United States Patent

[11] 3,625,222

[72] Inventor **Kunio Shimizu**
No. 33-2, 1-chome, Asagaya Minami, Suginami-ku, Tokyo, Japan

[21] Appl. No. **17,419**
[22] Filed **Mar. 9, 1970**
[45] Patented **Dec. 7, 1971**
Original application Dec. 6, 1966, Ser. No. 599,446, now Patent No. 3,523,538, dated Aug. 11, 1970. Divided and this application Mar. 9, 1970, Ser. No. 17,419

[54] **BATON-TYPE ARREST DEVICE**
5 Claims, 3 Drawing Figs.

[52] **U.S. Cl.** **128/405**
[51] **Int. Cl.** **A61n 1/04,** A61n 1/20, A61m 21/00
[50] **Field of Search** ..... 128/303.18, 394, 404, 405, 419–424; 17/1, 1 E; 43/17.1, 6; 272/27

[56] **References Cited**
UNITED STATES PATENTS

300,155	6/1984	Starr	128/405 UX
1,158,473	11/1915	Floyd	128/405 X
2,033,397	3/1936	Richman	128/303.18 X
2,253,315	8/1941	Andrus	17/1 E UX

Primary Examiner—Channing L. Pace
Attorney—Eliot S. Gerber

ABSTRACT: A pair of needle electrodes which are slightly spaced and are adapted to pierce the skin are normally concealed into a cylindrical casing but projected to pierce the skin only when the casing is pressed against the skin and in contact therewith. A minute electric current sufficient to create in the human body a false state of epilepsy is applied to the human body through the needle electrodes under the skin.

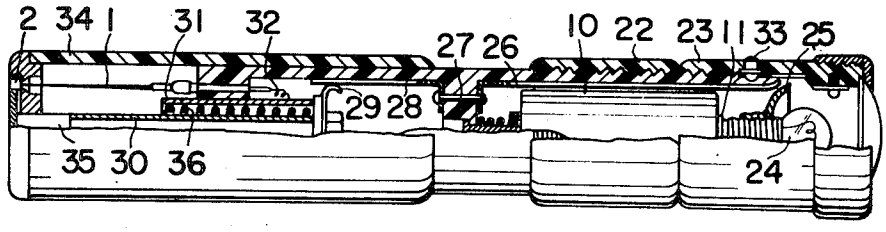


FIG. 1

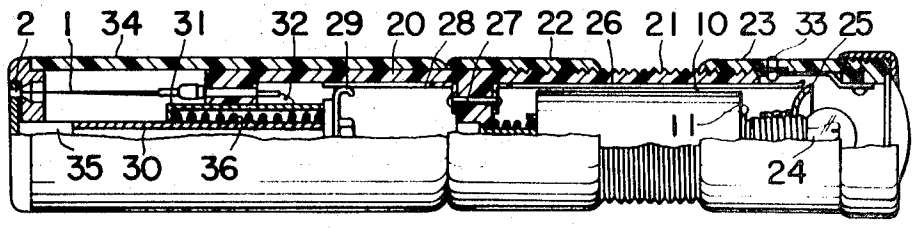


FIG. 2

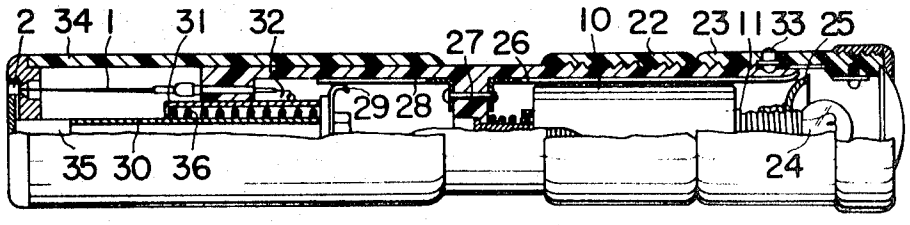
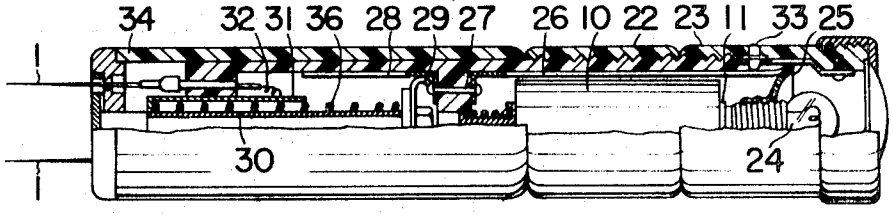


FIG. 3



INVENTOR
KUNIO SHIMIZU

BY Eliot S. Gerber
ATTORNEY

BATON-TYPE ARREST DEVICE

The present invention is a division of U.S. Pat. application, Ser. No. 559,446, filed Dec. 6, 1966, now U.S. Pat. No. 3,523,538 dated Aug. 11, 1970.

