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(12) # EUROPEAN PATENT APPLICATION

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(54) **Optical acoustical apparatus, particularly for personal safety.**

(57) Optical acoustical signalling apparatus, particularly for personal safety, characterized in that it comprises an optical acoustical signaller (2) and an operating and controlling unit (1), which comprises:

- a supply source (12),
- an inertial switch (25),
- a first signal operating generator (22) for the acoustical transducer (18), connected to said inertial switch (25),
- a second signal operating generator (20) for the optical transducer (7) having the set input connected to the output of the first generator (22).
- a two-position and three-way commutator (8), which set the apparatus to operate as passage detector from a static condition to a dynamic condition and viceversa,

in the first position of the commutator (8) the inertial switch (25) being set for starting, on its activation, the generator (22), and in the second position the inertial switch (25) being set for resetting the first generator (22), which was set on the supplying of the apparatus.

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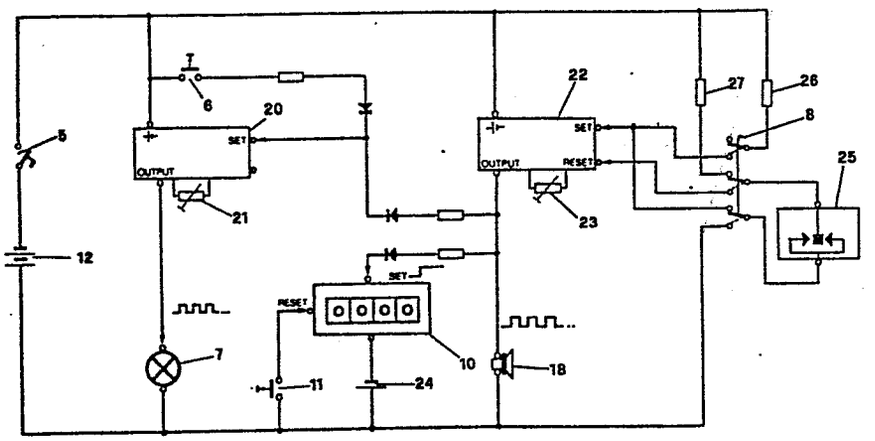
5
6
20
SET
OUTPUT
21
12
22
SET
OUTPUT
RESET
23
27
26
8
25
SET
RESET
10
7
11
24
18

FIG.5

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This invention refers to an optical acoustical signalling apparatus, particularly for personal safety.

An object of the invention is to realize an apparatus suitable to generate signals when situations arise, which are considered anomalous according to the foreseen program.

Another object of the invention is to realize an apparatus which is able to act immediately and automatically when an anomalous situation arises, without taking into consideration the will or psycho-physical capacity of the person directly involved, for example, in the case of serious motory impediment or fainting.

A further object of the invention is to realize an apparatus easily portable, preferably pocket for practical use, which avoids continuous energy consumption when the apparatus is operating, and therefore having reduced size and weight of the electrical energy source necessary for its supply.

Such objects are attained, according to the invention with an optical acoustical signalling apparatus, particularly for personal safety, characterized in that it comprises an optical acoustical signaller and an operating

and controlling unit, which comprises:

- a supply source,
- an inertial switch,
- a first signal operating generator for the acoustical transducer, connected to said inertial switch,
- a second signal operating generator for the optical transducer, having the set input connected to the output of the first generator,
- a two-position and three-way commutator, which set the apparatus to operate as passage detector from a static condition to a dynamic condition and viceversa,

in the first position of the commutator the inertial switch being set for starting, on its activation, the generator, and in the second position the inertial switch being set for resetting the first generator, which was set on the supplying of the apparatus.

The invention is hereinafter further clarified in a preferred embodiment with reference to the enclosed drawings in which:

Fig. 1 shows in frontal wiew the operating and control unit of the apparatus according to the invention,

Fig. 2 shows it in side view according to line II-II of Fig. 1,

Fig. 3 shows in side view the optical acoustical signaller of the apparaturs according to the invention,

Fig. 4 shows it in top view, and

Fig. 5 shows its general diagram.

As can be seen from the drawings, the apparatus according to the invention comprises an operating and controlling unit, generically indicated by 1, of pocket size, and an optical acoustical signaller, generically indicated by 2. Normally the unit 1 is kept in the pocket, whilst the signaller 2 is applied to a jacket shoulder and connected to the unit 1 by means of a cable 3.

