June 11, 1946. F. E. ENGLER 2,402,111

BURGLAR ALARM DEVICE FOR AUTOMOBILES

Filed March 26, 1942

Fig. 1.

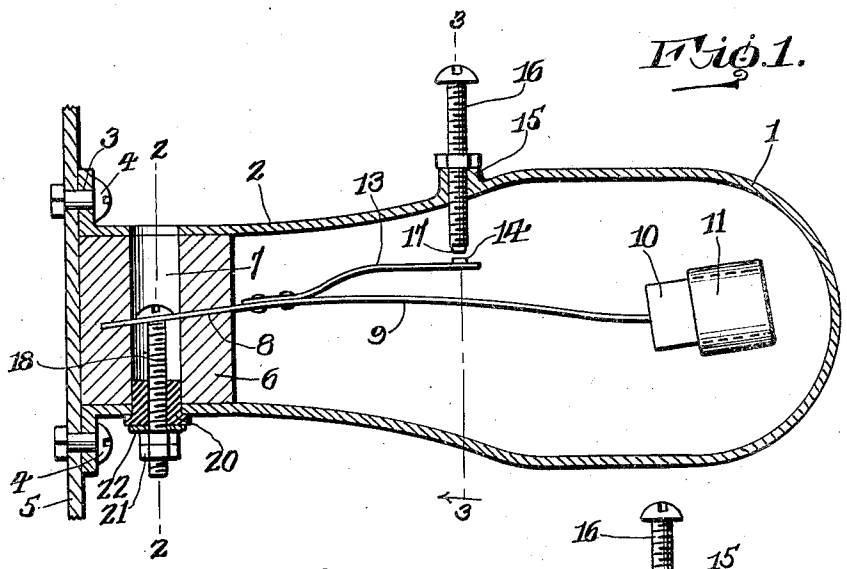


Fig. 2.

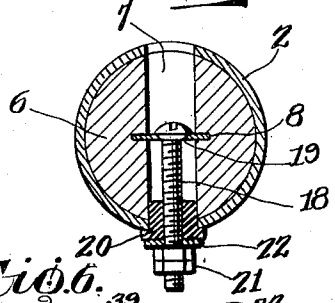


Fig. 3.

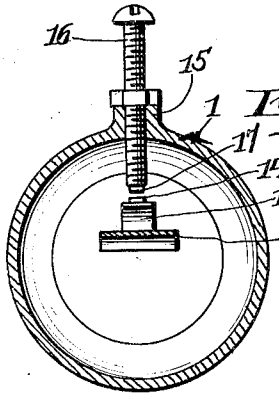
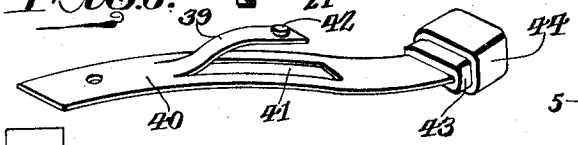


Fig. 6.



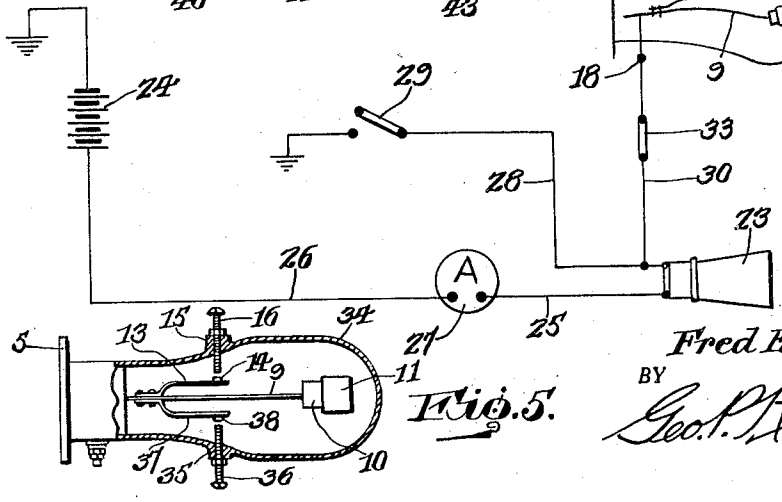


Fig. 4.

Fig. 5.

