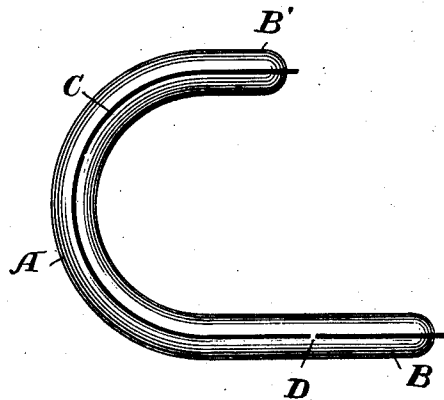


F. T. CABLE.
IGNITION TROUBLE FINDER.
APPLICATION FILED AUG. 5, 1909.

953,776.

Patented Apr. 5, 1910.



Witnesses

J. G. Hinkel
C. F. Early

Inventor

Frank T. Cable

by his Attorneys

Mason & Myke

UNITED STATES PATENT OFFICE.

FRANK T. CABLE, OF QUINCY, MASSACHUSETTS.

IGNITION TROUBLE-FINDER.

953,776.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed August 5, 1909. Serial No. 511,337.

To all whom it may concern:

Be it known that I, FRANK T. CABLE, a citizen of the United States, residing in Quincy, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Ignition Trouble-Finders, of which the following is a specification.

The object of the present invention is to provide a device for locating faults or short circuiting in the ignition circuits of internal combustion engines and especially for indicating whether or not the spark plug is short circuited by carbonization or otherwise so as to prevent the formation of a proper spark between the plug terminals or across the spark gap.

Another object of the invention is to provide a device of the character indicated which shall be simple, cheap and of convenient form and size to be carried about and form part of the regular equipment of accessories for every engine.

With the above objects in view the invention consists primarily in an insulating body of material which may be grasped without danger of shock from the ignition circuit and carrying a conductor having terminals so located as to be conveniently brought into contact with opposite circuit connections of the igniter, said conductor having at some point in its length, visible to the user, a short spark gap.

In the preferred embodiment of the invention the insulating body is in the form of a curved glass tube having thick walls with an iron conductor sealed in the same with its ends slightly protruding and having a short spark gap at some point intermediate the ends.

The accompanying drawing is a view of a preferred embodiment of the invention.

In this drawing the letter A indicates the insulating body, which in this instance is of glass tubing curved so that the two ends B B' will project in the same direction, the arm B' being made somewhat shorter than the arm B whereby the ends may be brought into proximity to or against the ends of the igniter and engine head or ground respectively in a most convenient manner. A conductor C is sealed in the ends of the tube with its ends slightly protruding to form terminals and having at one point in its length, preferably at a point within the longer arm of the tube, a spark gap D

which may be appropriately 1/64 inch in length.

In use the device is held in the hand and the terminals brought into position to bridge the igniter or be in multiple therewith, when if the current is flowing properly between the electrodes of the plug spark gap, a fine spark will be seen at the gap D. On the other hand if the plug be carbonized and its spark gap short circuited, the resistance of the gap D will be so much greater, that no spark will be formed at D and it will at once be known that the trouble is in the spark plug.

With this device it is a simple matter to test all the plugs of a multiple cylinder engine in a moment of time to locate any cylinder which may be missing fire, and it is equally easy to tell if the trouble is in the plug or elsewhere.

While a glass body is preferred, it is obvious that other insulating material may be employed and if of opaque material the spark gap will be exposed in any well known manner.

What I claim as new is:—

1. A portable ignition trouble finder for gas engine igniters, comprising a tubular body of insulating material, providing a handle by which the device may be temporarily held in operative position in multiple with the igniter, and a conductor extending through said tubular body with its opposite ends exposed to form terminals which are shielded from the hand of the user by said insulating material, said conductor having a short spark gap between one of the terminals and the handle portion of the device.

2. An ignition trouble finder for gas engine igniters, comprising a tubular body of insulating material bent to form a curved handle and having its ends projecting in substantially the same direction, and a conductor extending through said tubular body with its opposite ends exposed to form terminals, said conductor having a visible spark gap between one of the terminals and the curved or handle portion of the device.

3. An ignition trouble finder for gas engine igniters, embodying a tubular body of insulating material curved at an intermediate point and having one end longer than the other, and a conductor extending longitudinally through and held in said tubular body with its ends only exposed, said con-

ductor having a visible spark gap adjacent to one of its ends across which a spark passes when the finder is placed in multiple with the igniter.

- 5 4. An ignition trouble finder for gas engine igniters, comprising a transparent glass body, curved and having one end longer than the other, a conductor sealed in said body with its ends exposed, and a short spark gap
10 in said conductor within the glass body ad-

jacent one end of the device across which a spark passes when the finder is placed in multiple with the igniter.

In testimony whereof, I have hereunto subscribed my name.

FRANK T. CABLE.

Witnesses:

F. L. BRAKE,

C. W. SHERBURNE.