

[54] BURGLARY DETERRENT SYSTEM

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[56] **References Cited**

UNITED STATES PATENTS

3,456,123	7/1969	Pihl	340/309.4	X
844,074	2/1907	Woodward	340/309.4	X
3,484,769	12/1969	Ehner	340/309.4	X
3,372,250	3/1968	Douglas	200/38	D
2,600,664	6/1952	Leech	40/106.54	X
3,245,163	4/1966	Allen	40/132	G UX
2,064,210	12/1936	Leech	40/106.54	X
2,512,775	6/1950	Parissi	200/38	FB X
1,808,167	6/1931	Hicks	340/309.4	X

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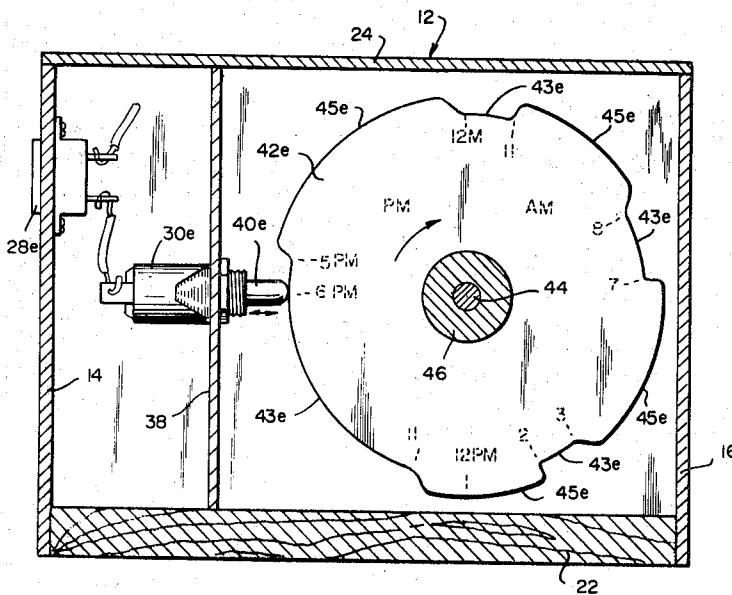
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[57] ABSTRACT

A household burglary deterrent system employs a motor driving a plurality of cams for controlling a plurality of electrical receptacles in accordance with a predetermined program. Each of the receptacles feeds a different occupancy simulation device positioned within a vacant dwelling. Each cam is so programmed as to activate its associated occupancy simulation device at such time intervals and for multiple time durations within a 24 hour period to produce the illusion of continued dwelling occupancy. The electrical supply to each receptacle is controlled by a switch which is activated by a cam. The occupancy simulation devices are selected for ready sensorial perception and present, to the would be prowler, the facade of continued habitation. Included among the simulation devices are conventional visually perceptible devices, e.g., lamps, television receivers, etc., audibly perceptible devices, e.g., radios, television audio receivers, tape players, etc. Additionally included are devices designed to produce the illusion of inhabitants moving about by casting moving shadows visible through windows.

