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(54) **MULTIPLE-CHARGE REMOTE-ACTING ELECTROSHOCK WEAPON**

(57) The utility model relates to a non-lethal police and civilian remote-acting electroshock weapon. The technical result consists in increasing the reliability and effectiveness of the performance of a remote-acting electroshock weapon, improving the likelihood of overcoming armed targets by using two pairs of current conducting wires simultaneously, and increasing the likelihood of arresting an offender. The present multiple-charge remote-acting electroshock weapon, with firing cartridges

having pyrotechnic devices for unlocking the cartridges from the frame of the weapon, comprises locking mechanisms for the firing cartridges with forced unlocking of a firing cartridge from the frame of the weapon, a mechanical cartridge lock for preventing automatic unlocking from the frame of the weapon, and a member for the control of the operating time of an electronic circuit in the weapon, irrespective of the position of a trigger element after firing.

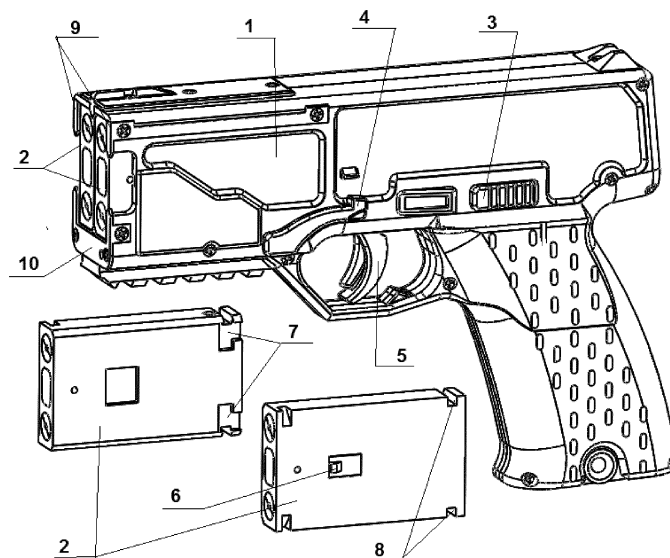


FIG. 1

Description

Field of the utility model

[0001] The utility model relates to multiple-charge remote-acting electroshock weapon (DESHO) with electrical strike system.

State of the art

[0002] DESHO versions Taser X2 and Taser 7 from Axon Enterprise, Inc., which is the world leading company in the field of electroshock weapon (formerly "Taser Int.", USA), are known [1] having the form of a pistol consisting of a frame comprising an electronic part with an electronic high voltage unit, which strikes the target (offender, biological target, bio-target) with an electrical current, and a special pocket (cavity at the front of the weapon) containing two firing cartridges. Firing cartridges are installed in the frame and held in it by means of locking mechanisms. The cartridges are in contact with the contact electrodes of the DESHO (electrodes for contact impact on the target by pressing against the target's body, without firing of firing cartridges). When firing, current conducting wires equipped with devices for holding them on the target (probes having needles with barbs) are thrown from firing cartridges into the target. Via the current conducting wires hit the target, the shock voltage of the high voltage electrical current generated by a high voltage unit is transmitted from the DESHO to the target. The advantage of analogues is the possibility of firing shots at the target with two cartridges one after the other (duplicate shot) and the possibility of making an arrest (seizure). More details about these functions of the DESHO are described below in the description of the prototype of the proposed DESHO.

[0003] The disadvantage of analogues is that the firing cartridges are locked to the weapon by locking mechanisms and are not automatically separated from the weapon after firing. This significantly limits the ability to quickly and accurately fire a second shot in the event that the next target appears behind the user of the weapon or in a plane behind the current conducting wires already stretched towards the first target. The current conducting wires stretched towards the first target do not allow the user to turn with the weapon to the target that has appeared behind his or her back, because strong current conducting wires fixed by the barbs of the probe needles on the clothes of the first target interfere with this. Said wires interfere with the physical rotation of the shooter and the rapid aiming of the weapon at the target. In addition, there may be current conducting wires from the previous shot stretched towards the first target on the line of the next shot, which will inevitably change the trajectory of the probes motion in the new shot, and they will not hit the target even with correct aiming. The production of two consecutive aimed shots is possible only in an arc, from left to right, which is specified by the se-

quence of initiation of cartridge shots (from left to right) with each pull of the trigger (trigger element). In the same way, the wires from the previous shot will deflect the flight path of the probes in the next shot when the next target appears in the plane behind the wires stretched towards the first target. The disadvantage of analogues is also that reloading the weapon requires from the user to remove spent cartridges from the DESHO using both hands. Removing the spent cartridge after firing automatically or using hand holding the weapon is not provided. Therefore, reloading the weapon in the situation when it is necessary to quickly continue firing, the user loses time for removing the spent cartridge using both hands.

[0004] As a prototype, DESHO was chosen according to the patent of the Russian Federation No. 2462678, in the form of 3-charge pistol with firing cartridges installed in its frame, which cartridges are spring loaded towards the direction of extraction from the frame and eject current conducting wires when fired, which current conducting wires, when they hit the target, exert an electroshock effect on the target with high voltage electric discharges generated by an electrical circuit of the shock voltage of electrical current with a power supply located in the pistol frame. Before the shot, the cartridges are fixed in the frame of the weapon with the first recesses of the cartridge case and the teeth of mechanical spring locks located in the frame of the weapon behind the trigger guard of the frame of the weapon, and with the second recesses of the cartridge cases and special hooks of the locking element located in the frame and engaging with the trigger, when fired. Firing cartridges comprise a propelling charge of a pyrotechnic substance being initiated from a low voltage electrical current supplied via special cartridge start contacts to the charge igniter when the trigger is pressed. The charge of the pyrotechnic substance throws out current conducting wires at the target, which current conducting wires have probes with barbs at the ends that hold them on the target's clothing. After the first shot is fired and before the second shot, the spent cartridge with current conducting wires is extracted from the pistol frame by a spring compressed when loading (installing) the cartridge into the pistol frame. After firing the second shot and before the third shot, the second spent cartridge with current conducting wires is also ejected from the pistol frame by the spring compressed when loading (installing) the cartridge into the pistol frame.

[0005] The previously compressed spring also removes the third spent cartridge with current conducting wires from the pistol frame. In the prototype weapon, the extraction of cartridges is performed automatically, after releasing the trigger pressed when firing, after the user has convinced (visually) of the defeat of the target (usually falling to the ground). Automatic unlocking the spent cartridges from the frame of the weapon is carried out by pressing out the teeth of the mechanical spring locks located in the frame of the weapon from the first recess of the cartridge cases with a special piston of a gas engine

extended from the cartridge case under the action of the pressure of combustion gases of the pyrotechnic propellant charge of the cartridge when firing (throwing probes with current conducting wires at the target). After releasing the trigger pressed by the user during the shot, the hook of the locking element engaging the trigger is pressed out from the second recess of the cartridge case, after which the cartridge is extracted from the frame of the weapon by the force of the expanding springs compressed with the cartridges when loading the cartridges. The advantage of the prototype is the absence of the disadvantages described in the analysis of the analogues of the utility model.

[0006] The disadvantage of the prototype DESHO is that the extraction of spent cartridges with current conducting wires during firing can be performed only after the gas engine of the cartridge has been fired. In case of its failure, for example, if the piston of the gas engine does not extend after the shot (due to seizing, sticking or blocking of gas engine parts resulted from the backwardness of domestic technologies in manufacturing precision, freezing (if moisture gets into the parts of the gas engine in the cold season) or is not fixed in the extended position after firing, due to reasons similar to those described above or inaccuracies during the manufacturing of the piston or elements fixing it in the extended position, the cartridge will not be extracted.

