# United States Patent [19]

**Banner**

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[54] **SECURITY ROPE ALARM MEANS**


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[52] **U.S. Cl.** ..... **340/280;** 340/421

[51] **Int. Cl.** ..... **G08b 13/06**

[58] **Field of Search** ..... 340/280, 283, 276, 134, 340/421; 200/154, 79; 9/313, 400, 1; 339/28, 29



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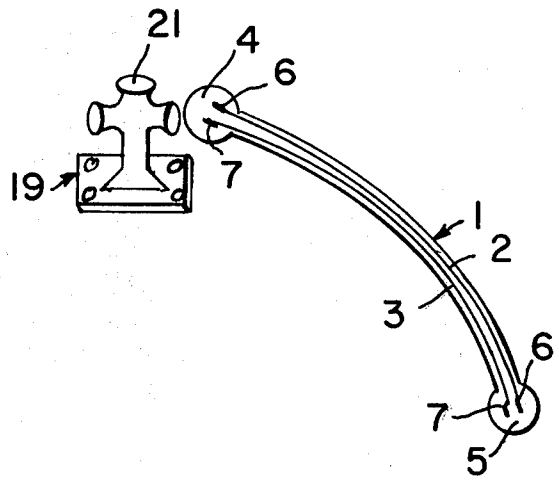
*Primary Examiner*—Glen R. Swann, III



[57] **ABSTRACT**

Wiring placed within a rope or cable for securing boats or other equipment. The wiring ends are equipped with metal contacts connected in circuit with an alarm control unit and connected to boat and shore chocks having circuit contact means. A/C or D/C power source provides operating current for detection and alarm means that is set-off by disturbing or removal of the rope alarm means.


