May 1, 1934. A. J. MEYER 1,956,805

ENGINE

Filed June 8, 1932

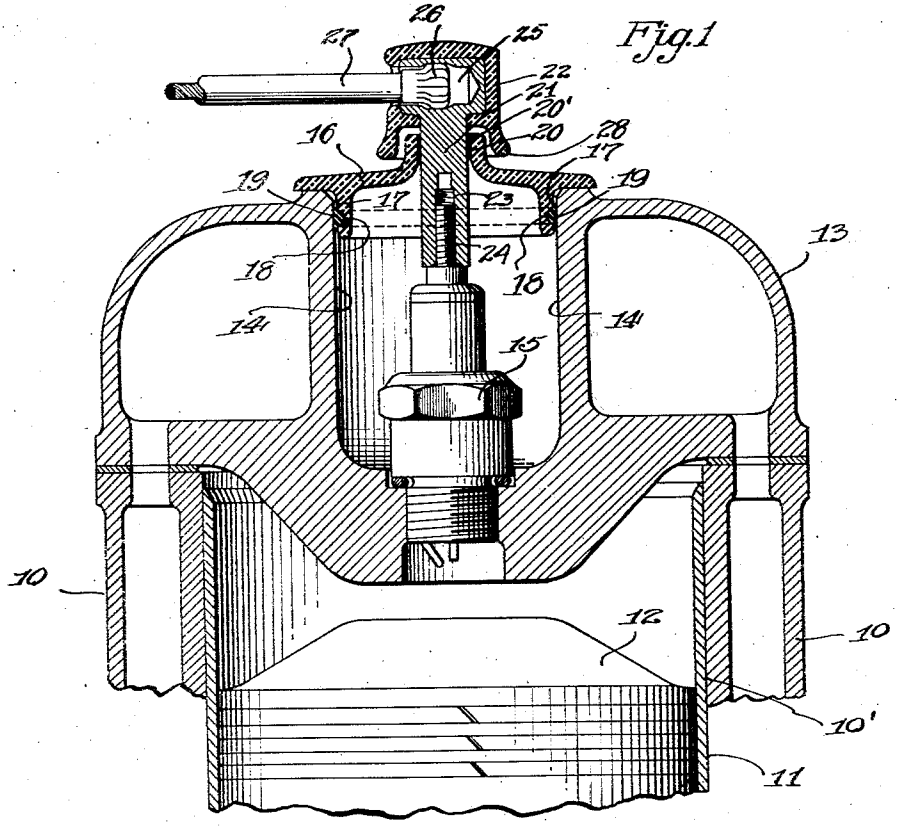


Fig.1

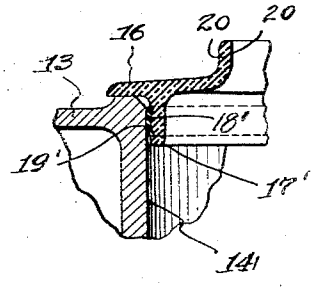


Fig.2

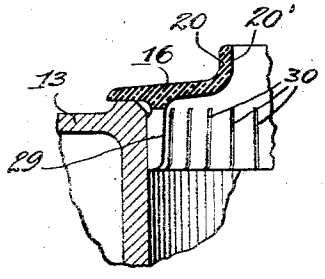


Fig.3

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UNITED STATES PATENT OFFICE

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ENGINE

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13 Claims. (Cl. 123—169)

My invention relates to internal combustion engines and more particularly to spark plug housing structures for engines in which the cylinder head carries a spark plug pocket or depression. A considerable amount of spark plug trouble is experienced due to accumulation of water and other foreign matters in this pocket.

It is an object of my invention to eliminate the aforesaid spark plug trouble by providing a cover of simplified construction for said pocket.

Another object is to provide a cover which can be easily removed or replaced.

A further object of my invention is to provide an improved cover structure having high insulating qualities.

For a more detailed understanding of my invention, reference may be had to the accompanying drawing which illustrates several forms which my invention may assume, and in which:

Fig. 1 is a fragmentary transverse sectional view of an engine illustrating a spark plug cover constructed in accordance with my invention,

Fig. 2 is a detail sectional view of a modified cover construction, and

Fig. 3 is a detail sectional view of a further modified cover construction.

The illustrated embodiment of my invention shown in the accompanying drawing consists in general of a cylinder block 10 having a cylinder 10' and an associated valve 11, said sleeve valve and cylinder being preferably ported for intake and exhaust in the usual manner. A piston 12 is associated with the cylinder, and a cylinder head 13, having a pocket 14 extending downwardly from the top of the cylinder head and adapted for receiving a spark plug 15 is preferably secured by suitable fastening means to the cylinder block 10.

The rim of the spark plug pocket 14 may be of any suitable contour, the same being shown round in the accompanying illustration. A cover 16 for said pocket constructed of bakelite or other insulating material is quickly detachably secured to the cylinder head, said cover preferably having an annular portion 17 slightly smaller in diameter than the bore of the pocket and depending inwardly of said pocket. The outer surface of the depending cover portion is provided with an annular groove 18 adapted for receiving a yielding ring 19, constructed of rubber or other yielding material, the outer diameter of this ring being larger than the bore of the pocket whereby to effect a slight compression of said ring when the cover is inserted into the pocket. The cover is preferably provided with a circular projecting portion 20 substantially extending above the top face of the cover, said projecting portion being open as at 20' to receive a spark plug adapter 21.

