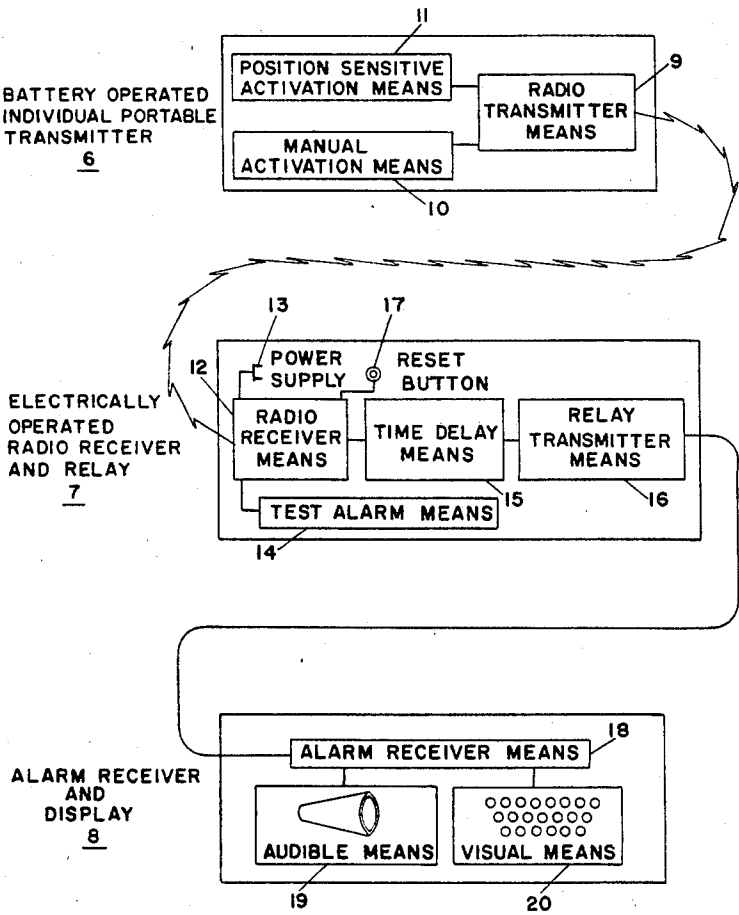


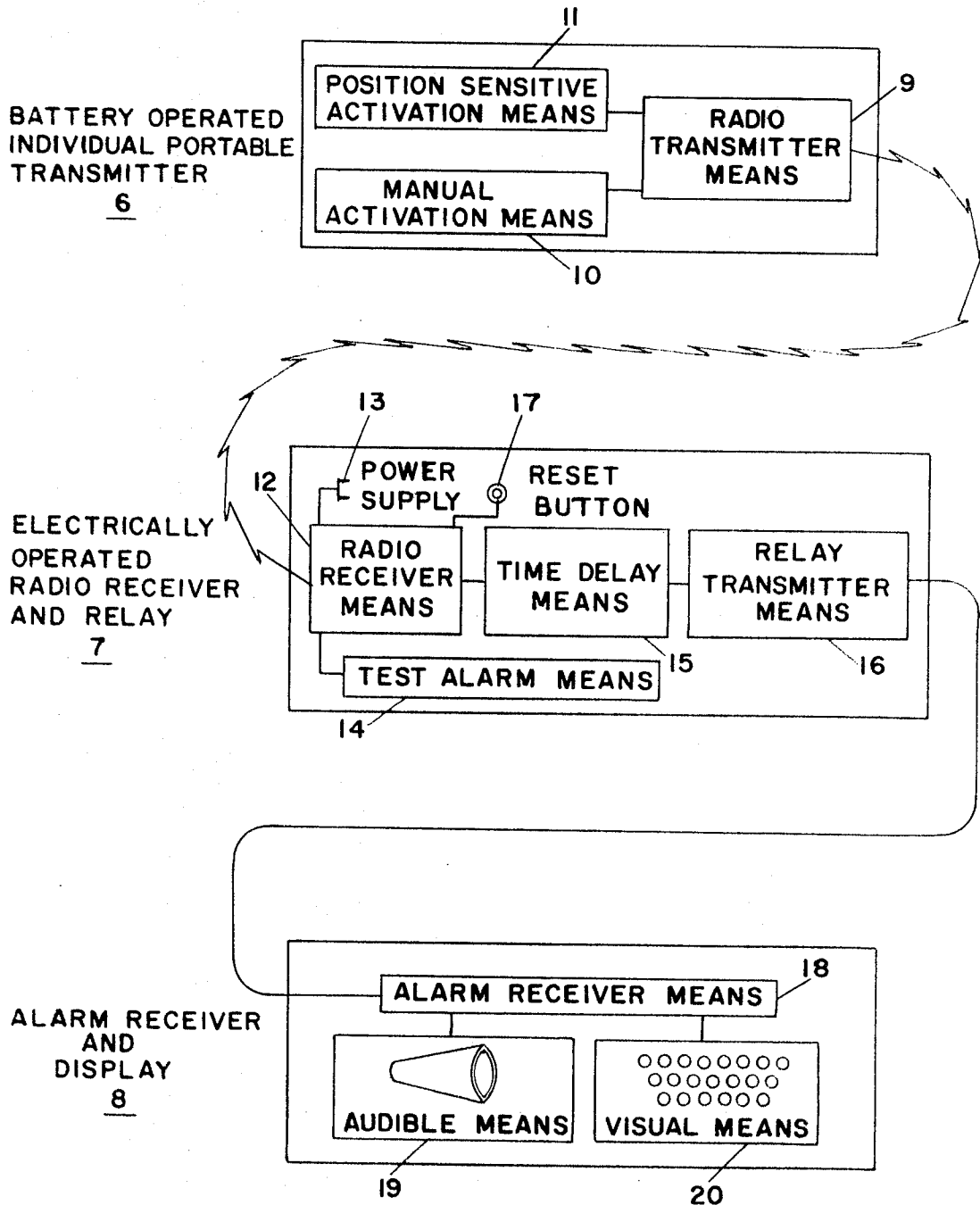
[72] Inventor **Thomas P. Demuth**
Springfield, Pa.
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[73] Assignee **Atlantic Richfield Company**
Philadelphia, Pa.