7 Claims, 6 Drawing Figures



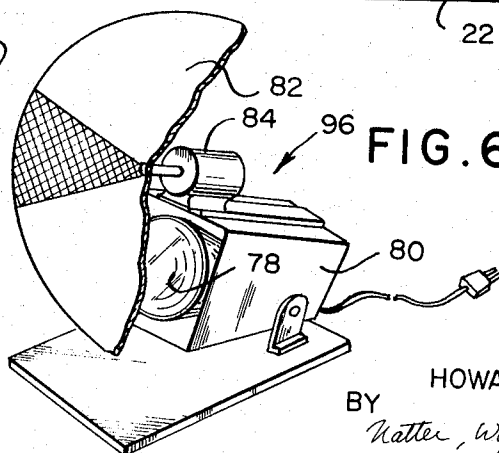
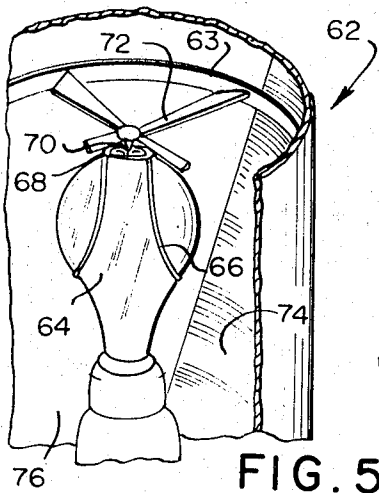
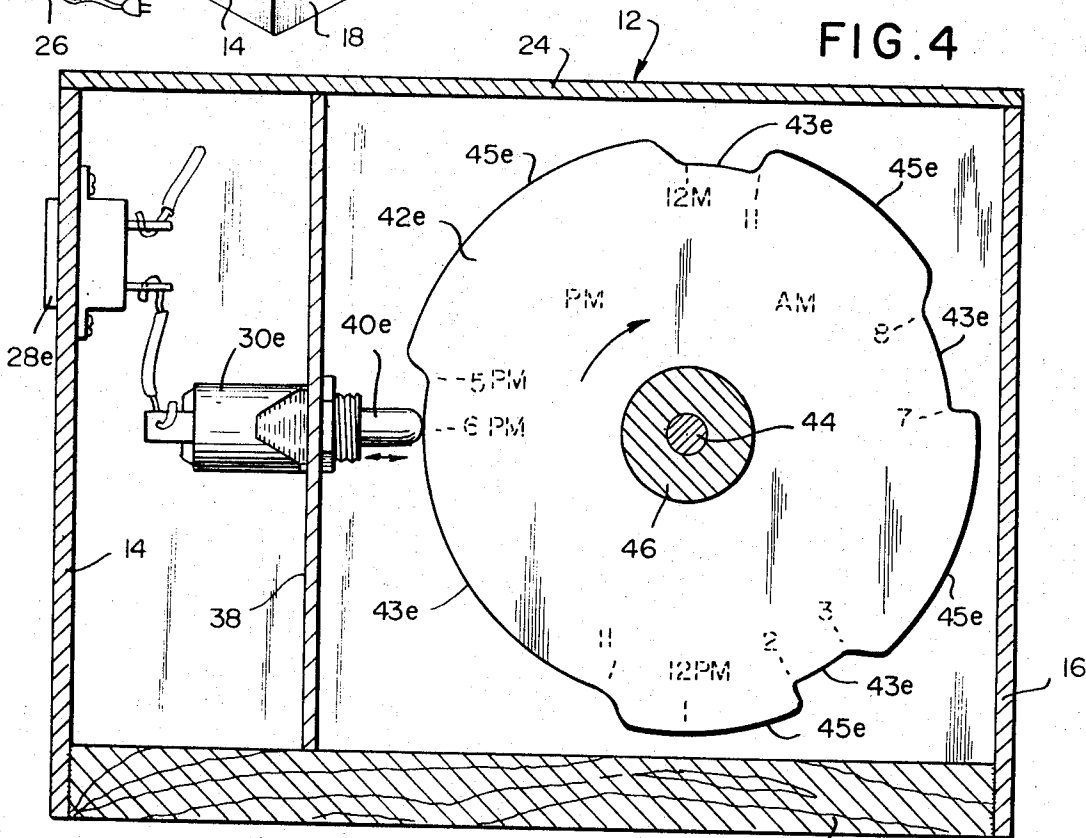
