

F. CRESSALL,
BURGLAR OR THIEF ALARM,
APPLICATION FILED NOV. 14, 1919.

1,372,671.

Patented Mar. 29, 1921.

2 SHEETS—SHEET 1.

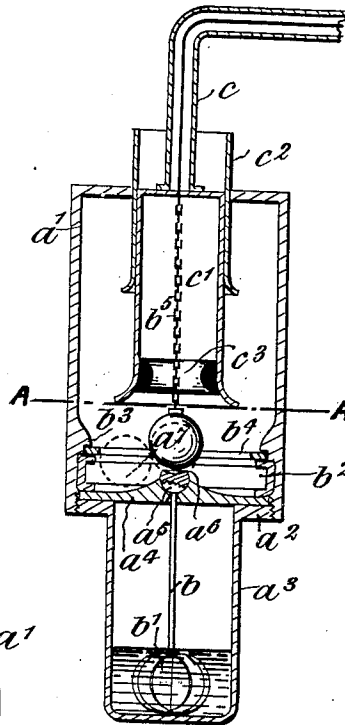


Fig. 1

Fig. 3.

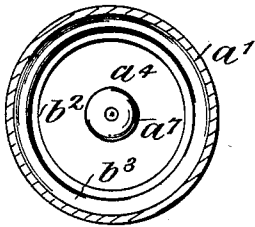


Fig. 2.

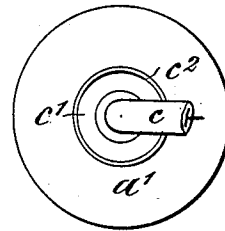
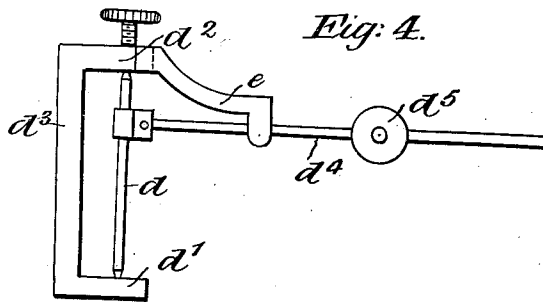


Fig. 4.



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2 SHEETS—SHEET 2.

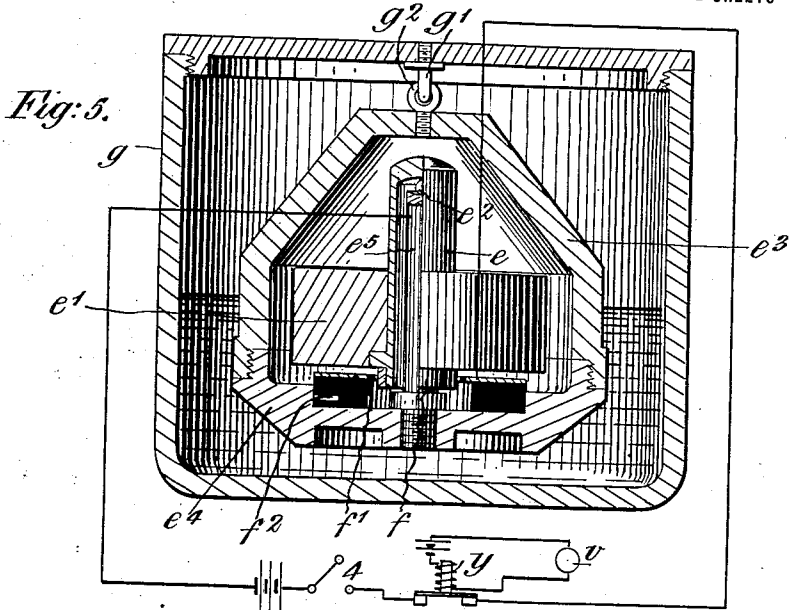


Fig. 6.

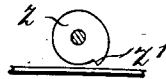
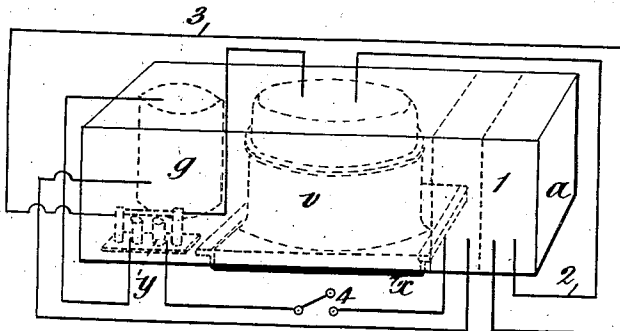


Fig. 7.

