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Murray

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[54] **PORTABLE BURGLAR ALARM**

[76] Inventor: **Harry Aloysious Murray,** 146 Red Stone Ridge, Delran, N.J. 08075

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[52] **U.S. Cl.** **116/82;** 116/86

[51] **Int. Cl.²** **G08B 13/08**

[58] **Field of Search** 116/82, 85, 86, 88, 91, 116/100, 12, 13, 167; 340/283

[56] **References Cited**

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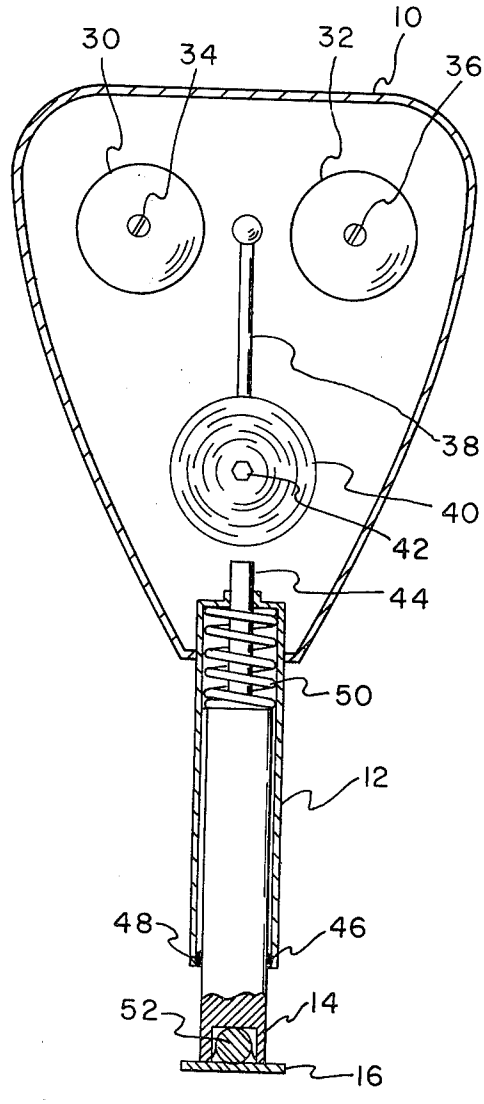
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Primary Examiner—Richard C. Queisser
Assistant Examiner—Daniel M. Yasich
Attorney, Agent, or Firm—Joseph Tripoli

[57] **ABSTRACT**

A portable burglar alarm having a housing containing a bell and a spring driven motor. The alarm also has an elongated supporting mechanism connected to the housing and operatively coupled to the spring driven motor. The alarm is adapted for leaning the housing against a moveable surface with the elongated supporting mechanism resting on a fixed surface. The alarm is set up in an upright position. Movement of the moveable surface topples the device and when the supporting mechanism no longer supports a substantial portion of the weight of the housing, the spring driven motor becomes operative and sounds the bell.

