United States Patent [19]

Petrecz

[11] **3,722,788**

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[54] **ELECTRIC SHOCK PROTECTION DEVICE**

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[22] Filed: **Jan. 29, 1971**

[21] Appl. No.: **110,975**

[52] **U.S. Cl.** .....**231/2 E**

[51] **Int. Cl.** **B68b 11/00**

[58] **Field of Search** .....231/2 E

[56] **References Cited**

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[57] **ABSTRACT**

An electric shock protective device having a circuit with a vibrating coil and high voltage prods telescopingly positioned on a compact housing having the battery power supply and the vibrating coil circuit therein.

6 Claims, 9 Drawing Figures

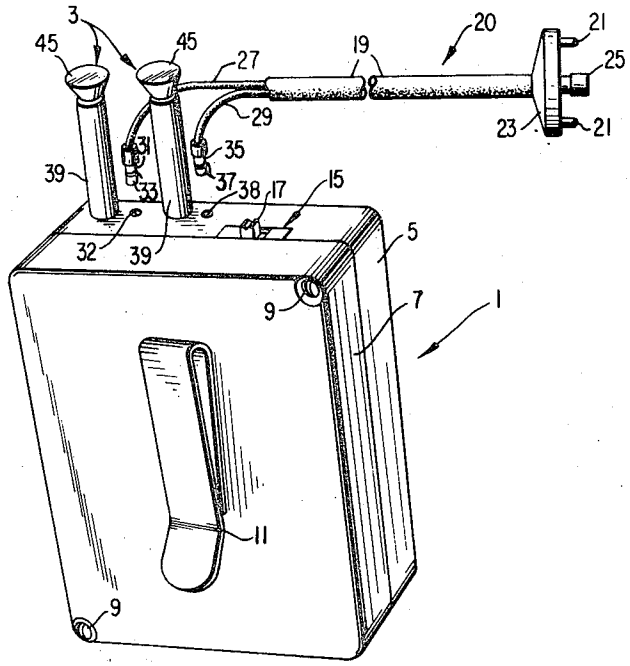


FIG. 1

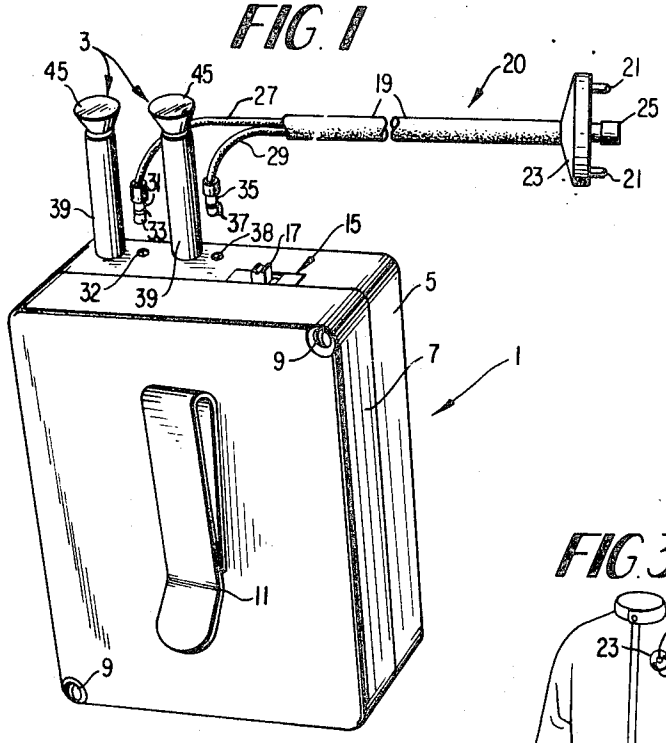


FIG. 2

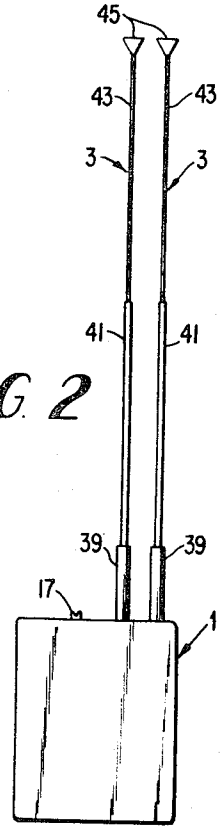


FIG. 3



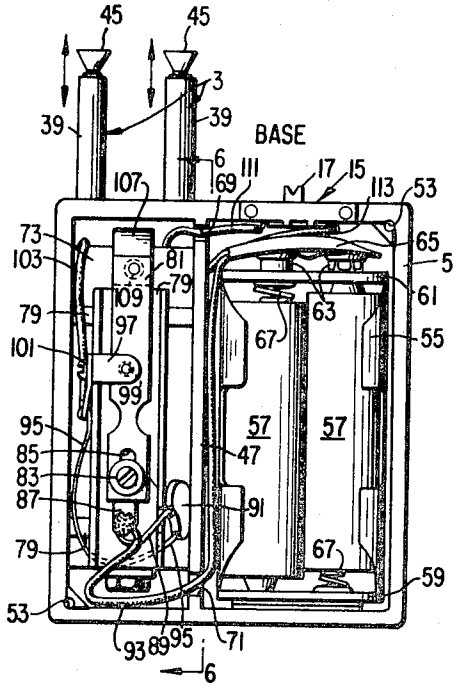


FIG. 4

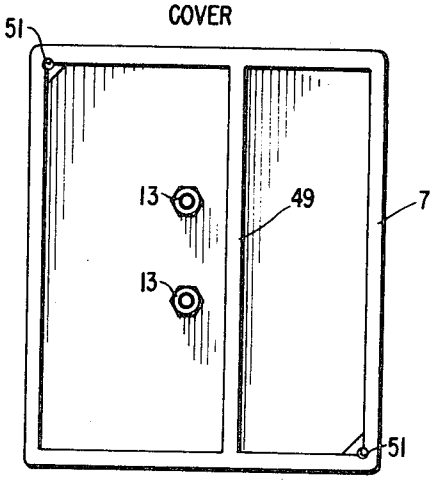


FIG. 5

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FIG. 6

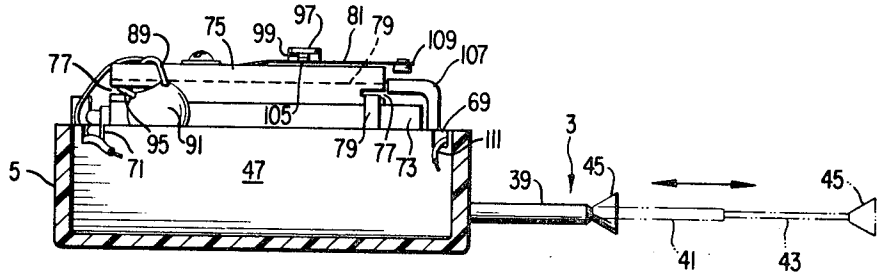


FIG. 7

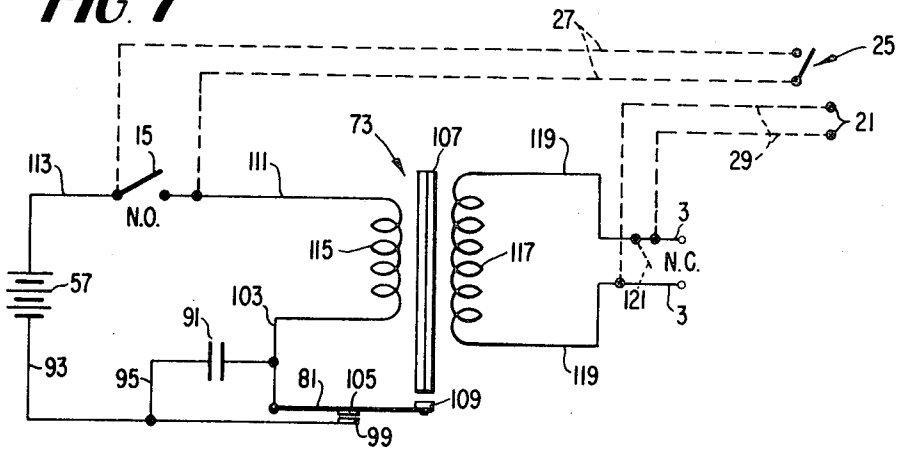


FIG. 8

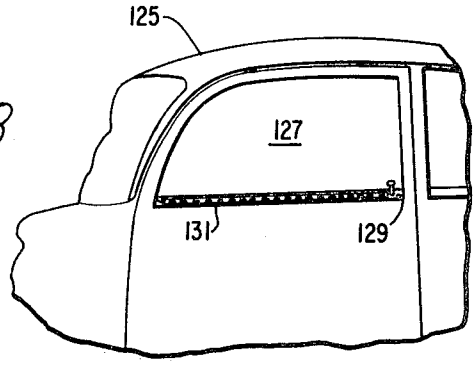
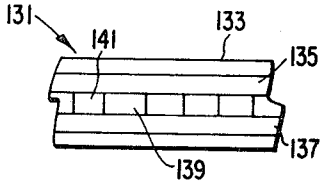


FIG. 9



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ELECTRIC SHOCK PROTECTION DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to the provision of a very high voltage, low current electrical shocking device to protect a person from attack by animals or humans.

2. Prior Art

Devices, such as gas in a pressurized container, designed for protection of individuals have been found to be ineffective in many instances. One reason for this is the fact that if the wind is blowing in the wrong direction, the person using the gas, such as tear gas, can have it blown in his eyes, thus immobilizing the person who is attempting to use it for his own protection.