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UNITED STATES PATENT OFFICE.

FREDERICK CRESSALL, OF NEWPORT, ISLE OF WIGHT, ENGLAND.

BURGLAR OR THIEF ALARM.

1,372,671.

Specification of Letters Patent. Patented Mar. 29, 1921.

Application filed November 14, 1919. Serial No. 337,903.

To all whom it may concern:

Be it known that I, FREDERICK CRESSALL, a subject of the King of Great Britain, residing in Newport, Isle of Wight, England, have invented certain new and useful Improvements in Burglar or Thief Alarms, of which the following is a specification.

This invention relates to burglar or thief alarms and it has for its object to provide a simple and efficient alarm designed for use upon doors or other bodies and which shall be operated by the opening or movement of said doors or bodies.

An alarm according to this invention while capable of applications such as those above referred to is particularly adapted for use upon motor or other vehicles in order to give an alarm should any unauthorized person enter or attempt to remove the vehicle or otherwise tamper therewith.

According to the present invention an electric bell, buzzer or other similar device is provided, the circuit of which is closed by means of a nicely balanced body which upon the movement of the body to which it is applied, for instance the sudden swaying of a vehicle produced by a person entering same, will be displaced and complete an electric circuit in which said bell or the like is included.

Provision is made for readily restoring the balanced body to the "set" position, and for preventing its operation when not required.

The entire device is housed in an inaccessible casing which is located at any convenient place within the structure of the car. When the alarm is set, access to this would be impossible without warning being given.

The instrument which gives warning is preferably located beneath the car, but within the casing, and in the case of a horn would have its opening direct to the air.

In order that the invention may be the better understood drawings are appended in which:—

Figure 1 is a longitudinal section of one form of device according to this invention.

Fig. 2 is a plan.

Fig. 3 is a section on line A A Fig. 1.

Fig. 4 is an elevation showing an alternative form of the device.

Fig. 5 is a vertical sectional view showing a further alternative.

Fig. 6 is a projective view showing the device within its outer case together with the relay alarm and batteries.

Fig. 7 is a view showing a detail of the relay.

Referring to the accompanying drawings it will be understood that in each case the component members of the alarm will be disposed within a suitable box or container as indicated by *a* in Fig. 6 and which box will be so secured as to prevent, as far as possible, unauthorized access thereto. The case is placed in some inaccessible position and preferably beneath the car the opening in the case for the escape of the sound being protected by a suitable grid or grating such as indicated by *x* in Fig. 6, and which grid may comprise an uneven surface of such nature that it is difficult or impossible to apply any covering thereto which would prevent the escape of the noise of the alarm. This may take the form of a surface having a number of downwardly projecting points, forming part of a perforated plate or grid.

In the form of device illustrated in Figs. 1 to 3 the device comprises a short cylindrical body *a*¹ closed at the lower end by means of a disk *a*² having a peripheral screw thread engaging a corresponding thread in the interior of the cylinder *a*¹. The disk *a*² is provided with a centrally disposed downwardly extending well *a*³ adapted to contain glycerin or other more or less viscid liquid.

Resting upon the disk just referred to is a second disk *a*⁴ cupped to receive a circular body or ball *a*⁵, the upper periphery of which is provided with a coned or other shaped depression *a*⁶ adapted to support a ball *a*⁷ of copper or other good electrical conductive metal, in a manner such that the sudden swaying of the vehicle such for example as results from a person entering it, will cause such ball to be displaced.

Secured to the underside of the first ball is the upper end of a pendulum rod *b*, the lower end of which is provided with a weight *b*¹ preferably provided with radial fins adapted to prevent the too ready swinging of the weight, the purpose of the pendulum being to retain the seat for the second ball always horizontal, irrespective of the angle of the surface upon which the car rests. Disposed above the disk last de-

scribed is a distance piece b^2 serving in conjunction with an internal flange b^3 upon the main body of the device to clamp a ring b^4 , which ring is insulated from said main body.

5 The ring and support for the pendulum form the terminals for the circuit of the bell or other device, the second ball a^7 , before referred to, when displaced from its seating forms a contact between the insulated ring b^4 and the support for the pendulum. Attached to the contact closing ball a^7 is one end of a light chain or other flexible body, which body b^5 at its upper end is connected to the inner member of a push cable, indicated by c , the outer member of said wire being connected to a sleeve c^1 slidably mounted in a tubular guide c^2 passing through the top of the main body of the device.

