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H. RABEZZANA

2,162,118

SPARK PLUG SHIELD

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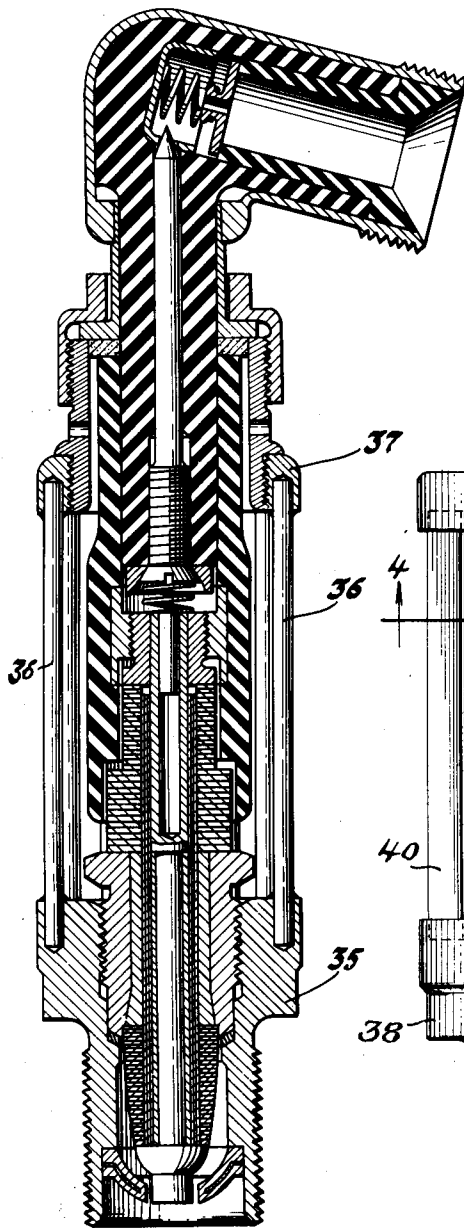


Fig. 1.

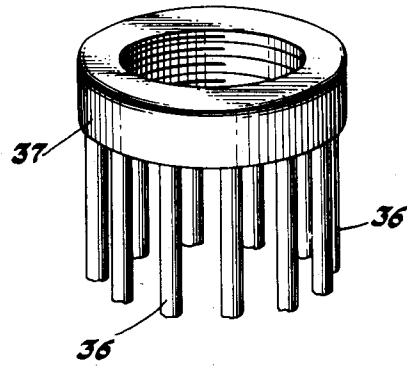


Fig. 2.

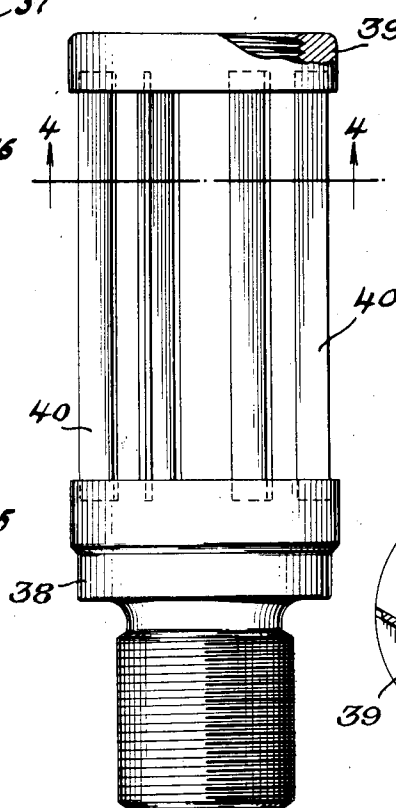


Fig. 3.

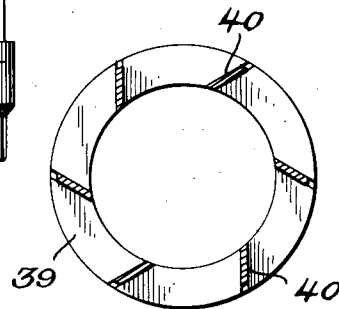


Fig. 4.