The unit 1 comprises a box shaped shell 4, in which a knob type switch 5 is foreseen, of such a size for a comfortable use even for a gloved hand, and also for immediate observation even from a distance of a few metres. On the front surface of the box shaped shell 4 a key 6 is foreseen for operation, as will be better clarified further on, of the optical signaller 7, the grooved operating head of the two-position and three-way commutator 8, in order to set the apparatus in two different functions, and the display 9 of a time counter 10. On one side surface of the box shaped shell 4 a resetting key 11 of the time counter 10 is foreseen.

The box shaped shell 4 houses all the electrical parts and the supply source 12.

The optical acoustical signaller 2 comprises a substantially parallelepipedic small shell 13, provided with two supports 14 for shoulder or bandolier. It is substantially divided horizontally in two portions, a higher 15 and a lower 16. The higher portion 15 is provided with transparent protection 17 of the optical signaller 7, which can consist of an or incandescent or gaseous discharging light, or also by a non-visible light generator, for example infrared.

The lower portion 16 houses the acoustic transducer 18 and has openings 19 for the signal exit.

The electric circuit of the apparatus according to the invention essentially comprises the supply battery 12, the general switch 5 connected in series to this and a number of circuits supplied through said switch 5 by the battery 12. In particular the apparatus according to the invention comprises a generator of electrical temporally adjustable signals, having the output connected to the optical signaller 7.

The set input of the generator 20 is supplied either by the battery 12, via the key 6, or by the

output of a second generator 22 of electrical signals, also temporally adjustable, and supplied by the battery 12. The output of the generator 22, other than being connected at the set input of the generator 20, is also connected to the acoustic transducer 18 and the time counter 10, provided with indipendent supply 24 and resettable, as already stated, via the key 11.

The set input of the generator 22 is connected to the commutator 8. Two of the three inputs of the commutator 8 are connected to an inertial switch 25, of a well-known type. The third input of the commutator 8 is connected to the supply 12 via a resistance 26.

In correspondence to one of the two positions of the commutator 8 (with the contacts shown in the drawings by a full line) the two inputs connected to the inertial switch 25 lead to the supply 12 via a resistance 27 and to the set input of the generator 22 respectively. In correspondence to the other position of the commutator 8 (with the contacts shown in the drawings by a dotted line) the input connected to the supply, via the resistance 26, leads to the set input of the generator 22, whilst the two inputs connected to the inertial switch 25 lead to the reset input of the generator 22 and to earth respectively.

The operating of the apparatus according to the invention comes about in a different way, according to the position of the commutator 8, and more precisely, if this is set in the position shown by a full line in the drawings, the apparatus according to the invention operates as a dynamic stress detector, whilst in the other position it operates as a detector of absence of dynamic stress.

Dynamic stress detector.

When the general switch 5 is closed, the two generators 20 and 22 are supplied. As the respective set inputs are not activated, the two generators are not started and the apparatus is in a stand by condition, and does not absorb energy. When a dynamic stress occurs, the inertial switch 25 short-circuits its terminals and supplies the set input of the generator 22 via the resistance 27.

The starting of the generator 22 causes:

- emission of an intermittent acoustic signal by the transducer 18,
- beginning of counting by the time counter 10, and
- starting of the intermittent optical signal by the transducer 7.

The use of the apparatus according to the invention in this operating way is particularly indicated

for signalling movement in elements which must keep usually still (e.g. as anti-theft).

Dynamic stress absence detector.

When the general switch 5 is closed the two generators 20 and 22 are supplied and the generator 22 is started too for activation of its set input via the resistance 26. If in the time settled by its regulator 23 the inertial switch 25 is not subjected to an inertial stress, the generator 22 activates the acoustic signaller 18, the time counter 10 and the generator 20 which, after the time, setted by its regulator 21, activates the optical signaller 7. Should that not be the case, the reset input of the generator 22 is earthed via the inertial switch 25 and neither the optical nor acoustical signal is given out.

The use of the apparatus according to the invention in this operating way is particularly indicated for signalling anomalous immobility situations, in which a person can find himself, for example, in a forced condition of immobility or fainting.

When the apparatus is set for signalling the absence of dynamic stress, it can operate advantageously as a flasher. In this case the user presses the key 6 and in such a way activates the generator 20 independently from the

fact that the generator 22 is kept blocked.

The use of the apparatus in this utilization way is particularly advantageous in the case that emission of a luminous signal is required by a person who has had an accident but however cannot remain immobile and at the same time wishes to facilitate research from other people.