20 The sleeve c^1 is bell mouthed at the lower end, and is provided with an internal ring of rubber c^3 or other yielding material so that when the push cable is operated the relative movements of the sleeve and chain cause the ball upon the chain to be drawn against the rubber or other ring when it is clear of its seat in an inoperative position.

30 Operation of the push cable enables the ball to be settled on its socket by lowering the tube and the chain, in the first place, and withdrawing the tube to give the ball clearance to roll in the second place.

35 It may be pointed out that should an attempt be made to cut the cable it gives additional facilities for the alarm sounding, thereby rendering it practically impossible to put the apparatus out of action until warning has been given.

40 Passing traffic, of a heavy nature, would not affect the alarm when it is set, as the vehicle, as a whole, would be vibrated and the ball would merely bounce on its socket.

45 The conical shape of the ball seating would tend to return it to the center at each bounce. The audible warning would be of such a peculiar nature as to be recognizable by passers by and police officers.

50 If desired, provision may be made whereby the balanced body may be positively operated to insure its closing the electric current.

55 In the alternative form of the device illustrated in Fig. 4 instead of the balanced body being in the form of a ball I employ a body which is arranged so as to be capable of angular displacement in the horizontal plane which body comprises a spindle d which is disposed upon a line slightly inclined to the vertical plane, and which is pivotally mounted at its upper and lower ends upon arms or supports d^1 , d^2 forming part of or connected to the vertical member d^3 . Clamped or otherwise secured to the

65 spindle d is an arm or rod d^4 projecting at a right angle to the line of the spindle and upon which is adjustably mounted a weight d^5 . Secured to the arm d^2 but insulated therefrom are contacts such as e one such contact being disposed on each side of the rod d^4 in a manner such that the tilting of the car or other body will cause the arm or rod d^4 to swing in one or other direction completing the bell or relay circuit as the case may be. The device is mounted within a chamber 75 which is suspended or otherwise freely mounted to move in a second chamber suspended from its upper end, the lower portion being immersed in oil or other suitable viscid liquid, the arrangement being such that the 80 outer chamber or case will always occupy a position such that the support for the spindle is always in the vertical plane.

A second body such as that just referred to is employed which is arranged at a right 85 angle to the other and is mounted in or on suitably inclined bearings upon arms or brackets carried by a suitable support, also inclosed in a case, the case for the second body being so supported that it will always 90 occupy a position such that the aforesaid support is in a vertical plane. The body may be of U shaped outline in which case the horizontal members of the said body are preferably of different lengths the upper 95 being shorter than the lower, and each of said arms is provided with inclined pivots which engage suitable sockets or surfaces upon the supporting brackets.

100 Contacts would be provided for each balanced body, both of which include the bell, buzzer or other device for giving an audible signal. A switch is provided for cutting out the bell or the like when not required. 105

In the arrangement shown in Fig. 5 in place of the ball or pivotally mounted body before referred to there is provided a pendulum which comprises a tubular body e open at the lower end where it is provided 110 with a weight e^1 . The upper end of the body e is closed and the inner or under surface of the closure is suitably dished at e^2 to engage a ball or pivot. Surrounding the pendulum is a cylindrical body e^3 closed 115 at the lower end by the disk e^4 where it may also be weighted if desired. A centrally disposed upwardly projecting rod or standard e^5 is attached to the disk e^4 at the bottom of the cylindrical body having at its 120 upper end a point or ball to engage the bearing surface upon the pendulum.

125 Surrounding the exterior of the pendulum at the lower end is an annular member f forming one terminal of an electric circuit, the other terminal comprising a second annular body f^1 arranged upon the closure for the lower end of the cylindrical body

surrounding the pendulum and mounted upon a block of vulcanite or the like f^2 . The contacts may however be arranged in any other suitable manner. An outer case or receptacle g is provided in which the afore-said cylindrical body is supported by the hook g^1 and eye g^2 in a manner such that it is always free to assume a vertical position irrespective of the inclination of the said case. The outer case is wholly or partly filled with a suitable viscous liquid to damp the movement of the cylindrical body e^3 . Any other provision may however be made whereby the too rapid movement of the cylindrical body e^3 is avoided.