[0007] The failure of extraction after the first shot of, for example, the first firing cartridge, makes the defeat of the second target by the second (and subsequent) shot ineffective, since the shock voltage of the electrical current that should be supplied to the second (and then subsequent) target after firing the second (and subsequent) cartridge at the target is bypassed by the first target, which was hit with the current conducting wires of the first cartridge being fired but not extracted. That is, in case of failure to extract one cartridge hit the target with current conducting wires, the next shot at the next target will be "short circuited" (bypassed), wherein the shock voltage of the electrical current that should be transmitted to the next target will be bypassed by the target hit first. Therefore, no damaging effect on the second and subsequent targets occurs. But even if the current conducting wires of the first shot do not hit the target, and the device for automatic extraction of the first shot cartridge fails, the second shot fired at the target will almost always be ineffective for hitting the target, since the current conducting wires from the first shot inevitably intersect when falling to the ground, both in the case of a miss with both current conducting wires and a miss on targets with one current conducting wire. In Russia, there are no technologies for the production of analogues of the high voltage current conducting wire DuPont™ Tefzel® ETFE [2] with an electrical insulation strength of 11-16 kV alternating current (for one core) used in all versions of the DESHO from "Axon Enterprise, Inc." company. The current conducting wires in all versions of Russian DESHO without exception are a usual mounting wire

of the type MS, MSE or MGTF with sintered or twisted without sintering winding made of fluoroplastic-4D and designed for a rated voltage of 250-500 V alternating current (for a common core of a stranded wire). Therefore, in the case of intersection of the current conducting wires of the DESHO produced and used in Russia, taking into account the high voltage shock electrical current in the DESHO, an inevitable electrical breakdown of the insulation of the current conducting wires occurs in the DESHO forming corresponding short circuit of the current conducting wires with bypassing of the electrical current designated for damaging the target. For the second shot at the target unaffected by the first shot, it is necessary to quickly extract the spent cartridge with the current conducting wires crossed after the first shot.

[0008] In this case, the extraction of the cartridge with the failed gas engine from the frame of the prototype DESHO can be performed only with two hands of the user. The user must hold the weapon with one hand and must press a head (pressure piece) of a mechanical spring lock of the cartridge with the failed gas engine with the other hand to extract it. With one hand of the user holding the weapon during firing, the specified manipulation of extraction of the cartridge with the failed gas engine cannot be performed due to the location of the heads of the mechanical spring lock behind a trigger guard of the frame of the weapon and out of reach of the fingers of the hand holding the weapon and at the same time due to the need to press them perpendicular to the longitudinal axis of the weapon from below to extract the cartridge. Due to the need for the user to use both hands in the event of the gas engine failure, the time for reloading with a new cartridge instead of the spent one increases, since the user is forced to use the second hand to extract the spent cartridge first and only then to install a new cartridge into the weapon. Given more than 25 years of the widest practice of using DESHO by the US police, it is known that in many cases of stopping offender's aggression, law enforcement officer uses his or her second hand to hold handcuffs, a flashlight or a firearm and therefore simply physically cannot quickly use it to extract the spent cartridge for subsequent reloading with a new cartridge. The disadvantage of the prototype DESHO also lies in the absence of the function of arresting (seizure) the offender, which function is already considered standard in the DESHO versions produced by "Axon Enterprise, Inc." company, the world leading manufacturer of DESHO. The arrest function is implemented in all DESHO versions from "Axon Enterprise, Inc." company, in which the firing cartridges, after firing, hitting the target and releasing the trigger by the user of the DESHO, are not automatically extracted from the DESHO, but are removed from the DESHO only manually. In such DESHO, when the trigger is released after a shot and hitting the target by the current conducting wires, the spent cartridges are not automatically removed from the weapon and still connect the DESHO to the target with the current conducting wires until the fired cartridge is manually re-

moved, and the shock current voltage is still applied to the target after releasing the trigger, during the timer operation (up to 5-15 s) depending on the specific DESHO version or purpose (police or civilian). Therefore, the law enforcement officer hits the target, releases the trigger, puts the DESHO on the ground and handcuffs the immobilized offender, while the timer delivers the shock electrical current voltage to the target keeping the target immobilized. In this way, the main number of arrests (seizures) of offenders involving the use of DESHO has been made in the United States for more than 20 years. In Russia, the DESHO with the function of making an arrest has not yet entered service in security services. In the prototype DESHO, the cartridges are automatically extracted after releasing the trigger, and the mode of continuing operation of the electrical circuit of the shock electrical current voltage after releasing the trigger is also not provided, therefore, the arrest of the offender with the release of the weapon from the user's hands and the release of both hands for arrest actions is impossible.

[0009] The number of charges in the form of firing cartridges over 2 is currently considered excessive for the DESHO. "Axon Enterprise, Inc." company previously produced the DESHO Taser X3 version designed for three firing cartridges. However, the use of three firing cartridges increases the dimensions of the weapon in thickness to unacceptable for comfortable wearing by law enforcement officers in a holster on the body. At present, the release of the Taser X3 version has been discontinued, because law enforcement and the US Department of Justice experts believe, based on the experience of using the Taser X3 in US law enforcement agencies, that two shot DESHO versions such as Taser X2 and Taser 7 are sufficient in police practice.

[0010] As follows from the multiple and long term practice of the use of DESHO by the US police, in most cases of the use of multiple-charge DESHO versions, a second shot at the target is carried out if the first shot for some reason did not hit the target (missing on the target with one or two current conducting wires, breakage of the current conducting wire, penetration of probes into thick folds of clothing, etc.). That is, the second shot is used mainly as a reserve or spare, although it can be used to defeat the second offender after the first one (Taser X2). For the reliability of hitting an aggressive and armed target, in order to exclude the possibility of not hitting the target with one cartridge and the loss of time for the law enforcement officer to realize that the target has not been hit (thereby with the possibility for the offender to use weapon), quick shots at the target with two cartridges one after the other are used (duplicate shot) as well as in the usual practice of using firearms in US law enforcement agencies (hitting a single target with several quick successive shots at once). However, quick reloading with new cartridges instead of the fired ones in the Taser X2 and Taser 7 versions is impossible, since the spent cartridges are not automatically removed from the weapon after the shots, and user must remove them using his or

her second hand.

[0011] In the multiple-charge prototype DESHO, double hitting the target with quick successive shots is impossible, since when the trigger is released after the shots, the cartridges with the current conducting wires stretched towards the target are automatically extracted from the weapon.

[0012] The proposed utility model makes it possible to eliminate the disadvantages described for the prototype, therefore expanding the range of possibilities for the effective use of the DESHO.

Disclosure of utility model

[0013] The technical result of the proposed utility model is to eliminate the disadvantages inherent in both the prototype DESHO and world best samples of the DESHO from "Axon Enterprise, Inc." company, namely, to develop a multiple-charge DESHO with increased operational reliability and effectiveness, which consists in eliminating the effect of bypassing in the DESHO after a shot, increasing the speed of weapon reloading in case of failure of devices for automatic extraction of spent cartridges, the possibility to use firing cartridges of reduced cost, the possibility of hitting armed targets with two pairs of current conducting wires simultaneously, and the possibility of arresting the offender.

[0014] The desired goal is achieved with multiple-charge remote-acting electroshock weapon comprising a frame, a power source, an electronic circuit that generates a high voltage electrical current voltage that damages the target, a trigger element, firing cartridges equipped with thrown current conducting wires and pyrotechnic devices for unlocking the cartridges from the frame of the weapon located in the firing cartridges, spring extractors of the firing cartridges, an electronic circuit responsible for the sequence of the firing cartridges initiation, and at least one mechanical locking mechanism for the firing cartridges driven with a human-powered drive mechanism with forced unlocking of the firing cartridge from the frame of the weapon, which locking mechanism is actuated by finger of user's hand holding the weapon, at least one mechanical cartridge lock for preventing automatic unlocking from the frame of the weapon having a human-powered drive mechanism actuated with the finger of user's hand holding the weapon, and a member for the control of the operating time of the electronic circuit generating high voltage electrical current voltage that damages the target, irrespective of the position of the trigger element after firing.