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Primary Examiner—Robert L. Richardson
Attorney—Robert R. Cochran

[54] **SAFETY ALARM SYSTEM**
6 Claims, 1 Drawing Fig.
[52] **U.S. Cl.**..... **340/224,**
325/64, 325/113, 340/279, 340/421
[51] **Int. Cl.**..... **G08b 7/06,**
G08b 25/00
[50] **Field of Search**..... **340/224,**
244, 245, 246, 271, 277, 279, 421; 325/51, 53, 55,
64, 111, 113

ABSTRACT: A safety alarm system designed for use by individuals working alone consisting of a radio transmitter which is activated by a position-sensitive switch and a radio receiver which activates an alarm means which indicates that the person has been injured or otherwise incapacitated. The switch is selected to activate at any position which a person would normally assume if he were injured or incapacitated, such as a prone position. The transmitter can also be equipped with a manual switch in combination with a position-sensitive switch so that it can also be used as an alarm system even when the individual is not incapacitated.





INVENTOR

THOMAS P. DEMUTH

BY

Robert A. Cochran

ATTORNEY

SAFETY ALARM SYSTEM

Much industrial work must of necessity be done by individuals working alone in isolated areas. One of the problems encountered in this situation is that of determining when this person has been injured so that proper medical assistance can be given. Alarms have been developed which an individual can activate manually in order to alert adjacent personnel of the occurrence of an accident. This system is ineffective, however, when the accident leaves the individual incapacitated and unable to activate the alarm. Various methods have been tried such as closed-circuit television to keep a constant surveillance upon those circulated people. This method, however, is expensive and it requires that at least one person continually scan the various areas to be sure that an accident has not occurred.

An object of this invention has been to develop an alarm system which is automatically activated when a person becomes incapacitated, said system not requiring constant surveillance by other personnel in order to receive the alarm.

In summary, this invention comprises a safety alarm system which transmits an alarm when a person's body is placed in any position other than a normal working position, comprising in combination

- a. a radio transmitter which broadcasts a signal in response to a position-sensitive activation means,
- b. a radio receiver located within the broadcast area of the radio transmitter,
- c. an alarm display means which is activated in response to a signal from the radio transmitter.

A more complete application of the invention and the many advantages thereof will be readily apparent as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawing.

In the FIGURE there are shown the three basic units of the alarm system, namely; the battery-operated individual portable transmitter 6, the electrically operated radio receiver and relay 7, and the alarm receiver and display 8.

