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Compton

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[54] **AUTOMATIC ALARM SYSTEM FOR BATHROOM**

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[51] **Int. Cl.** **G08b 3/10**
[58] **Field of Search** ..... 340/279 R, 309.1 R

[56] **References Cited**

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[57] **ABSTRACT**

An alarm system for incapacitated persons which includes a timer on which a time cycle may be preset at the end of which an alarm is actuated. The timer is provided with resettable means controlled by the manual actuation of the lever of a flush-type commode so that the flushing of the commode automatically resets the timer to the time cycle and failure to flush the commode due to incapacitation permits the timer to run its cycle at the end of which the alarm is actuated.

6 Claims, 4 Drawing Figures

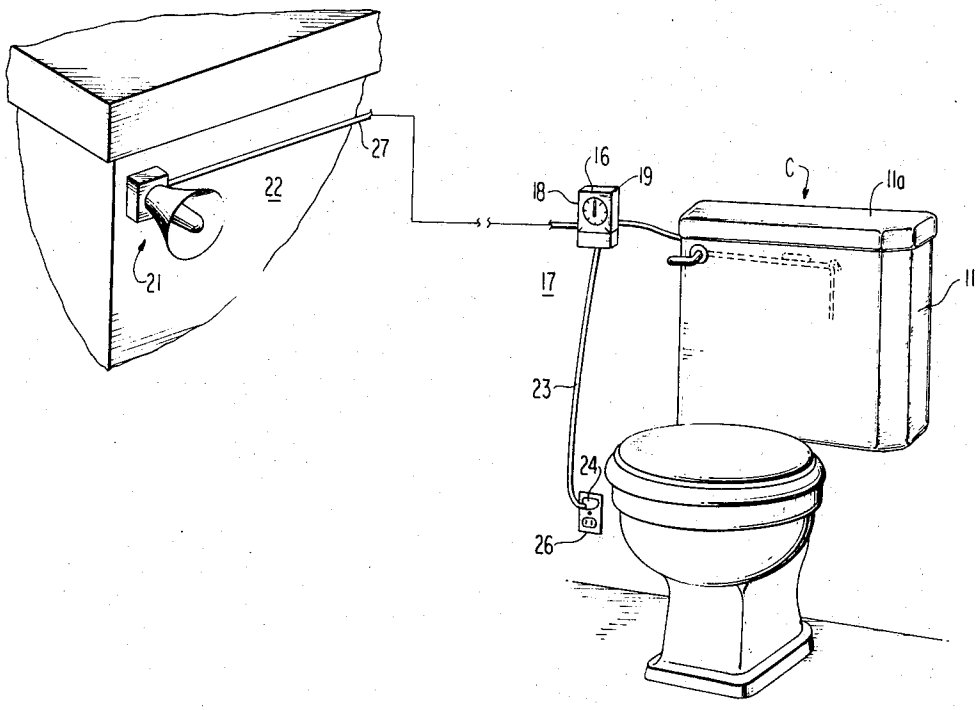


FIG.1

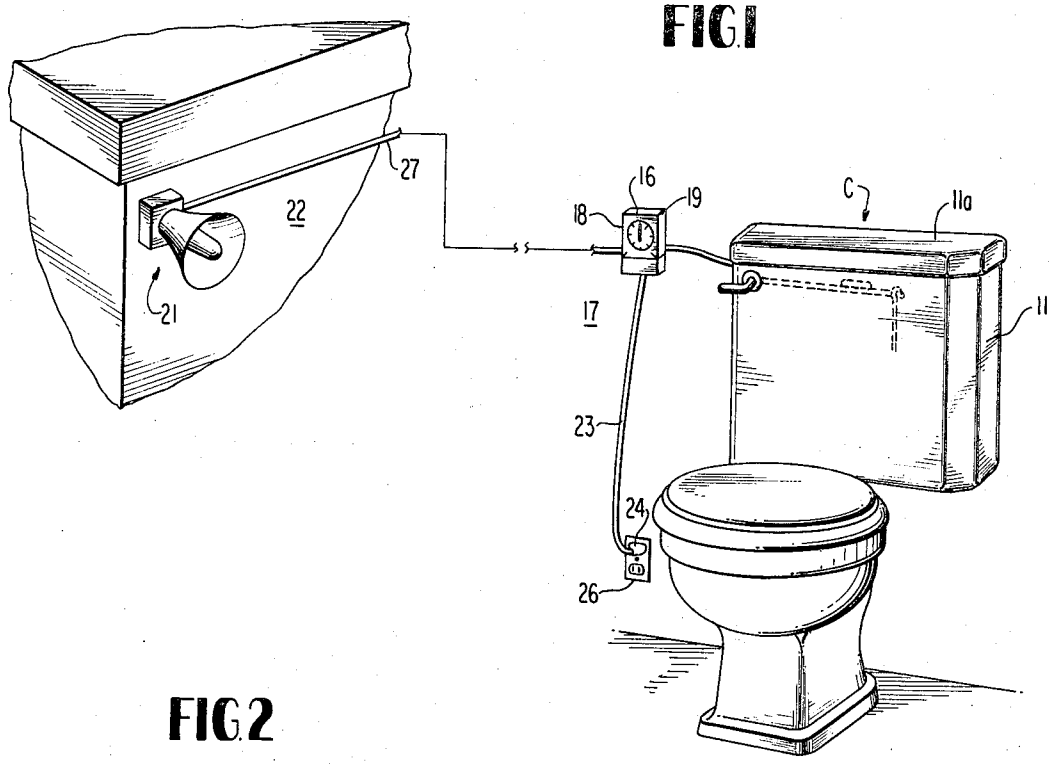
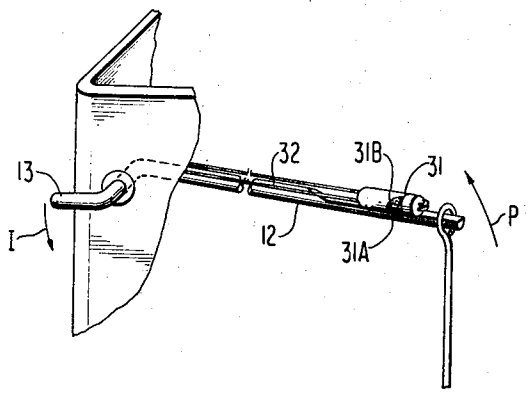


