United States Patent [19]

Barkley

[11] **3,866,204**

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[54] **ELECTRONIC MEDICAL WARNING DEVICE**

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[52] **U.S. Cl.** **340/279,** 340/221, 360/12

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

[58] **Field of Search** ..... 340/279, 221; 179/100.1 C

[56] **References Cited**

UNITED STATES PATENTS

3,026,503	3/1962	Scheer	340/279
3,588,858	6/1971	Demuth	340/279
3,634,885	1/1972	Barkley	340/221

FOREIGN PATENTS OR APPLICATIONS

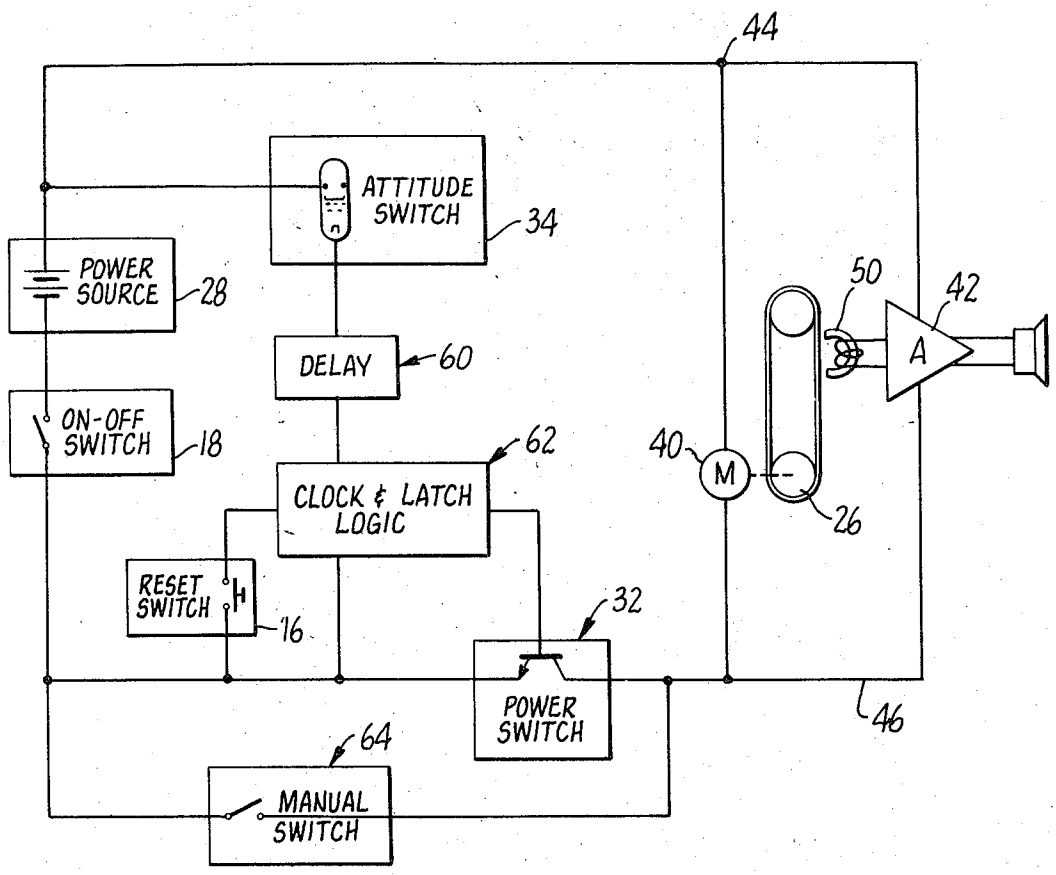
919,765	2/1963	Great Britain	340/279

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Attorney, Agent, or Firm—Naylor, Neal & Uilkema

[57] **ABSTRACT**

An improvement over the device disclosed in U.S. Pat. No. 3,634,885 consisting of the incorporation into the control circuitry of time delay means serving to delay activation of the message playback means for a predetermined time after the attitude switch has become closed due to collapse or seizure of the wearer of the device. Included in the improved control system is a manually operable switch permitting the wearer or user of the device to bypass the delay circuit and thereby instantly activate the device in the event that he senses that a blackout or loss of ability to personally communicate is imminent.

