

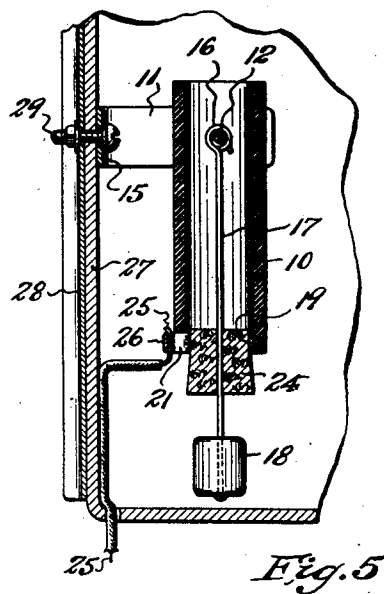
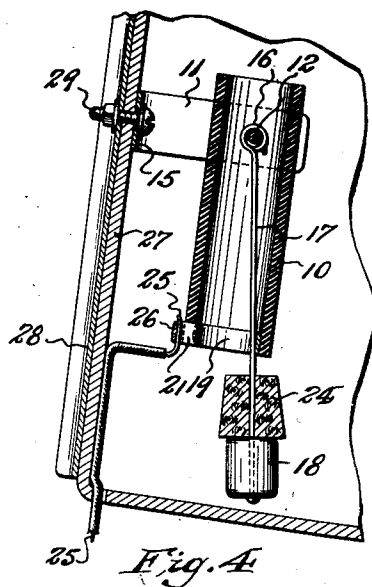
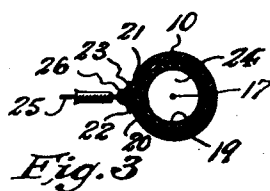
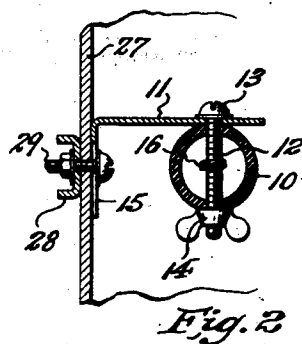
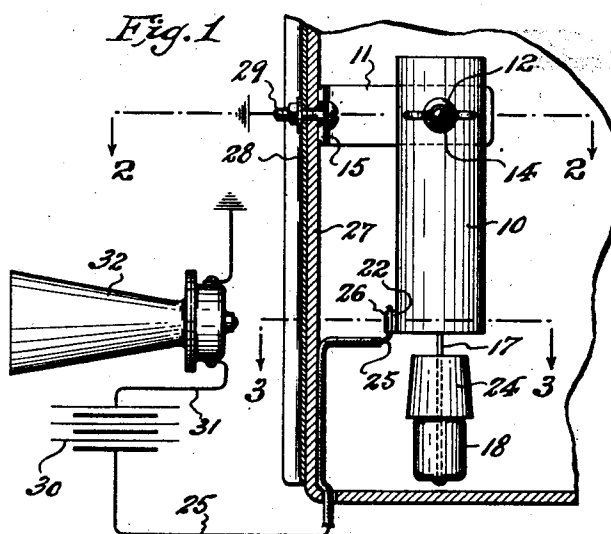
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2,364,010

GRAVITY ACTUATED ALARM CIRCUIT CLOSER

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GRAVITY ACTUATED ALARM CIRCUIT
CLOSER

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2 Claims. (Cl. 200—52)

This invention relates to improvements in gravity actuated electric circuit closers for alarm and other circuits.

This invention has for an object to provide a novel construction of electric circuit make and break device or switch for alarm or other circuits including a stationary contact element and a suspended contact element, the latter being suitably weighted so as to move or swing under gravity from a normal open switch condition to a closed switch condition when a body, to which the switch is affixed, is angularly displaced in any direction from its normal position.

This invention has for a further object to provide, in an electric circuit make and break device or switch of the kind above mentioned, novel self-contained manipulatable stop means by which its suspended contact element may be quickly and easily releaseably fixed against gravitational movement, whereby the switch may be conveniently put into and out of service at will.

More specifically, this invention has for an object to provide a sensitive gravity or inertia actuated electric alarm circuit make and break device or switch of the kind mentioned which is especially well adapted for use on an automobile, to automatically control and operate a horn or other electrically operated alarm device with which the latter is equipped, whereby to give an alarm signal in the event the automobile or its body is tilted or otherwise moved with surreptitious purpose by an unauthorized person.

