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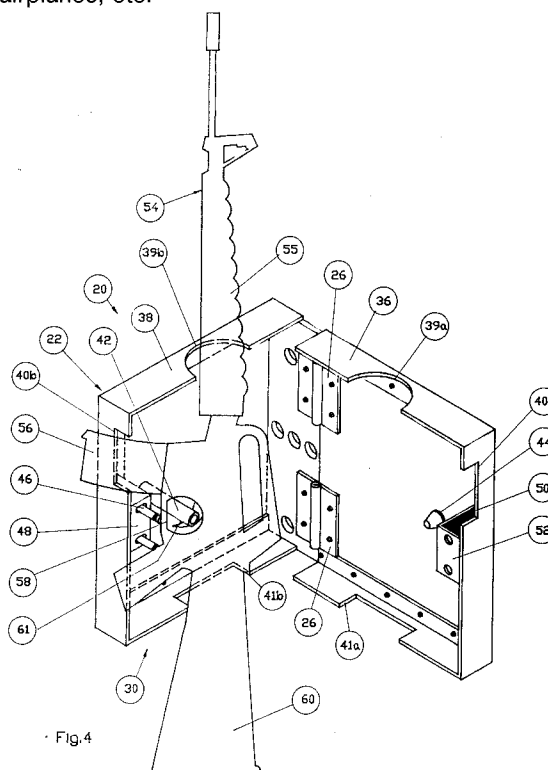
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⑤4 Firearm safety locking device.

57) A firearm safety locking device provided as a housing compartment with a door, within which a firearm may be stored. The door is hinged over the housing compartment and may be locked, blocking access to the firearm trigger. The locking device is provided as a removable lock in the door, to enable quick and easy substitution with another lock. A firearm issued to an individual may be associated with a personally issued lock, and when that firearm is removed, a different lock may be inserted for securing a different firearm which has been issued to a different individual. When used to store an automatic rifle, the housing compartment conceals the cartridge magazine, so that the rifle may be stored in a loaded fashion, ready for immediate use. The housing compartment may be mounted on a wall by mounting hardware concealed within the compartment. In one embodiment, the housing is box-like and has replaceable sides each formed with a cutout matching the firearm shape, so as to be adaptable to many types of firearms. In another embodiment, the housing is provided as a hinged cage having security bars extending therefrom, to secure the firearm portions which protrude from the housing, insuring overall design safety. The firearm safety locking device has many applications, in temporary installations, security outposts, military bases, and on ships,

airplanes, etc.



• Fig.4

FIELD OF THE INVENTION

The present invention relates to firearm safety devices, and more particularly, to a firearm locking system for safely securing a firearm in a rest or storage position and insuring that the firearm cannot be tampered with when not in use.

BACKGROUND OF THE INVENTION

The importance of firearm safety devices has become increasingly apparent with the proliferation of small firearms carried for personal security, and some government authorities have even enacted legislation requiring trigger locks for all firearms. These and other safety devices are designed to insure against unauthorized use of the firearms. Some designs insure against unauthorized removal of firearms from secure storage. The ultimate goal is to reduce accidents caused by unauthorized use or accidental discharge of the firearm.

Firearm safety devices include trigger padlocks as disclosed in US Patent 4,198,0256 to Capolupo. In US Patent 4,509,281 to Dreiling et al., a gun trigger locking device is disclosed comprising members adapted to mate and surround the trigger, to immobilize it when locked. US Patent 4,328,687 to Ritchie discloses a trigger locking device comprising a shank passing through the trigger guard to secure it to a fixture. US Patent 4,084,341 to Cervantes discloses a detachable gun lock having a plate carrying a post which engages through the trigger guard, to immobilize the trigger. US Patent 3,711,979 to Small discloses a clamp attachment to the trigger guard and a trigger-engaging component which locks the trigger and immobilizes it.

Other firearm safety devices are designed to secure the firing mechanism. Examples of this type include a firearm lock assembly with a trigger blocking element and a cable lock to secure the breech bolt, as disclosed in US Patent 5,048,212 to Mossberg. US Patent 4,654,992 to Laverne discloses a lock having a stop member which interferes with the loading chamber to prevent loading and passage of cartridges to the breech. A locking mechanism for placement into the firearm ejection port is disclosed in US Patent 3,634,963 to Hermann. A barrel locking safety device to secure the firing mechanism against accidental actuation is disclosed in US Patent 3,120,713 to Lizza et al.

Yet another type of firearm safety device is designed to hold the firearm and prevent its unauthorized removal, for example by children, to avoid accidents and eliminate theft. An example of this design is disclosed in US Patent 5,022,536 to Pierson, in which a block-shaped anchor housing is secured to the walls where a corner is formed. A

rifle butt loom is attached to the corner for leaning a rifle thereon, and a cable assembly threaded through the trigger guard secures the firearm to the anchor housing. A simpler variation of this design is given in US Patent 4,813,252 to Ray, with a padlock on the cable assembly. US Patent 4,5809,483 to Garbini discloses a weapon rest for rifles, but does not provide a safety mechanism against accidental firing.

Security and military regulations require that weapons which are issued to individual personnel remain in their possession at all times. A problem often encountered by security and military personnel is the need to safely store a weapon, while limiting access only to the individual to whom the weapon has been issued. The need to physically secure the firearm and prevent its accidental firing, while allowing the authorized individual quick and easy access, presents the combined requirement of maintaining safety and "tagging" a weapon. While the prior art has provided locking devices to protect the weapon, the combined safety and "tagging" requirements were not addressed.

Therefore, it would be desirable to provide a firearm safety locking device which secures a firearm when not in use, while providing quick and easy access to an authorized individual.

