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PATENTED DEC. 31, 1907.

H. DE LA VALETTE.
MAGNETO IGNITING DEVICE FOR EXPLOSIVE ENGINES.

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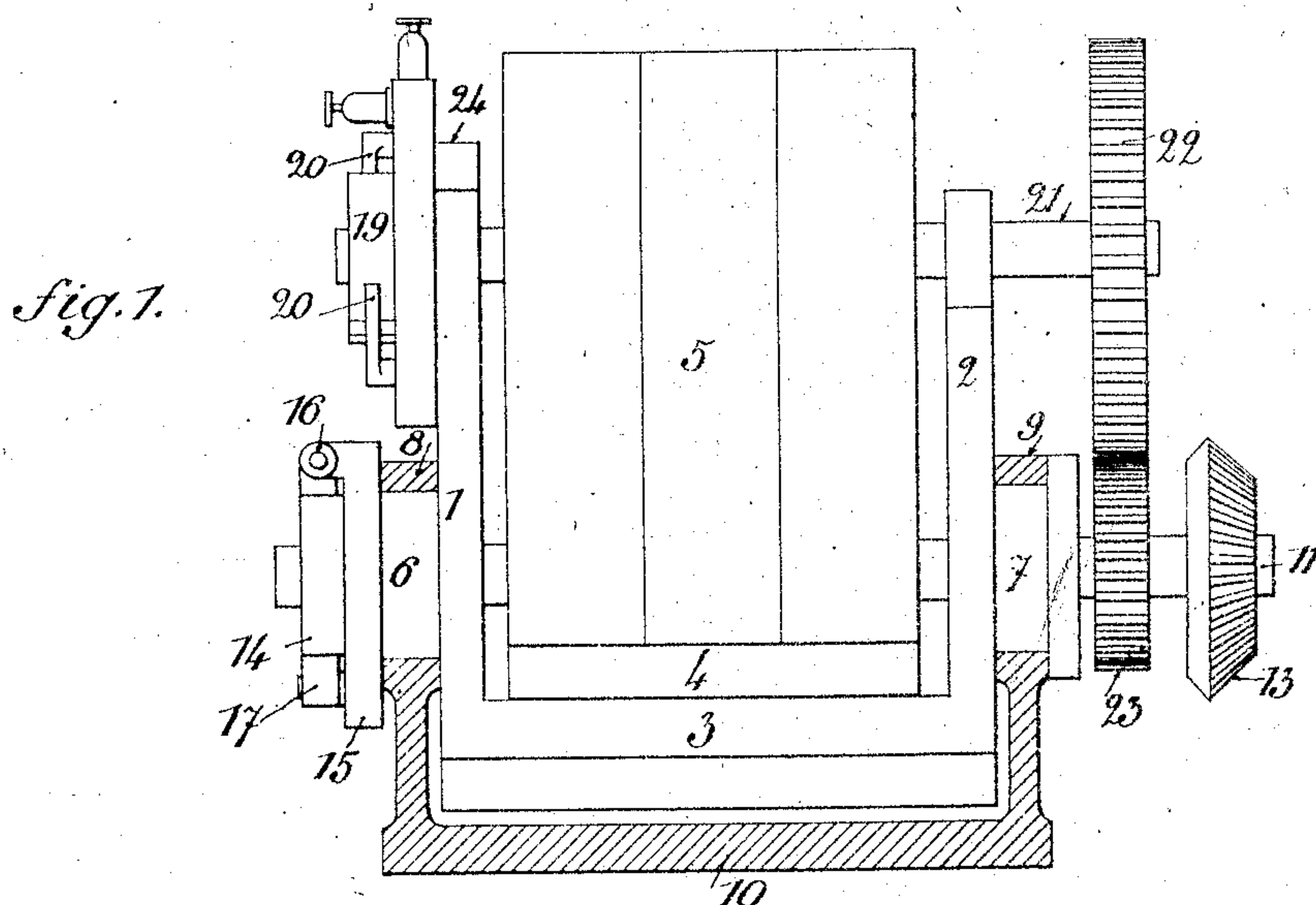


fig. 2.

