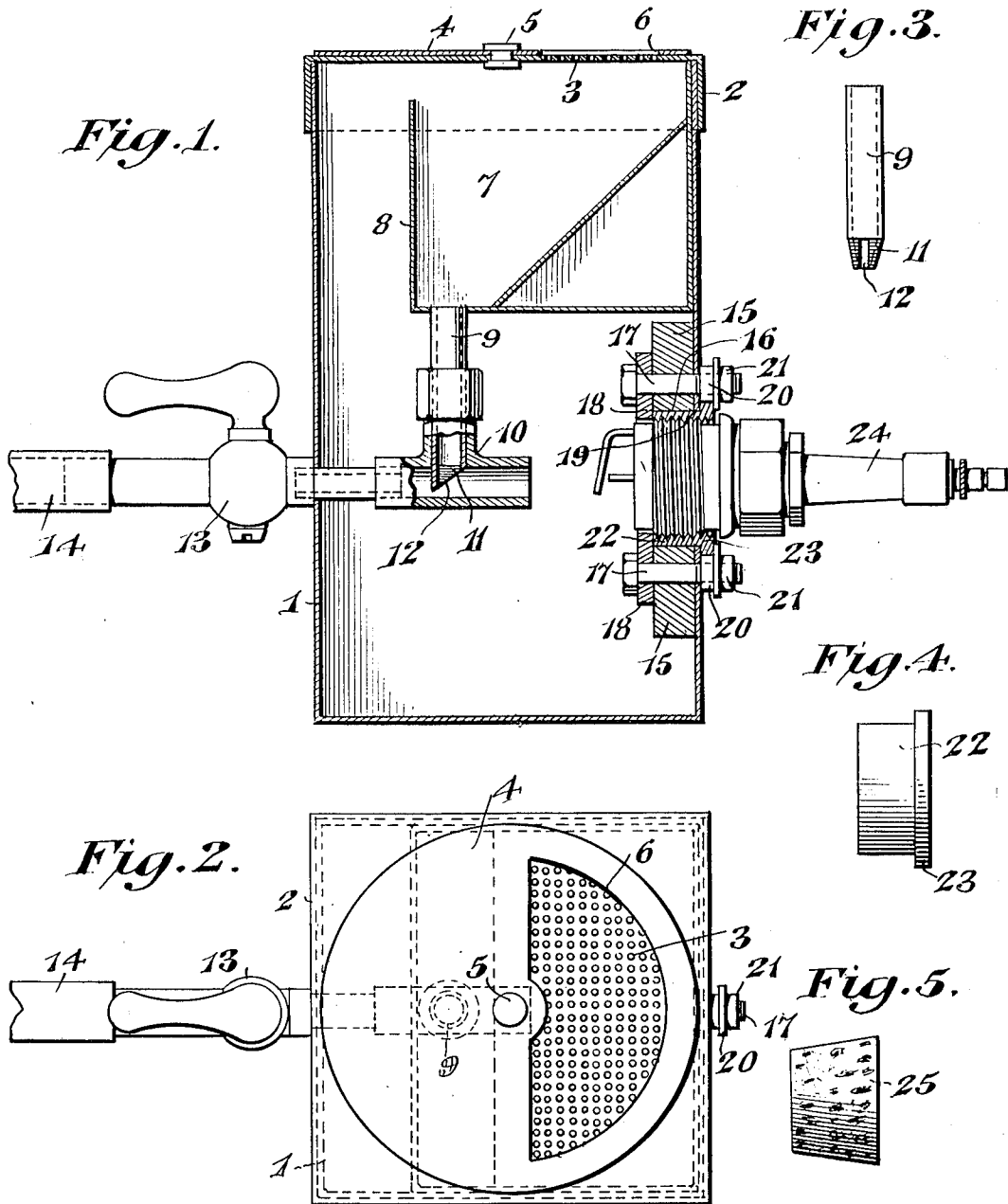


F. C. MILLER.
SPARK PLUG CLEANER.
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1,292,004.

Patented Jan. 21, 1919.



WITNESSES

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FRANK CORNELIUS MILLER, OF TRINIDAD, COLORADO.

SPARK-PLUG CLEANER.

1,292,004.