[0015] An additional feature of the claimed device is that the locking mechanism with forced unlocking of the cartridges from the frame of the weapon is driven by a slider with a longitudinal movement relative to the frame of the weapon.

[0016] An additional feature of the claimed device is that the locking mechanism with forced unlocking of the cartridges from the frame of the weapon is driven by a

slider with a transverse movement relative to the frame of the weapon.

[0017] An additional feature of the claimed device is that the locking mechanism with forced unlocking of the cartridges from the frame of the weapon is driven by a slider with a rotary movement.

[0018] An additional feature of the claimed device is that the electronic circuit responsible for the sequence of the firing cartridges initiation, has a selector switch for switching the sequence of the firing cartridges initiation.

The utility model is illustrated by drawings, which show:

[0019]

FIG. 1 and FIG. 2 - Appearance of DESHO charged with firing cartridges and the firing cartridges.

FIG. 3 - DESHO before shots with half of the frame removed (internal wiring is not shown) and two types of half of the frame with rotary forced extraction slider.

FIG. 4 - DESHO during the second shot (the first firing cartridge is extracted after the shot) with half of the frame removed and two cutaway views of the trigger assembly housing to different depths.

FIG. 5 - DESHO after the shot, with positive lock of the cartridges in the frame included (pressure piece 4 and drive pusher 16 are removed).

FIG. 6. Firing cartridge design.

FIG. 7. Firing cartridge of reduced cost and its cutaway view.

FIG. 8. Experimental DESHO with cartridges and half of the frame removed.

Implementation of the utility model

[0020] FIG. 1 and FIG. 2. DESHO consists of a frame 1 assembled from two symmetrical halves, in a pocket (front hollow cavity for installing the firing cartridges therein) of the frame there are firing cartridges 2 fixed in the frame 1 when loading. On each side of the frame there are sliders 3 with forced manual unlocking the firing cartridges 2 from the frame 1 and pressure pieces 4 of the mechanical cartridge locks designed for positive locking the cartridges in the frame 1.

[0021] A trigger 5 is designed to start operation of an electronic circuit in the DESHO, which circuit generates high voltage pulses of shock electrical current, to initiate firing of the firing cartridges 2 and fixing them in the frame 1 when fired and then for the time during which the target is damaged by the electrical current, and also to unlock the cartridges from the frame after firing. The firing cartridges 2 do not fundamentally differ from the firing cartridges according to the patent of the Russian Federation No. 2462678, but they have a gas engine which, unlike the cartridges according to the patent RU No. 2462678, does not push the protrusion out of the cartridge when fired, but pushes a movable protrusion 6 on the cartridge

2 into the cartridge case flush with the generatrix of the cartridge case. The cartridge case also has a recess 7 for fixing the cartridge in the frame 1 with the trigger 5 and a recess 8 for positive locking in the frame 1. Electrodes 9 and 10 are located at the front end of the frame 1. A removable battery 11 is located in the DESHO handle, a safety lock 12 and buttons 13 for controlling the modes of operation of the DESHO are located at the end of the frame 1, and also a display indicator 14 of the operation of electronic systems in the weapon can be located thereon.

[0022] FIG. 3. The firing cartridge 2 is fixed in the frame 1 by its own movable protrusion 6 engaging with a movable spring loaded locking mechanism 15 (present in each half of the frame 1) moving vertically, downward relative to the frame of the weapon, in coordination with a spring loaded drive pusher 16 (which is also present in each half of the frame 1) and connected to the slider 3. When the slider 3 is pressed by user's finger and the drive pusher 16 moves forward relative to the frame of the weapon, it engages the locking mechanism 15 moving it down relative to the frame of the weapon, and at the same time the movable protrusion 6 is unlocked from the locking mechanism 15 and the cartridge is pushed (extracted) from the frame of the weapon by one of two spring loaded ejectors 17 (extractors) located in the frame 1 (see FIG. 4), ejection springs of which were compressed by the cartridge cases when the cartridges were loaded into the pocket designed for installing the weapon cartridges therein. Therefore, when pressing the sliders 3 with the thumb or forefinger of the hand holding the weapon, it is possible to forcibly unload the weapon from the cartridges charged into it, when it is necessary to unload the weapon (for example, for storage), or forcibly extract the spent cartridge after the shot in case of failure of the gas engine or the movable protrusion 6 driver and, accordingly, the failure of automatic extraction of the spent cartridge after releasing the trigger 5.

[0023] In the frame 1, there is an electronic circuit 18 that generates the high voltage electrical current voltage that damages the target, which circuit includes an electronic circuit responsible for the sequence of the firing cartridges initiation, a timer for controlling the time of generating the voltage that damages the target, and the display indicator 14 of the operation of the electronic circuit, battery (and other information related to operation of the weapon), if necessary, and a battery 11 for the power supply of the DESHO.

[0024] 5. The locking mechanism 15 can be driven from the slider 3 (buttons) with longitudinal movement relative to the length of the weapon or from the slider with transverse movement or rotary movement around a certain axis. Longitudinal, transverse or rotary movement of the slider relative to the frame of the weapon is determined by the designer. The two lower views on FIG. 3 (reduced views) show a view of the weapon with the rotary slider having a rotary lever on the inner side of the half of the frame of the weapon, which lever engages a

recess on the drive pusher moving the drive pusher to unlock the cartridge locking mechanism during the rotary movement. It is clear that both the rotary movement and transverse movement of the slider can be transmitted to the locking mechanism 15 by simple devices in the form of levers, inclined planes, rack and pinion gears or their combinations that are widely used and understandable to any specialist in mechanical engineering.

[0025] FIG. 4. When the trigger 5 is pressed to fire a shot, it acts, with its front protrusion, on the element 19 that enters the recess 7 with its front tooth for fixing the cartridge. At the final stroke of the trigger 5, it turns on, with its rear protrusion, a tact switch 20 starting the operation of the electronic circuit 18 that generates a high voltage electrical current voltage that damages the target and a low voltage electrical current voltage that initiates a propellant charge of the pyrotechnic substance of the cartridge with throwing current conducting wires at the target. At the moment of firing, the gas engine of the cartridge moves a cartridge element 21, which has protrusion 6 on the reverse side inside the cartridge so that the protrusion 6 disengages the spring loaded locking mechanism 15 and is kept from being extracted from the frame of the weapon by the spring loaded ejector 17 only with a tooth on the element 19 that entered the recess 7 for fixing the cartridge. After hitting the target, the user releases the trigger 5, the tooth on the element 19 comes out of the recess 7, and the spent cartridge is unlocked from the frame 1 with the extraction of the cartridge having the current conducting wires thrown out at the target from the frame 1 by the ejector 17 under the action of its spring being compressed when loading the weapon with the cartridge.

