Jan. 8, 1952 K. A. HARDEN 2,581,655

SPARK PLUG CONNECTION AND SEAL

Filed Nov. 26, 1949

Fig. 1.

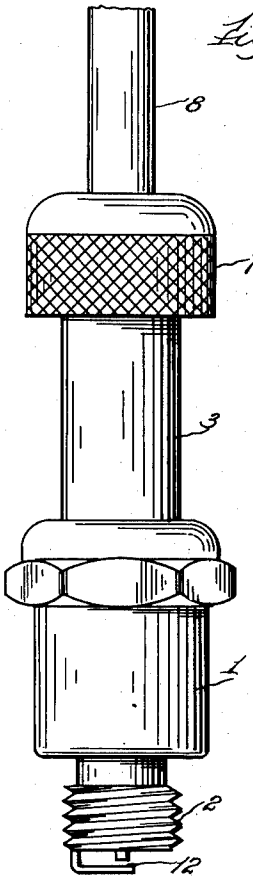


Fig. 2.

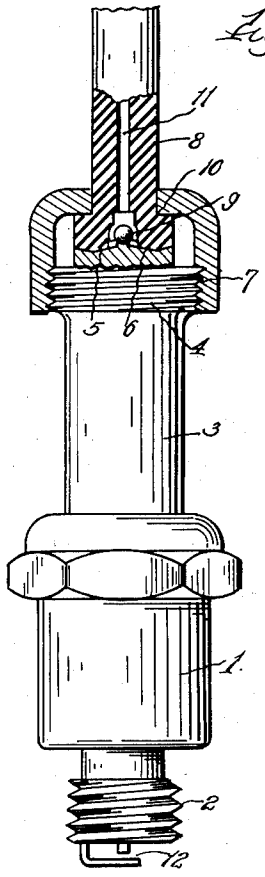
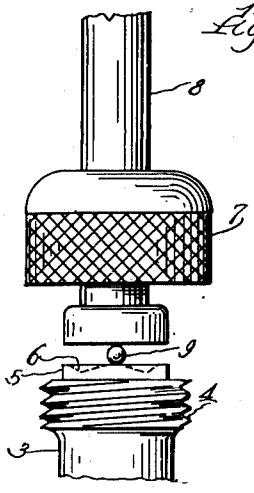


Fig. 3.



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SPARK PLUG CONNECTION AND SEAL

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2 Claims. (Cl. 173—269)

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This invention relates to spark plugs for internal combustion engines and more particularly to means for moisture-proofing the spark plug at its point of connection to the ignition cable and at the point of connection of the electrode terminal at the top of the spark plug insulator to the ignition conductor.

A further object is to provide moisture-proofing for spark plugs that is compact, of few parts, that positively insures spark transmission from the ignition cable to the electrode, that is inexpensive to manufacture, durable in use and efficient in operation.

Other objects, novel features and advantages of arrangement, construction and design comprehended by the invention are hereinafter more fully pointed out or made apparent from the following description of a preferred embodiment as illustrated in the accompanying drawing wherein like reference characters denote corresponding parts throughout.

In the drawing:

Fig. 1 is a view in elevation of a spark plug embodying the instant invention.

Fig. 2 is a view of the instant spark plug partly in elevation and partly in section to disclose the interior construction and assembly, and,

Fig. 3 is a fragmentary view of the spark plug of Figs. 1 and 2 with adjustable parts in an altered position.

The reference numeral 1 denotes the body portion of the spark plug, 2 the threaded portion and 3 an insulator of porcelain extending through the said body. The insulator 3 is formed near its top end with a slightly enlarged threaded portion 4, the very top of the insulator being shaped as a cylinder of reduced diameter as shown at 5 and formed with a peripheral bead 6. Received about the upper end of the insulator 3 is the cap nut 7 the threads of which engage the threads 4 of the insulator, said cap nut receiving and retaining one end of the ignition cable 8 disposed directly upon the reduced cylindrical upper end of the insulator and upon the bead 6.

The upper end of the electrode 9 of the spark plug is snugly received and grasped by the resilient somewhat bell-shaped socket 10 made fast to the electrical conductor 11 of ignition cable 8. The end of the flexible cable 8 resting directly upon the reduced cylindrical upper end and bead 6 of the insulator is held in moisture-proof engagement with the insulator by the cap nut when same is screwed down thereupon pro-

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viding a positive seal thus firmly locking the end of electrode 9 in its socket 10 and making certain that the ignition spark will reach the firing point 12 of the plug. The contour of the upper end of the insulator 3 and the expanding effect of the socket in the end of the cable 8 will tend to spread the cable end or this end may be otherwise expanded to permit the cap 7 to obtain a purchase thereon.

What is claimed is:

1. In a moisture-proof seal for the junction of a cable with the upper terminal of an electrical device, an insulator of cylindrical shape having a cylindrical upper portion of reduced diameter, said upper portion having a beaded portion on its upper surface, a conductor having an upper terminal extending through said insulator, an enlarged cylindrical member integral with the lower end of said cable, a resilient substantially bell-shaped socket totally embedded in the enlarged portion of said cable, a dome-shaped cap means having a central aperture through which said cable extends for pressing the enlarged portion of said cable against the beaded surface of the reduced cylindrical portion of said cylindrical insulator whereby a moisture-proof junction is effected, said means also operating to effect a positive engagement of the embedded resilient socket member with the upper terminal of said electrical device, and means whereby the operation of said first-named means causes said cable to expand against the walls of the aperture in said done-shaped cap.

2. A moisture-proof sealing device as set forth in claim 1 wherein said last named means includes the beaded surface and general contour of said upper cylinder of reduced diameter.

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