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DESCRIPTION

Field of the invention

[0001] The present invention refers to the field of safety devices for guns and, more precisely, to an improved holster for handguns having a spent casing ejection port. The holster, thanks to a safety lock engaging with the ejection port, is adapted to prevent the accidental or unauthorized extraction of the gun from the same holster.

Background of the invention

[0002] As known, handgun holsters, in particular those in use by police officers and surveillance staff for defending people and goods, must be designed so as to hold the gun firmly, not only during the normal movements of the user but also when more intense physical efforts, or fights or similar circumstances occur, ensuring nonetheless an easy and quick gun extraction by the user, when needed.

[0003] Various safety devices are provided to such purpose, locking the gun inside the holster when not in use, allowing for a somehow quick release when necessary. In fact, these safety devices, if on the one hand must effectively fasten the gun to the holster when the same gun is at rest, on the other hand they must let the gun be easily and promptly extracted as soon as the necessity arises.

[0004] Among the different safety devices proposed until presently, there are devices exploiting the spent casing ejection port of the handgun as an engagement seating for a locking member locking the gun within the holster.

[0005] US6769581 discloses for instance a device comprising a fixed projecting tooth arranged within the holster and adapted to engage with the ejection port of the gun to keep it locked in position. The disengagement/unlocking is in this case carried out with a suitably driven displacements of the gun; such displacements are made possible only pursuant to the release of supplementary locking means.

[0006] The release of the gun is in this case unreliable, being it related with a particular displacement of the gun that the user must accomplish without any mechanical guidance. This can be troublesome, especially in danger situations when a quick extraction of the gun from the holster is vital.

[0007] PCT publication WO2007/092008 discloses a device similar to that just described, in which the safety lock of the gun in the holster occurs through the ejection port, with a supplementary device or tension setter is mounted inside the holster in order to assist a correct

positioning of the gun with respect to the locking device, thus somehow guiding the user towards the correct movements required to lock and unlock the gun. The provision of a supplementary device, furthermore with a limited adaptation capability to different handgun models, makes this solution not fully satisfactory in terms of simple construction and easy use.

[0008] The ejection port is also exploited in the holsters disclosed in US7140523 and US6886725. In these holsters the port is engaged by a locking movable member, in particular the end of a lever which to be actuated by the user.

[0009] More specifically, this type of known device comprises a lever at the ends of which there are arranged, respectively, a docking plate that engages with the ejection port of the gun, and a release plate, placed adjacent with the trigger guard to be actuated by the user with a push carried out by flexing a finger, e.g. the forefinger. This device further comprises a tube within the holster, in which the user needs insert the finger in order to contact and drive the release plate. The tube has therefore the function of sheltering and protecting the release plate, so as not to permit an actuation by an assailant, or an accidental and/or unintentional actuation by the same user. Also this release system is in any case uncomfortable and inconvenient: the actuation of the release plate must in fact be carried out in the area of the trigger guard, thus very deeply inside the holster, even inserting the finger in a long tube (also with possible problems for people having bulky fingers). This device is also unsuitable for guns provided with tactical lights, laser sights or the like, encumbering the area of the trigger guard.

[0010] In US2007/181619 a holster having the features in the preamble of annexed claim 1 is disclosed. The holster includes internal latch means rocking about a transverse axis joining the main side walls of the holster, and engaging with the ejection port of the gun. The release of the latch means is driven by a release lever with an end to be operated by the thumb of the user and arranged at a certain depth. Even this system is however lacking of ergonomic and convenience characteristics, considering also the reduced space between the holster and the body of the user, being it the space in which the thumb has to be inserted for seeking contact with the release lever actuation end (this being a relatively small target).

[0011] It remains therefore deeply felt the need for an improvement safety device for holsters that, being adapted to any different type of handguns, is particularly reliable and convenient for the user.

Summary of the invention

[0012] The main object of the present invention is to provide a safety holster with a docking device for handguns having a spent casing ejection port, in which the release of the locking device can be actuated only or also with a more convenient and effective finger movement than the thumb actuation of the prior holsters.

