T. W. MORGAN.

ELECTROMAGNET.

APPLICATION FILED APR. 19, 1915.

1,166,706. Patented Jan. 4, 1916.

Fig. 1.

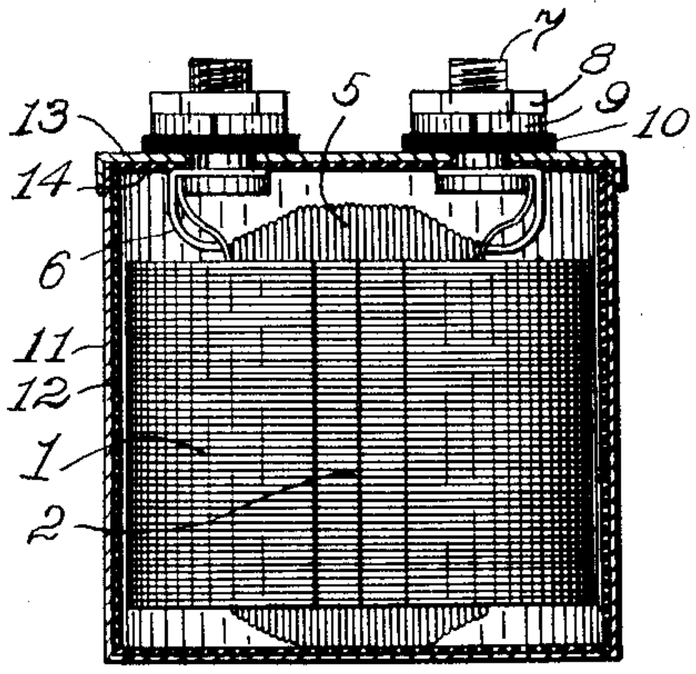
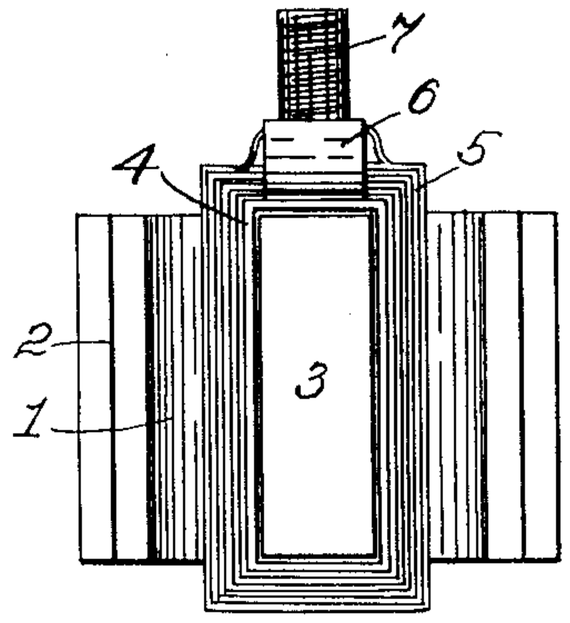


Fig. 2.



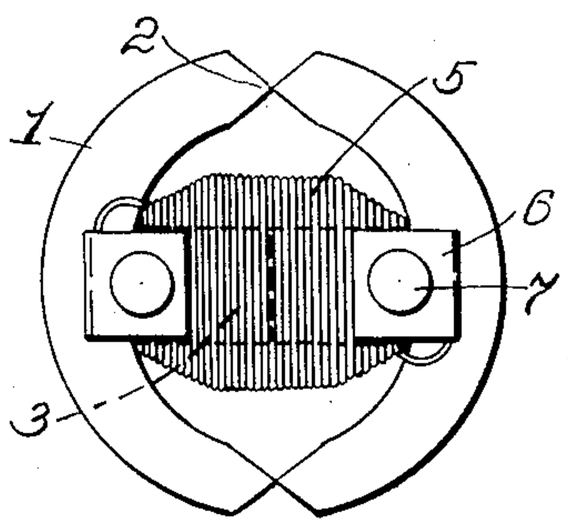


Fig. 3.