FIG.2



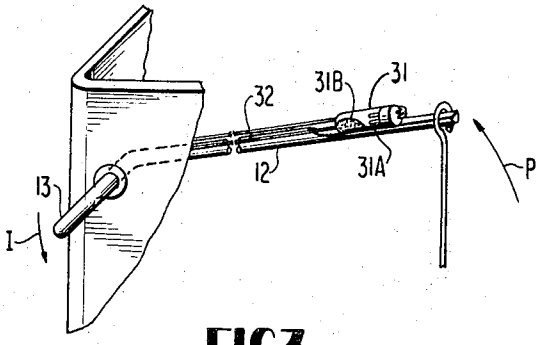
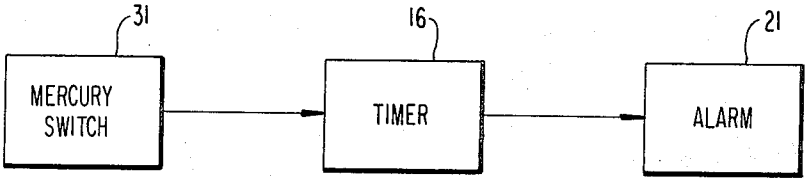


FIG.3

FIG.4



AUTOMATIC ALARM SYSTEM FOR BATHROOM

BACKGROUND OF THE INVENTION

It is not uncommon today to find many people living alone such as in rural communities and even in metropolitan areas in large apartment complexes and the like. While many of such persons living alone are relatively young, a large proportion of such persons are elderly and therefore subject to debilitating or incapacitating attacks such as seizures, comas and the like during which they are unable to summon help. Furthermore, both young and old alike are subject to injury rendering them unable to call for assistance and, of course, criminal assaults may produce injuries which may render such persons unconscious or place them in such a weakened condition that a call for assistance is not possible. It can be easily seen that failure to obtain medical assistance or other help can easily result in aggravation of the injury and even death if such assistance is not forthcoming. In addition, many people living alone today have little contact with the outside world and it is not uncommon for days to pass before any notice is taken of inactivity on the part of a person who is physically incapacitated.

It has been proposed to provide persons living alone and particularly elderly persons who might be incapacitated with various devices worn on the portions of the body such as on the wrist which respond to immobility and trigger an alarm. Such devices are not only complicated and expensive but when removed such as for bathing are frequently not replaced on the wearer's body due to forgetfulness defeating their purpose. Furthermore, such devices are easily damaged and require periodic maintenance.

SUMMARY OF THE INVENTION

Accordingly, a primary object of this invention is to provide a new and novel automatic alarm system for protecting a person who is unable to summon help.

Another object of this invention is to provide a new and novel alarm system which is automatically actuated when a person becomes incapacitated for a predetermined period of time.

A further object of this invention is to provide a new and novel automatic alarm system for an incapacitated person which does not require the wearing of any device by the person and which does not require any conscious thought on the part of the person to maintain the system in operation.

This invention further contemplates a provision of a new and novel automatic alarm system which utilizes a minimum of component parts, which is simple and inexpensive in construction and which is maintained in operation by reliance on a normal regular body function.