**9 Claims, 9 Drawing Figures**



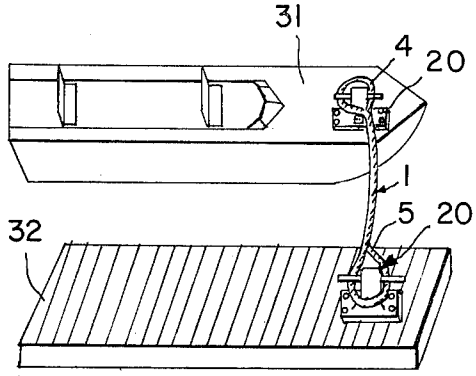



Fig. 1

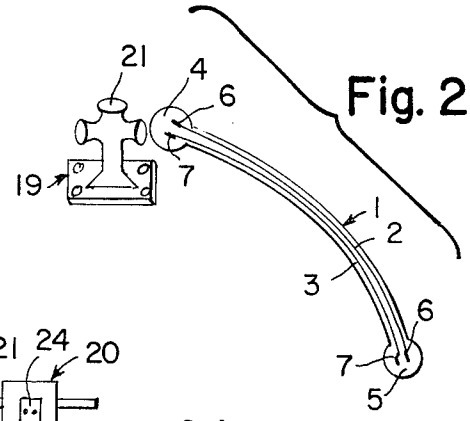



Fig. 2

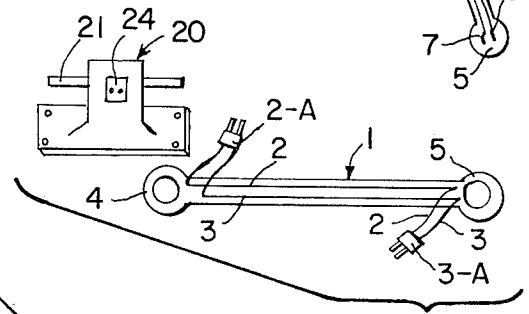



Fig. 3

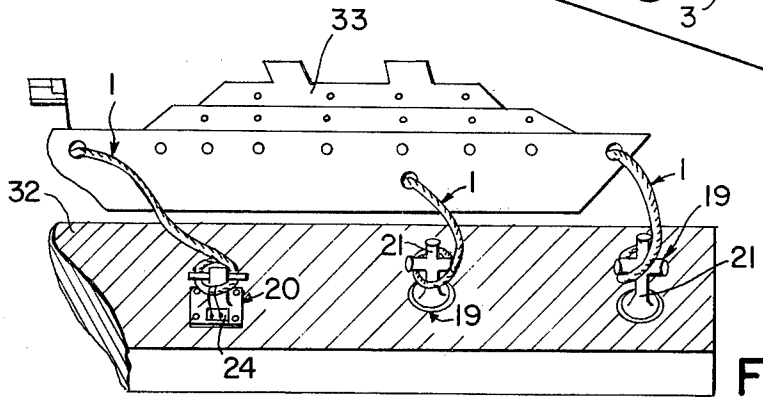



Fig. 4

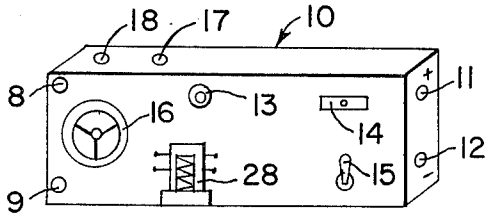



Fig. 5

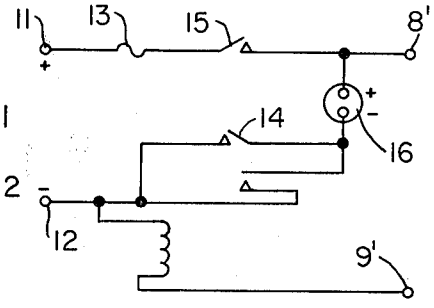



Fig. 6

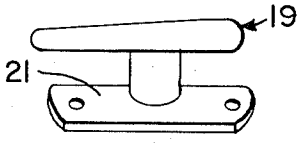



Fig. 7

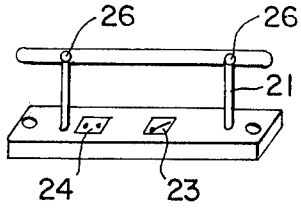



Fig. 8

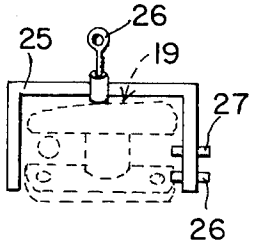



Fig. 9

# SECURITY ROPE ALARM MEANS

## BACKGROUND OF THE INVENTION

New and improved security devices are needed to protect personal property and combat a tremendous increase in theft, particularly on boats that contain valuable accessories, easily disposed of. Where the particular boat already has a security device protecting it there is still no assurance that the equipment and the security device will not be removed altogether, such as in the case of a small boat or trailer or a bike, or a ship by removing the dock securing means and pulling same away. It is easy to disconnect the dock lines and remove equipment without noise wherein the security device aboard would not be triggered until someone attempts entry into a guarded area. An excellent example occured in 1971 where a loaded oil barge was set loose by unknown parties, undetected it drifted out to sea, washed up on the shore of Long Beach Long Isalnd. The subsequent damage to the barge released the oil into the ocean and the barge beached. This invention, upon disturbing or releasing the secured means would provide adequate means of warning necessary to discourage the would be trouble-maker and signal the security forces into action. This invention, unlike other security means uses the metal part of the object being secured as a contact sensor member, wherein the removal or tampering of said contact causes the security alarm to operate. It safeguards financial responsibility, wildlife and beaches from oil spills.

## SUMMARY OF THE INVENTION

This invention operates on storage batteries or A/C current. Means can be provided for variable alarm time settings that control the amount of time an alarm will ring should anyone tamper with or remove the rope alarm. In cases of vandalism it would prevent anyone from untying a boat thinking of taking it or leaving same adrift. This invention can be connected to a central control station detection system wherein if any of the protected equipment is moved or removed it will automatically trigger the built-in alarm system provided by the rope alarm means. Reference is directed to prior art circuitry in U.S. Pat. No. 883,335 Mar. 1908 O'Connor that shows a relay electromagnet **12** switch **10** battery **22,** a buzzer **21** that perform the function of the circuitry of this application.

Accordingly, a principal object of the invention is to provide new and improved security means for boats, ships, mobile equipment or stationary removable items that require improved security measures afforded by this invention, that uses the metal on a mooring chock or the object being secured as a metal contact automatically breaking the security electrical circuit upon disengagement or tampering.

Another object of the invention is to provide new and improved ropelike alarm security means of a type having simplicity in design and manufacture, economical to produce, safe to use, easy to install that will reduce thefts and provide a new means of discouraging intruders.

