

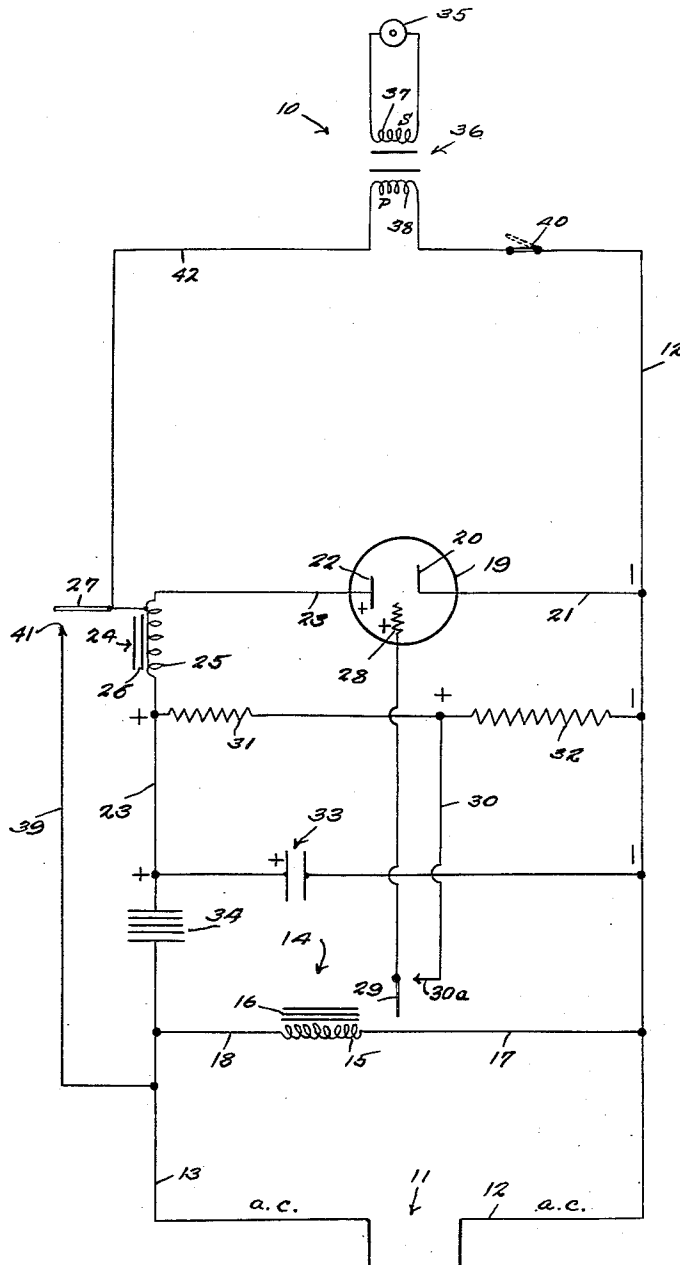
July 16, 1957

R. C. COLWELL ET AL

2,799,853

HOME EMERGENCY ALARM

Filed Dec. 10, 1953



R. C. Colwell
R. A. Raese
INVENTORS.

BY *Chas. H. Snow & Co.*
ATTORNEYS.

1

2,799,853

HOME EMERGENCY ALARM

Robert C. Colwell and Richard A. Raese,
Morgantown, W. Va.

Application December 10, 1953, Serial No. 397,444

1 Claim. (Cl. 340—310)

This invention relates to an emergency alarm and more particularly to an alarm for indicating a lowering of the frequency of a standard power circuit in a home or the like.

It is an important object of this invention to provide an emergency alarm of the kind to be more particularly described hereinafter which is actuated by the alternating current power circuit and set into operation by a drop in the cycles of operation of the circuit.

It is a further object of this invention to provide an emergency alarm of this kind which is set into operation by a lowering of the frequency of an alternating current source of power at the source and the alarm is connected to the power supply in one or many locations which are connected to the supply, as the home, or the like, of a community.

It is another object of this invention to provide a home emergency alarm of this kind whereby a general type of alarm may be caused in individual locations having the home emergency alarm at the same time as for air raids, large forest fires, floods or other causes for a general alarm which concerns a community.

It is still another object of this invention to provide an emergency alarm of this kind which is economical in cost and easy for operation to be obtained and installed by all persons in their homes in a community having a power house or source of power supply with the operator of the power supply being aware of the existence of, use and operation of such alarms.

Other and further objects and advantages of the invention will be hereinafter described and the novel features thereof defined in the appended claim.

The drawing is a diagrammatic view of the wiring diagram for a home emergency alarm constructed according to an embodiment of our invention.

Referring more specifically to the drawing the numeral 10 designates generally an emergency alarm constructed according to an embodiment of this invention.

The emergency alarm 10 is adapted to be connected to a suitable source of alternating current voltage supply designated generally by the numeral 11 in the drawings. The emergency alarm 10 is adapted to be plugged in to the electric current in a bedroom during the night or at any other electric outlet in a home during the day, or at any time. The alternating current supply source is connected to the house by a pair of leads 12 and 13 which may be connected to any suitable electric plug in the house, no such plug being shown in the drawings.

An electric vibrator 14 is connected to both of the leads 12 and 13 for actuation thereby the vibrator 14 including a vibrator coil 15 which is connected at its opposite ends to the respective leads 12 and 13. A vibrator core 16 is positioned adjacent to the vibrator coil 15 in the manner of a conventional vibrator in use today. An electric wire or lead 17 is connected to one end of the vibrator coil 15 and at its other end to the alternating current supply lead 12 while the other lead 18 is con-

2

nected to the other end of the vibrator coil 15 and to the other alternating current supply lead 13.