9 Claims, 3 Drawing Figures



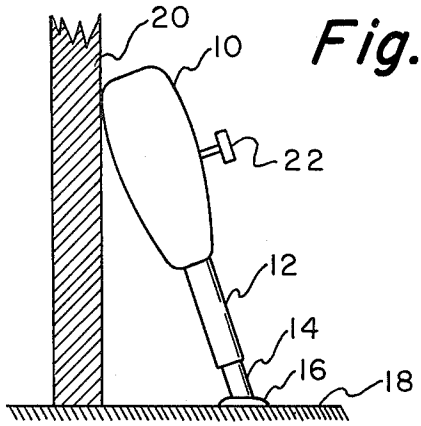


Fig. 1

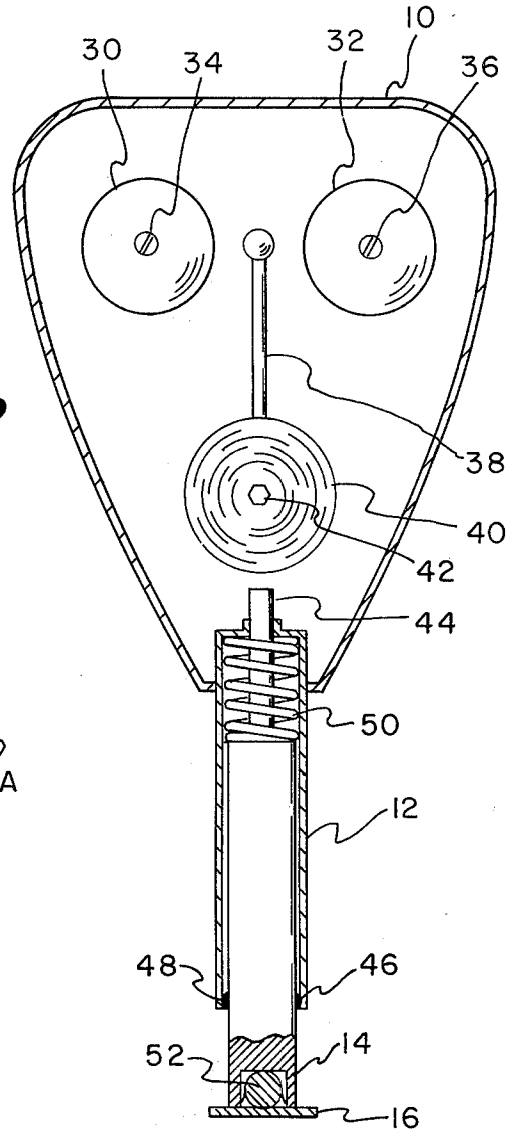


Fig. 2

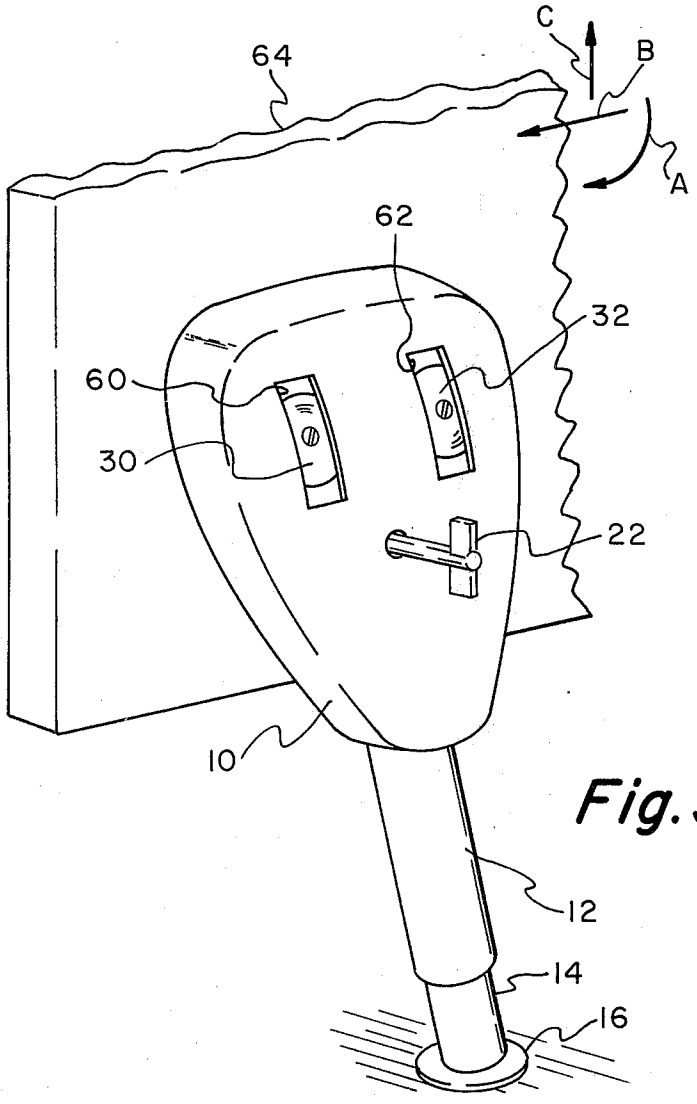


Fig. 3

PORTABLE BURGLAR ALARM

The present invention relates generally to burglar alarms and more specifically to portable burglar alarms.

