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J. FRANQUET ET AL

1,782,260

REMOVABLE RADIATING DEVICE FOR THE COOLING OF SPARK PLUGS

Filed June 10, 1929

2 Sheets-Sheet 1

Fig. 1.

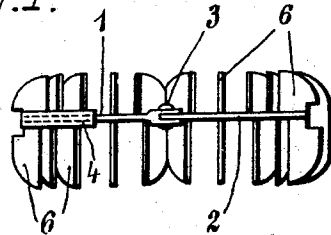


Fig. 2.

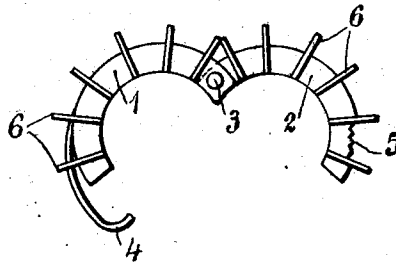
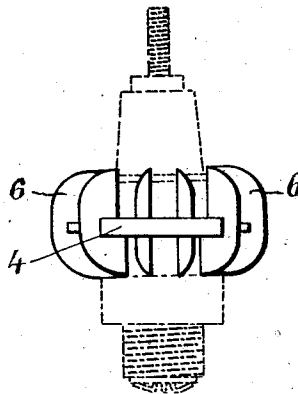


Fig. 3.



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Fig. 4

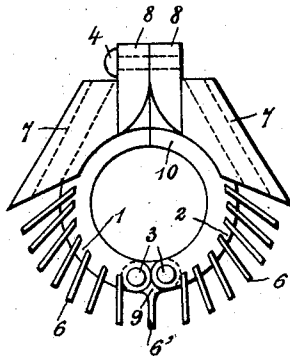
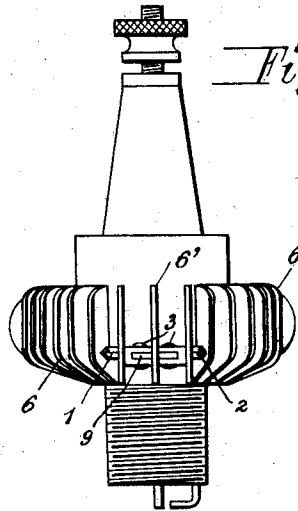


Fig. 5



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UNITED STATES PATENT OFFICE

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REMOVABLE RADIATING DEVICE FOR THE COOLING OF SPARK PLUGS

Application filed June 10, 1929, Serial No. 369,801, and in Luxemburg June 16, 1928.

It has already been proposed to construct spark plugs of a special type comprising cooling flanges or wings, such flanges being provided at the time of manufacture and being formed in one therewith.

The present invention relates to a radiating device comprising flanges, which forms an independent arrangement adapted to be mounted or removed as desired. The removable radiating device may be made adjustable in order to fit upon any of the known spark plugs. The said radiating device consists essentially of a metallic ring which may be fitted around the socket of the spark plug and secured in place, thus maintaining the cooling flanges in contact with the outer surface of the said socket whereby the said flanges, which increase the radiating surface of the socket, are situated in radial planes passing through the axis of the spark plug.

In the accompanying drawing and by way of example:

Figs. 1 and 2 are respectively an elevational and a plan view of the removable radiating device according to the invention.

Fig. 3 shows the same as applied to a spark plug.

Figs. 4 and 5 are respectively a plan and an elevational view of a modification.

As indicated in the preceding considerations, the said invention concerns, as a manufactured product, a removable radiator which may be mounted on the socket of the known spark plug. The said regulator may be adjustable, and it consists of a metallic ring of variable length which may be secured to the said socket. Upon the said ring are mounted radial cooling flanges or wings, and when the ring is placed in position, the said flanges are situated in radial planes passing through the axis of the spark plug. The inner edges of the wings fit upon the socket, according to its generatrices. Said wings are in metallic contact with the socket and will thus increase the radiating surface of the latter whereby the said socket will be better cooled.

By way of example, and as shown in the drawings, the said air cooling device com-

prises an annular element consisting of two parts 1 and 2, hinged together at the ends by a rivet 3 or by like means. The said annular element may thus be opened and closed at will, so that it can be removed and replaced, and can also be adjusted in diameter.