Specification of Letters Patent.

Patented Jan. 21, 1919.

Application filed September 25, 1916. Serial No. 122,151.

To all whom it may concern:

Be it known that I, FRANK C. MILLER, a citizen of the United States, residing at Trinidad, in the county of Las Animas and State of Colorado, have invented a new and useful Spark-Plug Cleaner, of which the following is a specification.

This invention has reference to spark plug cleaners, and its object is to provide a simple and inexpensive device whereby spark plugs may be readily cleansed of accumulated carbon, even though the latter tenaciously adheres to the parts of the spark plug covered thereby.

In accordance with the present invention there is provided a casing having a hopper for abrasive material into which hopper used abrasive material may be readily returned. Connected with the hopper is a blast nozzle having connections exterior to the casing for the application of a duct whereby compressed air may be utilized as the propelling force for the abrasive material. The casing is further provided with a holding device for a spark plug which holding device is arranged to protect parts which would otherwise be subjected to the abrasive material from harmful effect.

The invention will be best understood from a consideration of the following detailed description, taken in connection with the accompanying drawings forming part of this specification, with the further understanding that while the drawings show a practical form of the invention, the latter is not confined to any strict conformity with the showing of the drawings, but may be changed and modified so long as such changes and modifications come within the scope of the appended claims.

In the drawings:

Figure 1 is a central section through the device, some parts being shown in elevation.

Fig. 2 is a top plan view of the device.

Fig. 3 is a detail view of a portion of the nozzle structure.

Fig. 4 is an elevation of a removable part of the spark plug holder.

Fig. 5 is an elevation of a closure for the spark plug holder when the spark plug is not in place.

Referring to the drawings there is shown a casing 1, which in the particular form illustrated is of rectangular cross-section, although such form is not obligatory. The

casing has a cap 2 by means of which access may be had to the interior of the casing and this cap is formed with a perforated section 3. Furthermore, the cap carries a disk 4 rotatable about a pivot 5 and the disk has an opening 6 therethrough which may conform substantially to the perforated section 3 of the cap. The opening 6 is of such area that it may expose the perforations 3 or the disk may be turned to carry the opening 6 away from the perforated portion and the imperforate part of the disk will then cover the perforations.

Within the casing at a short distance below the open end thereof there is a hopper 7 having a wall 8 spaced away from the adjacent wall of the casing and stopping short of the cap 2, so that any abrasive material which may be in the bottom of the casing may be directed into the hopper 7 by appropriately inverting the casing until the abrasive material flows about the wall 8 into the hopper 7. Depending from the bottom portion of the hopper 7 is a pipe 9, the expressions of position having reference to the ordinary position of the casing in use. The pipe 9 carries a T coupling 10 and the lower end of the pipe 9 is contracted as shown at 11, and is cut to form a longitudinal slot 12 for a purpose to be described. The contracted end of the pipe 9 extends across the long part 11 of the T 10 and entering one end of the long part 11 is another pipe extending to the exterior of the casing where it is connected to a valve 13, which latter is formed to receive a hose 14 or other duct designed to carry air under pressure. The arrangement is such that with abrasive material in the hopper 7, such material will gravitate through the slit end of the pipe 9 into the long part 11 of the T 10 and then air under pressure entering through the valve 13 will pass around the contracted end of the pipe and withdraw abrasive material from the pipe 9 through the slot 12 and drive a stream of abrasive material toward the other side of the casing 1, the force of the air stream being regulated by the valve 13.

Within the casing and fast to that wall thereof remote from the valve 13 is a holder block 15 having a passage 16 therethrough. The block 15 is held to the casing by bolts 17, which bolts also secure to the block a ring 18 surrounding the passage 16. More-

over, the side of the casing to which the block 15 is attached has a passage 19 there-through of a size substantially that of the passage 16. The bolts 17 each carry a washer 20 capable of turning on the bolt and held thereto by a nut 21, the washer having a purpose to be described.