In the prior art there are several types of portable burglar alarms. Examples of prior art portable burglar alarms are shown in U.S. Pat. Nos. 376,909; 857,351; and 1,685,416. In each of these examples of prior art, the burglar alarm takes the form of a wedge-like device which is designed to be placed directly behind a door. When the door starts to swing open it gets wedged by the device and a bell is sounded by virtue of a spring motor which is activated by the force of the door against the device. The devices shown in U.S. Pat. Nos. 857,351 and 1,685,416 are also shown as being adaptable for use in wedging or jamming a window as a result of an attempted unauthorized opening of the window.

Although the prior art devices mentioned above are useful for sounding an alarm as a result of the unauthorized opening of conventional doors and windows, these devices are not appropriate for sounding an alarm when certain modern type doors and windows are opened. More specifically, these devices are not useful with respect to the unauthorized opening of laterally sliding doors and windows and certain types of casement windows. Many modern homes and many hotels and motels now utilize sliding glass doors and windows. These types of doors and windows are a ready means of unauthorized entrance into a room.

A portable burglar alarm should then have the capability of sounding an alarm upon the unauthorized opening of any type of door or window which the user desires to alarm. The present invention provides a portable burglar alarm which does not require electrical wiring, is easily set up by the user, is not complex in construction and is useful for alarming virtually any type of door or window.

In accordance with the present invention there is provided a portable burglar alarm having a housing within which is located a bell and a spring driven alarm means for sounding the bell. An elongated supporting leg means which is connected to the housing and operatively coupled to the spring driven alarm means is also provided. The burglar alarm is adapted for having the housing contact a moveable surface, such as a door, while the supporting leg means rests against a fixed surface, such as a floor. The supporting leg means supports a substantial portion of the weight of the housing when the burglar alarm is in this upright set up position. The supporting leg means becomes disengaged from the alarm means such that the bell is sounded when movement of the moveable surface causes dislocation of the supporting leg means from the fixed surface.

IN THE FIGURES

FIG. 1 is a sketch of one embodiment of the present invention positioned to alarm a door;

FIG. 2 is a cutaway drawing showing the alarm mechanism of the alarm shown in FIG. 1; and

FIG. 3 is a perspective view of the alarm of FIG. 2 showing how the device can be used to alarm a variety of moveable surfaces.

Referring now to FIG. 1, the embodiment of a portable burglar alarm in accordance with the present invention is shown having a substantially enclosed housing **10**, a supporting leg **12** and a moveable arm **14** located within the supporting leg **12**. In addition, the moveable arm **14** is shown having a foot member **16** resting against a fixed surface **18** such as a floor. The housing **10** is set up to lean against the moveable surface **20**, such as a door, which is desired to be alarmed. There is also shown in FIG. **1** a key **22** which is used to wind up the coiled spring of the spring driven motor located within the housing **10**.

Housing **10** is preferably formed from a high impact plastic material such that the housing **10** will withstand the impact sustained from falling over onto the floor **18** when the door **20** moves and dislocates the unit from its set up position. They key **22** is shown inserted in the housing **10**. In some embodiments such as the one shown in FIG. **1**, the key **22** is designed to wind the spring motor located within the housing **10** and is then removed. In other embodiments it may be desired to design the key **22** such that it is screwed into the spring driven motor to prevent possible misplacement of the key **22**.

The unit shown in FIG. **1** is designed to have a housing **10** which has an upper portion which is substantially larger in at least one plane, the horizontal plane, than the lower portion thereof in a corresponding plane near the area where the supporting leg **12** is connected to the housing **10**. In addition the device shown in FIG. **1** is preferably designed to have its center of gravity fairly high with respect to the midpoint of the height of the device from the top of the housing **10** to the foot member **16**. These features are preferred so that the device as a whole is fairly unstable when in its set up position with most of the weight of the device being supported by the moveable arm **14**. It is desired to have the device unstable so that even small movements of door **20** will knock the device over causing the alarm to sound.

