

(43) Date of A Publication 25.01.1995

(21) Application No 9314931.8

(22) Date of Filing 19.07.1993

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(51) INT CL⁶

G08B 17/00 21/00

(52) UK CL (Edition N)

G4N NAA N6D4 N6D5
U1S S1930 S2166 S2192 S2199

(56) Documents Cited

GB 2236607 A GB 1589869 A WO 88/09025 A1
US 4611200 A US 4540980 A US 4419658 A
US 3717860 A

(58) Field of Search

UK CL (Edition L) **G4N NAA NCTX NET NHA**
INT CL⁵ **G08B 17/00 21/00**

(54) Portable rate of change of temperature detector

(57) The Detector comprises a ventilated case 1, power source, the means 2 for the detection of rate of change of temperature with audible and light signalling devices 3, 4, an escape lamp 6 which is activated upon the detection of rate of change of temperature or may be operated manually, a test switch 5 to confirm correct operation of the detector, a programmable digital alarm clock 8 with audible clock alarm device and an unfolding support or pivoting hook or other means enabling the Portable Rate of Change of Temperature Detector to be suspended from or affixed to a suitable point, an interconnect facility 9 enabling the Portable Rate of Change of Temperature Detector to be linked to other detectors or to a central communication and control system or other devices and a low battery warning signalling indication.

