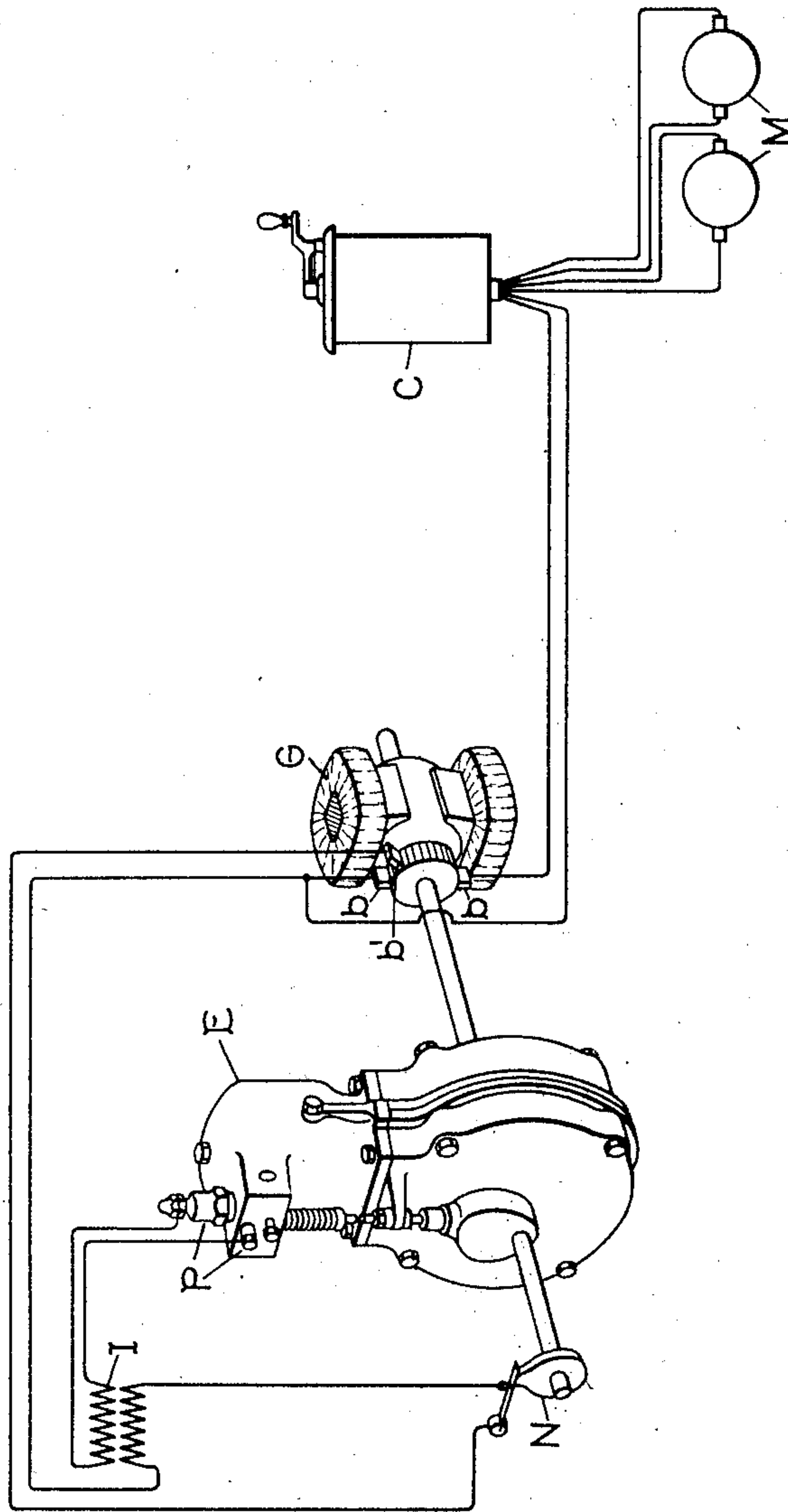


No. 801,823.

