March 19, 1957 B. N. ALSBROOK, JR., ET AL 2,786,098

DRIVE-IN THEATER SPEAKERS SEVERANCE WARNING SYSTEM

Filed Jan. 2, 1953 2 Sheets-Sheet 1

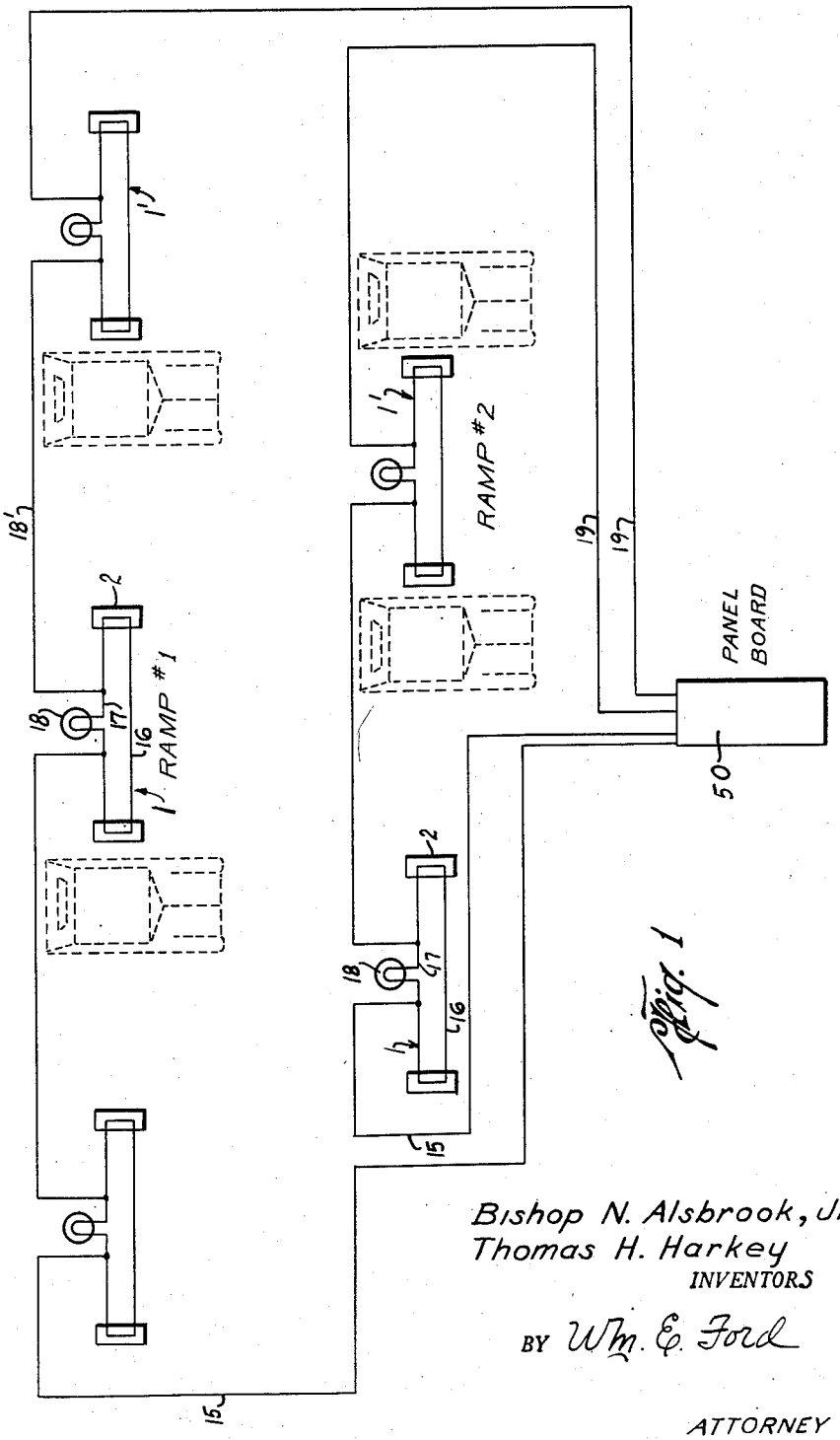



Fig. 1

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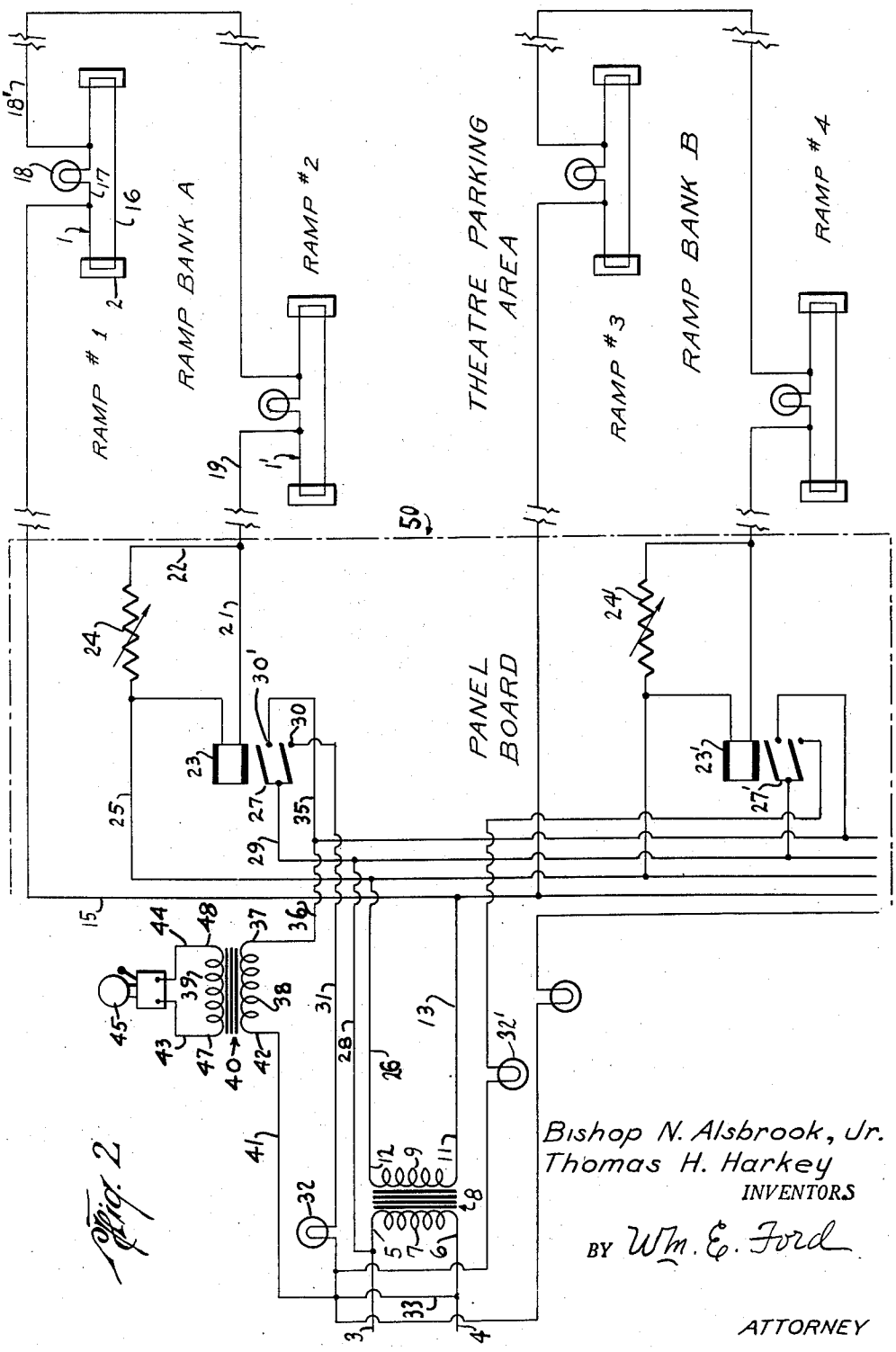



Fig. 2

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# DRIVE-IN THEATER SPEAKERS SEVERANCE WARNING SYSTEM

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4 Claims. (Cl. 179—1)

This invention relates to a warning or signalling system adapted to render both a visual and audible signal upon the severance of the cords of the speakers in drive-in theaters and the like.