Various electrical shocking devices have been proposed in the past. One example of this is U.S. Pat. No. 3,119,554 which deals with an electrified stick for postmen. It contains a battery case and a long rod having a pair of longitudinal electrodes attached thereto. In an apparent effort to make it somewhat more compact, a hinge mechanism is utilized about midway along the length thereof. One of the problems in such a device is that the overall unit can not be made small enough to be placed in a purse or pocket. Also, the electrical contact will wear and possibly break with repeated bending.

There have been a considerable number of other proposed devices in the form of night sticks and animal prods. However, each of these is cumbersome to use and cannot be stored on the individual easily.

OBJECTS OF THE INVENTION

It is an object of the invention to provide mailmen with a device for protecting them from dogs which are known to be or could possibly be dangerous. Also, it is for use by delivery men and others who must lawfully enter property where dogs may possibly attack them.

Another purpose of the invention is to provide a compact means carried in a pocket or purse which may be used to ward off a criminal attacker, molester, robber or the like. Generally, the carrying of a hand gun is not only illegal when concealed, but also can be dangerous to the person who is merely using it for personal protection. Often, the man or woman carrying the pistol is also not warranted in using it and is often apprehensive about doing so. Therefore, a device which will produce a very strong shock will provide the necessary protection to the individual since the attacker will recoil from the shock and give the intended victim an opportunity to flee or call for help. Also, the shock can be sufficient enough to frighten away the person bent on a criminal attack.

A particular advantage of the instant invention is the provision of telescoping prods in a form similar to that of small radio antennas whereby the prods can be extended to a desired length. Also, the fact that the antenna prods are resilient makes it possible to be able to utilize the device relative to an animal or person wherein the alignment between the device and the animal or person need not be exact. In effect, the prods are self-adjusting. With stationary prods, as in the prior art, it is almost required for one to precisely locate the shock device relative to the animal. Certainly, there is not normally sufficient time for such precision, and the dog or animal will usually be moving.

The instant invention has applicability in the area of crowd control by law enforcement officials in that it can be utilized to hold an unruly mob away from a restricted area since the repeated shocks which can be obtained from the device will tend to hold back or immobilize the crowd. Also, the mere threat of the shock may be sufficient.

Another object of the invention is to provide a device which will not physically harm the animal or attacker. The current drawn from the battery powered device is extremely low so that there will be no damage to the skin or body organs. The electrical shock is confined to the localized area which is touched. Also, the low amperage will allow a battery or set of batteries to be used for a very long or extended period of time.

