

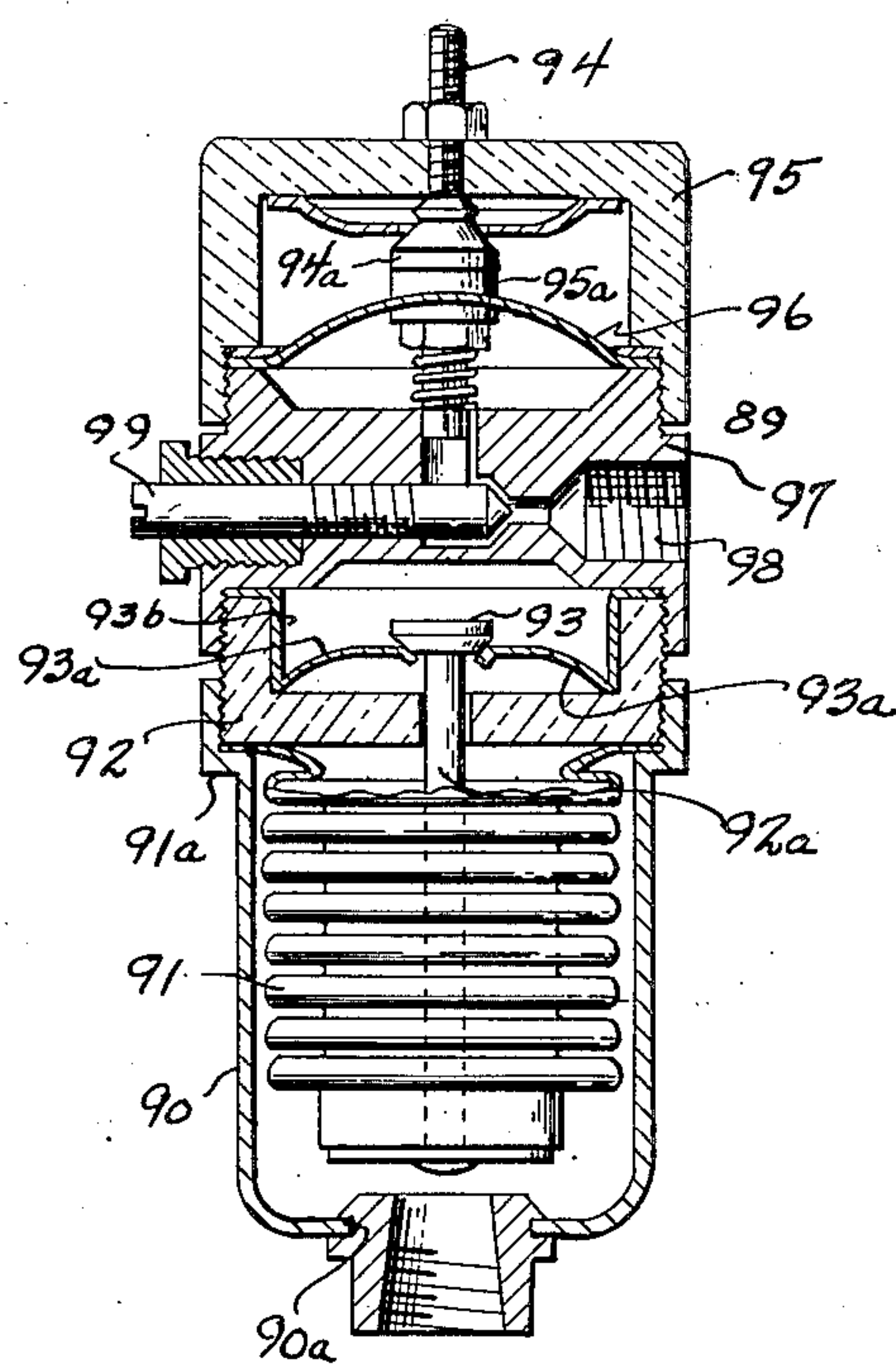
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C. F. WARNER

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PRESSURE SWITCH

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INVENTOR.

Charles F. Warner

BY

Francis D. Hardesty

ATTORNEY.

UNITED STATES PATENT OFFICE

CHARLES F. WARNER, OF RICHMOND, VIRGINIA, ASSIGNOR OF ONE-HALF TO HENRY G. DICKERSON, OF RICHMOND, VIRGINIA

PRESSURE SWITCH

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This invention relates to switches and more particularly to switches adapted to be placed in the operating circuit of an automobile engine starting motor and adapted to be controlled by conditions existing in the automobile engine.

It is an object of this invention to provide a switch normally closed but being operable at either or both of the two points in series by suction created within the intake manifold of the engine when the latter is running, or by pressure built up in the oil lubricating system when the latter is running.

Still other objects will occur to those skilled in the art upon reference to the following description and the single figure of the drawing which shows in section the switch of the present invention.

In the switch casing, a two part upper chamber 89 is spaced from, but secured to a lower chamber 90, by means of a threaded insulating partition 92. Chamber 90, connected and grounded to the oil lubrication system of an automobile engine by means of the nipple 90a, contains a flexible cup-shaped diaphragm 91, whose upper or open edge rests on ledge 91a of chamber 90 and whose lower or closed wall is fixed to a switch member or rod 92a passing thru the partition 92. The contact head 93 of the rod 92a is normally held in contact with the spring fingers 93a of the copper cup 93b. A binding post 94 is mounted in the insulating cap 95. A second contact rod 95a is normally held in engagement with the stud 94a of the binding post 94 by the bowed diaphragm 96 whose edge rests on annulus 97. A port 98 is pneumatically but not electrically connected to the intake manifold of the engine and opens to the underside of the diaphragm 16, the size of the port being controlled by the adjustable needle valve 99.

The operation of the device is readily understood. When the starting motor, whose operating circuit passes thru contact 94 and to ground via parts 94a, 95a, 96, 97, 93b, 93a, 93, 92a, 91, 90 and 90a, has been rotated a few turns, the engine connected thereto will rotate and due to explosion of the fuel there-

in, will cause a suction in the intake manifold and a pressure in the oil lubrication system of the engine. Suction in the manifold, operating thru the port 98 pulls down the diaphragm 96 and the contact 95a, breaking the starting motor, operating circuit. Oil pressure in the lubrication system, operating thru nipple 90a will collapse diaphragm 91 elevating rod 92a away from fingers 93a and also breaking the circuit and causing the starting motor to cease running. The motor cannot again start running until the suction in the manifold has died down and until the oil pressure in the lubrication system has diminished. In this way, the circuit for operating the starting motor is made responsive to conditions in the engine of the vehicle.

I claim:—

A pressure switch comprising a metallic base, an insulating cup shaped cap on said base providing a chamber, a diaphragm in said chamber, a contact carried by said cap and a cooperating contact carried by said diaphragm, the base having a port opening into the chamber under said diaphragm and adapted to be connected to the intake passage of an automobile, spring means for flexing said diaphragm to cause said contacts to engage each other, a second insulating cup shaped cap secured to said base and having contacts in the cup thereof, a metallic cap secured to said second insulating cap to define a second chamber, a metallic bellows secured to said metallic cap and disposed in said second chamber, a contact secured to said bellows and adapted to engage the last mentioned contacts, said metallic cap having a port adapted to be connected to the lubricating oil passage of an automobile engine.

CHARLES F. WARNER.