[0013] This and other objects are achieved with the improved handgun holster according to

the invention, having the essential characteristics defined by the first of the appended claims.

[0014] Further important characteristics of the present improved holster are defined by the dependent claims.

Brief description of the drawings

[0015] The features and advantages of the holster according to the invention will be apparent from the following description of an embodiment thereof, which is given merely by way of a non-limiting example, with reference to the attached drawings, in which:

- figure 1 is a front perspective view of a holster according to the invention, partially broken, having a safety lock actuated with the forefinger of a user's hand;
- figure 2 is an enlargement of the holster in figure 1, as encircled by the shadow line A of the same figure;
- figure 3 is an exploded view of the holster; and
- figure 4 is a perspective view of a detail of the locking device of the holster in the previous figures.

Detailed description of the invention

[0016] Referring to the above figures, a holster according to the invention comprises a hollow body 1 adapted to house a gun, in particular a gun with a spent casing ejection port, which is inserted through an opening 1 a of the body 1 and, when accommodated inside, projects partially outside with its stock. The body 1 comprises two substantially parallel side walls 1 b, connected frontally and at the back by a front wall 1 c and a back wall 1 d, respectively. For the sake of clarity, one of the side walls 1 b' is broken in figures 1 and 2.

[0017] The holster further comprises a locking device for locking the gun against its extraction, generally indicated at 2 and adapted to engage with the ejection port, and a release device 3 of the locking device 2 to be actuated with the pressure of the forefinger of the user's hand, so that pursuant to exerting such pressure the device 2 rocks about a crosswise axis (that is an axis extending transversely between the two side walls 1c) and consequently disengages from the ejection port of the gun.

[0018] The locking device is a U-shaped latch 2 having a seat 2a for fixed engagement with a crosswise pin 6 that bridges the two side walls substantially orthogonally therewith. More precisely, the pin 6 is pivotally mounted on a shell-like insert 7 that reinforces the top of the front wall 1 c and of the side walls 1 b in a region enclosing the opening 1 a. The pin 6 runs along a top edge of the latch 2, the lower free end of which has a sideways slanting peg 5 that

will be described hereafter. A flat spring 13 is associated to the latch 2 for biasing the same towards a position lifted inside the body (that is, away from the front wall 1 c) corresponding to the engagement/locking position with the ejection port. This engagement is in particular due to side wings 2b adapted to enter the ejection port for an abutting hindrance against the extraction of the gun.

[0019] The release device is a lever 3 pivotally mounted on the outside of side wall 1 b' of the body around an axis substantially parallel with said side wall 1 b', and slightly spaced from it towards the outside. More precisely, such axis is defined by a pivot 8 supported by a ridge 12 projecting from the side wall and following a path that encircles the periphery of the lever 3, thus enclosing a housing 12a for the same lever. The lever 3 has a central seat 3a for rotatable engagement with the pivot 8, which has a substantially longitudinal arrangement (i.e. along a direction corresponding to the axis of the barrel of the gun in its housing arrangement within the body), but slightly inclined, the lower end of the pivot being closer to the rear wall 1 d than the top end.

[0020] The lever 3 has an actuation end 9 in a top-back region of the body, and a catching end 4 for engagement with the latch 2 adjacent with the front wall 1 c, at a substantially intermediate depth of the longitudinal development of the body. The actuation end 9 has a flat development with a wide outer recess 10 for ergonomic contact with the fleshy part of the first phalanx of the forefinger. In correspondence with the recess 10 the side wall 1 b' has a fracture 1 e within the housing 12a, making it easier for the end 9 to be pressed towards the body 1, with a consequent rotation of the lever 3 around the pin 8 and a lifting of the catching end 4 away from the same side wall.

[0021] As mentioned, the catching end engages with the locking latch 2. More in detail, with particular reference to figures 3 and 4, the end 4 has a side protrusion 4a with a slot 4b that fits with the above mentioned sideways slanting peg 5, which projects out of the body 1 through a window 1f formed in the side wall 1 b', and more specifically within the housing 12a encircled by the ridge 12.