It is an object of this invention to provide protective or warning system adapted to render both a visual and an audible signal upon the severance of the cords of the speakers in drive-in theaters and the like.

It is also an object of this invention to provide a protective or warning system of this class having a central panel wherein lights corresponding to various areas of the drive-in theaters, as individual ramps thereof, may flash on upon the severance of a speaker in such ramp or area.

It is still another object of this invention to provide a protective or warning system of this class having an audible warning means, as a bell, adapted upon the severance of a speaker to render an audible signal to call attention to the flashing of the light on the central panel.

It is also a further object of this invention to provide a warning or signalling system of this class provided with an isolation transformer whereby the full force of the voltage of the system may not be grounded through the body of the person making the severance.

Other and further objects will be apparent when the specification is considered in connection with the drawings in which:

Fig. 1 is a plan view of a portion of the area of a drive-in theater, showing the wiring to the speakers in individual ramps.

Fig. 2 is an electrical diagram showing the wiring of the central panel, and its relation to the wiring of individual ramps or series of ramps.

In drive-in theaters, as shown in Fig. 1, it is conventional to provide a series of pairs 1 of aligned voice magnifying speakers 2 along each ramp or slope-graded portion of the theater. Such speakers, by wiring, not shown, are connected to the vocal recording means which is co-ordinated with, and actuated by the showing of the film.

Because the speakers are in themselves of value for separate use on other electrical apparatus, theater-goers are often tempted to sever the speaker at their station and drive away with it to appropriate it to such other uses, while more often the severance and appropriation may result from sheer vandalism.

This present invention sets out to avoid such appropriations by warning theater personnel of the severance of a speaker, by the flashing on of a light on a central panel, and by the ringing of a bell to call the attention of such personnel to the signal light. The panel may provide lights to designate a servance at any speaker, or pair of speakers, or fewer lights may be provided so that one light may designate a severance along any one ramp, or bank or pair of ramps.

As shown in Fig. 2, power conductors 3 and 4 are connected to the terminals 5 and 6, respectively, of the



primary coil 7 of an isolation transformer 8. The secondary 9 of such transformer has the conductor line 13 connected to its terminal 11, and this line connects with the line 15 which extends to a pair of speakers 1 in a first ramp bank, where the line 16 therefrom series-connects the two speakers 2, while the line 17 therefrom connects the light 18 in parallel with the conductor line 16 extending to the speakers 2 whereby the line 16 constitutes a low resistance shunt path around the light signal. The lines 16 and 17 are then connected into the line 18', leading to adjacent speaker stations in the same ramp, and to speakers, not shown, in the adjacent ramp, when two such ramps may form a ramp bank, and finally to the last pair of speakers 1' adjacent the panel 50.

At the panel 50 the line 19 from the last pair of speakers 1' has the lines 21 and 22 connected thereto which parallel-connect a relay switch, including the electromagnet 23, which is normally energized as regards the electrical circuits therethrough, and a variable resistor 24, and then connect into the line 25, which in turn connects into the line 26 which completes the circuit by connection into the terminal 12 of the secondary coil 9 of the isolation transformer 8.

The relay unit includes a double pole switch 27 located adjacent the normally energized coil 23, and is so controlled by the relay coil, as to normally be held opened, but which is closed when current is consumed to light any signal 18 by reason of a break in its shunt 16 and which thereby de-energizes the relay coil. Closing of the switch 27 completes a circuit via the line 28 from the power conductor 3, the line 29 to the switch 27, the contact 30, the line 31 having the light 32 series connected therein, and the line 33 to the power conductor 4.

Also upon the closing of the switch 27, the contact 30', the line 35 and the line 36 to the terminal 37 of the primary coil 38 of the transformer 40, and the line 41 from the terminal 42 to the line 33 complete a circuit parallel connecting the primary coil 38 of the transformer 40 and the light 32.