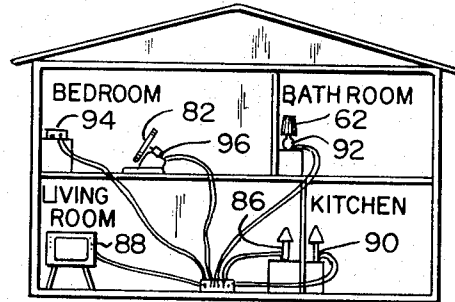
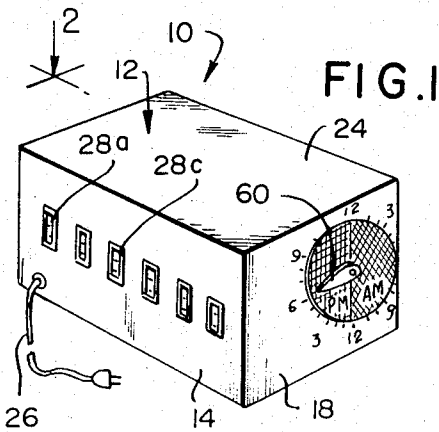
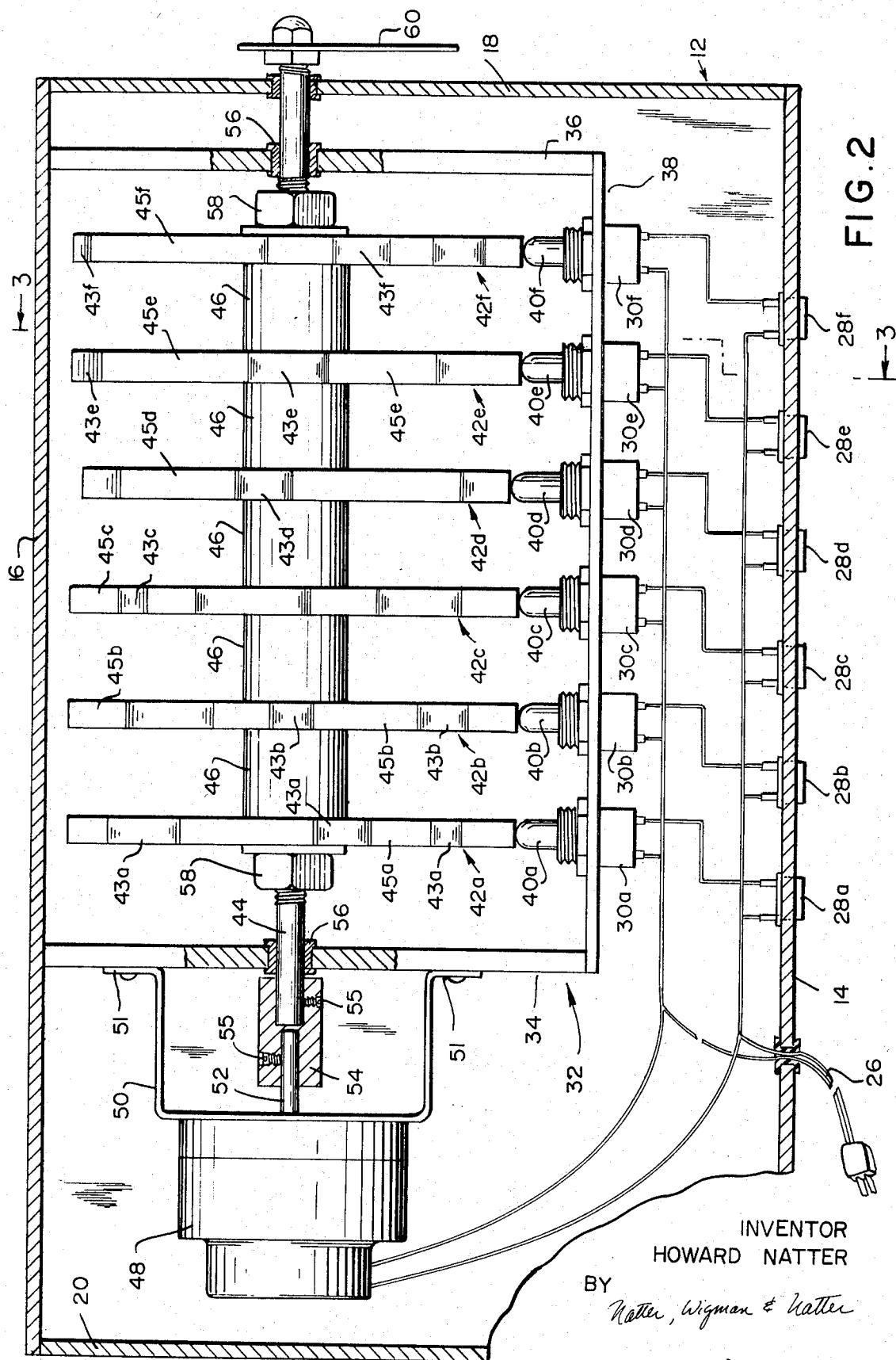


