

June 12, 1928.

1,673,568

B. S. JOHNSON

INTAKE HEATER

Original Filed Dec. 18, 1925

Fig. 1.

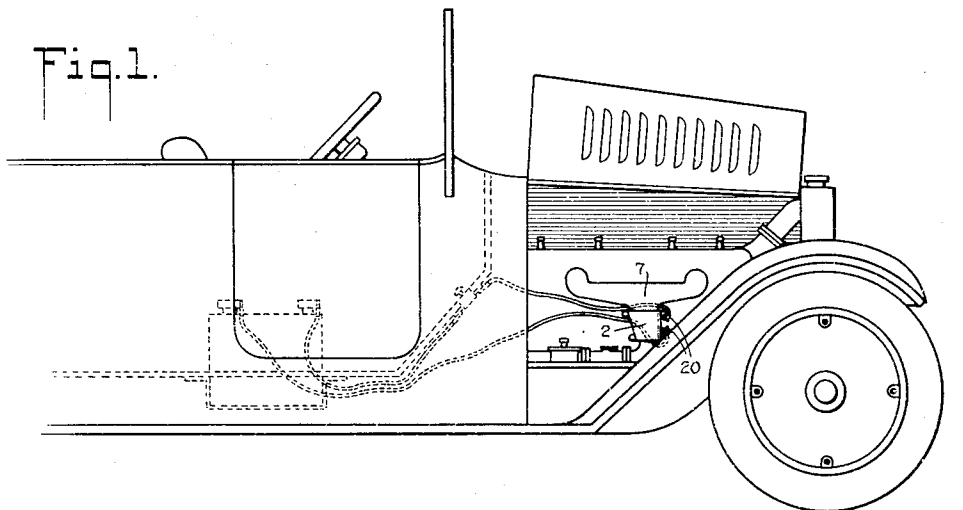


Fig. 2.

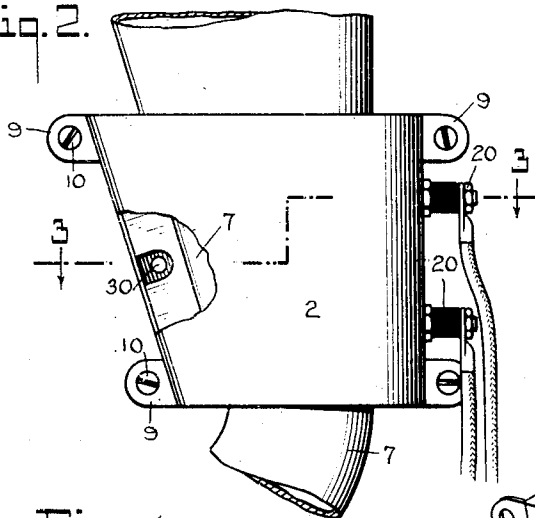


Fig. 3.

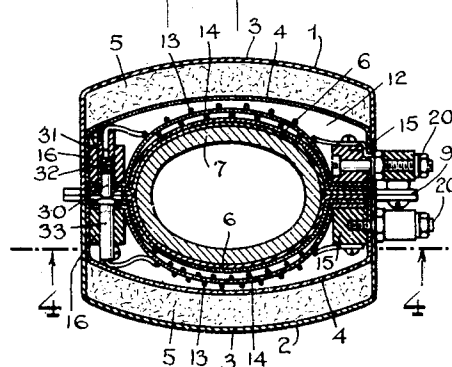


Fig. 4.

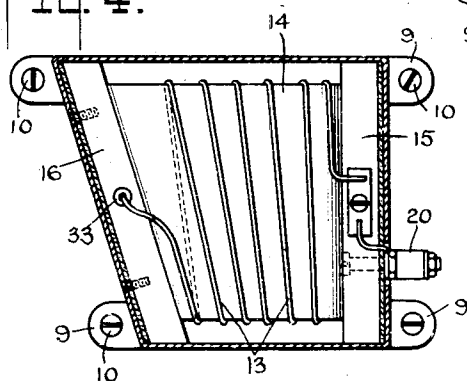
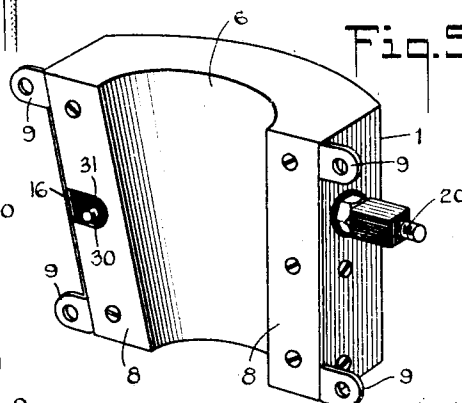


Fig. 5.