A conventional radion tube 19 is connected into the emergency alarm 10, the radion tube 19 being provided with a cathode 20 connected by a wire or lead 21 to the alternating current lead 12.

The plate 22 of the tube 19 is connected by a wire or lead 23 to an electromagnet 24 having an electromagnet coil 25 associated with an electromagnet core 26 adjacent thereto. An armature 27 is pivotally connected adjacent to the electromagnet 24 and slightly spaced from the electromagnet core 26 so that when a direct current has been connected to the tube 19 a flow of electrons will exist between the cathode and the plate for a moment thereby temporarily moving the armature 27 in close relation to the armature core 26 to momentarily actuate the emergency alarm 10.

A grid 28 is positioned between the cathode and the plate and connected at one end to a reed 29 which is subjected to the magnetic variations of the vibrator core 16.

In the usual and normal operation of the alternating current in the alternating current source 11 the alternating current will be subjected to a periodic variation on the sixty cycle per second change in the positive and negative charging of the leads 12 and 13. Under such normal sixty cycle variation in the alternating current source of supply the reed 29 will be substantially motionless, but when the speed of variation in the cycles of operation of the alternating current supply source is caused to be less at the power house, or source of power supply, the reed 29 will be caused to move by the vibrator coil 15 so that the reed 29 may engage a contact 30^a at one end of a lead 30 which in turn is connected to the alternating current power lead 12.

The other end of the lead 30, remote from the reed 29 is connected to the alternating current power lead 12 through a resisting element 32 and to a resistor 31 spaced from and connected with the resistor 32. A lead 23 is connected at one end to the plate 22 on the opposite side of the electromagnet coil 25 which is further extended downwardly or outwardly for connection to one side of the selenium rectifier 34 having the opposite side of the rectifier 34 connected to the alternating current supply lead 13 as clearly shown in the drawings.

In order to further store a direct current supply of voltage for the alarm 10, a condenser 33 is connected at its opposite ends to the lead 23 and to the lead 12.

In the normal operation of the alternating current source at a cycle of very close to sixty cycles a second, the alarm will be at rest together with the reed 29. When the alternating current should change its load by the dropping of the load from sixty cycles to about 57 or 58 cycles the reed 29 will be caused to move into engagement with contact 30^a and energize the electromagnet 24 for setting the alarm into operation.

When the alarm is caused to accidentally be actuated by the alternating current source of supply the alarm 10 will only be caused to be actuated for a second or so, and when the sixty cycle variation in the load of the alternating current source of supply shall be intentionally effected, the alarm 10 will be caused to be energized for a longer period of time to be noticed by the person having the emergency alarm 10 available.

When the alarm 10 is intentionally caused to be energized, the armature 27 of the electromagnet 24 will be caused to move into engagement with contact 41 at one end of the lead 39 with the other end of the lead 39 being connected to the alternating current source of supply through the lead 13 as clearly shown in the drawings.

Such an intentional alarm may be caused when the operator of the alternating current supply source has

actuated the alternating current supply source to a voltage less than sixty cycles a second whereby the armature 27 will be connected directly to the supply source through the lead 13 and continue the actuation of the emergency alarm 10.

The emergency alarm 10 also includes a transformer 36 having a primary coil 38 which is connected at one end to the lead 12 of the source of supply and connected at the other end to a lead which is connected to the armature 27. The transformer 36 also includes a secondary coil 37 which is connected to the opposite sides of an alarm bell 35 to be actuated thereby.

When it is desired to disconnect the alarm bell 35 from the alternating current source of supply, the switch 40 may be manually actuated for opening the connection between the lead 12 and one end of the primary coil 38. An electric wire or lead 42 is connected at one end to one end of the primary coil 38 and at its other end to the armature 27.

While the specific details of one embodiment of this invention have been herein shown and described, the invention is not confined thereto as changes and alterations may be made without departing from the spirit and scope thereof as defined in the appended claim.

We claim:

An electric alarm actuated by variation in the normal cycles produced in an alternating current supply source, said alarm comprising a transformer having a primary and a secondary coil, a signal element connected to said secondary coil, a conductor connecting one side of said primary to one side of a supply source, a second conductor

connecting the other side of said primary with the other side of the supply source, an electromagnetic coil in said second conductor, a shunt circuit, a normally open electromagnetic switch operable by said coil to close said shunt circuit, a second electromagnetic switch including a coil connected to said first and second conductors, a stationary contact, a vibratory contact normally disengaged from said stationary contact, a pair of resistors connected in series between said conductors, a rectifier interposed in said second conductor between said first named electromagnetic coil and the supply source, a third conductor connected to said stationary contact and to the connection between said resistors, and a tube having a cathode connected to said one conductor and also having a plate connected to said second conductor, said tube including a grid, a connection between said grid and said vibratory contact, variation in the cycles of said supply source effecting excess vibration of said vibratory contact to thereby effect alternate opening and closing of said second switch thereby activating said tube and closing said first named electro-magnetic switch and directly connecting said primary with the supply source.

References Cited in the file of this patent

UNITED STATES PATENTS

2,181,648	Becker et al.	Nov. 28, 1939
2,388,530	Deal	Nov. 6, 1945
2,388,576	Seeley	Nov. 6, 1945
2,709,801	Sprague	May 31, 1955