The other ends of the two halves 1 and 2 of the annular element may be joined by any suitable connecting means, and in the present example, these parts are connected together by a spring 4 forming a ratchet device and pertaining to one of the parts of the annular element. The outer end of the said spring 4 forms a pawl which cooperates with ratchet teeth formed of the other part.

The said annular element forms a flat ring, and is provided with the metallic flanges 6, perpendicular to the plane of the said ring and situated in the radial direction with reference to the axis which is perpendicular to the plane of the ring and passes through its centre.

When the said ring is placed around the socket 7 of a spark plug (Fig. 3), the said flanges will fit upon the said socket. The upper part of the flanges 6 is preferably recessed as far as a certain point above the said ring, thus forming a shoulder in contact with the hexagonal part of the socket. The height of the flanges is such that their lower parts will be in contact with the cylinder head of the engine when the spark plug is mounted in position.

The cooling device is thus held by pressure between the engine and the lower part of the hexagonal part of the socket.

The modification shown in Figs. 4 and 5 differs from what precedes, firstly by the special disposition of the cooling wings 6 relatively to the two half-rings 1 and 2 on which they are mounted, and secondly, by the combination, with these latter, of means for directing the current of air relatively to the said flanges 6.

For this purpose, the said flanges are so disposed that the flanges at the front part of the radiating or cooling device (relatively to the current of air produced by the travel of the vehicle) will be parallel to this direction. The succeeding flanges are more or less in-

- clined with reference to the direction of this current of air, according as they proceed along the half-rings 1—2 on which they are mounted. Their surfaces are increased at the same time. In this manner, each flange will project laterally from the preceding, and thus the flanges will take in a part of the current of cooling air and this air will flow along their surfaces.
- To facilitate this action, the flanges 6 do not extend upon the whole length of the half-wings 1—2; the outer edges of the last flanges are approximately contained in a diametrical plane passing through the axis of the cooling device and the spark plug. The rear part of the half-rings 1—2 thus comprises the conducting conduits converging to the exterior, which serve to withdraw the current of air and to thus circulate it around the radiating device.
- In the apparatus shown in Figures 3 and 4, the conduits 7 as well as the radiating wings 6 are cast in one with the respective half-rings 1—2. The conduits 7 have their outer walls suitably outlined; their ends open respectively at the rear of the last flange (which may comprise a recess for this purpose) and at the rear part of the radiator, adjacent the lugs 8, which hold the said half-rings together.
- At the front, the half-rings have a fork shape and hold between them a pivoted assembling lug 9 which connects them together and may comprise a cooling flange 6'. The ring has a suitable outline, and the lower ends of the wings 6 are oblique to the plane of the said ring (Fig. 4).
- The upper part of the flanges 6, above the plane of ring 1—2, as well as the wall of the rear conduits 7, are limited to a cylindrical surface whose diameter exceeds that of the central opening of said ring (Fig. 3). This forms an offset 10 making contact with the hexagonal part surrounding the socket of the spark plug.
- Obviously, the said flanges may have any other disposition relatively to the assembling collar, since the characteristic of the invention consists essentially in the construction of a removable air cooling device which may be disposed around a spark plug.
- We claim:
1. A radiator for spark plugs comprising two sections hinged together, each section including a semicircular band having a series of vertically disposed spaced apart flanges which extend above and below the band, and means for securing the ends of the sections together.
 2. A radiator for spark plugs comprising two sections hinged together, each section including a semicircular band with vertically disposed spaced apart flanges on the side and front portion, each band in rear of the flanges having a diverging chamber, and means for securing the sections together.
 3. A radiator for spark plugs comprising an annular body portion provided with vertically spaced vertical flanges and diverging chambers at the rear of the flanges.
 4. A radiator for spark plugs comprising an annular body portion, having spaced apart vertical flanges the central one of which is radially disposed and others of said flanges on opposite side of the radial flange being at different varying angles to the annular portion, and diverging chambers in rear of the flanges.
- In testimony whereof we affix our signatures.
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