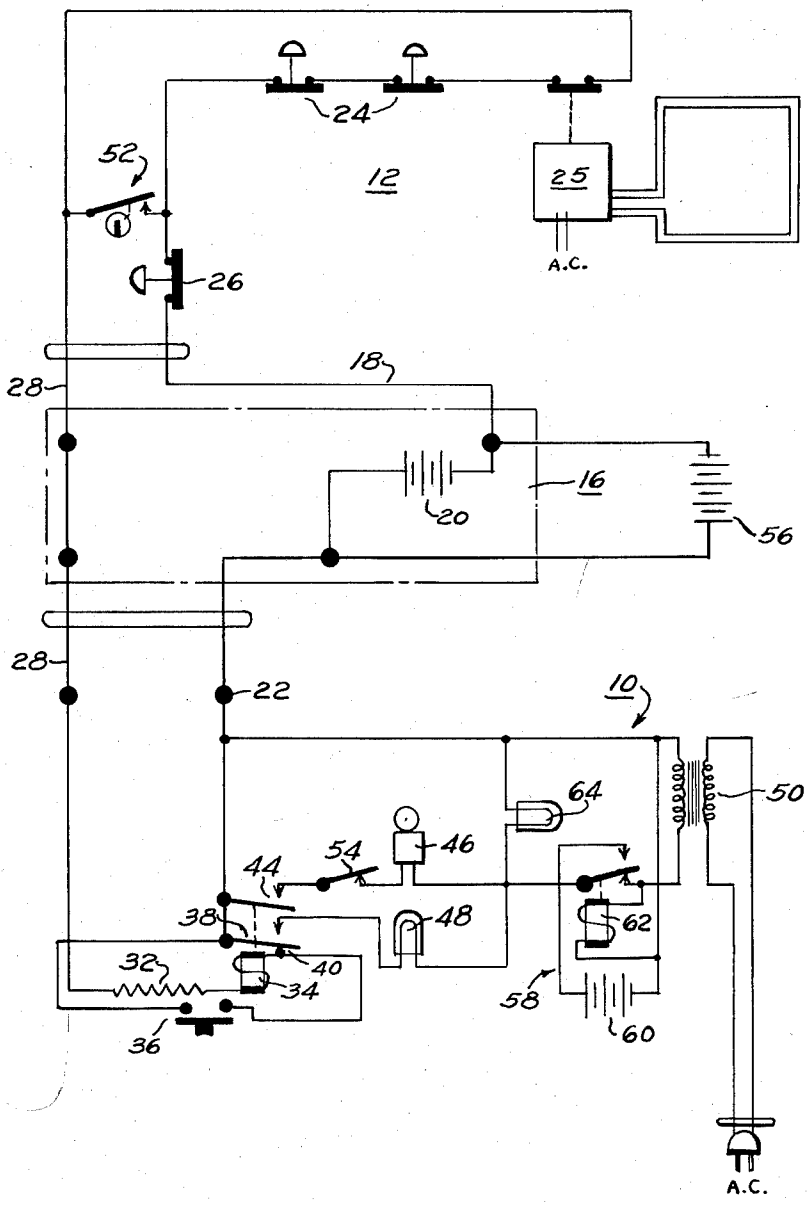
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CENTRAL WARNING BURGLAR ALARM SYSTEM

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CENTRAL WARNING BURGLAR ALARM SYSTEM

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1 Claim. (Cl. 340—276)

This invention pertains to burglar alarm systems, and in particular to an improved system of this type which provides improved security features with relatively simple equipment and at low cost.

Central warning alarm systems have been proposed heretofore, and such systems have gone into substantial commercial use, but the cost of the service has generally limited its use to commercial institutions of considerable size. It is an aim of the present invention to provide a system of this type in which no special operating personnel are needed, and in fact in which the local police headquarters can readily provide the desired alert supervision. It is also an aim of the invention to provide a system in which the electrical supply can be obtained from a secure source, such as a telephone company line at or near the subscriber's premises to prevent any interference with the system by disconnection or failure of the power company supply to the protected premises. Still another object of the invention is to provide a system of the foregoing general type in which the subscriber can select either over-all protection, as would be desired during night times or when the establishment is not open for business, or select a limited degree of daytime protection so that all or certain doors, windows and the like (or certain parts of the premises) can be used freely during daytime or operating hours, while continuing to provide for an intentional alarm or call for help in case of a robbery or other occurrence when the premises are manned.

Briefly, the invention provides for the above objects by a system in which a central station, which may be located at police headquarters, is provided with a signal or alarm lamp for each of the protected premises, arranged to be illuminated when a control circuit extending to that subscriber's premises is interrupted, as by the opening of a normally closed window or door switch, or by the operation of other means for sensing the presence of an intruder. The central station thus includes a relay of the self-locking type for each subscriber, a warning lamp energized when the relay becomes de-energized, and a common audible signal such as a bell, to elert the attendant when any of the alarm circuits is opened. A switch to interrupt the bell circuit, when the attendant has taken the desired action on any particular alarm circuit, prevents unnecessary continuance of this signal. The central station also provides a reset switch for each subscriber, to restore the self-locking relay when the proper action has been taken after an alarm, but this switch will not reset the relay unless the protected premises have again been made secure. Finally, the invention provides for a day-night selector switch, preferably one operable only by a key furnished to authorized personnel, so that the door and window or other circuit can be conditioned to prevent unintended alarms during open hours, but such that an intentional alarm can still be given as form a concealed switch at

the cashier's or manager's station, or in a concealed residential location, or the like.

The invention itself will best be understood from a consideration of the following detailed specification of a preferred embodiment thereof, taken in connection with the appended drawing, whose single figure shows a schematically complete wiring diagram for a central station and a representative plurality of subscriber's stations.

