

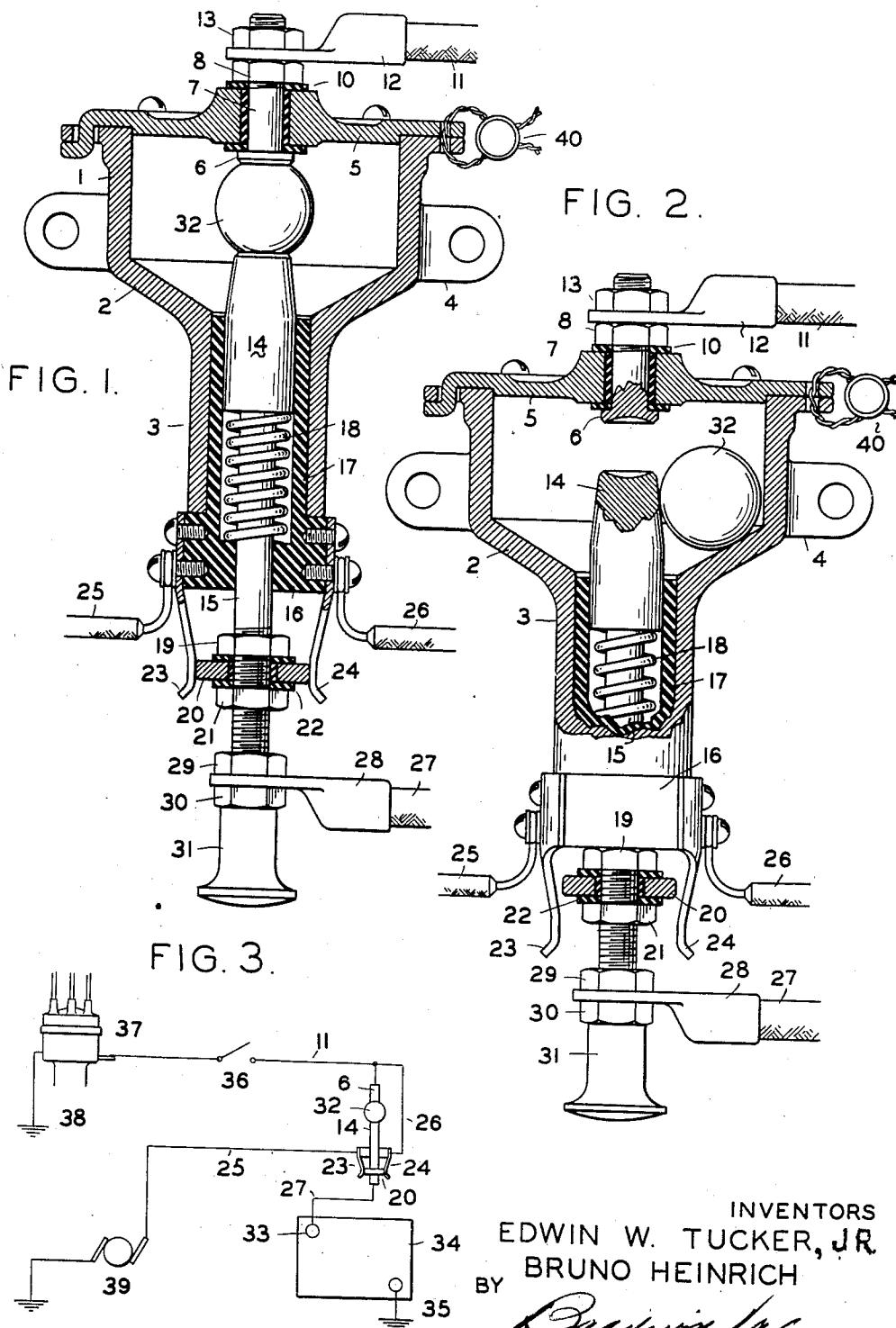
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ELECTRIC SWITCH

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ELECTRIC SWITCH

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1 Claim. (Cl. 200—52)

This invention relates to improvements in electric switches and more particularly to collision switches for automotive vehicles.

Among the objects of the invention is to provide means for shutting off the motive power of any vehicle at the time of collision.

Another object is to reduce the fire hazard in automotive vehicles using highly volatile or explosive fuels.

Another object is to prevent "hit and run" driving after collisions.

A further object is to provide motor stopping means applicable to conventional motor vehicles.

Other objects and advantages will appear as the description progresses.

Modern motor cars propelled by internal combustion engines involve serious fire hazards if the motors continue to run after serious collisions. Any highly volatile fuel splashed or leaking out is liable to be ignited either by the motor exhaust or by the electric current of the ignition system of the motor.

