

[54] SAFEGUARD SENTRY

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[52] U.S. Cl. 325/303; 324/466; 343/205

[51] Int. Cl.² H04B 7/08

[58] Field of Search 325/302, 303, 390, 392, 325/393, 395, 466, 305; 343/225, 228, 205; 340/224

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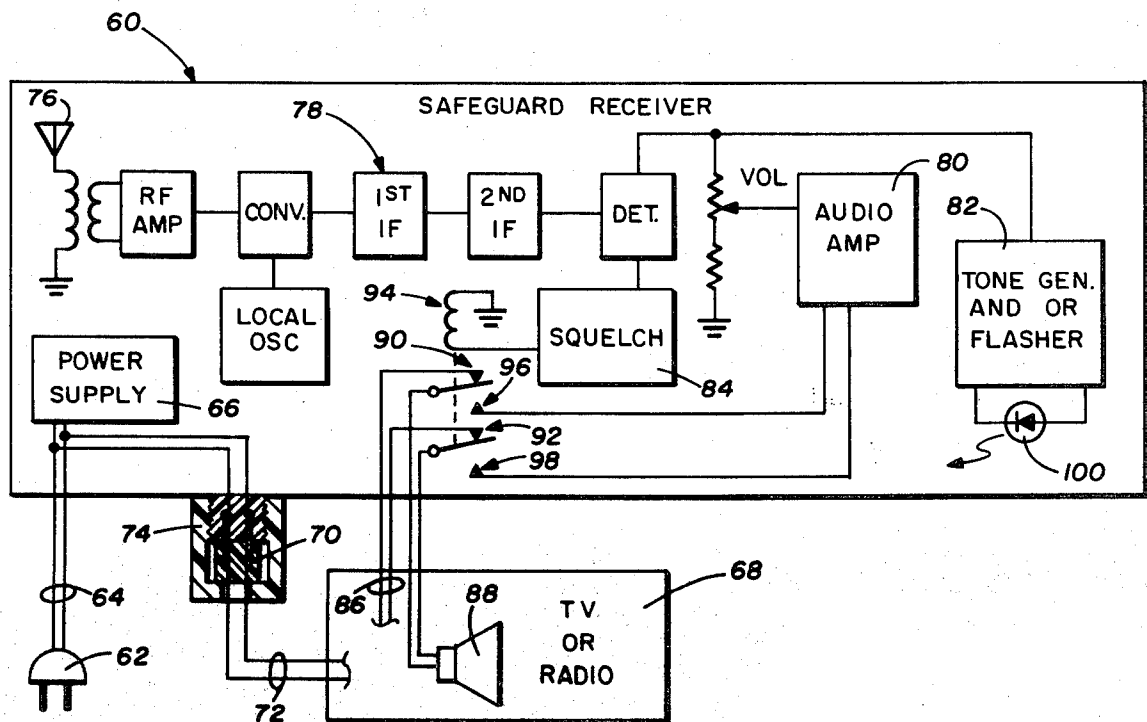
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[57]

ABSTRACT

A safeguard sentry for attachment to a radio or television receiving set comprises a receiver independent of the receiving set and responsive to a single predetermined emergency frequency. In one embodiment of the invention, the safeguard sentry is connected between the cut-off switch and the speaker of the receiving set, so that the safeguard sentry is energized when the receiving set is de-energized, and vice versa. In another embodiment of the invention, the safeguard sentry includes a switch which functions in one mode to couple speaker to the safeguard sentry, and in another mode to connect operating power to the receiving set, to couple the speaker of the receiving set to the safeguard sentry, and to activate a visual signaling device. In still another embodiment of the invention, the receipt of an emergency signal by the safeguard sentry activates circuitry which mutes the audio output of the receiving set and simultaneously connects the safeguard sentry to the speaker of the receiving set. Receipt of the emergency signal may also be used to actuate an internal emergency tone signal generator and/or a visual emergency signal apparatus. In all instances in which an audible signal is generated, the safeguard sentry of the present invention produces an output having at least a predetermined volume.