[0022] The slanting arrangement of the peg 5 is such that when it is caught by the protrusion 4a through the slot 4b, a rocking displacement of the latch 2 towards the release position responds to the lifting of the end 4 pursuant to the pressing actuation on the outer recess 10.

[0023] In the absence of an actuation the lever 3 is biased towards a rest position (end 4 kept close to the body 1, corresponding to a lifted, locking position of the latch 2). In this condition the latch is lifted to the inside of the body and engaged with the ejection port of the handgun. With a pressure of the forefinger on the actuation end 9 of the lever 3, the same rotates and causes the latch 2 to rock to the release position, overcoming the resistance of the spring 13 and making it possible for the user to extract the gun. As the pressure ends, the lever 3 is biased to the rest position thanks to the same flat spring 13 that urges the latch to the lifted position and via the slanting peg 5 pushes back the catching end 4 of the lever.

[0024] Preferably, a further spring device 11 is arranged inside the body 1, comprising a central fixture 11 a for connection via screws 14 to the side walls 1 b, and two elastic arms 11 b, 11c that project from mutually opposite sides of the central fixture 11 a, so that a first, upwards ring shaped arm 11 b is adapted to engage with the trigger guard of the gun so as to keep the same constantly urged upwards for making the locking contact between the ejection port and the latch 2 safe and reliable. A second, arc shaped elastic arm 11c projects instead downwards and towards the front for making elastically urging contact with the slide region of the gun; in this way the gun is pushed close to the front wall 1 c, this avoiding vibration and noise and in its turn assisting the locking contact with the latch 2.

[0025] When the holster is empty, the locking latch is kept pushed to the lifted, locking position by the spring 13. When the gun is inserted, it mechanically abuts against the latch making it rock towards the front wall 1 c, until the spring 13 makes the same latch snap to the locking position.

[0026] Preferably, the actuation recess 10 of the lever 3, besides being ergonomically shaped for assisting contact and pressure of the forefinger tip, has also a knurled face so as to increase friction and make the actuation reliable, quick and fast. The arrangement of the lever 3 according to the invention makes the actuation intrinsically easy and convenient, permitting to exploit directly the first part of the finger, i. e. the phalanx closest to the palm of the hand, in a natural and smooth continuation and completion of the same wrapping movement required to get a grip on the gun and to extract it. The actuation with the first or proximal phalanx of the forefinger (permitted by the position of the actuation end 9 and consequently by the length and arrangement of the lever 3), is in particular simple and fail-proof: a minimum flexion is required, the effectiveness of the actuation is unrelated with the size of the finger, and the lever can be actuated without having to reach for something deep down the holster. The structure and length of the lever ensures also a major finger-engagement surface area and a favourable force balance. The lever system according to the invention is furthermore suitable for both right-hand user holsters and left-hand user holsters.

[0027] A preferred embodiment of the holster provides for an obviously implemented alarm system integrated with the same holster and emitting audible sounds or vibrations in the very moment when the locking occurs. In this way the user is made sure that the gun is safely accommodated in the holster and secured thereto; at that point, only the actuation of the lever 3 will permit to remove the gun from its position.

[0028] The spatial references "top", "bottom" "up", "down", "front", "side" and the like used in the present description are obviously referred to a use arrangement of the holster when worn on a user's lap.

[0029] Variants and/or modifications can be brought to the holster support according to the present invention, without departing from the scope of the invention itself as defined by the following claims.

