July 12, 1932. H. D. MULLAN 1,867,324

SPARK PLUG CLEANER

Filed Dec. 24, 1928

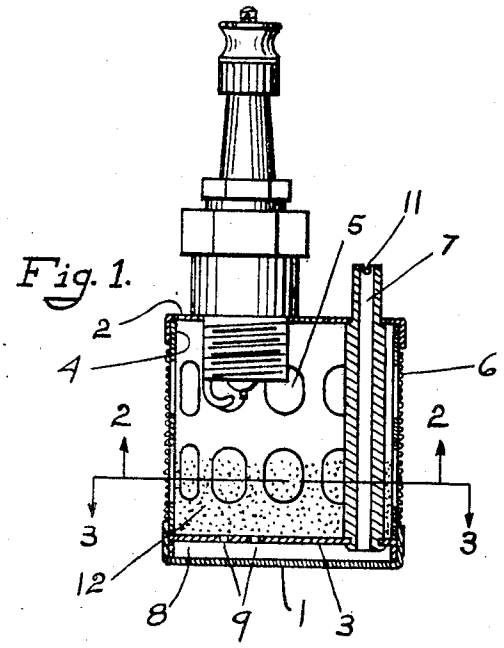


Fig. 1.

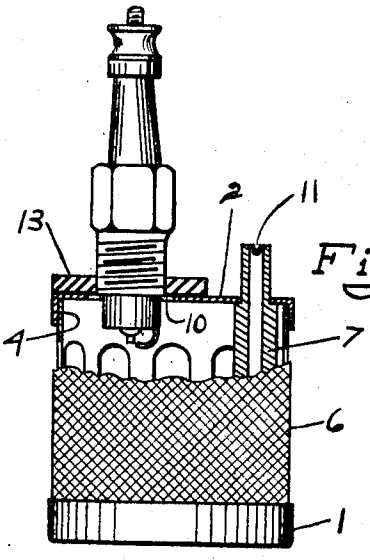


Fig. 4.

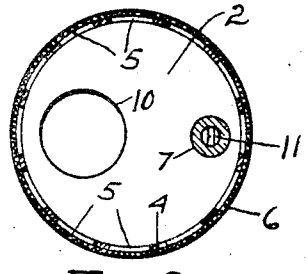


Fig. 2.

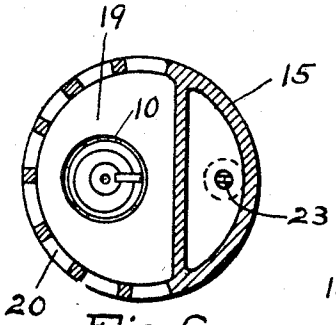


Fig. 6.

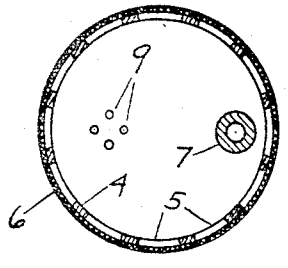


Fig. 3.

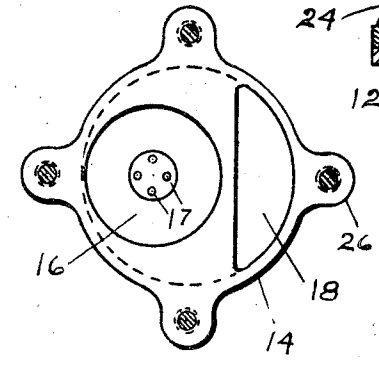


Fig. 7.

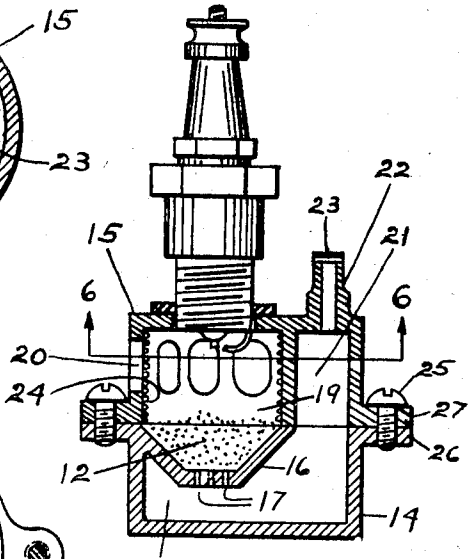


Fig. 5.