FIG. 3

FIG. 6

FIG. 5

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BURGLARY DETERRENT SYSTEM

BACKGROUND OF THE INVENTION

1. Field of the Invention

Systems for deterring burglaries including occupancy 5
simulating devices and means to control the operation thereof.

2. Brief Description of the Prior Art

The widespread increase in burglaries has become an 10
ever present menace which affects virtually every homeowner or apartment dweller, be it through actual burglaries, attempts at burglaries, or increased theft insurance rates. It is common knowledge that the incidence of burglaries in vacant dwellings is many times greater than in occupied dwellings. This is partially because a burglar has more freedom to move about in an unoccupied dwelling and does not face the probability of being confronted by his victims. Burglars have often been known to make surveillances of neighborhoods to determine which dwellings are unoccupied and to enter 20 only those dwellings.

Most homeowners and apartment dwellers take normal precautionary measures when leaving their dwellings for extended periods such as vacations. Normally, they notify the milkman and newspaper to suspend deliveries. Prudent people additionally advise the postal authorities to suspend deliveries so that accumulated mail will not be visible, thereby indicating that the dwelling is unoccupied. Resort has additionally been made to the use of appliance timers to turn on and off a lamp in the dwelling. Unoccupied dwelling burglaries are also common during daylight hours when the inhabitants are working. Deterrent measures for such occurrences has commonly been limited to the installation of securing devices, e.g., new door locks, window locks or gates, etc.

The practice and use of all of the previous deterrent measures did not significantly reduce the occurrence of burglaries in unoccupied dwellings. The professional burglar who surveyed a dwelling looked for important signs of habitation in addition to the operation of a single light. Furthermore, appliance timers have proven ineffectual because they lacked the capacity to produce repeated cyclic operation of a lamp during a single day. The burglar looked for the repeated random use of lights in different rooms. He listened for the sound of voices or music; the movement of shadows across windows; a room occasionally illuminated with the light emanating from a television tube; and repeated operation of a bathroom light. None of the prior precautionary measures were capable of simulating habitation to the extent that burglars were discouraged by deception from entering vacant premises.

SUMMARY OF THE INVENTION

The burglary deterrent system of the present invention utilizes a control unit having a continually operating driving motor which rotates a plurality of disc cams. Each cam engages an electrical switch for control of the electrical supply to a receptacle which feeds an occupancy simulation means within the vacant dwelling. Each of the cams is individually programmed for repeated operation (within a 24 hour period) of its associated occupancy simulation means. Each simulation means is so positioned within the dwelling and is of such nature as to simulate habitation within the entire dwelling when observed in conjunction with the pro-

grammed operation of other simulation means differently positioned within the dwelling and controlled by other cams. The occupancy simulation means includes, in addition to electrically operated lamps and sound producing devices, an air current rotated lamp shade with selected opaque areas which casts a moving shadow within a room as it revolves. A further shadow producing device is a motorized revolving shade disc positioned in front of a lamp.

Having thus summarized the invention, it will be seen that it is an object of the present invention to provide a burglary deterrent system of the general character described which is not subject to any of the foregoing disadvantages.

Further objects of the present invention in part will be obvious and in part will be pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangements of parts which will be exemplified in the burglary deterrent system hereinafter described and the scope of which will be indicated in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings wherein one of the various possible embodiments of the invention is shown:

FIG. 1 is a perspective view of a control unit including a plurality of receptacles, the electrical supply of each being independently actuated in accordance with a programmed schedule;

FIG. 2 is an enlarged sectional view through the control unit, the same being taken substantially along the plane 2—2 of FIG. 1, with portions broken away for clarity, and showing a motor driving a plurality of cams and with each cam in engagement with a switch which controls the electrical supply to a corresponding receptacle;

FIG. 3 is an enlarged sectional view taken substantially along the line 3—3 of FIG. 2 and through the control unit and showing the cam profile of one of the cams in engagement with a switch;