Other objects of this invention, not at this time more particularly enumerated, will be understood from the following detailed description of the same.

An illustrative embodiment of this invention is shown in the accompanying drawing, in which:

Fig. 1 is an elevational view of a gravity actuated alarm circuit closer according to this invention as mounted, for example, within the glove compartment of an automobile, wall portions of said compartment being shown in section, this view also including a diagrammatic showing of an alarm circuit controlled by the circuit closer; Fig. 2 is a cross-sectional view, taken on line 2—2 in Fig. 1; and Fig. 3 is another cross-sectional view, taken on line 3—3 in Fig. 1.

Fig. 4 is a longitudinal sectional view of the circuit closer in tilted circuit closing condition; and Fig. 5 is a longitudinal sectional view of the circuit closer with the manipulatable stop means thereof positioned to put the same in out-of-service condition.

Similar characters of reference are employed

in the hereinabove described views, to indicate corresponding parts.

Referring to the drawing, the circuit closer device, in the illustrative form thereof as shown, comprises a tubular body or housing member 10, open at least at its lower end. Said body or housing member 10 is preferably made of an electrically non-conductive or insulation material.

Said body or housing member 10 is supported in a normally perpendicular position by a bracket 11, made of metal so as to be electrically conductive. Said bracket 11 extends transversely across an exterior side of said body or housing member 10, adjacent to its upper end portion. Extending through said bracket 11, and thence transversely through the body or housing member, so as to diametrically cross the upper interior portion of the latter, is a screw-threaded bolt 12, the head 13 of which bears against a face of the bracket 11. Threaded onto the exteriorly projecting free end portion of said bolt 12 is a fastening nut 14, preferably in the form of a wing or thumb nut, as shown. Said bracket 11 is provided at its base end with an angularly directed slotted foot-piece 15.

Pivotaly supported by its eye-loop 16, which loosely embraces the bolt 12, is a suspended contact element 17. Said suspended contact element 17 extends downwardly and normally axially through the interior of said body or housing member 10, so that its lower free end portion projects, for a substantial distance, beyond the lower open end of the latter. Suitably affixed to the free end portion of said suspended contact element 17 is a weight 18 of suitable size and shape. Said suspended contact element may be made of wire of a selected metal; I have found silver wire to be especially satisfactory since it possesses low electrical resistance and is of sensitive contact making characteristic. The pivoting eye-loop 16 of the suspended contact element preferably is formed by one or more helically wound convolutions; I have found two such convolutions quite satisfactory in that a good electrical contact will be made thereby with the bolt 12, while at the same time providing that desired universal pivoting connection which assures freedom of swinging movement of the element 17 in any direction.

Mounted within the lower open end of the body or housing member 10 is a stationary contact element; the same comprising a metallic strip formed to provide an annular portion 19, extending around and contiguous to the internal circumferential surface of the open end of said

body or housing member. The meeting end sections 20-21 of said annular portion 19 are turned to extend radially outward therefrom, the same passing through and being firmly bound in a slot formed in the body or housing member wall. The free end portions 22-23 of these end sections, which project exteriorly of the body or housing member wall, are turned or bent back, respectively in opposite directions, tightly against the external surface of said wall, thus securely clamping the stationary contact element in affixed assembled relation to the body or housing member, and so as to lie in concentric and spaced relation to the normal disposition of the suspended contact element 17.

Slidably mounted on the suspended contact element 17, above its weight 18, to be normally disposed below and outwardly of the lower open end of the body or housing member and the stationary contact element lodged therein, is a stop means 24, in the form of a tapered plug made of a somewhat resilient or compressible and electrically non-conductive material, such as cork, soft rubber or the like.

In the use of the make and break device or switch of this invention, the bracket 11 is grounded or otherwise electrically connected to one side of an alarm or other circuit, thus likewise electrically connecting the bolt 12 and suspended contact element to such side of said circuit, while the stationary contact element is electrically connected, as by a wiring lead 25, to the other side of said circuit; an end of said wiring lead 25 being preferably soldered, by a solder mass 26, to the external free end portions 22-23 of the stationary contact element, as shown.