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SPARK PLUG CLEANER

Application filed December 24, 1928. Serial No. 328,179.

This invention relates to improvements in spark plug cleaners.

It is an object of this invention to provide a spark plug cleaner in which a stream of air entrains an abrasive material such as sand and carries it to those parts of the plug covered with carbon.

It is the further object to provide in the device a plurality of streams of air each entraining the abrasive material and carrying it to different parts of the plug, thus more quickly and effectively cleaning the plug.

It is a still further object to so arrange the several elements of the cleaner in a way to materially reduce the cost of producing the device.

Another object is to provide the plug receiving hole and the hose receiving nipple upon the same side of the device thereby utilizing the pressure, exerted in holding the plug and the hose in place, to prevent movement of the device during cleaning operations.

In the drawing:

Figure 1 is a side view in vertical section of a preferred embodiment of my invention;

Figure 2 is a sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a side view partly broken away to illustrate a slightly modified use of the device;

Figure 5 is a side view in vertical section showing a modified form of the device shown in Figure 1;

Figure 6 is a sectional view taken on the line 6—6 of Figure 5;

Figure 7 is a plan view of the lower portion of the device shown in Figure 5.

Like parts are identified by the same reference numerals throughout the several views.

The embodiment of my invention shown in Figures 1 to 4, inclusive, comprises a bottom 1, a similar top 2, an insert or false bottom 3, a side 4 provided with a plurality of holes 5, a screen or cloth 6 covering the side 4, and a tube 7 leading from the exterior above the top 2 through the space between the top and the insert or false bottom 3 and into the chamber between the insert and bottom 1.

The insert 3 is similar to the bottom but is small enough to be forced in the latter in an inverted position, thus providing a chamber 8. The insert is also provided with a plurality of grouped holes 9 of sufficiently small diameter to prevent sand or like material passing therethrough. The top is provided with an aperture 10 directly above the holes 9 and preferably with its center disposed in a line drawn between most of the latter.

The insert or false bottom 3 and top 2 are also provided with axially aligned holes within which the tube 7 is disposed. The side 4 is preferably a sheet rolled into cylindrical shape and soldered to the top and bottom along the contacting margins. The upper end of the tube 7 is provided with a pin 11 extending across the opening and adapted to trip the valve of an air hose when the latter is connected with the tube.

Before placing a spark plug in the aperture 10, an abrasive material 12 such as sand is placed in the device. When a plug has been placed in position, as indicated, a hose containing compressed air may then be placed on the upper end of tube 7 and pressed down to admit air. The air will pass down the tube, into chamber 8 through holes 9 and upwardly into the recesses within the spark plug and then out through holes 5 and screen 6. The air as it leaves holes 9 will carry with it a quantity of sand which will strike the spark plug parts exposed to the air streams and tear therefrom any deposit of carbon that may be on such exposed parts. The screen 6 prevents loss of the abrasive material while air is passing through the device.

In Figure 4, the spark plug to be cleaned illustrates a smaller size than that shown in Figure 1. In order to compensate for this difference, a rubber washer 13 may be used to close the hole 10 so that the cleaning material may not be thrown out while cleaning the plug.

The embodiment illustrated in Figures 5, 6, and 7, comprises two sections which for convenient reference are termed base 14 and cap

15. They are secured together by bolts 25 engaging the ears 26 and 27 respectively. The base has a cup 16 provided with a plurality of holes 17 and is disposed above a chamber 18 which is open at one side of the cup.

The cap 15 is provided with a recess 19 above the cup 16 and has an opening 20. Also provided in the cap is a second recess 21 forming a continuation of the chamber 18 in the base. At the top of the cap is a nipple 22 having valve trip pin 23 and placing the space 18—21 in communication with the exterior of the device. Disposed about the interior of the recess 19 is a screen 24 which prevents the escape of the material 12 when air is passing from the space 18—21, through the recess 19, screen 24, and holes 20.

The operation of the device just described is much the same as that of the preferred embodiment shown in Figure 1. Air will pass from the nipple 22 through space 18—21, holes 17, carry material 12 into the recess of the spark plug, and pass out through screen 24 and holes 20.