3 Claims, 2 Drawing Figures



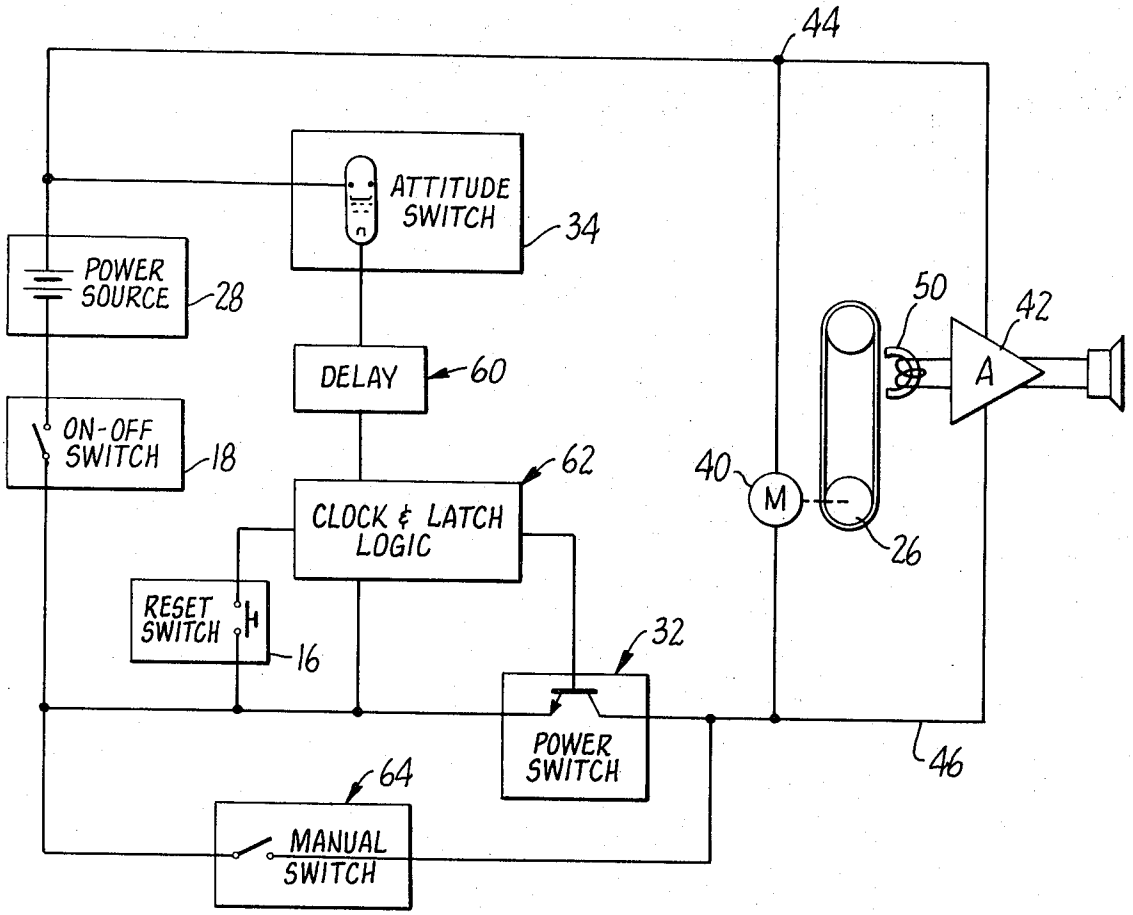

44
ATTITUDE SWITCH
34
POWER SOURCE
28
DELAY
60
ON-OFF SWITCH
18
62
CLOCK & LATCH LOGIC
RESET SWITCH
16
32
POWER SWITCH
46
64
MANUAL SWITCH
50
42
A
40
M
26

FIG. 1.

