

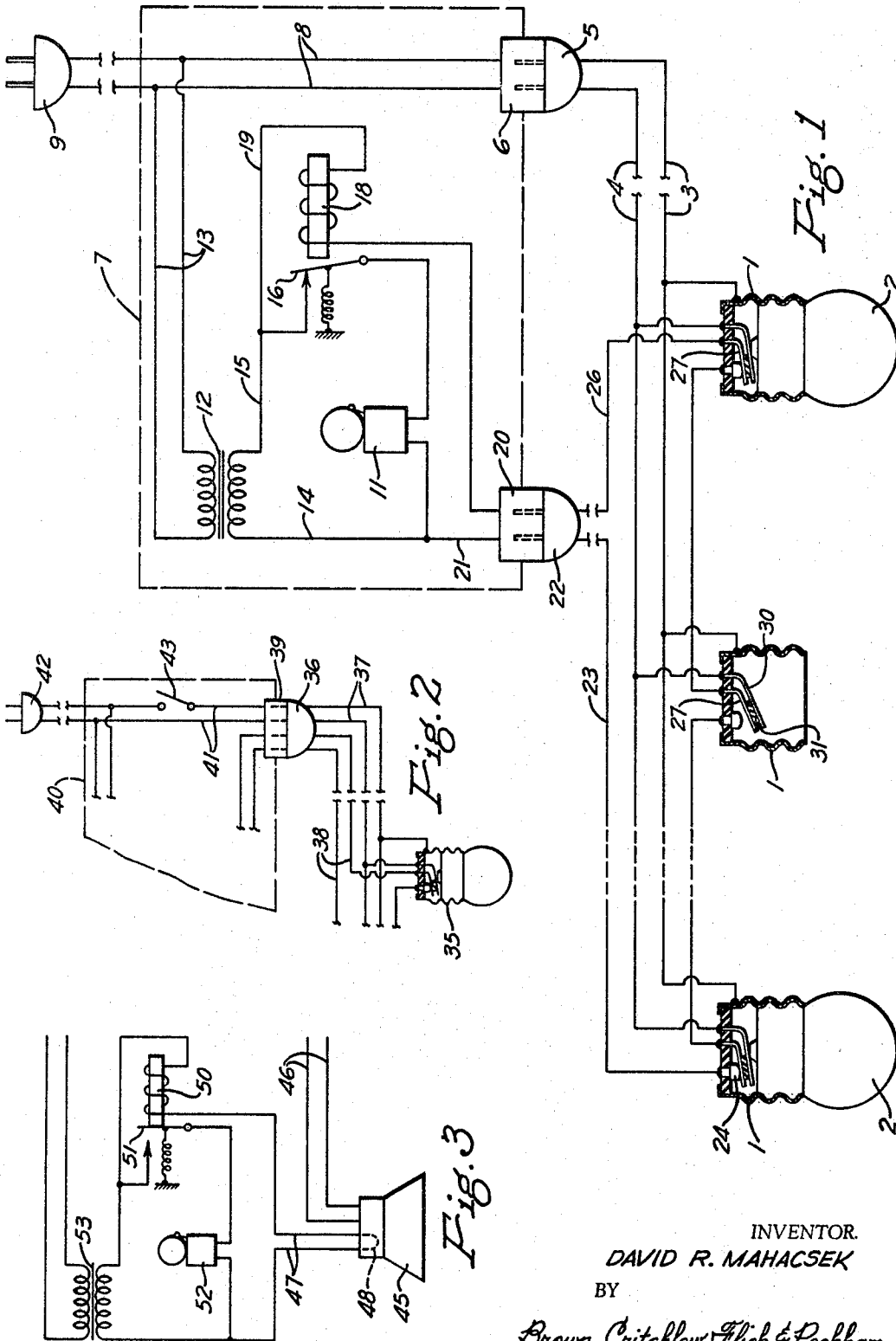
May 7, 1968

D. R. MAHACSEK

3,382,494

THEFT ALARM FOR ELECTRICAL DEVICE

Filed June 11, 1965



INVENTOR

DAVID R. MAHACSEK

BY

Brown, Critchlow, Flick & Peckham.
ATTORNEYS.