5 Claims, 6 Drawing Figures



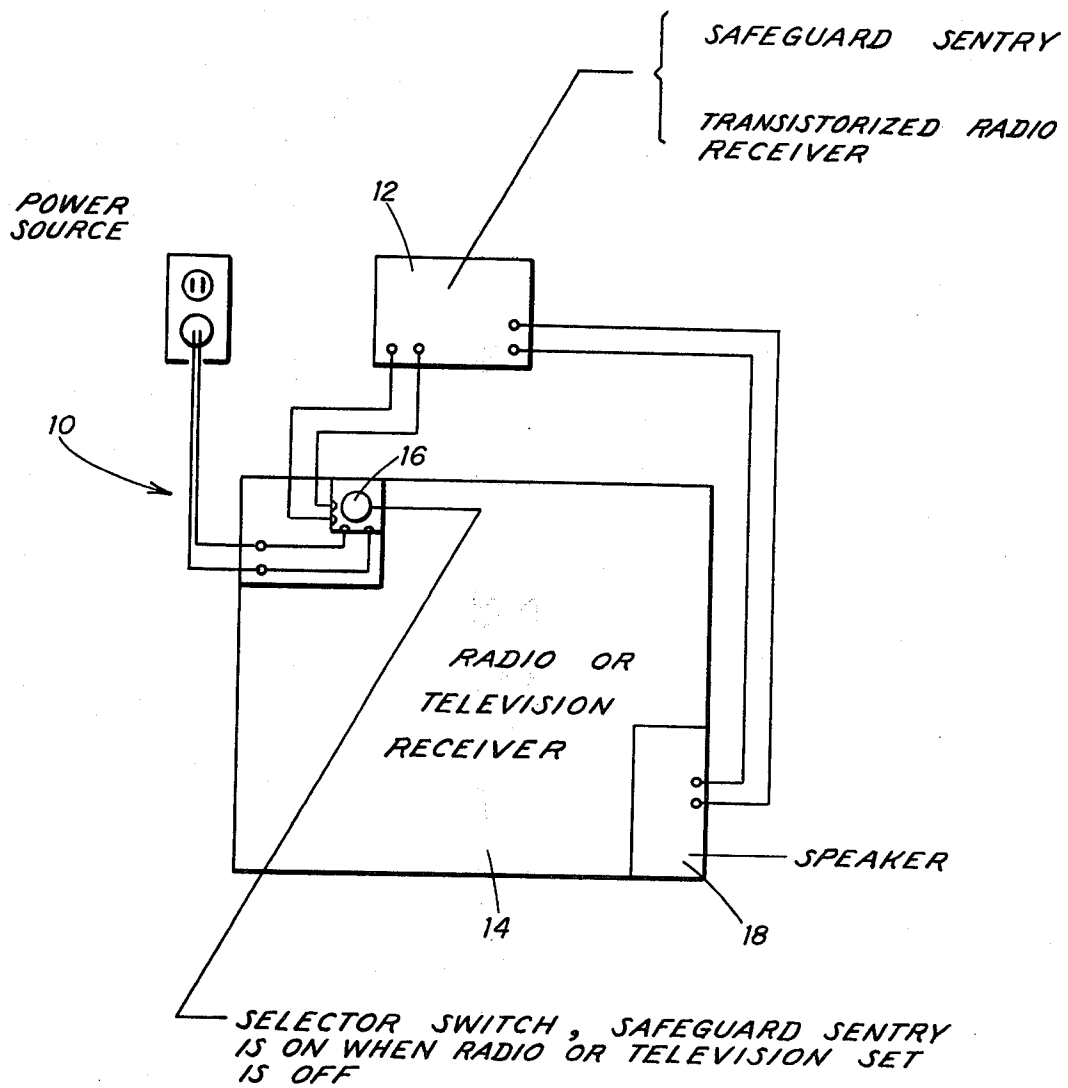


FIG. 1

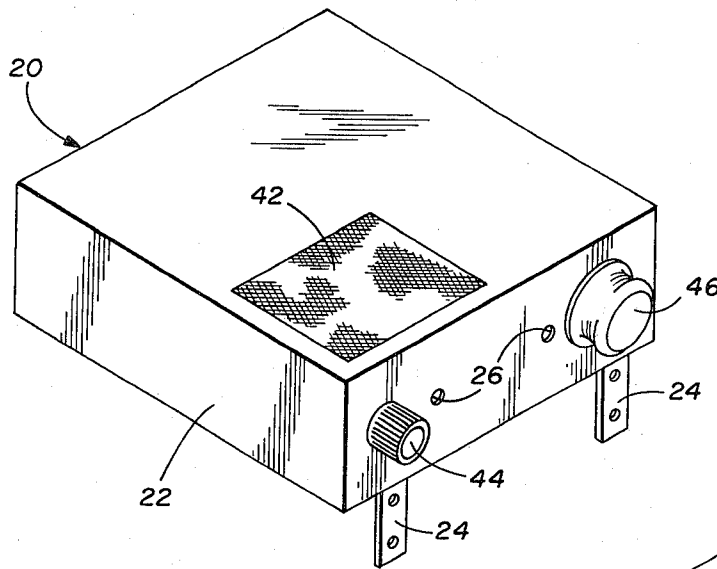


FIG. 2

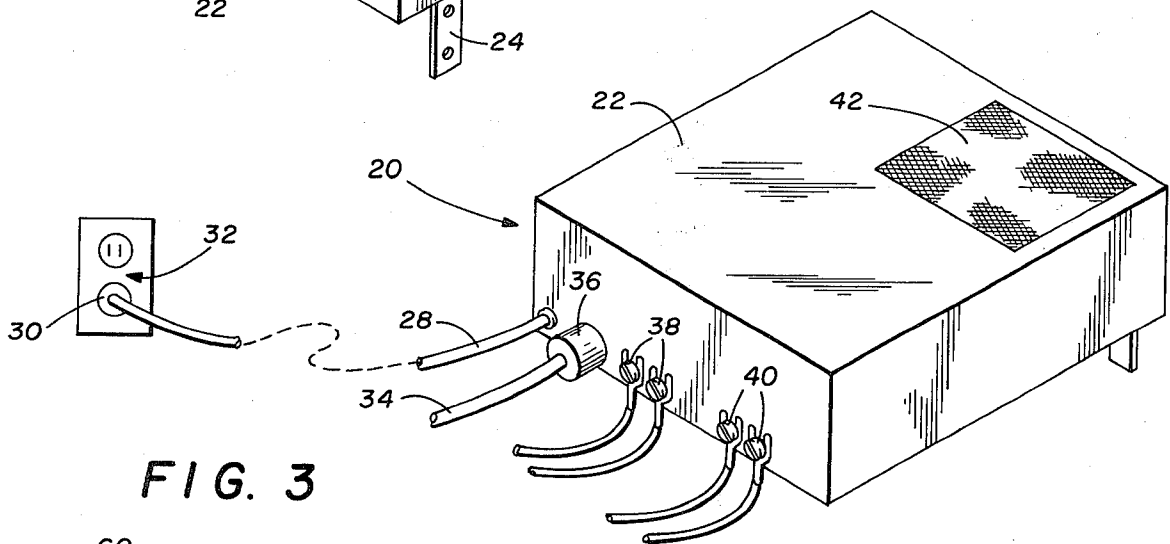