When using the make and break device or switch to control an alarm circuit protective to an automobile, for which purpose the same is especially well adapted, as above stated, the make and break device or switch is preferably located within a lockable compartment of the automobile body, such e. g. as a glove compartment with which the instrument panel of most modern automobiles is provided. To this end the foot-piece 15 is footed upon a wall 27 of such compartment, and secured to said wall and a metallic frame or reinforcing element 28 thereof by a fastening bolt means 29 passing through the slot of said foot-piece. In this manner, the make and break device is both mechanically secured in an operative position, as well as electrically grounded on the automobile frame or body, as will be well understood, so as to ground or connect the suspended contact element to one side of an alarm circuit. The wiring lead 25, extending from the stationary contact element, is connected to one pole of the automobile storage battery 30, the other pole of which is connected by a lead 31 to one pole of the automobile horn 32, or other electrically actuated alarm device, the opposite pole of which is grounded to complete the circuit. In the use of the make and break device or switch in such connection, when leaving the automobile, the driver opens the glove compartment, draws down the stop means or plug 24 to the freed position shown in Figs. 1 and 4, and then closes and locks the glove compartment. The make and break device or switch being thus put in service condition, if the automobile or its body is tilted or otherwise moved with surreptitious purpose by an unauthorized person, such tilting or movement will likewise angularly tilt the body or housing member 10, so that gravitation of the weight 18 will impart a lateral swing to the sus-

pended contact element 17, thus bringing the same into circuit closing contact with some part of the annular portion 19 of the stationary contact element, thereby causing an alarm sounding of the horn 32 or other alarm device.

When the owner or authorized operator resumes control of the automobile, the glove compartment is first unlocked and opened, to gain access to the make and break device or switch, and the stop means or plug 24 is manipulated to slide the same upwardly upon the suspended contact element 17, whereby to enter and wedge its tapered end into the lower open end of the body or housing member 10 and the stationary contact element lodged therein, so that all swinging movement of the suspended contact element 17 is arrested, and thus said make and break device or switch is easily, quickly and efficiently put into an out-of-service condition (see Fig. 5).

It will be obvious that, for automobile protective purposes, other methods and location of mounting of the make and break device or switch may be resorted to; and that variations of the electrical hook-up thereof in an alarm circuit may likewise be made. It will also be obvious that the device or switch is adapted for use in alarm or other circuits employed for other than automobile protective purposes.

Having now described my invention, I claim:

1. A circuit closer for alarm and other circuits, comprising a substantially tubular perpendicular housing member open at its bottom end, a supporting bracket means, fastening means extending transversely through the upper end portion of said housing member and through said supporting bracket means whereby to affix said housing member to said bracket means, a dependent metallic contact element pivotally suspended from said fastening means for normal axial extension through said housing member, the free end portion of said suspended contact element projecting through and substantially beyond the open bottom end of said housing member, a weight affixed to the free extremity of said suspended contact element, a stationary contact element comprising a metallic strip bent to provide an annular portion affixed to said housing member within its open bottom end concentric to the normal axial disposition of said suspended contact element, and an electrically non-conductive stop means slidably mounted on the suspended contact element above its weight and normally spaced below and away from said stationary contact element, whereby, when manually slid upwardly thereon, to be interposed and frictionally bound between said suspended and stationary elements so as to releasably hold the former against swinging movement and contact with the latter.

2. A circuit closer for alarm and other circuits, comprising a substantially tubular perpendicular housing member open at its bottom end, a supporting bracket means, fastening means extending transversely through the upper end portion of said housing member and through said supporting bracket means whereby to affix said housing member to said bracket means, a dependent metallic contact element pivotally suspended from said fastening means for normal axial extension through said housing member, the free end portion of said suspended contact element projecting through and substantially beyond the open bottom end of said housing member, a weight affixed to the free extremity of said suspended contact element, a stationary contact ele-

ment comprising a metallic strip bent to provide an annular portion having meeting end portions outwardly radial thereto, the marginal portions of said open bottom end of the housing member being slotted to receive said meeting ends, ex- 5 tremities of said meeting end portions being bent back tightly against the exterior of said housing member, whereby to provide both circuit wire attachment means and to affix said annular portion to the housing member in concentric relation to 10 the normal axial disposition of said suspended contact element, and an electrically non-conduc-

tive stop plug slidably mounted on the suspended contact element above its weight and normally spaced below and away from said stationary contact element whereby, when manually slid upwardly thereon, to frictionally engage in the open bottom end of said housing member and the annular portion of said stationary contact element so as to hold said suspended contact element against swinging movement and contact with the 10 latter.

ETHAN ROGERS UNDERWOOD.