1

3,382,494

THEFT ALARM FOR ELECTRICAL DEVICE

David R. Mahacsek, 215 Bonvue St.,

Pittsburgh, Pa. 15214

Filed June 11, 1965, Ser. No. 463,089

7 Claims. (Cl. 340-280)

ABSTRACT OF THE DISCLOSURE

An electric circuit contains an electric alarm and a normally closed switch that is opened by a solenoid in another circuit which includes a pair of wires and means for connecting the wires that is dependent upon the presence of a device, the theft of which it is desired to signal by the alarm. Unauthorized removal of the device will disconnect the wires from each other and thereby permit the alarm switch to close.

Electrically-operated portable devices that are exposed to the public can be stolen and often are. For example, the electric speakers at drive-in moving picture theaters are sometimes taken away by members of the audience. Another place where thefts occur, and in great numbers, is outdoor Christmas lighting. After the decorative Christmas lights have been turned off for the night, or even before that, the bulbs or an entire string of lights may be stolen.

It is among the objects of this invention to provide an alarm system which will signal when any such electrical device is being taken, which will function whether the electrical device is operating or not, and which is simple and inexpensive in construction and operation.

In accordance with this invention, a portable electrically-operated device connected in an electric circuit is protected by an electric alarm that is in another electric circuit. The alarm circuit contains a normally closed switch that can be opened by a solenoid when the latter is energized. There is an electric circuit for energizing the solenoid, which includes a pair of wires and means for connecting those wires that is dependent upon the presence of the device that is being protected. Consequently, unauthorized removal of the protected device will disconnect the pair of wires just mentioned from each other, whereupon the alarm switch will close and the alarm will operate. In the case of a string of electric lights, the solenoid circuit includes a normally open switch inside each lamp socket, but the switch is closed by insertion of a lamp in the socket. Removal of any lamp in the string will allow the corresponding switch to open and thereby break the circuit to the solenoid.

The invention is illustrated in the accompanying drawings, in which

FIG. 1 is a circuit diagram for a string of lights protected by my alarm system;

FIG. 2 is a fragmentary view of a modification; and

FIG. 3 is a circuit diagram of an alarm system for an electric speaker in a drive-in theater.

Referring to FIG. 1 of the drawings, a number of lamp sockets 1, such as those for holding Christmas tree lights 2, are connected together either in series or in parallel in a string by means of wires 3 and 4 connected at one end to a conventional electric plug 5. Wire 3 is soldered to the metal sockets, while the other wire 4 is connected to a center contact in each socket as will be described presently. The plug can be plugged directly into a permanent outside electric outlet or it can be connected by an extension cord to such an outlet. Preferably, however, the lamp circuit is plugged either directly or through an extension cord into an outlet 6 carried by a support that most suitably is in

2

the form of a box 7, indicated by broken lines. This outlet is connected by an electric cord 8, extending through the box and out of it, with another plug 9 that can be plugged into the main outlet.

In accordance with this invention, the box 7 also contains an alarm system. This system includes an electrically-operated alarm, such as an electric bell 11, which is mounted in or on the box in an electric circuit that is connected to plug 9, usually through a transformer 12 in the box. The transformer primary is connected by wires 13 to cord 8 inside the box, while the secondary of the transformer is connected by wires 14 and 15 with the bell. The alarm circuit also includes a normally closed electric switch 16, so the bell will continue to ring as long as the switch is closed.

