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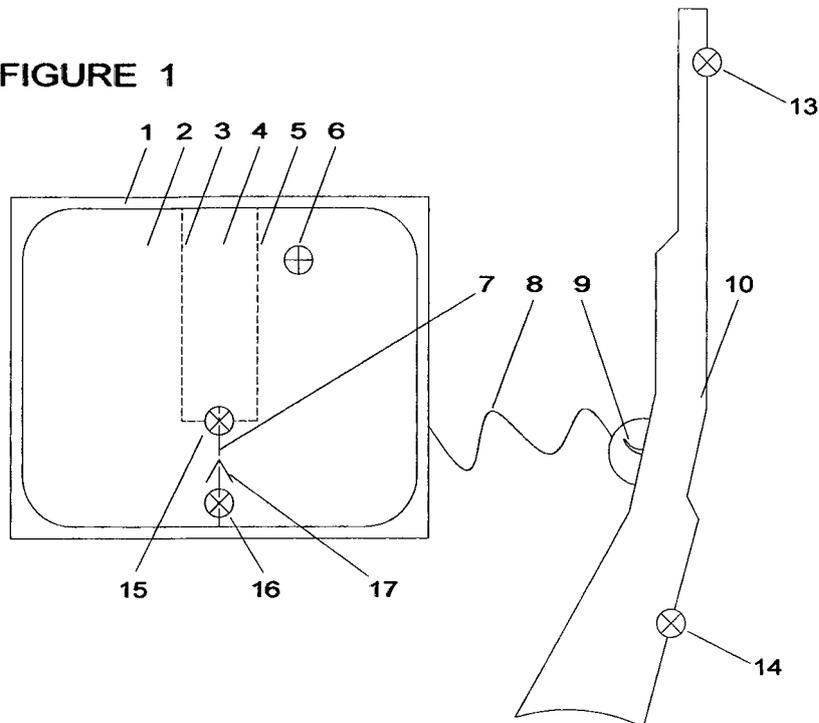
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(54) **FIRING INHIBITION SYSTEM FOR A WEAPON BASED ON SATELLITE TRACKING OF WEAPON AND UNINTENTIONAL TARGETS**

(57) Weapon locking system comprising means for assessing the location and orientation of the weapon by means of front and rear GPS receivers; means for assessing the location of fellow hunters or own forces who

each carry a GPS receiver and a location information transmitter; and means for blocking the firing mechanism whenever the weapon is pointed in a direction that might cause injury to the fellow hunter or the own forces.

**FIGURE 1**



**EP 3 093 606 A1**

## Description

**[0001]** Security system which consists on equipping a weapon with a locator signal receiver position by satellite (GPS) to detect any garment or accessory previously equipped with a GPS transmitter chip position recognizable by the weapon's safety system.

State indication of the technique:

**[0002]** Weapons currently used in hunting do not have any security system that detect the presence of any hunting companion or even anyone outside the hunting trip who could be walking around without their presence being noticed by hunters.

Technical proposed problem:

**[0003]** In most cases any hunter before shooting is forced to make a turn with the weapon for a few seconds to aim to a prey that is moving, so, at the time of shooting it is virtually impossible to ensure that there is no hunting companion in the path of the shot Any person outside the hunting trip can even pass by and get shot. Many of these type of accidents are caused each year with serious injuries or even death as a result.

Proposed solution:

**[0004]** Based on a current fire weapon, a locator positioning system satellite (GPS navigator) is installed in it, two position transmitters are also installed, one at each end of the weapon, with these transmitters two points on the screen can be represented and therefore they represent a line that goes through both points, marking the axis and the direction of the firing of the weapon, and two parallel lines on both sides of the axis. Both separated with about 50 centimeters to delimit between them a security zone, on the other hand another signal position transmitter with the same frequency as the weapon is installed in a vest so such vest is detected in the GPS screen. When the vest appears represented between the two lines of the screen, the system detects that the person wearing this vest is in danger of being shot, consequently it proceeds to block the firing trigger and it will remain blocked until the vest is out of safety zone.

