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D. B. MILLS.

PROTECTING HOOD FOR SPARK PLUGS.

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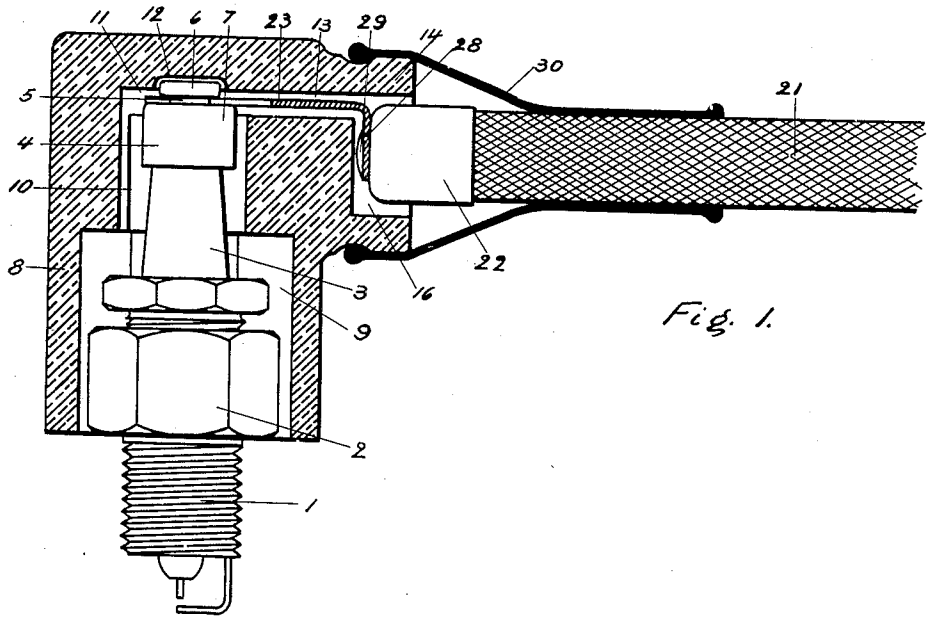

Fig. 1.

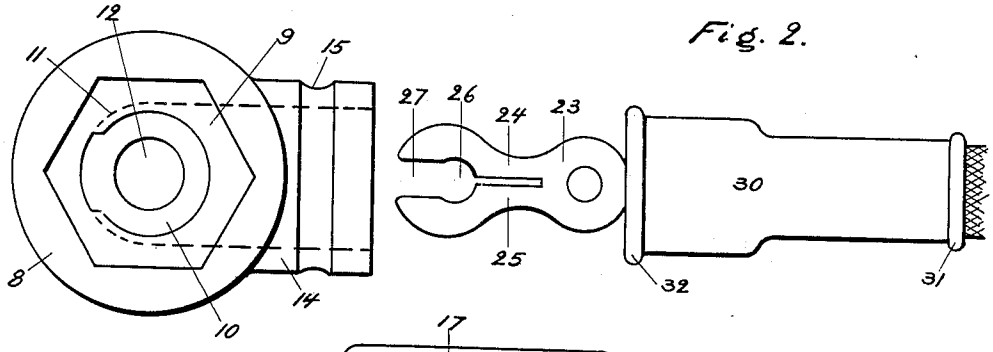

Fig. 2.

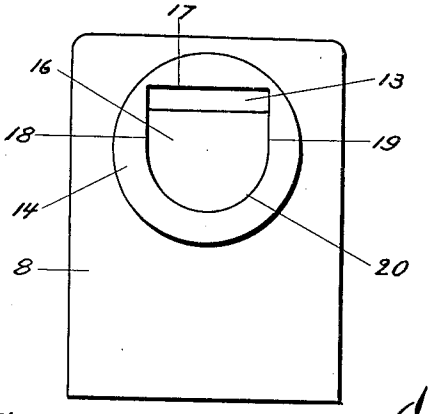

Fig. 3.

WITNESSES:

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PROTECTING-HOOD FOR SPARK-PLUGS.

No. 878,551. Specification of Letters Patent. Patented Feb. 11, 1908.

Application filed February 2, 1906. Serial No. 299,101.

To all whom it may concern:

Be it known that I, DAVID B. MILLS, a citizen of the United States, residing at East Orange, New Jersey, have invented certain new and useful Improvements in Protecting-Hoods for Spark-Plugs, of which the following is a clear, full, and exact description.