The present invention relates to a weapon and more particularly to a device with which a policeman may subdue a criminal.

At the present time the methods of placing a violent criminal or an insane person under arrest may lead to his own injury, or the injury of the police or of innocent persons. If the police use their guns, the criminal may be killed or innocent bystanders shot. If the police attempt to sue their clubs, they may be injured while they are grappling with the burglar. It has been desired to provide a hand-carried arrest device which is to replace clubs.

It is the objective of the present invention to provide a device for subduing criminals without killing or permanently injuring them.

It is a further objective of the present invention to provide a baton-type arrest device with which a criminal may be rendered helpless temporarily.

This invention is based upon the discovery of a phenomenon that a minute electric current applied to two needle electrodes which are pierced under the skin of the human body at a slight interval generates a great electric shock which cannot be generated if the same minute electric current is applied through the same needle electrodes contacted upon the skin.

In accordance with the present invention, two electrode needles are projected from a casing of a hand-carried device only when the casing is pressed against the skin of the human body and are pierced into the skin to come into contact with the subcutaneous fat layer of the skin. The electrodes are connected to batteries. The current is sufficient to stun the criminal to a temporary state of false epilepsy, which renders him helpless. The shock is not enough to kill or permanently injure the criminal.

Other features and objectives of the present invention will be apparent from the following detailed description of a preferred embodiment of the invention, taken in conjunction with the accompanying drawings.

In the drawings:

FIGS. 1 to 3 illustrate a baton-type arresting device, the upper half being sectioned and lower half being plan views;

FIG. 1 shows the position in which the electric shock needles cannot be projected;

FIG. 2 shows the position in which the electric shock needles can be projected;

FIG. 3 shows the position in which the electric shock needles are projected.

The electrical resistance of the skin of the human body varies with its dry or wet state and the size of the contact surface. However, the range of the resistance inside the body is said to be about 150 to 500 ohms. The strength of the electrical shock is related to the strength of the electric current passing through the human body so that, even if the voltage is high and the current is weak, there will be no danger. For example, in the case of an alternating current of the commercial frequency (about 110 volts at 60 cycles), a considerable pain will be felt with about 1 ma. of current, an unbearable pain will be felt with about 10 ma., the muscle will shrink so much as not to move with 20 ma., and a danger of electric shock death will be caused with 50 ma. Such electric shocks upon the skin of the human body have been already utilized for a special therapy (so-called electric shock therapy) in the treatment of psychosis. The present invention utilizes the electric shock effect and flows an electric shock current through the human body. A pair of needles which are slightly spaced are pushed into the lower part of the subcutaneous fat layer (not the skin surface) in order to cause a temporary false epilepsy. It was found that the minute electric current applied to a pair of electrode needles pierced under skin generates a great electric shock which cannot be generated if the said electrode needles are contacted upon the skin surface. Therefore, the device according to the present invention will cause a temporary false epilepsy by a minute electric current which is effective in rendering the criminal helpless and yet is safe.

An arresting device of the invention is adapted to be used instead of the conventional nightstick (baton). An electric shock current generating device is contained in a container (battery) **10** which is fitted in a thin long cylindrical hollow body **20**. A pair of electric shock needles **1** is fitted at one end surface of said cylindrical body **20**. The outer surface of the rear part of the cylindrical body **20** has a male screw **21** to which are screwed an adjusting ring **22** and a cap **23**. The cap **23** has a pushbutton switch **33**. The cap **23** also has an electric bulb **24** and its socket **25** is in contact with the output terminal **11** of the electric shock current generating device. A conducting plate **26** comes into contact with the socket **25** when the pushbutton switch **33** is pushed. Plate **26** is connected with a conducting plate **28** through conductive connector **27** at the inside wall of the cylindrical body **20** in its lengthwise direction. A conducting plate **31** is secured to the end surface of the side to which are fitted the electric shock needles **1**. Plate **31** is electrically connected with the electric shock needles **1** through a lead wire **32**.