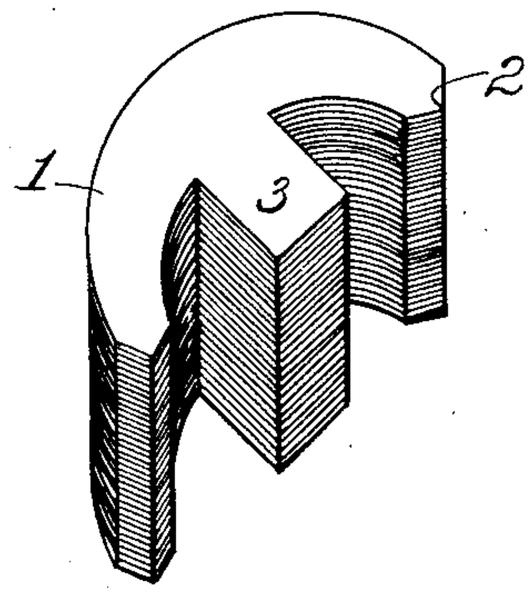


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ELECTROMAGNET.

1,166,706. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed April 19, 1915. Serial No. 22,373.

To all whom it may concern:

Be it known that I, THOMAS W. MORGAN, a citizen of the United States of America, and a resident of Waterloo, Blackhawk county, Iowa, have invented certain new and useful Improvements in Electromagnets, of which the following is a specification.

My invention relates to improvements in electro-magnets, and the object of my improvement is to perfect an electro-magnet placed in a battery circuit and to be used in connection with the ignition apparatus of an internal-combustion engine, by so modifying the form and arrangement of the case of the magnet as to cause the latter to become quickly demagnetized when the circuit is disestablished by reason of the action of said ignition apparatus.

This object I have accomplished by the means which are hereinafter described and claimed, and which are illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation, full size, of my improved electro-magnet, seated in a casing, the latter being shown in vertical central section. Fig. 2 is an elevation of one part of the divided core with the winding thereon. Fig. 3 is an upper plan view of my improved electro-magnet with the casing removed. Fig. 4 is a perspective view of one of the parts of the divided core.

Similar numerals of reference denote corresponding parts throughout the several views.

My improved electro-magnet, of which full sized views are given, is especially designed for employment in the battery circuit of the ignition apparatus of an internal combustion engine.

The numeral 4 denotes a hollow rectangular spool upon which is placed the winding 5 whose ends are secured in electrical contact with the head of a binding-post 7 supported on bracket arms 6.

The core of the magnet is made up of two like parts 3, which are seated removably in said spool with their abutting ends in contact. The core parts are made of laminated steel, and have oppositely directed outwardly extending and recurved parts 1 which are of such a form that they inclose opposite parts of the winding and are in contact at their abutting extremities. The extremities of the curved parts 1 are pitched at 2 to provide terminal angles as shown. When the core parts are assembled as shown in Fig. 3, only the apices of the angles 2 are in contact.

The electro-magnet is removably but closely seated within the cup-shaped casing 11 having a non-conducting lining 12, and adapted to be closed by a cover 13 provided with a non-conducting lining 14. Said cover has two circular openings to seat the binding-screws 7 which pass upwardly therethrough from the bracket 6, and are secured thereto by means of the nuts 8 seated upon conducting washers 9 and insulating washers 10.

The special function of the pitched terminals 2 of the core part 1 is to draw together convergingly the lines of force in said core parts, which not only tends to prevent a loss, but especially permits the magnet to become quickly demagnetized when the circuit is disestablished from the battery through the winding 5 by means of the opening of the circuit in the ignition apparatus of the engine. This rapid demagnetization, as is well known in the art, is conducive to better results in the operation of the igniter by creating a stronger spark between the electrodes thereof.

The construction of the core in parts easily assembled or disassembled, is more convenient for repairs.

The electro-magnet, as constructed, is very compact and is convenient for use on the engine.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. In an electromagnet, a core, a winding thereon, the core being formed with branches carried about the winding, the branches having diminished abutting poles.

2. In an electromagnet, a core, a winding thereon, the core being formed of abutting sections, each section having its outer end projected to form branches carried about the winding, the branches having diminished abutting poles.

Signed at Waterloo, Iowa, this 5th day of April, 1915.

THOMAS W. MORGAN.

Witnesses:

W. H. BUNN,

G. C. KENNEDY.