Oct. 18, 1955 G. YUNKER 2,721,237

JOLT-ACTUATED SWITCH

Filed Aug. 30, 1952

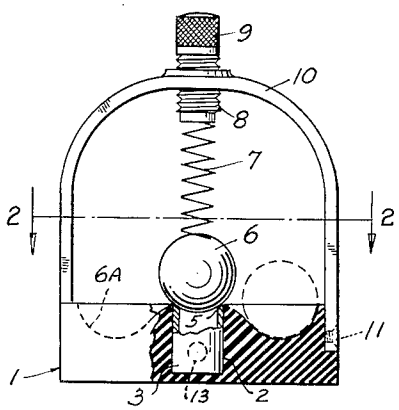


Fig. 1

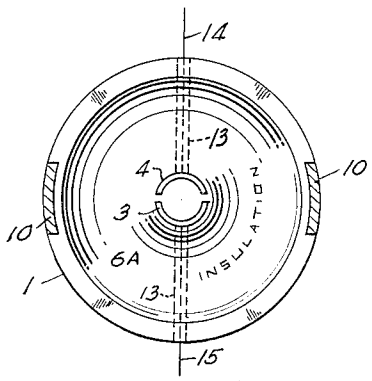


Fig. 2

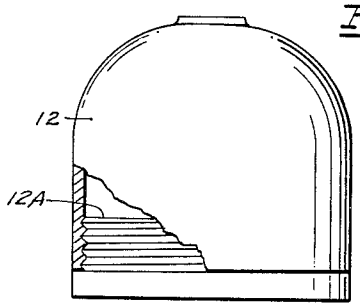


Fig. 5

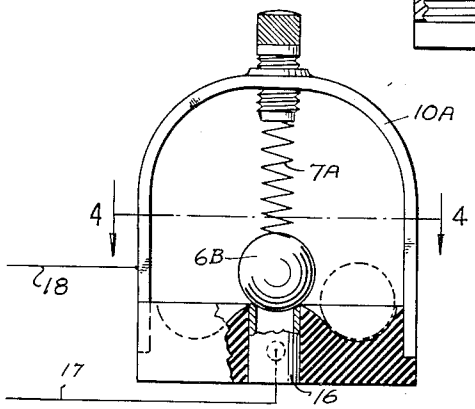


Fig. 3

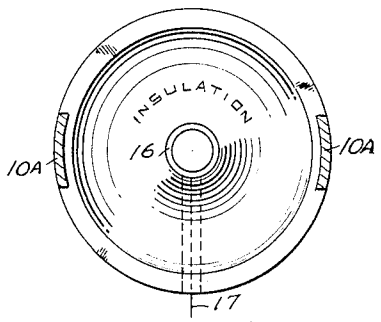


Fig. 4

GEORGE YUNKER
INVENTOR.

BY James O. Gilman
ATTY

United States Patent Office 2,721,237
Patented Oct. 18, 1955

2,721,237

JOLT-ACTUATED SWITCH

George Yunker, Portland, Oreg.

Application August 30, 1952, Serial No. 307,345

1 Claim. (Cl. 200—61.49)

This invention relates to improvements in automatic electric switches especially adapted for use with the electrical systems of engine driven vehicles.

One of the principal objects of the invention is to provide a switch of this character which will automatically open the electrical circuit within which it is embraced upon being jolted by a collision or upon lateral impact from any direction.

Another object is the provision of means for quickly and conveniently resetting the switch into a circuit-closing position and for adjusting the sensitivity of the switch.

A still further object is the provision of a switch of this kind which is of simple, efficient, durable and inexpensive construction which may be conveniently attached to a vehicle at any desired location and wherein its several parts are readily accessible for replacement, adjustment or repair.

These and other objects will appear as my invention is more fully hereinafter described in the following specification, illustrated in the accompanying drawing and finally pointed out in the appended claim.

In the drawing:

Figure 1 is a front view of a jolt-actuated switch made in accordance with my invention and with fragments broken away for convenience of illustration.

