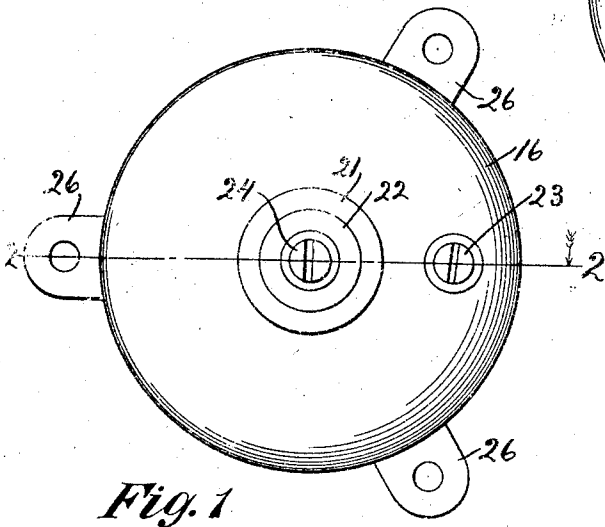
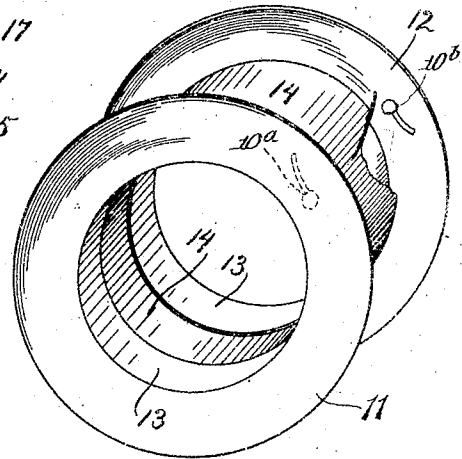
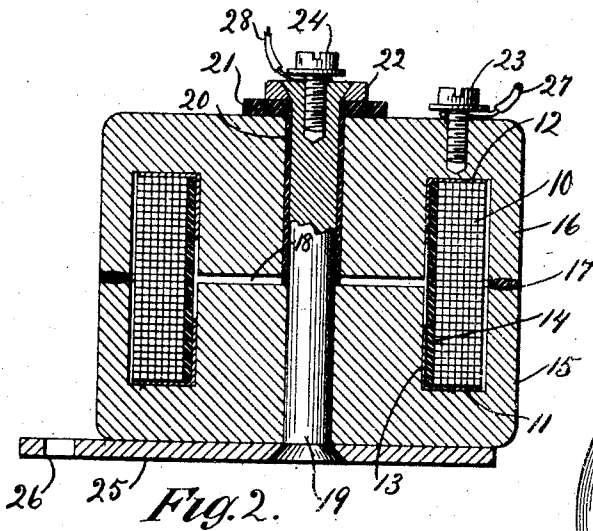


W. H. COTTON.
SPARK COIL.

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1,059,120.

Patented Apr. 15, 1913.



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UNITED STATES PATENT OFFICE.

WALTER H. COTTON, OF CHICAGO, ILLINOIS, ASSIGNOR OF FIFTY-ONE ONE-HUNDREDTHS TO WALTER LYTTON, OF CHICAGO, ILLINOIS.

SPARK-COIL.

Specification of Letters Patent.

Patented Apr. 15, 1913.

1,059,120.

Application filed January 25, 1912. Serial No. 673,423.

To all whom it may concern:

Be it known that I, WALTER H. COTTON, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Spark-Coils, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to spark coils especially adapted for use in igniting gas engines. Its object is to provide a coil which, while highly efficient, is very compact, simple, and cheap of construction.

The invention is exemplified in the structure hereinafter described, and which is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the device; Fig. 2 is a sectional view on the line 2—2 of Fig. 1; and Fig. 3 is a detail in perspective of the spool for carrying the coil and shows the manner of attaching the ends of the coil.

