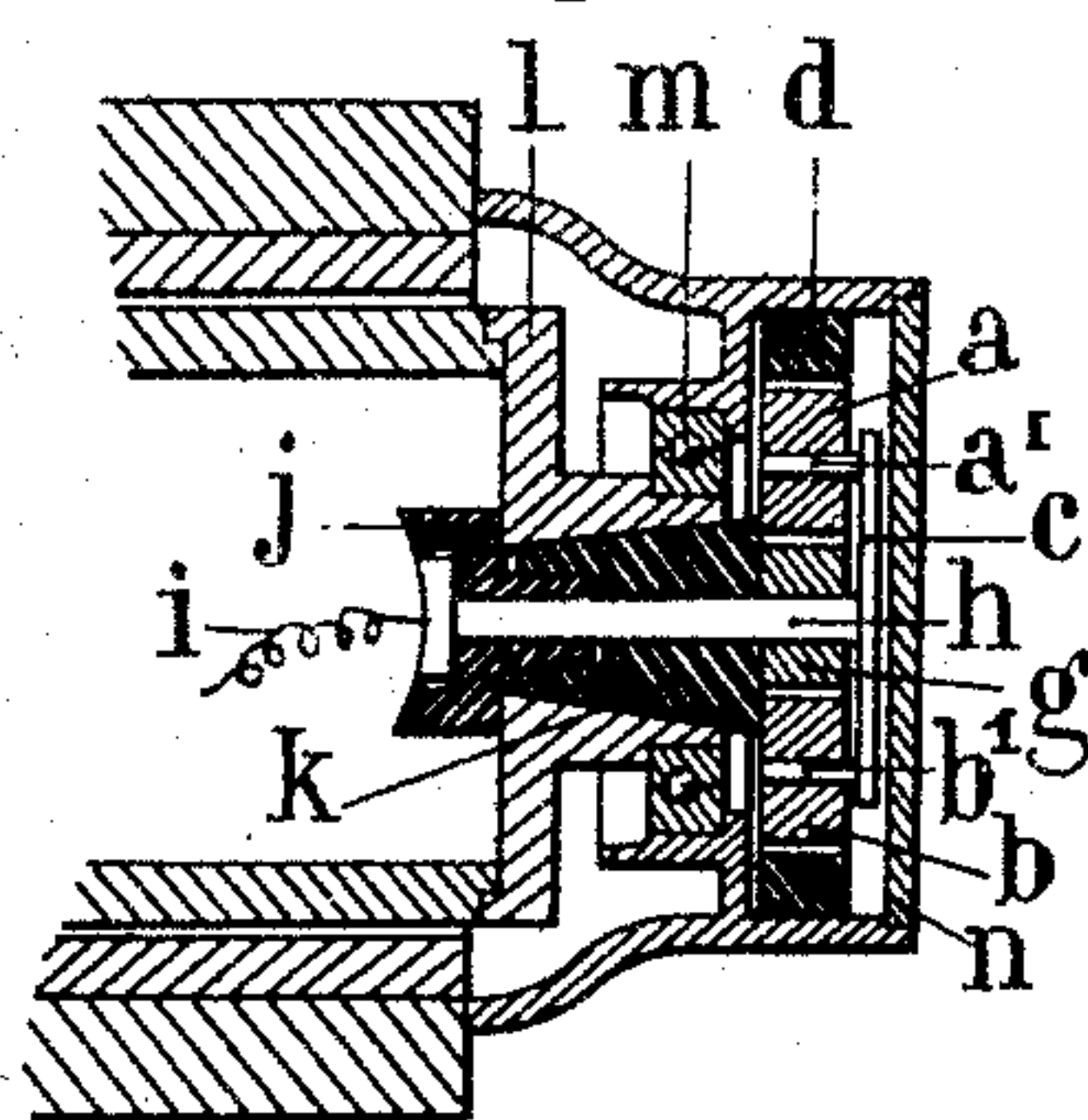
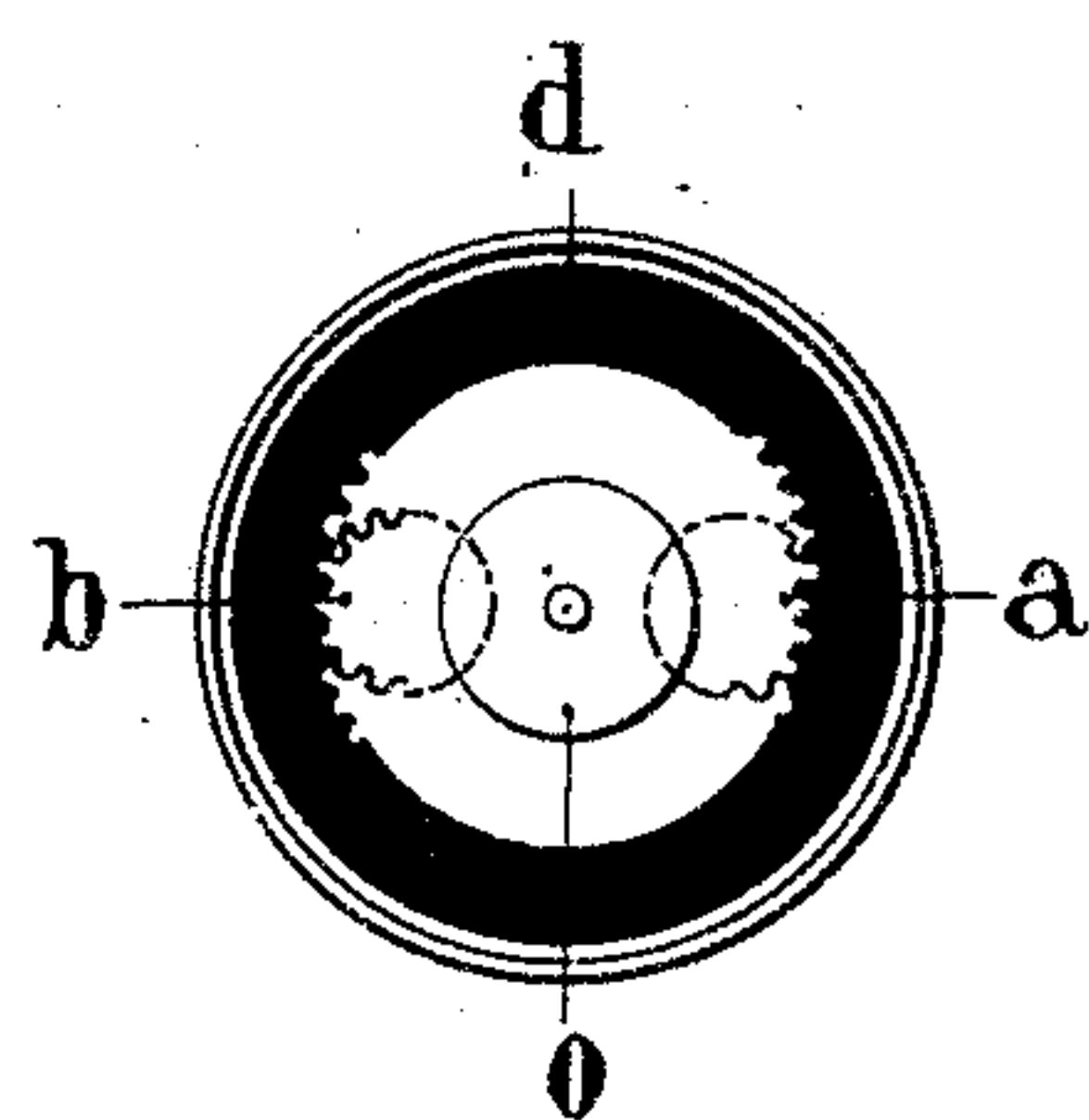