Another possible use for the instant invention is training animals. If an animal should get completely out of control, the trainer can utilize the device to bring it under control.

Finally, it is possible with the instant invention to provide a remote system whereby the pair of prods can be located in the form of a button, patch or plurality thereof on a person's outer garments. In this manner, if someone were to grab the individual, the attacker would receive a shock.

At the same time, a device can be arranged, for example, on a window sill of a vehicle or house wherein an intruder would be shocked when he placed his hand on a strip of material which is connected to the device.

Another object is to provide an extremely compact mechanism wherein the entire device may be no larger than the size of a pack of cigarettes.

SUMMARY OF THE INVENTION

The invention includes a base and cover, each having a partition along the length thereof. One of the two compartments formed by the partition houses one or more batteries in a conventional battery holder as is commonly used in portable radios. The other compartment houses the coil, contacts and capacitor forming the vibrating coil circuit. A switch is conveniently located on the exterior of the housing and the antenna-like prods are telescopingly connected to the housing wherein they may be flush with the housing or an inch or so outside thereof in the retracted position. In the extended position, the antennas can be extended to any desired length. A convenient length has been found to be about ten inches.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will best be understood with reference to the drawings wherein:

FIG. 1 is a perspective view of the invention with the remote system seen exploded therefrom;

FIG. 2 is a perspective view of the device with the telescoping antenna prods extended;

FIG. 3 is a view showing the remote portion mounted on a coat of the wearer;

FIG. 4 is a view of the base of the device having the circuitry positioned therein and the cover removed;

FIG. 5 is a view of the interior of the cover;

FIG. 6 is a view taken along lines 6—6 in FIG. 4;

FIG. 7 is a schematic view of the circuitry while;

FIG. 8 is a view of a strip of material connected to the device along the window of an automobile; and

FIG. 9 is a detail of the strip seen in FIG. 8.

DETAILED DESCRIPTION OF THE INVENTION

As illustrated in FIG. 1, a device according to the invention, including a plastic housing, is illustrated broadly at 1. A pair of telescoping antenna prods are seen at 3 which emanate from a base portion 5 of the housing. In their retracted position, the major portion of the prods are within the confines of the housing. A cover portion 7 is screwed to the base 5 by means of a pair of screws 9, thus joining the two complementary sections. A clip for holding the device onto a belt, pocket or postman's mail bag is seen at 11 and may be screwed to the cover 7 by means of nuts and bolts illustrated at 13 in FIG. 5.

A switch 15 having an actuator 17 appears in the top portion of the base 5. This switch is a conventional sliding switch wherein the actuator 17 reciprocates to make and break the circuit as discussed below.

A remote system is seen at 19 and has a pair of remote prods 21 which are connected by a cable 20 to a base 23. Between the pair of prods 21 is a pressure sensitive switch actuator 25. The entire device can be mounted as seen in FIG. 3 wherein the support 23 is positioned on the garment of an individual with the prods seen at 21 and the push button actuator at 25.

The cable 20 on the remote system 19 contains two pairs of lines 27 and 29. Lines 27 have at their ends a plug 31 which is of the conventional radio plug-type having two contact areas 33 separated by an insulator. The plug is inserted into a receptacle 32, and each contact area is connected to one of the pair of conductors in line 27. The upper conductive area may be connected to one of the prods 3 while the lower conductive area is electrically connected to the other prod. In this manner, when the switch is actuated, the current which would normally be flowing into the prods 3 will flow to the remote prods 21. A plug 35, identical to plug 31 and having contact areas 27, is inserted into a receptacle 38 which is connected to the switch actuator 25 through lines 29. It is in turn connected across the switch 15. The above is all accomplished in a known manner and will be seen schematically in FIG. 7 discussed below.

The telescoping antenna prods are illustrated in FIG. 2 and have a short base portion 39 with longer portions 41 and 43. The ends have tips 45 thereon. Again, for ease in manufacture, these are conventional radio antennas, and are cut to the desired length, e.g., 10 inches long.

