United States Patent [19]

Peterson, II

[11] **3,803,577**

[45] **Apr. 9, 1974**

[54] **CONNECTION DETECTION CONNECTOR**

[76] Inventor: **William Donald Peterson, II,** Salt Lake City, Utah

[22] Filed: **Apr. 6, 1971**

[21] Appl. No.: **131,743**

[52] **U.S. Cl.** **340/280**

[51] **Int. Cl.** **G08b 21/00**

[58] **Field of Search** 340/280, 283, 285

[56] **References Cited**

UNITED STATES PATENTS

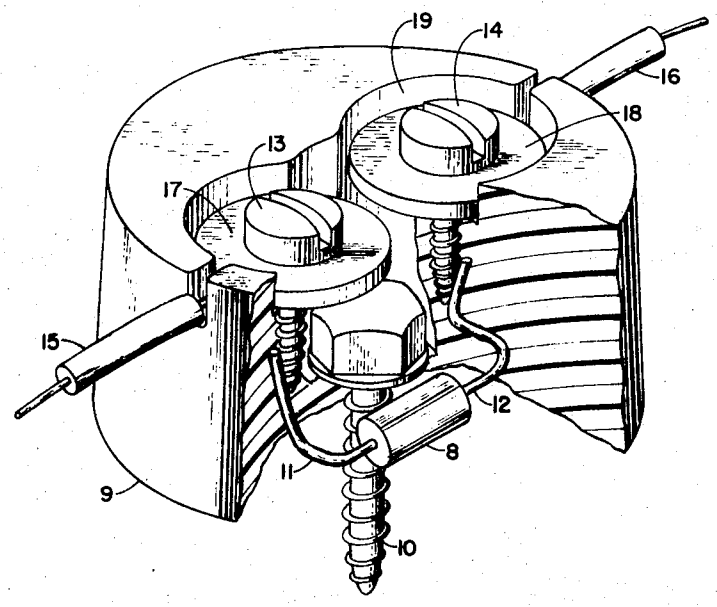
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Primary Examiner—John W. Caldwell
Assistant Examiner—Scott F. Partridge

[57] **ABSTRACT**

An alarm device to detect the unauthorized removal of television sets and other items comprising a connection detection connector which is monitored electronically to indicate the dis-connection of the connection detection connector. The burglary disturbance changes the standard impedance circuit to either an open circuit or a short circuit, depending upon the burglar's method of disconnection. The impedance change causes an alarm in the monitoring office and electronically indicates in a panel the location of the burglary. The alarm can be reset after the condition of the connection detection connector is corrected to its proper impedance.

1 Claim, 2 Drawing Figures



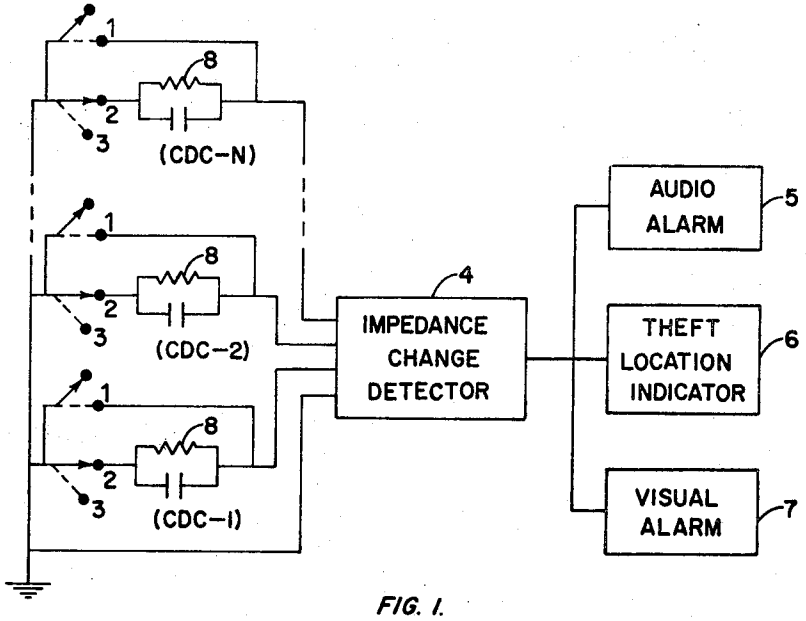

1
8
2
3
(CDC-N)
1
8
2
3
(CDC-2)
1
8
2
3
(CDC-1)
4
IMPEDANCE CHANGE DETECTOR
AUDIO ALARM
5
THEFT LOCATION INDICATOR
6
VISUAL ALARM
7

FIG. 1.