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- [US6769581B \[0005\]](#)
- [WO2007092008PCT \[0007\]](#)
- [US7140523B \[0008\]](#)
- [US6886725B \[0008\]](#)
- [US2007181619A \[0010\]](#)

Patentkrav

5 1. Sikkerhedshylster til håndvåben med en udstødningsåbning til de brugte hylstre, omfattende: et hult legeme (1), der er defineret af to sidevægge (1 b), der er forbundet med hinanden ved hjælp af en forvæg (1c) og en bagvæg (1d), og tilpasset til gennem en åbning (1a) at optage håndvåbenet med udstødningsåbningen grænsende op til forvæggen (1c); en låseindretning (2), som er anbragt inden i legemet, og som svinger omkring en tværgående akse (6), der danner bro over sidevæggene (1b) af hylsteret mellem en låseposition, løftet til indersiden af legemet til indgreb med udstødningsåbningen, og en frigørelsesposition nær ved forvæggen (1c); og en frigørelsesindretning monteret i en af sidevæggene (1b') og omfattende et forskydeligt element (3), der er i indgreb med låseindretningen (2), hvor aktiveringen af det forskydelige element (3) er tilpasset til at forskyde låseindretningen (2) fra låsepositionen til frigørelsespositionen, elastiske forspændingsorganer (13), der er anbragt mellem legemet (1) og låseindretningen (2) til forspænding af denne til låsepositionen, hvor det forskydelige element er en arm (3), der er monteret svingbart på ydersiden af sidevæggen (1 b') af legemet rundt om en akse (8), hvor armen har en aktiveringsende (9) i et øvre bagområde af legemet og en fang-ende (4) nærmere ved forvæggen (1c), **kendetegnet ved,** 20 **at** aksen (8) er i det væsentlige parallel med sidevæggen, hvor fang-enden (4) er i indgreb med en skrånende pløk (5), som rager ud af legemet (1) gennem et vindue (1f) udformet i sidevæggen (1b'), hvor et tryk på aktiveringsenden (9) får fang-enden (4) til at løfte sig udad, og som reaktion får låseindretningen (2) til at svinge til frigørelsespositionen.

30 2. Sikkerhedshylster ifølge krav 1, hvor armens (3) fang-ende (4) har et sidefremspring (4a) med en slids (4b), som passer sammen med den skrånende pløk (5).

35 3. Sikkerhedshylster ifølge krav 1 eller 2, hvor armens (3) svingakse (8) har en hældende placering i forhold til en længderetning af legemet (1), som er den retning, der svarer til aksens for våbenets løb i dets husindretning inden i legemet, hvor hældningen er således, at den nærmer sig forvæggen (1c) og bevæger sig mod den øvre åbning (1a).

- 5
4. Sikkerhedshylster ifølge et af de foregående krav, hvor armens (3) svingakse (8) er defineret af en drejetap (8) understøttet af en kam (12), der rager ud fra sidevæggen (1 b') og følger en vej, som omringer armens (3) omkreds, og således omslutter et hus (12a) til den samme arm.
- 10
5. Sikkerhedshylster ifølge et af de foregående krav, hvor armens (3) aktiveringsende (9) har en flad udvikling med en udvendig udsparring (10) tilpasset til ergonomisk kontakt med køddelen af det første led af pegefingeren.
- 15
6. Sikkerhedshylster ifølge krav 5, hvor udsparringen (10) har en riflet eller ru overflade.
- 20
7. Sikkerhedshylster ifølge et af de foregående krav, hvor sidevæggen (1 b') svarende til armens (3) aktiveringsende (9) har en fraktur (1 e), som medvirker til trykkebevægelsen af aktiveringsenden (9) mod legemet (1).
- 25
8. Sikkerhedshylster ifølge et af de foregående krav, hvor låseindretningen er en rigle med en øvre rand, langs med hvilken en stift (6) definerer den tværgående akse, hvor den skrånende pløk (5) rager sideværts ud fra en nedre, fri ende af riglen.
- 30
9. Sikkerhedshylster ifølge krav 8, hvor stiften (6) er monteret svingbart på en skallignende indsats (7), som forstærker den øvre del af forvæggen (1c) og sidevæggene (1b) i et område, der indeslutter åbningen (1a).
- 35
10. Sikkerhedshylster ifølge et af de foregående krav, yderligere omfattende en fjederanordning (11), der er anbragt i legemet (1), omfattende en central fastgørelse (11 a) til forbindelse med sidevæggene (1 b), og to elastiske arme (11 b, 11c), som rager ud fra indbyrdes modsatte sider af den centrale fastgørelse (11a), hvor armene omfatter en første, opadtil ringformet arm (11 b), der er tilpasset til at gå i indgreb med våbenets aftrækkerbøjle for at holde denne konstant tvunget opad, og en anden, bueformet elastisk arm (11c), der rager nedad og mod forsiden for at etablere elastisk tvunget kontakt med våbenets glideområde.