With the circuit arranged in the manner before described it is obvious that an intermittent operation of the horn or other audible signal indicated by v in Figs. 5 and 6 will result. In order that a continuous alarm may be secured instead of being coupled directly to the horn or the like the circuit completed by the device may include a relay of any suitable type such for example as a polarized relay indicated in Figs. 5 and 6 by γ and by means of which when the circuit is closed by the device the relay will complete a local circuit including the horn or the like which will continue to sound until the circuit is broken for which purpose a suitable switch may be provided preferably operated by a key and which switch would be placed in any suitable part of the vehicle not readily accessible to any person outside the car, the leads or operating rod for the switch being contained in a steel or other tube or casing. The switch if desired may be of such a nature that the alarm may be set to work either intermittently or continuously or instead of a switch provision may be made such for example as shown in Fig. 7 whereby the relay arm may be held in an inoperative position. In the arrangement shown a disk is provided indicated by z having a projection z^1 thereon which when the disk is turned in one direction contacts with the arm of the relay and prevents its release when the magnets of the relay are depolarized.

The circuits for the horn v and relay γ are shown in Fig. 6, in which 1 indicates the compartment of the case containing the battery. From one pole of the battery a lead 2 passes to one terminal of the horn, while a lead 3 connecting the other terminals of the horn and battery includes the relay γ . The relay γ is controlled by the circuit including the hand switch 4 and the automatic switch g .

As already explained in order to secure a continuous operation of the alarm a relay or other device is included in the circuit controlled by the pendulum, said relay being contained within the inaccessible case in which the whole device is inclosed.

The arrangement may be such that either a continuous or intermittent operation of the alarm may be obtained.

Claims—

1. An apparatus comprising a closed receptacle; a closed hollow body suspended from the upper part of said receptacle; an upright standard fixed in the lower part of said body co-axial therewith and provided at its upper end with a pivot ball; a tubular body disposed over said standard and provided with a closed interiorly dished upper end resting on said ball; an annular weight secured on said tubular body near the lower end thereof; an annular contact member mounted on the lower end of said tubular body; an insulated annular contact body mounted in said hollow body and surrounding and normally out of contact with said contact member; conductors electrically connected to said standard and annular contact body respectively; and a viscous liquid in the lower part of said receptacle for damping the movement of said hollow body when the receptacle on said weight are tilted or moved laterally relatively to the hollow body.

2. An apparatus comprising a receptacle; a closed hollow body suspended in said receptacle; a standard fixed in the lower part of said body; a tubular body disposed over said standard and pivotally mounted on said standard; an annular weight secured on said tubular body near the lower end thereof, a contact member mounted on the lower end of said tubular body; an insulated annular contact body mounted in said hollow body and surrounding and normally out of contact with said contact member; conductors electrically connected to said standard and insulated contact body respectively; and a viscous liquid in the lower part of said receptacle for damping the movement of said hollow body.

3. An apparatus comprising a receptacle; a hollow body suspended in said receptacle; a weight freely suspended in said body; a contact member secured to the lower part of said weight; an insulated annular contact body mounted in said hollow body and surrounding and normally out of contact with said contact member; conductors electrically connected to said contact body and member respectively; and a viscous liquid in said receptacle for damping the movement of said hollow body.

4. An apparatus comprising a receptacle; a supporting body movable in said receptacle; a weight movable in said body; a contact member secured on said weight; a contact body mounted in said hollow body normally out of contact with said contact member and adapted to contact the contact member when the weight and supporting body are relatively moved; conductors electrically

connected to said contact body and member respectively and a viscous liquid in said receptacle for damping the movement of said hollow body.

- 5 5. An apparatus comprising a support; a movable element thereon; a weight freely movably supported on said element; a contact member mounted on the movable weight; a contact body mounted on the
10 movable element and normally out of contact with said contact member and adapted to engage said member when the weight and element are relatively moved; electric operating means actuated by such engage-
15 ment; and means permitting slow movement and damping quick relative movement between said movable element and support.
6. An apparatus comprising a movable element; a weight freely movably supported

on said element; operating means actuated 20 by relative movement between the weight and element; and a viscous liquid in which said element is immersed permitting slow movement and damping quick relative movement of said movable element. 52

7. An apparatus comprising a movable element; a weight freely movably supported on said element; operating means actuated by relative movement between the weight and element; and means permitting slow 30 movement and damping quick change of movement of said movable element.

In witness whereof I have hereunto set my hand in presence of two witnesses.

F. CRESSALL.

Witnesses:

Y. N. BRAUND,
C. PIGOTT.