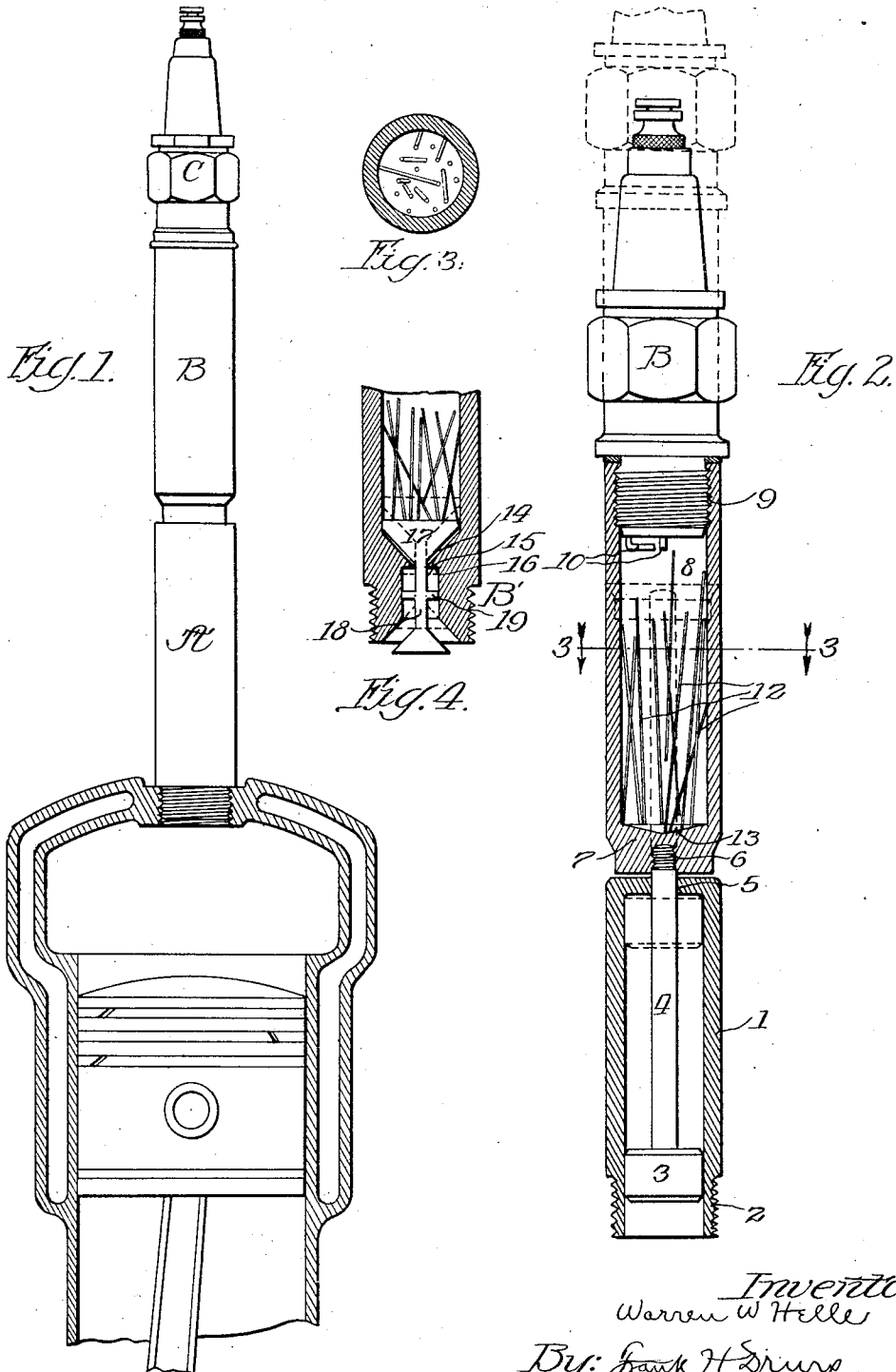


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1,403,686.

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Inventor
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WARREN W. HELLE, OF HINSDALE, ILLINOIS, ASSIGNOR OF ONE-HALF TO ALEC WATTERS, OF CHICAGO, ILLINOIS.

SPARK-PLUG CLEANER.

1,403,686.

Specification of Letters Patent. Patented Jan. 17, 1922.

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To all whom it may concern:

Be it known that I, WARREN W. HELLE, a citizen of the United States, residing at Hinsdale, in the county of Du Page and State of Illinois, have invented new and useful Improvements in Spark-Plug Cleaners, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to improvements in spark plug cleaners, and has for its object the production of a device by the use of which the electrodes of a spark plug may be kept clean and free from carbon and foreign matter.

A further object is the production of a device that is positive in its action, and will not injure the electrodes.

A further object is the production of a device that can be cheaply manufactured, and not liable to disarrangement of the parts, or breakage.

These and such other objects as may hereinafter appear are attained by my device, an embodiment of which is illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of my device in operative position on a cylinder;

Fig. 2 represents a vertical sectional view of my device;

Fig. 3 represents a horizontal sectional view on the line 3—3 of Fig. 2, looking in the direction indicated by the arrow; and

Fig. 4 is a sectional view of a portion of my device embodying a modification.