PATENTED OCT. 10, 1905.

E. J. BERG.
AUTOMOBILE.

APPLICATION FILED MAY 22, 1905.



Witnesses.

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UNITED STATES PATENT OFFICE.

ERNST J. BERG, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

AUTOMOBILE.

No. 801,823.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Original application filed April 20, 1904, Serial No. 204,052. Divided and this application filed May 22, 1905. Serial No. 261,438.

To all whom it may concern:

Be it known that I, ERNST J. BERG, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Automobiles, of which the following is a specification.

This application is a division of my former application, Serial No. 204,052, filed April 20, 1904.

My invention relates to self-propelled vehicles, and has especial reference to that class of vehicle propelled by electric motors supplied with current from a generator driven by an internal-combustion engine.

The object of my invention is to provide means for deriving from the generator itself a voltage for use with the spark-coil of an internal-combustion engine, thereby rendering it unnecessary to keep a battery in constant use during the operation of the vehicle. I accomplish this result by providing the generator with an auxiliary brush displaced by a small amount from one of the main brushes and supplying the ignition device from the auxiliary brush and the adjacent main brush. A voltage is thus supplied to the ignition device which may be of any desired amount suitable for the purpose and may be any fraction of the full voltage of the generator.

My invention will best be understood by reference to the accompanying drawing, which shows diagrammatically electric motors supplied with current from a generator driven by an internal-combustion engine arranged in accordance with my invention.

In the drawing, E represents an internal-combustion engine of any well-known type, which carries on its shaft the armature of an electric generator G. This generator supplies current from its main brushes *b b* through a suitable controlling-switch C to the motors M, which drive the vehicle. It will be seen that the generator G, in addition to the main brushes *b b*, has an auxiliary brush *b'*, displaced by a comparatively small angle from one of the brushes *b*. A circuit is completed from a main brush *b* to brush *b'* through the primary winding of the induction or spark coil I and through the make-and-break switch N on the engine-shaft. The secondary winding of the induction-coil I is connected in the usual manner to the spark-plug P on the en-

gine. By using this auxiliary brush I am enabled to obtain a fraction of the terminal voltage of the generator suitable for use with the induction-coil I, and thereby to do away with the necessity of keeping a battery in operation throughout the operation of the vehicle.

It will be understood that I have illustrated my invention diagrammatically and that in practice any well-known type of apparatus may be employed.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination, an internal-combustion engine an electric-generator driven thereby, an electrical ignition device for the engine, and means for connecting said ignition device to points on the generator commutator having a difference of potential equal to only a fraction of the terminal voltage of the generator.

2. In combination, an internal-combustion engine, an electric generator driven thereby provided with an auxiliary brush displaced a small amount from a main brush, and an electrical ignition device for said engine supplied from said auxiliary brush and an adjacent main brush.

3. In a self-propelled vehicle, an internal-combustion engine, an electric generator driven thereby provided with an auxiliary brush displaced a small amount from a main brush, and a spark-coil for said engine having its primary connected between said main brush and said auxiliary brush.

4. In a self-propelled vehicle, an internal-combustion engine, an electric generator driven thereby, a spark-coil for said engine, and electrical connections from the primary of said spark-coil to points on the generator-commutator having a difference of potential equal to only a fraction of the terminal voltage of the generator.

5. In a self-propelled vehicle, an internal-combustion engine, an electric generator driven thereby provided with an auxiliary brush displaced a small amount from a main brush, driving-motors supplied with current from the main brushes, and an ignition device for the engine supplied with current from said auxiliary brush and a main brush.

6. In a self-propelled vehicle, an internal-combustion engine, an electric generator

driven thereby, propelling-motors supplied
with current from said generator, an ignition
device for said engine, and electrical connec-
tions from said ignition device to points on
5 the generator-commutator having a difference
of potential equal only to a fraction of the
terminal voltage of the generator.

In witness whereof I have hereunto set my
hand this 19th day of May, 1905.

ERNST J. BERG.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.