

M. A. SIMON.
ELECTRICALLY HEATED INTAKE MANIFOLD.
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1,435,989.

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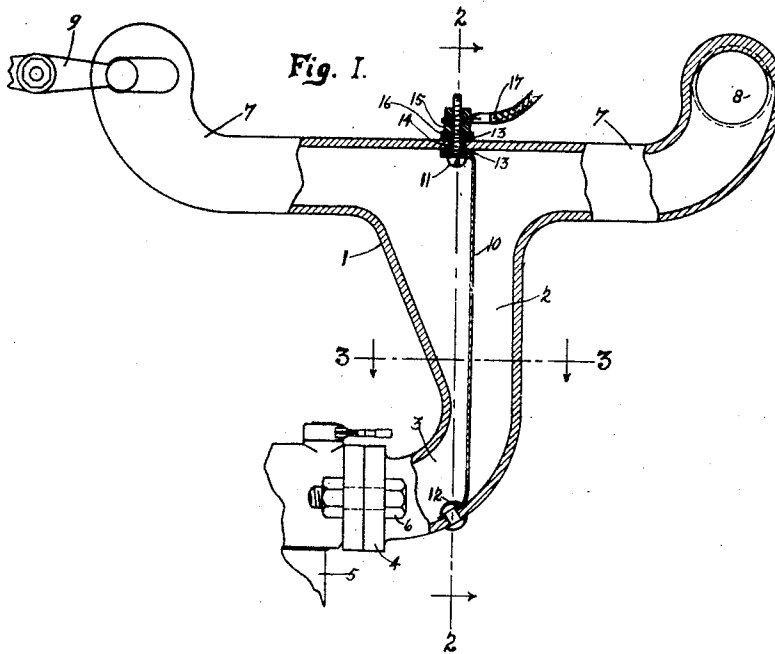


Fig. 2.

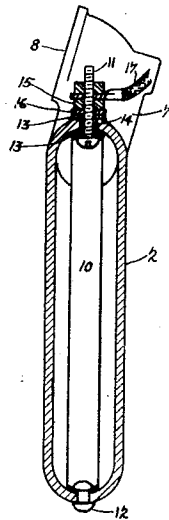
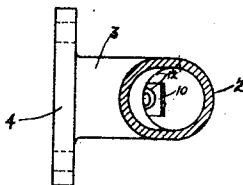


Fig. 3.



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ELECTRICALLY-HEATED INTAKE MANIFOLD.

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To all whom it may concern:

Be it known that I, MEYER ABRAHAM SIMON, a citizen of the United States, residing at St. Louis, State of Missouri, have invented new and useful Improvements in Electrically-Heated Intake Manifolds, of which the following is a specification.

My invention relates to improvements in electrically-heated intake manifolds, and consists in the novel combination and arrangement of parts hereinafter more fully disclosed.

The main object of my invention is to provide means for facilitating the starting of an internal-combustion engine after its prolonged exposure to cold weather.

Another object of my invention is to provide a means of aiding in the vaporization of the low-grade fuels now generally employed in the operation of internal-combustion engines.

Another object of my invention is to provide such a heating means which shall be simple, efficient, durable, and economic of manufacture.

I attain these objects by means of the device illustrated in the accompanying drawing, in which—

Figure 1 represents a view partly in section and partly in elevation of my electrically-heated intake-manifold, showing clearly the disposition of the heating member therein. Figure 2 is a vertical section thereof taken on the line 2—2 of Fig. 1. Figure 3 is a cross-section through the device taken on the line 3—3 of Fig. 1.

Similar numerals refer to similar parts throughout the several views.

In the embodiment of the invention illustrated in the drawing, the numeral 1 indicates an intake-manifold of a well known type which, in the main, comprises a central vertical pipe or passage 2 enlarged at its upper end and tapering substantially to its lower extremity as shown, the said lower extremity developing into an L or neck formation 3 horizontally disposed. A flange member 4 at the lower entrance to said intake-manifold constitutes the supporting means for a carbureter 5, which is joined in a gas-tight manner thereto by bolt members 6.

The enlarged upper extremity of said central vertical passage 2 develops into divergent communicating branch passages 7 substantially at right angles thereto and prefer-

ably in the same plane therewith as shown, thus giving the manifold substantially the shape of a Y. Circular outlet openings 8 at the outer extremities of the arms 7 permit communication of the intake-manifold with the engine proper. Clamp devices 9 maintain the manifold rigidly but removably affixed to said engine.

A heating member 10, preferably in the form of a ribbon of resistance material, is positioned preferably vertically within the aforesaid central vertical passage 2 as shown. The resistor ribbon is strung tautly between an upper insulated terminal screw 11 and a lower grounded terminal member 12. The upper terminal member 11 is insulated from the metal wall of the manifold through which it passes by means of insulating washers 13 and insulating bushing 14 preferably of mica, lava, or fiber. A nut 15 and washer 16 maintain the said terminal member rigidly in position. The lower terminal member 12, which is preferably a copper rivet, passes through the lower extremity of the resistance ribbon and manifold wall, and maintains the former in pressed electrical contact with the latter.

In assembling the resistor member within the manifold, it has been found practical and economical to fish or draw up the resistance ribbon into position within the central vertical passage by means of a sufficiently long and flexible crooked wire tool inserted through the upper terminal screw opening.

A lead wire 17 connects the resistor with a battery supply circuit, and a suitable switch is inserted in the line for its instant and ready control.

In operation, the device is simple and positive. After prolonged exposure to the influence of cold weather, an engine becomes a difficult matter to start in view of the inability of present day fuels to vaporize without the aid of heat. By simply closing the switch, the resistor ribbon becomes instantly hot, and the cold gaseous mixture upon entering the manifold comes into contact with this hot filament and vaporizes instantly. This hot vapor constitutes an excellent explosive mixture, and results therefore in an almost instantaneous start.

The essential distinctive feature of my invention lies in the particular location, character, and arrangement of the heating resistor. The bare ribbon, disposed throughout the entire length of the central vertical

passage, presents an extended length of heated filament directly in the path of flow of the gaseous mixture, and thus furnishes intense heat in that portion of the manifold where it is most necessary to effect vaporization and thereby an instant start.

Although the drawing and above description disclose the best mode in which I have contemplated embodying my invention, I do not desire to be limited to the exact details of such disclosure, for in the further practical application of my invention, many changes in form and construction may be made, as circumstances require or experience suggests, without departing from the spirit of my invention within the scope of the appended claims.

I claim:

1. An electrically-heated intake-manifold, comprising a vertically-disposed tubular chamber, an inlet to the lower extremity thereof, a plurality of outlets leading from the upper extremity thereof, a terminal member located in the upper extremity thereof adjacent the outlets therefrom, a terminal member located in the lower extremity thereof adjacent the inlet thereto,

and a resistor disposed between said terminal members.

2. An electrically-heated intake-manifold, comprising a vertically-disposed tubular chamber, an inlet to the lower extremity thereof, a plurality of outlets leading from the upper extremity thereof, an insulated terminal member located in the upper extremity thereof adjacent the outlets therefrom, a grounded terminal member located in the lower extremity thereof adjacent the inlet thereto, and a resistor disposed between said terminal members.

3. An electrically-heated intake-manifold, comprising a central vertically-disposed tubular chamber, an inlet to the lower extremity thereof, a plurality of outlets leading from the upper extremity thereof, an insulated terminal member located in the upper extremity thereof adjacent the outlets therefrom, a grounded terminal member located in the lower extremity thereof adjacent the inlet thereto, and a strip of bare resistance material disposed between and supported by said terminal members.

MEYER ABRAHAM SIMON.