**[0005]** The whole system consists of the following elements:

- A weapon (10);
- A first transmitter GPS signal (13);
- A second transmitter chip GPS signal (14);
- At least a third transmitter chip GPS signal (19);
- A GPS signal receiver system (1), to track the geographical position of the GPS signal transmitter chips;
- A locking and unlocking system of the trigger of the weapon (9 or 12);

A cable (8) connection between the GPS receiver signal (1) and the system of the weapon's trigger lock.

5 **[0006]** The GPS first signal emitter chip (13) which is installed at the front end of the weapon and gives a signal which allows you to locate it by a symbol (15) in the front end of the weapon in the GPS signal receiving system.

10 **[0007]** The GPS second emitter signal chip (14) is installed at the back end of the weapon and gives a signal which allows you to locate it by a symbol (16) in the back end of the weapon in the GPS signal receiving system.

15 **[0008]** The GPS third emitter signal chip (19) is installed on a piece of clothing such as a vest (18) or on an accessory such as a cap or a bracelet, to emit a signal which is located by a symbol (6 or 11) the position of any person which is wearing such garment or accessory in the GPS signal receiver system.

20 **[0009]** The third emitter signal chip (19) can be manufactured in series with the same GPS signal transmission frequency, so any person wearing a chip with these qualities on their clothes or accessories can be identified by any GPS signal receiver system (1) of any weapon equipped with such location system.

25 **[0010]** The GPS signal receiver system (1) represents the axis of the shot (7) from de weapon in a virtual or real cartographic system from the representation of the symbol (15) of the position of the first chip (13) and of the symbol of the second emitter chip position of the GPS signal (14), and it also represents two parallel lines (3 and 5) to such axis (7) from the GPS signal first transmitter chip symbol onwards, with a separation of about 50cm between each depending on the axis of the shot, or what is considered enough to define a security strip (4) which could keep any person that could enter in such security strip in a safe position marked by the axis of the fire of the weapon.

30 **[0011]** The GPS signal receiver system can be configured so that you can track the position of the third GPS signal emitter chip (19), in a circle with a radius equal to the range of the weapon (10). And in case that the symbol (11) representing the third GPS signal emitter chip (19) would be located between the two parallel lines at the axis of the shot, this would mean that a person is in the shot trajectory and therefore the GPS signal receiver system (1) sends a signal to the trigger blocking system (9) of the weapon, proceeding to block the shot. Preventing the shooter to fire the weapon even if he/she is not aware of the risk.

35 **[0012]** The GPS receiver signal again sends a signal to the trigger lock system (12) of the weapon, proceeding to unlock the trigger when the position (6) of the third GPS signal transmitter chip (19) exits the security strip of the axis of the shot.

40 **[0013]** The GPS receiver signal again sends a signal to the trigger lock system (12) of the weapon, preventing the actuation of the trigger when it receives a signal from the GPS signal receiver (1), and it again allows the ac-

tuation of the trigger when it receives another signal from the locking and unlocking trigger system of the weapon.

**[0014]** The axis of the shot could also be represented by substituting the second GPS signal emitter chip (14) for a compass, so in this case it would be enough with the first GPS signal emitter chip (13) to track its position and with the compass to determine the direction of the shot. However it is much better to have two chips to determine the direction of the shot.

**[0015]** The GPS signal receiver system (1) can be a software application integrated into the own weapon during its manufacture, with or without a provided screen (2), keeping in mind that the shooter does not need the screen to shoot, since the tracking, locking and unlocking functions are done by the GPS signal receiver system (1) without the shooter having to worry about such function, however the physical screen could help you allowing you to see before shooting if there is someone around or not.

**[0016]** The GPS receiver system (1) can be a software application integrated in a mobile phone, in this case it would have to emit the signal of the locking and unlocking trigger system wirelessly or via cable.

**[0017]** The first (13) and second GPS signal transmitter chip (14) emit at a specific frequency to be detected only by the GPS signal receiver system (1) of the weapon. While the third GPS signal transmitter chip (19) can be manufactured serially configured to emit in a universal frequency, so any person who has such third GPS signal transmitter chip (19) can be tracked and detected by any weapon, regardless of where the person wearing the third chip is.