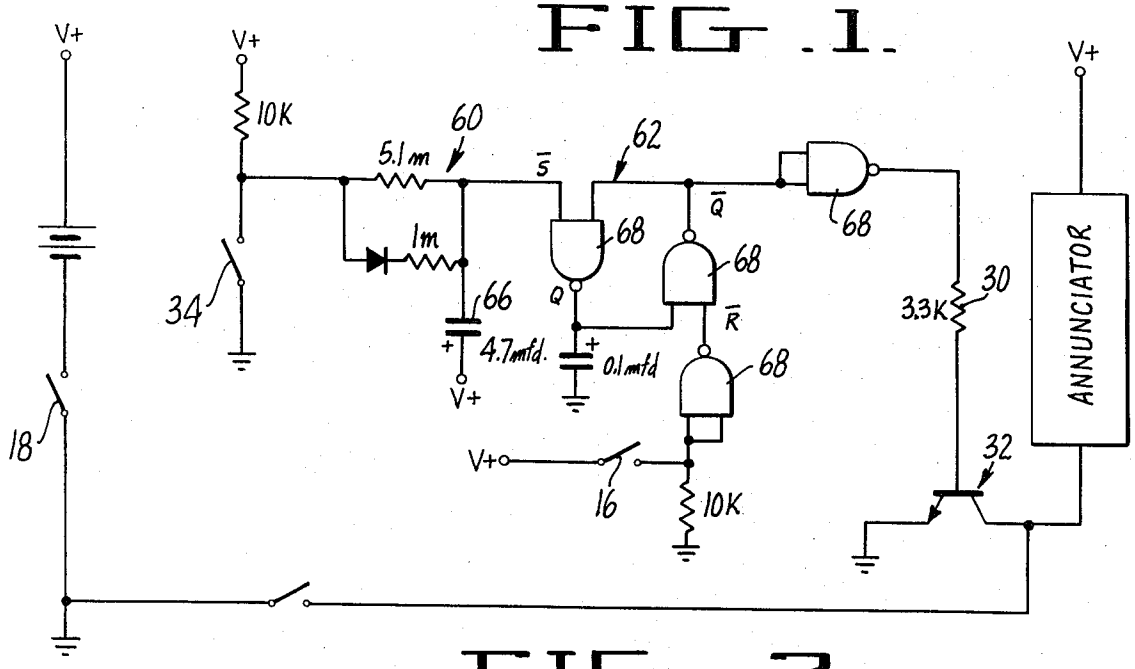

V+
10K
60
5.1m
$\overline{S}$
62
1m
68
$\overline{Q}$
68
34
66
Q
68
$\overline{R}$
4.7mfd.
0.1mfd
68
V+
V+
16
10K
3.3K
30
ANNUNCIATOR
32
18

FIG. 2.

ELECTRONIC MEDICAL WARNING DEVICE

Various objects and advantages of the invention will be apparent from the following description taken in conjunction with the drawing forming part of this specification, and in which:

FIG. **1** is a block-schematic showing of a preferred embodiment of the improvement of the invention.

FIG. **2** is a circuit diagram of the invention.

The disclosure set forth in U.S. Pat. No. 3,634,885 is hereby incorported herein by reference. In FIG. **1**, components corresponding to those of the drawings of U.S. Pat. No. 3,634,885 are identified by the same reference numbers. A comparison of present FIG. **1** with FIG. **4** of U.S. Pat No. 3,634,885 will indicate that the former differs from the latter in embodying (1) delay means **60** and clock and latch logic means **62** between the attitude switch **34** and the latching relay or power switch **32** and (2) a manual switch **64** whereby the attitude sensing, the delay and the clock and latching circuitry may be bypassed when the wearer or user of the device senses an imminent state of seizure or blackout.

The delay means **60** includes a timing capacitor **66** adapted to be charged and provide an output signal to the clock and latch logic means **62** a predetermined time, say **20** seconds, after the closing of the attitude or mercury switch **34.** Thereafter the nand gates **68** of the clock and latch logic means **62** serve to cause the closing of the latching relay or power switch **32** and thereby actuate the motor drive **40** and the annunciator of the warning message.

As previously, the on-off switch **18** is preset to the closed position. Closing of switch **64,** as previously stated, then connects the battery **28** directly with the drive motor **40.**

Other trip logic means may be readily employed. For instance, the time delay and power switch tripping circuit may comprise a resistance capacitance set, for example, at 20 seconds, clock means to measure the length of the pulse, pulse-length responsive means operable upon the occurrence of a flip-flop going high to turn on the power transitor and enable the driving of a load of 7 – 8 or 9 volts at 150 ma. Such circuitry may be incorporated into the logic system to enable the connection of power to standby logic for as long as the shelf life of the battery, i.e., without measurable current drain.

The trip logic system, i.e., the built-in predetermined time delay system between the closing of the attitude switch and the actuation of the annunciator, serves to prevent actuation of the annunciator due to mere splash-bridging of the contacts of the exemplary mercury type attitude switch and serves to prevent such actuation when, for example, the wearer slides headlong into third base unless of course he fails to arise within the programmed allotted time.

What is claimed is:

1. A warning device to be attached to a person prone to incapacitating medical conditions or prostrating seizures comprising a warning signal annunciator which when activated repeatedly emits a recorded verbal message to inform bystanders of the nature of such person's condition or seizure and how he is to be treated prior to the arrival of medical aid, a power supply for the annunciator, and control means to connect the power supply with the annunciator, said control means comprising sensing means operable to sense the existence of a supine or non-erect position of the wearer of the device and to transmit a signal only during the time the wearer is in such position, a switch operable upon closure to connect the power supply to the annunciator despite a subsequent change in the wearer's position from supine to a normal one, and time delay means to receive said signal and in response to the receipt of said signal for a predetermined period of time to close said switch.

2. The combination of claim **1** including a manual switch connected in parallel to said first-mentioned switch and operable upon being closed to connect the power supply to the annunciator in bypassed relation to said control means.

3. A warning device to be attached to a person prone to incapacitating medical conditions or prostrating seizures comprising a warning signal annunciator which when activated repeatedly broadcasts a prerecorded message to inform bystanders of the nature of such person's condition or seizure and how he is to be treated prior to the arrival of medical aid, a power supply therefor, attitude-sensing means, switch means to connect the power supply to the annunciator, and time delay means operable in response to the sensing of an attitude by said sensing means for a predetermined period of time to operate the switch means.

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