[0026] FIG. 5. If it is necessary to produce two quick successive shots at an offender (duplicate shot) to increase the reliability of defeat or arrest of armed offender, taking into account the likelihood of a possible failure of immobilization due to probability of the current conducting wire breakage or non-attachment of the current conducting wire to the target during the first shot, a law enforcement user of the DESHO presses the pressure pieces 4 of the mechanical cartridge locks with the index finger of the hand holding the weapon, moving them upward relative to the frame of the weapon, for positive locking the cartridges in the frame 1 before the start of firing. The crossbars of the locks 22 (connected to the pressure piece 4) enter the recesses 8 on the cartridge for positive locking in the frame 1. In this case, even with the protrusion 6 unlocked from the locking mechanism 15 (as shown in FIG. 5) and the trigger 5 released, the cartridge 2 remains in the weapon, that is, automatic extraction of the spent cartridge does not occur, which allows hitting the target with the current conducting wires of the two cartridges and electrically affect it during the time the trigger is held at the pressed position. If it is necessary to arrest the offender, the user must press the pressure pieces 4 of the locks 22, for positive locking the cartridges in the frame 1, and use one of the buttons 13 to switch

the operation mode of the weapon to the timer operation mode for the continuation of the operation of the electronic circuit 18 for a certain predetermined time or to an intermittent supply mode (according to the established algorithm for supplying current and pause to restore the cardio-respiratory functions of the bio-target) of the high voltage electrical current voltage that damages the target to the bio-target after releasing the trigger. The button for switching the operation of the electronic circuit to the arrest mode can be connected mechanically or electrically to the lock 22 or the pressure piece 4 of the locks (for example, using a magnetic element fixed in the lock 22 or in the piece 4 and a reed switch located in the frame 1 and connected to the button or electronic part 18 of the weapon), being actuated when the pressure piece 4 is switched to the arrest mode. This mode of operation of the DESHO allows hitting the target with one or two shots, put the weapon with the working striking part of the electronic circuit 18 on the ground and arrest the offender by handcuffing him or her. Spent cartridges are extracted by pressing the pressure pieces 4 of the locks with the index finger and moving them downward relative to the frame of the weapon.

[0027] If it is necessary to demonstrate a spark electric discharge to an offender to remove aggression or to use in a contact way (without shots), the user, using one of the buttons 13, disables the operation of the part of the electronic circuit 18 responsible for the sequence of the firing cartridges initiation for firing. In this case, the low voltage electrical current voltage that initiates the pyrotechnic charge of the firing cartridge is not generated and is not supplied to the electrical contacts 23 (see FIG. 4) for the electrical initiation of the pyrotechnic charge of the cartridges. If the specified part of the electronic circuit is disabled when the trigger 5 is pressed, the electronic circuit 18 generates shock electrical current voltage with the formation of a visible spark discharge between the electrodes 9 and 10 when the electric discharge is demonstrated or when the electrodes 9 and 10 come into contact with the body of the bio-target, producing an immobilizing effect on the target. If necessary, the DESHO can be equipped with a selector switch for switching the part of the electronic circuit responsible for the sequence of the firing cartridges initiation (in the form of a button, for example). The selector switch can switch firing the first shot from the right cartridge to the left one or vice versa. This function is used for the convenience of loading (reloading) a new cartridge instead of the spent one, depending on the user's right handedness or left handedness, since it is more convenient to reload the weapon with one cartridge extracted using the hand that is closer to the side of the weapon with the cavity of the extracted cartridge.

[0028] The loading of the DESHO is carried out by inserting the cartridges 2 into the frame pocket located at the front, while the springs of the ejectors 17 are compressed, which ensure the extraction of the cartridges from the pockets after the shot or when the DESHO is

unloaded. When the cartridges are inserted into the pocket, the protrusions 6 of the cartridges are pressed down relative to the frame of the weapon by the spring loaded locking mechanism 15, which, when the cartridges are fully inserted into the pockets, snap onto the protrusions 6, fixing the cartridges in the frame 1. The weapon is unloaded by pressing the sliders 3, and therefore the single device for manually unlocking the cartridges from the frame of the weapon performs both the function of a device, which is alternative to the automatic extraction, and a device for weapon unloading.

[0029] FIG. 6. Cartridge case 24, a plug (safety insert) 25, an element 21 with the protrusion 6, a piston with fork 26 of the gas engine, gas channels 27, a pyrotechnic charge 28 with electric ignition, thrown probes 29 with the current conducting wires, a window 30 for movement of the element 21 having the protrusion 6. When the electrical current voltage is applied to the pyrotechnic charge 28, the later is initiated and the combustion gases generated by the charge pass through the channels 27 into the barrel channels of the cartridge, throwing the probes 29 with the current conducting wires at the target. At the same time, the combustion gases of the charge act on the piston with fork 26, wherein the fork has bevels which engage with the corresponding bevels on the element 21 lowering it in the window 30 so that the protrusion 6 of the element 21, which protrudes above the generatrix of the case 24 before the shot, falls into a position flush with the generatrix of the case 24. In this case, the cartridge is unlocked from the locking mechanism 15 and, accordingly, from the frame 1 of the weapon.

[0030] FIG. 7. The proposed weapon can also use low cost firing cartridges without the plug 25, the piston with fork 26, and elements 21 requiring high manufacturing accuracy and, accordingly, increasing the cost of the shot. The firing cartridge 31 of reduced cost has the protrusion 6 made integral with the case of the cartridge and does not have the recess 8. When such a cartridge is fired from the weapon, automatic extraction does not occur, but the user of the weapon having necessary skills of spent cartridges forced extraction trained and using the sliders 3 can extract spent cartridges almost as fast as with automatic extraction. In this case, it is no longer necessary to use locks 22 with pressure pieces 4 for a duplicate shot or arrest, which simplifies the use of the weapon.

Technical implementation

[0031] FIG. 8. Appearance of an experimental DESHO performed by 3D prototyping with cartridges milled on a CNC machine. DESHO is assembled, with half of the frame removed.

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Claims

1. Multiple-charge remote-acting electroshock weapon comprising a frame, a power source, an electronic circuit that generates a high voltage electrical current voltage that damages the target, a trigger element, firing cartridges having thrown current conducting wires and pyrotechnic devices for unlocking the cartridges from the frame of the weapon located in the firing cartridges, spring extractors of the firing cartridges, an electronic circuit responsible for the sequence of the firing cartridges initiation, wherein the weapon comprises at least one mechanical locking mechanism of the firing cartridges having a human-powered drive mechanism with forced unlocking of the firing cartridge from the frame of the weapon, which drive is actuated by the finger of user's hand holding the weapon, at least one mechanical cartridge lock for preventing automatic unlocking from the frame of the weapon having a human-powered drive mechanism actuated by the finger of user's hand holding the weapon, and a member for the control of the operating time of the electronic circuit generating the high voltage electrical current voltage that damages the target, irrespective of the position of the trigger element after firing.
2. The weapon according to claim 1, wherein the locking mechanism with forced unlocking of the cartridges from the frame of the weapon is driven by a slider with a longitudinal movement relative to the frame of the weapon.
3. The multiple-charge remote-acting electroshock weapon according to claim 1, wherein the locking mechanism with forced unlocking of the cartridges from the frame of the weapon is driven by a slider with a transverse movement relative to the frame of the weapon.
4. The multiple-charge remote-acting electroshock weapon according to claim 1, wherein the locking mechanism with forced unlocking of the cartridges from the frame of the weapon is driven by a slider with a rotary movement.
5. The multiple-charge remote-acting electroshock

weapon according to claim 1, wherein the electronic circuit responsible for the sequence of the firing cartridges initiation has a selector switch for switching the sequence of the firing cartridges initiation.