Fig. 4.



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# UNITED STATES PATENT OFFICE.

LOUIS ALEXANDRE GIANOLI, OF PARIS, FRANCE.

SPARKING MECHANISM FOR EXPLOSION-ENGINES.

No. 874,955.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed January 29, 1907. Serial No. 354,782.

To all whom it may concern:

Be it known that I, LOUIS ALEXANDRE GIANOLI, of 26 Boulevard de Magenta, in the city of Paris, Republic of France, electrical-apparatus manufacturer and merchant, have invented Improvements in or Connected with Sparking Mechanism for Explosion-Engines, of which the following is a full, clear, and exact description.

10 The present invention relates to a contact maker or distributor for the sparking devices of explosion motors especially applicable to high tension magnetos. This contact maker or distributor is characterized essentially by 15 gear or planet pinions running upon the interior of a fixed insulated ring carrying contacts connected by conductors with the terminals upon the cylinders and driven by a pinion mounted upon the axis of the mag- 20 neto which latter wheel is connected to the extremity of the secondary wire, in such manner that the secondary current passes through the movable wheels when the latter come into contact with the contacts of the 25 ring. This contact maker possesses numerous advantages, hereinafter referred to, and of which the most important is that it can be applied directly upon the shaft of the magneto without the necessity for reducing 30 gearing.