FIG. 3

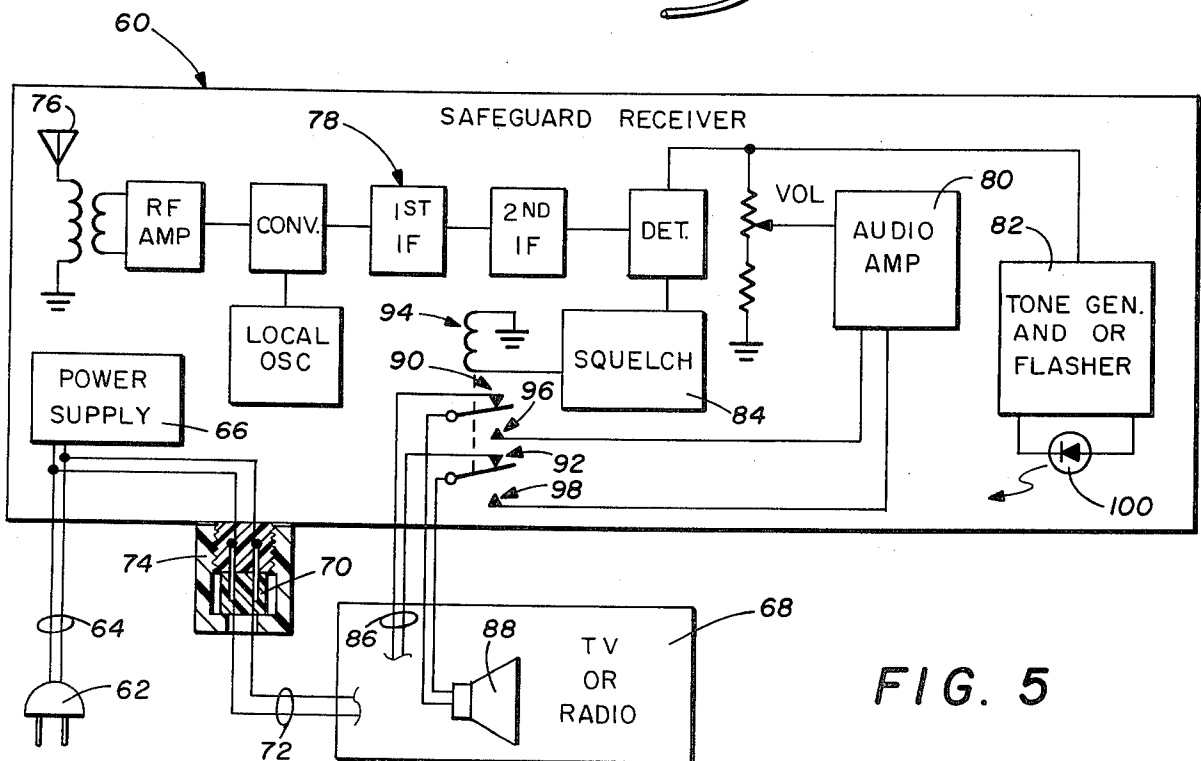


FIG. 5

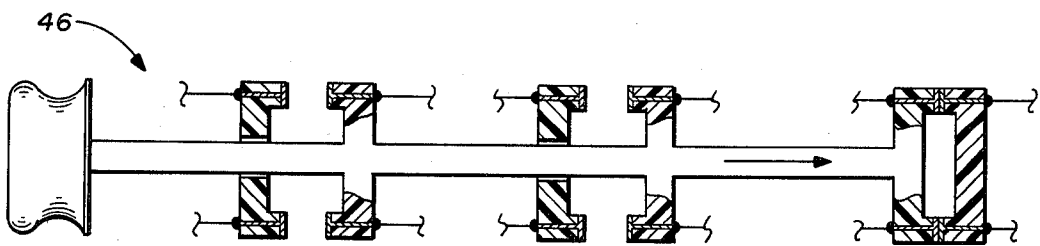


FIG. 4A

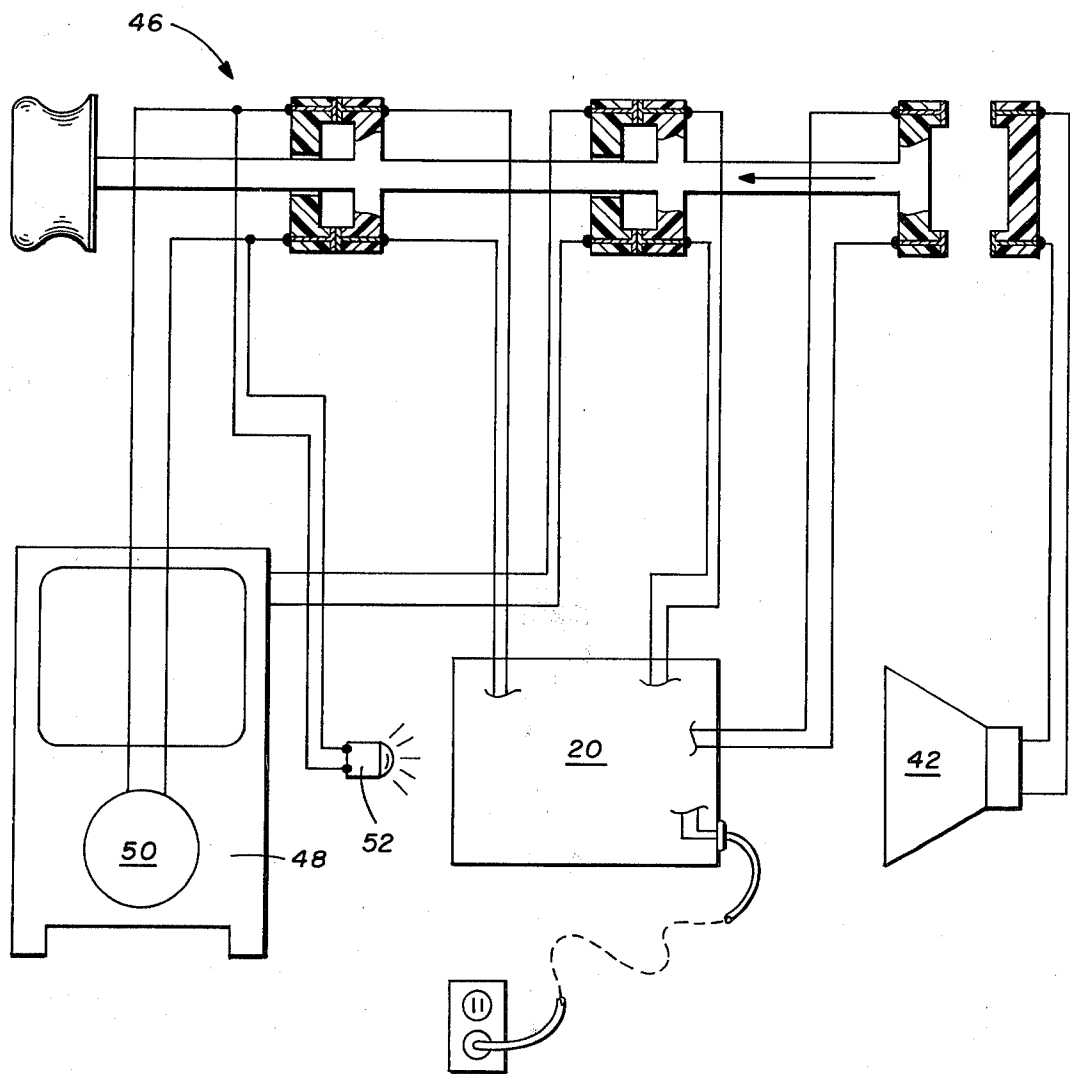


FIG. 4B

SAFEGUARD SENTRY

CROSS REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of co-
pending application Ser. No. 17,418, filed Mar. 9,
1970, for SAFEGUARD SENTRY SIGNAL DEVICE.

