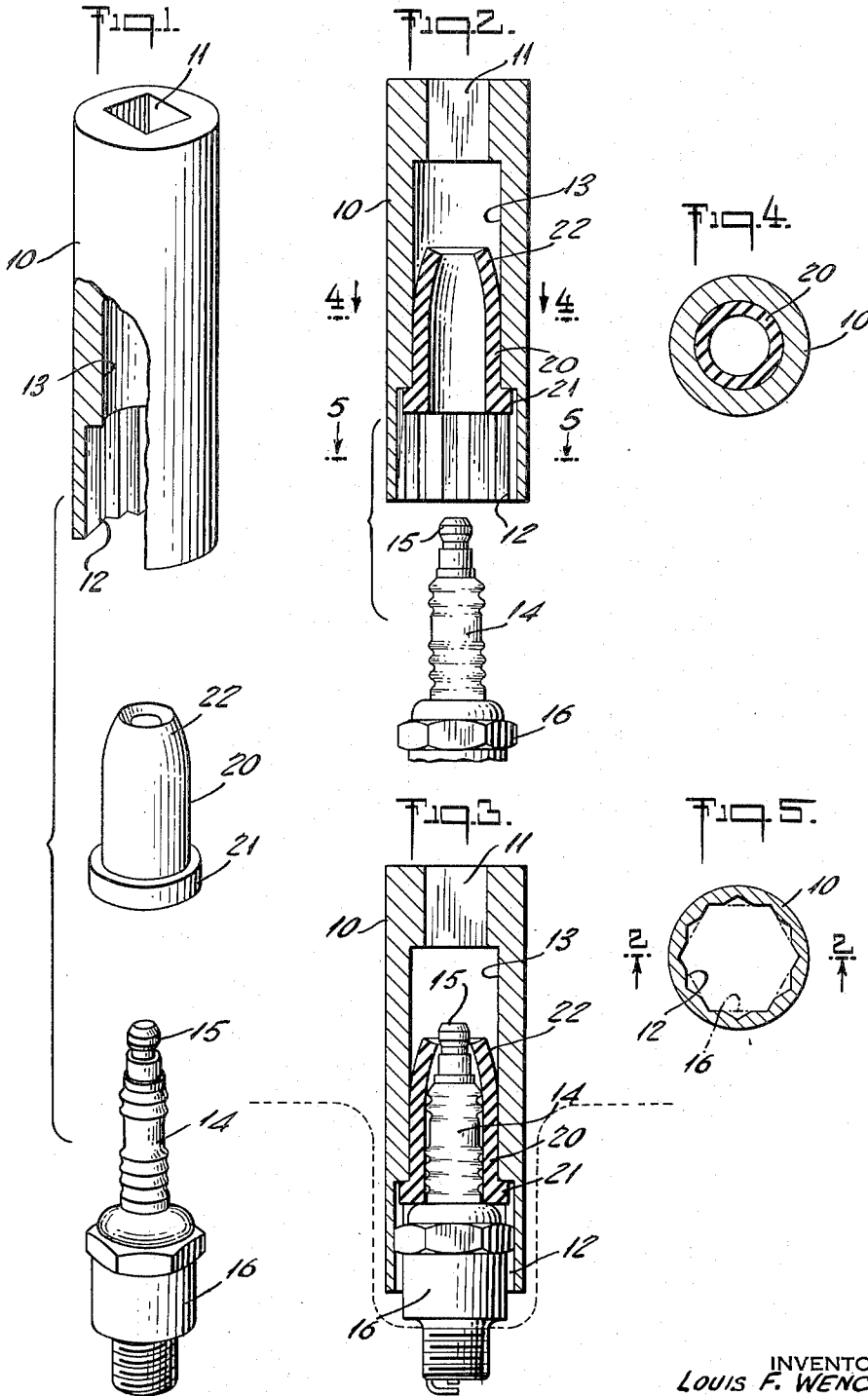


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L. F. WENCHEL
SOCKET-WRENCH INSERT FOR INSTALLING
AND REMOVING SPARK PLUGS
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SOCKET-WRENCH INSERT FOR INSTALLING AND REMOVING SPARK PLUGS

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1 Claim. (Cl. 81—125)

The present invention relates to tools for installing and removing spark plugs and is more particularly directed to tools suitable for use where the spark plugs are received in deep wells in the cylinder head.

