

Home Disaster Monitor Alert System

Ref# 7997.0100

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Self-Contained Sensor Station for Monitoring Disaster Conditions and Sending Alerts To Residents Who Have Evacuated Their Home

Review of Non-Final Office Action dated 07/16/2021

In the office action all claims were rejected under sections 102 and 103. Three patents are referenced predating my application.

Referenced Patent: Balaji "fire detection device and notification system"

summary:

this is a fire detection device which employs a suite of sensors in a self-contained device. The sensor box is deployed in a forested area and networks with other sensors in the area. Alerts are sent to users when a fire is detected.

reasons for rejection:

the referenced patent teaches how to make my device. my device has a plurality of sensors, employs networking, and alerts the user if an event is detected by the controller. my device employs a fire sensor, a gas detector, a radiation detector, antennas, a selection button, wi-fi communication, a battery backup power supply and has near-field communication (bluetooth). It allows for user input of environmental thresholds for alerting. It can alert the user by a number of means including internet and text message (SMS). It contains a location sensor (GPS). ***All of these elements are present in "Balaji" fire detection device.***

discussion:

it seems that the examiner is asserting that any sensor station with networking and the ability to alert users of environmental conditions is covered by "Balaji". I do not agree with this assertion because self-contained weather stations were being deployed as early as the '70s and networked together in the '90s. further, once the internet was widely available the outputs of these stations were put on-line. Clearly the "Balaji" patent does not cover ANY sensor set used to detect ANY environmental condition and alert users by ANY means. after carefully reading the claims I noticed the the phrase "fire detection device" is used in each claim. my device detects disaster conditions which have led to a home being destroyed or rendered uninhabitable. in the case of

my device's temperature sensor, it is not detecting a fire as much as it is trying to determine when the building it is in is about to be completely destroyed by fire.

clarification:

"Baliji" fire detection device has the following sensors:

a temperature sensor to detect nearby fires, a flame detector to sense fires visible to the device, gas detectors to look for gases that are the product of combustion, and a radiation detector for small increases in radiation that can occur during forest fires. all of these sensors are directed toward early fire detection.

my disaster detector has the following sensors:

a temperature sensor to detect when a fire has consumed, or will imminently consume, the building the device is located within. it does not alert on nearby fires such as a neighbor's house burning or a nearby forest fire.

gas detectors configured to detect hazardous gas leaks and spills not combustion products. it is designed to only alert on gases such as liquid propane, methane and other industrial gases while ignoring the combustion product gases that will result from nearby fires.

a radiation detector (geiger counter) to detect large increases in radiation caused by "fallout". it does not alert when there are small increases in radiation from fires, or even a nearby nuclear plant. it only triggers an alert when radioactive material (contaminated steam or hydrogen gas) lands on the building the device is in.

a GPS device for determining when a building is swept off of its foundation. the actual location of the device is unnecessary when detecting this type of disaster since a sudden change in location is what my device is using to trigger an alert.

"Baliji" fire detection device communicates by:

networking with other sensors in the area. and even though the fire detection device patent alludes to sending a text message as one possible way to alert a user it is not sufficiently detailed to determine if this is a 'direct' (from the device straight into the cellular phone system) or 'indirect' (through the network of sensors, onto the internet, and then into the cellular system) text message.

my disaster detector communicates by:

I make clear the difference between these direct and indirect SMS messages. "Baliji" is not sufficiently clear to know which method is employed but it does NOT contain a cellular modem in its system diagram. my description is clear and my system diagram shows a cellular modem which is required in order to generate 'direct' SMS messages. (note: I call text messages "SMS messages"). the difference is how the message moves from my device onto the cellular phone

system. my patent indicates that my device also might alert through a home wifi network but that is only a secondary method of alerting the user.

"Baliji" fire detection device deployment:

the device is said to allow rapid deployment but it does not specify the deployment sequence. in fact the term 'rapid' is a relative term. it can mean 'faster than typical' or it can mean 'in a short amount of time'. "Baliji" is not clear as to use of the term 'rapid' but obviously it needs the network information, what method of communication to use for alerts, and presumably other configuration data necessary to implement all of the features it talks about..

my disaster detector deployment:

is 'rapidly deployed' meaning in a 'short amount of time'. it only needs to be plugged in and then sent a single text message from any location that has cellular service. that's all that is needed to make the device fully operational. all other configuration parameters are optional and only used for secondary features such as uploading data onto the internet.