SUMMARY OF THE INVENTION

Accordingly, it is a principal object of the invention to address the requirements not met by the prior art, and provide a firearm safety locking device for securely storing an identified weapon while preventing use thereof, until released for use by the authorized individual with matching identification.

In accordance with a preferred embodiment of the invention, there is provided a firearm safety locking device comprising:

means for supporting a firearm and covering at least a portion thereof to block access at least to its trigger; and

means for releasably locking said firearm in said supporting means and securing it therein.

In a preferred embodiment, the firearm safety locking device is provided as a housing compartment with a door, within which a firearm may be stored. The door is hinged over the housing compartment and may be locked, blocking access to the firearm trigger. The locking device is provided as a removable lock in the door, to enable quick and easy substitution with another lock. Thus, a firearm issued to an individual may be associated with a particular lock, and when that firearm is removed, a different lock may be inserted for securing a different firearm which has been issued to a different individual.

Alternatively, the lock may be interchanged with another lock independently of the weapon to be secured.

When used to store an automatic rifle, the housing compartment conceals the cartridge magazine, trigger, safety catch and loading mechanism so that the rifle may be stored in a loaded fashion, ready for immediate use.

The housing compartment may be mounted on a wall by mounting hardware concealed within the compartment. The frame of the housing compartment is constructed with replaceable sides each formed with a cutout matching the firearm shape, so as to be adaptable to many types of firearms. This novel construction insures that although a portion of the firearm protrudes from the housing, it is securely held, insuring overall design safety.

In an alternative embodiment, the housing compartment is provided as a hinged cage having security bars extending from its sides and shaped to encompass and immobilize the weapon.

The inventive firearm safety locking device has many applications, in temporary installations, security outposts, military bases, and on ships, airplanes, etc.

Other features and advantages of the invention will become apparent from the following drawings and description.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the invention with regard to the embodiments thereof, reference is made to the accompanying drawings, in which like numerals designate corresponding elements or sections throughout, and in which:

Fig. 1 is a perspective view of a preferred embodiment of a firearm safety locking device constructed and operated in accordance with the present invention;

Figs. 2-3 are perspective views, respectively, of frame portions and a housing compartment for the device of Fig. 1;

Fig. 4 is a perspective view of the firearm safety locking device of Fig. 1, for use in securing a rifle therein;

Fig. 5 is a detailed view of a locking pin arrangement for use in the firearm safety locking device of Figs. 1 and 4;

Fig. 6 is an enlarged cross-sectional view of the pin locking arrangement of Fig. 5, taken along section lines 6-6;

Figs. 7-8 are, respectively, general and detailed views of a removable locking device and mounting arrangement;

Fig. 9 is a front view of the removable locking device and an identification key provided for use therewith;

Figs. 10a-b illustrate the firearm safety locking device of Figs. 1-4, in a wall installation for a rifle;

Fig. 11 is an illustration of an alternative embodiment of the locking device, as a hinged cage with security bars;

Fig. 12 is an illustration of the hinged jacket of Fig. 11 with a weapon secured therein; and

Figs. 13-14 are end views showing the hinged cage of the alternative embodiment of Figs. 11-12, in the locked position

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to Figs. 1-3, there are shown perspective views of a preferred embodiment of a firearm safety locking device 20 constructed and operated in accordance with the present invention. Device 20 comprises a box-like housing 22 having a door 24 mounted on hinges 26, arranged to open and close on a rear housing portion 28, to provide a housing compartment 30 for storage. A set of mounting screws 32 can be fit through holes 34 in rear housing portion 28, for fastening it to a wall (Fig. 10).

A set of 3-sided frame pieces 36 and 38 (Fig. 2) is attached, respectively, to door 24 edges and rear housing portion 28. Each of frame pieces 36 and 38 has formed therein, respectively, cutouts 39a-b, 40a-b and 41a-b, forming pairs of matching shaped cutouts in the hinged housing 22 portions. Cutouts 39-41 provide openings in housing 22 when door 24 closes.

A hollow anchor post 42 is attached to rear housing portion 28 and extends vertically into housing compartment 30. A cone-shaped plug 44 attached to door 24 engages the tip of anchor post 42 when door 24 closes. A set of locking pins 46 is seated in an enclosure 48 attached to rear housing portion 28, so that pins 46 can engage a lock 50 seated in a mounting bracket 52.

Figs. 2-3 reveal further construction details of housing 22, with frame pieces 36 and 38 shown removed. The housing may be constructed of heavy plate metal so as to provide a strong, tamper resistant assembly. A key insert 53 of lock 50 enables a key to be inserted therein to release locking pins 46.

In Fig. 4, there is shown a perspective view of the firearm safety locking device 20 of Fig. 1, for use in securing a rifle 54. The rifle 54 may be placed in housing compartment 30 so that its barrel 55 extends through cutout 39a-b, and its cartridge magazine 56 fits through cutouts 40a-b. The rifle 54 trigger guard 58 fits over anchor post 42, and stock 60 extends through cutout 41a-b. Thus, when door 24 is closed, cone-shaped plug 44 fits into

anchor post 42 and locking pins 46 engage lock 50, securing rifle 54 and blocking access to trigger 61, until lock 50 is released by its key (not shown). This design provides the safety locking function of rifle 54 in housing compartment 30.

When used to store an automatic rifle, housing compartment 30 conceals cartridge magazine 56, so that the rifle 54 may be stored in a loaded fashion, ready for immediate use.

As will be appreciated, the profile of frame pieces 36 and 38 (Fig. 2) may be adjusted in accordance with the shape of the firearm, to provide appropriate cutout openings in housing 22. Device 20 may be used to secure pistols or revolvers therein.

In Fig. 5, a detailed view of the locking pin 46 arrangement is shown, illustrating the pin pivot movement in enclosure 48. As door 24 closes, pins 46 engage lock 50 by pivoting movement since lock 50 does not move in a linear fashion, rather, it moves in an arc determined by its spacing in housing 22 from hinges 26. Thus, pivoting movement of pin 46 provides the necessary flexibility to insure lock 50 engagement.