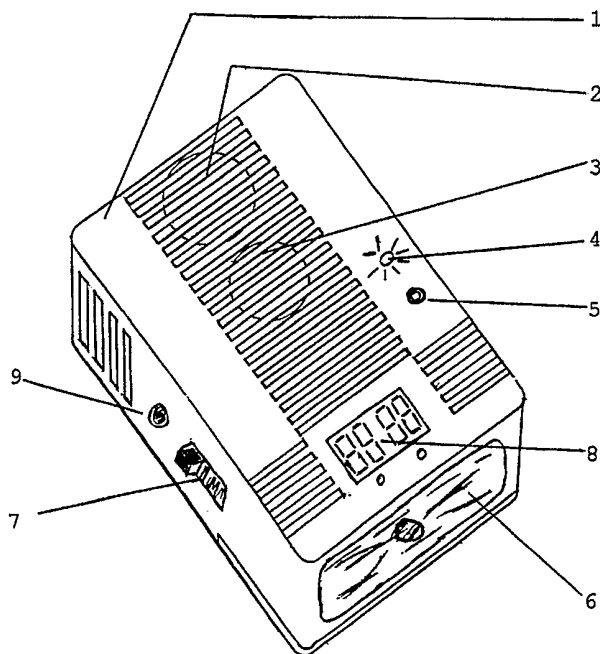


Figure 1

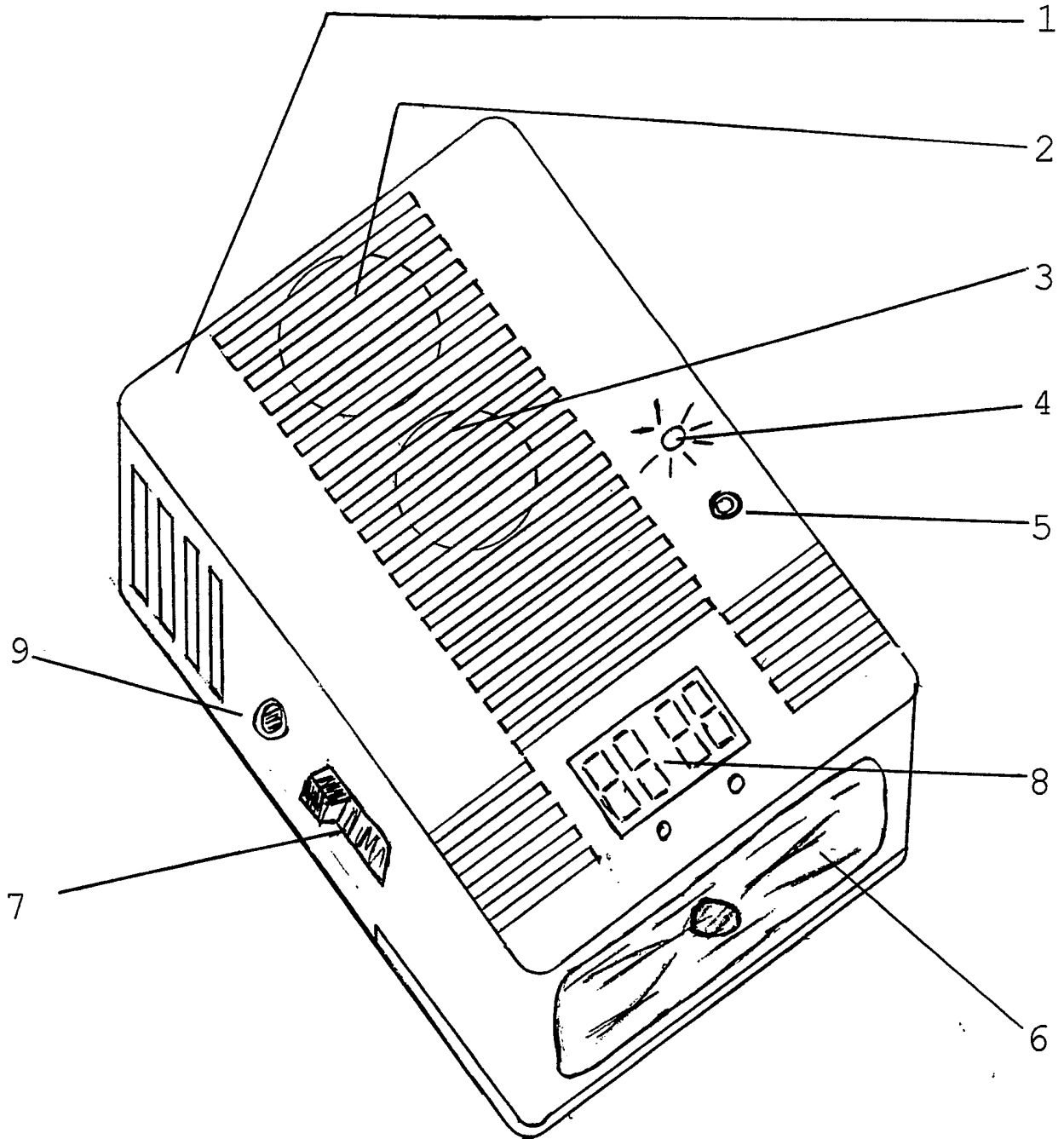


Figure 1

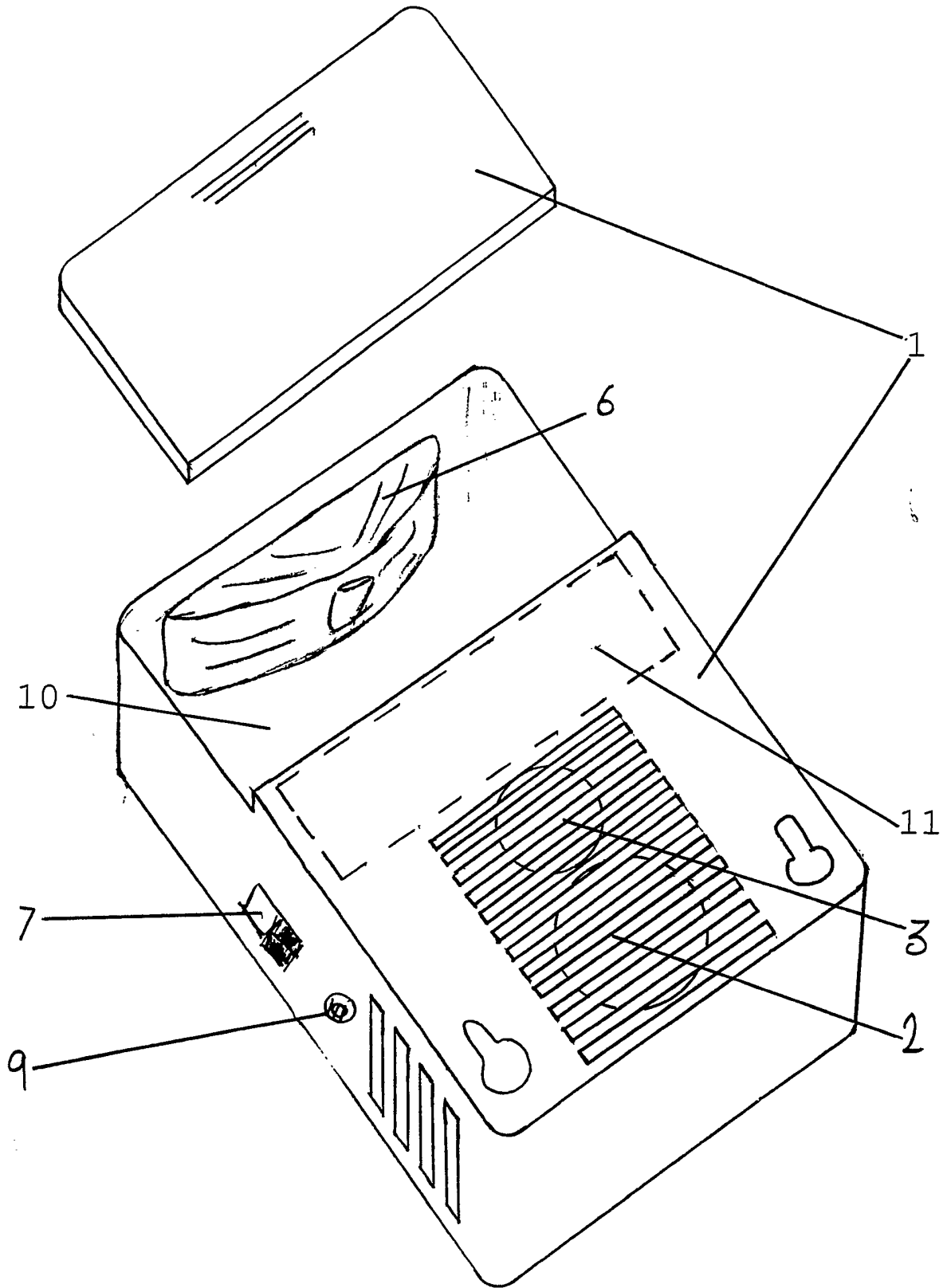


Figure 2

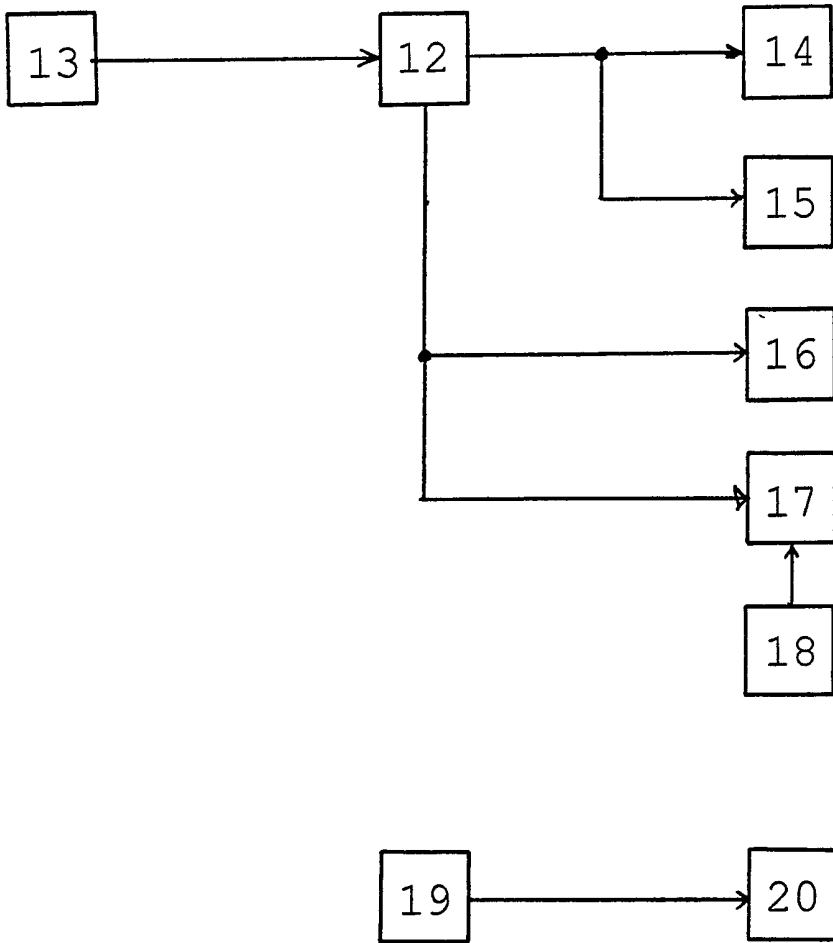


Figure 3

Portable Rate of Change of Temperature Detector

This invention relates to a portable rate of change of temperature detector.

Rate of change of temperature detectors are well known devices, available for use in commercial, industrial and domestic applications.

Commercial and industrial rate of change of temperature detectors operate as point or volumetric or ventilation duct mounted units. These are powered by the mains or by direct wire from a central DC source and comprise a detector which responds to the rate of change of temperature, an electronic circuit and light & audible signalling devices. Detection warning may be activated both locally (at the detector) or forwarded to a central communication and control system or both (and sometimes other detectors) by direct wire or radio telemetry or other means. Some feature battery backup so that detection is still possible in the event of mains supply failure.

The central communication and control system may, in the event of detection activate other operations, for example switch on emergency lighting or activate personnel evacuation signalling devices or activate fire fighting equipment or alert the emergency services or other actions.

Commercial and industrial rate of change of temperature detectors are permanent installations and are not portable.

