

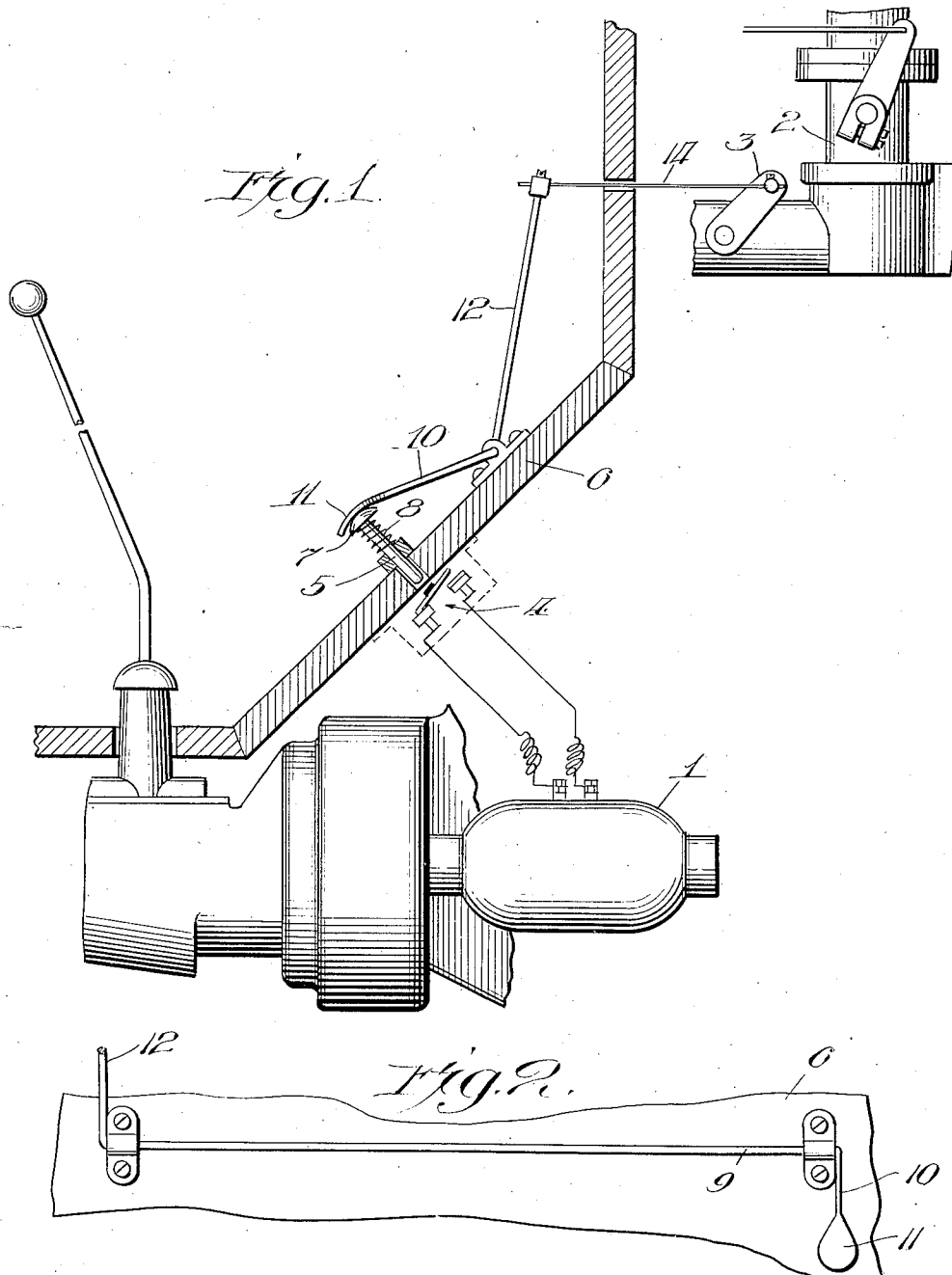
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CONTROL MEANS FOR AUTOMOBILE ENGINES

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CONTROL MEANS FOR AUTOMOBILE ENGINES

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When a cold automobile engine is started it is necessary to operate the choke so that a rich mixture will enter the engine cylinders. There is usually provided on the dash a lever or pull device to which the driver must reach in order to close and again to open the choke. The operation of the choke is not only rather inconvenient, but frequently the driver forgets to open the choke after the engine has started, and therefore continues to draw into the engine a very rich mixture, which is of course objectionable.

The object of the present invention is to make it possible automatically to close the choke in starting an engine and again open it after the engine has started.

My invention may conveniently be carried out by operatively connecting together the controlling member for the starter and the controlling member for the choke, so that the choke will be closed when the controlling member for the starter is pressed down and will be opened again when the said member is released.