Referring now to FIG. **2** the details of the alarm mechanism are shown. The cutaway drawing of FIG. **2** showns the bells **30** and **32** secured within the housing **10** by screws **34** and **36** respectively. In close physical proximity to bells **30** and **32** is clapper **38**. Clapper **38** is operatively coupled to a spring driven motor device **40** having opening **42** adapted to receive the key **22** for winding up the coiled spring found inside of the spring motor **40**. Details of the elements comprising the spring motor **40**, the coupling arrangement to the clapper **38** and the means to release the potential energy of the coiled spring within the motor **40** are known in the prior art and may be found in U.S. Pat. Nos. 376,909; 857,351; and 1,685,416.

FIG. **2** also shows moveable arm **14** having a generally cylindrical form located within and coaxial with the cylindrical supporting leg **12**. The moveable arm **14** has a smaller diameter portion **44** on one end. Arm **14** also has first and second protuberances **46** and **48** on the outer surface thereof at a distance from the other end. Protuberances **46** and **48** are designed to act as stops for the travel of moveable arm **14** in one direction.

Within the area defined by the inner surface of supporting leg **12** and the narrow diameter portion of moveable arm **14** is located a helical spring **50**. Helical spring **50** is designed to force the moveable arm **14** down and away from engagement with spring motor **40**. In FIG. **2** spring **50** is shown in its uncompressed state. This is the state which spring **50** assumes when the alarm device is not in its set up position, the set up position being that shown in FIG. **1**

Attached to the other end of moveable arm **14** is a foot member **16.** Foot member **16** has associated therewith a pivot **52** which is inserted into a hollow lower section of moveable arm **14.** Pivot **52** is provided so that the foot member **16** may lie flat on the fixed surface such as a floor or the top surface of the lower half of a window even though the upper portion of the housing **10** is leaning against the moveable surface whereby the device as a whole is at an angle with respect to the vertical direction.

Although the device as a whole is designed to be somewhat unstable so as to readily have the housing **10** fall over from slight movements of the surface upon which it is leaning, the device should have enough stability so that the user may easily prop up the device against the surface to be alarmed.

The device shown in FIG. **2** is set up as follows. First the key **22** is inserted in the opening **42** of spring motor **40** and the coiled spring contained therein is wound. The device is then placed up against the surface to be alarmed with the foot member **16** resting on a fixed surface. The weight of the housing **10** and the elements contained therein compresses spring **50** and the weight of the device is such that spring **50** remains compressed while the device is in the leaning position. In this position the upper end **44** of moveable arm **14** is urged against and engages the spring motor mechanism **40** such that the motor **40** is prevented from driving the clapper **38** and sounding the bells **30** and **32.** In an arrangement such as the one referenced in U.S. Pat. No. 857,351 the end **44** of moveable arm **14** would be coupled to the arm **13** of the referenced patent such that the spring motor **40** would not cause the bells **30** and **32** to be sounded when the alarm is in the set up position. In an arrangement such as the one referenced in U.S. Pat. No. 1,685,416 the end **44** of moveable arm **14** would be coupled to hammer **47** of the referenced patent such that the bells **30** and **32** would be prevented from sounding by preventing motion of the clapper **38** when the alarm is in the set up or leaning position.

When an unauthorized attempt is made to open the door against which the device is leaning, the device will topple over. As the device topples over and moveable arm **14** no longer bears a substantial portion of the weight of the housing **10,** the spring **50** expands from its compressed condition thereby driving moveable arm **14** down and away such that end **44** of arm **14** becomes disengaged from the spring motor **40.** Arm **14** is moved by the force of the spring **50** until its movement is stopped by the protuberances **48** and **46** coming into contact with the lower end of supporting leg **12.** When end **44** of arm **14** becomes disengaged from motor **40,** the stored energy of the motor is released which drives the clapper **38** causing the bells **30** and **32** to be sounded.

Referring now to FIG. **3** a portable burglar alarm in accordance with the present invention is shown in its set up position. The device shown in FIG. **3** has two openings **60** and **62** in the housing **10** in physical proximity to bells **30** and **32** respectively. The function of openings **60** and **62** is to allow the escape of the sound waves created when clapper **38** strikes bells **30** and **32.** The housing **10** along with openings **60** and **62** is designed to act as a sounding board so that upon the sounding of the bells **30** and **32** a loud resonant sound will be emitted from the device.