Domestic rate of change of temperature detectors are installed in separate rooms at ceiling height and operate independently of any central communication and control system, although some feature an interconnect facility to activate all interconnected detectors if any one detector activates. They are usually battery powered (typically by a PP3 or equivalent) and typically comprise a detector which responds to the rate of change of temperature, an electronic circuit and local light or audible or other signalling devices.

Domestic rate of change of temperature detectors are permanent installations and are not portable.

Rate of change of temperature detectors as described above are unsuitable for use where portable rate of change of temperature detection is required, such as temporary cover in commercial and industrial applications where an individual detector has failed or been disabled and localised rate of change of temperature detection cover is essential, for recreational cover (such as caravans, tents, boats), or by the traveller staying in accommodation where rate of change of temperature detection is not provided by the hostelling establishment.

According to the present invention there is provided a Portable Rate of Change of Temperature Detector comprising: a ventilated case, power source, for example mains or battery or mains with battery backup source or other means, the means for the detection of the rate of change of temperature with audible or light or audible and light or other signalling devices , an escape lamp which is activated upon the detection of a predetermined rate of change of temperature , the escape lamp being of sufficient intensity and duration for escape purposes, the escape lamp may be operated manually to operate as a conventional lamp, a test switch to confirm correct operation of the detector, a programmable digital alarm clock to continually display the time with audible clock alarm device activation at a pre-programmed time, an unfolding support or pivoting hook or other means enabling the Portable Rate of Change of Temperature Detector to be suspended from or affixed to a suitable point, an interconnect facility enabling the Portable Rate of Change of Temperature Detector to be linked to other detectors or to a central communication and control system or other devices. Where the Portable Rate of Change of Temperature Detector is battery powered the signalling devices operate intermittently during low battery condition to warn the user to replace an exhausted battery.

A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 shows in perspective, the Portable Rate of Change of Temperature Detector ventilated case containing the power source (not shown), means for detecting the rate of change of temperature (not shown), audible and light signalling devices, escape lamp with manual lamp switch, test switch, programmable digital alarm clock with audible clock alarm device (not shown), and interconnect socket.

Figure 2 illustrates separation of the casing components for battery replacement.

Figure 3 shows a conceptual block diagram of the Portable Rate of Change of Temperature Detector.