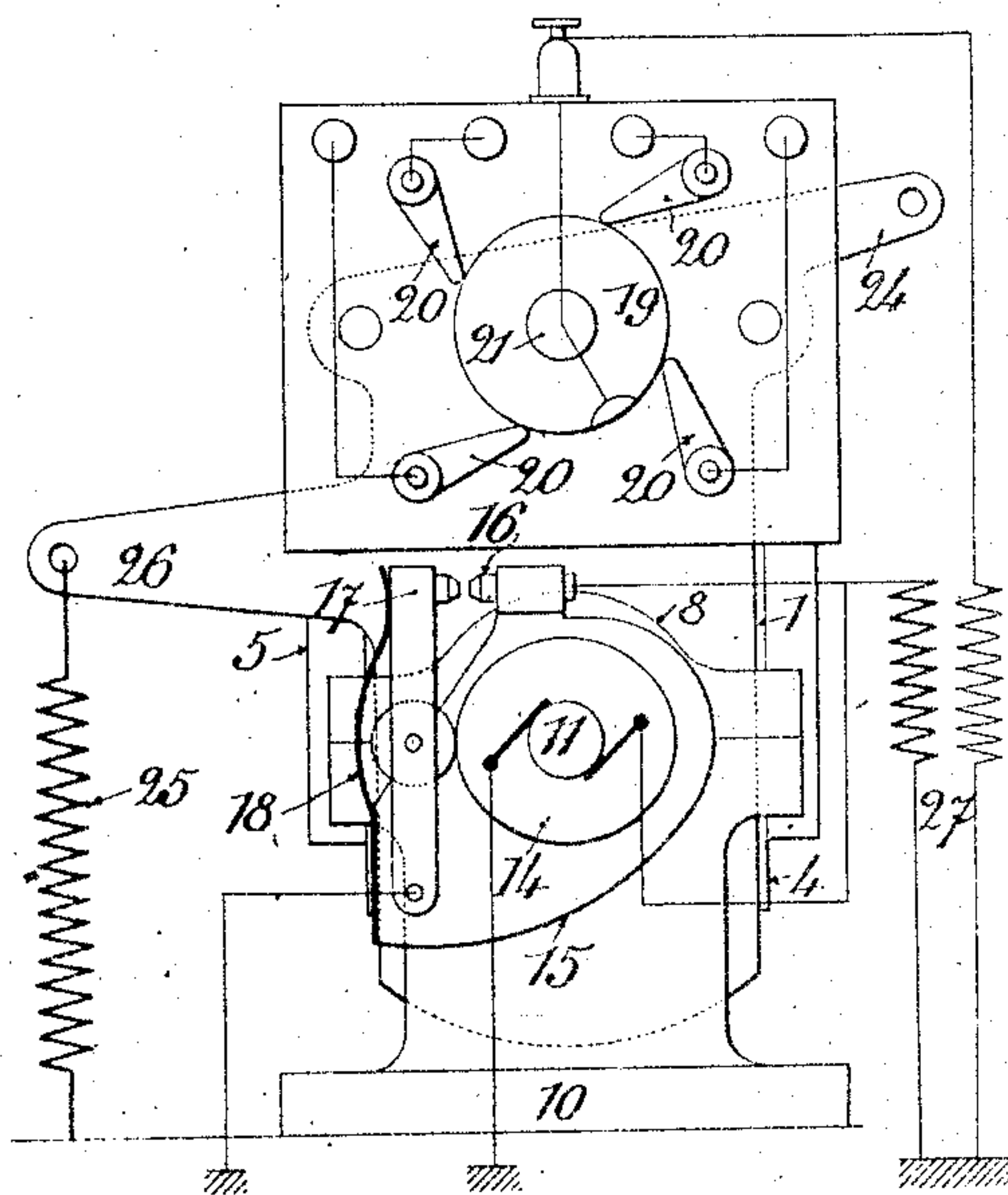