CLAIMS

1. Optical acoustical signalling apparatus, particularly for personal safety, characterized in that it comprises an optical acoustical signaller (2) and an operating and controlling unit (1), which comprises:

- a supply source (12),
- an inertial switch (25),
- a first signal operating generator (22) for the acoustical transducer (18), connected to said inertial switch (25),
- a second signal operating generator (20) for the optical transducer (7), having the set input connected to the output of the first generator (22),
- a two-position and three-way commutator (8), which set the apparatus to operate as passage detector from a static condition to a dynamic condition and viceversa,

in the first position of the commutator (8) the inertial switch (25) being set for starting, on its activation, the generator (22), and in the second position the inertial switch (25) being set for resetting the first generator (22), which was set on the supplying apparatus.

2. Apparatus according to claim 1 characterized in that the generators (20,22) are of temporally adjustable

type.

3. Apparatus according to claim 1 characterized in that in the first position of commutator (8) the inertial switch (25) is interconnected between the supply (12) and the set input of the first generator (22), whilst in the second commutator position (8) the inertial switch (25) is interconnected between the earth and the reset input of the first generator (22), having the set input connected to the supply (12).

4. Apparatus according to claim 1 characterized in that the output of the first generator (22) is also connected to a resettable time counter (10).

5. Apparatus according to claim 1 characterized in that the time counter (10) is provided with independent supply (24).

6. Apparatus according to claim 1 characterized in that it comprises a key (6) for direct starting of the already supplied generator (20).

7. Apparatus according to one or more of the claims 1 to 6 characterized in that it is completely housed, with the eventual exclusion of the optical acoustical signaller (2), in a pocket box shaped shell (4).

8. Apparatus according to claim 7 characterized

in that the optical acoustical signaller is enclosed in a flattened container (13) separated from the box shaped shell (4), connected to this via a cable (3) and applicable to the users clothes.

9. Apparatus according to claim 8 characterized in that the optical acoustical signaller is provided with supports (14) for shoulder or bandolier.

10. Apparatus according to claims 8 an 9 characterized in that the flattened container (13) comprises a first portion (15) housing the optical signaller (7) and provided with transparent protection (17), and a second portion (16) housing the acoustic transducer (18) and provided with openings (19) for the acoustic signal exit.

11. Apparatus according to one or more of the claims 1 to 10 characterized in that to the box shaped shell (4) of the operating and controlling unit (1) lead the general switch (5), the key (6) the operating element of the commutator (8), the display (9) of the time counter (10) and the key (11) of the resettable counter (10).

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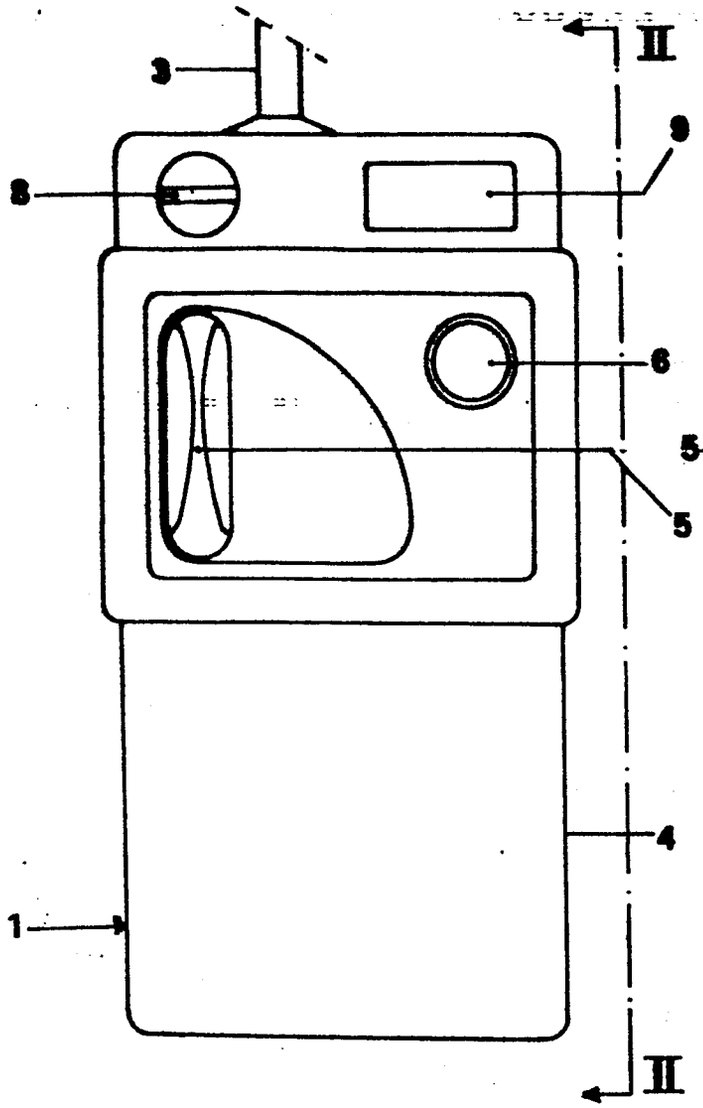