Like numerals of reference indicate like parts in the several figures of the drawings.

Referring now to the drawings,—A represents a cylindrical casting; B the cleaning casting; and C the spark plug and cap; B' represents a modification of my device in which the member A is eliminated. The member A comprises a cylindrical shell 1 threaded at its end as shown at 2; a piston head 3 with a rod 4 secured thereto is mounted within the casing, the rod passing through an opening 5 in the opposite end, and is screwed into the end of the member B, as shown at 6.

The member B is also a cylindrical shell closed at its lower end by a plug 7 or an integral part of the member itself, and having an interior chamber 8. The upper end is open and screw-threaded, as shown at 9 to

permit a spark plug B to be screwed into the open end, closing the chamber 8.

The electrodes 10 project into the chamber 8 as shown. In order to clean the electrodes I provide a plurality of pieces of wire or metal 12 placed within the chamber 8 resting on the bottom 13. Other material than pieces of wire can be used with good results, but care must be taken not to use anything that would clog up the spark plug.

In the use of my invention the spark plug is unscrewed from the cylinder head of the engine and screwed into the member B, and the device as a whole is screwed on to the cylinder head in place of the spark plug.

Each explosion of the engine then forces the members B upwardly throwing the wires 12 violently against the sides and ends of the electrodes 10 and cleaning them completely in a very brief space of time, and without any injury to the electrodes.

In Fig. 4 I have illustrated a modification of my device in which the member B' is substituted for the member B. The bottom of the member B has an opening with sloping sides as shown at 14, terminating in a projection 15, forming a shoulder 16. In place of the rigid integral bottom 13 I provide a movable valve 17 forming in effect the valve to control the opening in the bottom of the casting B'. The valve stem 18 passes through the opening and is provided with a circumferential collar 19 so positioned that when the valve stem is forced upwardly the collar strikes the under face of the shoulder 16. The bottom of the valve stem is enlarged, as shown at 20, to provide for the efficient working of the device.

I find it a very great advantage to have the chamber 8 filled with gasoline or some sort of cleaning mixture, which assists in removing the carbon and deposit from the electrodes. I am not limiting myself, of course, to any particular form of cleaning fluid or chemical, but its presence materially aids in the efficient and quick cleaning of the electrode.

It is evident, therefore, that when this member B' is screwed into the cylinder, the explosion of the engine forces the stem and valve upward and the wires or cleaning members 12 being positioned in the chamber are thrown violently upwardly in the same manner as in the original device.

It is, of course, evident that while I have

illustrated two forms of my device, other forms are possible, by the use of which the explosion of the engine forces the material against the electrodes for the purpose of cleaning off of the accumulated carbon or foreign matter, and that all of such forms come well within the spirit of my invention.

I claim as new and desire to secure by Letters Patent of the United States:

1. A spark plug cleaner comprising a chambered casting adapted to be screwed on the cylinder of an engine in open communication therewith, a piston mounted within said chamber, a second chambered casting mounted on said piston, closed at its lower end and adapted at its upper end to receive a spark plug with the electrodes of said spark plug extending into said chamber, cleaning members positioned within said second chamber and adapted to be thrown into frictional contact with said electrodes on movement of said piston.

2. A spark plug cleaner comprising a chambered casting adapted to be screwed on the cylinder of an engine in open communication therewith, a piston mounted within said chamber, a second chambered casting mounted on said piston, closed at its lower end and adapted at its upper end to receive a spark plug with the electrodes of said spark plug extending into said chamber, a plurality of metallic members positioned within said second chamber and adapted to be thrown into frictional contact with said electrodes on movement of said piston.

3. A spark plug cleaner comprising a chambered casting adapted to be screwed on the cylinder of an engine in open communication therewith, a piston mounted within said chamber, a second chambered casting mounted on said piston, closed at its lower end and adapted at its upper end to receive

a spark plug with the electrodes of said spark plug extending into said chamber, a plurality of sections of wire positioned within said second chamber and adapted to be thrown into frictional contact with said electrodes on movement of said piston.

4. A spark plug cleaner comprising a chambered casting adapted to be screwed on the cylinder of an engine in open communication therewith, a piston mounted within said chamber, a second chambered casting mounted on said piston, closed at its lower end and adapted at its upper end to receive a spark plug with the electrodes of said spark plug extending into said chamber, a plurality of metallic members positioned within said second chamber and adapted to be thrown into frictional contact with said electrodes on movement of said piston, said second chamber being substantially filled with a cleaning fluid.

5. A spark plug cleaner comprising a chambered member, means for screwing a spark plug on one end with the electrodes projecting into said chamber, a plurality of cleaning members positioned in said chamber, and means for agitating said cleaning members and bringing them into frictional engagement with said electrodes.

6. A spark plug cleaner comprising a chambered member, means for screwing a spark plug on one end with the electrodes projecting into said chamber, a plurality of cleaning members positioned in said chamber, cleaning fluid positioned within said chamber, and means for agitating said cleaning members and bringing them into frictional engagement with said electrodes.

In witness whereof, I have hereunto subscribed my name.

WARREN W. HELLE.