From the foregoing it is obvious that I have provided a spark plug cleaner very simply organized, very efficient in its work, and convenient to handle. The preferred embodiment is made up principally of stampings which require but few operations in forming. The plurality of streams of air carrying abrasive material reach all of the parts of a spark plug that should be cleaned, thus quickly and efficiently removing carbon from the plug. The device is not large and can be transported very conveniently to a suitable source of air supply. As will be apparent from an inspection of the drawing, the device is so arranged that any effort exerted to hold the plug and the hose in position will prevent the former from being moved during cleaning operations.

I claim:

1. A device of the character described, comprising a side member having a plurality of holes, a top member having a pair of holes one of which is adapted to receive a spark plug, a bottom member, a false bottom within said device spaced from the bottom member and having a pluraility of holes beneath the plug receiving hole in the top member and having also another hole beneath the other hole in said top member, and a tube leading from the exterior at the top of the device through said last mentioned holes.

2. A device of the character described, comprising a side member having a plurality of holes, a top member, a bottom member, a false bottom within said device spaced from the bottom member, said top member having a spark plug receiving hole, and the false bottom having an air inlet hole beneath the plug receiving hole, and means for admitting air under pressure to the space between the false bottom and the bottom member.

3. A device of the character described, comprising a top having a plug receiving hole, a side member having a plurality of outlet holes, a false bottom having an inlet hole beneath the plug receiving hole, a bottom beneath the false bottom and spaced therefrom, a tube extending through the top and false bottom, means on the exposed end of the tube for tripping an air hose valve, and a screen extending across the outlet holes in said side, said inlet hole being sufficiently small to prevent any abrasive material that may be within the device from passing therethrough.

4. A spark plug cleaner comprising a container for an abrasive material having a plug receiving hole, an air outlet, a plurality of air inlets grouped about the axis of the plug receiving hole and within the surface outlined by the periphery of the hole, said outlet and inlets being sufficiently small in diameter to prevent passage of the abrasive material therethrough.

5. A sand blast tool for small articles comprising a container having an aperture in an upper portion for the article to be cleaned, a screened discharge port, and a plurality of inlet ports aligned with said aperture and disposed in a lower portion of said container in a position to be covered by abrasive material in the container when in use, together with means for supplying air under pressure through said inlet ports, said ports being too small to permit the passage of material quantities of abrasive material therethrough into said air supply means.

6. A sand blast tool for small articles comprising a base, a container for abrasive material mounted on said base and provided with an aperture adapted to receive the article to be cleaned and with a screened discharge port and with air supply ports aligned with said aperture communicating with said base in a portion of said container adapted to be covered by abrasive material in use, and sufficiently small to exclude the passage of any material quantities of the abrasive material employed.

7. A sand blast tool for small articles comprising a base, a container for abrasive material mounted on said base and provided with an aperture adapted to receive the article to be cleaned and with a screened discharge port and with air supply ports aligned with said aperture communicating with said base in a portion of said container adapted to be covered by abrasive material in use, and sufficiently small to exclude the passage of any material quantities of the abrasive material employed, together with an air supply fitting communicating with said base for air delivery through the ports of said container, such fitting having an upwardly extending portion within the projected area of said base

and adapted to receive an air hose coupling pressed downwardly thereon whereby the pressure of such a coupling will render the container stable upon said base and assist in holding the device in position for operation.

8. A device of the character described, comprising an apertured receptacle for abrasive material having air admission means adapted to project the abrasive material in the container against an article inserted in said aperture and an upwardly projecting supply pipe communicating with said means and disposed within the projected area of support of said receptacle, whereby the downward application of an air hose coupling thereto will assist in maintaining said receptacle stable during the use of the device.

9. A device of the character described, comprising a receptacle having an air outlet and an aperture for the reception of an article to be cleaned and admission ports for air substantially aligned with said aperture and positioned to be covered normally by abrasive material in the receptacle, said ports being large enough to pass air while small enough to exclude any material passage of such abrasive material, and an air supply means communicating with such ports beneath said receptacle and including a base and an upwardly opening pipe disposed within the projected area of support of said base and adapted to receive an air hose coupling pressed thereon in a downward direction, the pressure of said coupling being adapted to maintain said device stable on its base.

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