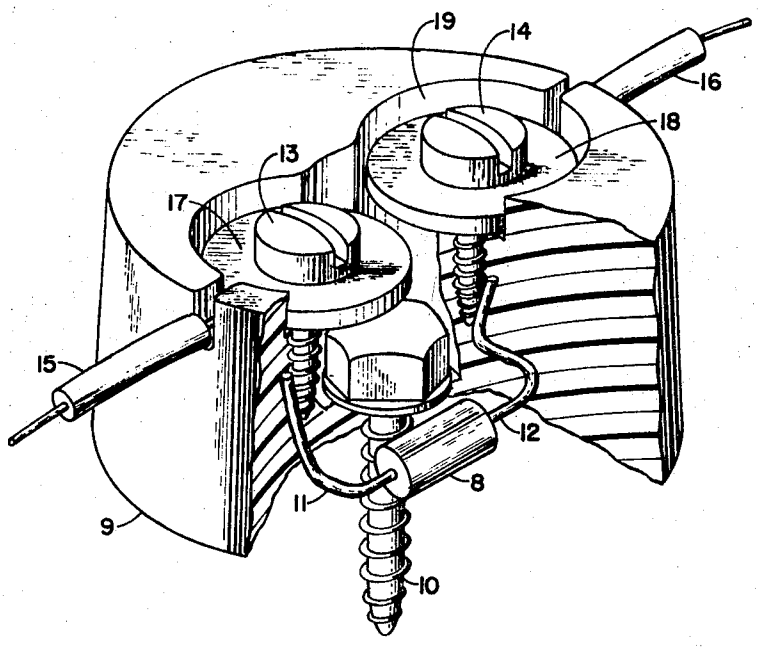

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16
18
13
17
15
12
8
11
9
10

FIG. 2.

CONNECTION DETECTION CONNECTOR

BACKGROUND OF THE INVENTION

The present invention relates to the need to detect when a television set is being disconnected by thieves from a motel or hotel. When this situation occurs, it is desirable that an alarm be signaled and an indication be made to determine the location of the theft. The alarm and indicator may be at a location such as the motel/-hotel telephone switchboard, the patron service desk, the managers office or dwelling, or at a security guard post. Other functions may also be initiated by the system such as the turning on of lights and the locking of doors. These initiated conditions, including an audio alarm, can be turned off or reset by the monitoring officer; but, the alarm condition indication on the location panel can be reset only when the condition causing the alarm is corrected. The electronics need also to have a capability for self testing to insure its reliability.

This system of burglar detection requires a connection detector on or within each television set being monitored. The intent is that the disconnection, shorting out, or tampering with the connection detection connector will trigger the alarm. It is desirable to have a connection detector which can mount on the outside of television sets for ease of installation and to reduce costs for installation. The current invention also relates to other needs such as monitoring merchandise in stores and automobiles in car lots.

SUMMARY OF THE INVENTION

The present invention is an electronic device which is monitored for a change in electronic impedance or electronic resistance. The removal or shorting of the wires connecting the device to its monitor will cause a change in its impedance value which can be detected by the electronic monitor. The connector device is itself constructed such that any attempt at its removal from the item to which it is attached to will change its impedance. Also, any disassembly of the connector itself will change its impedance.

BRIEF DESCRIPTION OF THE DRAWINGS

So that the invention may be more readily understood and carried into effect, reference is made to the accompanying drawings which are offered by way of example only and are not to be taken as limiting the invention, the scope of which is defined by the appended claims which are intended to embrace equivalent structures.

FIG. 1 is a schematic representation of connection detection connectors (cdc) and their associated equipment the electronic monitor, consisting of the impedance change detector, the audio alarm, visual alarms, and theft location indicator.

FIG. 2 is a perspective view of the connection detection connector having a cut away section showing the electronic component and fasteners.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Any number of connection detection connectors

(cdc units) can be used with one electronic monitor. Position **2** of the switch shown represents a normal untampered condition of the cdc unit. Position **1** represents a short circuit condition and position **3** represents an open circuit position. Both positions **1** and **3** are detected by the impedance change detector **4** causing the alarms **5, 6, 7** to come on. The electronic impedance resistor **8** is imbeded deep within the non-conducting housing **9.** The housing **9** is attached to a television set with a screw **10.** The resistor leads **11, 12** contact the screws **13, 14.** Leads **15, 16** from the impedance change detector are secured under metallic washers **17, 18.** The attachment screw **10** cannot be removed without removal of washers **17, 18** which cannot be removed without removing the lead attaching screws **13, 14** whose removal will cause an open circuit condition **3.** Attempt at removal of a housing screw **10** with a metallic instrument will cause a short circuit condition **1** between washers **17, 18.**

In an alternative configuration the leads **11, 12** from the resistor **8** may extend to under the washers **17, 18.** Thus the screws **13, 14** may be removed if the washers **17, 18** are held tightly against the housing **9** to prevent disengagement of the leads **11, 12, 15, 16** so that they may be secured together to prevent the open circuit condition **3.**

The audio alarm **5** and the visual alarm **7** can be manually reset at any time after on. The theft location indicator **6** can only be reset if alarm conditions **1, 3** are corrected.

I claim:

1. A theft monitoring device for detecting the theft of at least one of a plurality of items upon attempted removal by a thief of a connecting detector attached to each item, said device comprising an impedance change detector connectable by two wires to an impedance means mounted within the connection detector, said impedance means and said impedance change detector forming a voltage divider, said impedance means being one half of said voltage divider, an audio and visual alarm means indicating the specific location of the attempted theft, wherein attempted removal of said connection detector causes an unbalance in said voltage divider to actuate said audio and visual alarms, said connection detector further comprising a first and second screw type fastener in series with said wires and said impedance means such that attempted removal of said first and second fasteners opens the circuit actuating said alarms, wherein the connection of said wires and impedance means to said first and second fasteners is below the head of each fastener to prevent jumpering of either said first or second fastener, a third screw type fastener attaching the connection detector to the protected item, the head of said third fastener located below the heads of said first and second fastener such that said third fastener cannot be removed without removing said first and second fastener, wherein the attempted removal of said third fastener short circuits said impedance means actuating said alarms.

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