The base 5 and cover 7 of the housing include partitions 47 and 49 respectively. The screws 9 pass through a pair of holes 51 in the cover and into a pair of threaded openings 53 in the base.

Within the larger compartment in the base is positioned a battery holder 55 for batteries 57. The illustrated embodiment has four 1-½ volt size AA batteries to obtain 6 volts. However, if, for example, the invention required 6 volts, it could be provided by a physically smaller, appropriate nickel cadmium type battery, or the like. The support 55 has a base 59 and an upper portion 61. There are a pair of snap fasteners 63 in the upper portion connected to a conductor support 65. The battery housing 55 also has a plurality of springs 67 for urging the batteries into proper engagement. Again, these are all conventional portions of battery packs used in small portable radios.

The partition 47 has an upper opening 69 and a lower opening 71 to accommodate wiring as will be seen below.

With special emphasis on FIG. 4, as well as FIG. 6, the remainder of circuitry as positioned in the smaller compartment is as follows:

A coil 73 is placed in the housing and includes plastic potting material surrounding it. Positioned on the coil is a plastic support 75. The plastic support has a pair of cut-out slots 77 recessed therein. A pair of plastic straps 79 which pass through the slots hold the support to the coil. The top portion of the support has a grooved-out area 79 therein. The area 79 contains a leaf spring 81 which is attached to the support by means of a screw and washer 83. These pass through an opening 85 in the spring. A rear extension 87 on the spring has one lead 89 of a capacitor 91 soldered thereto. Also soldered to extension 87 is a conductor 93 serving as one of the battery leads. The other end of the capacitor 91 is connected by a line 95 through the slot 77 to an L-shaped contact arm 97 having a contact 99 thereon. Also connected to the L-shaped contact arm 97 by means of a screw 101 is a line 103 going to one of the leads to the primary side of the coil 73. The contact 99 on the contact arm 97 cooperates with a contact 105 on the leaf spring. An inductance rod 107, as best seen in FIG. 6, extending from the coil, has positioned relative thereto a counterweight 109 on the forward end of the leaf spring 81. The other lead from the primary side of the coil is connected via line 111 to the switch 15, and a line 113 from the switch to the batteries completes the circuit.

The circuitry discussed above is illustrated schematically in FIG. 7 with appropriate numerals designating elements illustrated in FIGS. 4 and 6. Basically, it will be seen that the coil 73 has a primary winding 115 and a secondary winding 117 which may be in the order of 225 turns to 12,000 turns respectively to provide 4,000 to 6,000 volts from the 6 volt battery 57. (While batteries have been shown as the preferred power source, it is possible to substitute or bridge the batteries with 110 volt house current having a transformer and rectifier as generally known in the electrical arts.) The secondary winding 117 is connected to the antenna prods 3 by means of lines 119. (The lines connecting the secondary with the antenna prods are not illustrated in FIG. 4.)

The primary winding 115 has lead 111 connected to the switch 15 and the other lead 103 to capacitor 91 and the leaf spring 81. The counterweight 109 is seen cooperating with the inductance core 107. Contact 99, cooperating with the contact 105 on the leaf spring, is connected by line 93 to the battery 57 and via line 95 to one side of the capacitor, the other side of the capacitor being connected to the leaf spring and the primary winding. The battery 57 is also connected via line 113 to the switch 15. The optional remote system illustrated in FIG. 1 is seen in dotted lines in FIG. 7. A conventional switch, illustrated schematically at 121, disconnects current to prods 3 when the remote system 20 is connected. This occurs in the same manner as when earphones are inserted into a portable radio causing the loud speaker to be disconnected.

It will be appreciated that the clip 11 makes it easily positioned on a postman's bag, a pocket, a policeman's belt or the like. The switch actuator 17 is of the slide

type and is positioned in such a location that the device will not be inadvertently actuated.

It should be pointed out here that the telescoping antenna prods 3 can be screwed into the device in a conventional manner whereby they may be removed if they are not to be used when a remote attachment is connected.