The coil 10 is formed of suitably insulated wire wound upon a spool comprising a pair of metal stampings 11, 12, which are preferably identical in form, each being a flat annulus having a central upstanding flange 13, these flanges entering the ends of a tube 14 which may be and preferably is of straw-board or similar material. One terminal of the coil 10 is in electrical contact and preferably soldered to one of the annular plates, as 12, the other terminal of the coil being similarly connected with the other plate, as 11. These connections may, if desired, be made in the manner shown at 10^a and 10^b, respectively, Fig. 3.

The magnetic circuit consists of a pair of similar soft iron blocks 15, 16, each having formed in one of its faces an annular channel for receiving one end of the coil and its supporting spool. These two blocks are spaced apart by an annulus 17 of non-conducting material, which encircles the coil, leaving an air gap between the adjacent faces of the blocks, as shown at 18. The two blocks 15, 16, are centrally apertured to receive a bolt or rivet 19 by which they are secured together.

The diameter of the central aperture in one of the blocks, as 15, is substantially the same as the diameter of the bolt, so that the latter makes an electrical contact with the block. The central aperture in the other

block, as 16, is of somewhat greater diameter than the bolt, and is lined with a sleeve 20 of insulating material. Preferably, and as shown, the bolt 19 takes the form of a rivet, and is headed up at one end against one of the blocks, as 15, but projects a sufficient distance beyond the outer face of the other block to receive an insulating washer 21 and a metal washer 22 against which its end is upset.

A binding post 23 is set into the block 16, which is insulated from the bolt 19, and to it is attached one line of an electric circuit, and a binding post 24 may be set in the end of the central bolt, thus electrically connecting it with the other block of the magnetic circuit, the other branch 28 of the electric circuit being attached to this post.

When it is desired to secure the coil to a support it may be provided with a bracket plate 25, which is conveniently secured to it by being held under one of the headed ends of the bolt 19, as shown, this bracket plate being provided with a suitable number of apertured ears, as 26, through which screws may be passed. When the coil is attached to a metal support, as to the cylinder of an engine, the return circuit may, of course, be through the engine as a ground, and in that case a binding post 24 is not required. Current being led to the block 16 through the binding post 23, enters the coil through the plate 12 and leaves it through the plate 11, passing through the block 15 to the ground or to the return side of the line which will be attached to the binding post 24.

Any interruption of the current, as by the ordinary operation of the make and break igniting device of a gas engine, will develop a countercurrent of the necessary high voltage to insure an igniting spark.

The blocks 15, 16, are of cast iron and require very little machine work, it being necessary only to drill or ream out the central apertures and drill and tap the aperture for receiving the binding post 23.

The parts are all simple and cheap of construction and easily assembled, and when assembled are permanently secured so that disarrangement or injury become practically impossible.

I claim as my invention—

1. In a spark coil, in combination, a coil, a pair of electrically insulated magnet blocks apertured to receive the ends of the coil and

each being electrically connected therewith, and binding posts connected with the respective blocks.

2. In a spark coil, in combination, a coil, a pair of electrically insulated magnet blocks apertured to receive the ends of the coil and each being electrically connected therewith, and a bolt securing the two magnet blocks together.

3. In a spark coil, in combination, a coil; a spool upon which the coil is wound and comprising a pair of annular plates each having a central instanding flange, and a tube of insulating material fitted upon the flanges of the two plates, the terminals of the coil being electrically connected with the annular plates; a pair of magnet blocks apertured to receive the ends of the coil, such blocks being electrically insulated each from the other, but connected with the respective ends of the coil, and means for binding the two magnet blocks together.

4. In a spark coil, in combination, a coil; a spool upon which the coil is wound and

comprising a pair of annular plates each having a central instanding flange, and a tube of insulating material fitted upon the flanges of the two plates; the terminals of the coil being electrically connected with the annular plates; a pair of magnet blocks apertured to receive the ends of the coil, such blocks being electrically insulated each from the other, but connected with the respective ends of the coil, a bolt for securing the two blocks together and being in electrical contact with one of such blocks and insulated from the other, a binding post set in one of the blocks, and a binding post set in the bolt.

5. In a spark coil in combination, a coil and a pair of electrically insulated magnet blocks apertured to receive the ends of the coil and each being electrically connected therewith.

WALTER H. COTTON.

Witnesses:

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