An enlarged cross-sectional view of pin arrangement 46 is shown in Fig. 6, taken along section lines 6-6 of Fig. 5. Pin 46 is seated in enclosure 48 on a pivot rod 63 and rides against a spring detent 64, which is seated in a slot 66 of enclosure 48. This arrangement enables pin 46 to pivot when engaging lock 50.

Figs. 7-8 are, respectively, general and detailed views of a mounting arrangement for lock 50. In accordance with the principles of the present invention, lock 50 is arranged to be removably insertable in door 24, to enable quick and easy substitution with another lock. Thus, a firearm issued to an individual may be associated with a personally issued lock, and when that firearm is removed, a different lock may be inserted for securing another firearm which has been issued to a different individual. Lock 50 is insertable into mounting bracket 52, where it is supported by a support brace 68. By finger depression under mounting bracket 52, lock 50 may be quickly removed and replaced.

Fig. 9 is a front view of the removable lock 50, engagement pins 46 and a key 69 provided for use therewith. Key 69 may be provided with an identification number and worn around the neck, as a military dog tag, which may be issued individually.

Figs. 10a-b illustrate the firearm safety lockin device 20 in a wall installation for rifle 54. As shown in Fig. 1, wall mounting hardware is concealed in compartment 30, to provide a tamper resistant design. If required, device 20 may be mounted at a lower height on the wall, and a receptacle 70 may be provided in the floor, to secure the stock at the lower end of the firearm,

which may be a heavy weapon or a machine gun. As shown in the cross-sectional view of Fig. 10b, receptacle 70 is secured to the floor using screws 72 under a cover plate 74.

An alternative embodiment of firearm safety locking device 20 is illustrated in Fig. 11. In this embodiment, housing compartment 30 is replaced by a hinged cage 80, comprising hinged front and rear panels 82 and 84 each having a mounting plate 86, 88 fastened at its center. A plurality of security bars 90a-b extends from each of mounting plates 86, 88, each bar 90a having a shaped free end 92, which is designed to abut the end 93 of an opposing bar 90b, when cage 80 is closed. Panels 82, 84 are hinged on a section 94, provided with holes 95 for wall mounting.

As with the embodiment of Fig. 1, hinged cage 80 is provided with anchor post 42, plug 44, locking pins 46 and mounting bracket 52 for lock 50. Guide pins 96 and holes 97 on panels 82, 84 insure proper alignment when closing hinged cage 80.

As shown in Fig. 12, when rifle 54 is placed within hinged cage 80 between panels 82, 84, and they are closed one against the other on hinges 26, security bars 90a-b encompass rifle 54, to secure it therein. Thus, cage 80 blocks access to the trigger 61, cartridge magazine 56, safety catch and loading mechanism. Cage 80 may be adapted to each of various different firearms, by replacing mounting plates 86, 88 with the appropriately shaped security bars 90a-b. A locating pin 98 extending from panels 82, 84 engages a hole 99 in mounting plates 86, 88 and is used to locate them with the proper orientation.

Figs. 13-14 illustrate end views of cage 80 locked in the closed position, showing further construction details.

As will be appreciated, the hinged cage 80 design of Figs. 11-14 provides advantages over that of Fig. 1, including a reduction in the amount of material required, which in turn reduces the weight and manufacturing cost. For applications with a low risk of tampering, this design is especially useful.

In summary, the inventive firearm safety locking device may be provided in many applications, including temporary installations, security outposts, military bases, and on ships, airplanes, etc. In a military tent camp, for example, a large weight could be used for anchoring the device 20 in each tent.

The inventive firearm safety locking device provides increased safety and can reduce accidents and eliminate misuse.

Having described the invention with regard to certain specific embodiments thereof, it is to be understood that the description is not meant as a

limitation, since further modifications may now become apparent to those skilled in the art, and it is intended to cover such modifications as fall within the scope of the appended claims.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. A firearm safety locking device comprising:
 - means for supporting a firearm and covering at least a portion thereof to block access at least to its trigger; and
 - means for releasably locking said firearm in said supporting means and securing it therein.
2. The device of claim 1 wherein said locking means is removable for substitution thereof with an alternative locking means.
3. The device of claim 1 wherein said locking means is removable upon removal of said firearm for substitution thereof with an alternative locking means for another firearm.
4. The device of claim 1 wherein said supporting means comprises a housing having a door hinged thereon to define a storage compartment within which said firearm is stored.
5. The device of claim 4 wherein said storage compartment blocks access to substantially all of said firearm including the trigger, safety catch, cartridge magazine and loading mechanism.
6. The device of claim 4 wherein said locking means comprises a lock removably insertable in a bracket mounted on said door, and a pin arrangement mounted on said housing for engaging said lock when said door is closed to cover said firearm.
7. The device of claim 6 wherein said pin arrangement comprises two pins pivotable against a spring detent, said pins having free ends pivotable into points lying on an arc traversed by said lock as said door closes, to engage said lock.
8. The device of claim 4 wherein said housing is box-like and has frame pieces attached to edges of said door and said storage compartment, said frame pieces being formed with openings therein, such that when said firearm is placed in said storage compartment, said frame piece openings allow said door to close over said firearm without interference.
9. The device of claim 4 wherein said housing is provided with a first set of security bars extending therefrom and a second set of security bars extending from said door, each of said first set of security bars having its free end shaped to abut an opposing one of said second security bars to provide a hinged cage, for encompassing and securing said firearm therein.
10. The device of claim 4 wherein said firearm is loaded ready for use before being stored in said storage compartment.
11. The device of claim 4 wherein said storage compartment is formed with mounting holes for wall mounting, said holes being concealed when said door is closed, for a tamper-resistant design.
12. The device of claim 4 further comprising a hollow pin extending vertically within said storage compartment for placement of said firearm thereon, and a cone-shaped plug located on the interior of said door so as to engage said hollow pin when said door is closed, to secure said firearm trigger.
13. A method of locking a firearm comprising the steps of:
 - supporting a firearm and covering at least a portion thereof to block access at least to its trigger; and
 - releasably locking and securing said supported firearm.
14. The method of claim 13 wherein said locking step is performed by removable locking means which may be replaced with alternative locking means.
15. The method of claim 13 wherein said locking step is performed by locking means associated with said supported firearm and further comprises the step of substituting said locking means with an alternative locking means associated with another firearm.

