April 1, 1941. F. B. OTTOFY 2,236,762

SPARK PLUG AND ENGINE COOLER

Filed Dec. 9, 1938

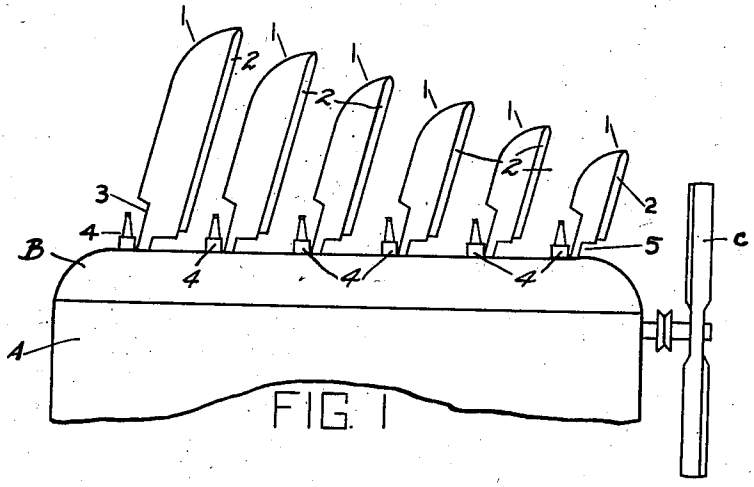


FIG. 1

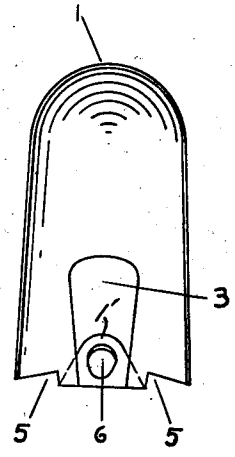


FIG 2

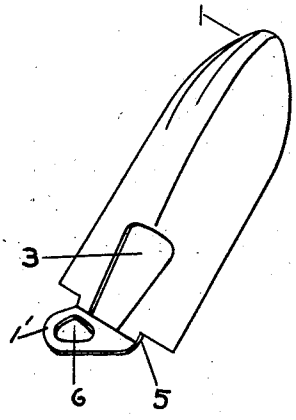


FIG 3

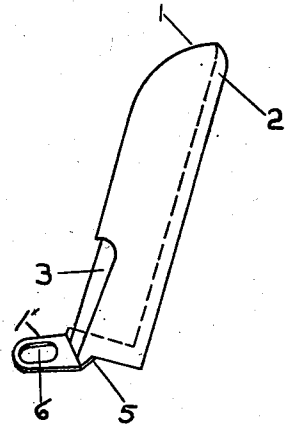


FIG 4

INVENTOR.

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SPARK PLUG AND ENGINE COOLER

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6 Claims. (Cl. 123—169)

My invention relates to means for cooling spark plugs and engine metal adjacent the spark plugs, and the invention is applicable to either air cooled or water cooled engines.

The object of my invention is to improve the performance of internal combustion engines by rapidly dissipating the heat at each spark plug and the engine metal adjacent each spark plug.

A further object of the invention is to provide a plurality of metallic baffles, varying in size toward the rear of an engine, and they project upwardly and lean forwardly from each spark plug, and are of such shape as to provide an anterior cavity interrupted by a lower opening and opposed cut-away portions on opposite sides of the opening so that air moving toward the rear of the engine will be concentrated and laterally scooped downwardly with equal amounts passing through the opening in each baffle and the cut-away portions for cooling each spark plug and adjacent engine metal.

With the above and other objects in view, the invention consists in the novel features of construction, arrangement and combination of parts, hereinafter more fully described and finally pointed out in the claims hereto appended.

Referring to the drawing:

Fig. 1 is a side elevation of the upper part of an engine showing the baffles in position in front of a plurality of spark plugs in line.

Fig. 2 is a perspective view, looking from above, of one of the metallic baffles.

Fig. 3 is a perspective view of one of the baffles.

Fig. 4 is a perspective view of one of the baffles.

Referring to the drawing, the reference character A designates the upper portion of an engine block, and B designates the engine head.

A plurality of spark plugs, in line, are each designated 4, as shown in Fig. 1. The spark plugs 4 are secured in position on the engine head B in the usual well known manner.

In carrying out the invention, it is my aim to provide each spark plug 4 carried by the engine head B with a metallic baffle designated, generally, as 1.

Where there are a plurality of spark plugs 4 employed, in line, as shown in Fig. 1, the baffles 1 associated therewith vary in size such, for instance in height and width, for each spark plug 4 toward the rear of the engine.