In order to hold the alarm switch open during normal operation of the lamp circuit, a solenoid 18 is mounted beside the switch. Most conveniently, the solenoid and switch are parts of a conventional relay. The solenoid is connected in a wire 19 leading from one side of the transformer secondary to a second outlet 20 mounted in the side of the box. The other side of the secondary is connected by a wire 21 to the same outlet. Plugged into this outlet is an electric plug 22 that has one wire 23 leading to a fixed contact 24 mounted in the base of one of the lamp sockets. The other wire 26 from the plug leads to a spring contact 27 in another socket. The fixed and spring contacts of the remaining socket or sockets are electrically connected in series with the two sockets just mentioned. The fixed contact 24 and spring contact 27 in each socket form an electric switch. The spring contact is formed from a metal strip having one end mounted in the socket base and having its opposite end overlying the adjacent fixed contact, from which it normally is spaced so that the switch normally is open as shown in the middle socket in the drawing.

The socket contact that is engaged by the center contact of a lamp 2 also is formed from a spring contact strip 30 that has one end mounted in the socket base. This strip overlies the switch contact strip 27, but the two are spaced apart by a piece of insulation 31 that is secured to at least one of them. It will be seen that when a lamp is screwed into a socket, the lamp not only will make electric contact with the outer spring contact 30 to complete the electric circuit through the lamp, but also will press the other spring contact 27 into engagement with the fixed contact 24 and thereby close the socket switch. When all of the lamp socket switches are closed in this manner, the circuit through solenoid 18 is completed, whereupon the transformer energizes the solenoid. The energized solenoid opens alarm switch 16 and holds it open. This is true whether or not the lamp circuit is plugged into outlet 6, because the solenoid circuit does not depend for its operation upon the lamps being illuminated. However, if one of the lamps is removed from its socket, as shown at the middle socket in FIG. 1, the switch in that socket will open and thereby break the solenoid circuit. Immediately, the alarm circuit switch 16 will close as shown and the alarm will sound. If anyone attempts to steal the entire string of lights, sockets and all, it will be necessary for him to remove both plugs from the box outlets 6 and 20, but removal of the plug 22 from the solenoid circuit outlet 20 will open that circuit so that the alarm will ring. Of course, cutting the wires would have the same effect.

It will therefore be seen that the string of lights can be unplugged or turned off by a switch, or a light can burn out, without the alarm circuit being deactivated. On the other hand, the moment someone tries to steal the string of lights or any one or more of the lamps themselves, the alarm will ring and warn the owner that a theft is taking place. The box 7 containing the alarm circuit can be mounted in the house or in an outside location inac-

cesible to a person who might be interested in stealing the lamps.

In the modification shown in FIG. 2, both plugs connected with the lamp sockets 35 can be combined into a single four-prong plug 36. The lamp circuit wires 37 are connected to two of the prongs, and the socket switch wires 38 are connected to the other two prongs. Likewise, a single outlet 39 containing four contacts is substituted for the two outlets mounted in the box in FIG. 1, and this outlet 39 is mounted in a box 40. Since plug 36 cannot be removed from the outlet to turn off the lights without also opening the solenoid circuit, one of the two wires 41 that extend from the lamp circuit contacts of the outlet through the box and out to the main plug 42 may be provided with a manual electric switch 43 so that the lights can be turned on and off without disturbing the rest of the system.

The principle of this invention also is illustrated in FIG. 3, which shows apparatus for warning of the theft of an electric speaker 45 in a drive-in theater. In addition to the usual operating electric cord 46 connected to the speaker, another pair of wires 47 extend into the speaker housing. Inside the housing, these last two wires are connected together, preferably by a small loop 48 of wire which may be integral with wires 47. These two wires are part of a circuit containing a solenoid 50 for opening a normally closed switch 51 in a circuit containing an alarm 52. Both circuits may be operated by a transformer 53 connected with a source of electrical energy. As long as the solenoid circuit is intact, the alarm switch is open as shown. However, if someone cuts the wires leading to the speaker so that it can be stolen, the solenoid circuit will be opened and the alarm switch will close to sound the alarm. This apparatus, like the one first described, depends upon the presence of the device that it is desired to protect (the speaker) for connecting the wires that lead to the solenoid. Consequently, the removal of that device breaks the solenoid circuit. Of course, the alarm system is placed in a location where it cannot be tampered with.