16. The method of claim 13 wherein said supporting step comprises:
 providing a housing having a door hinged thereon to define a storage compartment; and
 placing said firearm within said storage compartment. 5
17. The method of claim 13 wherein said locking step comprises:
 removably inserting a lock in a bracket mounted on said door; and 10
 engaging a pin arrangement mounted on said housing in said lock when said door is closed to cover said firearm. 15
18. A firearm safety locking device comprising:
 housing means having a door hinged thereon to define a storage compartment;
 means for releasably locking said firearm in said storage compartment and securing it therein, 20
 wherein said locking means comprises a lock removably insertable in a bracket mounted on said door, and a pin arrangement mounted on said housing for engaging said lock when said door is closed to cover said firearm, and 25
 wherein said locking means is removable for substitution thereof with an alternative locking means. 30
19. The device of claim 18 wherein said locking means is removable upon removal of said firearm for substitution thereof with an alternative locking means for another firearm. 35
20. The device of claim 18 wherein said pin arrangement comprises two pins pivotable against a spring detent, said pins having free ends pivotable into points lying on an arc traversed by said lock as said door closes, to engage said lock. 40

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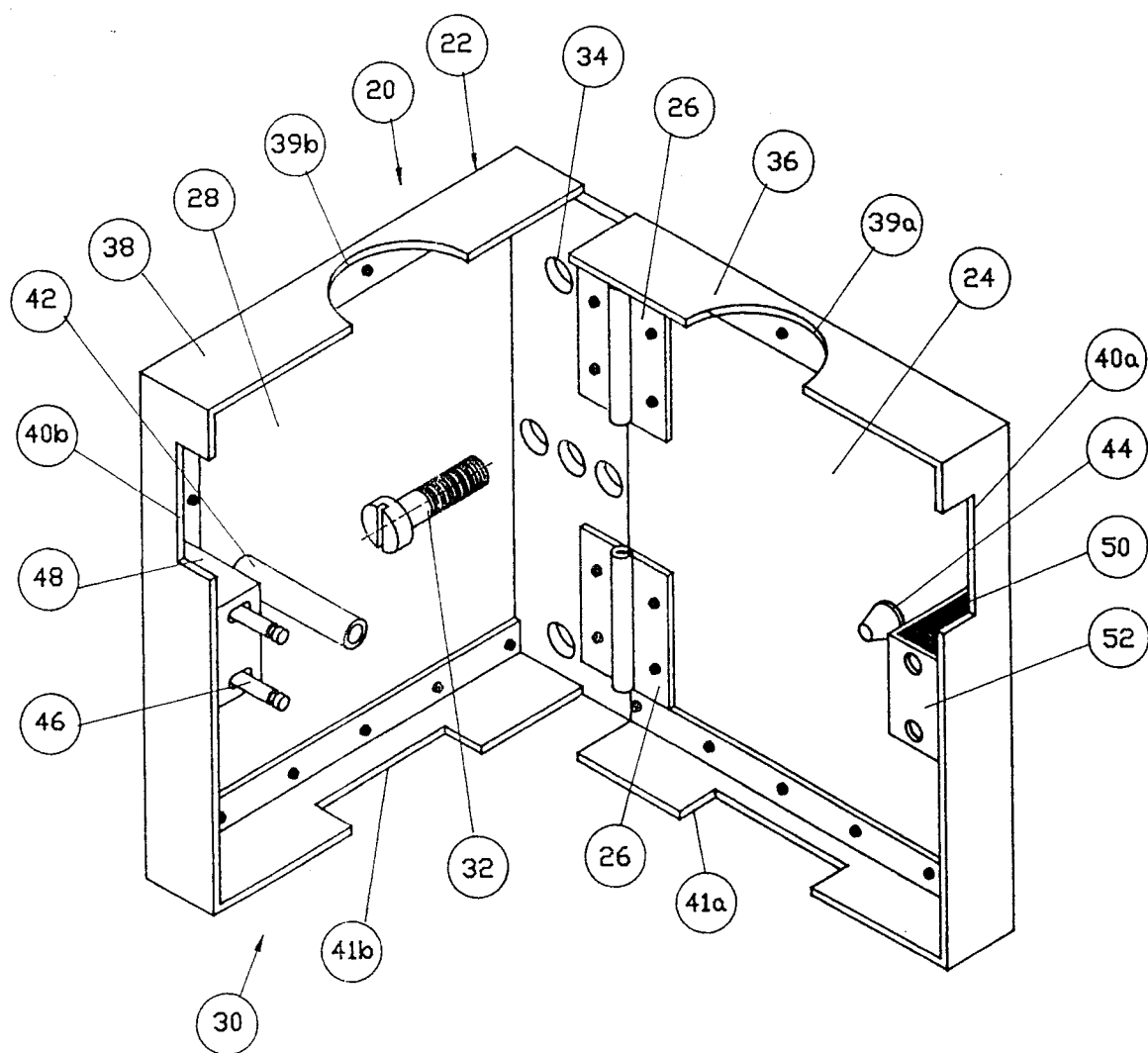