Therefore, viewed in one of its aspects, the present invention may be said to have for its object to produce a simple and novel means whereby the pressing down of the controlling member for the starter automatically closes the choke, whereas upon the release of such member the choke is again opened.

The controlling member for the starter is usually a button or a pedal to be pressed down by the foot of the driver, and the operating mechanism for the choke can conveniently be made to terminate in a part that simply overlies the starting button or pedal, so that the operating pressure for the starting member is transmitted through an element of the mechanism for operating the choke, whereby the starting member and the choke are actuated simultaneously. It will therefore be seen that, viewed in one of its aspects, my invention may be said to have for its object to produce a simple and novel means adapted to be applied to automobiles already in use, whereby the choke will be operated as required in starting an automobile engine.

It is sometimes desirable to run an engine

for a short time with the choke partially closed. Therefore if the starting button or pedal does not already have some lost motion, that is if it does not move some distance from its normal idle position before closing the starting switch, such lost motion may be provided. Then, if the operating mechanism for the choke is compelled to move with the starting member throughout the entire length of the stroke of the latter, it will be seen that by pressing the starting member lightly after the engine is running, the choke may be partially closed without closing the starting switch. Therefore, viewed in another of its aspects, the present invention may be said to have for its object to provide means whereby the choke will be automatically controlled in starting the engine, and may be kept partially closed, if desired, after the engine is running.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claim; but, for a full understanding of my invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawing, wherein:

Figure 1 is a view showing more or less diagrammatically those parts of an automobile necessary for an understanding of my invention, with my improvements applied thereto; and Fig. 2 is a view looking down on the foot board, fragments of the latter and of the choke operating device being shown.

Referring to the drawing, 1 represents the starter and 2 the carburetor of the power plant for an automobile. 3 is the operating arm for the usual or any suitable choke associated with the carburetor or the air inlet to the latter. 4 is a normally open switch for controlling the starter, and 5 is a stem movable up and down through the foot board 6 of the automobile for closing the switch. On the upper end of the stem is a head 7 and, surrounding the stem underneath the head, is a spring 8 that normally holds the stem in its raised position.

On the foot board, upwardly from the con-

troller 5 for the starter, is a rock shaft 9 having an arm 10 provided with a widened or flattened portion 11 that overlies the head or button 7. A second arm 12 projects upwardly from the rock shaft and is connected to the arm 3 by a rod 14. The parts are so proportioned that normally the element 11 rests on the abutment or head 7, causing the rock shaft to be held in such a position that the choke is open. When the starter is to be operated, the driver proceeds in the usual way but, instead of having his foot come in contact with the button 7, it engages with the part 11 on the choke operating lever mechanism. Consequently the downward pressure of the foot to close the starting switch causes the rock shaft to be turned in a direction to close the choke. Therefore the choke will be closed as the engine is being started, without requiring the driver to perform any other act except that of reaching his foot to the starter controller. As soon as the driver removes his foot, the spring lifts the starter controller and simultaneously operates the rock shaft to open the choke.

In the conventional illustration of the starting switch and controller therefore in the drawing, it will be seen that the starting button may move up and down through a considerable distance without affecting the switch. However, since all parts of the operating mechanism for the choke must move in unison with each other, the choke begins to close as soon as the starting button begins to move down under pressure transmitted through the part 11. Consequently the choke may be held partially closed while the engine is running and after the starting switch has been opened; the driver in this instance, that is when desiring to keep the choke partly closed after starting the engine, only partially releasing the pressure on the member 11 so as to permit it to be pushed up part way by the spring.

It will thus be seen that I have made it possible automatically to control the choke so as to close it when the engine is starting and open it again when the engine is running, in a manner that eliminates the movements that have heretofore been required for the purpose of closing and opening the choke. Therefore I not only simplify the process of starting an engine, but I insure that the choke will not remain closed when it should be open. The particular means illustrated for interconnecting the choke controlling member and the starter controlling member are useful in applying my invention to cars already in use, but it will, of course, be evident that the mechanism may be widely varied.

While I have illustrated and described with particularity only a single preferred form of my invention, I do not desire to be limited to the exact structural details thus illustrated and described; but intend to cover all forms

and arrangements which come within the definitions of my invention constituting the appended claim.

I claim:—

The combination with a movable member for controlling the starter of an automobile engine movable a considerable distance from an idle position before causing the starter to operate, and a choke valve of a member connected to said valve for operating the same and operatively related to the aforesaid member to cause said valve to be operated throughout the entire stroke of the latter member.

In testimony whereof, I sign this specification.

GEORGE HOEPNER.

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