FIG. 4 is a schematized elevational sectional view through a house and showing the exemplary positioning of occupancy simulation means within the dwelling and with each of the simulation means receiving its electrical power through a receptacle of the control unit;

FIG. 5 is a fragmentary perspective view, with portions broken away, of an electrically powered occupancy simulation means which may be utilized to cast moving shadows, and;

FIG. 6 is a perspective view with portions broken away of another electrically powered occupancy simulation means which casts moving shadows.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The burglary deterrent system of the present invention includes a central control unit 10 which selectively activates a plurality of electrically powered occupancy simulation means throughout a dwelling. The control unit 10 is preferably housed within a cabinet 12. The cabinet 12 may be formed with side panels 14, 16, end panels 18, 20, a bottom panel 22 and a removable access lid 24.

In accordance with the invention, household line current is fed into the control unit via a line cord 26 and the supply of current is intermittently distributed to a

plurality of electrical receptacles 28 in a predetermined coordinated program so that each of a number of electrically driven occupancy simulation means which are plugged into the receptacles will be repeatedly operated for programmed intervals during a day.

The operation of the control unit 10 will be more clearly understood with reference to FIG. 2 wherein it will be observed that each of the receptacles 28 is controlled by an associated SPST switch 30 which is in series circuit with one leg of the line voltage supply. The switches 30 are mounted within the cabinet 12 to a chassis 32. The chassis 32 includes two end walls 34, 36 which are generally parallel to the end panels 18, 20 of the cabinet. A side wall 38 interconnects the end walls 34, 36 and opposite the side wall 38, the end walls 34, 36 may be secured to the side panel 16.

The switches 30 are mounted through spaced openings in the side wall 38. It will be appreciated that the switches 30(a through f) are actuated upon the sliding movement of a plunger 40 (a through f, respectively). Associated with each switch 30 is a rotating cam 42 (a through f respectively) which is in sliding edge engagement with the plunger.

The control unit 10 as illustrated, employs six conventional receptacles 28, each having a mounting flange. The receptacles are mounted through spaced openings in the side panel 14 and each is controlled by an individual switch 30 which is actuated by a respective cam 42. Although six receptacles are disclosed, in fact, any number of receptacles and their associated control elements, i.e., switch and cam, may be used. Furthermore, some applications might find it desirable to utilize less occupancy simulation devices than the number of receptacles. The choice of six receptacles takes into consideration the maximum total electrical load and other factors including the gauge of the line cord 26 and the amperage rating of the electrical circuit from which the line cord 26 is drawn. Optionally, the control unit may be directly connected through the use of electrical cable to a line circuit without a line cord or, individual electrical line circuits may be utilized for one or more receptacles if the electrically operated occupancy simulation means utilized are of extensive wattage consumption.

For the purpose of simplification, in the drawings, each set of receptacles and its associated circuit control elements, i.e., the switch 30, the switch plunger 40 and the cam 42, bear the same corresponding numerical designations with a specific letter suffix thereafter to designate an individual control for operation of a separate occupancy simulation means. It will therefore be appreciated that with six receptacles, each receptacle numerical designation bears a letter suffix from a through f, as do its associated control elements.

The cams 42 (a through f) are mounted fast to a camshaft 44 and spaced from one another by annular spacers 46. It will be appreciated that the width of each spacer is such that each cam face is in alignment with and in sliding engagement against a switch plunger 40. The camshaft 44 is driven by a motor 48 positioned within the cabinet and mounted to the chassis end wall 34 as by a bracket 50 having diverging mounting feet 51 which are secured to the chassis end wall 34. The motor is encased in a housing which includes suitable reduction gearing such that its output shaft 52 revolves at a rate of one revolution per 24 hour day. The output shaft 52 drivingly engages the camshaft 44 through a

suitable coupling 54 which compensates for any differences in shaft diameters and which may include suitable shaft securing means such as set screws 55. The camshaft 44 is journaled for rotation between the end walls 34, 36 of the chassis and suitable bearings 56 are provided within registered passageways of each end wall.

It should be noted that the camshaft 44 may include threaded portions adjacent and between the chassis end walls, which threaded portions are engaged by nuts 58 to secure the cams and spacers together and to hold the cams fast to the camshaft, thus assuring that the individual cams will all turn in unison. Optionally, the cams may be keyed to the camshaft and alternate securing means provided.