Fig.1

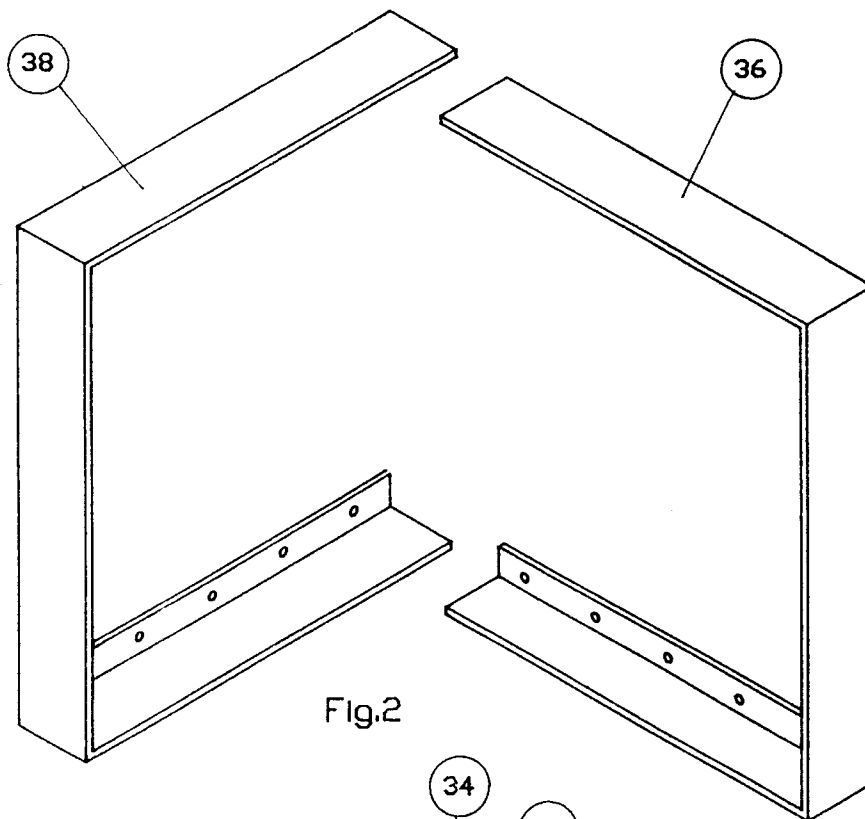


Fig. 2

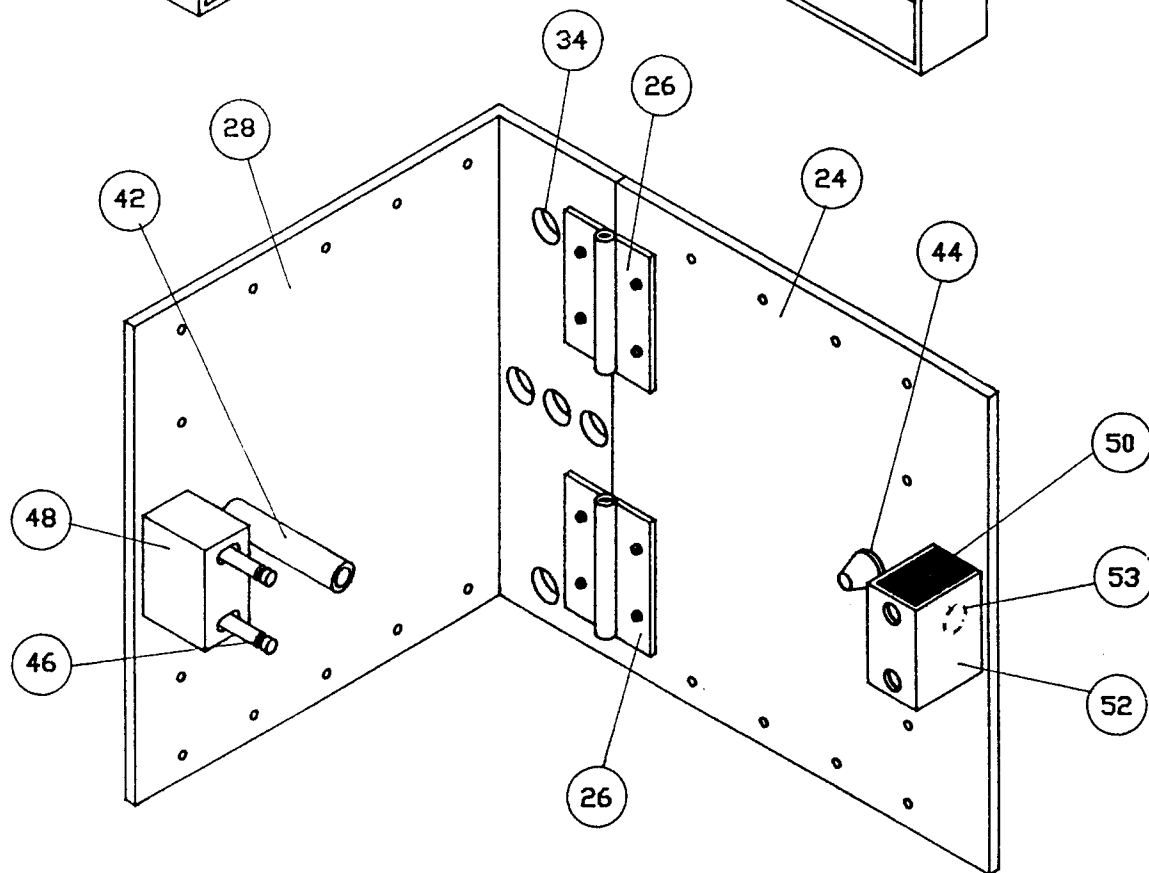