Still another object of this invention is to provide a new and novel automatic alarm system for summoning help for a person who becomes suddenly unable to call for assistance and which is particularly adapted for use by elderly persons living alone to reduce or eliminate additional medical complications and to relieve such persons of mental anguish associated with the poor health in a critical situation.

Other objects and advantages of the invention will become apparent from the following description taken in connection with the accompanying drawing.

In general, the object of this invention and other related objects are accomplished by the provision of an alarm system arranged to be associated with a conventional flush-type commode having an actuating arm pivotally movable between an inoperative position and an operative position for flushing the commode. The system includes a timer having resettable means and arranged to be preset to a selected time cycle together with alarm means and means controlled by the timer for actuating the alarm means upon termination of the time cycle. Means operatively associated with the commode actuating arm are provided for actuating the timer resetting means to reset the time cycle upon each pivotal movement of the actuating arm into the operative position during the flushing of the commode.

BRIEF DESCRIPTION OF THE DRAWINGS

The novel features which are believed to be characteristic of the invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation may be best understood by reference to the following description taken in conjunction with the accompanying drawing in which:

FIG. 1 is a perspective view of the automatic alarm system of the invention in the installed condition;

FIG. 2 is a fragmentary perspective view of a portion of the invention of FIG. 1 showing the parts in an inoperative position;

FIG. 3 is a view similar to FIG. 2 showing the parts in an operative position; and

FIG. 4 is a block diagram illustrating the interconnection of the component parts of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIG. 1, there is shown the alarm system of the invention in an installed position such as in the bathroom of a typical residential structure. The alarm system of the invention is arranged in association with a conventional flush-type commode designated generally by the letter C, which includes a tank 11 having a removable cover 11*a* and a manually operated actuating arm 12. As is well known, the actuating arm 12 is pivotally mounted on the water tank 11 and includes an operating handle 13 at one end projecting outwardly from the tank 11 for manual manipulation by an individual. A linkage 14 having a valve (not shown) is attached to the other end of the actuating arm 12, the valve being arranged to seat in the tank water outlet in the inoperative positon of the arm 12 as shown in FIG. 2 in the well-known manner. Thus, when the handle 13 is manually moved in the direction of the arrow I, the actuating arm 12 is moved pivotally upward in the direction of the arrow P into the operative position of FIG. 3 lifting the valve through the linkage 14 and permitting water in the tank 11 to pass through the outlet flushing the commode.

As specifically illustrative of the invention, the alarm system includes a timer 16 having resettable means and arranged to be preset to a selected time cycle. As shown in FIG. 1, the timer 16 is preferably suitable mounted on the wall 17 of the bathroom adjacent to the commode C. The timer 16 may be of any well known, commercially available type which is provided with a manually operated knob 18 and associated dial 19 by means of which the selected time cycle may be

preset on the timer. As is well known, the positioning of the knob **18** to the selected time cycle initiates the running of the time cycle, following which the action controlled by the timer commences.

The timer also includes resettable means (not shown) which when actuated during the time cycle automatically resets the timer to the original time cycle. Such a timer is readily available commercially and one example of such a timer is available from the Eagle Signal Division of Gulf and Western Industries, Inc. and designated as the CYCL-FLEX timer, Cat. No. HP5108601. Such a timer has an adjustable dial setting of between 1 and 30 hours.

The system of the invention also includes alarm means designated generally by the numeral **21** which may be of any suitable type such as siren, horn or the like which, when actuated, produces an audible alarm of an intensity sufficient to alert others in the area of a need for help in the area of the alarm. Preferably such an alarm means **21** is mounted on the outer wall **22** of the residence. It should be understood that if desired a visual alarm may also be used either alone or in combination with the audible alarm or the alarm may be in the form of a tape recorder or the like by means of which a recorded message is transmitted to police headquarters, etc., over phone lines, etc.

Means controlled by the timer are provided for actuating the alarm means upon termination of the time cycle present on the timer **16.** More specifically, the alarm actuating means include first circuit means for connecting the alarm **21** and the timer **16** to an associated source of electrical power. The timer **16,** which is preferably electrically operated, is provided with a power cord **23** including a pair of conductors terminating in a plug **24** for insertion in a wall receptacle **26** mounted in a conventional manner on the wall **17** of the bathroom, the timer being suitably hung from the wall **17** adjacent the commode C. As is well known, wall receptacle **26** is of the conventional type permanently connected to an associated source of electrical power.

The first circuit means also comprises a power cord **27** including a pair of conductors for connecting the timer **16** through the power cord **23** and the timer **16** operates in the conventional manner to connect the alarm **21** to the source of electrical power through cord **27** at the termination of the time cycle preset by means of the manual knob **18** on the timer.

