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(51) INT CL⁷
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G4N NHVSB N6R

(56) Documents Cited
GB 2309569 A **JP 530065180 A**
US 4210905 A **US 4059830 A**
US 3718921 A

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UK CL (Edition T) **G4N NAA NCM NHVSB NPPXAX**
INT CL⁷ **A44C 9/00 , B60K 28/06 , B60Q 5/00 9/00 ,**
G08B 21/00 , H01H 35/00
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(54) Abstract Title
Finger-ring sleep alarm for motor vehicle driver

(57) An alarm to be worn as a finger-ring, or between two adjacent fingers, alerts the user, e.g. motor vehicle driver if they are falling asleep. The device has a pressure sensor 14 to be pressed against the steering wheel, or other object, gripped by the user which activates an audible alarm 20 if their grip relaxes and hence the pressure applied to the sensor reduces.

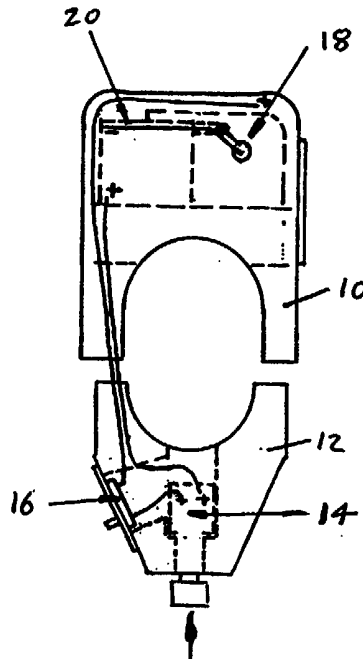


FIG 1

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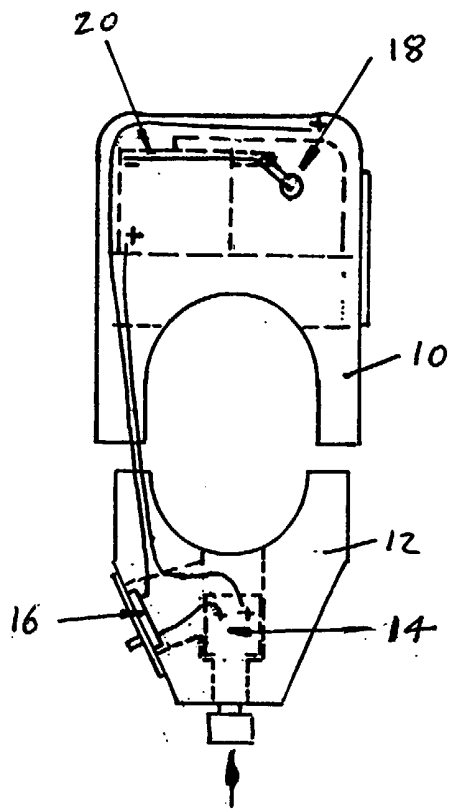


FIG 1

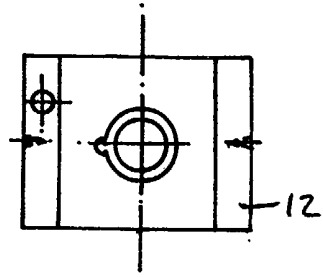


FIG 2

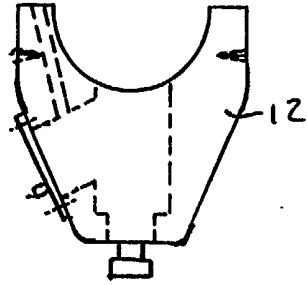


FIG 3

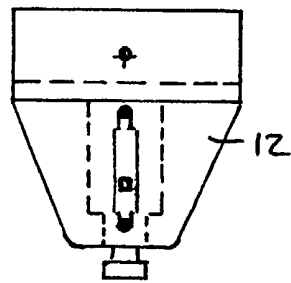


FIG 4

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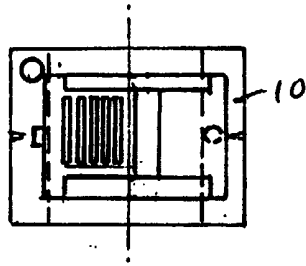