The bell 45, by means of the lines 43 and 44 therefrom, respectively, to the terminals 47 and 48 of the secondary coil 39, is connected to be rung by the functioning of the transformer 40, when the switch 27 is closed.

It can thus follow that the normally energized relay coil 23 will be de-energized by reason of the resistance to current flow through the light 18 when the severance of the low resistance shunt 16 at any speaker 2 in Ramp Bank A may induce such action, whereupon the circuits through the light 32 and transformer 40 are closed by the operation of the switch 27, whereby the light 32 flashes on to light up the designation of Ramp Bank A, not shown, on the panel 50. At the same time the closing of the switch 27 completes the circuit through the transformer 40 to ring the bell 45 to thereby call attention to the light 32 on the panel 50. Thus the personnel of the theater can be informed of a severance as soon as it takes place, so that they may seek a lighted signal 18 at a speaker station and quickly accost the guilty party before departure can be made from the theater grounds.

At the same time, since it is not desirable to bodily harm such guilty party, the isolation transformer 8 prevents the full current of the voltage across the power conductors 3 and 4 from being grounded through the body of such guilty party as he severs a speaker.

As shown in Fig. 2, for each additional ramp bank, or ramp, as the case may be, another light 32' must be provided at the panel 50, as well as another normally closed relay 23', resistor 24', and switch 27'.

It can thus be seen that there has been provided a visual and audible signalling device, operable upon the severance of any speaker, to call attention to such severance and

designate the relative location of such severance in the theater parking area.

It is additionally pointed out that such device, in the form of the isolation transformer, may provide means which will protect even one aspiring to appropriate a speaker from suffering the force of the voltage impact of the power line and thus being shocked, perhaps fatally. This feature is optional, and may be omitted in a case where such danger of shocking an appropriator or would-be appropriator is not to be considered. In such case the power conductors **3** and **4** connect respectively to the conductor lines **13** and **26**.

Broadly this invention relates to, and provides a signalling device operable to call attention to the location in a drive-in theater, or the like, at which a severance has just been made in an electrical circuit.

What is claimed is:

1. A signalling system comprising, a speaker having a connector cord leading thereto and including a current conductor, a signal connected in parallel with said cord included conductor, a normally energized relay coil and a variable resistor connected in parallel, and conductor means connecting one side of said parallel connected signal and conductor to one side of said parallel connected coil and resistor, and a pair of power conductors, one connected to the opposite side of said parallel connected signal and conductor and one connected to the opposite side of said parallel connected coil and resistor, a second signal and a contact means series connected thereto, said second signal and contact means series being connected across said power conductors, and said contact means normally being held open by said relay coil so that severance of said first mentioned conductor directs current flow to actuate the first signal so that the resultant voltage drop induces said relay coil to close said contact means whereby said second signal also gives an indication of said severance.

2. A signaling system comprising a speaker having a connector cord leading thereto and including a current conductor, a signal connected in parallel with said cord



included connector and arranged so that said conductor shunts current flow around said signal, a relay coil in series with said parallel connected signal and cord included conductor, a relay coil actuated switch normally held open by said relay coil so that severance of said speaker cord included conductor closes said switch and a second signal responsive to the closing of said switch.

3. A speaker theft alarm system for a drive-in theater which includes a speaker having a connector cord leading thereto, a first electric circuit having a resistance element therein and a low resistance shunt around said element and constituted by a current conductor included within said speaker connector cord, a relay having its current flow responsive actuator in said circuit so as to be responsive to change in current flow should said conductor become severed and thereby confine current flow in said circuit to flow through said resistance element, a relay controlled circuit and a signal in the relay controlled circuit.

4. In a speaker theft signaling system for a drive-in theater or the like, a series of speaker stations, a signal at each station, a relay switch having its actuating coil in series circuit with the signals at said stations, an uninterrupted low resistant shunt around each signal, a speaker unit to which said shunt extends and whose separation from its station breaks said shunt, whereby the energy consumed by signal operation affects said actuating coil for relay switch operation, and a separate circuit controlled by the relay switch and containing a general alarm signal at a master station serving all the speaker stations.

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