The alarm system of the invention also includes means operatively associated with the commode actuating arm **12** for actuating the timer resetting means to reset the time cycle upon pivotal movement of the actuating arm into the operative position of FIG. **3** during the flushing of the commode. More specifically, the actuating means for the timer resetting means comprises second circuit means including a normally inoperative switch **31** which is responsive to the position of the actuating arm **12.** The switch **31** is preferably a mercury switch of conventional construction having a pair of contacts **31***a* connected by means of conductors **32** to the timer **16** including the timer resetting means.

In the illustrated embodiment, the switch **31** is mounted on the actuating arm **12** as shown in FIGS. **2, 3** with the conductors **32** extending along the arm and out of the tank **11** beneath the tank lid **11***a* to the timer **16** as shown in FIG. **1.** Neither the timer resetting means nor the connection of the conductors **32** to the timer **16** are shown as such a connecting arrangement is conventional with the use of the CYCL-FLEX reset timer referred to above. The switch **31** is operatively conditioned upon the pivotal movement of the actuating arm **12** from the inoperative position of FIG. **2** into the operative position of FIG. **3** to connect the timer resetting means to the source of electrical power for resetting the timer to the beginning of the preset time cycle.

As shown in FIG. **2,** the actuating arm **12** is relatively level when the tank **11** is filled with water prior to use of the commode C. In the position of FIG. **2,** the contacts **31***a* of the seitch **31** are closed, the mercury puddle **31***b* in the switch being disposed directly on the contacts of the switch **31** as shown. When the commode is flushed by movement of the operating handle in the direction of the arrow I, the actuating arm **12** moves upwardly in the direction of the arrow P so that the mercury puddle **31***b* is being disposed towards the end of the switch opening the contacts and initiating the resetting means in the timer **16.** FIG. **4** is a block diagram of the circuit arrangement of the mercury switch **31,** the timer **16** and the alarm **21.**

In the operation of the invention with the system installed as shown in FIG. **1,** the person using the system presets the timer to a time cycle which would be somewhat longer than the maximum period between uses of the commode C by the individual. As the timer **16** has a relatively wide range, an appropriate time cycle, by way of example, would be 12 hours since it is an accepted fact that an individual would use the commode C at least once during an 8-hour period. It should be understood that the timer **16** can be set for a period of time greater or less than 12 hours depending on individual preference. When the timer **16** is initiated by setting the operating knob **18,** the time cycle begins. As the commode C will be flushed prior to the expiration of the time cycle under normal conditions, the actuation of the arm **12** opens the contacts **31***a* in the mercury switch **31** actuating the timer resetting means so that the timer returns to the beginning of the time cycle which once again begins to run. Thus, as long as the individual is able to use the commode C, the termination of the time cycle on the timer **16** and the actuation of the alarm **21** is never reached. If the individual is incapacitated and unable to summon help, the lapse of the time cycle actuates the alarm **21** which if audible is heard by people in the area or, if in some other form, transmits a message for help so that rescue or assistance is obtained promptly for the incapacitated person.

While there has been described what at present is considered to be the preferred embodiment of the invention, it will be understood by those skilled in the art that various changes and modifications may be made therein without departing from the invention.

Having thus described the invention, what is claimed is:

1. An automatic alarm system for association with a flush-type commode having an actuating arm pivotally movable between an inoperative position and an operative position for flushing said commode comprising, in combination, a timer having resettable means and arranged to be preset to a selected time cycle, alarm means, means controlled by said timer for actuating said alarm means upon the termination of said time cycle and means operatively associated with said commode actuating arm for actuating said timer resetting

means to reset said time cycle upon the pivotal movement of said actuating arm into said operative position during the flushing of said commode.

2. An automatic alarm system in accordance with claim 1 wherein said means for actuating said alarm means include first circuit means for connecting said alarm means and said timer to an associated source of electrical power.

3. An automatic alarm system in accordance with claim 2 wherein said means for actuating said timer resetting means comprise second circuit means including a normally inoperative switch responsive to the position of said actuating arm for controlling the actuation of said timer resetting means by said associated source of electrical power, said switch being operatively conditioned upon the pivotal movement of said actuating arm from said inoperative position to said operative position to connect said resetting means to said source of electrical power for resetting said timer to said time cycle.

4. An automatic alarm system in accordance with claim 3 wherein said switch is mounted on said commode actuating arm for movement therewith.

5. An automatic alarm system in accordance with claim 4 wherein said switch comprises a mercury switch having a pair of contacts, said contacts being maintained in the closed condition in the inoperative position of said commode actuating arm and in the open condition in the operative position of said actuating arm.

6. An automatic alarm system in accordance with claim 5 wherein said first circuit means comprising a pair of conductors for connecting said timer to said associated source of electrical power and a pair of conductors for connecting said alarm means to said timer and wherein said second circuit means includes a pair of conductors for connecting said contacts in said mercury switch to said timer resetting means.

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