FIG 5

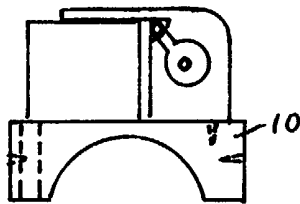


FIG 6

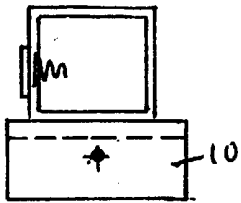


FIG 7

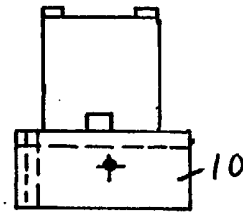


FIG 8

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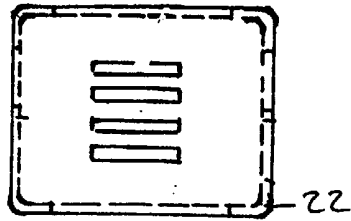


FIG 9

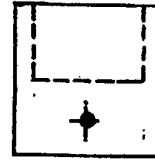


FIG 13



FIG 14

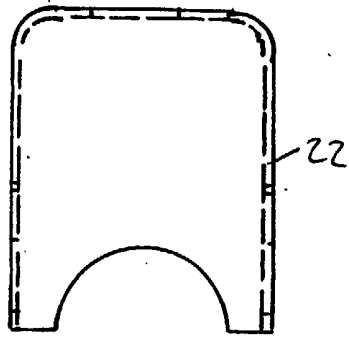


FIG 10

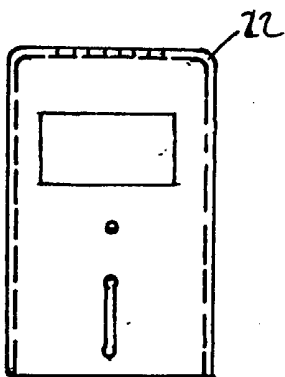


FIG 11

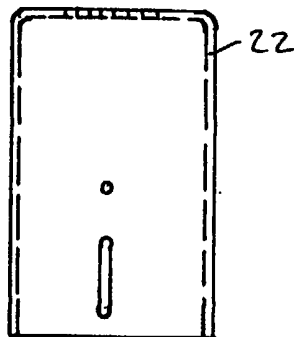


FIG 12

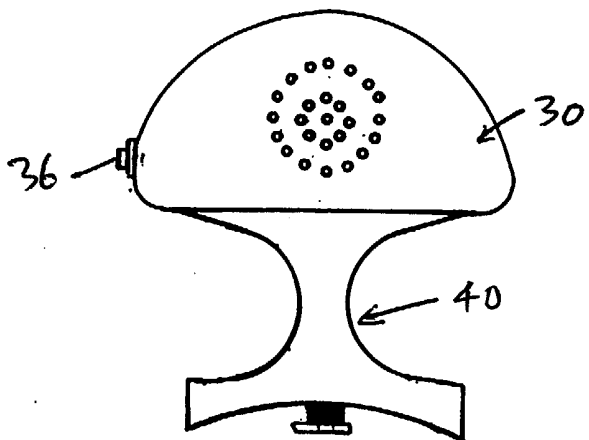


FIG 15

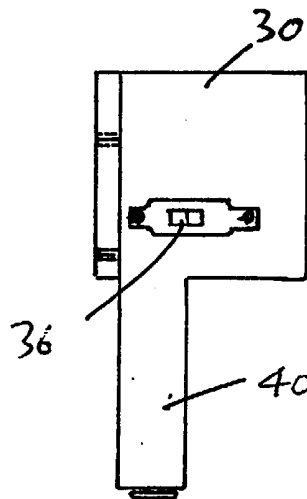


FIG 16

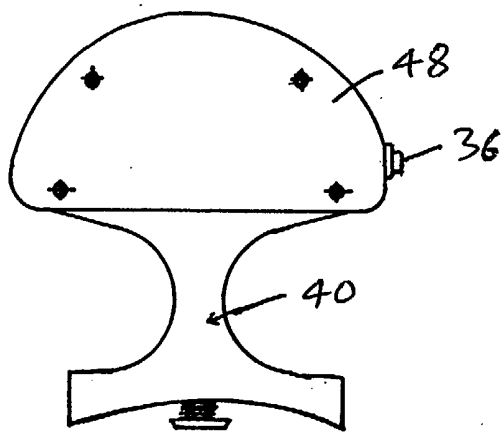


FIG 17

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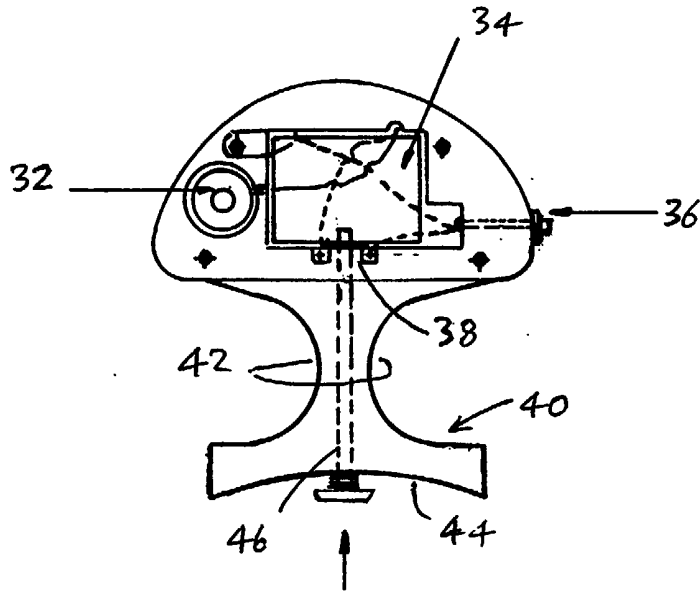


FIG 18

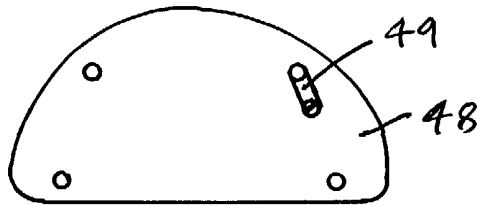


FIG 19

Sleep-alerting Alarm Device

This invention relates to an alarm device for example for alerting a motor vehicle driver against falling asleep whilst driving, but having other uses also.

Various arrangements have been proposed hitherto for alerting a driver should he start to fall asleep whilst driving. Generally these arrangements suffer from a number of drawbacks, typically because they are of complex form and therefore expensive or difficult to use, or they are relatively ineffective. There are other applications where it is desirable to alert a user in the event of his grip on an article relaxing.

I have now devised an alarm device which is of simple form, easy to use and effective in operation.

In accordance with this invention, there is provided an alarm device for alerting a person against falling asleep, for example, whilst driving, the alarm device being arranged to be located on a finger of the user in a manner of a ring or located between an adjacent pair of the user's fingers, the device having a pressure sensor arranged normally to be pressed against a steering wheel or other article gripped by the user, but to activate an audible alarm in the event that the user relaxes his grip on the steering wheel or other article such that the pressure on the sensor reduces.

Thus, the alarm device of this invention is located either on the user's finger or between an adjacent pair of fingers. As the user grips a steering wheel, or other article, the pressure sensor is pressed against the steering wheel or other article and serves to maintain the audible alarm deactivated. However, should the user start falling asleep, his grip on the steering wheel or other article will relax and the reduction in pressure, to which the pressure sensor is subjected, will cause the pressure sensor to activate the audible alarm.