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BURGLAR ALARM DEVICE FOR AUTOMOBILES

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Application March 26, 1942, Serial No. 436,373

1 Claim. (Cl. 200—52)

1

This invention relates to an alarm device, particularly adapted for use in connection with a motor vehicle, and has for its primary object to provide in a manner as hereinafter set forth a device of such class by means of which an alarm will be sounded intermittently by the oscillatory movement of the vehicle when the latter is driven by an unauthorized person.

A further object of the invention is to provide an alarm device for connection with a motor vehicle by means of which an alarm will be sounded intermittently by any unauthorized jarring or shaking of the vehicle when the latter is parked.

A further object of the invention is to provide an alarm device for a motor vehicle operating through an electrical circuit to sound an alarm intermittently as aforesaid, and including a hidden switch by means of which the device may be rendered inoperative when the vehicle is in the custody of an authorized person.

A further object of the invention is to provide an alarm device of the character aforesaid which includes a resilient, vibratory supporting member for a resilient switch closing element, whereby a switch will be closed by a relatively slight movement of the vibratory element, and although the switch will be opened and closed at relatively short intermittent intervals, the intervals during which the switch is closed will be of greater duration than those during which the switch is open.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter more particularly described, and as illustrated in the accompanying drawing, wherein is shown an embodiment of the invention, but it is to be understood that the description and drawing are to be taken as illustrative and that the invention is intended to be limited only by the scope of the claims hereunto appended.

In the drawing.

Figure 1 is a vertical section through an alarm device in accordance with this invention,

Figure 2 is a section taken on the line 2—2 of Figure 1,

Figure 3 is a section taken on the line 3—3 of Figure 1,

Figure 4 is a diagrammatic view of a conventional horn operating circuit for a motor vehicle showing my alarm device in association therewith,

Figure 5 is a reduced sectional elevation of a modified form of the invention, and

Figure 6 is a reduced perspective view of a modified form of vibratory element.

2

Referring to the drawing in detail, the numeral 1 designates a casing which may be formed of any suitable material and which is formed with an open end portion 2 of slightly reduced diameter which is provided with a flange 3 for the passage therethrough of holdfast devices 4 by means of which the casing may be secured to a support, such as 5, which may be any suitable frame member of a motor vehicle.

Disposed within the open end of the casing is an insulating block 6 which is provided with a vertically disposed opening 7 extending therethrough and through the wall of the casing 1. The block 6 is further formed with a slot 8 which extends transversely of the opening 7 and within which is secured one end of an elongated, resilient element 9, the opposite end of which is provided with a weight 10, the outer portion of which is encircled by a cushion element 11, preferably, formed of rubber. The element 9 is of compound curvature.

Having one end secured to the element 9, adjacent the block 6, is a resilient element 13, the free end portion of which extends in spaced relation to the element 9 and which is formed adjacent its free end with a contact point 14. Adjustably extending through a boss 15 on the casing 1 is an adjustable threaded terminal 16, the inner end of which is formed with a contact 17 adapted to be engaged by the contact 14 upon the vibration of the resilient element 9. Disposed within the opening 7 is a terminal 18 which extends through an opening 19 in the resilient element 9, and which further extends through an insulating bushing 20 closing one end of the opening 7. The terminal 18 is maintained in position by means of a suitable nut 21 and washer 22.

The terminals 16 and 18 are adapted to be connected with an alarm sounding electrical circuit, such as the usual horn operating circuit of a motor vehicle. So long as the contact points 14 and 17 remain open, the circuit will be broken and upon the closing of the points 14 and 17, the circuit will be closed for operating the alarm. In Figure 4, a motor vehicle horn is shown conventionally at 23, the horn having one terminal connected with a battery 24 by means of a pair of conductors 25 and 26 and an ammeter 27. The opposite terminal of the horn is connected by means of a conductor 28 with a switch 29 which is operated by the usual horn button of a vehicle. Connected with the conductor 28 is a conductor 30 which leads to and is connected with the terminal 18 of my alarm device. Connected to the

terminal 16 of the alarm device is a conductor 31 which is grounded, as indicated at 32. The conductor 30 is provided with a switch 33 which may be hid in any suitable place, known only by authorized persons. When the switch 33 is closed, the alarm device will operate in the manner intended and when the switch 33 is open, the alarm device will be rendered inoperative.

