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CIRCUIT CLOSER FOR AN AUTOMOBILE SIGNALING DEVICE

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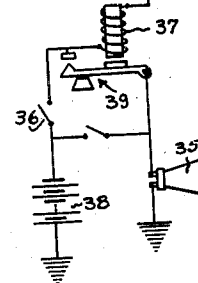
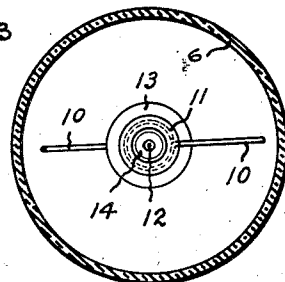
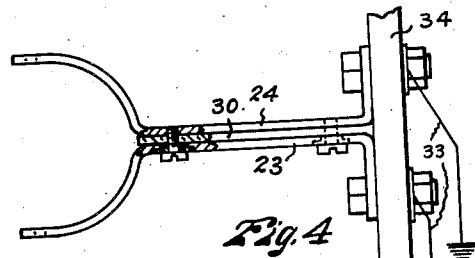
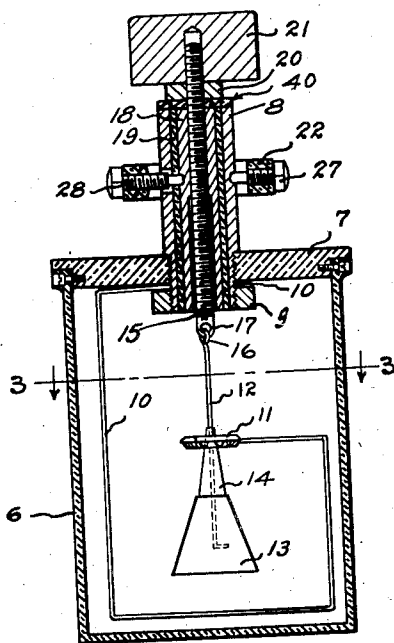
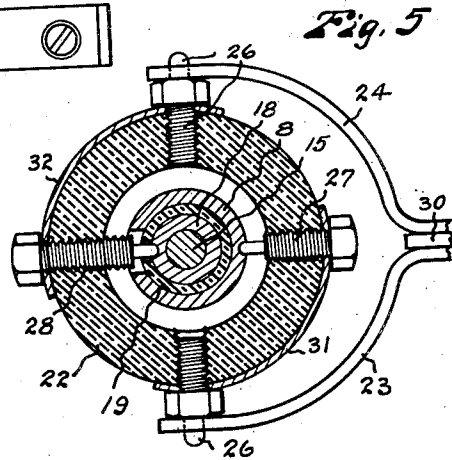
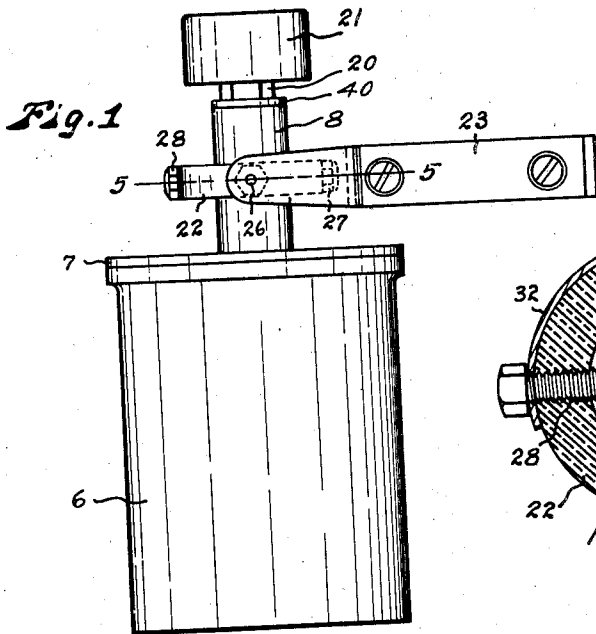


Fig. 2

Fig. 3

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CIRCUIT CLOSER FOR AN AUTOMATIC SIGNALING DEVICE

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My invention relates to improvements in a circuit closer for automatic signaling devices for use on motor vehicles and the general object of my invention is to provide a simple, efficient and reliable motor vehicle signaling device which is responsive to vibration or movement and which is adapted to control the production of signals calculated to attract the attention of persons in the vicinity of the device, said device thereby tending to prevent unauthorized persons from stealing a motor vehicle or removing accessories therefrom or in any way tampering with the vehicle, and further giving a warning in case another vehicle rams or bumps a parked vehicle, or a vehicle parked on a hill accidentally starts to move down the hill.

