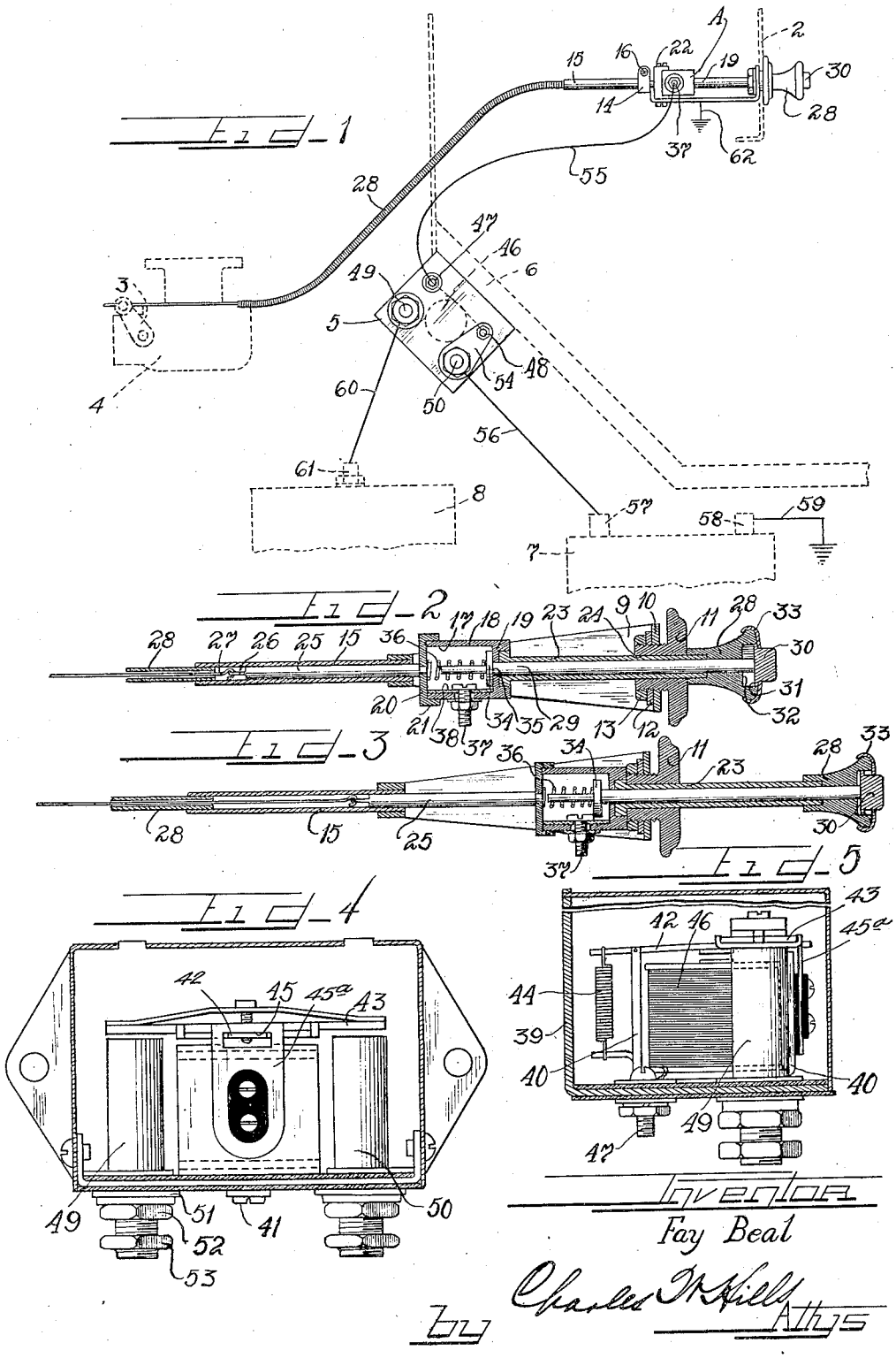
Aug. 15, 1933. F. BEAL 1,922,346

CHOKE AND STARTER SWITCH CONTROL

Filed Oct. 25, 1929



Patented Aug. 15, 1933 1,922,346

UNITED STATES PATENT OFFICE

1,922,346

CHOKE AND STARTER SWITCH CONTROL

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Application October 25, 1929. Serial No. 402,367

4 Claims. (Cl. 123—179)

This invention relates to an attachment for a vehicle, and more particularly to a combination choke and starter switch for an automobile, which may be mounted upon the instrument board.

Heretofore, it has been the usual practice to mount the starting switch separately from the carbureter choke. The carbureter choke is generally upon the instrument board whereas the starter switch is mounted in various positions, the most usual being adjacent the toe board, in which case it is operated by the foot of the driver. It is particularly objectionable from an operating standpoint to mount the starter switch in this manner. Should the car become stalled on a hill or grade, it is necessary for the driver to take his foot off the brake pedal in order to again start the motor. If the weather is cold, there is also the disadvantage that one hand must be taken from the steering wheel to operate the carbureter choke.