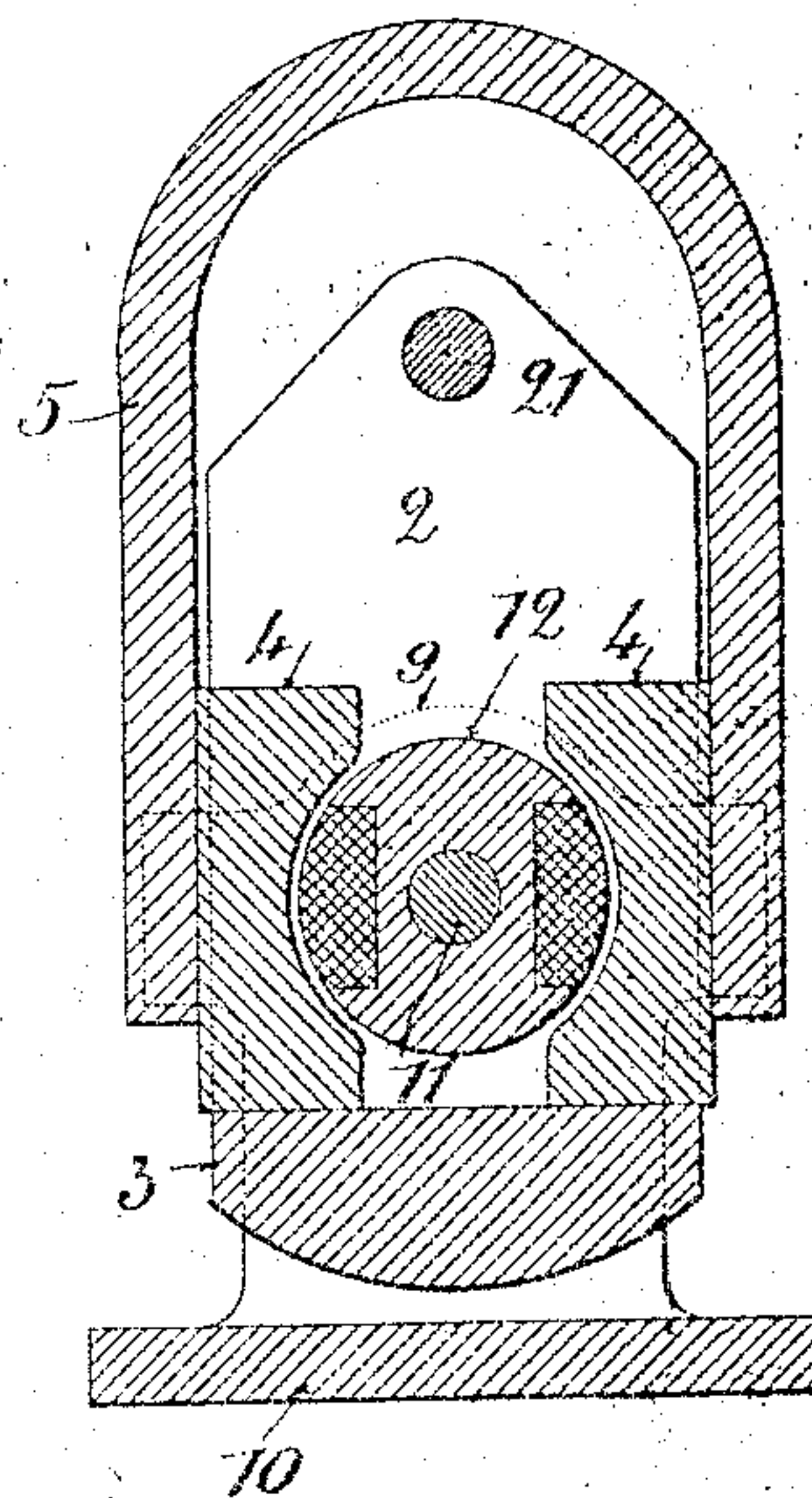