BACKGROUND AND SUMMARY OF THE
INVENTION

This invention relates to an improved safeguard sentry,
and more particularly to radio receiving apparatus
adapted for attachment to a conventional radio or tele-
vision receiving set to facilitate emergency communi-
cations.

The improved safeguard sentry of the present inven-
tion is for the purpose of obtaining immediate emer-
gency communication with the populace of the United
States. The invention is therefore useful in warning of
tornadoes, hurricanes, or other capriciousness of ele-
ments of nature; in warning of threat of or actual attack
by foreign enemies; to advise of threats from public en-
emies; in deterrence of crime; and especially in the
practicing of Civil Defense exercises.

In practice, the safeguard sentry would be placed on
all newly manufactured radio and television sets as a
normal process during their manufacture. Apparatus
incorporating the same operating principles will be
available for installation on existing radio and televi-
sion receivers.

The improved safeguard sentry is an electronic de-
vice consisting entirely of transistorized and compact
circuitry. It is a transistorized radio receiver responsive
to a predetermined emergency frequency, and will re-
ceive only this signal as broadcast or transmitted. When
the emergency signal is received it is as an electronic
tone, beep, squeal, voice, or other signal that is re-
ceived and amplified, and emitted from the speaker of
the radio or television set to which it is applied, said sig-
nal having at least a predetermined volume.

In one embodiment the safeguard sentry is "power
on" at all times when the radio or television is switched
to the "off" position, thus requiring no conscious act to
place it in operation. When the power switch of the
radio or television is turned to "off" position, the safe-
guard sentry is alert and at work, thus assuring an avail-
able audience 24 hours a day. When the power switch
of the radio or television is turned to "on" position, this
cuts off the power to the safeguard sentry.

As an example, the proper authority may broadcast
the emergency signal above-described, and the safe-
guard sentry immediately begins to emit the signal,
which may be a "squeal". The owner of the radio or tele-
vision set then turns the set "on" to receive the broad-
cast instructions from the authority, and through this
act simultaneously turns off the squeal or signal. If no
one is in "ear shot" of the signal it simply continues
until the emergency signal ceases, and stops, neither
disturbing nor advising anyone, and damaging or harm-
ing nothing.

The service which may be rendered by the safeguard
sentry of the invention should be appreciated and in de-
mand in the event of any form of enemy attack, such
as the approach or imminence of assault by plane or
missile, to serve in keeping an evenly informed public,
to rally forces, and above all to help forestall panic, one
of the most grave threats to be faced by "at home
America".

In another embodiment the safeguard sentry includes
a switch having two operating modes. In one mode the
switch connects the safeguard sentry to a speaker
which may comprise an internal speaker. In the other
operating mode, the switch of the safeguard sentry con-
nects operating power to the receiving set. In this mode
the switch also connects the output of the safeguard
sentry to the speaker of the receiving set and enables
a visual signaling apparatus. The visual signaling appa-
ratus is actuated in response to the receipt of an emer-
gency signal by the safeguard sentry, and functions to
warn both deaf persons and persons in a high back-
ground noise environment. Regardless of the operating
mode, the safeguard sentry includes a volume control
which prevents the audible output of the apparatus
from being reduced below a predetermined level.

In still another embodiment the safeguard sentry in-
cludes circuitry responsive to the receipt of an emer-
gency signal by the safeguard sentry to mute the
speaker of the receiving set. This embodiment may fur-
ther include apparatus for generating an internal tone
signal and/or a visual output in response to receipt of
the emergency signal by the safeguard sentry. Regard-
less of whether the emergency signal is reproduced or
an internal tone signal is generated, the audible portion
of the warning signal provided by the third embodiment
of the invention has at least a predetermined volume.