OPERATION OF THE DEVICE USING THE TELESCOPING PRODS

When an individual is threatened, for example by a dog, he can extend the antenna prods 3 by grasping the end portions 45 and pulling them to their full length, for example, 10 inches. He will then turn on switch 15 by sliding the actuator 17. Referring to FIG. 7, when the switch 15 is closed, the transformer will be energized with the capacitor in parallel across the vibrator circuit 81, 99, 105. The contacts 99 and 105 will begin vibrating since the current flowing in the primary 115 will induce a flux in the core 107. The weight 109 will be pulled toward the core 107, thus opening the circuit between contacts 99 and 105. The charging and discharging of the capacitor 91 with the opening and closing of the contacts will cause the device to continue to vibrate and continue to generate a current in the secondary winding. This will produce the extremely high voltage in the telescoping prods 3. The individual can then stay a considerable distance away from the dog or other attacker and still protect himself. As soon as the prods touch the dog, it will jump away frightened. Any repeated attacks by the animal will be met with the flexible telescoping prods. The same, of course, is true of a human attacker.

As will be readily appreciated, if someone were to grab a person wearing the remote device as seen in FIG. 3, upon placing his hand on the device strategically located on the individual's outer garment, he will close the switch 25 as he bridges the remote prods 21 with his hand. Once he has received the jolt of 4,000 to 6,000 volts, he will recoil and the victim can escape.

WINDOW SILL MODIFICATION

Reference is now made to FIGS. 8 and 9 wherein a remote system similar to 20 in FIG. 1 is connected to the main portion of the device. The illustration in these figures is merely by way of example, the device being shown on an automobile. The same system could be utilized on a home window sill or the like.

An automobile generally seen at 125 has a window 127 having a conventional sill 129 thereon. A tape 131 which is equivalent to the overall remote system 19–25 in FIG. 1 is placed across a sill. As seen in FIG. 9 the tape may be in the form of plastic material 133 having spaced apart conductive layers 135 and 137. These conductive layers are connected to the secondary of the coil in the same manner as remote prods 21 are in FIGS. 1 and 7. Between the conductive strips 135 and 137, and insulated therefrom, are a pair of conductive strips 139 vertically spaced from one another by means of insulation pieces 141. This is all seen schematically in FIG. 9. In other words, if someone were to place his hand on the window sill bridging conductive portions 135 and 137, and also forcing conductive strips 139 against each other, he would receive a shock.

It will be appreciated that the conductive strips 139 are connected to the primary and battery across the switch 15 in the same manner as lines 27 in FIG. 7. By pressing the conductors 139 in contact with each other anywhere along the tape, will, in effect, be equivalent to closing switch 25. The current will then flow from the battery into the primary winding, and since the individual has his hand also on the layers 135 and 137 (which are very close to each other), he will receive a shock.

While the invention has been described, it will be understood that it is capable of further modifications and this application is intended to cover any variations, uses or adaptations of the invention following in general the principles of the invention and including such departures from the present disclosure as come within knowledge or customary practice in the art to which the invention pertains, and as may be applied to the essential features hereinbefore set forth and as fall within the scope of the invention or the limits of the appended claims.

I claim:

1. An electrical shock device comprising:
   a. a housing;
   b. an electric circuit means positioned in said housing for delivering an electrical shock;
   c. a pair of closely spaced, flexible, conductive,antenna-like prods connected to said circuit and telescopingly extending from one side of said housing;
   d. the length of said prods being separately, telescopically adjustable from a contracted state wherein said housing receives a major portion of said prods in their contracted state;
   whereby the circuit is completed through the prods substantially anywhere along the length thereof when an animal or the like is contacted.

2. An electrical shock device as defined in claim 1, including a support, a portion of said circuit means being mounted on said support.

3. An electrical shock device as defined in Claim 1, including means on said housing for connecting conductive shock elements remote from said housing.

4. An electrical shock device as defined in claim 3, wherein said conductive shock elements are in the form of a tape.

5. An electrical shock device as defined in claim 3, including circuit closing means associated with said remote conductive shock elements.

6. An electrical shock device as defined in claim 1, wherein said housing is divided into two complementary sections, each of said sections being divided by a partition whereby two compartments are formed when the complementary sections are joined.

* * * * *