A more specific object of the invention is to provide a signaling device including a signal housing suspended for universal movement on a vehicle and having a pendulum suspended for swinging movement within the housing said pendulum being arranged to make electrical contact with means carried by the housing, a substantial portion of the weight of the housing and its connected parts being above the point of suspension of the same whereby vibrations will tend to impart a much greater swinging movement to the pendulum than they will to the housing thereby rendering the device much more sensitive than it would be if the suspension tended to cause the housing to swing in synchronism with the pendulum. In the present disclosure I have accomplished this object by connecting a counterweight with the housing above the universal suspension means but it is obvious that the same result may be attained by positioning the suspension means between the two ends of the housing and leaving the bottom end enough heavier than the top to cause the housing to hang vertically.

Another specific object is to provide improved means for adjusting the width of the gap between the pendulum and a loop through which the pendulum passes to thereby vary the sensitiveness of the signal device.

A further specific object is to provide improved means for completing an electric cir-

cuit into and out of the housing without attaching circuit wires to the housing or otherwise interfering with the sensitiveness of the housing suspending means.

Other and more specific objects will be apparent from the following description taken in connection with the accompanying drawing.

In the drawing Fig. 1 is a side elevation of a signaling device constructed in accordance with my invention.

Fig. 2 is a vertical mid-section of the same.

Fig. 3 is a cross section on line 3—3 of Fig. 2.

Fig. 4 is a detached plan view of the suspension bracket showing certain electrical connections thereto.

Fig. 5 is an enlarged cross section through the suspension means on broken line 5—5 of Fig. 1.

Referring to the drawing, throughout which like reference numerals designate like parts, 6 designates a cylindrical housing of insulating material, as bakelite, having a cover 7 secured thereto and forming a closure for the upper end of the housing. A metal tube 8 extends downwardly through the center of the cover and a nut 9 is threaded onto the bottom end of the tube 8 and tightened against a contact wire 10 whose upper end is positioned between the nut and the cover and electrically connected with the tube 8. A shoulder on the tube 8 rests against the top of the cover making it possible to clamp the tube 8 and the cover securely together. The contact wire 10 preferably extends outwardly from the tube 8 thence downwardly along the side of the housing 6, thence across the housing near the bottom, thence upwardly to a point about half way between the top and bottom of the housing, thence inwardly to the central axis of the housing where it terminates in a ring or eyelet 11 preferably formed by bending a loop in the end of the contact wire and clinching a standard gromet around and within said loop, the gromet serving as the electric contact means. A pendulum wire 12 extends downwardly through the eyelet 11 and has a weight 13 secured to its bottom end, a cone

14 rests on the top of the weight 13 and extends upwardly through the eyelet 11 whereby the sensitiveness of the device may be adjusted by adjusting the position of the cone 14 vertically within the eyelet 11 as hereinafter described.

The upper end of the pendulum wire 12 is pivotally connected with the bottom end of a stem 15 by means of a loop or hook 16 on said wire which engages with an eye 17 on the stem. The stem 15 is adjustably threaded into a sleeve 18. The sleeve 18 is surrounded by another sleeve 19 of insulating material, as bakelite, which is disposed within the tube 8. In practice the sleeves 19 and 18 may be made to fit tightly and may be pressed into the tube 8 so that said sleeves become fixed relative to the tube. An insulating washer 40 is provided on the top of the sleeves 8, 18 and 19. A lock nut 20 is threaded onto the stem 15 above the washer 40 and a counterweight 21 is screwed onto the top of said stem 15.

The signal housing is suspended for universal movement by means of a gimbal ring 22 of insulating material which is pivotally connected with bracket forks 23 and 24 by pivot studs 26 positioned diametrically opposite relative to the gimbal ring. Two other pivot pins 27 and 28 arranged at right angles to the pivots 26 pivotally connect the shank formed by the parts 8, 15, 18 and 19 to the gimbal ring. The interior of the gimbal ring 22 is larger than the exterior of tube 8 and the bracket forks 23 and 24 afford clearance for the exterior of the gimbal ring so that a free and unrestrained universal movement is afforded to the housing 6 by the two pivots 26 and the pivots 27 and 28.

For the purpose of making electrical connection with the wire 10 and pendulum 12, I terminate the pivot 27 in the wall of the tube 8 and terminate the pivot 28 in the wall of the sleeve 18, said pivot 28 being insulated from the tube 8. The two bracket members 23 and 24 are insulated from each other by an insulating strip 30. The bracket member 23 is electrically connected with the pivot 27 by a conductor strip 31 and the bracket member 24 is electrically connected with the pivot 28 by a conductor strip 32. Circuit wires 33 may be connected with the ends of the bracket members 23 and 24 at the locations where they are secured to a support 34.