In the individual portable transmitter 6, the radio transmitter 9 can be activated by either the manual switch 10 or the position-sensitive switch 11. These switches are connected in parallel to the transmitter 9. The radio transmitter 9 can be a commercial form of transmitter such as a model G-390 transmitter made by Perma-Power Company of Chicago, Illinois, which must be modified to incorporate the position-sensitive switch 11.

The portable transmitter should be small enough to be carried by the individual in a manner not to substantially interfere with freedom of movement, yet to allow the position-sensitive switch to activate the transmitter should the individual become incapacitated. The radio signal of the transmitter would be controlled for operation within the frequency 26.97 to 27.23 mc. in order to comply with FCC Rules; part 15—"Incidental and Restricted Radiation Devices." The position-sensitive switch can be of the mercury-type switch designed to activate the transmitter should the switch be taken out of the vertical position. It is preferred that the switch be required to move at least 30° from the vertical position before activating the transmitter in order to prevent activation through normal body movement.

The electrically operated radio receiver and relay 7 must be located within receiving range of the radio transmitter 9. The radio receiver 12 through its power supply 13 remains in a continuous listening mode. Said receiver 12 may be a commercial form of receiver, such as the model G-270 receiver made by Perma-Power Company of Chicago, Illinois. When the receiver 12 receives a transmission an audible alarm 14 may be heard locally. The alarm signal travels through the time delay means 15 en route to the relay transmitter 16, which in turn sends the alarm signal from the area of alarm origin to all areas equipped to receive such signals, such equipment to be subsequently described. The reset button 17 allows for deactivation of the alarm system.

The radio receiver must be tuned to the same frequency as the portable transmitter output signal and located within the

broadcast area where such transmitter will be used. The audible alarm is adapted to use as a testing means whereby an individual can activate the transmitter to insure that it is functioning properly. It is also useful in that it will give a warning to personnel within the area of alarm origin should the transmitter be activated erroneously. The time delay means may be adjusted for a time delay of 1 second to 2 minutes and preferably from 5 to 30 seconds. Its purpose is to allow for local alarm testing and/or erroneous activation of the transmitter without allowing the alarm signal to leave its area of origin. The reset button for the alarm system has been so located as to be a safety feature for the alarm system in that the deliberate act of resetting the button must take place within the area of alarm origin.

The alarm receiver and display means 8 consists of an alarm receiver 18 which is wired directly to the relay transmitter 16, said alarm receiver activating the audible alarm 19 and/or visible alarm 20.

The alarm receiver can be located in one or more monitoring control areas as well as in each of the work areas where a radio receiver is located. In this manner all individuals working alone will be informed of some problem then existing. The visual alarm should be adapted to indicate the source of the alarm by having individual alarm lights for each of the various radio receivers. The audible alarm will call attention to the fact that the system has been activated.

The individual components of the alarm system hereinabove described are not novel and their use independently is well known to those skilled in the arts. The novelty of the invention lies in the combined use of these components in a novel manner to produce the desired results. While I have herein shown and described one form in which the invention may be employed, it may be readily understood that various variations and modifications in the invention may be introduced without departing from the spirit and scope of the novel conception thereof.

I claim:

1. A safety alarm system which becomes activated when the body assumes a position other than a normal working position, said system comprising in combination:

- a. a position sensitive activation means,
- b. a manual activation means,
- c. a radio transmitter which broadcasts a signal in response to either activation means,
- d. a radio receiver located within the broadcast area of the radio transmitter,
- e. an audible test alarm means fixed operably to the radio receiver means for testing the portable transmitter as well as to indicate to personnel at the alarm area that the unit has been activated,
- f. a relay transmitter operably fixed to said radio receiver via a time delay means whereby the signal received by said radio receiver is delayed for a period of time allowing for testing or erroneous activation of the radio transmitter and the local test alarm without activating the entire alarm system through said relay transmitter, and
- g. an alarm display means which is activated in response to a signal from the relay transmitter.

2. The safety alarm system of claim 1 wherein each portable radio transmitter means and its respective radio receiver are set at predetermined fixed frequencies so as not to interfere with any other similar transmitter-receiver.

3. The alarm system of claim 1 having a reset means on the radio receiver means that must be manually reset to silence the alarm system once it has become activated.

4. The safety alarm system of claim 1 wherein the display means is an audible alarm.

5. The safety alarm system of claim 1 wherein the display means is a visual lighting system adapted to indicate specific source of the alarm.

6. The safety alarm system of claim 1 wherein the display means is an audible alarm signal and a visual lighting system adapted to indicate the specific source of the alarm.