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UNITED STATES PATENT OFFICE

2,162,118

SPARK PLUG SHIELD

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Application February 24, 1936, Serial No. 65,208

4 Claims. (Cl. 123-169)

My invention relates to spark plugs for internal combustion engines and particularly to shielding means for preventing the radiation of high tension current from the spark plug proper, thus reducing or eliminating the interference which its operation produces on nearby sending or receiving radio sets and analogous sensitive apparatus located adjacent to the engine. My shielding means is so designed and arranged that it will reduce the flow of heat upward from the metallic shell of the spark plug, which is positioned in good heat conducting relation to the engine cylinder. The type of shielding means referred to in this invention was broadly disclosed in the pending Peters and Astin patent application S. N. 37,176 and filed August 21, 1935. It is in the form of a metallic cage surrounding the portion of the spark plug projecting from the top of the shell and is an upward continuation of said shell. It is also provided to receive the ignition cable shielding, thus cooperating in accomplishing complete shielding of the ignition system.

My shield is in the form of a hollow member comprised of a lower portion or spark plug shell, an upper portion or ring, and an intermediate portion comprising a plurality of longitudinal bars preferably separated each from the other by a space having substantially the same width as the bars themselves.

These bars or strips may be secured to the spark plug shell in any suitable manner such as by welding, brazing, soldering, etc. The number of bars used depends somewhat upon the particular conditions of operation to which the spark plug is to be subjected. The spaces between the bars permit some air circulation which desirably dissipates some of the heat from the spark plug.

The object of my invention is to provide for improved shields of the type under consideration, which are of simple and sturdy construction, thus simplifying their manufacture, lowering the cost and at the same time maintaining the shield efficiency requirements.

Other advantages such as pleasing appearance and compactness will be evident from the following description and drawing.

The preferred forms of my invention are illustrated in the accompanying drawing, and the particular features thereof are particularly pointed out, in the concluding claims.

In the drawing:

Figure 1 is a section showing a spark plug having a shield made in accordance with my invention.

Figure 2 is a view of the upper end of the shield shown in Figure 1 in perspective.

Figure 3 is an elevation of another form of built-up shield.

Figure 4 is a section upon the line 4-4, Figure 3.

In Figures 1 and 2 there is shown a shield built up on the shell 35. In this design the shield is formed by a number of substantially, equally spaced rods 36 made preferably of poor heat conducting material, such as stainless steel, and which are held in place by being press-fitted at their extremities into holes provided in the shell 35 and the upper internally threaded ring 37 as shown. These rods or bars 36 are more securely fastened to said parts 35 and 37 by a soldering, brazing or welding operation, if desired.

In Figures 3 and 4 there is shown another form of built-up shield, 38 and 39 designate the usual shell and internally threaded ring respectively. These two parts are connected by a plurality of flat bars 40 which are so positioned that the major faces thereof lie at an acute angle to the radius of the shield. In this position the bars deflect air into the shield and cause a desirably more rapid flow of air over the spark plug while functioning in actual service.

The bars 40, which are made of rather poor heat conducting material, are held in place by being press-fitted at their extremities into slots properly machined into shell 38 and ring 39, as shown. In order to obtain a more secure fastening and a more intimate contact between these related parts, they may be brazed, welded or soldered together at their points of contact.

Both above mentioned forms of shields are substantially of the same shielding value, and will adequately shield the spark plug proper against radio interferences caused by its operation. Besides, these shields permit an efficient air circulation around the upper assembly of the spark plug, thus reducing not only the heat transmitted to the high tension ignition cable connected to the spark plug terminal but also reducing the danger of preignition. The result is a very efficient plug of longer life for use on radio equipped motor cars, boats and especially aircraft.

Having thus described and explained my invention I claim and desire to secure by Letters Patent:

1. In electrical shielding means for a spark plug and in combination with a base having an externally threaded lower portion, and a passage extending longitudinally thereof and the upper end of which is interiorly threaded; an upper

internally threaded ring spaced apart from said base; and a plurality of circumferentially spaced bars separate and independent of one another extending between, and the ends of which are
5 secured within openings provided in, said base portion and said ring.

2. An electrically shielding member for a spark plug, comprising a hollow member having upper and lower portions and an intermediate portion,
10 said intermediate portion comprising a plurality of spaced apart longitudinally extending bars of rectangular cross section positioned so that the major faces thereof are at an acute angle to the

radius of the shield; said bars being separate and independent of one another and the upper and lower ends thereof being securely and electrically connected to said upper and lower portions by
5 brazing, soldering or welding.

3. The invention defined by claim 2, said bars being made of a material having a low heat conductivity.

4. The invention defined by claim 2, the ends
10 of said bars being secured in slots formed in the faces of said upper and lower portions.

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