DESCRIPTION OF THE DRAWINGS

A more complete understanding of the invention may
be had by referring to the following Detailed Descrip-
tion when taken in conjunction with the accompanying
Drawings, wherein:

FIG. 1 is a somewhat diagrammatic illustration of a
safeguard sentry incorporating a first embodiment of
the invention;

FIG. 2 is a front perspective view of a safeguard sen-
try incorporating a second embodiment of the inven-
tion;

FIG. 3 is a rear perspective view of the embodiment
illustrated in FIG. 2;

FIGS. 4a and 4b are illustrations of a switch utilized
in the embodiment of the invention shown in FIGS. 2
and 3; and

FIG. 5 is a schematic illustration of a safeguard sentry
incorporating a third embodiment of the invention.

DETAILED DESCRIPTION

Referring now to the Drawings, and particularly to
FIG. 1 thereof, there is shown a safeguard sentry 10 in-
corporating a first embodiment of the invention. The
safeguard sentry 10 comprises a radio receiver 12 re-
sponsive to a predetermined emergency frequency to
emit a tone, beep, squeal or other signal and is utilized
in conjunction with a conventional radio or television
receiving set 14 having the usual cut-off switch 16 and
speaker 18. The safeguard sentry 10 comprising the
first embodiment of the invention may be constructed
similarly to radio paging devices presently in commer-
cial use, and preferably comprises a transistorized radio
receiver tuned to a predetermined frequency and char-
acterized by extremely low current requirements. In ac-
cordance with the first embodiment, the safeguard sen-
try operates from the same power source as the receiv-
ing set which may comprise 115 volt, 60 hz line cur-
rent, for example.

In accordance with the first embodiment of the invention, the safeguard sentry 10 is operatively connected to the cut-off switch 16 and the speaker 18 of the receiving set 14, it being understood that these two components are common both to the receiving set and to the safeguard sentry. The cut-off switch is operable as a selector or transfer switch, whereby either the receiving set 14 or the receiver 12 is continuously in operation depending on the position of the switch. Stated another way, the safeguard sentry is turned "on" at all times when the receiving set is turned "off", and the safeguard sentry is turned "off", at all times when the receiving set is turned "on". It will thus be understood that in accordance with the first embodiment of the invention the safeguard sentry operates "out of phase" with the radio or television receiving set. By this means whenever the receiving set is "off" the safeguard sentry is available to receive an emergency signal and to generate an audible reproduction thereof. This in turn advises persons in the vicinity of the receiving set to turn the receiving set "on", whereby emergency broadcast information is received by means of conventional broadcast communications. The safeguard sentry is turned "off" whenever the receiving set is "on" to prevent interference from the emergency signal with the emergency broadcast information, and to conserve power.

An important feature of the safeguard sentry 10 comprises the fact that whereas the receiver 12 may be provided with a suitable volume control, such control does not permit the output voltage produced by the receiver 12 in response to receipt of a signal at the emergency frequency to be reduced below a predetermined magnitude. This assures that the speaker 18 of the receiving set 14 will be actuated to produce an audible warning having at least a predetermined volume.

Referring now to FIGS. 2 and 3, a safeguard sentry 20 comprising a second embodiment of the invention is shown. The safeguard sentry 20 includes a cabinet 22 which is preferably formed from metal or one of the tough plastic materials so as to prevent access to the component parts of the safeguard sentry 20 by unauthorized persons. The cabinet 22 may be provided with conventional brackets 24 and/or conventional attachment holes 26, whereby the safeguard sentry 20 is secured to the cabinet of a radio or television receiving set, or in any other convenient location.

Referring particularly to FIG. 3, operating power for the safeguard sentry is supplied by means of a power cord 28 and a plug 30 which engages a conventional convenience outlet 32. The safeguard sentry 20 in turn supplies operating power to the receiving set by means of a cord 34. The cord 34 is connected to the cabinet 22 of the safeguard sentry by means of a special connector 36 which prevents disengagement of the cord 34 from the cabinet 22. The safeguard sentry 20 further includes output jacks 38 for connection to the speaker of the receiving set and output jacks 40 for connection to the visual signaling apparatus.

Referring again to FIG. 2, the safeguard sentry 20 may be provided with an internal speaker 42. Regardless of whether the speaker 42 is used, a volume control 44 is provided in the safeguard sentry 20. The volume control 44 permits any desired increase in volume up to a predetermined maximum, but prevents reduction in volume below a predetermined minimum, thereby preventing disabling of the safeguard sentry 20 by

means of the volume control 44. The safeguard sentry 20 further includes a control switch 46.

The control switch 46 of the safeguard sentry 20 has two operating modes which are illustrated in FIGS. 4a and 4b, respectively. In one operating mode the switch 46 connects the output of the safeguard sentry 20 to the internal speaker 42. In this operating mode, an emergency signal received by the safeguard sentry 20 is reproduced directly thereby.

