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F. BOVARD

LIGHTING MAGNETO FOR VEHICLES

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Fig. 1.

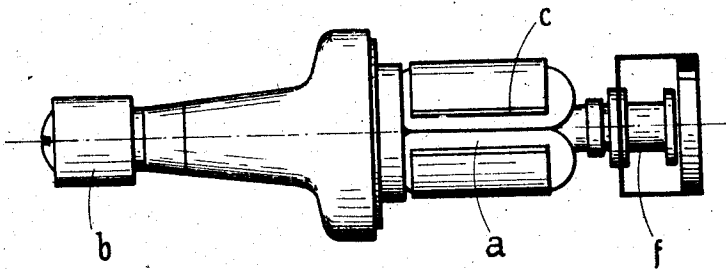


Fig. 2.

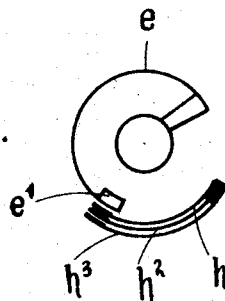
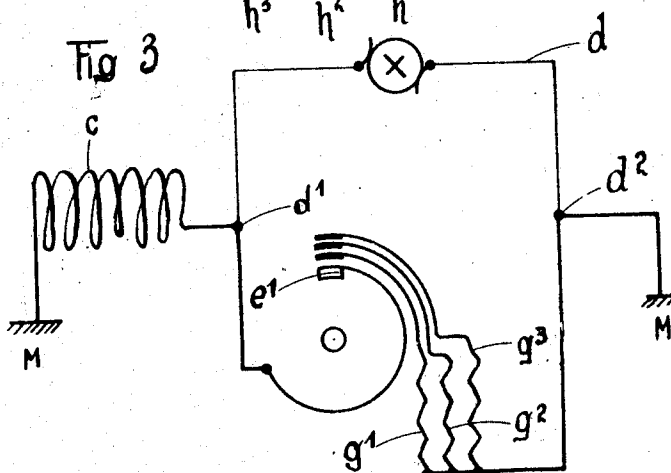


Fig 3



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LIGHTING MAGNETO FOR VEHICLES.

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Lighting magnetos for vehicles having a rotor directly actuated by the wheel of the vehicle on which the magneto is mounted, are already known.

5 Such machines have to provide a sufficient quantity of light, even when the vehicle travels at a moderate speed, for instance at 7 to 8 kilometers an hour. For this reason it has been proposed to increase the speed of
10 the rotor by means of intermediate gears arranged between rotor and driving wheel or, to create, by means of strong natural magnets, a magnetic field, so that the voltage at the terminals of the lighting circuit is suffi-
15 ciently high when the vehicle travels slowly. In both cases means must be provided which allow a control of said voltage when the vehicle travels at a higher speed than is necessary for obtaining a normal light current.
20 Up to date it was customary to short-circuit part of the turns of the armature if the number of revolutions of the latter surpassed the speed, for which this magneto was calculated.

25 This method has many inconveniences:—
The winding of the armature is firstly rendered more difficult, on account of the need, either to connect by a return loop a number of turns to the short circuiting device or to
30 provide other turns upon the regular winding which turns are then switched off from the general circuit whenever a certain speed is attained.

35 The short circuiting of the turns in question produces however sudden variations of voltage which fact is very disturbing when the vehicle travels at the critical speed.

40 In the lighting magneto, according to the present invention a device is employed adapted to maintain the terminal voltage within predetermined limits. For doing this at least one shunt resistance has been provided for and is connected to the terminals of the lighting circuit by means of a device
45 which is controlled by the speed of the rotor.

50 It is clear that by such a proceeding the winding of the armature can be effected without interruption from one end to the other. On the other hand the shunt can be easily subdivided into a certain number of sections which can be switched in one after the other so as to obtain a more continuous regulating effect.

By using a shunt it becomes possible to

utilize in regulating the whole interior re- 55
sistance of the rotor. This resistance in lighting dynamos is always relatively great. The decrease of resistance at the terminals of the lighting circuit increases the intensity of current inside of the rotor so that the
60 voltage drop inside the machine contributes to attaining the desired aim.

The annexed drawing represents as an example one working form of a lighting-mag-
65 neto for vehicles.

Fig. 1 is a side elevation showing the rotor provided with the regulating device.

Fig. 2 is an end view of said device and Fig. 3 is a wiring diagram.

The rotor a is directly rotated by means 70
of contact roller b fast to the axle. One end of the winding c of this rotor is connected to the ground M and the other to one of the terminals d^1 of the lighting circuit d . The second terminals are designated with d^2 . 75
The return is effected through said ground.

A short circuiting device operated by cen-
trifugal force is arranged at the end of the rotor shaft and comprises a plate-spring e 80
curved concentrically around the shaft of the rotor and having one end immovably fixed to the rotor shaft while the other free end e^1 is slightly loaded with a contact weight. A small coil f is likewise mounted
85 on the rotor shaft which coil comprises three shunt resistances $g^1 g^2 g^3$ which are electrically connected to three flexible segments $h^1 h^2 h^3$ insulated from each other and ar-
ranged parallel to each other in such a man-
ner with regard to spring e that they are 90
successively brought into contact with each other and with the weight e^1 of spring e under the effect of the centrifugal force caused by the increasing speed of the motor.

The value of shunt resistances $g^1 g^2 g^3$ 95
branched all three in parallel on the lighting circuit varies according to the kind of machines.

By means of these resistances an intensity of the lighting current may be obtained 100
which is practically always constant and this independently of the speed of the motor. The more the speed of the motor increases the more the centrifugal power will suc-
cessively switch-in into the lighting circuit the 105
three shunt resistances $g^1 g^2 g^3$ in parallel to each other.

Each switching-in of a shunt resistance

will cause an increase of the output of the machine and an increase of the voltage drop within the rotor.

I claim:

In a lighting magneto for vehicles of the kind where with the increasing speed resistances are switched-in in parallel to the lamps and in combination, a rotor shaft, a plate spring surrounding said shaft concen-

trically and attached with one end to said shaft, a contact weight secured to the free end of said plate and a plurality of stationary contacts arranged resiliently behind each other in the path of said weight and adapted to be switched-in successively. 10 15

In testimony whereof I affix my signature.

FRITZ BOVARD.