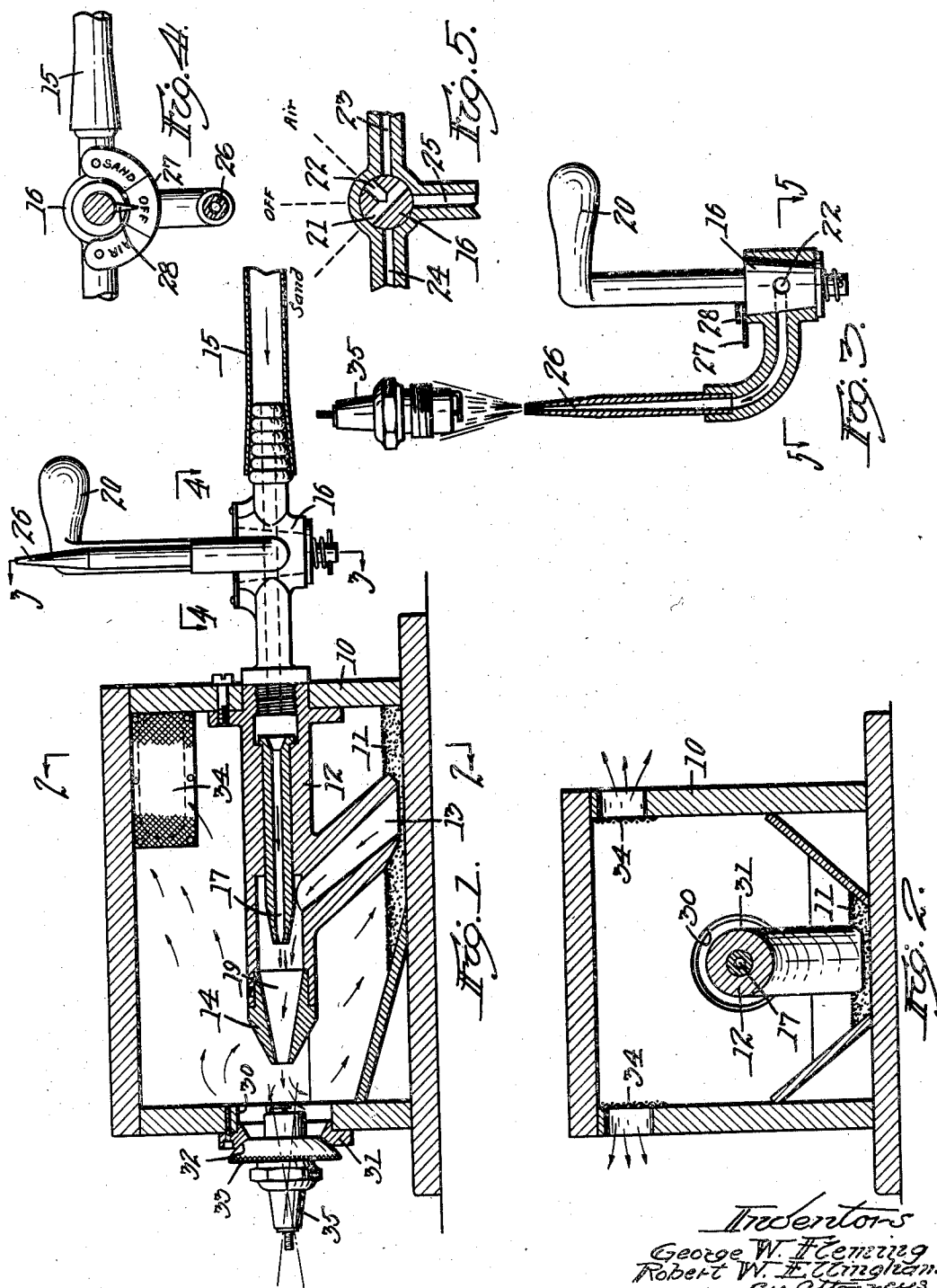


Nov. 6, 1928.

1,690,629

G. W. FLEMING ET AL
SPARK PLUG CLEANING DEVICE

Filed Dec. 6, 1927



Inventors
George W. Fleming
Robert W. F. Canning
By Attorneys
Southgate Fay & Hawley

UNITED STATES PATENT OFFICE.

GEORGE W. FLEMING AND ROBERT W. ELLINGHAM, OF WORCESTER, MASSACHUSETTS,
 ASSIGNORS TO FLEMING MACHINE COMPANY, OF WORCESTER, MASSACHUSETTS, A
 CORPORATION OF MASSACHUSETTS.

SPARK-PLUG-CLEANING DEVICE.

Application filed December 6, 1927. Serial No. 238,200.

This invention relates to an apparatus for cleaning spark plugs by means of a sand blast, or the like.