Each metallic baffle 1 employed comprises a suitable metallic body member having a transversely curved front and rear surface having the upper end thereof arcuately shaped, to provide an anterior cavity 2 which is open at its lower end, as will be apparent from Fig. 4. The anterior cavity 2 of each baffle 1 is interrupted by a suitable opening 3 in the lower end, and the lower edge of the body of each baffle is cut-away, as at 5, on opposite sides of the lower end of the opening 3, as clearly shown in Figs. 2 and 3.

A suitable ear 1' provided with an opening 6 projects rearwardly from the lower edge of the body of each baffle 1, as clearly shown in Figs. 2 and 3. The ear 1' is disposed at an obtuse angle to the longitudinal axis of the body of each baffle 1, so that when each baffle 1 is supported in position in advance of its respective spark plug 4, the body member having the anterior cavity will project upwardly and lean forwardly in advance of the spark plug 4, as will be apparent from Fig. 1. Each baffle 1 is held in position between the spark plug and the engine head as the screw threaded nipple of a spark plug is adapted to pass through the ear opening 1' so that when the spark plug has been moved to home position, the baffle will be clamped in position against displacement thereof relative to the spark plug. When a baffle 1 has been clamped in position on the engine head, it will be apparent from Fig. 1, that an air space will be provided between the engine head and the edges of the cut-away portions 5 at the lower end of the baffle 1 on opposite sides of the lower end of the opening 3.

In view of the fact that each baffle 1 when employed on an engine, in line, as shown in Fig. 1, is of a different size, that is in height and width, each baffle toward the rear of the engine is progressively greater in height and in width, so that the preceding baffle 1, in line, will not completely obstruct the next baffle in line, but will allow moving air above and to the sides of the first baffle, in line to be caught by the second baffle in line, and likewise on down the line. Each baffle 1 toward the engine being greater in height and width, each baffle becomes progressively greater in size so that air moving toward the rear of the engine will be concentrated and scooped downwardly in the anterior cavity 2 of each baffle, and like amounts will pass through the opening 3 in each baffle and directly pass over each spark plug to cool the same, and an additional side stream of air will pass rearwardly through the cut-away portions 5 of the baffles to cool engine metal adjacent the spark plugs 4.

The many advantages of the herein described invention will readily suggest themselves to those skilled in the art to which it appertains.

From the foregoing description, it is evident that a simple device for this purpose has been

disclosed, but it is to be understood that I do not desire to restrict, or limit myself to the very details of the construction shown and described, which is merely illustrative, it being obvious that changes, not involving the exercise of invention, may be made without conflicting or departing from the spirit of the invention within the scope of the appended claims.

I claim:

1. In an engine having a plurality of spark plugs in line, the combination therewith of metallic baffles each held in position by and in front of each spark plug and each having forward leaning curved surfaces with an anterior cavity interrupted by a lower opening, the height of said baffles varying upwardly toward the rear of said engine, that air moving toward the rear of the engine will be concentrated and scooped downwardly in equal amounts for cooling each spark plug.

2. In an engine having a plurality of spark plugs in line, the combination therewith of metallic baffles each held in place by and in front of each plug and with forward leaning curved surfaces having an anterior cavity interrupted by a lower opening, the height and width of said baffles varying upwardly and laterally toward the rear of the engine, that air moving toward the rear of the engine will be concentrated and scooped downwardly passing through the lower opening in each baffle in equal amounts for cooling each plug, and the lower corner portions of the metallic baffles being cut-away that air not passing through the opening in each baffle will pass under the cut-away corner portions of the baffle for cooling metal parts of the engine adjacent the spark plugs.

3. A spark baffle comprising a sheet metal apertured base, a member projecting upwardly and leaning forwardly from said base having curved surfaces, and an anterior cavity interrupted by a lower opening.

4. A spark plug baffle as defined in claim 3, wherein the lower edge portions of the upwardly projecting and forwardly leaning member is cut-away on opposite sides of the lower opening.

5. In an engine having a plurality of spark plugs in line, the combination therewith of metallic baffles each held in place by and in front of each plug and with forwardly leaning curved surfaces having an anterior cavity interrupted by a lower opening, the height and width of said baffles varying upwardly and laterally toward the rear of the engine so as to become progressively greater in size, that air moving toward the rear of the engine will be concentrated and scooped downwardly for delivery in equal amounts through the lower opening in the baffles for cooling each plug.

6. In metallic baffles as defined in claim 5, wherein the lower corner portions of the baffles are cut-away on opposite sides of the lower opening, that air concentrated and scooped downwardly and not passing through the lower opening in each baffle will be delivered under the cut-away corner portions of the baffles for dissipating heat from metal engine parts adjacent each plug.

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