Referenced Patent: Ward "home flood prevention appliance"

summary:

this is an appliance to detect basement flooding and to then shutoff the water to the home. it employs water sensors to detect the flooding and a pump to remove the water if possible. it has a backup system to turn on the pump even if the system controller locks up or the water sensors fail.

reason for rejection:

"Ward" has a water leak detector based on dual float switches located within the appliance. It also specifies water level detection based on the same dual float switches.

"Ward" contains a plurality of water sensors, specifically 3 sensors. It has the dual float switches and a backup float valve. the float switches are used to turn on the sump pump under normal operation and the float valve activates the pump in the case of a power outage.

"Ward" contains a plurality of LED indicators.

"Ward" allows for system software upgrades by way of the wifi link to the internet.

discussion:

both devices contain a plurality of detectors for determining the level of water but they employ different methods of water sensing. these differences lead to completely different capabilities in detector sensitivity and the maximum number of water levels detected.

both devices include a plurality of LED indicators, as do many modern electronic devices.

both devices allow for software upgrades by way of the wifi, as do many modern electronic devices.

clarification:

"Ward" contains a water leak detector but not a method of detecting a 'trace' of water which is my way of saying a thin film of water on the floor. it would not be enough water to accumulate in the sump pit of the "Ward" appliance. instead my device presses 2 spring-loaded probes (a detector and the return) against the floor. a tiny amount of water, less than 1 mm, can be detected by my 'trace' water detector. i anticipate that a disaster like a hurricane could drive a small amount of water under a door because of the high winds (this actually happened in my home during Hurricane Irma).

"Ward" has floats for detecting water level and even though 3 sensors is technically a plurality my device contains 39 water level detectors. they are based on the conductivity of water, not mechanical floats. in my device, when water bridges between a water detector and the water sensor return it is effectively closing a switch. this closure is sensed by a circuit that generates an analog voltage proportional to the number of detectors currently covered with water. mechanical sensors are too large to incorporate this many levels of sensing and digital systems would need 39 discrete inputs which is also impractical in a micro-controller unit (MCU). it was my understanding that a circuit is usually not worth patenting; however, my method for allowing such a high number of water levels to be sensed in one analog signal is innovative and non-obvious, in my opinion.

Referenced Patent: Catlin "home and business monitoring system and methods"

summary:

this is also a detection device which employs a suite of sensors in a self-contained device. the sensor box is deployed in a home or business and monitors utilities and environment conditions at its location. sensor data is recorded, alerts are sent to users, shutoff of utilities may be performed either automatically or manually. automatic actions can be overridden. historical records are securely maintained and accessed. the communication methods are wifi and 'rtf' which it later clarifies as radio transmission frequency.

reason for rejection:

the examiner indicates that this device contains a seismic detector and GPS sensor which the other patents do not have. my device contains elements of all three of the referenced patents but this is the one that contains those two sensors in particular.

discussion:

this device is much closer to my home disaster detector than the "Baliji" fire detection device.
it's patent was issued later so I assume that's why it is used for later rejection reasons.

clarification:

"Catlin" monitoring system and method comprises everything the examiner is rejecting in my device. it's design is optimized for utility monitoring and control, detection of hazards such as radon and mold, and also some disaster conditions. in particular it looks for flooding but does not specify what type of flooding it expects. it does however state that the water utilities may be shutoff when flooding is detected so the implication is it is monitoring for plumbing leaks. it is not made clear.

I am not clear as to how to overcome this rejection. also it seems if we overcome the rejections based on "Baliji" by asserting it is not looking for home disasters we end up with "Catlin" being a basis for the same rejections. my reasons for disputing "Baliji" being a basis for rejection still hold up under "Catlin" in the areas of "direct SMS text message" and "rapid deployment".

differences between "Catlin" and my "Home Disaster Monitor and Alerting System"

"Catlin" is not optimized for disaster detection. it look for building 'habitability' whereas my device looks for building 'destruction'. my device does sometimes look at temporary habitability with the gas and seismic detectors. both of which are detecting transient conditions rather than home destruction.

"Catlin" does not contain a cellular modem so when it refers to sending a text message it must mean an 'indirect' text message through its wifi capability. the rtf appears to be for first-responder-type radio systems (I'm not sure of that).

"Catlin" does not fully specify its deployment and configuraton steps but it does require knowledge of a wifi network name and password, user names and passwords, building identification codes, access to utility control systems, and specific automatic signalling and response setup.

"Catlin" does not specify a battery backup power supply