fig. 3.



WITNESSES:

W. M. Avery
C. B. Rollman

INVENTOR.

Henri de La Valette

BY

Wm. M. Avery
ATTORNEYS

UNITED STATES PATENT OFFICE.

HENRI DE LA VALETTE, OF PARIS, FRANCE.

MAGNETO IGNITING DEVICE FOR EXPLOSIVE-ENGINES.

No. 875,534.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed September 7, 1905. Serial No. 277,423.

To all whom it may concern:

Be it known that I, HENRI DE LA VALETTE, a citizen of the Republic of France, residing at Paris, 111^{bis} Boulevard de Menilmontant, in the Republic of France, engineer, have invented certain new and useful Improvements in Magneto Igniting Devices for Explosive-Engines, of which the following is a specification.

10 This invention relates to magneto-igniting devices for explosive engines, in which the whole of the magneto-igniting device can be swung around its axis of rotation, in either direction according as the ignition is to be
15 forwarded or retarded. Such an arrangement avoids any complication in the operation of the revolving members and allows an adjustable forwarding by means of a very simple and compact construction, under the
20 best conditions as to the utilization of the magnetic field.

In the accompanying drawing showing diagrams of one embodiment of this invention as applied to a high tension magneto-igniting device: Figure 1 is a front view; Fig.
25 2 is a side elevation; and Fig. 3 is a vertical section.

The movable frame of the magneto-igniting device comprises two arms 1 and 2, secured on a base plate 3; the pole pieces 4 are
30 secured on the base plate 3, and the horse-shoe shaped magnet 5 is secured to the pole pieces 4.

On the arms 1, 2 are formed lateral circular projections 6 and 7, which rest in the bearings 8 and 9, integral with the fixed frame 10, in such a manner as to enable the movable frame of the magneto-igniting device together with the connected parts to
40 swing around the axis of the projections 6, 7, which form journals. The said projections are hollow and provide bearings for the loosely mounted shaft 11, carrying the armature 12. One of the ends of the shaft 11 is provided with a pinion 13 operated always in the same direction by the shaft of the engine, and the other end of the shaft 11 carries a
45 cam 14, used to determine short-circuitings on the connections of the magneto-igniting device and of a suitable transformer 27. The projection 6 is integral with a plate 15 located outside the fixed frame and on which are arranged the contact screw 16, the swinging lever 17 and the spring 18, which tends
50 to hold or maintain the lever in contact with

the screw 16. The said lever is actuated from the cam 14.

In the embodiment shown in the drawing, the magneto-igniting device carries a distributor 19 to distribute the high tension
60 currents successively to four brushes 20 connected to the igniters of a four cylinder engine. The said distributor is operated by a shaft 21, journaled in the arms 1, 2, and connected with the shaft 11 by pinions 22
65 and 23.

The movable frame of the magneto-igniting devices can be set in divers positions by means of a lever, or other similar device, attached to an arm projecting from the arm
70 1, and which can be operated by hand or any suitable device, in connection with the action of an opposing spring 25, attached to an arm 26, integral with the arm 1.

When the armature revolves synchronously with the cam 14 and also with the engine, it is the seat of inducted currents which are used in a transformer, which may be distinct or not from the magneto-igniting device, to produce transformed currents of
80 high tension; the latter are brought back to the transformer 27, which sends them successively and in suitable order to the igniters of the cylinders. If the magneto-igniting device is caused to swing a certain angle forwardly with respect to the direction of rotation of the shaft 11, the lever 17 is moved in the same direction, so that it is actuated
85 later on by the cam 14 and the igniting of the engine is retarded to the same extent. On the contrary, by swinging the magneto-ignition device backward, the igniting is more or less advanced. As the inducting system swings bodily with the lever 17 and the contact 16 around the axis of the armature it
90 follows that the contact of these members and, consequently, the interruption of the current in the primary coil of the transformer 27, always take place exactly at the moment when the armature occupies in the
100 magnetic field the most favorable position as to induction.