The driver of such a vehicle is prevented from driving away after a collision by the fact that the motor cannot be restarted until the collision switch is reset to restore the ignition circuit.

In this specification and the accompanying drawing the invention is disclosed in its preferred form.

In the one sheet of drawings:

Fig. 1 is a longitudinal section of an electric switch constructed in accordance with this invention, showing the switch closed.

Fig. 2 is a similar view showing the relative positions of the parts after the switch is opened by collision.

Fig. 3 is a wiring diagram representing the ignition circuit having this invention combined therewith.

In detail the construction illustrated in the drawing referring to Fig. 1, comprises the cylindrical housing 1 with the tapering bottom 2, the neck 3 and the attaching lugs 4.

The housing is closed at the top by the cover 5 screwed thereto. The terminal 6 has the head 7 within the housing and is drawn tight by the nut 8 threaded on the terminal. The terminal 6 is insulated from the cover by the interposed flanged sleeve 9 with the washer 10 beneath the nut 8 and composed of any suitable dielectric. The line cable 11 has the end 12 encircling the terminal and held by the nut 13.

The opposed terminal 14 is reduced in diameter to form the stem 15 and is guided in the dielectric base 16 having the sleeve 17 forced into and fixed

within the neck 3 to insulate the terminal 14 from the housing 1.

The expansive spring 18 encircles the stem 15 within the sleeve 17 between the head of the terminal 14 and the base 16 and normally urges the terminal into the housing until stopped by the nut 19 threaded on the stem 15, see Fig. 2.

The circular conducting bridge 20 is fixed upon the stem 15 between the nuts 19 and 21 threaded thereon. This bridge is suitably insulated from the stem 15 by suitable interposed dielectric material 22.

The contacting brushes 23 and 24 are fixed to the opposite sides of the insulating base 16 in opposed relation to make contact with the bridge 20 to close the electric circuit flowing over the wires 25 and 26 attached to their respective contacting brushes.

The battery cable 27 has the end 28 fixed to the stem 15 between the nuts 29 and 30 thereon. The handle knob 31 is threaded on the end of the stem 15.

The opposed terminals 6 and 14 have concave seats in their ends to engage and retain the metal conducting ball 32 therebetween against the expansion of the spring 18. This ball closes the circuit between the cables 11 and 27.

In automobiles it is desirable to open both the battery and generator circuits. If the motor is not stopped by the collision displacing the ball 32, the generator would continue to supply current to the ignition circuit; for that reason circuit breakers are interposed in both circuits in wiring the collision switch.

Referring to Fig. 3 the battery cable 27 is connected at 33 to the battery 34 which is grounded at 35. The battery current flows over the conductor 27, terminal 14, ball 32, terminal 6, line cable 11, across the manual switch 36, through the ramifications of the conventional ignition unit represented by the distributor 37, thence through the ground 38 back to the battery.

Current flows from the grounded generator 39, over the wire 25, the brush 23, the bridge 20, the opposed brush 24 to the wire 26, thence into the line 11, previously traced. The generator current also flows through the ball 32 from the line 11, and the stem 15 to the battery line 27, so that the battery "floats" in the generator circuit in the usual manner.

The collision switch is preferably mounted under the hood of the vehicle in a position remote from the position of the operator so that resetting of the switch is delayed following a collision.

The invention operates substantially as fol-

lows: The impact of collision will displace the ball 32 from between the terminals 6 and 14, which permits the urge of the spring 18 to open the generator circuit switch 20—23—24.

- 5 Both circuits may be again closed by a downward pull upon the handle 31 which retracts the terminal 14 until the ball 32 rolling to the axis of the tapered bottom 2 rests in the socket in the top of the terminal 14: Gradually releasing the
10 handle 31 will permit the spring 18 to lift the ball 32 into contact with the terminal 6 which restores both the battery and generator circuits to operative relation as previously traced.

- 15 To prevent tampering with the switch, the cover 5 can be officially sealed as at 40.

The same general construction and mode of operation above described could be made to open or close valves in steam or air lines, to control power, give alarms, etc., following shocks suffi-

cient to displace the ball 32, without departing from the spirit of the invention.

Having thus described this invention and its mode of operation, what is claimed and desired to secure by Letters Patent is:

5 A collision switch including a housing having a fixed terminal; an insulated terminal slidable in said housing opposite said fixed terminal; a battery circuit including both of said terminals; an electro-conductive ball displaceably held be-
10 tween said terminals; opposed contacts on said housing in a generator circuit; a conductive bridge on said slidable terminal closing the circuit between said contactors, all so combined and arranged that the displacement of said ball will
15 open said battery and generator circuits.

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