The principal objects of the invention are to provide simple and convenient apparatus by which a blast of abrasive can be directed against a spark plug for removing the carbon and other foreign matters; to provide an arrangement by which the spark plug can be turned to different positions so as to receive the blast directly on different sides of the spark plug, thus permitting a thorough cleaning, without reducing the force of the blast; to provide means by which the spark plug can thereafter be further cleaned by applying an air blast to it to remove the particles of sand and to provide an improved construction of the sand blast apparatus itself.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which—

Fig. 1 is a longitudinal central sectional view of a sand blast apparatus constructed in accordance with this invention and shown in action for cleaning a spark plug;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a sectional view on the line 4—4 of Fig. 1, showing the air blast valve in plan, and

Fig. 5 is a sectional view on the line 5—5 of Fig. 3, showing the operation of the valve.

For the purpose of introducing a blast of sand or abrasive against a spark plug I provide a box or receptacle 10, having slanting walls at the bottom and a layer of sand 11 in the bottom, with a nozzle casing 12 secured to one end of the box and extending nearly across it. The nozzle casing has a sand inlet 13 extending down into the sand for directing the sand upwardly into the interior of the nozzle casing at a forward inclination where it reaches the nozzle proper 14 through which the sand is discharged.

For the purpose of discharging the sand I introduce air under pressure, preferably from a flexible hose 15 through a valve 16 into an air nozzle 17 in the casing 12 which

opens inside the sand nozzle 14 and is centrally located with respect thereto. This air blast is introduced into an enlarged chamber 19 in the casing 12 and then into the contracted nozzle 14. This creates a suction which draws up sand through the conical passage 13 and discharges it through the nozzle 14.

The valve 16 has a stem and handle 20 and two ports 21 and 22 communicating with each other at an angle. When open, the air comes in through the passage 23 along the port 21 and out into the passage 24 which communicates with the nozzle 17. In the position shown in Fig. 5, the valve is entirely closed, but obviously it can be turned to produce the result just mentioned. The valve casing is also provided with another passage 25 which extends to an air nozzle 26 and when the valve 16 is turned so as to provide a communication between the passages 23 and 25, through the port 22, the air will be cut off from the nozzle 17 and forced out through the nozzle 26. This valve is provided with a plate 27 and the valve stem 20 with a pointer 28 to show the position of the valve at all times.

The box or receptacle 10 is provided with an opening 30 of comparatively large size directly in line with the center of the nozzle 17, which opening is provided with a seat 31 of concave shape to fit the convex surface 32 of an adapter 33 with which I provide the spark plug 35. This adapter, therefore, can be placed against this surface 31 in the central position shown in Fig. 1 or it can be turned in the manner of a universal joint throughout quite an angle, in all directions, to receive a blast of sand, emery, or other abrasive against the wire of the spark plug from different directions and on different sides. This provides a seat for the adapter which permits it to be turned to various positions for thorough cleaning. The adapter fits the seat 31 and air will not be lost due to turning the spark plug to different positions.

The air escapes from the box or casing 10 through a series of openings provided with screens 34 to catch the abrasive and cause it to flow down into the bottom again.

After the spark plug is cleaned in the manner above described, there might be particles of sand or emery, adhering to it

or particles of loose material of other kinds. For the purpose of giving it a cleaning by a blast of air to remove such solid particles the spark plug is placed over the nozzle 5 26 and the valve 16 turned to a position to cut off the air from the sand blast and turn it on the spark plug in this position. In this way the spark plug can be thoroughly cleaned without taking it to pieces or read- 10 justing it or running the danger of getting the points out of adjustment and the operation is very short and simple. The only power required is to connect it up with a source of compressed air which is readily 15 available in most places where such a device is used.

Wherever we refer to a sand blast it is to be understood that we mean a blast of sand, emery, or any granular abrasive. Al- 20 though we have illustrated and described only one form of the invention we are aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, we 25 do not wish to be limited in these respects, but what we do claim is:—

1. In a device for cleaning spark plugs, the combination with a receptacle having a 30 contracted bottom and provided with a

layer of granular abrasive therein, of an air blast nozzle extending into the receptacle, a casing having a nozzle surrounding the air blast nozzle and concentric therewith and provided with an inlet extending at an in- 35 cline down into the body of the abrasive, said receptacle having an opening in line with said nozzle provided with a concave seat, and an adapter for the spark plug having a convex surface, whereby the adapter 40 can be held against the seat and turned to various angles while the blast is playing upon it to receive the force of the abrasive at various angles.

2. In a device for cleaning spark plugs, 45 the combination with a receptacle having a layer of abrasive therein in fine particles, of a nozzle provided with an inlet extending down into the body of the abrasive, said receptacle 50 having an opening in line with said nozzle and provided with a concave seat, and an adapter for the spark plug having a convex surface fitting said seat, whereby the spark plug adapter can be held against the seat to receive the force of the abrasive at various 55 angles.

In testimony whereof we have hereunto affixed our signatures.

GEORGE W. FLEMING.

ROBERT W. ELLINGHAM.