It is therefore an object of this invention to provide a light duty starting switch which will close the operating circuit of a remotely mounted heavy current switch in the starting motor circuit of an automobile.

It is also an object of this invention to provide a combination choke and starter switch which may be mounted on the instrument board of an automobile, the starter switch being electrically connected to the operating circuit of a remotely controlled switch which is in the supply circuit of the starting motor.

It is a further object of this invention to provide a choke and starter switch which may be operated simultaneously with one hand or independently without the one affecting the other.

Other and further important objects of this invention will be apparent from the disclosures in the accompanying drawing and the following specification.

The invention (in a preferred form) is illustrated on the drawing and hereinafter more fully described.

On the drawing:

Figure 1 is a diagrammatic view showing a motor starting system embodying this invention.

Figure 2 is a sectional view of the device, showing the choker and starter buttons in their normal position.

Figure 3 is a view similar to Figure 2, showing the choker button pulled out and the starting button depressed for closing the switch contacts.

Figure 4 is a front elevational view of an electrically operated switch for closing the circuit from the battery to the starting motor.

Figure 5 is a side elevational view of the switch shown in Figure 4.

As shown on the drawing:

In the illustrated embodiment of this invention, there is shown in Figure 1 a combination choke and starter switch control A mounted upon an instrument board 2 of an automobile. This switch is mechanically connected to the choke lever 3 of a carbureter 4, and electrically connected to the operating coil of an electrically operated switch 5, shown as being mounted on the underside of the toe board 6, which closes the circuit from a battery 7 to a starting motor 8.

A bracket 9 having an upturned end 10 is secured to the instrument board so as to form a support for the device. In this instance, the lug 10 is apertured to receive a flanged bushing 11 which extends through an aperture in the instrument board, through the aperture in the upturned end of the bracket, through a washer 12, and threadedly engages a nut 13. By tightening the nut 13, the flanges on the bushing 11 will be drawn against the forward side of the instrument board and the upturned end 10 of the bracket will be drawn against the back side of the instrument board, thereby securing the bracket in position. The other end of the bracket extends upwardly and terminates in a clamp 14 which is clamped around one end of a sheath or tube 15 by means of a clamping screw 16. A contact chamber 17 is formed by a shell-like wall 18 and an end member 19 which closes one end thereof. A cover 20 forms a closure for the other end, this cover being provided with lugs 21 having apertures therethrough for receiving fastening screws 22 which extend into the shell-like wall of the contact chamber and secure the cover thereto. This chamber is slidably trunnioned between the ends of the bracket in such a manner that it may be longitudinally moved back and forth between the ends of the bracket. A sheath 23, having one end recessed in the end member 19, extends through an aperture 24 in the bushing 11, thereby supporting one end of the contact chamber. The other end of the chamber is supported by a plunger 25 which is secured to the cover 20 and extends perpendicularly thereto and slidably fits within the tube 15.

The outer end of the plunger is provided with a lug 26 having an eye therein for receiving a hook 27 which is formed on one end of a wire which extends through a flexible conduit 28 securely connected to the outer end of the sheath

15. The outer end of this wire is connected to the choke lever of the carbureter. A knob 28 is secured to the outer end of the sheath 23 for shifting the socket longitudinally between the ends of the bracket. It is to be noted that such a movement will result in mechanically operating the choke lever of the carbureter.

A plunger 29 extends through an aperture in the end member of the chamber, through the sheath 23 and the knob 28 for operating the electrical contacts. The outer end of this plunger is fitted with a button 30 having an outwardly extending flange 31, this button being held in a socket 32 by a cover plate 33 which extends around the lateral edge of the knob and overlaps the front side of the flange 31 of the button. A disk 34 slidably fits around a contracted end of the plunger and is held against a shoulder 35 by an expansion spring 36 which surrounds the contracted end and bears against the cover 20. This spring normally pushes the disk and plunger outwardly until further movement is prevented by the flange 31 striking the cover plate 33. This disk forms the movable contact of the switch. The fixed contact is formed by the head of a terminal screw 37 which extends through the wall of the contact container and is electrically separated therefrom by insulation 38. Since the disk 34 and plunger 29 upon which it is carried are electrically connected to the bracket, which is connected to ground, it is evident that the ground circuit may be completed by moving the disk 34 into contact with the head of the terminal screw 37, as shown in Figure 3. Regardless of the position of the contact chamber relative to the bracket, the contacts may be closed at any time desired. This arrangement permits the choke to be operated simultaneously with the closing of the contacts of the switch.