Adapted to the opening 16 is a sleeve 22 with an outer peripheral flange 23 at one end. The interior of the sleeve is screw-threaded and the sleeve is adapted to receive a spark plug 24, which latter may be taken as indicative of any type of spark plug ordinarily used on explosion engines. When the spark plug is screwed into the sleeve 22, the latter is introduced through the passage 19 into the passage 16 until it abuts against the ring 18 or against the outer wall of the casing 1 and is held in place by the washers 20, which operate as clamp members holding the sleeve 22 from accidental displacement. In this manner, the sparking end of the spark plug is held within the casing in line with the air blast issuing from the portion 11 of the T 10 which, therefore, serves as a nozzle. Abrasive material carried by the air blast is driven by the latter against the sparking end of the spark plug then within the casing, the abrasive material serving to remove any accumulations of carbon which may be present on the sparking end of the plug. If the accumulations be hard and tenacious, the air blast may be regulated so as to remove such accumulations. In any event, the stream of abrasive material driven by the air blast against the sparking end of the spark plug quickly cleanses the spark plug. Now, by unclamping the sleeve 22 the spark plug is readily removed from the casing, and if needful other spark plugs are similarly cleaned. The reservoir 7 may be large enough to hold sufficient abrasive material to cleanse several spark plugs, or it may contain only enough abrasive material to cleanse but one spark plug.

When the air blast is in operation, the disk 4 is moved to expose the perforated portion 3, thus providing escape for the air.

The used abrasive material flows to the bottom of the casing. When it is desired to return such material to the hopper 7, which may be done after the spark plug is removed, a cork 25, shown in Fig. 5, or any other closure is introduced into the opening 16, and the disk 4 is turned to close the perforations 3, after which the casing is inverted in the manner already described to return the abrasive material to the hopper 7.

The block 15 may be made of wood, and if such material be used or even if metal like iron be used, the abrasive material is liable to injure it. For this reason, the ring 18 is provided and this ring is made of some such material as hard steel capable of more effectively resisting the action of the

abrasive material than either wood or some relatively soft metal.

The structure may be made of relatively small size and in the case of the device being used in connection with an automobile, air pumps are sufficiently common with such vehicles to provide air under pressure. In fact any other gas under pressure will operate as would air under pressure.

What is claimed is:—

1. A device for cleaning spark plugs, comprising a readily invertible casing with a container therein for loose abrasive material at the top portion thereof, said container being provided with a high opening communicating with the interior of the casing, blast means communicating with the container and entering one side and directed crosswise of the casing, and a holder for the spark plug entering the opposite side of the casing in line with the blast means and positioned to hold the spark plug with the sparking end presented toward the blast means and in line with a stream of material projected by the blast means toward the spark plug.

2. A device for cleaning spark plugs, comprising a casing with a container for loose abrasive material at a high point therein and provided with an opening for directing abrasive material collected in the bottom of the casing into the container by the inversion of the casing, blast means carried by the casing and entering one side thereof and directed toward the other side, and a holder for a spark plug mounted in the side of the casing opposite the blast means and axially aligned therewith to support a spark plug with the sparking end toward the blast means and the other end of the spark plug exterior to the casing.

3. A device for cleaning spark plugs, comprising a casing for containing loose abrasive material, blast means entering one side of the casing and communicating with that part of the casing for holding the abrasive material to direct a stream thereof toward the opposite side of the casing, and an interiorly threaded holder extending through said opposite side of the casing and at all times accessible at the exterior of the casing for receiving the threaded base of a spark plug to hold the sparking end of the plug within the casing and presented toward the blast means and the other end of the spark plug exterior to the casing, and the blast means being spaced away from and presented toward the spark plug holder.

4. A device for cleaning spark plugs, comprising a casing with a container for loose abrasive material therein, blast means entering one side of the casing and communicating with the container for directing a stream of abrasive material toward the other side of the casing, and a holder block having a

threaded sleeve extending through said other
side of the casing in axial alinement with
the blast means for holding a spark plug
with the sparking end of the spark plug
5 interior to the casing, the holder for the
spark plug having means for securing it to
the casing and provided with means resis-
tant to the abrasive action of the abrasive
material and located within the casing in
10 covering relation to the inner end of the

sleeve and the threaded portion of an in-
serted spark plug.

In testimony that I claim the foregoing
as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

FRANK CORNELIUS MILLER.

Witnesses:

H. C. MOORE,
JAMES H. ROBERTS.