INVENTOR
Benjamin S. Johnson
BY
Garraugh & James
ATTORNEY

UNITED STATES PATENT OFFICE.

BENJAMIN S. JOHNSON, OF NEW YORK, N. Y.

INTAKE HEATER.

Application filed December 18, 1925, Serial No. 76,191. Renewed February 16, 1928.

My invention relates to charge heaters for automotive engines, and especially to a heater of the electric-resistance type adapted for easy attachment to the intake pipe or manifold of any of many current motor-vehicle engines, to preheat intake air or the combustible charge, and facilitate starting, especially in cold weather.

To this end the invention comprises, as briefly described, jackets arranged to be readily clamped together about the manifold or a part thereof, containing electric-resistance elements and also having suitable heat-insulating means, and provided with externally accessible terminals for connection to a convenient current-source (usually the motor-vehicle storage battery), and also having "internal", concealed contacts which automatically establish and maintain the heating circuit when the jackets are brought together and secured in place.

The characteristics and advantages of the invention are further sufficiently described in connection with the following detail description of the accompanying drawing, which shows one exemplifying embodiment. After considering this, skilled persons will understand that many variations may be made within the scope of the invention as determined by the appended claims.

In the drawing:

Fig. 1 is a side elevation of a motor-vehicle showing the invention appliance in one form applied to the engine intake manifold.

Fig. 2, is a front elevation of the heater.

Fig. 3, is a section at 3-3, Fig. 2.

Fig. 4, is a section at 4-4, Fig. 3.

Fig. 5, is a perspective view of one of the jackets.

The appliance in the form chosen for a representative physical embodiment comprises jackets 1 and 2, formed with double walls 3 and 4, the spaces between these walls being filled with suitable heat-insulating material 5. The inner wall 6 of each jacket is formed concavely, as shown in Fig. 5, to fit about one-half of the engine intake pipe, or a portion of the manifold 7, Fig. 2. Confronting jacket faces 8 are flat, and adapted to fit closely together, and are secured about the manifold by perforated ears 9, and screws or bolts 10.

The inner walls 6 are spaced away from walls 4 to provide chambers 12 to accommodate the heating elements, which consist of wires 13 of nichrome or other suitable metal.

wound about insulating sheets or forms 14 which are secured to insulating blocks 15 and 16.

The form and arrangement of the heating elements and their supports may vary considerably, the arrangement shown being one suitable example. One end of each heating coil 14 is connected to an external terminal or binding post 20, these two posts on the different jackets being conveniently arranged at the same side of the device when the two jackets are secured together, as shown in Fig. 2 and Fig. 3. Concealed and enclosed contacts are provided for connecting together the other ends of the heating coils to complete the circuit. Thus jacket 1 has a contact 30, slidingly located in a socket 31 and urged outward by a spring 32. The other jacket 2, has a fixed contact 33 set in one of the insulating blocks 16. When the jackets are brought together and clamped the spring contact 30 establishes a yielding but firm connection with the fixed contact 33 and so the heater circuit is completed, the outside binding posts 20 being of course connected to leads of opposite polarity from any suitable source of energy, which is usually the storage battery of the motor vehicle.

The concealed jacket-connecting contacts 30 and 33 reduce greatly the chance of a short circuit which would otherwise be involved in having these connecting members exposed. They are also protected from corrosion or other injury, and especially they provide for the automatic completion of the circuit without any care or attention of the workman when the appliance is installed.

The heat insulation above mentioned provides for the effective retention of heat which is transferred to the manifold wall and heats the combustible charge therein to insure easy starting, especially in cold weather. The battery or other current need be supplied only for a brief time, usually substantially the same time that is required for hand or power cranking of the engine in the ordinary start, and drain on the battery is low and unobjectionable.

I claim:

1. A heating appliance of the class described comprising mating jackets adapted to fit about an intake manifold, means for securing them together, the jackets having double walls providing chambers with heat insulating material therein, insulating forms within the jackets, heat-resistance wires

wound on the forms, an external terminal on each jacket connecting to one end of its heating coil, an internal contact in each jacket connected to the other end of its heating coil, the internal contacts being arranged to meet and automatically complete the coil circuit when the jackets are brought together and secured.

2. A heating appliance of the class described comprising mating jackets adapted to fit about an intake manifold, means for securing them together, the jackets having double walls providing chambers with heat insulating material therein, insulating forms within the jackets, resistance wires wound

on the forms, an external terminal on each jacket connecting to one end of its heating coil, an internal contact in each jacket connected to the other end of its heating coil, the internal contacts being arranged to meet and automatically complete the coil circuit when the jackets are brought together and secured, one of said internal contacts being yieldably mounted to provide firm yielding engagement with the other internal contact.

Signed at New York city, in the county of New York and State of New York, this 4th day of December, A. D. 1925.

BENJAMIN S. JOHNSON.