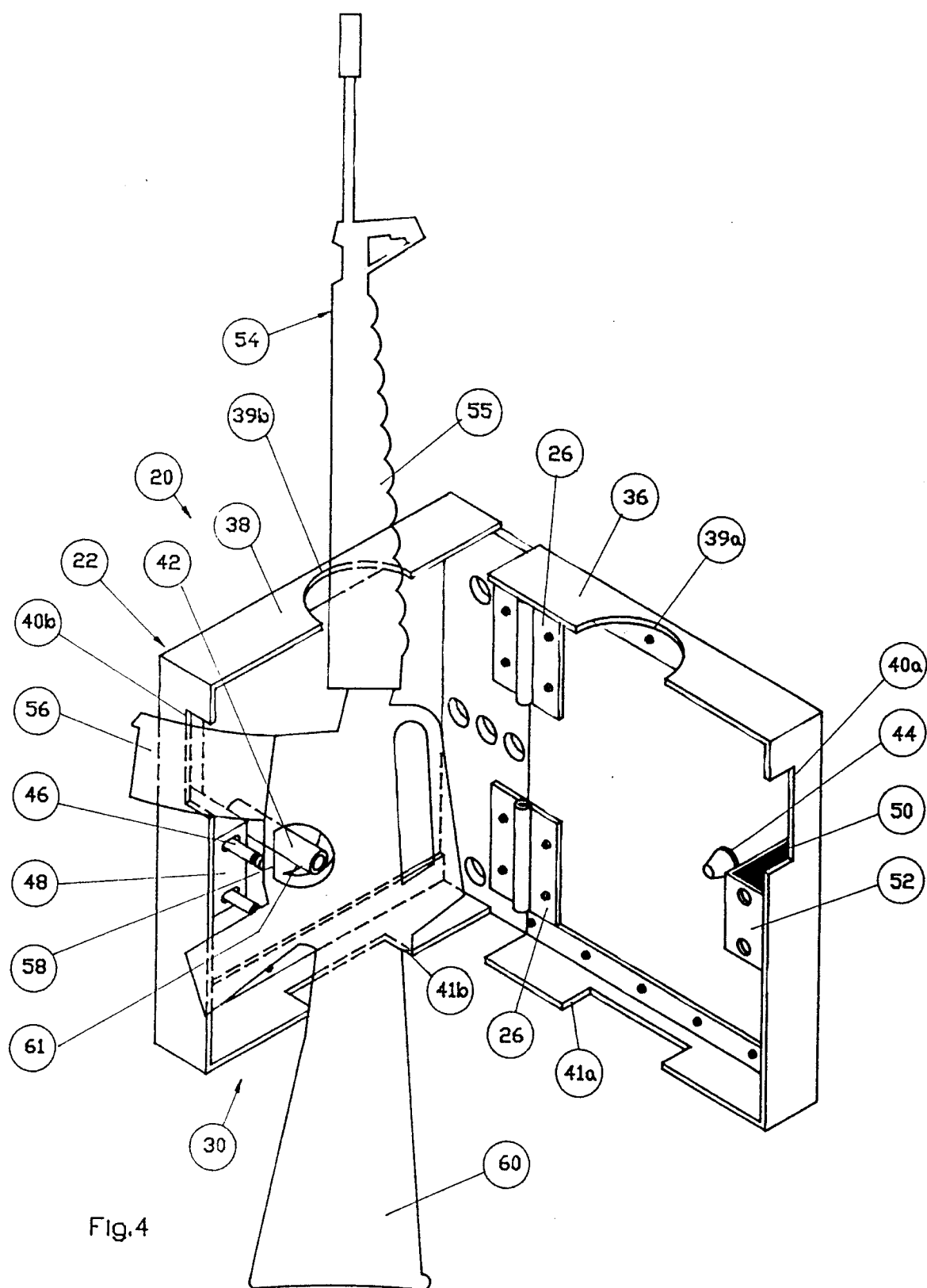
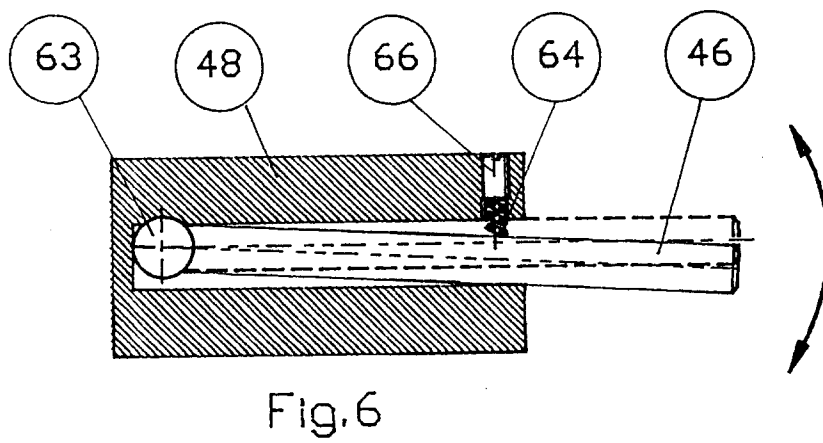
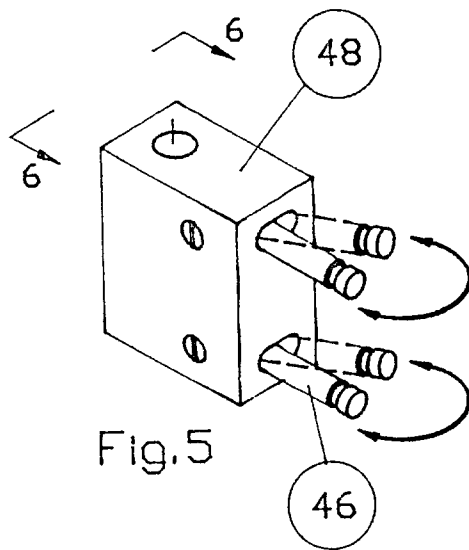