The adapter 21 is preferably cast united or otherwise permanently secured to a knob or second cover 22 constructed of bakelite or other suitable material and provided with an internally threaded portion 23 for engaging with the externally threaded spark plug terminal 24, the upper portion of said adapter having a socket 25 adapted for receiving a yieldable fitting 26 attached to the end of the ignition wire 27. The ignition wire 27 preferably extends laterally from socket 25 through opening 25' leaving the top of the knob 22 imperforate to best seal the pocket 14.

The knob 22 is preferably provided with a skirt portion 28 having a substantially greater inside diameter than the projecting cover portion 21. The skirt portion extends downwardly and preferably is arranged to overlap the cover projecting portion 20 to shield the open end of said projecting portion.

In the modified form of my invention the depending cover portion 17' preferably has a circular groove 18' which is arranged to receive a circular flat yielding ring 19', the groove being smaller in diameter at the edges than at the central portion.

A further modified cover structure is provided with a depending portion 29 substantially larger in diameter than the bore of the spark plug pocket 14, this depending portion 29 being preferably constructed with a plurality of slots 30 permitting the depending cover portion to be compressed on assembly of the cover with the cylinder head to effect a spring contact of the cover with the wall of the spark plug pocket.

It may be noted that the aforesaid means for protecting or housing the spark plug effectively seals the plug from water, dust, or other accumulations that tend to collect in the spark plug pocket. Also by the use of high insulating materials such as moulded bakelite, there is afforded an improved means for insulating the terminal of the spark plug from short circuits.

It will be apparent to those skilled in the art to which my invention pertains that various modifications and changes may be made therein without departing from the spirit of my invention or from the scope of the appended claims.

What I claim as my invention is:

1. A cover structure for an engine ignition device including a ring like element adapted for engagement with the engine at points remote

from the ignition device, said ignition device projecting through said ring, and an outer cover member housing the projecting portion of the ignition device and constructed to overlie the opening in said ring.

2. In an internal combustion engine having a pocket extending therein for housing a spark plug having a terminal, a cover having a portion depending within said pocket, the outer surface of said depending portion having an annular groove, means within said groove for engaging the walls of said pocket, and an adapter associated with said cover and extending through said cover for engagement with the spark plug terminal.

3. In an internal combustion engine having a pocket extending therein for housing a spark plug, a cover, yielding sealing means between said cover and said pocket, and an adapter associated with said cover and operatively connected with the spark plug, said adapter having a skirt portion overlapping a portion of said cover.

4. In an internal combustion engine having a pocket extending therein for housing a spark plug having a terminal, a cover having a portion extending within said pocket in yielding engagement therewith, and an adapter associated with the cover and extended within said pocket for engagement with the spark plug terminal.

5. In an engine having an outwardly opening pocket for receiving a spark plug, a cover for said pocket opening, an adapter extending through said cover and engaging the spark plug terminal, and an ignition wire engaging said adapter.

6. In an engine having an outwardly opening pocket for receiving a spark plug, a cover for said pocket opening, an adapter extending through said cover and engaging the spark plug terminal, and an ignition wire engaging said adapter, said adapter having an insulating knob substantially enclosing the outer end thereof.

7. In an engine having an outwardly opening pocket for receiving a spark plug, a cover for said pocket opening, an adapter extending through said cover and engaging the spark plug terminal, and an ignition wire engaging said adapter, said adapter having an insulating knob substantially enclosing the outer end thereof, said knob having an opening for receiving said ignition wire.

8. In an engine having an outwardly opening pocket for receiving a spark plug, a cover for said pocket opening, an adapter extending through said cover and engaging the spark plug terminal, and an ignition wire engaging said adapter, said adapter having an insulating knob substantially enclosing the outer end thereof, said knob having a laterally extending opening for receiving said ignition wire.

9. In an engine having an outwardly opening pocket for receiving a spark plug, a cover for said pocket opening, an adapter extending through said cover and engaging the spark plug terminal, and an ignition wire engaging said adapter, said adapter having an insulating knob substantially enclosing the outer end thereof, an insulating member carried by said adapter and having a portion thereof spaced from said adapter to receive a portion of said cover therebetween.

10. In an engine having an outwardly opening pocket for receiving a spark plug, a cover for said pocket opening, an adapter extending through said cover and engaging the spark plug terminal, and an ignition wire engaging said adapter, said adapter having an insulating knob substantially enclosing the outer end thereof, said knob having an opening for receiving said ignition wire, said knob having a skirt surrounding and overlapping a portion of said cover.

11. In an engine having a pocket for housing a spark plug provided with a terminal, a cover substantially closing said pocket and having an opening, an adapter extending through said opening and connected to the spark plug terminal, and an ignition wire connected to said adapter outside of said cover.

12. In an engine having a pocket for housing a spark plug provided with a terminal, a cover substantially closing said pocket and having an opening, an adapter extending through said opening and connected to the spark plug terminal, and an ignition wire connected to said adapter outside of said cover, and means carried by said adapter for sealing said cover opening.

13. In an engine having a spark plug receiving pocket, a cover for said pocket, said cover having an outwardly flanged opening, an adapter extending through said opening and connected to said spark plug, and a second cover carried by said adapter, said second cover having an inwardly extending skirt surrounding said flanged opening in overlapping relation whereby to deflect water from said opening.

ANDRE J. MEYER.