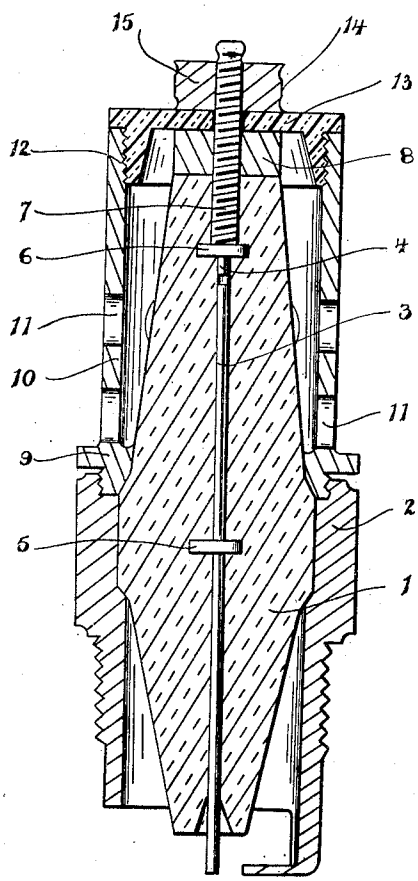
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SPARK PLUG

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SPARK PLUG

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4 Claims. (Cl. 123—169)

This invention relates to improvements in a spark plug and appertains particularly to one of advanced design as regards the central electrode and reinforced surrounding supporting structure.

An object of the invention is to provide a spark plug having a spark intensifying gap provided as by forming the central electrode in two parts with an intervening space.

A further object of the invention is to provide an improved spark plug designed to reinforce the outer or exposed end thereof.

A further object of the invention is to provide a spark plug wherein the outer end of the porcelain is surrounded by a perforated guard closed at the top by an insulating cap to centre and steady the projecting electrode.

A still further object of the invention is to provide a spark plug of the nature and for the purposes described, that is characterized by structural simplicity, durability, efficiency and relatively low cost of production, whereby the same is rendered commercially desirable.

To the accomplishment of these and related objects as shall become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts as shall be hereinafter more fully described, illustrated in the accompanying drawing and pointed out in the claims hereunto appended.

The invention will be best understood and can be more clearly described when reference is had to the drawing forming a part of this disclosure wherein like characters indicate like parts throughout the several views.

In the drawing—the figure represents a vertical cross section of a preferred embodiment of our improved spark plug.

In adapting the principle of our intensifying gap to a spark plug we have found it necessary to provide a central electrode of radically new design and secondly, in view of the support the porcelain loses by this breaking of the central electrode, a completely redesigned outer end for the plug. With reference to the latter change, it may be here pointed out that while of major importance to the success of the plug, it involves only minor structural variations, i. e., the upward extension of the locking ring to the height of the porcelain in the form of a surrounding cylinder and the closing of the top thereof with an insulating and electrode centering cap.

In this improved spark plug, a porcelain stem 1 of substantially usual design and a usual plug base 2 are employed. The central electrode is formed in two parts however 3 and 4, the former being the lower end that extends about 80 or 85% of the way up the porcelain and is firmly secured therein by a relatively wide thin annular flange 5 that is embedded in the porcelain 1 where its major diameter occurs in the seat of the plug base 2; while the upper end 4 has a similar though somewhat smaller flange 6 dividing its bottom portion, of the same diameter as the lower electrode and spaced therefrom by an air gap from the top portion 7, substantially thicker and threaded, that rises above the porcelain in the usual way. It will be observed that the gap is placed towards the top where the porcelain is thinner and can be easily kept cool and further since less of the upper electrode part 4 is embedded in the porcelain it relies for anchorage on both the flange 6 and threaded part 7 of which latter as much as possible, is provided. An ordinary topping nut 8 threads on the electrode top 7 down against the porcelain.

The locking ring 9 that threads to the plug base 2 to hold the porcelain 1 is now made to include an integral cylinder part 10 that rises to the height of the porcelain, or the topping nut 9 where one is provided. Rows of perforations 11 occur in the lower portion of this cylinder, to about the height of the gap in the central electrode, to cool and ventilate the porcelain. The open upper end of the cylinder 10 is interiorly threaded as at 12 to receive an insulating fibre cap 13 centrally perforated at 14 to accommodate the exposed upper end 7 of the electrode part 4 over which the usual terminal receiving or clamping nut 15 threads on the electrode end.

From the foregoing description taken in connection with the accompanying drawing, it will be manifest that a spark plug is provided that will fulfill all the necessary requirements of such a device, but as many changes could be made in the above description and many apparently widely different embodiments of the invention may be constructed within the scope of the appended claims without departing from the spirit or scope thereof, it is intended that all matters contained in the said accompanying specification and drawing, shall be interpreted as illustrative and not in a limitative or restrictive sense.

Having thus described the invention, what is claimed as new is:—

1. In a spark plug having a usual base and porcelain, a two-piece central electrode in said porcelain and a gap between the two parts thereof, the lower piece of said electrode having a wide thin flange embedded in the porcelain at its

major diameter where it seats in the plug base, and the upper piece having a similar though somewhat smaller flange near its lower end and a substantially thickened and completely threaded part rising upwards from said flange to a point beyond the porcelain top.

2. In a spark plug including a porcelain, a plug base, a locking ring, a perforated cylindrical guard for said porcelain integral with the said ring, and an insulating cap threaded in the top of said cylindrical guard and bearing down on said porcelain.

3. In a spark plug, a locking ring having an integral cylinder rising therefrom, rows of perforations therein, one of said rows being substantially level with the bottom thereof, and interiorly threaded at its upper end.

4. In a spark plug, a porcelain, a plug base, a two piece central electrode in said porcelain whose parts are separated by a gap about 80% of the way to the top, a locking ring threading to said plug base, an integral cylinder rising therefrom, ventilating ports therein, interior threading in the top of said cylinder and an insulating fibre cap threaded into the top of said cylinder to bear down on said porcelain and having a central opening to accommodate the projecting upper end of said electrode.

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