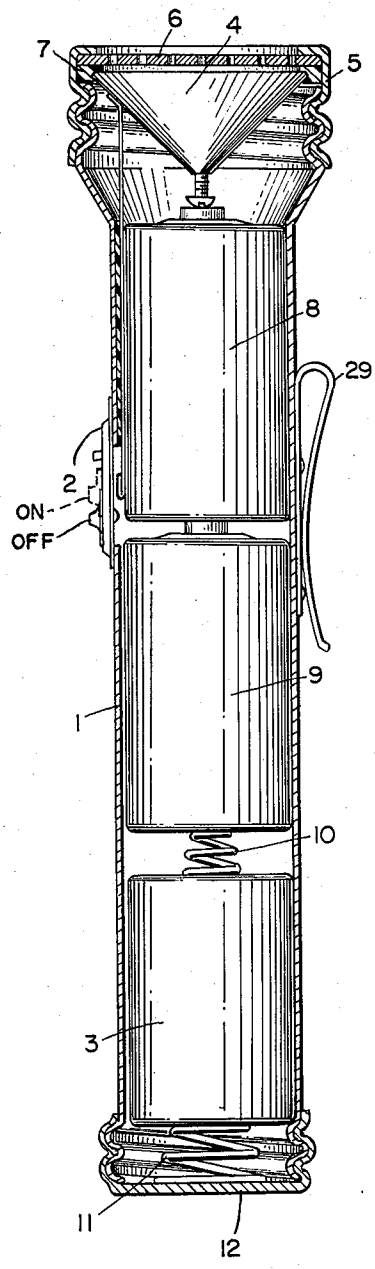
April 26, 1966 K. H. MIETHE 3,248,723

AUTOMATICALLY OPERATED AUDIBLE ALARM

Filed Oct. 10, 1962

FIG. 1



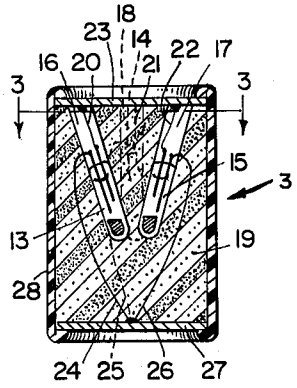




FIG. 2

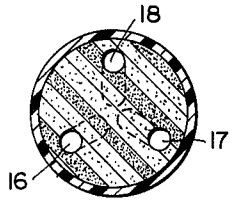



FIG. 3

INVENTOR.

KARL MIETHE

BY

Russell, Chittick & Pfund

ATTORNEYS

United States Patent Office 3,248,723 Patented Apr. 26, 1966



3,248,723

# AUTOMATICALLY OPERATED AUDIBLE ALARM

Karl H. Miethe, Boston, Mass.
(36 Elder St., Dorchester 25, Mass.)

Filed Oct. 10, 1962, Ser. No. 229,596
1 Claim. (Cl. 340—321)

This invention relates to a portable alarm device; and more particularly to a self-contained portable alarm unit adapted to be carried by hand or attached to the clothing of a person.

Many accidents occur when retarded children, stray away from supervised areas. Retardation is often accompanied by blindness, muteness, deafness and/or nervous and muscular deficiencies. Such children usually panic and run and are prone to falling, and, being incapacitated, are unable to signal their location to potential rescuers.

It is the principal object of the present invention to provide an audible alarm unit which can be attached to a child's clothing and which will be automatically activated if the child falls down.

It is another object of the invention to provide a portable, audible alarm unit which can be activated by the person carrying or wearing the alarm unit.

It is still another object of the invention to provide a portable, audible alarm unit which is of simple construction so that the batteries for operation may be easily replaced when necessary.

It is a further object of this invention to provide a portable, audible alarm which is strong and durable, easily manufactured, reliable and effective in use.

A still further object is to provide a device of the type that can be inexpensively fabricated and which is capable of utilizing for the most part a flashlight of conventional construction.