The object of this invention is to provide a protector for electric terminals particularly for the central terminal of spark plugs which will prevent the formation of a conducting film, through moisture or otherwise, from the terminal to a part of opposite polarity.

In carrying out my invention I make use of a hood which covers a terminal of the plug and incloses some of the insulating shank of the spark plug, and I provide a passage either at the top or near the top of the hood for the passage of a conductor terminal for contact with the spark terminal. In general the hood is so formed that when one terminal is therein, the other may be inserted into the hood to contact with the first and preferably resiliently engage it.

In my preferred embodiment of this invention I provide the conductor with a terminal clip which may be sprung into contact with the terminal of the plug after the hood is placed over the terminal post and the hood thus locked in place upon the post by means of said terminal clip of the conductor. I may also provide a means for sealing the opening through which the conductor passes, and this sealing means in my preferred construction consists of an elastic sleeve fitting the conductor, its other end adapted to fit over a shoulder surrounding the passage for the conductor, and thus hold the conductor terminal within the hood.

In the accompanying drawings, Figure 1 is a sectional side elevation of my improved hood with the plug and terminal in place; Fig. 2 is a bottom plan of the same with the plug removed and the conductor detached; and Fig. 3 an outside elevation at right angles to Fig. 1 of the hood.

In the specific embodiment of my invention illustrated herein I have shown a plug provided with a threaded socket 1 provided with a nut 2 from which protrudes the insulating shank 3, surmounted by the terminal 4 provided with a lesser portion 5 between two major portions 6 and 7.

The hood 8 consists of the three chambers, the first chamber 9 formed of hexagonal cross section, the second 10 of less cross section and substantially circular, and the third 11 of greater diameter than 10 and perhaps provided with a depression 12 in its roof for the major portion 6 of the plug terminal. A passage 13 which is practically a continuation of the third chamber 11 passes to without the hood and is there surrounded by the wall of the bushing-like projection 14 which is provided with an external circumferential groove 15. The bushing-like projection 14 is provided with a hollow recess 16 formed with three straight sides 17, 18 and 19 and one curved side 20. The side 17 is adjacent and parallel to the narrow passage 13.

The conductor 21 is capped by a ferrule 22 to the end of which a terminal clip 23 is secured which is formed of one flat part having two arms 24, 25 and provided between them with an opening 26, entrance to which by the post may be secured by first passing a restricted portion 27 between the arms. This clip may have one end 28 turned at right angles to its body and secured by that end to the ferrule 22, both ferrule and end 28 being provided with openings to receive the wire of the conductor 21 to permit its being soldered thereto, as shown at 29. The elastic sleeve 30 is so proportioned that its end 31 may tightly grasp the conductor 21 while its end 32 is flared out bell shaped and is of greater diameter so that it may readily be slipped over the bushing 14 and held in the groove 15 to seal the opening for the conductor and also tend to hold the conductor in place.

When the post is in position in the hood the flat terminal clip may be inserted through the narrow passage, so as to cause the arms to grasp the lesser diameter of the post, which is substantially opposite the passage, and the ferrule to occupy a position within the hollow portion of the bushing-like projection of the hood. The plug, hood and clip are thus locked together. The larger diameter of the elastic sleeve is now drawn over the bushing-like projection and its end caused to engage the circumferential groove, thus acting as a means for holding the terminal and conductor within the hood.

I am aware that screw caps of insulating material have heretofore been used to protect electric terminals, particularly for high tension currents, but I am not aware that insulating hoods with plain walls that merely fit around and do not positively engage the

terminal or its adjacent stationary parts have ever been devised or used before my invention of the same.

I claim as my invention:

1. A spark plug in combination with an insulating protecting hood having a central chamber of greater diameter at its base than the widest part of said plug, and provided throughout with plain non-engaging walls and a passage through the wall of the hood for a conductor, said hood being supported by the plug on which it rests said hood being removable from said plug by direct pull.

2. A spark plug in combination with an insulating protecting hood having a central chamber of greater diameter at its base than the widest part of said plug, and provided throughout with plain non-engaging walls and a passage through the wall of the hood for a conductor, said hood being supported by the plug on which it rests, and means for sealing the passage for the conductor said hood being removable from said plug by direct pull.

3. In combination, a spark plug having a terminal adapted to be connected with a conductor terminal by resilient engagement, a conductor terminal adapted to so engage said plug terminal, an insulating hood substantially fitting said plug and open at its bottom, and provided with a plain non-engaging interior wall, a passage in the wall for the insertion of the conductor terminal, said hood supported by said plug said hood being removable from said plug by direct pull.