In one embodiment, the device comprises two body parts

arranged to be coupled together around the user's finger: preferably the two body parts are adjustable towards and away from each other for fitting fingers of different sizes.

In another embodiment, the device comprises a body
5 having a main part, which seats over the user's adjacent pair of fingers, and a projecting portion which locates between the user's adjacent pair of fingers. Preferably the projecting portion is formed with opposed recesses to receive the adjacent fingers.

10 Embodiments of this invention will now be described by way of examples only and with reference to the accompanying drawings, in which:

FIGURE 1 is a view of a first embodiment of an alarm device in accordance with the invention;

15 FIGURES 2, 3 and 4 are respectively top, front and side views of a lower body part of the alarm device shown in Figure 1;

FIGURES 5, 6, 7 and 8 are respectively top, front, left side and right side interior views of an upper body part of the
20 alarm device shown in Figure 1;

FIGURES 9, 10, 11 and 12 are respectively top, front, left side and right side views of a box-shaped cover for the two body parts of the alarm device shown in Figure 1;

FIGURES 13 and 14 are respectively front and side views
25 of the battery box cover of the alarm device shown in Figure 1;

FIGURE 15 is a front view of a second embodiment of alarm device in accordance with this invention;

FIGURE 16 is a side view of the alarm device shown in
30 Figure 15;

FIGURE 17 is a rear view of the alarm device shown in Figure 15;

FIGURE 18 is a rear view of the alarm device of Figure 15, shown with its battery cover removed; and

35 FIGURE 19 is a view of the reverse side of the battery

cover.

Referring to Figure 1 of the drawings, there is shown a first embodiment of alarm device, which is arranged to be worn, in the manner of a ring, on a driver's finger and comprising upper and lower body parts 10,12. A pressure release (press-to-break) switch 14 and an ON/OFF switch 16 are mounted in the lower body part 10, whilst a battery 18 and a buzzer 20 are mounted in the upper body part 12. When the ON/OFF switch 16 is switched on, then whilst the driver grips the steering wheel to depress the pressure-release switch 14, the circuit between the battery 18 and the buzzer 20 is broken: however, should the driver start to fall asleep and relax his grip on the steering wheel, the contacts of the pressure-release switch 14 will mate and the circuit to the buzzer 20 is completed; the buzzer 20 is accordingly activated to attract the driver's attention.