Another object of the invention is to provide new and improved ropelike alarm security means having a new ropelike alarm means coupled with a power and alarm control unit requiring minimum power or space to produce maximum security advantages.



Another object of this invention is to provide new and improved ropelike alarm means making this invention economically feasible for people requiring protection on bikes, trailers and small things, who can not afford high priced equipment. On boats and other means having some form of its own power source and signalling device such would be utilized in various manufactured models.

## BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects of the invention will be apparent from the following specifications and drawings, of which;

FIG. **1** is a sectional view of an embodiment of the invention.

FIG. **2** is a front view of the ropelike security device shown in FIG. **1.**

FIG. **3** is a front view of the ropelike security device shown in FIG. **1.**

FIG. **4** is a full side view showing a ship secured by the invention.

FIG. **5** shows a front view of the alarm control unit of this invention.

FIG. **6** shows the electrical alarm circuit of the invention.

FIG. **7** shows a front view of one kind of a rope attachment bit.

FIG. **8** shows a front view of another model of a rope attachment bit.

FIG. **9** shows a front view of a security cover for securing bits, in one illustration.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the figures the invention comprises a wire cable or other ropelike means **1** having two wires **2** and **3** placed inside of it, being connected to securing ends **4** and **5** with built-in contacts **6** and **7** being connected to wires **2** and **3.** The wires **2** and **3** are connected to their respective terminals **8'** and **9'** on the alarm control unit **10.** The input power is established by connecting a power source to terminals **11** and **12.** Mooring chock **19** has a metal surface **21** allowing circuit contact on the rope alarm **1** or means to place a contact plug **2–A** in the rope alarm end on one side and **3–A** on the other side for connection to a mooring bit **19** and **20** or to a boat on the other side, not shown. Another modification mooring bit **20** shows a tamper switch **23** built into the chock and a plug-in means **24** for making electrical contact. Internal connections are made to component parts fuse **13** test switch **14,** master on-off switch **15** and to a signal means **16** built into the unit or or connected to terminals **17** and **18** that lead to another horn or alarm means eliminating duplication. One side of the wires **2** and **3** is connected to the alarm control unit **10** and the other side to a mooring chock **19** or **20.** A protective security cover **25** would provide additional useful apparatus to lock and protect the ropelike alarm device, having a key lock **26** to secure it. The cover **25** when removed would cause a break in the circuitry setting off the alarm unless another disarming key **27** were used.

FIG. **1** shows the rope or wire holding means **1,** one form having wires **2** and **3** within it as shown in FIGS. **2** and **3** connected to the end loops **4** and **5** having electrical contacts **6** and **7** shown in FIG. **2** are separated from said electrical contact it causes apparatus within

the alarm control unit **10** shown in FIG. **5** to sound the alarm.

FIGS. **2** and **3** show that the contacts **6** and **7** are either built into the ropelike ends **4** and **5** or are in the form of plug-in types shown as **2–A** and **3–A**, in FIG. **3**. As in FIGS. **2** and **3** the design of the ropelike means **1** having wiring **2** and **3** causes a signal when a disconnect has been made at the terminal contacts **6** and **7**. The electrical system is interrupted by such disconnecting, it changes a position of a relay **28** placing same in an alarm position. The metal member, the contacts **6** and **7** touch act as a sensor, whether it be a mooring bit or another object being protected.

FIG. **4** shows a ship **33** having security rope lines **1** tied to mooring chocks **19–20** mounted on a partially shown dock **32** wherein the removal of any of the lines **1** will result in causing signal means to warn of the condition and the location of the fault.

FIG. **5** shows an alarm control unit **10** having electrical terminals **8'** and **9'**, **11** and **12**, a fuse **13** switches **14** and **15**, a horn signal means **16** and additional terminals **17** and **18** mounted on top and having a relay **28**. The removal of a security rope **1** from connection to any mooring bit or boat chock **19–21** will cause the relay to open the alarm circuit.

FIG. **6** shows the circuit diagram of the parts in the FIG. **5** alarm control unit **10**. It is shown for illustration purposes and commonly used. The invention is not in the circuitry, per se, but the cable, ropes and chocks and covers, etc., associated therewith.

FIG. **7** shows a front view of one kind of a securing bit **19** having a metal contact surface **21**, that causes the security ropes and cables **1** to keep the alarm circuit shown in FIG. **6** closed.