4. In combination, a spark plug having a terminal adapted to be connected with a conductor terminal by resilient engagement, a conductor terminal adapted to so engage said plug terminal, an insulating hood substantially fitting said plug and open at its bottom, and provided with a plain non-engaging interior wall, a passage in the wall for the insertion of the conductor terminal, said hood supported by said plug, and an elastic sleeve secured to the conductor and adapted to be detachably secured to the hood around said passage for the terminal said hood being removable from said plug by direct pull.

5. A protecting hood for a spark plug terminal having an open end to receive the terminal and a passage through its wall for a conductor, and a bushing-like projection surrounding said passage provided with a hollow recess, near one end of which the passage opens.

6. A protecting hood for a spark plug terminal having an open end to receive the terminal, and a passage through its wall for a conductor, said hood having a central chamber of three parts, one adapted to fit the body of a plug, one to fit its shank and a third of greater diameter than the second, with which third the passage connects.

7. A protecting hood for a spark plug terminal having an open end to receive the terminal and a passage through its wall for a conductor, in combination with means for securing the hood to a plug and terminal upon the mere passing of the terminal through the passage when the hood is inclosing a plug.

8. A protecting hood for a spark plug terminal having an open end to receive the terminal and a passage through its wall for a conductor, and a bushing-like projection surrounding said passage, in combination with a conductor and an elastic sleeve thereon, one end of which is adapted to engage said bushing-like projection.

9. A protecting hood for a spark plug terminal having an open end to receive the terminal, and a passage through its wall for a conductor, said hood having a central chamber of three parts, one adapted to fit the body of a plug, one to fit its shank and a third of greater diameter than the second, with which third the passage connects, and a circumferential groove on said bushing-like projection.

10. A spark plug, an insulating protecting hood supported by the plug of greater diameter than the widest part of the plug, said hood having a plain non-engaging interior wall, and an open end adapted to receive the terminal, and a passage through its wall for a conductor in combination with a conductor terminal and an elastic means for holding it in place in the passage said hood being removable from said plug by direct pull.

11. A spark plug, an insulating protecting hood supported by the plug of greater diameter than the widest part of the plug, said hood having a plain non-engaging interior wall, and an open end adapted to receive the terminal, and a passage through its wall for a conductor in combination with a conductor terminal and an elastic means for holding it in place in the passage, said elastic means comprising a sleeve surrounding said conductor and engaging the hood said hood being removable from said plug by direct pull.

12. A spark plug, an insulating protecting hood supported by the plug of greater diameter than the widest part of the plug, said hood having a plain non-engaging interior wall, and an open end adapted to receive the terminal, and a passage through its wall for a conductor in combination with a conductor terminal and an elastic means for holding it in place in the passage, a bushing on the hood, said elastic means comprising a sleeve engaging the conductor at one end, and adapted to engage the bushing at the other end said hood being removable from said plug by direct pull.

13. In combination, a spark plug comprising a shank of insulating material provided at its upper end with a terminal, a protecting cap of insulating material adapted to fit over said plug and provided in its side

with a passage, and a conductor terminal adapted to be inserted through said passage, said two terminals being adapted to resiliently engage each other, said terminal of the conductor when engaged passing through the hood in a direction to lock it from removal.

14. A spark plug having a terminal at its upper end, a conductor terminal, means for resiliently securing said terminals together, and a hood of insulating material provided with passages one for each of said terminals at substantially right angles to each other, whereby when one terminal is in place in the hood the other may be passed into said hood and the two caused to engage, said terminal of the conductor when engaged passing through the hood in a direction to lock said hood from removal from said plug.

15. An insulating protecting hood adapted to fit over a spark plug terminal having an open end to receive the terminal, and a passage through its wall for a conductor, said passage being so located in the hood that a terminal inserted therein will engage a plug terminal within the hood, said conductor terminal when engaging the plug terminal forming a locking means to prevent the removal of the hood from the plug.

16. A spark plug, its terminal, an insulating protecting hood therefor adapted to fit over the spark plug terminal, said hood having an open end to receive the terminal, and a passage substantially at right angles with the axis of the hood through the wall of the hood for a conductor, said terminal of the plug resting against and supporting said hood with the plug terminal opposite said passage.

Signed at New York city this 30th day of January 1906.

DAVID B. MILLS.

Witnesses:
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