Figures 9 to 12 show a box-shaped cover 22 which is fitted over the upper body part 10 and into which the lower body 12 part slides to couple the two body parts together. The cover 22 allows the two body parts 10,12 of the device to be moved apart or towards each other, according to the size of the finger on which the device is worn.

It will be noted that the ON/OFF switch 16 is located on the side of the lower body part 12 such that, when the device is worn on the index finger, the switch 16 may be operated easily by the thumb of the same hand.

Referring to Figures 15 to 19 of the drawings, there is shown a second embodiment of alarm device, which is arranged to be located between two adjacent fingers (typically the middle and index fingers) of the driver's hand. The device comprises a body having a main part 30 which houses the battery 32, buzzer 34, ON/OFF switch 36 and the pressure-release switch 38. The body also has a portion 40 projecting from the main part, the projecting portion 40 being of reduced width (as shown in Figure 16). The opposite edges of the projecting

portion 40 are formed with concave-curved cut-outs 42 to receive the user's adjacent pair of fingers disposed side-by-side. The outer end 44 of the body portion 40 is concave curved: a spring-loaded plunger 46 for the pressure-release switch 38 extends through the middle of the body portion 40, to project from its curved outer end 44.

The main body part 30 is provided with a cover 48 which closes one side of the part 30 and includes a contact 49 for connecting one end of the battery to the remainder of the circuit.

In use, the projecting portion 40 of the body 30 is located between the driver's fingers. When the driver grips the steering wheel, the outer end of the switch plunger 46 bears against the surface of the steering wheel and is accordingly depressed: should the driver release his grip on the steering wheel, the plunger 46 will extend under its spring bias, allowing the contacts of the switch 38 to mate and so complete the circuit to the buzzer 34. It will be noted that the actuator for the ON/OFF switch 36 is located at one end of the body part 40, enabling it to be actuated by the thumb whilst the device is located between e.g. the middle and index fingers of the same hand.

Whilst the device has been described as used by a driver gripping a steering wheel, it will be appreciated that the device may be used in other circumstances.

Claims

- 1) An alarm device for alerting a person against falling asleep, for example, whilst driving, the alarm device being arranged to be located on a finger of the user in a manner of
5 a ring or located between an adjacent pair of the user's fingers, the device having a pressure sensor arranged normally to be pressed against a steering wheel or other article gripped by the user, but to activate an audible alarm in the event that the user relaxes his grip on the steering wheel or other
10 article such that the pressure on the sensor reduces.
- 2) An alarm device as claimed in claim 1, comprising two body parts arranged to be coupled together around the user's finger.
- 3) An alarm device as claimed in claim 2, in which the two
15 body parts are adjustable towards and away from each other for fitting fingers of different sizes.
- 4) An alarm device as claimed in claim 2 or 3, in which the pressure sensor is mounted in one body part and the audible alarm and a battery are mounted in the other body part.
- 20 5) An alarm device as claimed in claim 1, comprising a body having a main part and projecting portion which is formed with opposed recesses to receive the adjacent pair of the user's fingers between which the device is, in use, located.
- 6) An alarm device as claimed in claim 5, in which the
25 main part of said body houses the audible alarm and a battery.
- 7) An alarm device as claimed in claim 6, in which an ON/OFF switch is housed in the main part of said body.

8) An alarm device as claimed in claim 5 or 6, in which the pressure sensor comprises a pressure-sensitive switch housed in the main part of said body and a spring-loaded actuating plunger extending through said projecting portion of said body.

9) An alarm device substantially as herein described with reference to Figures 1 to 14 or Figures 15 to 19 of the accompanying drawings.



INVESTOR IN PEOPLE

Application No: GB 0101175.8
Claims searched: 1 - 9

Examiner: Mark Gainey
Date of search: 21 March 2002

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK CI (Ed. T): G4N (NAA, NCM, NHVSB, NPPXAX)
Int CI (Ed. 7): A44C(9/00), B60K(28/06), B60Q(5/00, 9/00), G08B(21/00), H01H(35/00)
Other: EPODOC, JAPIO, WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2309569 A LUCAS & CO.	-
Y	JP 53065180 A SHIGEKI (figs 1 & 2)	1
Y	US 4210905 COONS col. 1 ll. 33-51	1
A	US 4059830 THREADGILL	-
A	US 3718921 JOHNSON	-

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.