FIG. **8** shows another mooring bit **21** having key locking means **26**, a control switch **23** and a security rope connection receptacle **24**.

FIG. **9** shows the outline of a chock **19** having a protective security cover **25** operated by a key lock **26** also having a disarming lock **27** so that the chock is tamper proof and the security rope connection is inaccessible.

Operational data: Installation in a small craft should have the alarm control placed out of reach or view, operated by small D.C. battery means. Disconnecting the boat at the chock on the boat or the dock or mooring will signal a alarm, sound the alarm, put on lights, take pictures or any other reasonable means. A larger craft would attach the alarm part to their horn or siren and possibly to a central control agency. The same method would apply to tugs and ships wherein the rope alarm means provides detection of tampering or movement of lines. The small items discussed briefly such as bikes or trailers that are very commonly involved in theft would use a modification of the rope alarm means. Attachment of a small alarm control unit to a rope alarm connected back to itself would keep the circuit closed and the alarm in the off position, operated by a key. Upon any disconnect of the rope alarm or tampering with same will trigger the alarm. The rope when cut or disconnected instantly triggers the alarm while the ropelike means has the needed strength to amply hold anything that requires security, in different sizes.

In FIGS. **2** and **3** the drawings show rope-like means internally wired, connected to built-in end terminal contacts or plugs, ready to connect to an object requiring this security protection. The use of wire cables on ships will require insulated circuit members that will protect current carrying wiring from the other metal cable strands. Where ropelike means is used on smaller diameter lines or in larger ropelike lines called a hawser which is a heavy line of fibre or wire, any line over 5 inches in diameter, such will require a new art of embodying the security circuit wiring within the ropelike means, concealing the wire within the lay of the rope. The construction of rope or wire cable does not easily accept an internal wiring circuit and the ropelike means and cables are subject to stretching under stress varying with the wind, the seas and the pull between the secured boat and a dock. Another important factor is the presence of sea water use and moisture factors in this security device that is quite different than protecting a garment or a appliance against shoplifters where it is merely encircled by a cable holding such articles. For example; The Coast Guard Auxiliary Basic Seamanship course teaches on page 37 that nylon line elongate and 10 percent at normal working loads and over 40 percent at loads up to breaking strength; this also varies with manilla lines or dacron, therefore, the introduction of stretching while wet and under load are important factors. The present invention will be useful in tow lines where in the night an important line should come loose it would endanger the property and lives of people involved in such operations. The present invention provides a new security means for boats and ships providing safety at the dock or at anchor where there is constant pulling by sea and wind motion providing security. The breaking of an anchor line, loosening of a tow rope, the untying of a boat at a dock or on a deck will sound the alarm. The source of power to operate the electrical control can be battery or A.C. current. The present invention utilizes the object being secured by having its metal exterior making contact with the ropelike means wiring circuit and upon any separation from either contact will trigger the alarm.

Although the invention has been described in detail with respect to an exemplary embodiment thereof, it will be understood by those of ordinary skill in the art that other variations and modifications may be effected within the scope and spirit of the invention.

I claim:

**1.** A Marine Security Alarm Means comprising,

ropelike means for securing a boat mooring bit to a dock mooring bit having a first electrically conductive means incorporated in said rope like means,

second electrically conductive means on one of said mooring bits, alarm indicator means,

said first and second electrically conductive means being connected to said alarm indicator means, whereby when said ropelike means is lifted from said mooring bit, said alarm indicator means is activated by said lifting or separation from said mooring bit.

**2.** Apparatus as in claim **1** wherein both of said mooring bits have electrically conductive means.

**3.** Apparatus as in claim **1**, wherein said ropelike means is a rope line containing a wire said wire comprising the first insulated electrically conductive means.

**4.** Apparatus as in claim **1**, wherein said ropelike means is a wire cable, containing a wire said wire comprising the first insulated electrically conductive means.

5. Apparatus as in claim 1, wherein said first and second electrically conductive means comprises a plug and a socket.

6. Apparatus as in claim 1, wherein a cover is mounted on one of said mooring bits.

7. Apparatus as in claim 6, wherein a lock is mounted on said cover.

8. Apparatus as in claim 1, having a tamperproof switch connected to said first and second electrically conductive means.

9. Apparatus as in claim 1, wherein said alarm means is connected to a central control detection system responsive to give a signal when said security rope is disconnected from a boat or a dock.

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