The magneto-igniting device herein shown and described, designed to ignite a four cycle four cylinder engine, is to give two
105 sparks for each revolution of the driving shaft; the bipolar armature 12, must consequently, revolve at the same speed as the driving shaft, and the cam 14 must comprise two cam parts; on the other hand, the
110

distributor must revolve at half the speed of the driving shaft, so that the diameter of the pinion 22 is double that of the pinion 23. It will be understood, however, that these proportions and arrangements may be varied according to the number of cylinders, the number of contacts on the distributor, the fitting of the armature, and the like. In the same manner, and without departing from the invention, the nature of the magneto-igniting device, the arrangement of its several parts, their shape and the device for varying the position of the magneto-igniting around the axis of the armature, may be modified; it will also be understood that the invention, while consisting more particularly in forwarding or in retarding the ignition by the rotation of the magneto-igniting device around the axis of its armature, is applicable to all kinds of magneto-igniting devices whether of high or low tension.

Claims.

1. A magneto-electric machine, comprising an armature, oscillating field magnets, an oscillating distributor of induced currents, and means for mounting the magnets and distributor, whereby they oscillate coöperatively one with the other about the axis of the armature.

2. A magneto-electric machine, comprising an armature, a frame mounted to swing about the axis of the armature, a magnet carried by the frame, and a distributor of induced currents also carried by the said frame.

3. A magneto-electric machine, comprising a revoluble armature, a frame mounted to swing about the axis of the armature, a magnet carried by the frame, a revoluble distributor of induced currents also carried by said frame, and means for revolving the distributor from the armature shaft.

4. A magneto-electric machine with a distributor of induced currents for the ignition of motors, comprising the combination of a fixed main frame, a U-shaped frame journaled in the fixed frame, an armature journaled in the U-shaped frame, a field-magnet fixed on the base of the said U-shaped movable frame, and a distributor of induced currents mounted on the said movable frame.

5. In a magneto-igniting device, a main

frame, a U-shaped frame journaled in the main frame, an armature journaled in the U-shaped frame, a field-magnet on the base of the U-shaped frame, a current distributor mounted in the U-shaped frame, and means for operating the distributor from the armature shaft.

6. In a magneto-igniting device, a main frame, a U-shaped frame having hollow trunnions and mounted in the main frame, a field-magnet on the base of the U-shaped frame, an armature shaft mounted in the trunnions of the U-shaped frame, an armature on said shaft, a shaft mounted in the U-shaped frame, a current distributor on the shaft, and gearing between the said shaft and the armature shaft.

7. In a magneto-igniting device, a main frame, an oscillating frame having hollow trunnions and mounted in the main frame, a field magnet on the base of the oscillating frame, an armature shaft mounted in the trunnions of the oscillating frame, an armature on the said shaft, a plate secured to one of the trunnions of the oscillating frame and provided with a contact, a pivoted and spring pressed contact lever on said plate, and a cam on the armature shaft for operating the said lever.

8. In a magneto-igniting device, a main frame, a U-shaped frame having hollow trunnions and mounted in the main frame, a field-magnet on the base of the said U-shaped frame, an armature shaft mounted in the trunnions of the said frame, an armature on the shaft, a plate on one of the trunnions of the U-shaped frame and having a contact, a pivoted and spring pressed contact lever on said plate, a cam on the armature shaft for operating the contact lever, a current distributor mounted in the U-shaped frame, and means for operating the distributor from the armature shaft and at less speed than the said shaft.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

HENRI DE LA VALETTE.

Witnesses:

CAMILLE BLÉTRY,
MAURICE ROUX.