On the outer surface of the forward end of the cylindrical body **20** a protective cylinder **34** is fitted, having a pair of small holes **2**, opposite the electric shock needles **1**. The protective cylinder **34** and the cylindrical body **20** are connected with each other through a spring **36** fixed to them at their respective ends. In the position shown in FIG. **1**, in which the opposed end surfaces of the protective cylinder **34** and adjusting ring **22** are in contact with each other, the protective cylinder **34** cannot move rightward. But, in such state in which the adjusting ring **22** has retreated as is shown in FIG. **2**, the protective cylinder **34** can retreat against the force of the spring **36** into contact with the adjusting ring **22** so that the electric shock needles **1** may correspondingly project out of the small holes **2** (see FIG. **3**). The projecting length of each electric shock needle can be adjusted by the set position of the adjusting ring **22**. The position of the adjusting ring **22** is determined by judging the thickness of the clothing worn by the criminal. The inserted length of each electric shock needle may be adjusted to the clothes of the criminal, whether the criminal wears an overcoat in winter or only a shirt in summer. When the end surface of the protective cylinder is pushed into contact with the criminal, the protective cylinder **34** will retreat and the electric shock needles **1** will be able to be pushed into the body of the criminal through the clothing.

A spindle **35** within the protective cylinder **34** has pasted on its surface a conducting plate **30**. Plate **30** is in sliding contact with the conducting plate **31** of the cylindrical body. A conducting plate **29** is in sliding contact with the conducting plate **28** of the cylindrical body is fixed to the tip of said spindle. Therefore, after or when the electric shock needles **1** are pushed into the body of the criminal, if the pushbutton switch **33** is pushed, an electric circuit is formed. The circuit includes the output terminal **11** of the electric shock current generating device, electric bulb **24**, socket **25**, conducting plate **26**, connector **27**, conducting plates **28** to **31**, lead wire **32**, electric shock needles **1** and the human body. The criminal will receive the electric shock current and will immediately lose his power to resist. When the cylindrical body **20** is pulled, due to the returning force of the spring **36**, the electric shock needles **1** will retreat and hide in the protective cylinder **34** (FIG. **2**). Further, when not in use, if the position shown in FIG. **1** is kept, the electric shock needles will not project and will be safe.

When the cylindrical body **20**, protective cylinder **34**, adjusting ring **22** and cap **23** are molded of strong plastic, they will be able to be made light and tough. The entire apparatus may be made so small as to be adapted to be carried in a handbag of a lady for self-protection. Further, in the illustrated embodiment, the electric bulb **24** may be utilized, for example, for traffic signaling at night and for communication by the flicker of the bulb. But it has no direct connection with the present invention and therefore shall not be detailed herein.

Though the present invention has been described with reference to the particular embodiment of the arrest device, it can be adapted for other electric shock generating devices, for example, for causing beasts to attain a syncopic state.

What is claimed is:

1. An electric shock generating device comprising a pair of electrode needles sufficiently sharp to pierce the skin, a source of electric current of sufficient intensity to induce false epilepsy, means connecting said needles to said supply, a hand-carried casing containing said source of electric current and said connecting means and provided at one end with said pair of electrode needles, and means within said casing for normally concealing said needles and for projecting said needles only when desired.

2. An electric shock generating device as claimed in claim 1, wherein said means for normally concealing said needles is a protective cylinder slidably fitted around the fore end portion of said casing and comprising a front plate with two holes opposite to said pair of needles, a conducting plate projecting inside of the protective cylinder, and a spring housed between the conducting plate and another conducting plate which is connected to the front end of the casing, said spring urging forward the first-mentioned conductive plate as well as the protective cylinder to conceal the needles therein, thereby said needles are only projected outside of the protective cylinder when the front plate is pressed against an object to be pierced and by such a force enough to extend the spring.

3. An electric shock generating device as claimed in claim 2 further comprising a cylindrical member engaged with the rear end portions of the casing to adjust the length of slide of the protective cylinder, thereby adjusting the length of needles to be projected outside of the protective cylinder.

4. An electric shock generating device as claimed in claim 3 further comprising an electric bulb connected to an output terminal of the source of electric current and a pushbutton switch to selectively form an electric circuit through the needles and the object being pierced.

5. An electric shock generating device as claimed in claim 1 wherein said source of electric current is a battery providing low voltage direct current.

* * * * *