

T. P. LOGAN.
MANIFOLD HEATER.
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1,312,554.

Patented Aug. 12, 1919.

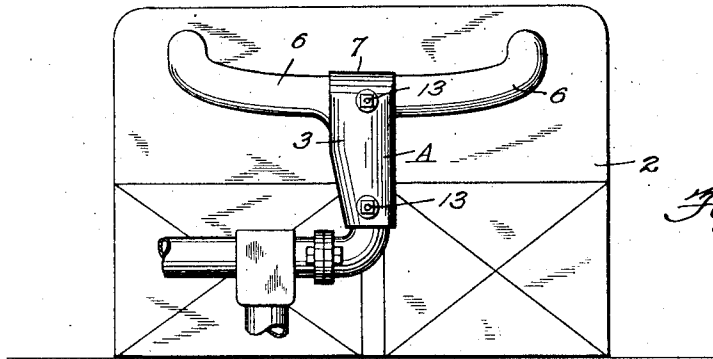


Fig. 1.

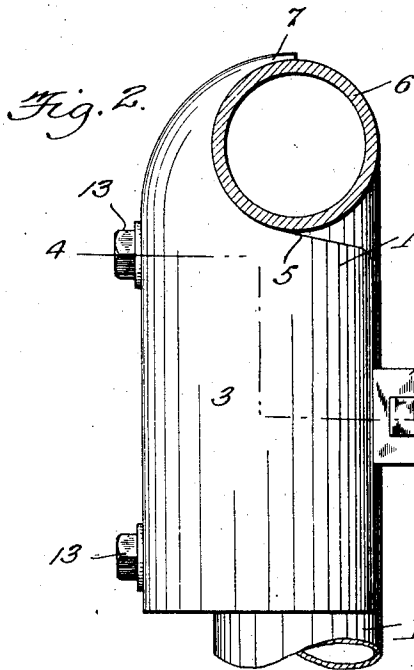


Fig. 2.

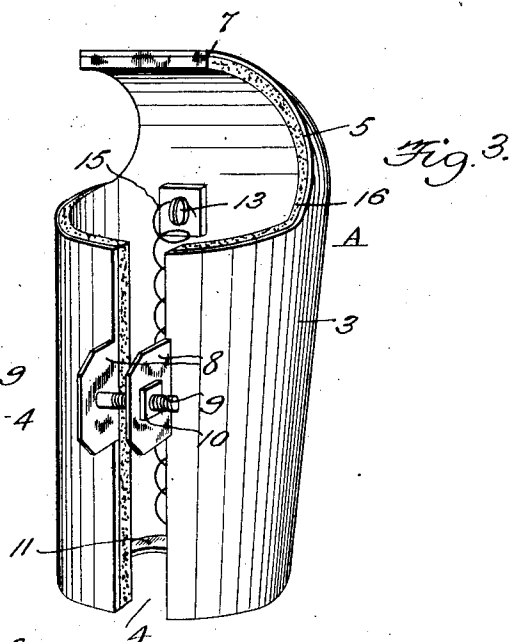


Fig. 3.

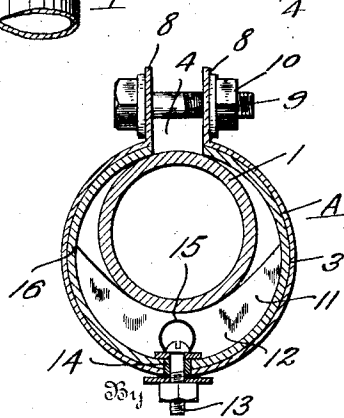


Fig. 4.

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MANIFOLD-HEATER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THOMAS P. LOGAN, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Manifold-Heaters, of which the following is a specification.

This invention relates broadly to internal combustion engines, and has particular reference to an improved attachment for use in conjunction with the fuel intake structures thereof, the object of the invention being to apply an extraneous source of heat to the intake manifold of an engine so that the fuel mixture passing therethrough will be substantially heated and thus rendered in a thorough condition for combustion, whereby ease of starting a motor in cold or inclement weather will be obtainable as well as other economical results obtained in the general quantity of the fuel mixture employed and utilized.

Another object of the invention is to provide an attachment of this character which is so constructed as to be readily engaged with engine manifolds of standard construction whereby changes in the latter will not be rendered necessary, and to provide the attachment with an electric conductor which is arranged to be situated within the immediate proximity of the intake manifold, whereby when current is passing through said conductor, the heat generated thereby will be directly transmitted to the wall of the manifold and consequently to the fuel mixture itself, the construction of the attachment being such that the same may be rigidly secured in fixed relation to the manifold and that the heat generated thereby will be directly imparted to said manifold and without any considerable loss thereof.

For a further understanding of the invention, reference is to be had to the following description and to the accompanying drawings, wherein similar characters of reference denote like and corresponding parts throughout the several views thereof, and in which:

Figure 1 is a diagrammatic side elevation of an internal combustion engine, disclosing the application of the auxiliary heater, comprising the present invention, to the intake manifold thereof.

