

Feb. 5, 1929.

1,701,401

L. BLACKMORE
METHOD OF MAKING SPARK PLUGS

Filed July 12, 1926

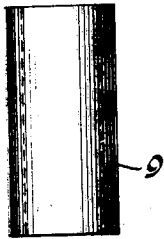


Fig. 1

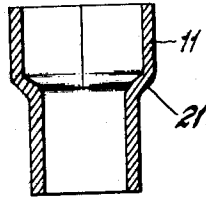


Fig. 2

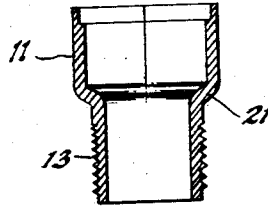


Fig. 3

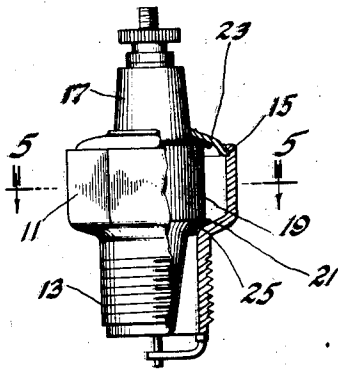


Fig. 4

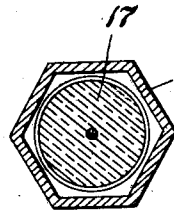


Fig. 5

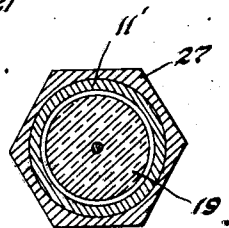


Fig. 7

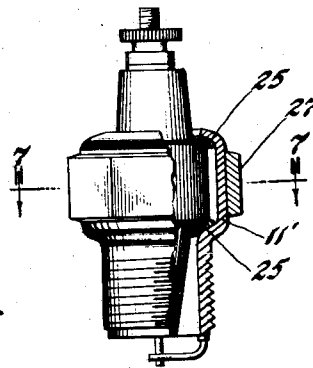


Fig. 6



Fig. 8

Inventor

Lloyd Blackmore

UNITED STATES PATENT OFFICE.

LLOYD BLACKMORE, OF HIGHLAND PARK, MICHIGAN, ASSIGNOR TO GENERAL MOTORS CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF DELAWARE.

METHOD OF MAKING SPARK PLUGS.

Application filed July 12, 1926. Serial No. 121,904.

A novel spark plug and a method of making such a plug is the subject of this invention.

Among the objects of the invention are convenience and economy of manufacture. Other objects will be appreciated upon a reading of the following description.

In the drawing there is shown a preferred form and a modified form embodying the inventive ideas of the invention.

Figure 1 is a view in elevation of a tube from which the shell of the spark plug is to be made.

Figure 2 shows the tube in longitudinal section at one stage in the operation of forming the shell.

Figure 3 shows the shell also in longitudinal section ready for assembly with the insulator.

Figure 4 is a view in elevation, partly in section, of the completed article.

Figure 5 is a horizontal section on line 5—5 of Figure 4.

Figure 6 is a view similar to Figure 4 showing a modified form embodying the invention.

Figure 7 is a transverse section on line 7—7 of Figure 6.

Figure 8 is a perspective view of a part used with the form of invention shown by Figures 1—5.

Referring by reference characters to the several figures and first to Figures 1—5, numeral 9 designates a tube of suitable material to serve as the shell of a spark plug. The shell is flared at one end to have an expanded portion 11 of non-circular shape which is preferably hexagonal is shown in Figure 5. This hexagonal shape is to provide a convenient wrench engaging part for use when the plug is being applied or removed. The other end of the shell is threaded as at 13 which threads are to enter the threaded opening therefor in the explosion chamber as usual. The upper flared end may be recessed to form a shoulder 15. An insulator 17 of porcelain or other material is inserted within the enlarged end of the shell. The insulator has a relatively large intermediate part 19. The lower end of the intermediate part of the insulator is seated on the shoulder 21 of the

shell. A washer 23 (Figure 8) has a central opening to fit the porcelain insulator and a peripheral edge shaped to correspond with the shape of the opening of the flared portion of the shell. The washer is assembled as shown in Figure 4, there being used gaskets 25 between the insulator and the washer and the shell. The upper edge of the shell is then pressed down over the edge of the washer to complete the plug. The electrodes are conventional.

Figs. 6 and 7 illustrate a somewhat different form of plug which also embodies the inventive idea. In this second form a similar tube 9 is used from which to make the shell. The tube is flared to form a part of expanded diameter 11' but is not converted to a hexagonal shape. To provide the wrench grip in this form of the invention I make use of a separate part 27 which is in the form of a ring having a circular interior opening but is hexagonal or non-circular externally to serve as a grip for a wrench. The part 27 may be pressed upon the enlarged part of the shell. It may be welded to the shell if desired. Since in this form the shell portion 11' is circular in section the washer 23 is omitted and the upper end of the shell is pressed down over the porcelain as shown in Figure 6. The usual gaskets 25 are employed.

I claim:

1. The process of making a spark plug consisting in selecting a sheet metal tube, flaring one end of the tube, securing a non-circular member around said flared portion, assembling an insulator in the tube and pressing down upon the insulator the edge of the flared end of the tube.

2. The method of making a spark plug consisting in starting with a sheet metal tube of uniform diameter, expanding said tube for a portion of its length, shrinking an external hexagonal wrench engaging member on said expanded portion, inserting an insulator within said tube and pressing the upper end of the said enlarged portion above said hexagonal part inwardly to hold said insulator in fixed position relative to said tube.

In testimony whereof I affix my signature.
LLOYD BLACKMORE.