Fig. 3





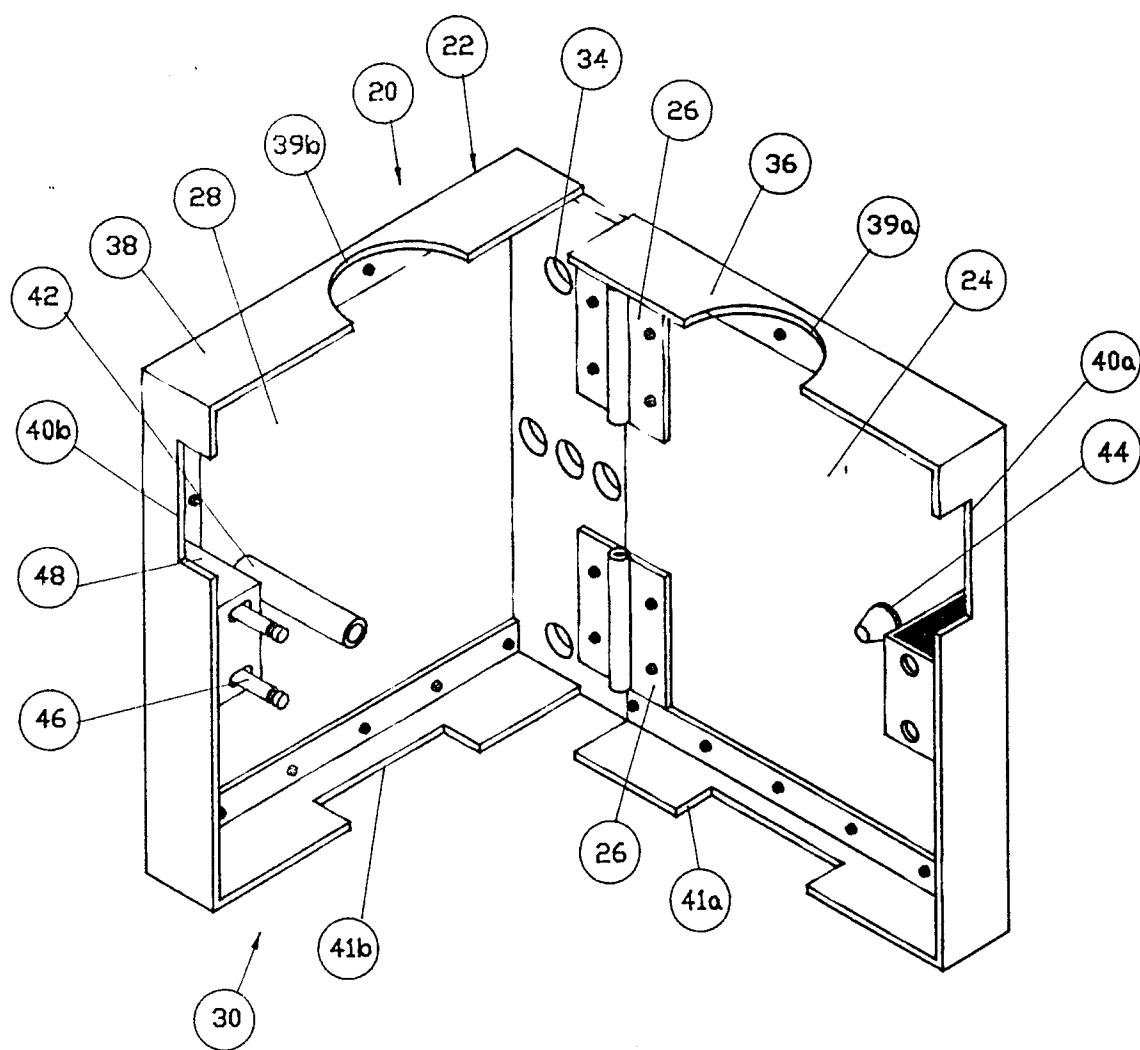


Fig.7