The free end of the camshaft projects through an opening in the cabinet end panel 18 and a time indicating reference marker such as a clock hand 60 is mounted to the camshaft adjacent its free end as by compression between a pair of threaded bolts. The purpose of the clock hand 60 is not only to indicate lapsed time, but additionally to key the cyclic operation of the control unit 10 before the dwelling inhabitants leave, as will be hereinafter described.

If the switches 30 are normally closed switches, the cams, such as the cam 42e illustrated in FIG. 3, will employ a cam profile such that at the desired time of occupancy simulation device operation, the profile will include a recessed portion such that the plunger 40e will extend outwardly to its normal position. It will be appreciated that the cam 42e illustrated in FIG. 3 is programmed for clockwise rotation and that changes between the low cam areas 43 and high areas 45 corresponding to the "on" and "off" positions of the plunger 42e are accomplished through smoothly sloped transition portions in the cam profile. The cam 42e (with reference time indicia in dashed lines for illustrative purposes) is illustrated at a 6:00 P. M. position and is programmed, as for example, to control the actuation of a bedroom lamp such that the bedroom lamp operation would be guided by the following schedule:

5 P. M.	lamp on
11 P. M.	lamp off
2 A. M.	lamp on
3 A. M.	lamp off
7 A. M.	lamp on
8 A. M.	lamp off
11 A. M.	lamp on
12 noon	lamp off

Such schedule would, in conjunction with the independently programmed operation of other occupancy simulation means throughout the dwelling, lead an observer of a vacant dwelling to believe that the dwelling was occupied. Of course, it is to be understood that the schedule of lamp operation is exemplary and that modifications may be made in the cam profile for the cyclic operation of a bedroom lamp in accordance with alternate schedules. Furthermore, the operation of the control unit may operate on cycles other than a 24 hour cycle. If a 48 hour cycle is selected, for example, the motor gearing selected will rotate the output shaft 52 one revolution in 48 hours. The cam profiles would then be designed for repeated switch actuation under a 48 hour cycle.

The cam 42 controlling each of the receptacles 28 is designed for actuation of a specific occupancy simulation means positioned at a predetermined location within the dwelling. Each of the cams 42 would thus in-

clude a programmed cam profile such that for the particular occupancy simulation means in its particular position within the dwelling, the overall impression of dwelling occupancy would be produced.

Among the occupancy simulation means provided in the burglary deterrent system of the present invention is means for visually simulating inhabitants moving about within the dwelling. One such simulation means illustrated in FIG. 5 is an air convection current operated shadow casting shade 62. The shade 62 is mounted on an ordinary incandescent bulb 64 as by a conventional bulb shade mounting spring clamp 66. The clamp 66 includes at its top, a suitable pivot socket 68 within which a pin 70 is journaled. The pin 70 is a mounting stem of a pinwheel propeller 72. The shade 62 is secured to the propeller 72 as by a band 63 peripherally circumscribing the propeller. The shade 62 includes selected portions 74 which are opaque and selected portions 76 which are translucent. It will be appreciated that the heat generated from operation of the incandescent lamp will cause air convection currents to rise upwardly between the propeller blades to cause the propeller to slowly rotate, thereby rotating the shade and moving the shadows cast within the room. Such moving shadows, when observed from the exterior of the building through a window, will create the illusion of dwelling occupancy.

Another occupancy simulation means which casts moving shadows about a room is illustrated in FIG. 6 and includes an incandescent lamp 78 positioned within a reflective shroud 80. A disc shade 82 is mounted for rotation in front of the lamp and includes opaque and translucent portions which selectively screen the illumination of the lamp thereby casting shadows about the room. An electric motor 84, which is mounted to the lamp shroud 80 causes the disc to rotate, thereby moving the shadows.

An illustrative application of various occupancy simulation means strategically positioned within a two story dwelling and controlled by the control unit 10 is shown in FIG. 4. Schematically illustrated in this figure is the orientation of the rooms of the house with the control unit 10 conveniently placed in the living room. A wire cord feeding each of the various occupancy simulation means appears in the illustration to pass through walls, etc. This is merely for schematic purposes, and in actuality, the line would run up the stairs and through door passages, etc.