In the other operating mode, the switch 46 connects operating power from the safeguard sentry 20 to a radio or television receiving set 48. In this mode the switch 46 also connects the output of the safeguard sentry 20 to a speaker 50 mounted within the receiving set 48 and to a visual signaling apparatus 52. The visual signaling apparatus 52 preferably comprises a light emitting diode (LED) or similar electronic component having an extended operating life, and functions to provide an emergency warning signal to deaf persons and/or persons who may be situated in a high background noise environment.

It will thus be understood that the safeguard sentry 20 differs from the safeguard sentry 10 in that the safeguard sentry 20 is continuously in the "on" condition. When the control switch 46 of the safeguard sentry 20 is in one operating mode, the safeguard sentry 20 reproduces an emergency signal through the internal speaker 42. When the switch 46 is in the other operating mode, operating power is directed to the associated receiving set and the emergency signal is generated through the speaker of the receiving set. The safeguard sentry 20 is further adapted to provide a visual emergency signal.

A safeguard sentry 60 comprising a third embodiment of the invention is illustrated in FIG. 5. Operating power for the safeguard sentry 60 is received from a conventional convenience outlet through a plug 62 and a cord 64. The cord 64 extends to a conventional power supply circuit 66 which functions to supply operating power for the remaining components of the apparatus.

Operating power is also supplied from the safeguard sentry 60 to a radio or television receiving set 68. The receiving set 68 is connected to the safeguard sentry 60 by means of a plug 70 and a cord 72. The plug 70 is secured by a threaded fitting 74 which is so constructed that it cannot be disassembled without destroying the plug 70. By this means disengagement of the electrical connection from the receiving set 68 to the safeguard sentry 60 by unauthorized persons is prevented.

The safeguard sentry 60 includes an antenna 76 and a single conversion heterodyne circuit 78 for receiving an emergency signal. The output of the circuit 78 actuates an audio amplifier circuit 80 and a tone generator and/or flasher actuator circuit 82, thereby assuring operation of the safeguard sentry 60 in response to receipt of the emergency signal. The radio or television receiving set 68 includes conventional circuitry 86 for generating an audible output through a speaker 88. This circuitry is normally connected to the speaker 88 through normally closed contact pairs 90 and 92 located within the safeguard sentry 60. Upon receipt of an emergency signal, the safeguard sentry 60, by means of a squelch circuit 84, energizes a relay 94 which functions to open the contact pairs 90 and 92 and to close two normally open contact pairs 96 and 98. By this means the audible output from the receiving set 68 is immediately muted,

and the speaker 88 of the receiving set is coupled to the audio amplifier circuitry 80 of the safeguard sentry. The emergency signal received by the safeguard sentry 60 is thereupon reproduced through the speaker 88 of the receiving set 68.

It will be understood that in addition to reproducing the emergency signal through the speaker 88, the receipt of the emergency signal by the safeguard 60 may be utilized to actuate the tone generator and/or flasher actuator circuit 82 to produce an internally generated audible alarm signal. The circuit 82 may also actuate apparatus 100 for producing a visual emergency signal. As has been explained previously, the apparatus 100 preferably comprises a light emitting diode (LED) or similar electronic component designed to provide an extended service life.

The use of the safeguard sentry 60 produces a visual emergency signal which is primarily for the purpose of emergency communications with deaf persons and/or persons situated in a high background noise environment. To this end, the visual signal generating apparatus 100 may be located at a convenient point on the receiving set 68, or at any other location whereupon it will be readily visible to persons in the vicinity of the safeguard sentry 60. It is assumed that upon receiving the emergency signal by means of the apparatus 100, such persons would turn to the receiving set 68 or other apparatus to ascertain the precise nature of the emergency condition.

The safeguard sentry 60 also produces an audible emergency signal, either by reproducing the received emergency signal through the speaker 88 of the receiving set 68, or by means of the circuit 82, or both. Regardless of the mode used to produce the audible signal, the safeguard sentry 60 is preferably so designed that the volume of the audible signal cannot be reduced below a predetermined level. In the case of the circuit 82, a predetermined fixed volume can be used, if desired. In the case of the audio amplifier circuit 80, it is so constructed that the voltage output produced thereby has at least a predetermined magnitude, thereby assuring actuation of the speaker of the receiving set to produce an audible warning signal having at least a predetermined volume.

Those skilled in the art will appreciate the fact that whereas three distinct embodiments of the safeguard sentry have been illustrated in the accompanying Drawings and described herein, the three embodiments incorporate various features in common, all of which are very important to the present invention. Perhaps most importantly, all of the embodiments contemplate the use of transistorized receiver circuitry responsive to a single, predetermined emergency frequency and entirely independent of the circuitry of the associated receiving set. This is important because it facilitates both optimization of the design of the emergency frequency receiving circuitry and optimization of the design of the circuitry of the broadcast receiving set. Moreover, the use of entirely separate circuitry for the receiving set and the emergency frequency receiver does not increase the overall costs involved in the use of the invention due to the fact that by means of modern MOS and similar technologies, a single, uniform design emergency frequency receiver can be manufactured at considerably less cost than would be incurred in incorporating emergency frequency receiver circuitry into the design of each new receiving set.