The electrically operated switch 5, as shown in Figure 5, includes a supporting member 39 to which a bracket 40 is secured by means of a screw 41. The bracket 40 pivotally supports an armature 42 which carries a contact bar 43 at one end thereof. The contact bar is normally held in a raised position by means of a tension spring 44 which is connected to the outer end of the armature. Upward movement of the armature and contact bar is limited by extending the armature through a slot 45 in a member 45a which is secured to the support 40. The operating coil of the switch, arranged beneath the armature in the usual manner, is connected to studs 47 and 48 which extend through the supporting bracket 39 and are insulated therefrom in any well known manner. Main terminal studs 49 and 50, arranged in spaced relation and secured to the supporting bracket 39 and insulated therefrom by insulating bushings 51, are held in place by lock nuts 52. It therefore follows that, when the armature is drawn downwardly by the operating coil being energized, the contact bar will electrically connect the main terminal studs. Suitable terminal nuts 53 are provided on the lower end of the studs for securely connecting the main line leads thereto. A strap 54 extending between the stud 50 and stud 48 forms a permanent electrical connection therebetween.

Referring to Figure 1, a conductor 55 is connected at one end to the terminal screw 37 and at the other to the stud 47. The stud 50 is connected by a conductor 56 to the line terminal 57 of the battery. The other terminal 58 of the battery is connected to ground by a conductor 59. The stud 49 is connected by a conductor 60 to one terminal 61 of the starting motor.

When the connections are as shown in Figure 1, the operation when starting the motor will be as follows:

The choker knob 28 is pulled outwardly to mechanically operate the choke lever of the carbureter. The button 30 is depressed, thereby closing the contacts of the control switch and completing a circuit from the terminal 57 of the battery through the conductor 56, through the strap 54 to the terminal 48; through the coil 46 to the terminal 47; through conductor 55 to the terminal screw 37; to the contact 34 which is connected to ground by a connection 62; and thence back to the ground connection 59, which is connected to the terminal 58 of the battery. The completion of this circuit will energize the coil 46, pull the armature 42 downwardly and electrically connect the studs 49 and 50, thereby completing the motor circuit. This circuit is from the stud 57 on the battery through the conductor 56 to the stud 50; through the contact bar 43 to the stud 49; from the stud 49 through the conductor 60 to the terminal 61 of the starting motor. Since the other terminal of the starting motor is grounded, the return circuit will be through the ground connection 59 to the terminal 58 of the battery. If the button 29 is now released, the coil 46 will be de-energized and the spring 44 will raise the armature and contact bar, thereby opening the motor circuit. It is to be noted that the only current, which is carried by the starter switch A, is the current necessary to energize the coil of the electrically operated switch.

This invention, therefore, provides a combination choke and starter switch control which may be mounted on the instrument board of an automobile in such a manner that they may be operated simultaneously. A starter switch is provided which is electrically connected in the operating coil circuit of an electrically operated switch in the supply circuit of a starting motor. By the use of this invention, the starting of an automobile is greatly facilitated, since it is not necessary to take the foot off the brake pedal; this being a decided advantage when the car is on a hill or grade.

I am aware that numerous details of construction may be varied through a wide range without departing from the spirit of this invention, and I therefore do not propose limiting the patent granted otherwise than as necessitated by the state of the prior art.

I claim as my invention:

1. In a starting device for engines having a carbureter inclusive of a choke valve and a starting motor and electrical circuit therefor; a supporting bracket having upturned ends, each end having an aperture therein, a container trunnioned in said apertures for movement between said upturned ends, said container being adapted for connection to a carbureter choke valve, a pair of spaced contacts within said container, and means whereby the contacts may be brought into engagement for closing an electrical circuit.

2. In a starting device for engines having a carbureter inclusive of a choke valve and a starting motor inclusive of a switch; a U-shaped bracket, a container slidably supported between the arms of said bracket, means whereby the position of the container between said arms may be varied to mechanically operate a carbureter choke valve, spaced members within said con-

tainer, and means associated with said first means for moving said members into engagement.

3. In a starting device for engines having carbureter inclusive of a choke valve and a starting motor and electrical circuit therefor; an electric switch supported for bodily movement, means for moving said switch to mechanically control the carbureter choke valve, and means associated with said first means whereby said switch may be actuated to close an electrical circuit.

4. In a starting device for engines having a carbureter inclusive of a choke valve and a starting motor and electrical circuit therefor; a support, a tubular member mounted on said support for longitudinal movement, means for connecting said member to a carbureter choke valve, whereby said valve may be controlled by the movement of said member, a longitudinally movable contact plunger extending coaxially of said tubular member, and a contact member associated with said tubular member and insulated therefrom, said contact member being disposed for engagement by said contact plunger, whereby an associated electrical circuit is controlled.

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