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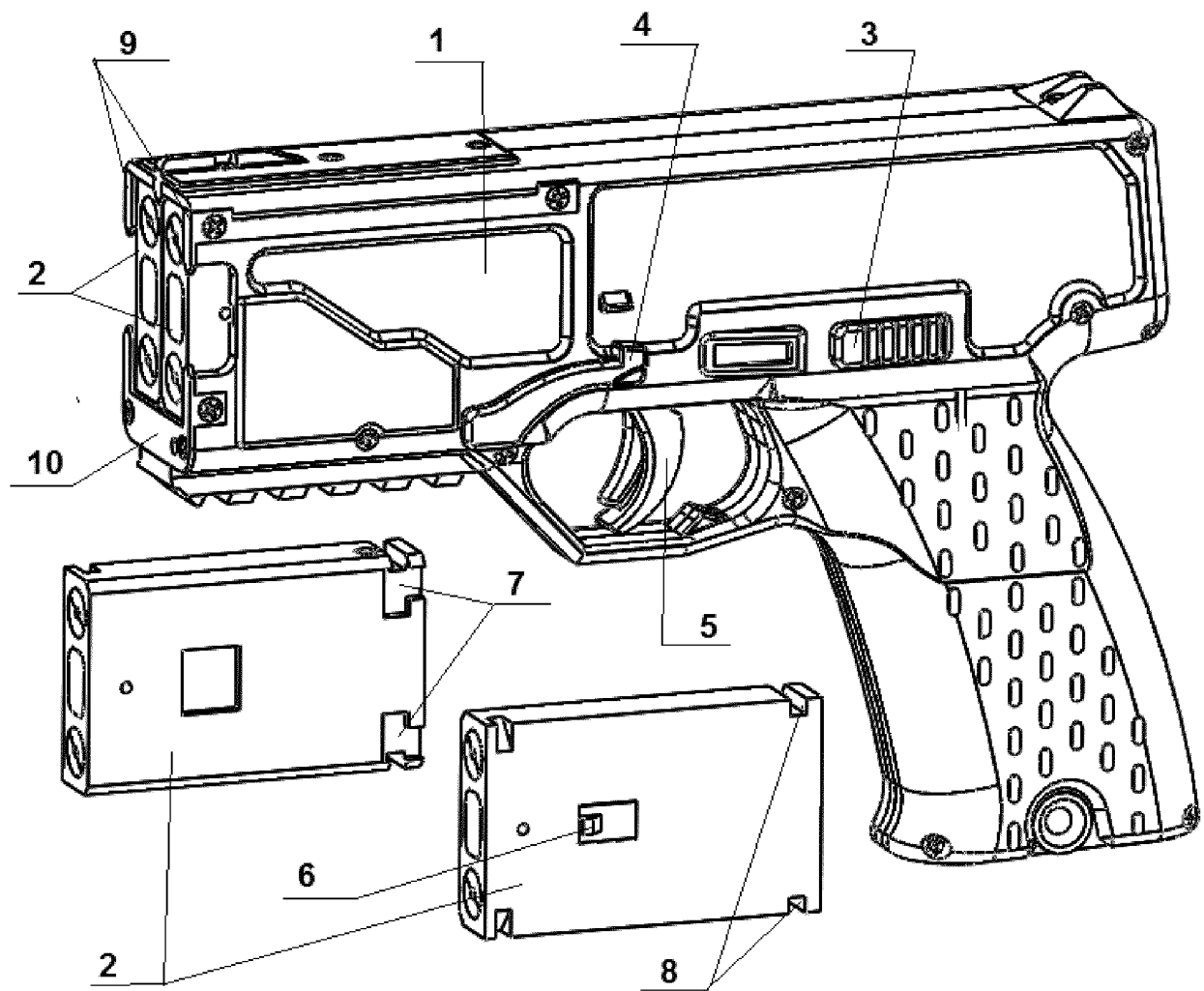