In many forms of internal combustion engines, the well in which the spark plug is placed is so deep that it is difficult to manually line up the plug for threading it into the hole or to grasp it for manual removal of the loosened plug. The present invention contemplates a tool particularly well suited for these purposes and one which the mechanic can readily use without inconvenience.

According to the present invention, the mechanic uses the usual socket wrench with broached polygonal faces cooperable with the spark plug body and having a recess to accommodate the insulator of the spark plug and the spark plug terminal. Such wrenches are in common use and are entirely satisfactory for inserting and removing spark plugs where the operator can readily reach the plug to handle it manually. They are, however, inconvenient to use where the plug is inserted in a well of such depth that the mechanic cannot reach the plug to align it, to thread it in, or to remove it.

The present invention contemplates the employment of an elastic insert which may be made, for example, from rubber, this insert being received in the metal socket wrench unit and held frictionally in place in it. The elastic insert is tubular and has an opening of the right size to frictionally grip the ribs on the ordinary porcelain insulator with which the typical spark plug is provided. When the mechanic desires to use the insert, it can be readily placed in the socket wrench where it will remain until removed. Its presence does not interfere with the ordinary use of the socket wrench for other purposes than handling spark plugs.

The accompanying drawings show, for purposes of illustrating the present invention, one embodiment in which the invention may take form, it being understood that the drawings are illustrative of the invention rather than limiting the same.

In the accompanying drawings:

Figure 1 is an exploded perspective view of the socket wrench, the insert and the spark plug;

Figure 2 is a longitudinal sectional view on the line 2—2 of Figure 5, showing the insert in place and the spark plug separated from the tool;

Figure 3 is a cross-sectional view showing the tool placed on the spark plug;

Figures 4 and 5 are cross-sectional views on the lines 4—4 and 5—5, respectively, of Figure 2.

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In the drawings, a typical spark plug wrench is illustrated at 10. It has a square opening 11 at the top to receive the usual handle member not shown and is broached at the bottom as indicated at 12 to provide faces adapted to fit the usual hexagonal nut formed on the body of the spark plug. Between the broached lower end 12 and the upper wrench opening 11, the wrench unit 10 is tubular as indicated at 13. This tubular portion is large enough to accommodate the porcelain insulator 14 and terminal 15 of the usual spark plug 16.

The insert or accessory tool is indicated at 20. It is in the form of a tubular elastic member such as rubber, and has an outside diameter such as to snugly fit into the bore 13 of the socket wrench tool 10. It has a bottom flange 21 which limits its insertion into this bore and may, if desired, be tapered at the upper end as indicated at 22. The insert 20 may be readily pushed in place by the user or removed when it is not desired. When it is in place as indicated in Figures 2 and 3, the mechanic can use the combined tool in the usual manner in threading the spark plug into or out of the spark plug opening in the engine.

Owing to the frictional grip between the insert 20 and the tool 10 and the insert and the insulator of the spark plug, the spark plug is retained with the tool so that the three parts can be handled as a unit. The spark plug will not fall out of the tool when the tool is held in a pending position and may be inserted in place. The plug can therefore be easily manipulated to thread it into the spark plug opening and when the plug is unscrewed, the mechanic can lift the spark plug away from the engine without difficulty.

Since it is obvious that the invention may be embodied in other forms and constructions within the scope of the claim, I wish it to be understood that the particular form shown is but one of these forms, and various modifications and changes being possible, I do not otherwise limit myself in any way with respect thereto.

What is claimed is:

An accessory tool for use with the usual spark plug socket wrench having a cylindrical bore communicating with a larger-diameter socket in one end of the wrench, said tool comprising an elastic rubber-like tubular member having an outside dimension to enable it to be frictionally held in the bore of the socket wrench, having an inner dimension to enable it to grip the periphery of an insulator of a spark plug to support such a plug, and having an outwardly extending flange at its lower end to abut a shoulder formed between said bore and socket whereby such accessory tool and socket wrench may be handled as a unit to place such plug in position for threading in place or to lift it when free.

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