35 In the accompanying drawings: Figure 1 is an end elevation of the construction mounted upon a magneto. Fig. 2 is a corresponding side view. Fig. 3 is a horizontal section taken on the line A—A of Fig. 2. Fig. 4 is a view illustrating a modification.

Referring to the drawings, the contact maker or distributor comprises pinions *a b* 40 the axes *a' b'* of which are mounted upon a bar or yoke *c* pivotally mounted upon the extremity of the shaft. The pinions *a b* run upon the fixed ring *d* of insulating material carrying conducting contacts *e' e<sup>2</sup> e<sup>3</sup> e<sup>4</sup>* connected to terminals *f' f<sup>2</sup> f<sup>3</sup> f<sup>4</sup>* to which are 45 connected the sparking wires leading to the cylinders. These pinions gear, upon the other side, with the pinion *g* rotating with the armature of the magneto.

50 The section in Fig. 3 shows an example of the method of mounting the contact maker upon the magneto. The rod *h* forming the shaft of the armature is connected to the extremity *i* of the secondary wire and traverses the insulating pieces *j k* mounted in the

plate *l* which is capable of rotating upon ball 55 bearings *m*. The pinion *g* is mounted upon the extremity of the shaft *h*.

A plate *n* incloses the mechanism of the contact maker while permitting of easy in- 60 spection.

The action of the apparatus is as follows: The pinion *g* rotates with the armature of the magneto and drives the pinions *a b* causing the latter to travel around the fixed ring *d*. The pinions *a* and *b* make one revolution 65 around the axle *h* to several revolutions of the pinion *g* according to the difference in the development or extent of the toothed surfaces of the pinions *a* and *b* and the ring *d*. In the example given, which relates to a four 70 cylinder motor the pinions *a* and *b* make one revolution in every four of the pinion *g*. When one or the other of the pinions *a* and *b* is in contact with the conducting contacts *e' e<sup>2</sup> e<sup>3</sup> e<sup>4</sup>* it places the secondary circuit in 75 electrical connection with the sparking plug of the corresponding cylinder. The result is that a half turn of the pinions *a* and *b* suffices to put the four cylinders in contact with the secondary circuit; during this half turn, 80 the pinion *g* and the armature have made two revolutions. As the magneto gives two sparks per revolution four sparks have been produced. It will thus be seen that during a half turn of the two pinions *a b*, it is the 85 pinion *a* which makes contact and during the following half turn it is the pinion *b*.

In the modification shown at Fig. 4, the pinions *a* and *b* are free and are simply held 90 in place by an overlapping plate *o*.

The invention is assumed to be applied to a motor having four cylinders but it will be evident that it may be applied to motors having any number of cylinders.

Instead of two pinions *a b*, three might be 95 arranged and the four terminals *f' f<sup>2</sup> f<sup>3</sup> f<sup>4</sup>* distributed over a third of the circumference of the ring; the speed of the movable bar or yoke will be still further reduced but as far as this is concerned one is limited by the 100 space necessary for placing the contacts with the necessary intervals between them without greatly increasing the dimensions of the ring and contact maker.

The contact maker or distributor is repre- 105 sented as applied to a high tension magneto; this apparatus is particularly suitable to this application but it may be equally well ap-



plied to low tension magnetos independently or in combination with any appropriate construction.

The arrangements hereinbefore described are only given by way of example.

The forms, dimensions and arrangements may be varied according to circumstances without departing from the principle of the invention.

10 Claims:

1. The combination with the rotary and stationary elements of a magneto generator, of a stationary insulating ring having an internal rack and contacts, a rotary gear connected to said rotary element to be driven thereby, a planet gear of conducting material meshing with said rack and rotary gear, and adapted in its planetary movement to make electrical connection with said contacts, and a wire in which current is induced by the relative movement of the rotary and stationary elements, said wire being electrically connected to said rotary gear, substantially as described.

2. The combination with the rotary and stationary elements of a magneto generator, of a stationary insulating ring having an internal rack and a plurality of contacts on one side of the center thereof, a rotary gear connected to said rotary element to be driven thereby, a pair of planetary gears of conducting material meshing with said rack and rotary gear and adapted in their planetary movement to make electrical connection with said contact, and a wire in which current is induced by the relative movement of the rotary and stationary elements, said wire being electrically connected to said rotary gear, substantially as described.

The foregoing specification of my improvements in or connected with sparking mechanism for explosion engines signed by me this 15th day of January 1907.

LOUIS ALEXANDRE GIANOLI.

Witnesses:

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