M. A. SIMON.

COMBINATION CARBURETOR CHOKER AND SWITCH MECHANISM.

APPLICATION FILED DEC. 8, 1921.

1,428,812. Patented Sept. 12, 1922.

Fig. 1

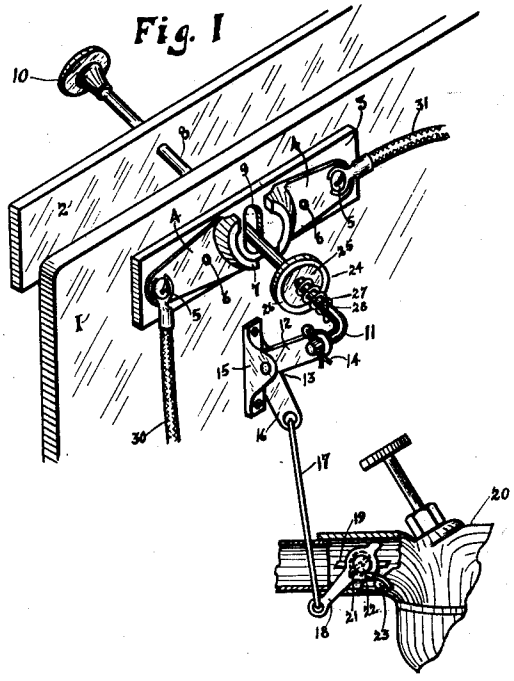


Fig. 2

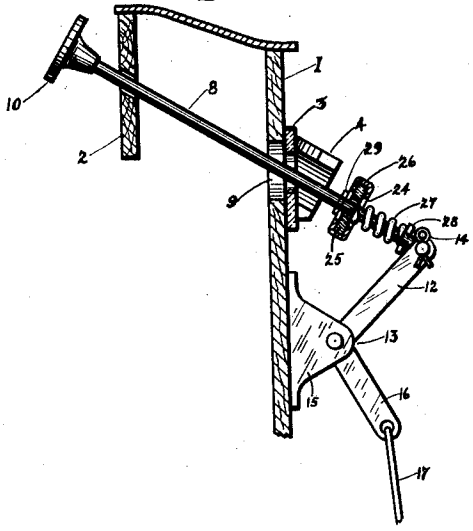
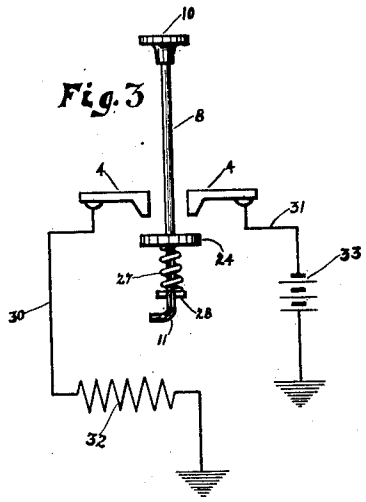


Fig. 3



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MEYER ABRAHAM SIMON, OF ST. LOUIS, MISSOURI.

COMBINATION CARBURETOR CHOKER AND SWITCH MECHANISM.

Application filed December 8, 1921. Serial No. 521,072.

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 a new and useful Combination Carburetor Choker and Switch Mechanism, of which the following is a specification.

My invention relates to an improved combination carburetor choker and switch mechanism, and consists in the novel design, combination, and arrangement of parts hereinafter more fully disclosed.

An object of the invention is to provide a simple, convenient, and effective means of simultaneously excluding the cold outer air from mixing with the fuel in a carburetor and controlling an electrical resistance circuit for the preheating of said fuel.

Another object of the invention is to provide an essential mechanical arrangement whereby a heretofore distinctly double manual operation is reduced to a single manual operation, and thus, through the fractional time element involved in its operation, adding vitally to its resultant success.

I attain these objects by the mechanism illustrated in the accompanying drawing, in which—

Figure 1 is a detailed view in perspective of the device showing the choker and switch mechanism in normal position. Figure 2 is a vertical section of the combined mechanism and the supporting framework therefor. Figure 3 is a diagrammatic view illustrating a heating resistance and battery supply in circuit with the make-and-break choker switch.

Similar numerals refer to similar parts throughout the several views.

In the embodiment of the invention illustrated in the drawing, the dash board 1 and instrument board 2 constitute the supporting structure or framework for the combination device. An insulating switch plate or block 3, preferably of fiber, bearing stationary terminal contacts 4 is mounted rigidly with screws 5 upon the dash board 1, as shown. The terminal contacts 4, which are rigidly secured to the switch plate 3 by means of rivets 6, are so shaped and mounted thereon as to present substantially a split annular contact surface 7 inclined substantially at right angles to a movable choker pull-rod member 8 passing through the center thereof and spaced therefrom. A slot 9 extending through switch plate 3 and the dash board 1 permits the continued passage therethrough of the choker rod 8 which penetrates and extends slightly beyond the instrument board 2. A knob 10 secured to the upper extremity of the said choker rod constitutes the handle or gripping means by which the device is manually operated. The lower extremity thereof is bent into an elbow 11 to engage the upper arm 12 of a bell-crank lever 13 to which it is secured by a cotterpin 14, the said bell-crank member being pivoted in a bracket 15 secured to the dash. The lower arm 16 of the bell-crank lever engages the upper end of a pull-wire 17 which is fastened at its lower end to a lever 18 adapted to actuate the butterfly choker valve 19 in the carburetor 20 against the tension of a torsion spring 21 mounted on the choker valve stem 22 and engaging at its one end the lever 18 and at its other end a stop 23.