11. Sikkerhedshylster ifølge et af de foregående krav, yderligere omfattende en indretning, som udsender lyd eller vibration, når låsemidlerne (3) når låsepositionen.

DRAWINGS

Fig.1

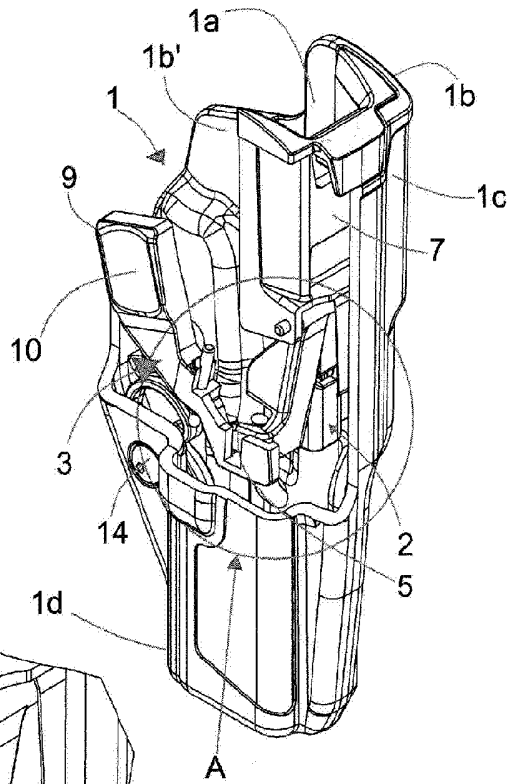
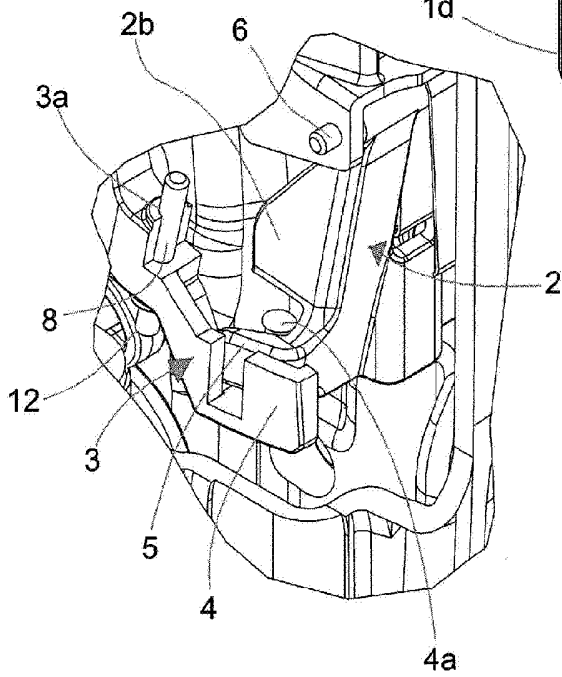