**[0018]** The implementation of a tracking GPS system by satellite (1) with a screen (2) which defines a security strip (4) on both sides of the axis representation of the shot (7), delimited by the representation of a front (15) and another back transmitter (16) previously installed in the weapon (10).

**[0019]** The application to a vest (18), bracelet, cap or any piece of clothing; of a GPS satellite position transmitter so it emits its position and it would be recognizable by the location system described previously.

**[0020]** The installation of a trigger blocking system (9) of the weapon (10) which keeps the shot locked when the weapon's locating system (1) detects the transmitter (19) of any vest inside the security zone which is on both sides of the shooting axis (7).

**[0021]** The installation of a trigger blocking system (9) of the weapon (10) which maintains the shooting unlocked when the location system (1) of the weapon (10) does not detect the representation of any symbol (6) of the transmitter (19) of any vest inside the security zone (4) which is on both sides of the shooting axis (7), or such is detected outside of the security zone (6) which is on both sides of the shooting axis.

Advantages:

**[0022]** If all hunters go to the hunting excursion equipped with the previously mentioned vest, the risk of an accident by gunshot is avoided.

**[0023]** Anyone outside of the hunting excursion, can also be equipped with this type of vests, this will also avoid the risk of shot.

**[0024]** This could also be adapted to the existing legislation to enforce the use of the vest equipped with the third GPS signal transmitter chip and make its position previously frequent by the legislature so that it can be manufactured by any producer and it can be detected by the weapon arrest system regardless of the manufacturer.

**[0025]** It could also be applied in military maneuvers.

Explanation of the figures of the drawings:

**[0026]**

Figure 1: It is a scheme which details a GPS screen locating a vest outside the security zone therefore the trigger remains unlocked, allowing the firing of the weapon.

Figure 2: It is a scheme which details a GPS screen locating a vest inside the security zone therefore the trigger is blocked, avoiding the firing of the weapon.

Figure 3: It is a scheme in which a vest and the position of the transmitter will be located in the GPS screen.

Explanation of the references of the drawings:

**[0027]**

Reference 1: GPS system signal receiver for location and tracking via satellite GPS signal emitter chip.

Reference 2: GPS signal receiver system screen.

Reference 3: Line delimiting the security strip on the left side of the GPS screen.

Reference 4: Security zone

Reference 5: Line delimiting the security strip on the left side of the GPS screen.

Reference 6: Symbol representing the third GPS signal transmitter chip of the vest outside the security zone.

Reference 7: Axis representing the direction of the shot between the position of the first chip in the front end screen, and the second chip in the weapon's

rear end.

Reference 8: Cable connecting the GPS device screen with the trigger lock.

Reference 9: Device of locking and unlocking the trigger in unlocked position.

Reference 10: Weapon

Reference 11: Symbol that represents the third GPS signal transmitter chip of the vest inside the security zone.

Reference 12: Device of locking and unlocking the trigger in locked position.

Reference 13: First GPS signal transmitter chip to output the position of the front end of the gun.

Reference 14: Second GPS signal transmitter chip to output the position of the back end of the weapon.

Reference 15: Symbol on the screen that represents the transmitter of the front end of the weapon.

Reference 16: Symbol on the screen that represents the transmitter of the back end of the weapon.

Reference 17: Symbol on the screen axis that represents the shooting direction.

Reference 18: Vest, bracelet, hat, or any type of clothing that allows you to carry the third transmitter GPS position chip, so the weapon's GPS receiver system could detect it and check if you are in the firing line or not.

Reference 19: GPS third signal transmitter placed on the vest, hat, bracelet or clothing so it can detect the presence of the person wearing it.

**[0028]** The present invention relates to weapons, of the type indicated in the preamble of the claim.

**Claims**

1. Locking system of weapons by satellite tracking comprising:

- A weapon (10);
- A first transmitter chip GPS signal (13);
- A second transmitter chip GPS signal (14);
- At least a third transmitter chip GPS signal (19);
- A GPS signal receiver system (1), to track the geographical position of the GPS signal transmitter chips;

A locking and unlocking system of the trigger of the weapon (9 or 12);

A cable (8) connection between the GPS receiver signal (1) and the system of the weapon trigger lock.

2. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the GPS first signal emitter chip (13) which is installed at the front end of the weapon and gives a signal which allows you to locate it by a symbol (15) in the front end of the weapon in the GPS signal receiving system.

3. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the GPS second emitter signal chip (14) is installed at the back end of the gun and gives a signal which allows you to locate it by a symbol (16) in the back end of the weapon in the GPS signal receiving system.

4. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the GPS third emitter signal chip (19) is installed on a piece of clothing such as a vest (18) or on an accessory such as a cap or a bracelet, to emit a signal which is located by a symbol (6 or 11) the position of any person which is wearing such garment or accessory in the GPS signal receiver system.

5. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the third emitter signal chip (19) can be manufactured in series with the same GPS signal transmission frequency, so any person wearing a chip with these qualities on their clothes or accessories can be identified by any GPS signal receiver system (1) of any weapon equipped with such location system..

6. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the GPS signal receiver system (1) represents the axis of the shot (7) from the weapon in a virtual or real cartographic system from the representation of the symbol (15) of the position of the first chip (13) and of the symbol of the second emitter chip position of the GPS signal (14), and it also represents two parallel lines (3 and 5) to such axis (7) from the GPS signal first transmitter chip symbol onwards, with a separation of about 50 centimeters between each depending on the axis of the shot, or what is considered enough to define a security strip (4) which could maintain any person that could enter in such security strip in a safe position marked by the axis of the fire of the weapon..

7. Locking system of weapons by satellite tracking, ac-

cording to previous claim, characterizes that, the GPS signal receiver system can be configured so that you can track the position of the third GPS signal emitter chip (19), in a circle with a radius equal to the range of the weapon (10). And in case that the symbol (11) representing the third GPS signal emitter chip (19) would be located between the two parallel lines at the axis of the shot, this would mean that a person is in the shot trajectory and therefore the GPS signal receiver system (1) sends a signal to the trigger blocking system (9) of the weapon, proceeding to block the shot. Preventing the shooter to fire the weapon even if he/she is not aware of the risk.

- 8. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the GPS receiver signal again sends a signal to the trigger lock system (12) of the weapon, proceeding to unlock the trigger when the position (6) of the third GPS signal transmitter chip (19) exits the security strip of the axis of the shot.
- 9. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the GPS receiver signal again sends a signal to the trigger lock system (12) of the weapon, preventing the actuation of the trigger when it receives a signal from the GPS signal receiver (1), and it again allows the actuation of the trigger when it receives another signal from the locking and unlocking trigger system of the weapon.
- 10. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the axis of the shot could also be represented by substituting the second GPS signal emitter chip (14) for a compass, so in this case it would be enough with the first GPS signal emitter chip (13) to track its position and with the compass to determine the direction of the shot. However it is much better to have two chips to determine the direction of the shot.
- 11. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the GPS signal receiver system (1) can be a software application integrated into the own weapon during its manufacture, with or without a provided screen (2), keeping in mind that the shooter does not need the screen to shoot, since the tracking, locking and unlocking functions are done by the GPS signal receiver system (1) without the shooter having to worry about such function, however the physical screen could help you allowing you to see before shooting if there is someone around or not..
- 12. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the GPS receiver system (1) can be a software applica-

- 5 13. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the first (13) and second GPS signal transmitter chip (14) emit at a specific frequency to be detected only by the GPS signal receiver system (1) of the weapon. While the third GPS signal transmitter chip (19) can be manufactured serially configured to emit in a universal frequency, so any person who has such third GPS signal transmitter chip (19) can be tracked and detected by any weapon, regardless of where the person wearing the third chip is.
- 10 14. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the implementation of a tracking GPS system by satellite (1) with a screen (2) which defines a security strip (4) on both sides of the axis representation of the shot (7), delimited by the representation of a front (15) and another back transmitter (16) previously installed in the weapon (10).
- 15 15. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the application to a vest (18), bracelet, cap or any piece of clothing; of a GPS satellite position transmitter so it emits its position and it would be recognizable by the location system described previously.
- 20 16. Locking system of weapons by satellite tracking, according to previous claim, characterizes that, the installation of a trigger blocking system (9) of the weapon (10) which keeps the shot locked when the weapon's locating system (1) detects the transmitter (19) of any vest inside the security zone which is on both sides of the shotting axis (7)..
- 25 17. Locking system of weapons by satellite tracking, according to previous claim, characterized that, the installation of a trigger blocking system (9) of the weapon (10) which maintains the shotting unlocked when the location system (1) of the weapon (10) does not detect the representation of any symbol (6) of the transmitter (19) of any vest inside the security zone (4) which is on both sides of the shotting axis (7), or such is detected outside of the security zone (6) which is on both sides of the shooting axis.
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tion integrated in a mobile phone, in this case it would have to emit the signal of the locking and unlocking trigger system wirelessly or via cable.

