

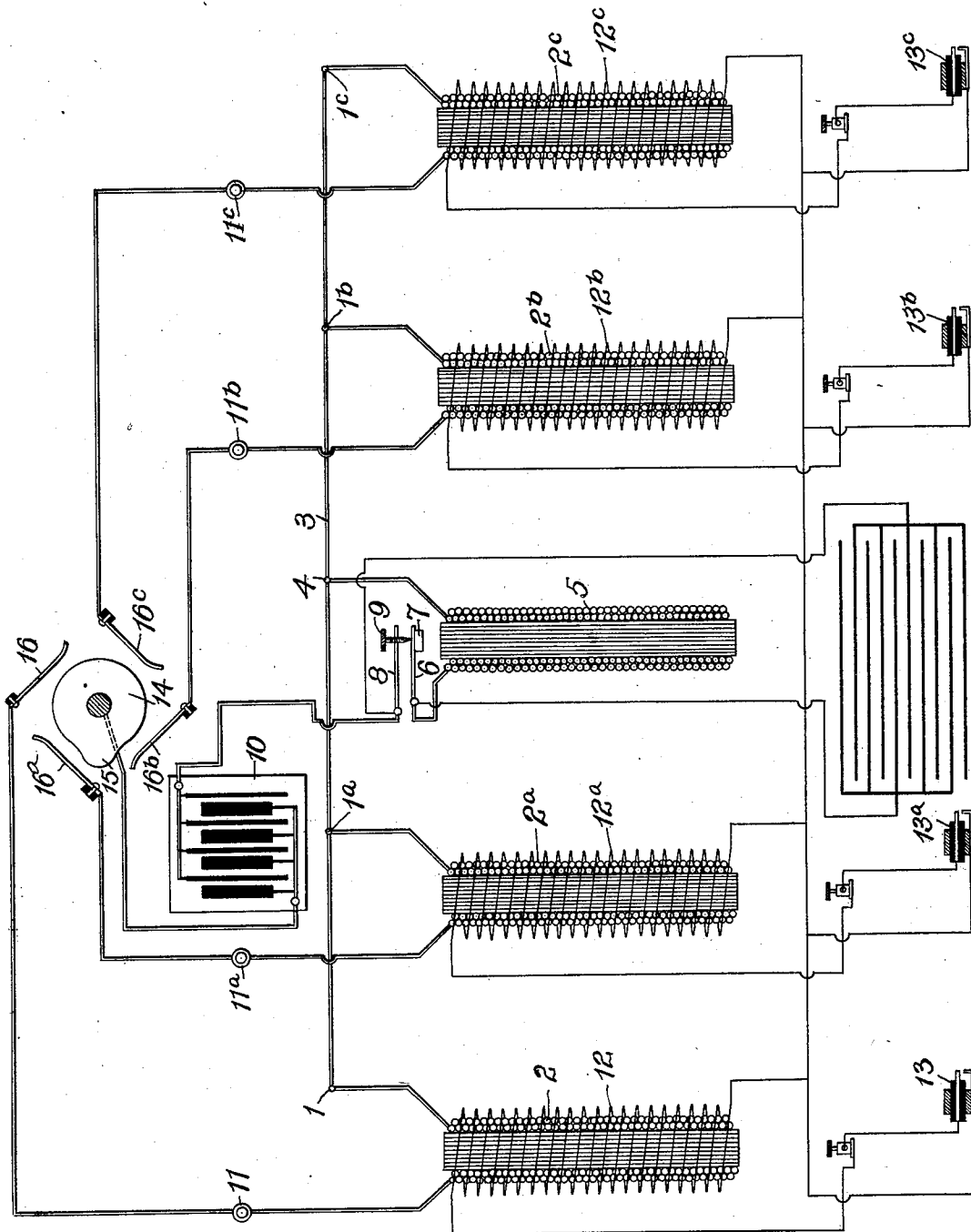
No. 754,666.

PATENTED MAR. 15, 1904.

R. MILLER, JR.
INDUCTION COIL.

APPLICATION FILED JAN. 7, 1904.

NO MODEL.



WITNESSES:

Harold Bradley
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UNITED STATES PATENT OFFICE.

REUBEN MILLER, JR., OF PITTSBURG, PENNSYLVANIA.