One circuit wire 33 may be grounded while the other circuit wire 33 may be connected through an electric magnet coil 37 and a lock controlled or hidden switch 36 with a battery 38. The coil 37 may, when energized, close a switch 39 and complete a circuit to a signal unit 35 which may be the usual horn or siren. The coil 37 acts as a choke for preventing heavy charges of current from passing through the gromet 11 and cone 14 thus preventing arcing and rapid deterioration.

In the use of this signaling device the bracket members 23 and 24 are secured in a horizontal position to a support, as a vehicle dash 34, preferably underneath and back of the cowl or instrument board so that this device is hidden by the cowl. When thus installed, the housing 6 will be caused by gravity to hang vertically when the vehicle is at rest regardless of whether the vehicle is level or is inclined or tilted. When the housing 6 hangs vertically and the pendulum wire 12 hangs vertically within said housing the cone 14 will be spaced from the sides of the eyelet 11 and the circuit will be broken at this point thus preventing the signaling element 35 from being energized even though the switch 36 is closed. If the vehicle is moved or rocked or jarred, as by unauthorized persons tampering with, or attempting to start the same, or by accidental collision or accidental failure of the brakes, then the pendulum will be caused to swing and, by moving the cone 14 into contact with the eyelet 11, will actuate the electric magnet switch 39 and close the circuit to the signal unit 35, thus causing a signal to be produced.

The device may be made more or less sensitive as may be desired, by varying the vertical adjustment of the cone 14 within the eyelet 11 and thus varying the width of the annular gap between said cone and the eyelet. This adjustment is accomplished by loosening the counterweight 21 and nut 20 and turning the stem 15 which is threaded into the sleeve 18.

The shape of the wire 12, namely substantially that of a letter G, is important, it having been found that this shape affords greater flexibility and gives a longer period of contact each time the cone 14 touches the eyelet 11.

By suspending the signal device comprising the housing and stem and counterweight from such a point that the lower portion is just enough heavier than the upper portion to always hold the housing vertical I greatly reduce the tendency of the housing to swing and yet leave the pendulum absolutely free to swing and make contact with the wire 12. This makes the device much more sensitive than it would be if the housing were suspended from the top and tended to swing with the pendulum. When the housing is suspended as shown, it is obvious that movement of the bracket will tend to move the housing bodily with slight tendency to tilt the same, the inertia of the housing proper and the inertia of the counterweight being very nearly equal.

By connecting the circuit wires with the brackets 23 and 24 and carrying the circuits through the several sleeves I am able to better conceal and protect the circuit wires and I avoid direct connections of the circuit wires

with the signal housing thus leaving the housing absolutely free to swing on its gimbal ring support.

When a motor vehicle on which this device is installed is brought to a stop the housing 6 will quickly come to rest in a vertical position with the circuit through the eyelet 11 and cone 12 open, regardless of whether the vehicle is level or is pitched or tilted as on a hill, the signal device being thus self adjusting. As soon as the signal housing comes to rest the driver may close the switch 36 and leave the vehicle, after which, any vibration or movement of the vehicle will operate the signal.

The foregoing description and accompanying drawing clearly disclose a preferred embodiment of my invention but it will be understood that this disclosure is merely illustrative and that such changes in the invention may be made as are fairly within the scope and spirit of the following claims.

I claim:

1. In a device of the class described, a housing, a rigid stem extending upwardly from said housing, universal joint suspension means connected with said stem, a screw threaded lengthwise through said stem and adjustable from the upper end thereof, a pendulum of electrically conductive material suspended from the lower end of said screw, a cone shaped contact member on the lower end of said pendulum, a resilient electrical conductor disposed within said housing, and means forming a horizontal contact loop on the lower end of said resilient electrical conductor, said cone shaped contact member being positioned within said loop whereby vertical adjustment of said screw will adjust the clearance between said cone shaped contact member and said loop.

2. In a circuit closer of the class described, a housing of insulating material, pendulum controlled circuit closing means in the housing embodying two electrical conductors, stem means extending upwardly from the top of said housing and embodying two relatively insulated members connected with the respective conductors, and two part universal joint bracket means connected with said stem means for suspending said housing the two parts of said bracket means being insulated from each other and electrically connected respectively with said two stem members.

3. The apparatus as described in claim 2, in which the stem means comprises an inner tube and an outer tube of electrically conductive material disposed one within the other and separated from each other electrically by a tube of insulating material.

The foregoing specification signed at Seattle, Wash., this 23 day of Feb. 1928.

65 WILLIAM M. PARSONS.