Fig.2



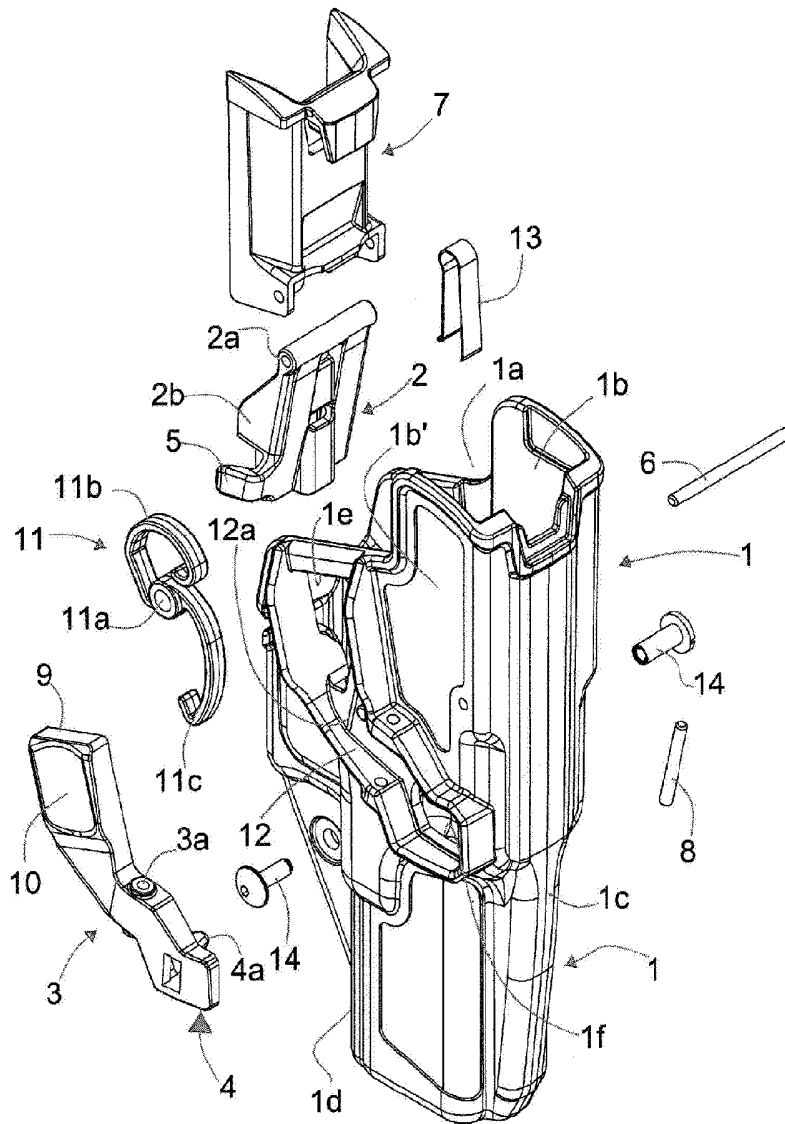


Fig.3

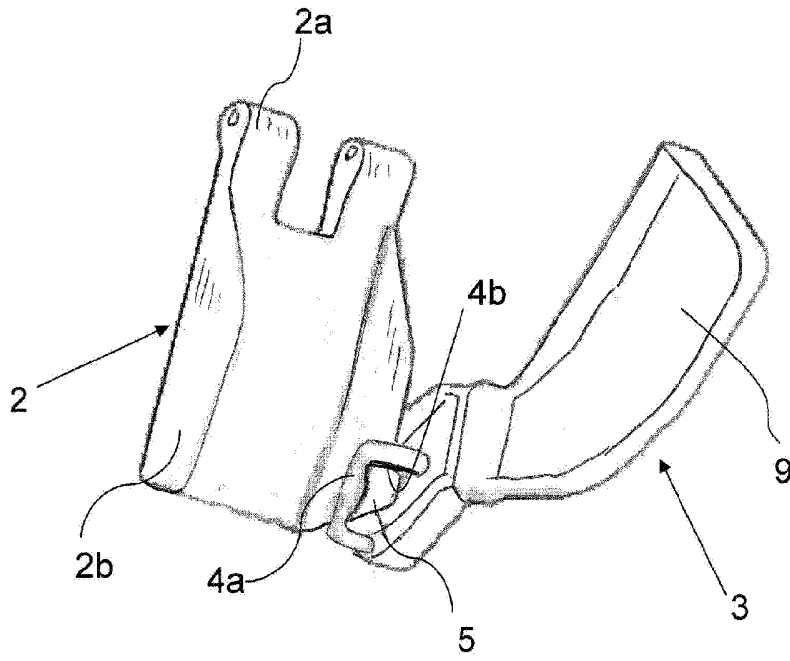


Fig.4