Mounted on the choker pull-rod 8, at a point between the elbow 11 and the contact switch plate 3, is a circular contacting member or head 24 comprising a central disc or core 25 of insulating material penetrated by the choker pull-rod upon which it is adapted to be slidable, and an annular metallic rim 26 spun or pressed upon the outer periphery of said central insulating disc. A compression spring 27 interposed between the outer face of the contacting member 24 and a stop-pin 28 located adjacent to the elbow tends to actuate said contacting member forward in the direction of the terminal contacts 4. But a second stop-pin 29 maintains said contacting member at a point normally out of contact with the aforesaid terminal contacts 4, as shown. Lead wires 30 and 31 place the switch mechanism in circuit with an electrical heating resistance 32 and a source of supply 33 shown in the diagram.

When the choker rod 8 is pulled outward to its fullest extent against the tension of the torsion spring 21, the contacting member 24 is drawn inward therewith to bear flush against the terminal contacts 4, thus closing or completing the electrical circuit through its metallic conducting rim 26. The compression spring 27 is adapted to operate as a compensating member,—that is, to make up or compensate for a possible variation in the distance of movement of the choker pull-rod 8. When the choker rod is released, it is instantly drawn back

to its normal position by the tension of the torsion spring 21 which results thereby in the breaking of the electrical circuit and the reopening of the air inlet to the carburetor.

The essential feature of my device lies in its reduction to a single operation what formerly constituted or required two distinct operations to perform. In other words, it was the usual practice to first manipulate a momentary contact switch to energize a heating resistance circuit to preheat the fuel or a gaseous mixture thereof, and then immediately upon releasing such switch to operate the choker in conjunction with the starter switch for starting the engine in cold weather. This distinctly double operation, in passing from the switch to the choker, resulted in a vital momentary loss of time which permitted the heating resistance to cool sufficiently to reduce greatly its value as an aid to starting in cold weather.

The advantage of closing the air inlet to the carburetor simultaneously with the preheating of the fuel, or a gaseous mixture thereof, will be readily appreciated when it is understood that otherwise, upon operation of the starting motor, the inrushing cold air practically neutralizes the beneficial effects of the heating resistance.

I am aware that many changes may be made in the design and structure of the combination device without departing from the spirit and scope of my invention. I do not limit myself, therefore, to the exact details of construction shown and described, but

What I claim and desire to secure by Letters Patent, is:—

1. The combination with a carburetor choke mechanism of a simultaneously cooperating switch member adapted to control an electrical heating resistor disposed in the path of flow of the fuel in an internal combustion engine.

2. The combination with a carburetor choke mechanism of cooperating means for controlling an electrical heating resistor disposed in the fuel supply circuit of an internal combustion engine.

3. A combination carburetor choking and switch mechanism, comprising a pull-rod member, means for connecting said pull-rod member with the carburetor choker valve, and a switch mechanism adapted to be operated in conjunction with said pull-rod member.

4. A combination carburetor choking and switch mechanism, comprising a pull-rod member, means in connection with said pull-rod member for controlling the air inlet to a carburetor, stationary switch contacts mounted on either side of said pull-rod member and spaced therefrom, a contacting member adapted to be slidably mounted upon said pull-rod member and insulated therefrom, and spring compensating means for said contacting member.

5. A combination carburetor choking and switch mechanism, comprising a pull-rod member, means in connection with said pull-rod member for controlling the air inlet to a carburetor, stationary switch contacts mounted on either side of said pull-rod member and spaced therefrom, and a contacting member adapted to be mounted upon said pull-rod member and insulated therefrom.

6. A combination carburetor choker and switch mechanism, comprising a supporting structure, a switch plate secured thereto, terminal contacts mounted upon said switch plate, and means for simultaneously closing the electrical circuit between said terminal contacts and closing the air inlet to the carburetor.

7. A combination carburetor choker and switch mechanism, comprising a supporting structure, a switch plate secured thereto, terminal contacts mounted upon said switch plate, a pull-rod positioned between said terminal contacts and spaced therefrom, a contacting member carried by said pull-rod, means for operatively connecting said pull-rod with the carburetor choker valve, and manual means for actuating said pull-rod.

8. A combination carburetor choker and switch mechanism, comprising a supporting structure, a switch plate secured thereto, terminal contacts mounted upon said switch plate, a pull-rod positioned between said terminal contacts and spaced therefrom, a contacting member carried by said pull-rod, compensating means for said contacting member, and means for operatively connecting said pull-rod with the carburetor choker valve.

MEYER ABRAHAM SIMON.