INDUCTION-COIL.

SPECIFICATION forming part of Letters Patent No. 754,666, dated March 15, 1904.

Application filed January 7, 1904. Serial No. 188,120. (No model.)

To all whom it may concern:

Be it known that I, REUBEN MILLER, JR., a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Induction-Coils, of which improvements the following is a specification.

The invention described herein relates to certain improvements in induction-coils, the improvements being especially applicable to coils used to produce sparks for gas-engines.

It has heretofore been the practice to use independent induction-coils having its interrupter for each cylinder of a multiple-cylinder gas-engine, and great difficulty has been experienced in so adjusting the springs of the several interrupters as to insure the ignition of the gas at the proper times in each successive cylinder. This trouble of adjustment increases with the number of interrupters employed.

The present invention has for its object the provision of a single interrupter for a number of induction-coils.

The invention is hereinafter more fully described and claimed.

The accompanying drawing, forming a part of this specification, is a diagrammatic illustration of my improvement, showing a series of coils, a single interrupter, the circuits of the coils, and a switch or commutator for closing the primaries of the several coils in due succession.

In the practice of my invention one terminal, as 1 1^a, &c., of the primary coils 2 2^a, &c., of each of the induction-coils is connected, as by a common wire 3, to one terminal, as 4, of the coil of the electromagnet 5. The other terminal of this coil is connected to one part or member of an automatic interrupter which is operated or controlled by the electromagnet. A suitable construction of interrupter consists of a spring-arm 6, to which is secured the armature 7 of the electromagnet 5, and a relatively stationary arm 8. The spring-arm is so arranged as to normally hold the armature away from the magnet and to be in contact

with the arm 8, preferably through the adjusting-screw 9. The part or member 8 is connected to one terminal of a generator 10, and the other terminal of the generator is connected to one part or member of switch or circuit-breaker which has its other part or member connected to one or more of the terminals 11 11^a of the primaries 1 1^a of the induction-coils. By suitably constructing the switch or circuit-breaker the circuits of the primaries of the induction-coils, including the coil of the electromagnet, can be closed as desired—i. e., in sequence or otherwise.

The secondary coils 12 12^a of the induction-coils include in their circuit the terminals of suitable spark-plugs 13 13^a, &c.

In applying my improvement to gas-engines having multiple cylinders it is customary to connect one terminal of the battery to the engine, so that when the movable member of the switch—i. e., the disk 14, having a projection 15 on the shaft of the engine—comes in contact with one of the springs 16 16^a, &c., a circuit is completed through the primary of one of the induction-coils and the electromagnet 5. The number of contact-arms 16 16^a, &c., and induction-coils employed will be dependent upon the number of cylinders, and their arrangement relative to the disk 14 will be dependent on the order in which the engines are to be operated.

As is customary in gas-engine practice, one of the terminals of each of the sparking-plugs 16 16^a, &c., is electrically connected to the cylinders of the engines and also one of the terminals of each of the secondaries of each of the induction-coils. In other words, the engine-cylinders form part of the circuits of the secondaries. This arrangement is not necessary, but only a matter of convenience, as will be understood by those skilled in the art.

In using my improvement in connection with gas-engines the adjustment of the parts or members of the interrupter for one engine insures its proper and similar operation with all the other engines, so that after the interrupter has been properly adjusted, so that it will operate properly on the closure of the

circuit of any one of the primaries, it is only necessary to adjust the parts or members of the multiple switch.

I claim herein as my invention—

- 5 1. The combination of two or more induction-coils and an interrupter included in the primary circuits of said coils, substantially as set forth.
- 10 2. The combination of two or more induction-coils arranged in parallel, an electromagnet in series with the primaries of each induction-coil and an interrupter controlled by said magnet in series with each of the primaries, substantially as set forth.
- 15 3. The combination of two or more induction-coils, a circuit-breaker in the primaries

of each coil, an interrupter and its controlling-magnet in series with the primaries of the coils, substantially as set forth.

4. The combination of two or more induction-coils, a multiple-switch mechanism controlling the primaries of said coils, an interrupter and its controlling-magnet in series with the primaries of the coils, substantially as set forth.

In testimony whereof I have hereunto set my hand.

REUBEN MILLER, JR.

Witnesses:

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DARWIN S. WOLCOTT.