FIGURE 1

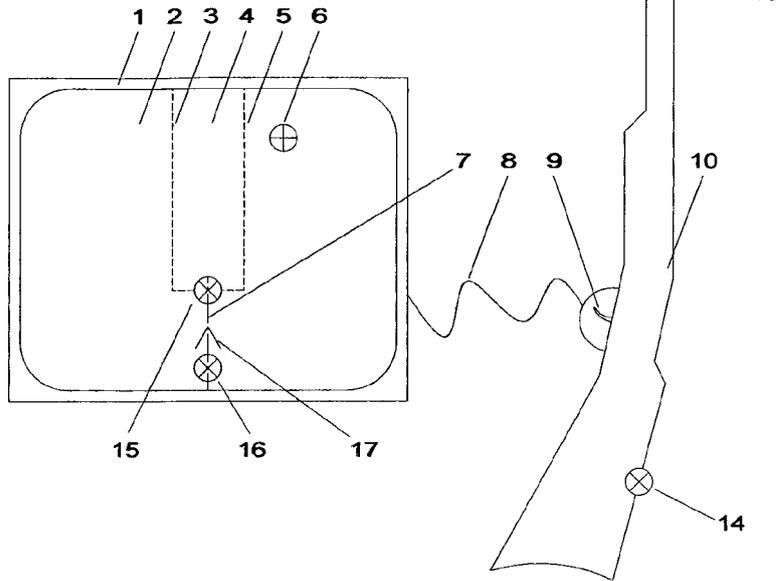


FIGURE 2

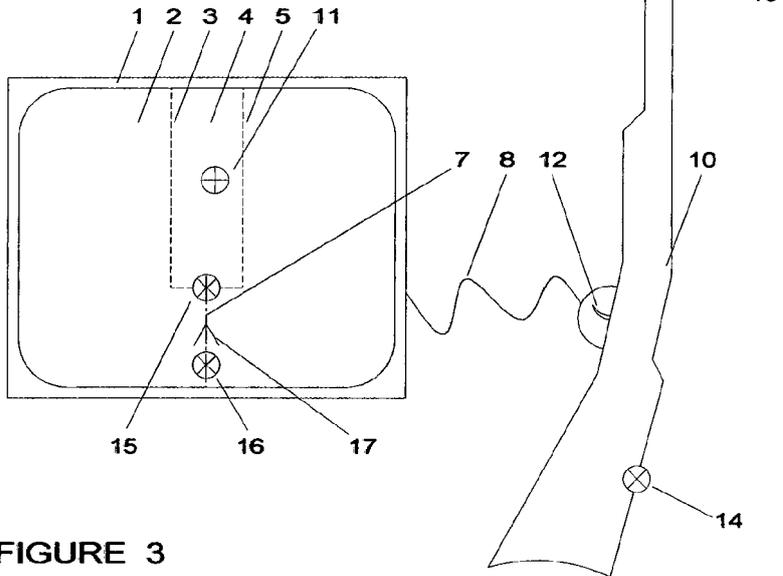
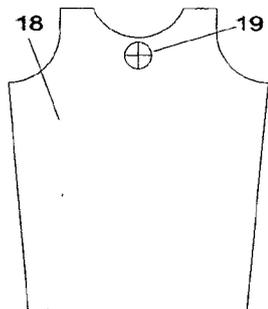


FIGURE 3





EUROPEAN SEARCH REPORT

Application Number  
EP 16 38 4601

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 5 October 2016	Examiner Van Leeuwen, Erik
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	

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EP 16 38 4601

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
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05-10-2016

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