In the operation of the device, any jiggling movement of the casing 1, such as may be caused by a vehicle or by stepping on the running board thereof, will impart a vibrating motion to the resilient element 9, owing to the weight 10 carried by the free end thereof. Upon the vibration of the element 9, the resilient element 13 will be reciprocated whereby the contact point 14 will be brought into engagement with the contact point 17 to establish an electrical connection between the conductors 30 and 31 to sound the horn 23. The cushion element 11 on the weight 10 prevents the electrical current from being passed to the casing 1, and also prevents the possibility of any sound emanating from the casing, due to the contact therewith of the weight 10 by the vibration of the element 9. When the resilient element 13 is moved in a manner to bring the contact point 14 into engagement with the contact point 17, by the vibration of the element 9, the resiliency of the element 13 will permit the latter to bend whereby the contact points 14 and 17 will be maintained in engagement during a portion of the downward movement of the resilient element 9, thereby causing the intervals during which the switch is closed to exceed those during which the switch is open. Thus the intermittent sounding of the alarm will be of sufficient duration to attract the attention of anyone who may be in the vicinity.

In the embodiment shown in Figure 5, the casing 34 is the same in every respect as the casing 1 heretofore described, except that the casing 34 is provided with an internally threaded boss 35 oppositely disposed with respect to the internally threaded boss 15. Extending through the boss 35 is a terminal 36 similar to the terminal 16.

Secured to the resilient vibratory element 9 is a resilient contacting element 37 which is oppositely disposed with respect to the resilient element 13. The element 37 is of the same construction as the element 13 and is provided with a contact point 38 for engagement with the terminal 36. In the form shown in Figure 5, the terminal 36 is grounded in the same manner as the terminal 16. Upon the vibration of the element 9, the normally open circuit with which the device is connected, will be closed alternately by the contacting elements 13 and 37.

In the form of vibratory element shown in Figure 6, the resilient contact element 39, which corresponds to the element 13 shown in Figure 1, is stamped from the resilient vibratory element 40 which corresponds to the element 9 shown in Figure 1. The contact element 39 is integral at one end with the vibratory element 40, and is bent in a manner to extend the free end portion thereof in spaced parallel relation to the longitudinal

plane of the element 9. By forming the contact element in this manner, a greater range of vibration of the vibratory element may be permitted, as the element 39 is free to pass through the opening 41 formed in the element 40 in stamping the element 39 therefrom. The contact element is provided with a contact point 42 similar to the contact element 14 shown in Figure 1, and the vibratory element 40 is provided with a weight 43 partially enclosed by a cushion 44 similar to the weight 10 and cushion 11 shown in Figure 1.

It is thought that the many advantages of an alarm device, in accordance with this invention, will be readily apparent, and although the preferred embodiments of the invention are as herein illustrated and described, it is to be understood that changes in the details of construction may be resorted to, so long as such changes fall within the scope of the invention as defined in the appended claim.

What I claim is:

In an alarm device for use in connection with motor vehicles a casing comprising a cylindrical body having a hemispherically shaped outer end, said casing having a reduced neck portion extending oppositely from said hemispherically shaped outer end, said neck portion being provided with a radially projecting circular flange having a diameter substantially the same as the diameter of the cylindrical body, said flange having a series of openings spaced from each other to receive supporting means for supporting said casing, said neck portion being provided with a pair of aligned opposed openings to facilitate the securing of an alarm control device therein, a boss on the outer surface of said casing through which a portion of said alarm control device is adapted to extend, an alarm control device adapted to be contained in said casing comprising a cylindrical insulating plug, having a transverse bore extending therethrough, said plug having a rectangular passage extending longitudinal therethrough intersecting said transverse bore, the axis of said rectangular passage being at an angle to the axis of said plug, an elongated resilient arm seated in said passage with the outer end thereof extending toward said hemispherical outer end, a contact member on said resilient arm, a second contact member adjustably mounted through said boss on said casing, a weight mounted on the outer end of said resilient arm for inducing vibration of said arm when said alarm control device is jarred, an insulating bushing mounted in one of opposed openings in said casing neck, and a combined resilient arm clamping an electrical connecting device passing through an opening in said resilient arm, and through said bushing to clamp said resilient arm in said insulating plug and to provide an electrical connector for said resilient arm, said alarm control device being adapted when connected into an electrical circuit to complete the circuit and break the circuit alternately as the resilient arm is vibrated due to jars or shocks.

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