It will be further appreciated that various modifications can be made to the various specific embodiments of the safeguard sentry which have been illustrated in the Drawings. For example, the safeguard sentry 60 illustrated in FIG. 5 is readily adapted for use in automobiles or other vehicles. In such instances the safeguard sentry is modified for actuation by the electrical system of the vehicle, and for use in conjunction with the speaker of the radio receiver of the vehicle. Moreover, the safeguard sentry is connected in series with the ignition switch of the vehicle so that the safeguard sentry is "on" whenever the vehicle is in use, and is "off" whenever the vehicle is out of service. By this means the safeguard sentry is constantly available to provide emergency communications whenever an operator is situated in or around the vehicle, but does not drain power from the battery of the vehicle when the vehicle is out of service. Similar modifications can be made in the safeguard sentry to permit utilization of the invention in conjunction with portable radios, and the like.

From the foregoing it will be understood that the present invention relates to a safeguard sentry adapted to provide emergency communications with the citizenry of the United States. The use of the invention is highly advantageous in that the safeguard sentry comprises a transistorized radio receiver responsive to a particular emergency frequency and having very low power requirements. It will thus be understood that the safeguard sentry comprises a highly reliable, economical and thoroughly dependable emergency communication system. Moreover, the safeguard sentry of the present invention is adapted not only for incorporation into newly manufactured radio and television receiving sets, but also as an attachment to existing receiving sets.

Although preferred embodiments of the invention have been illustrated in the accompanying Drawings and described in the foregoing Detailed Description, it will be understood that the invention is not limited to the embodiments disclosed, but is capable of numerous rearrangements, modifications, and substitutions of parts and elements without departing from the spirit of the invention.

What is claimed is:

1. Safeguard sentry circuitry which is continually energized to receive transmitted emergency information, comprising:

a tunable receiving set having a speaker connected thereto for producing an audible output, said tunable receiving set being tunable to any desired carrier frequency within its tuning range for providing ordinary programming audio output at said speaker;

an emergency signal receiver means independent of said tunable receiving set and being pretuned to a single predetermined emergency carrier frequency, said emergency signal receiver having radio-frequency and audio-frequency stages entirely distinct from those of said tunable receiving set for converting a received modulated emergency transmission at said predetermined carrier frequency into a corresponding audio-frequency output; and means for coupling said speaker of said tunable receiving set to the output of said emergency signal receiver means, said coupling means being operative to couple said speaker to the output of said emergency signal receiver means during the recep-

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tion of any such audio frequency output irrespective of the frequency of the modulation of such emergency transmission signal and the corresponding frequency of such audio output of said emergency signal receiver.

2. The safeguard sentry circuitry of claim 1, further comprising manual switching means for alternatively energizing said emergency signal receiver means and said tunable receiving set such that said emergency signal receiver is energized whenever said tunable receiving set is deenergized and vice versa.

3. The safeguard sentry circuitry of claim 1, further comprising manual switching means associated with said emergency signal receiver means for selectively energizing said tunable set while simultaneously continuously providing energy to said emergency signal receiver such that said emergency signal receiver is energized independent of said tunable receiving set.

4. The safeguard sentry circuitry of claim 1, further comprising means for automatically muting the audio output of said tunable receiving set upon the reception of a modulated emergency transmission by said emergency signal receiver.

5. Safeguard sentry circuitry for producing an audible alarm signal upon receipt of a predetermined emergency frequency signal, comprising:

a tunable receiving set having a speaker connected

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thereto for producing an audible output, said tunable receiving set being tunable to any desired carrier frequency within its tuning range for providing ordinary programming audio output at said speaker;

an emergency signal receiver means independent of said receiving set and being pretuned to a single predetermined emergency carrier frequency, said emergency signal receiver having radio-frequency and audio-frequency stages entirely distinct from those of said tunable receiving set for converting a received modulated emergency transmission at said predetermined carrier frequency into a corresponding audio-frequency output of at least a predetermined amplitude; and

means for coupling said speaker of said tunable receiving set to the output of said emergency signal receiver means to produce an audible alarm signal of at least a predetermined volume, said coupling means being operative to couple said speaker to the output of said emergency signal receiver means during the reception of any such audio frequency output irrespective of the frequency of modulation of such emergency transmission signal and the corresponding frequency of such audio output of said emergency signal receiver.

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