According to the provisions of the patent statutes, I have explained the principle of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. Electrical apparatus for signaling the theft of a lamp from a string of lamps, said apparatus comprising a plurality of lamp sockets electrically connected in a lamp circuit, an electric alarm, an electric circuit containing the alarm for operating it, a normally closed switch in the alarm circuit, a solenoid for opening said switch when the solenoid is energized, a normally open switch inside each lamp socket adapted to be closed by insertion of a lamp in the socket, and an electric circuit electrically connecting the solenoid and socket switches in series for energizing the solenoid when all of the socket switches are closed, whereby said alarm circuit will be opened.

2. Electrical apparatus according to claim 1, in which each of said socket switches includes a fixed contact mounted in the base of the socket and a spring contact strip having one end mounted in the socket base and having its opposite end overlying the fixed contact and normally spaced from it, said spring contact being movable into engagement with the fixed contact by a lamp inserted in the socket.

3. Electrical apparatus according to claim 2, in which each socket includes a contact for engagement by the

center contact of a lamp to connect the lamp in said lamp circuit, said socket contact being a spring contact strip overlying the first-mentioned spring contact strip and having one end mounted in the socket base, and means insulating the two spring contacts from each other.

4. Electrical apparatus for signaling the theft of a lamp from a string of lamps, said apparatus comprising a plurality of lamp sockets electrically connected in a lamp circuit, an alarm, an electric circuit containing the alarm for operating it, means for connecting the alarm circuit with a source of electric energy, a normally closed switch in the alarm circuit, a solenoid for opening said switch when the solenoid is energized, an electric outlet, means for electrically connecting said solenoid with said source of energy and said outlet, a common support for said alarm and switch and solenoid and outlet, an electric plug plugged into said outlet, a normally open switch inside each lamp socket adapted to be closed by insertion of a lamp in the socket, and means electrically connecting the socket switches in series with said plug, whereby while all of the socket switches are closed the solenoid will be energized and said alarm circuit will be open.

5. Electrical apparatus according to claim 4, in which said outlet contains four contacts and said electric plug has four prongs for engagement with said outlet contacts, and wires connected to two of said outlet contacts for connecting them with said source, the two prongs that engage said two contacts being in said lamp circuit.

6. Electrical apparatus according to claim 4, including a second electrical outlet carried by said support, means for electrically connecting the second outlet with said source, and an electric plug in said lamp circuit plugged into said second outlet.

7. Electrical apparatus for signaling the theft of a lamp from a string of lamps, said apparatus comprising a plurality of lamp sockets electrically connected in a lamp circuit, a transformer, means for plugging the transformer primary into an electric circuit, an electric alarm, an electric circuit connecting said alarm with the transformer secondary, a normally closed switch in the alarm circuit, a solenoid for opening the switch when the solenoid is energized, an electric outlet, means for electrically connecting the transformer secondary and solenoid in series with said outlet, a common support for said transformer and alarm and switch and solenoid and outlet, an electric plug plugged into said outlet, a normally open switch inside each lamp socket adapted to be closed by insertion of a lamp in the socket, and means electrically connecting the socket switches in series with said plug, whereby while all of the socket switches are closed the solenoid will be energized and said alarm will be open.

References Cited

UNITED STATES PATENTS

883,335	3/1908	O'Connor	340—280
1,687,902	10/1928	Shoenberg et al.	
2,463,339	3/1949	Wetzel et al.	340—280 X
2,799,852	7/1957	Barnes	340—280 X
3,127,597	3/1964	Lewin et al.	340—280
112,706	3/1871	Guernsey.	
2,591,288	4/1952	Pitchford	340—280 X
3,045,226	7/1962	Trayner	340—276 X
3,167,755	1/1965	Larrick et al.	340—276 X

JOHN W. CALDWELL, *Primary Examiner*.

THOMAS B. HABECKER, *Examiner*.

D. L. TRAFTON, *Assistant Examiner*.