These objects and features of the invention will become apparent from a reading of the following written description and a study of the accompanying drawings in which:

FIG. 1 is a side elevation in partial section;

FIG. 2 is a sectional view of the mercury switch housing; and

FIG. 3 is a cross section taken along lines 3—3 of FIG. 2.

Referring to the drawings, FIG. 1 shows the arrangement of the major components of the alarm unit. The alarm unit utilizes a standard three cell flashlight casing 1 of metal or plastic. In the preferred embodiment a metal casing covered with rubber is employed to provide maximum strength and resistance to shock and abrasion. Switch 2 is a SPST, fixed or momentary contact switch attached to the standard flashlight casing 1. The directionally sensitive switch 3 is substituted for the third cell of a three cell flashlight. An electric vibrator horn 4 is secured to the flashlight casing by means of the end cap 5. The vibrator horn is protected by a perforated cover 6 which may be omitted if the vibrator horn itself has a protective cover.

If a metal flashlight casing and end caps are used with a vibrator horn having a metal outer shell electrode, the vibrator horn must be insulated from the metal casing. The rubber insulating ring 7 prevents the metal shell of the vibrator horn 4 from shorting against the metal end cap 5.



Batteries 8 and 9 provide the source of electrical energy necessary to operate the vibrator horn 4. They are arranged in series connection with the vibrator horn 4 and the directionally sensitive switch 3. Springs 10 and 11 exert a force against the directionally sensitive switch 3, batteries 8 and 9, and the vibrator horn 4 to maintain these elements in electrical contact with the end cap 12 and the casing 1 of the flashlight.

FIGS. 2 and 3 illustrate the construction of the preferred embodiment of the directionally sensitive switch 3. Mercury switches 13, 14 and 15 are positioned in cavities 16, 17 and 18 drilled in a styrofoam cylinder 19. Electrodes 20, 21 and 22 are connected to an upper metal contact plate 23 which is in electrical contact with spring 10. The other electrodes 24, 25 and 26 of the mercury switches are connected to a lower metal plate 27 which is in electrical contact with spring 11. The metal end plates 23 and 27 are held against the styrofoam cylinder 19 by an electrically insulating container 28.

The cavities 16, 17 and 18 are drilled at an angle of approximately 60° from the upper horizontal surface of the styrofoam cylinder 19. The angle of the cavities, in conjunction with the placement of the electrodes within the mercury switches, determines the amount that the directionally sensitive switch 3 will have to be tipped from a vertical position to activate the alarm device. The alarm device is activated when the directionally sensitive switch 3 completes the electrical circuit comprising the vibrator horn 4, batteries 8 and 9, spring 10, switch 3, spring 11, end cap 12, flashlight casing 1 and switch 2. Switch 2 can be placed in the OFF position to prevent energizing the vibrator horn if the alarm device is accidentally tipped over.

Clip 29 is provided so that the alarm unit may be attached to a child's clothing.

Having thus described and disclosed the preferred embodiment of my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

A portable and audible alarm unit comprising: a flashlight casing, an electrically operated vibrator horn; means for securing said vibrator horn to one end of said casing; battery means contained within said casing; means for electrically connecting said battery means to said vibrator horn, said connecting means including a directionally responsive switch unit in series with said battery means and said horn, said switch unit including an electrically insulated cylindrical housing having contained in said casing electrically conductive end plates, said switch unit being further comprised of three cylindrical mercury switches in parallel connection with said end plates, and means for mounting said mercury switches within said housing in substantially the form of a tripod.

**References Cited by the Examiner**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 2,623,934 | 12/1952 | De Bow | 340—321 |
| 2,640,980 | 6/1953 | Prupis | 340—321 |
| 2,754,497 | 7/1956 | Wolpert | 340—279 |
| 2,784,399 | 3/1957 | Smith | 340—321 X |
| 2,893,344 | 7/1959 | Meyers | 166—112 |
| 3,056,954 | 10/1962 | Jorritsma | 340—321 |

NEIL C. READ, *Primary Examiner.*
WALTER C. GLEICHMAN, *Examiner.*
IRVING J. LEVIN, *Assistant Examiner.*