FIG.1

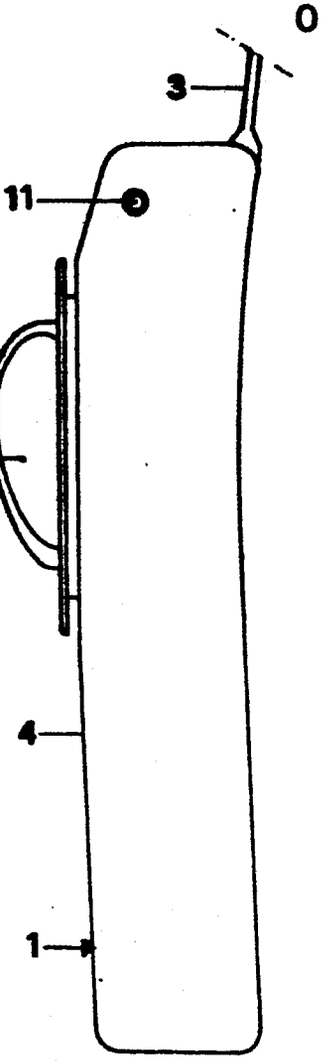

FIG.2

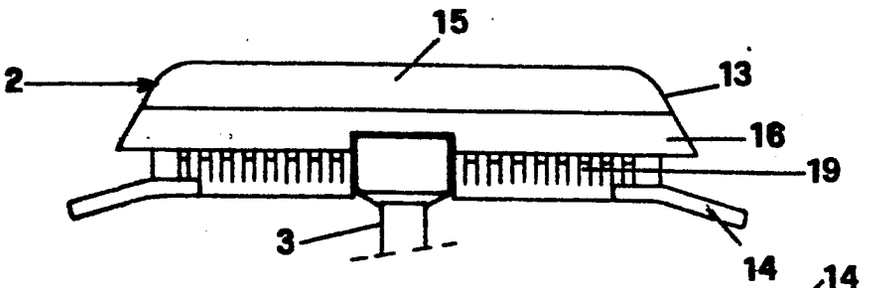

FIG.3

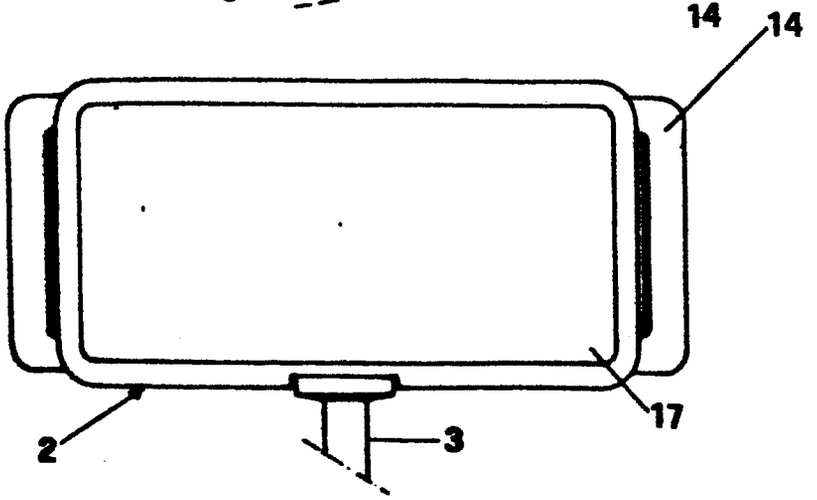

FIG.4

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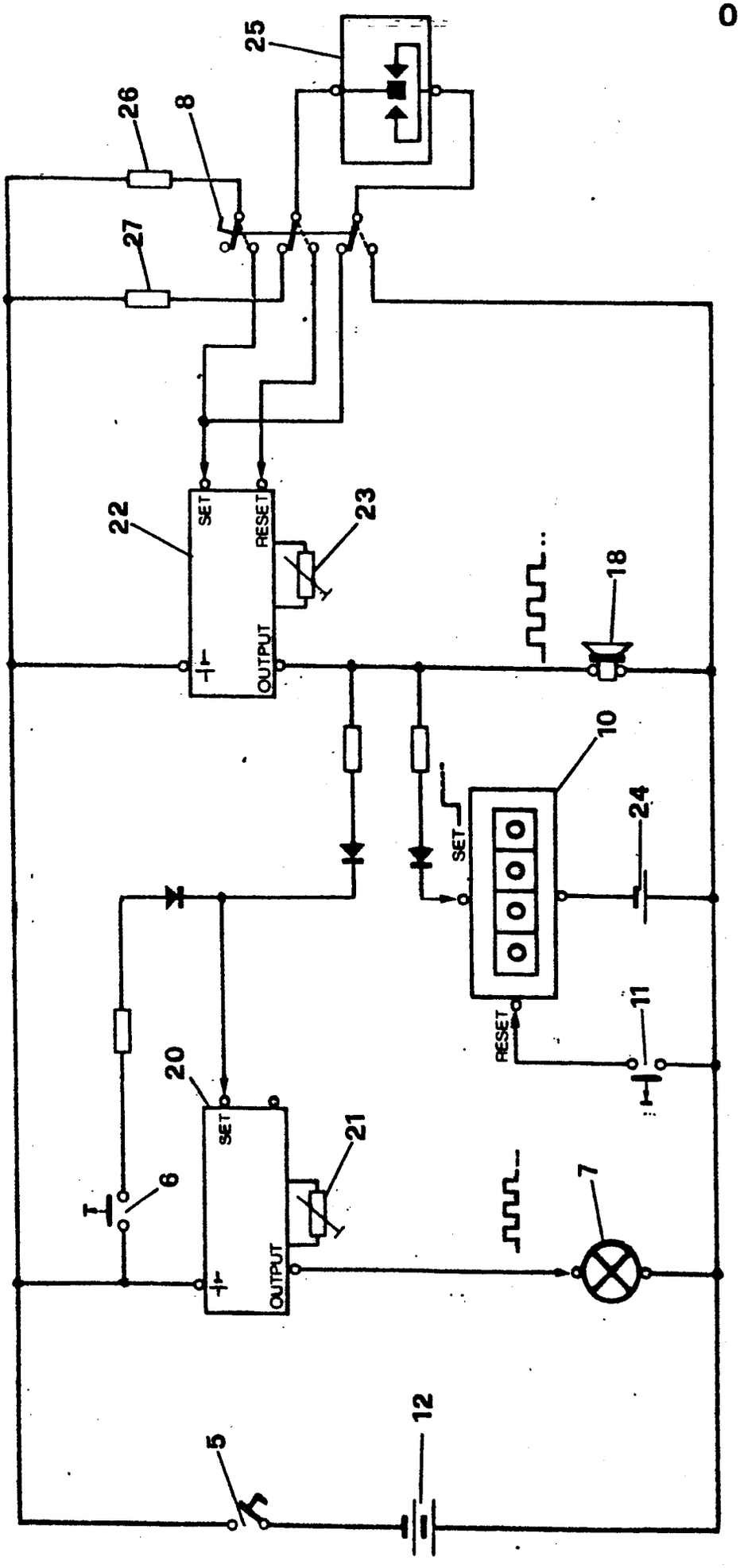

FIG.5

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EUROPEAN SEARCH REPORT

0093350

Application number

EP 83103964.9

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
A	DE - A1 - 3 008 846 (OSTEN) * Totality * --	1,6,7,8,9,10,11	G 08 B 7/00 B 08 B 21/00
A	DE - A1 - 3 047 231 (JNPAMA ANSTALT) * Totality * --	1,2,6,7,9,11	
A	DE - A1 - 2 715 372 (GROTJAHN) * Totality * --	1,6,7,9,11	
A	US - A - 3 614 763 (YANNUZZI) * Totality * --	1,6,7,9,11	
A	FR - A1 - 2 406 859 (BADENS-BIDEAUX) * Totality * ----	1,7,11	TECHNICAL FIELDS SEARCHED (Int. Cl. ³) G 08 B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
VIENNA	06-07-1983	FRANZ

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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