Referring to the drawings, the Portable Rate of Change of Temperature Detector comprises a ventilated casing 1, for example by slots or holes in the casing or other means, with rate of change of temperature detector 2, audible signalling device 3, light signalling device 4, test switch 5, escape lamp 6, manual lamp switch 7, programmable digital alarm clock 8 with audible clock alarm device (not shown), pivoting hook (not shown) and interconnect socket 9.

The casing can be separated into two or more parts by releasing the mechanism securing the parts, for example screws, lipped joints, catches or other means (not shown), to allow access to the battery compartment 10 for battery fitment or replacement.

Referring to Figure 2 the rate of change of temperature detector 2, electronic circuit 11, audible signalling device 3, programmable digital alarm clock (not shown) and audible clock alarm device (not shown) are contained within the casing.

Referring to the conceptual block diagram in Figure 3, the electronic circuit 12 continually monitors the rate of change of temperature detector 13, under normal rate of change of temperature conditions the audible 14 and light signalling devices 15 are inactive, when the rate of change of temperature changes beyond a predetermined rate of change of temperature the rate of change of temperature detector 13 parameters change, this causes the electronic circuit 12 to activate the audible and light signalling devices 14 & 15 giving an alarm, the interconnect facility 16 is activated allowing other detectors or other devices to be operated and the rate of change of temperature detection to be forwarded to a central communication and control system or for other purposes, the escape lamp 17 is switched on providing suitable illumination to aid escape.

The test switch 18 when operated simulates an abnormal rate of change of temperature condition and triggers the electronic circuit to activate the audible 14 and light signalling devices 15, the interconnect facility 16 and the escape lamp 17.

The programmable digital alarm clock 19 and audible clock alarm device 20 provide the means for displaying the time and setting the clock to operate the audible clock alarm at a pre programmed time.

Claims

1. A Portable Rate of Change of Temperature Detector comprising a ventilated case, power source, the means for the detection of a predetermined rate of change of temperature with audible or light or audible and light or other signalling devices.
2. A Portable Rate of Change of Temperature Detector according to Claim 1 with an escape lamp which is activated upon the detection of a predetermined rate of change of temperature.
3. A Portable Rate of Change of Temperature Detector according to Claim 1 or Claim 2 where the escape lamp may be operated manually to operate as a conventional lamp.
4. A Portable Rate of Change of Temperature Detector according to any one of Claims 1 to 3 with a test switch to confirm correct operation of the detector.
5. A Portable Rate of Change of Temperature Detector according to any one of Claims 1 to 4 with a programmable digital alarm clock to continually display the time.
6. A Portable Rate of Change of Temperature Detector according to any one of Claims 1 to 5 with a programmable digital alarm clock to continuously display the time with audible clock alarm device activation at a pre-programmed time.
7. A Portable Rate of Change of Temperature Detector according to any one of Claims 1 to 6 with an unfolding support or pivoting hook or other means enabling the Portable Rate of Change of Temperature Detector to be suspended from or affixed to a suitable point.
8. A Portable Rate of Change of Temperature Detector according to any one of Claims 1 to 7 with an interconnect facility enabling the Portable Rate of Change of Temperature Detector to be linked to other detectors or to a central communication and control system or other devices.
9. A Portable Rate of Change of Temperature Alarm substantially as described herein with reference to Figure 1 to 3 of the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

Application number

GB 9314931.8

Relevant Technical fields

(i) UK CI (Edition L) G4N (NAA, NCTX, NET, NHA)

(ii) Int CI (Edition 5) G08B 17/00, 21/00

Search Examiner

D L SUMMERHAYES

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

16 SEPTEMBER 1993

Documents considered relevant following a search in respect of claims 1-9

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
Y	GB 2236607 A (MBUTHIA)	2, 3, 5-7
X, Y	GB 1589869 (EMI)	X: 1 Y: 2-8
Y	WO 88/09025 A1 (RYDGREN)	2-4, 7, 8
Y	US 4611200 (STILWELL)	2-7
Y	US 4540980 (PORCO)	5-7
Y	US 4419658 (JAROSZ)	2-4, 7
X, Y	US 3717860 (TIPTON)	X: 1 Y: 2-8



Category	Identity of document and relevant passages -6-	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

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E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family, corresponding document.

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