Referring now to the drawing, numeral **10** designates in general the apparatus associated with the central station, as at a police office or other constantly manned headquarters, while numeral **12** indicates a typical subscriber's premises and the equipment provided for them. Numeral **16** indicates as a whole a specially reliable source of alarm battery potential, independent of the power lines to the subscriber's premises, so that the system cannot be disabled merely by tampering with the house mains.

A conductor **18** leads from the one side of the protected battery **20** and this may be a leased telephone line or the like from a nearby central office of the telephone facility, to each subscriber's station such as **12** and the other side of the battery is returned to the central station as indicated at terminal **22**. At each subscriber's station, the battery conductor **18**, or branch thereof, passes in series through a plurality of normally-closed switches or contacts **24**, arranged to be opened when any outer door, window, vault or the like is opened. These may also be contacts of a relay controlled by any intruder-sensing circuit or equipment, as at **25**. A separate normally-closed switch **26** is also provided for manual operation, to summon help when required by the subscriber. This switch, which may be duplicated by other series-connected switches, will usually be placed at the cashier's or manager's location if a business establishment is the subscriber.

Open of any of the switches **24**, **25**, or **26** will thus open the circuit from conductor **18** to the central office **10**, there being one of these battery return conductors such as **28**, for each subscriber. At the central station, a signal device is provided for each line, these being disposed in individual compartments of the central equipment **10**, only one of which is shown. The device thus connected to the battery return line **28** from subscriber station **12** passes via a current limiting resistance **32** to the coil of a relay **34** and thence through a normally-open reset push-button switch **36**. When the system is in operating condition, relay **34** will stay energized, and its moving contact spring **38** will contact the "make" contact **40**, completing a holding circuit for the relay coil to battery lead **22**. The other set of contacts indicated at **44** will hold open a common alarm circuit as to bell **46**, closure of this circuit at any relay serving only to call the operator's attention to the fact that some one of the alarm circuits has been opened.

When the battery return circuit **28** from any subscriber's station is opened, the corresponding relay **34** is de-energized, and the common bell **46** warns the operator that attention is required. Also, the moving contact spring **38** supplies current to a signal lamp **48** individual to each subscriber's portion of the central equipment, the transformer **50** then lighting that signal lamp, which stays lit to identify the subscriber. After the operator or other attendant identifies the line and has dispatched police aid or the like to the subscriber, he can attempt to restore the relay **34** to energized condition by pressing switch **36**. However, the relay will not be energized and restored unless the interruption of the current path through subscriber's battery return conductor **28** has been cured, or by the closing of the lock switch **52** (to be de-

scribed). Since the battery current from source 20 is not available at the central station except through the subscriber's lines, premature or accidental clearance of the alarm lamp circuit is virtually impossible.

Numeral 52 designates a lock-type switch conveniently disposed at each subscriber's premises, which when unlocked places a short circuit around the door, window or other access controlled or intruder-sensing switches 24, 25, to permit free use of these devices when desired, as during business hours. It may, in fact, be connected to short out only a part of the switches, for example, those controlled by the main entrance, and public rooms leaving the cellar space or other doors and windows still protected. It will also generally not short out the manual call button switch 26, so that the alarm system will still protect all parts of the premises as desired. The proprietor or manager, furnished with a key for lock switch 52, is thus enabled to restore the entire system to fully protected condition, as at the close of business each day.

As is typical of series alarm systems which are well known, any interruption of the battery supply conductor will result in the giving of an alarm at the central office, making it difficult for burglars or the like to interfere with operation of the system. Tampering with or failure of this circuit will alert the central station personnel to the exact location involved. A battery within the protected premises can also be used. False alarms due to power outages in a large area are thus prevented. A stand-by battery 56 may obviously also be provided.

In order to prevent continual ringing of the common alarm bell 46 after an alert has been attended to, its circuit from that particular relay only may be interrupted as by a toggle switch 54 associated with each subscriber's terminating equipment. This leaves the alarm bell operative in case a subsequent alarm is received from a different station. Toggle switch 54 will be restored to its closed condition after the operator has succeeded in resetting the relay responsible for the giving of the alarm.

To avoid dependence of the alarm system on continuity of the electric power service to transformer 50 at the central supervisory station, a well known change-over system 58 may be provided to substitute local battery

60 for the transformer whenever power failure allows the relay 62 to become de-energized. Lamp 64 may be provided to signal operativeness of the station power supply circuit.

It will be obvious to those skilled in this field that since the alarm can be given by the opening of any pair of contacts at the protected premises, it is largely immaterial whether such are arranged to be opened upon the violation of a door, window or like closure, or are arranged to be opened by the action of some device for sensing merely the presence of an intruder, as by radiant energy, body capacity or the like. The invention is not to be taken as limited to any particular type of intrusion-sensing device or mechanism, nor to the details of the exemplary installation as described herein, except to the extent required by the scope of the appended claim.

What is claimed is:

An alarm system for protected premises, comprising a central station equipment and at least one subscriber premises equipment, such subscriber premises equipment including a normally-closed series circuit including switch contacts of which at least some are arranged for opening the circuit upon intrusion of the premises, and lock switch means at the subscriber premises for selectively shorting out some of said switch contacts to disable a part of them; a protected current source disposed wholly away from said central station equipment and connected to one side of said series circuit; and alarm apparatus at said central station for such premises, said alarm apparatus including a current-sensing relay supplied at one terminal with operating current from the series circuit of the subscriber premises, a signal controlled by said relay for signalling the de-energization of said relay, and a reset switch associated with each relay and connected solely from the other terminal of said relay to the other terminal of the current source for the subscriber premises.

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