It will be observed that in the living room there is provided a table lamp 86 and a television receiver 88. In the kitchen, there is a further table lamp 90; in the bathroom a table lamp 92 having moving shadow casting shade 62; and in the bedroom, a radio 94 and a lamp assembly 96 including the motorized disc 82.

The operation of these individual occupancy simulation means is determined by the preselected programs embodied in the profiles of the individual cams and which permit independent repeated on-off operation of each simulation means within any period under which the dwelling is under observation.

A typical schedule which can be adopted to program the individual cams 42 (a through f) in an application such as that illustrated in FIG. 4 is as follows:

SCHEDULE

6:00 A.M. to Noon
7:00 Radio 94 on

7:00 Bedroom lamp 96 on
7:15 Bathroom lamp 92 on
7:30 Kitchen lamp 90 on
8:00 Bedroom lamp 96 off
8:30 Kitchen lamp 90 off
9:00 Bathroom lamp 92 off
9:30 TV 88 on
10:00 Radio 94 off
10:45 Bathroom lamp 92 on
11:00 Bedroom lamp 96 on
11:00 TV 88 off
11:30 Kitchen lamp 90 on
Noon to 6:00 P.M.
12:00 Bedroom lamp 96 off
12:00 Bathroom lamp 92 off
12:30 Kitchen lamp 90 off
1:00 Radio 94 on
2:45 Bathroom lamp 92 on
3:00 Radio 94 off
4:00 Bathroom lamp 92 off
4:30 TV 88 off
5:00 Bedroom lamp 96 on
5:15 Living room lamp 86 on
5:30 Bathroom lamp 92 on
6:00 P.M. to Midnight
6:00 Radio 94 on
6:00 Kitchen lamp 90 on
6:00 TV 88 on
7:00 Bathroom lamp 92 off
8:00 Bathroom lamp 92 on
8:00 Kitchen lamp 90 off
10:00 Kitchen lamp 90 on
10:00 Bathroom lamp 92 off
10:00 Radio 94 off
10:30 Kitchen lamp 90 off
11:00 Bedroom lamp 96 off
Midnight to 6:00 A.M.
12:00 Bathroom lamp 92 on
1:00 Living room lamp 86 off
1:00 TV 88 off
1:00 Bathroom lamp 92 off
2:00 Bedroom lamp 96 on
3:00 Bathroom lamp 92 on
3:00 Bedroom lamp 96 off
3:15 Bathroom lamp 92 off

From an observation of FIG. 1 it will be seen that the end panel 18 includes a clock face divided into hour markings across the 360° of clock hand 60 rotation. The cam shaft may be rotated after actuation of the control unit 10 when the dwelling occupants leave to coordinate the cam positions with the actual time of day. The clock hand 60 is manually turned so that the pointer thereof indicates the correct time, being certain that the proper half of a 24 hour day (either AM or PM) is selected. Rotation of the clock hand effects rotation of the cam shaft, thus the cams 42. Manual rotation of the cam shaft 44 overrides the motor because the motor housing includes a suitable slip clutch which permits orientation of the output shaft independently of the motor gearing, either in a clockwise or counterclockwise direction.

In operation, the user distributes the various occupancy simulation devices throughout the dwelling and plugs each into the proper receptacle for such device (extension cords are usually necessary). Once the line cord 26 is plugged into a suitable wall receptacle, and the clock hand 60 adjusted to the proper time, the

motor 48 will turn the cam shaft 44 such that a complete revolution of the cam shaft will be completed in a single day. The cam faces are so contoured and the cams are so coordinated as to produce sequential timed operation of various occupancy simulation means throughout the dwelling to thereby effectively simulate actual occupancy to an observer of the dwelling.

It should be noted that variations of any schedule (such as the within exemplary schedule) are well within the scope of the invention and may easily be accomplished by substituting one or more cams having different cam profiles. Furthermore, additional modification is possible by altering the angular orientation of any given cam with respect to the cam shaft.