Figure 2 is a sectional plan view taken along the line 2—2 of Figure 1 with the spring-pressed contact ball removed.

Figure 3 is a view similar to Figure 1 showing a modified form of the invention.

Figure 4 is a sectional plan view taken along the line 4—4 of Figure 3 with the contact ball removed.

Figure 5 is a detail view of an air and watertight hood and base.

Referring now more particularly to the drawing:

With reference to Figures 1 and 2, the invention comprises a circular base **1** made of electrical insulating material and centrally bored as at **2** to receive a cylinder split in half throughout its length to form two electrical contacts **3** and **4**. Each contact is insulated from the other by being embedded in the insulating material of the base. The top edge of each contact **3** and **4** is bevelled inwardly as at **5** to form a seat for a metal contact ball **6**. The top surface of the base **1** is formed with an annular recess **6A** whose inner surface tapers downwardly from the seat **5** on the top edges of the contacts **3** and **4** to offer a minimum of resistance to the dislodgement of the ball from its seat and its passage to the recess when unseated by a jolt caused by collision or any other impact in a lateral direction. The ball is normally maintained on the seat by a light compression spring **7** whose one end is secured to the ball by soldering, or the like, and whose upper end is secured in like manner to the interior of a hollow and externally threaded adjusting screw **8** whose top end is knurled as at **9** to provide a

finger grip for advancing and retracting the screw in relation to a metallic frame **10** in which the screw is threadedly mounted to increase or decrease the compression of the spring **7**. The legs of the frame are secured to the base **1** by any suitable means, such as screws or the like, indicated at **11**. If it is desired to render the switch air and watertight, an internally threaded hood **12** as shown in Figure 5 could be used by forming matching threads **12A** on the exterior of the base **1**.

The base is bored diametrically as at **13** to receive two wires **14** and **15** of the electrical ignition system of the vehicle to which the switch is applied. The wires are attached to the contacts **3** and **4** as shown so that as long as the ball **6** remains on the seat **5**, the electrical circuit will be closed between the wires **14** and **15**.

This form of the invention illustrated in Figures 1 and 2 is designed to handle relatively high voltages, while the modified form illustrated in Figures 3 and 4 is designed for low voltage. In this modification, the structure of the base, the frame, the contact ball, the spring and its adjusting screw is the same as that shown in the other form of the invention, but instead of providing two separate contacts **3** and **4** for two wires of the electrical circuit to be closed by the ball when seated, I provide a single contact in the form of a cylinder **16** bevelled at its top end to form a seat for the ball **6B** and connected by a wire **17** to one side of the electrical circuit, whose other side is connected by wire **18** to the frame **10A**. The ball is in electrical contact with the frame through the compression spring **7A** and the circuit between the wires **17** and **18** will therefore remain closed as long as the ball remains on the seat on the top of the cylindrical contact **16**.

While I have shown particular forms of embodiment of my invention, I am aware that many minor changes therein will readily suggest themselves to others skilled in the art without departing from the spirit and scope of the invention. Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

A switch of the character described comprising in combination a horizontally disposed circular base made of insulating material, an electrical contact in the form of a vertically disposed hollow metallic cylinder mounted centrally of the base and forming a circular seat at its top end, a metallic ball normally resting upon said seat, the top surface of the base having an annular recess formed therein below said seat and concentric therewith, a vertically disposed metallic frame removably secured to said base, a compression spring adjustably connected at one of its ends to the top of said frame and permanently secured at its opposite end to said ball for normally maintaining the ball on the seat under variable degrees of pressure, said frame being connected to one side of an electrical circuit and said cylinder being connected to the other side thereof whereby said circuit will be broken when the ball is dislodged from said circular seat by forces applied to it from any lateral direction and forced into and held within said annular recess in the insulated base by said compression spring.

References Cited in the file of this patent

UNITED STATES PATENTS

1,901,554	De Wilde	Mar. 14, 1933
2,056,494	Tucker et al.	Oct. 6, 1936
2,475,728	Smith	July 12, 1949

FOREIGN PATENTS

287,780	Great Britain	Mar. 29, 1928