Dec. 11, 1928

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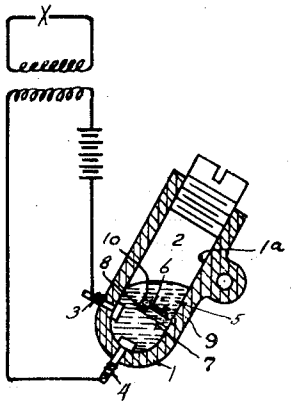
J. L. MILTON

ELECTRIC SWITCH

Filed April 17, 1922



INVENTOR.

John L. Milton

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UNITED STATES PATENT OFFICE.

JOHN L. MILTON, OF LOUISVILLE, KENTUCKY.

ELECTRIC SWITCH.

Application filed April 17, 1922. Serial No 554,300.

My invention relates to a switch for interrupting or connecting an electric current through a source of current to a work circuit and is particularly useful in connection with tractors and self-propelled vehicles.

My invention further relates to a liquid conductor forming part of the electric switch, which will form a protection to the electric system, a self-propelled vehicle, the occupants or operator of same.

These objects, together with other objects readily apparent to those skilled in the art, being attained by the construction illustrated in the accompanying drawings, although my invention may be embodied in a variety of other forms, the construction illustrated and represented is chosen by way of example.

Figure 1 is a diagrammatic representation of my electric switch with a circuit attached thereto.

Viewing Fig. 1, it will be noted that the electric circuit is completed through the mercury 5 as long as the device maintains a position substantially as shown relative to a horizontal plane. Should the device be sufficiently removed from a horizontal plane, the liquid conductor 5 following the influence of gravity will flow away from the terminals 3—4, thereby opening the circuit. This embodiment in my invention is of particular use when installed on certain well known types of tractors that are given to turning over in operation as happens when it is pulling a plow and the plow comes to a sudden stop which causes the front end of the tractor to ascend and often to a degree that causes it to completely turn over.

With my improved switch properly installed, the liquid conductor will in the event of an upsetting procedure automatically open the electric circuit to which the ignition is attached and thereby stop the engine and prevent the front end of the tractor from ascending.

To prevent the ignition from taking place immediately upon the restoration of a position approximating a horizontal plane, I have embodied into the housing 1, Fig. 1, a valve #6 which will allow the liquid conductor to readily flow away from the contacts 3—4 and to retard connection being restored for an appreciable period.

It will be noted from the drawing that a relatively small quantity of liquid conductor 5 is used in order that it will spread quickly and thinly along the inner surface 1^a of container 1, and in so doing a portion of it will spill over the top of valve 6 and a part of it will freely pass through the opening 7 of the valve and away from contacts 3, 4. The opening 7 passes completely through the valve seat 8, to which the movable member 9 is swingably attached by pivot 10. As the switch is returned to normal and the liquid starts its flow to the level as indicated in the drawing, some of it will pass over the top of valve 6 and some will be entrapped. Not enough of the liquid is permitted to pass over the top of valve at once to establish the electrical connection between terminals 3 and 4 as the valve arrangement is thus proportioned. This valve is constructed so as not to be absolutely leak-proof, in fact it is left "cracked" for the purpose of allowing the entrapped liquid to seep through for an appreciable time period and later re-establish the desired electrical connection.

Many variations of the device are possible, as for instance, chamber 2 may have the air exhausted and thereby form a vacuum or be filled with an inert gas, which would prolong the life of this switch acting as a fuse for repeated operations; the use to which it is to be put, determining these points.

Although the drawing in the above specifications disclose the mode in which I have embodied my invention, I desire to be not limited to the details of such disclosure, knowing in further practical application of my invention many changes in form and construction may be made, as circumstances require or experience suggests, without departing from the spirit of my invention, within the scope of the appended claim.

I claim—

In a tiltable electric switch of the class described provided with a liquid conductor and a liquid conductor container in which a plurality of electrodes are located, means for operating said switch through different cycles, means within said container to cause the liquid conductor to flow at unequal time periods for the different cycles of operation, and at substantially equal time periods for the corresponding cycles.

In testimony whereof, I have hereunto set my hand this 15th day of April, 1922.

JOHN L. MILTON.