FIG. 1

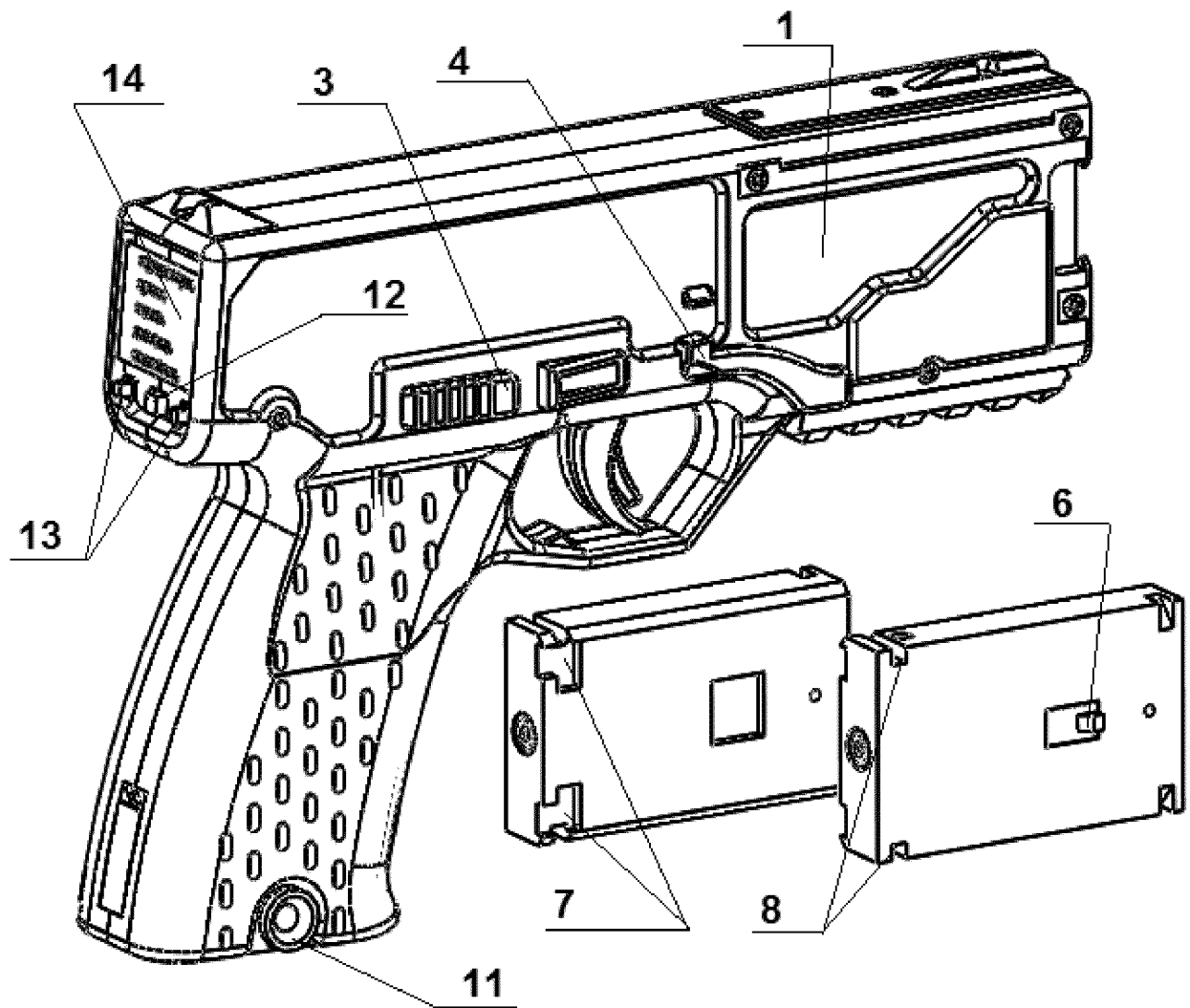


FIG. 2

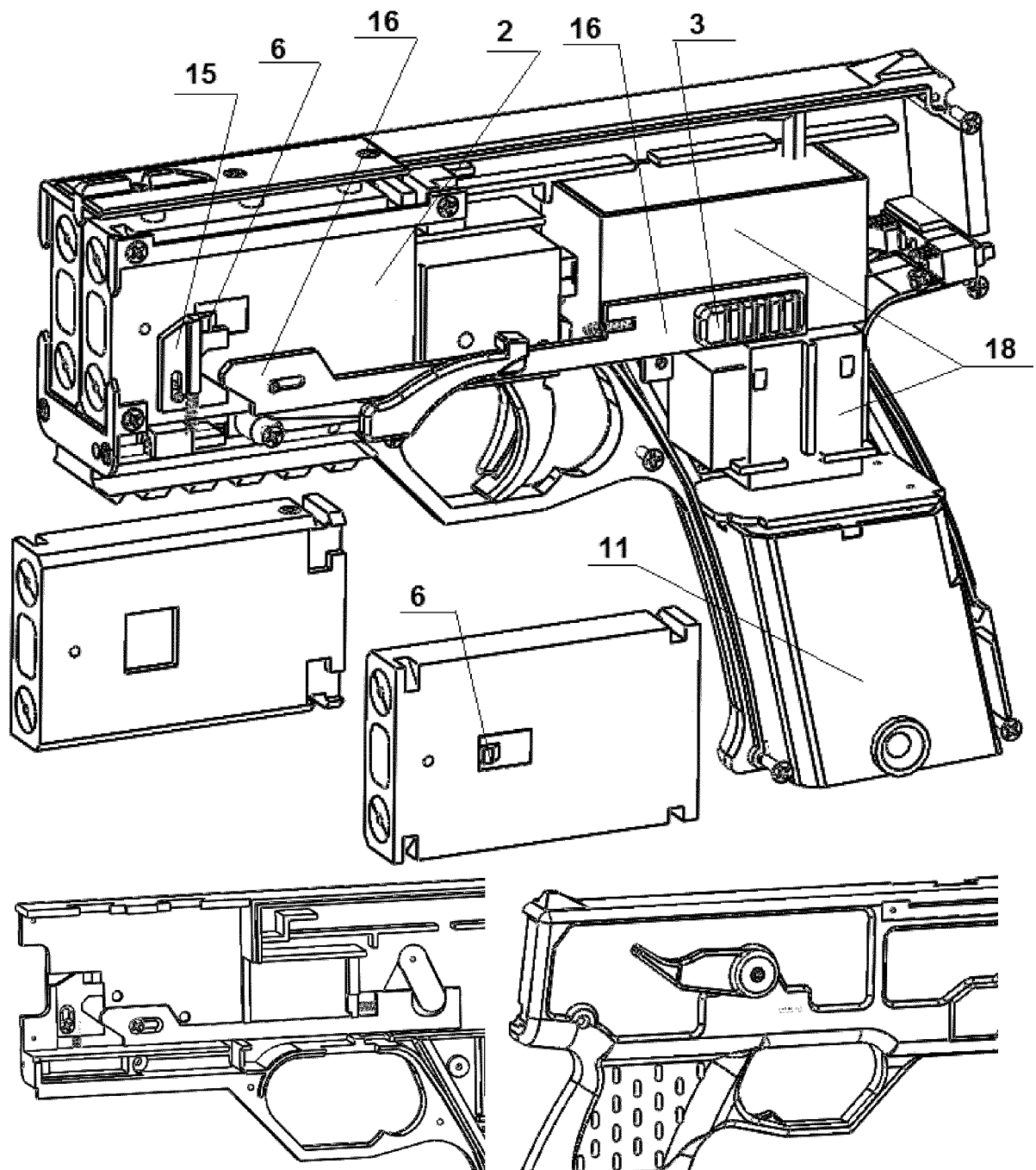


FIG. 3

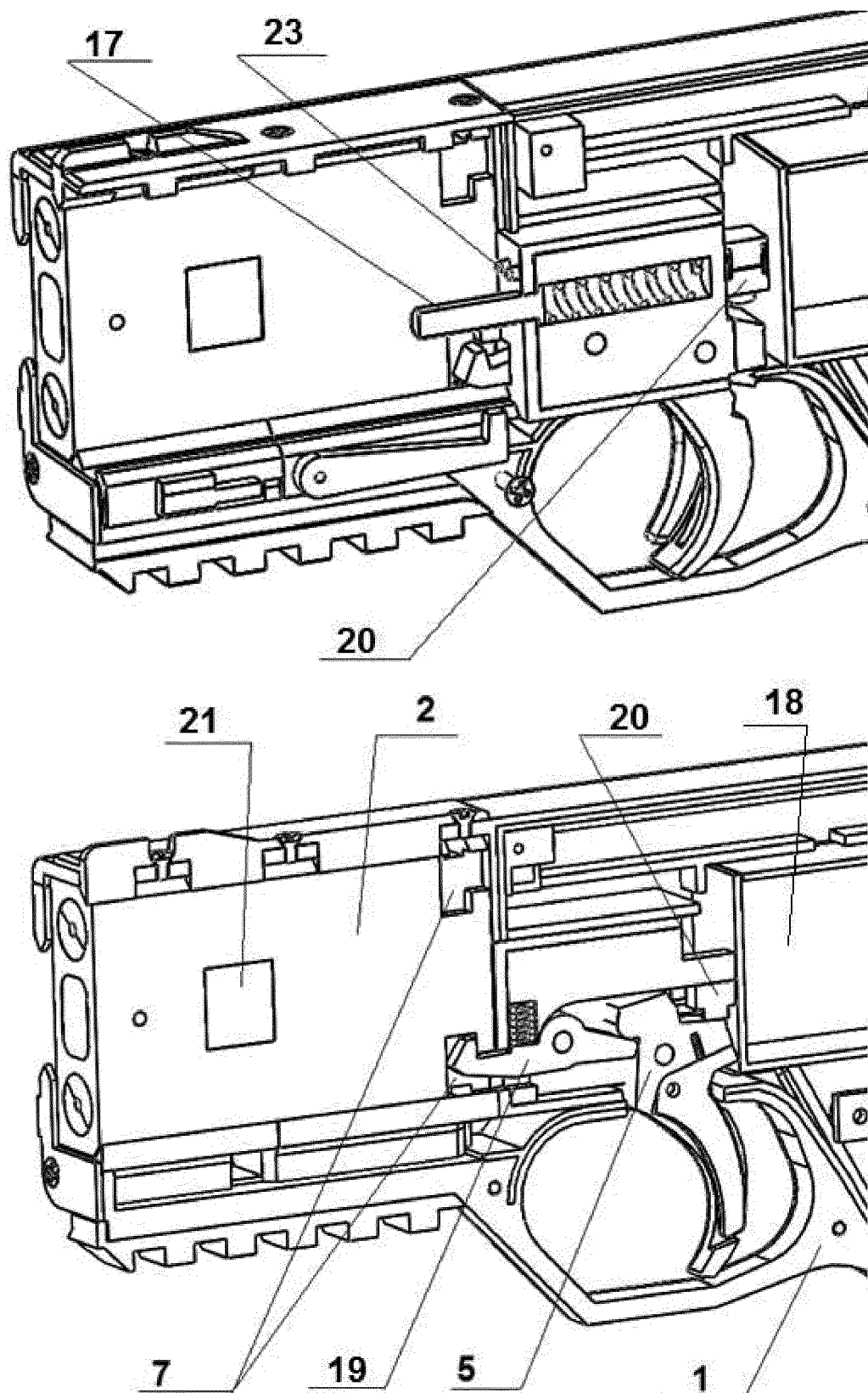


FIG. 4

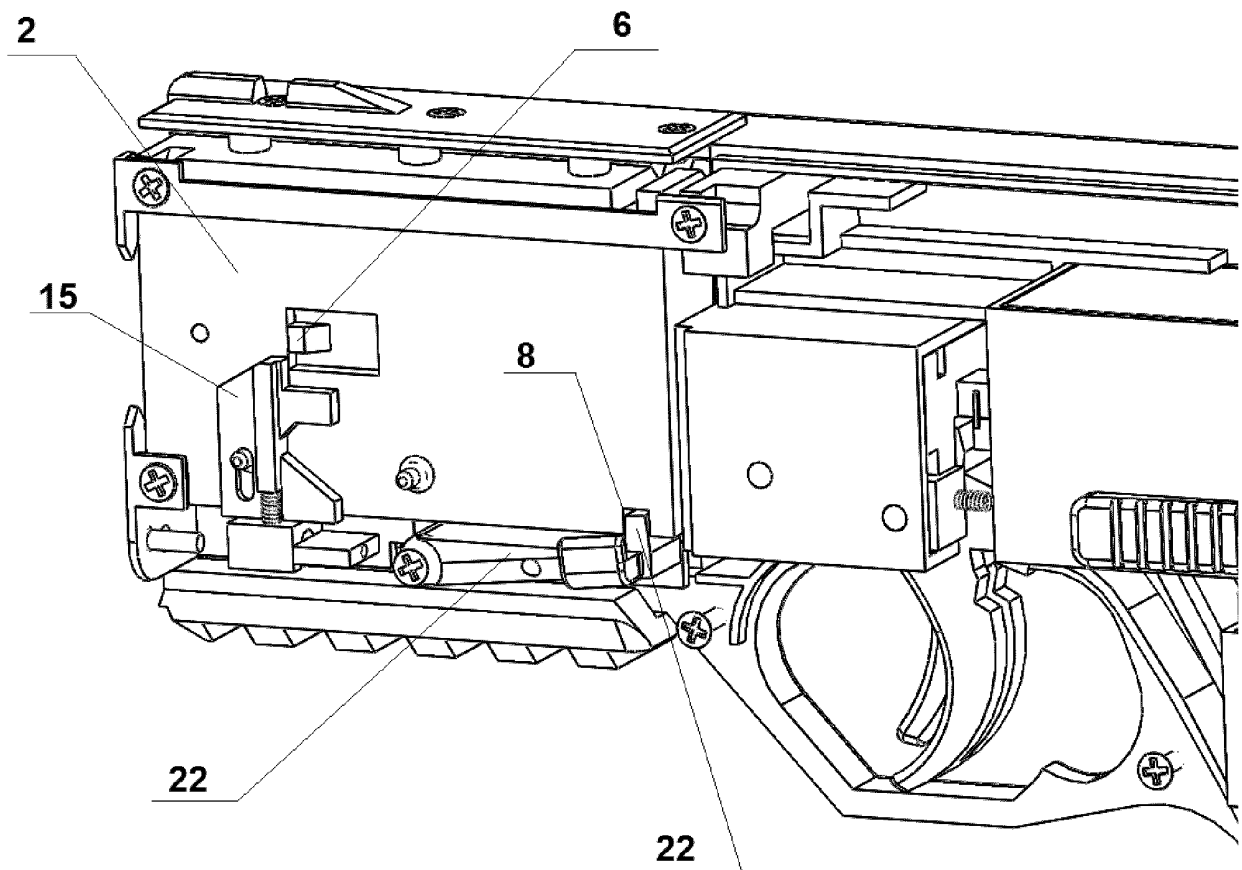


FIG. 5

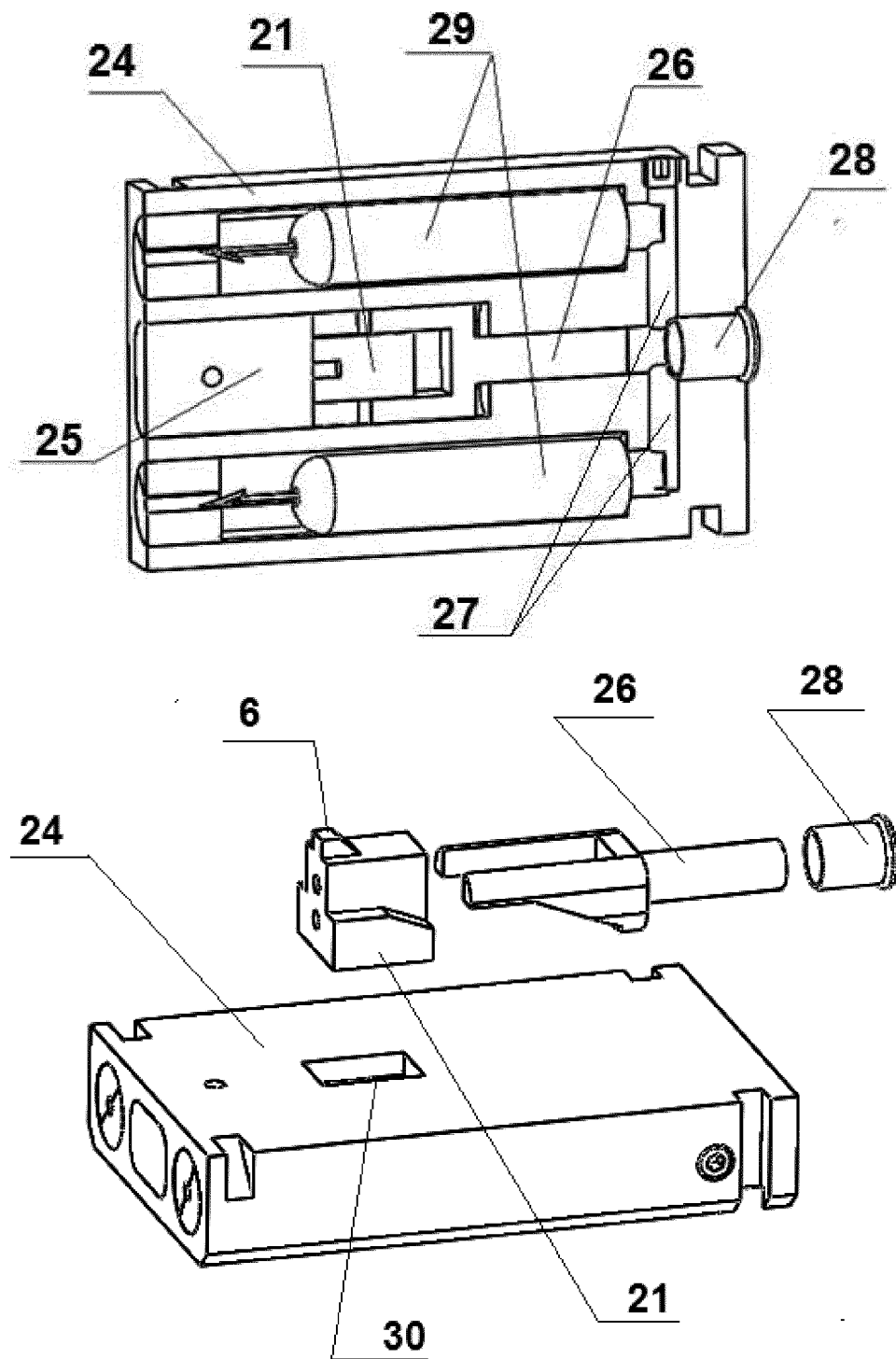


FIG. 6

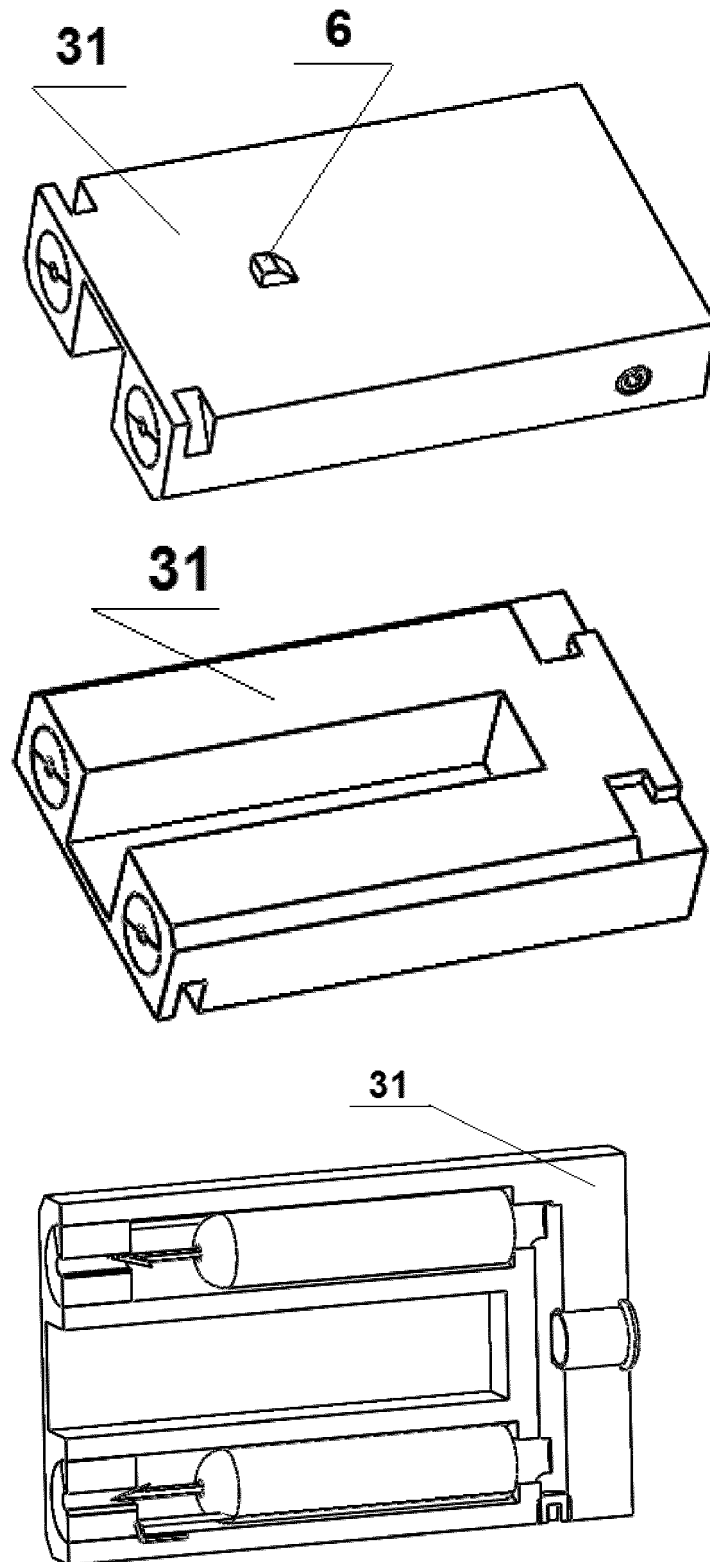


FIG. 7

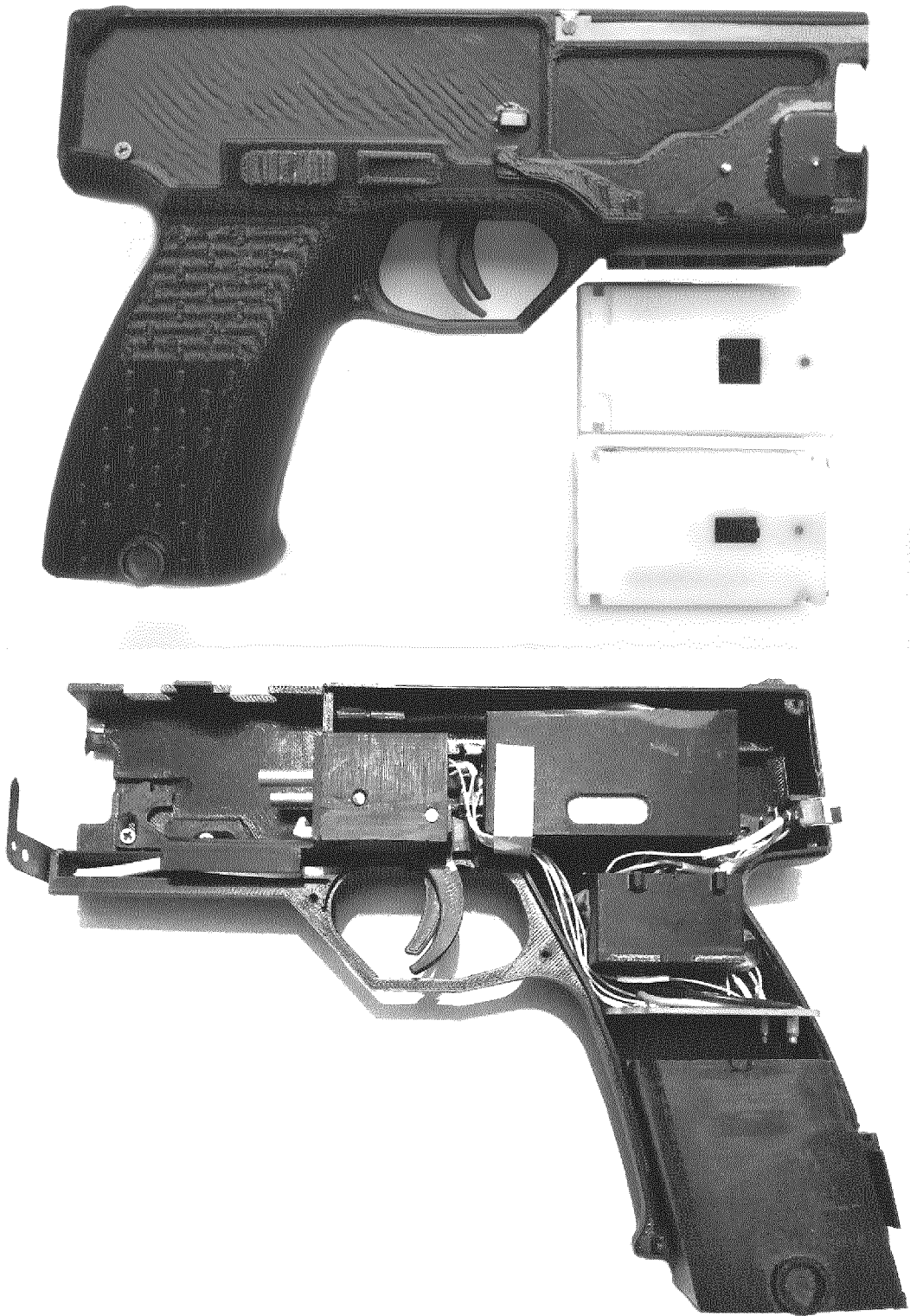


FIG. 8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/RU 2020/000522

5	A. CLASSIFICATION OF SUBJECT MATTER F41B 15/04 (2006.01)		
	According to International Patent Classification (IPC) or to both national classification and IPC		
	B. FIELDS SEARCHED		