Fig. 2 is an enlarged side elevation of the heater.

Fig. 3 is a detailed perspective view thereof.

Fig. 4 is a horizontal sectional view taken along the line 4—4 of Fig. 2.

Referring more particularly to the details of the invention, the heater A, comprising the preferred form thereof, is employed in connection with the intake manifold 1 of an internal combustion engine 2. This heater consists of a substantially resilient cylindrical shaped body 3, which is split as at 4 along its vertical rear portion so that the heater as a whole will be capable of resiliently embracing the manifold 1. The upper portion of the heater is cut away as is indicated by the numeral 5 to receive the laterally extending branches 6 of the manifold 1, and by thus cutting away the casing of the heater, an integral overhanging lip 7 is provided. This lip is adapted to rest in cooperation with the upper portion of said manifold, as is shown in Fig. 2, so that the positioning of the heater and its retention in applied position may be readily effected. To further insure the retention of the heater in its applied position upon the manifold, the former is provided along its split portion 4 with a plurality of apertured vertically spaced ears 8, which are adapted to receive a horizontal extending bolt 9 carrying a nut 10 upon its threaded end. It is obvious that by threading the nut upon the bolt, pressure will be exercised upon the ears to draw the body of the heater into firm and secured relation with the manifold 1. A flange 11 is integrally formed upon the lower end of the body 3 and is disposed to engage with the manifold 6, thus spacing the walls of the body portion from the adjacent walls of the manifold, and providing a heating chamber 12 therebetween.

Passing through vertically spaced openings formed in the front of the body 3 are a plurality of spaced terminal posts 13 which are insulated from said body by means of flange bushings 14, these posts being electrically wired to any suitable source of electric energy, preferably the storage batteries of a motor car. Connected with the interior ends of said posts and located within the chamber 12 is a coil resistance wire or conductor 15 which is arranged to lie immediately adjacent to but spaced from the vertical wall of the manifold 6 and forms a part of the circuit connected with the terminal posts 13. It will thus be manifest that upon the closing of the circuit, the conductor 15 will become thoroughly heated, so that the heat generated thereby will be

directly imparted to practically the full length of the substantially vertical portion of the manifold 6, so that the fuel mixture passing through the latter will have its temperature raised to such a point that combustion may readily take place in the engine cylinders when the heated mixture is finally admitted therein. The interior of the body 3 is preferably lined with an asbestos or other similar coating 16 so that the heat of the attachment will be localized in the immediate proximity of the manifold, thus preventing dissipation of said heat and consequent higher efficiency on part of the attachment.

From the foregoing it will be seen that there is provided a device of considerable utility and one of such construction as to promote ease and facility in the starting of an engine in cold or inclement weather. The device may also be used while the engine is in operation but its chief use is in the capacity above stated. It will be noted that the flange 11 is so formed as to prevent the conductor 15 from contacting with the manifold walls, thus preventing the presence of a short circuit in the device. In this connection, however, it is advisable to state that it is not necessary to form the conductor 15 in the coiled manner shown and described, but it is obvious that the same may be flattened in cross sectional configuration and its area extended so as to bring the same closer to the manifold and at the same time to decrease the width of the chamber 12. Again, it is not necessary to integrally form the attaching means 7 and 8 with the body 6 as it is obvious that by immaterial changes, same functions can be obtained by means of a two-piece construction.

I claim:

1. The combination with an intake manifold of an internal combustion engine, of a heating attachment therefor, comprising a resilient metallic body shaped to embrace substantially T-shaped configuration of the manifold, clamping means for securing the

attachment in an operative position upon said manifold, an electric conductor situated within said attachment and in intimate relation with said manifold to impart heat to the latter, and a flange formed upon the lower end of said attachment for spacing said conductor from the wall of said manifold and to define a heating chamber therebetween.

2. An auxiliary heating attachment for internal combustion engines, comprising a resilient metallic body shaped to embrace the intake manifold of an engine, said device comprising a substantially split body having an upper overhanging lip structure and coöperating cut-away portions shaped to receive the lateral branches of said manifold, clamping mechanism for drawing the split portions of said body into frictional engagement with said manifold, a flange formed upon the bottom of said body for limiting the adjustment of said clamping means and to define a heating chamber between said body and said manifold and an electric conductor carried by said body and situated within said heating chamber.

3. An auxiliary heating attachment for internal combustion engines, comprising a resilient metallic body shaped to embrace the intake manifold of an engine, said device comprising a substantially split body having an upper overhanging lip structure and coöperating cut-away portions shaped to receive the lateral branches of said manifold, clamping mechanism for drawing the split portions of said body into frictional engagement with said manifold, a flange formed upon the bottom of said body for limiting the adjustment of said clamping means and to define a heating chamber between said body and said manifold, an electric conductor carried by said body and situated within said heating chamber and a lining encircling the interior of said body for localizing the heat emitted by said conductor.

In testimony whereof I affix my signature. 95
THOMAS P. LOGAN.