FIG. **3** is further illustrative of the use of the portable alarm device with a variety of moveable surfaces depicted generally as **64.** If surface **64** is part of a conventional door, then the direction of movement upon opening is that shown by the arrow A. Clearly such movement will topple the device and the alarm will be sounded. If the surface **64** is part of a sliding door the direction of movement upon opening is that shown by the arrow B. Again, due to the construction of the device, it will topple over and the alarm will be sounded. If the surface **64** is part of a window then the direction of movement upon opening may be that shown by the arrow C. In this case the supporting leg **12** and the moveable arm **14** will be set up fairly close to the surface **64** so that even this sliding motion will be sufficient to topple the device and thus cause the alarm to be sounded.

Thus, the present invention provides a portable burglar alarm which is economical to construct and is useable to alarm a plurality of surfaces the unauthorized movement of which will be indicated by the sounding of the alarm.

What is claimed is:

1. A portable burglar alarm for detecting the unauthorized movement of a moveable surface, said burglar alarm comprising:

a housing having substantial weight;

a bell located within said housing;

a spring driven motor located within said housing;

a clapper connected to said spring driven motor for striking said bell when driven by said spring driven motor;

a supporting leg connected to said housing;

a moveable arm located within said supporting leg, one end of said moveable arm engaging said spring driven motor for preventing operation thereof when said moveable arm supports a substantial portion of the weight of said housing; and

a spring means located between said one end of said moveable arm and said supporting leg and in contact with said moveable arm for disengaging said moveable arm from said spring driven motor for allowing operation thereof when said moveable arm is not supporting a substantial portion of the weight of said housing;

said burglar alarm being positioned such that said housing contacts said moveable surface and the other end of said moveable arm rests upon a fixed surface, said bell being sounded when movement of said moveable surface relative to said fixed surface causes dislocation of said other end of said moveable arm such that said moveable arm no longer supports a substantial portion of the weight of said housing.

2. The burglar alarm according to claim **1** wherein said housing has an opening in proximity to the location of said bell.

3. The burglar alarm according to claim **2** further comprising a foot member connected to said other end of said moveable arm such that said foot member lies flat of said fixed surface when said housing is in contact with said moveable surface.

4. A portable burglar alarm for detecting the unauthorized movement of a moveable surface, said burglar alarm comprising:

a substantially weighted enclosed housing, said housing having an upper and a lower portion;

at least one bell located within said housing;

a key wound spring driven motor located within said housing;

a clapper connected to said spring driven motor for striking said at least one bell when driven by said spring driven motor;

an elongated supporting leg connected to said lower portion of said housing;

a moveable arm located within said supporting leg, one end of said moveable arm engaging said spring driven motor for preventing operation thereof when said moveable arm supports a substantial portion of the weight of said housing;

a helical spring located between said one end of said moveable arm and said supporting leg for disengaging said moveable arm from said spring driven motor for allowing operation thereof when said moveable arm is not supporting a substantial portion of the weight of said housing; and

means located within said supporting leg for restricting the travel distance of said moveable arm within said supporting leg;

said burglar alarm being positioned such that said housing contacts said moveable surface and the other end of said moveable arm rests upon a fixed surface, said at least one bell being sounded when movement of said moveable surface relative to said fixed surface causes dislocation of said other end of said moveable arm such that said moveable arm no longer supports a substantial portion of the weight of said housing.

5. The burglar alarm according to claim **4** wherein first and second bells are located within said housing in proximity to said clapper.

6. The burglar alarm according to claim **5** wherein said housing has first and second openings in proximity to said first and second bells respectively.

7. The burglar alarm according to claim **6** wherein the upper portion of said housing has a greater cross-sectional area in a horizontal plane than the lower portion of said housing in a corresponding parallel horizontal plane.

8. The burglar alarm according to claim **7** further comprising a foot member connected to said other end of said moveable arm such that said foot member lies flat on said fixed surface when said housing is in contact with said moveable surface.

9. The burglar alarm according to claim **8** wherein said moveable arm comprises an upper and a lower portion, the upper portion of said moveable arm having a smaller cross-sectional area than the lower portion of said moveable arm.

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