10	Minimum documentation searched (classification system followed by classification symbols) F41B 15/00, F41B 15/04, F41B 9/00, F41H 13/00, F42B 30/14, H05C 1/00		
	Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
15	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PatSearch (RUPTO internal), USPTO, PAJ, K-PION, Esp@cenet, Information Retrieval System of FIPS		
	C. DOCUMENTS CONSIDERED TO BE RELEVANT		
20	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	A	RU 2684807 C2 (KLOCHKOV KONSTANTIN DMITRIEVICH et al.) 15.04.2019	1-5
25	A	US 3626626 A (UNITED STATES OF AMERICA AS REPRESENTED BY THE SECRETARY OF THE NAVY) 14.12.1971	1-5
	A, D	RU 2462678 S (LADYAGIN JURY OLEGOVICH) 27.09.2012	1-5
30	A	RU 99865 U1 (GABLIYA JURY ALEKSANROVICH) 27.11.2010	1-5
35			
40	☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
	* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
50	Date of the actual completion of the international search 28 December 2020 (28.12.2020)		Date of mailing of the international search report 04 February 2021 (04.02.2021)
	Name and mailing address of the ISA/ RU		Authorized officer
55	Facsimile No.		Telephone No.

Form PCT/ISA/210 (second sheet) (April 2005)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- RU 2462678 [0004] [0021]

Non-patent literature cited in the description

- **LADYAGIN YU.O.** Remote-acting electroshock weapons. Stalingrad Foundation Publishing House, 2017, 173 [0032]