When appropriate, optional usage of the control unit to actuate additional or alternate simulation means, such as a lawn sprinkler controlled by a solenoid water valve, will still further enhance the illusion of present full occupancy within the dwelling.

It should also be noted that the burglary deterrent system of the present invention can readily be adapted for permanent installation within the walls of a dwelling during construction of the dwelling, as well as in an existing dwelling. Such installation may include either centrally located occupancy simulation means receptacles (at the control unit, for example) or permanent remote occupancy simulation means wall receptacles at the rooms in which such simulation means are to be operated.

A still further aspect of the invention is that the utilization of this burglary deterrent system is quite advantageous in dwellings occupied by a single person, for example a woman or invalid, and will serve to deter the entrance of a burglar by presenting the illusion that the dwelling is occupied by several persons.

Thus, it will be seen that there is provided a burglary deterrent system which achieves the various objects of the invention and which is well adapted to meet the conditions of practical use.

What is claimed is:

1. A burglary deterrent system suitable for use in an unoccupied dwelling, said system comprising electrically powered occupancy simulation means, the occupancy simulation means including lamp means having means for casting a moving shadow within a room, a control unit for selectively controlling the supply of electrical current to the occupancy simulation means and circuit means electrically coupling the simulation means and the control unit, the control unit including drive means and regulating means, the regulating means including electrical switch means selectively closing and opening an electrical circuit to the simulation means, and a cam having a cam face, the drive means including motive means drivingly engaging the cam for rotation about an axis, the regulating means further including means associated with the cam face for a plurality of repeated actuations of the switch means during one complete revolution of the cam, the repeated actuation means including means forming a programmed contoured surface in the cam face including a plurality of high and low areas, and the drive means further including means controlling the cam rotation to a maximum speed of one revolution per day, whereby repeated cyclic operation of the simulation

means in conformance with normal usage patterns of the room will present the illusion of actual occupants moving about in the room by providing both illumination and moving shadows at various times during a day.

2. A control unit for a burglary deterrent system suitable for use in an unoccupied dwelling for controlling the operation of a plurality of occupancy simulation means positioned at spaced locations throughout the dwelling, the control unit comprising a single drive means having an output shaft, regulating means for independently controlling the individual operation of each of the occupancy simulation means, the regulating means including a cam shaft driven by the output shaft means controlling the rotation of the cam shaft to a maximum speed of one revolution per day, a plurality of independent camming faces fixed to the cam shaft, each camming face being contoured with high and low areas and a like plurality of electrical switch means, each switch means being associated with a respective camming face and being repeatedly actuated by the contour of the camming face during a single revolution of the cam shaft, the unit further including a cabinet, a like plurality of electrical receptacles mounted to the cabinet, each of the switch means having an associated receptacle and controlling the electrical supply thereto, each receptacle being assigned an occupancy simulation means, and visible time indication means driven by the drive means, each camming face contour being programmed to control the electrical supply to an assigned occupancy simulation means situate in a particular location in the dwelling to conform with and simulate the normal habitation usage periods of such particular location, thereby deterring unauthorized entrance into an unoccupied dwelling.

3. A burglary deterrent system in combination with the control unit of claim 2, the system further including occupancy simulation means, the occupancy simulation means being interconnected to an assigned receptacle, the occupancy simulation means including lamp means with an assigned location of the dwelling.

4. A burglary deterrent system constructed in accordance with claim 3 wherein the lamp means includes shadow casting means, the shadow casting means comprising a shade having both translucent and opaque portions thereon, means rotationally supporting said shade to selectively block a portion of the illumination of the lamp means within the location and means for rotating the shade to cast moving shadows.

5. A burglary deterrent system constructed in accordance with claim 4 wherein the means for rotating the shade includes air convection current powered propeller means.

6. A burglary deterrent system constructed in accordance with claim 4 wherein the means for rotating the shade includes an electric motor.

7. A burglary deterrent system in combination with the control unit of claim 2 further including at least two occupancy simulation means and a dwelling, the occupancy simulation means being positioned within the dwelling, each of the occupancy simulation means comprising a lamp and being positioned at a different location within the dwelling.

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