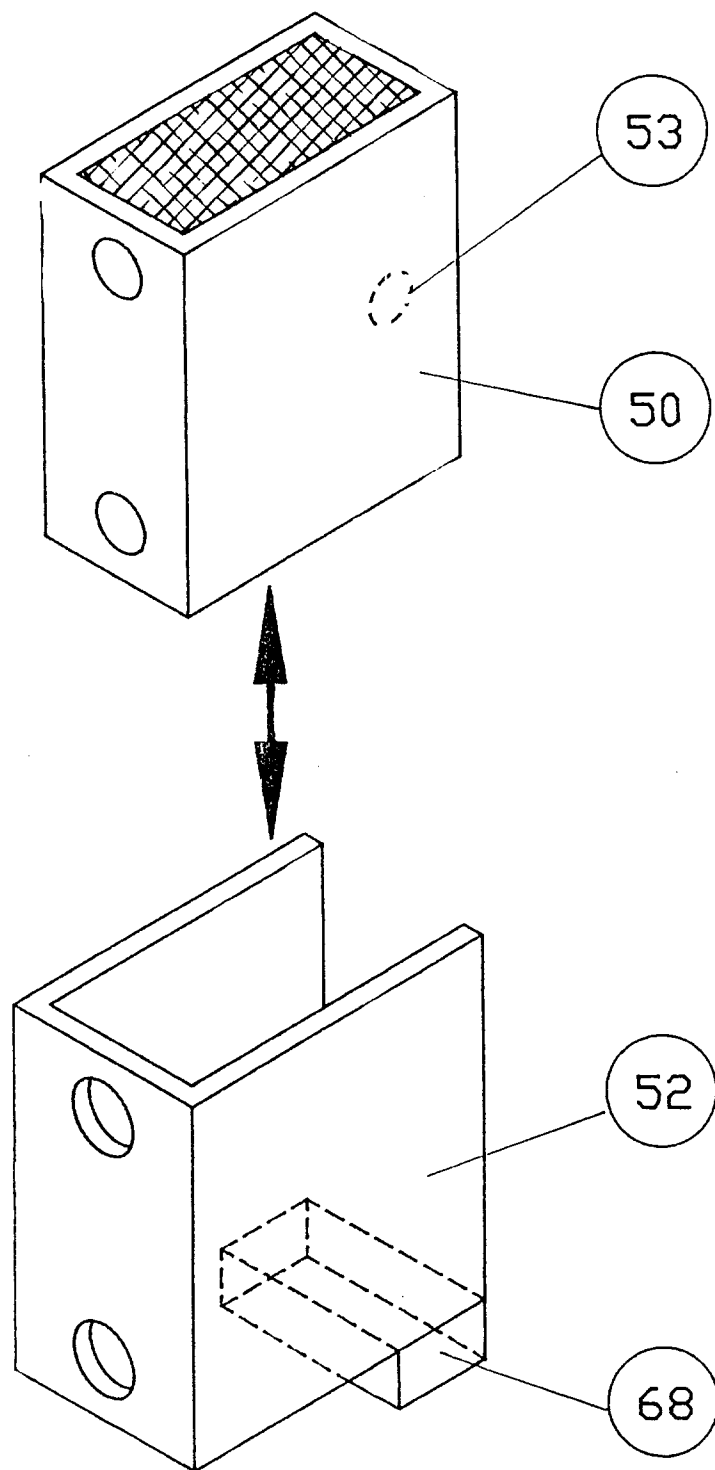


Fig.8

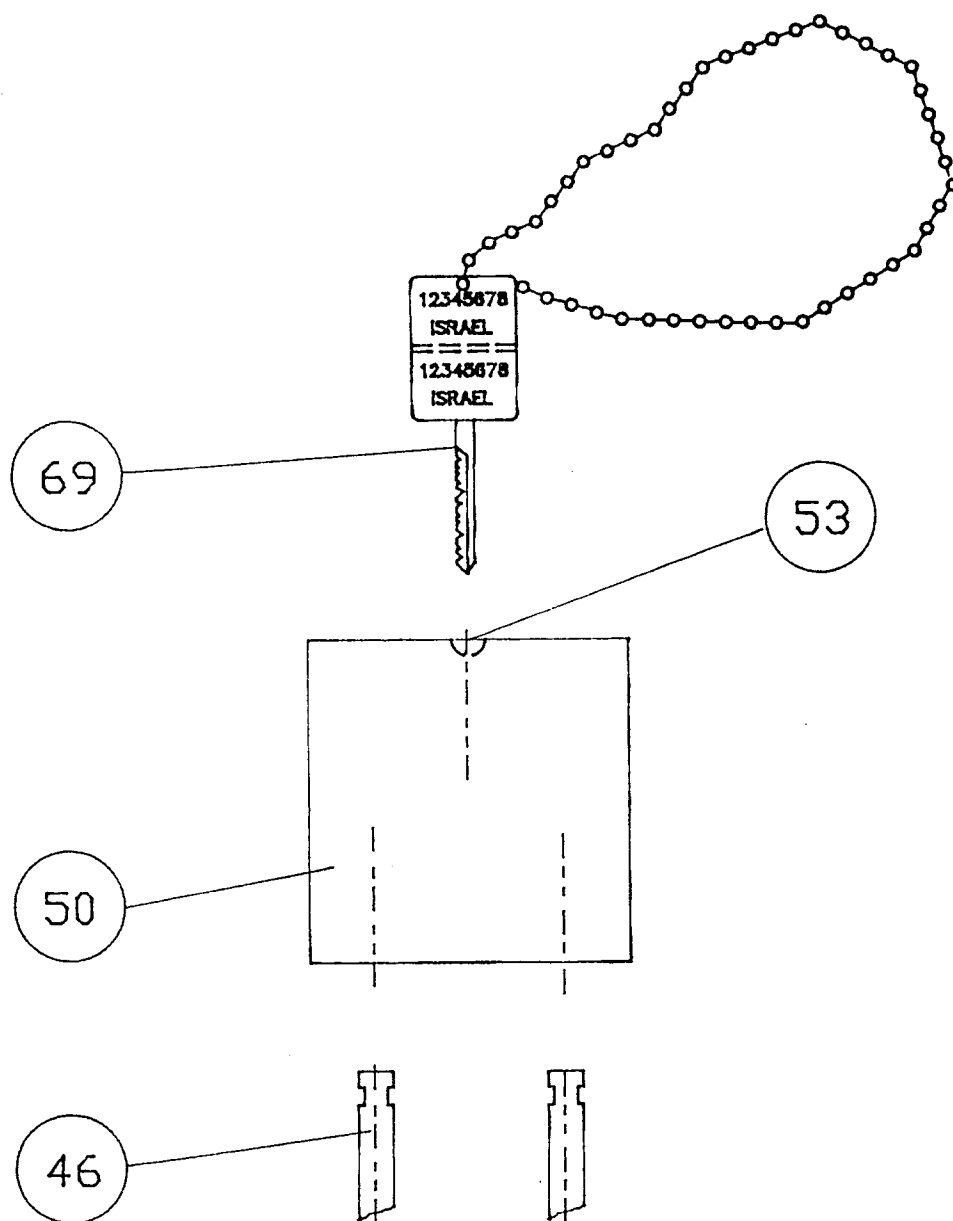
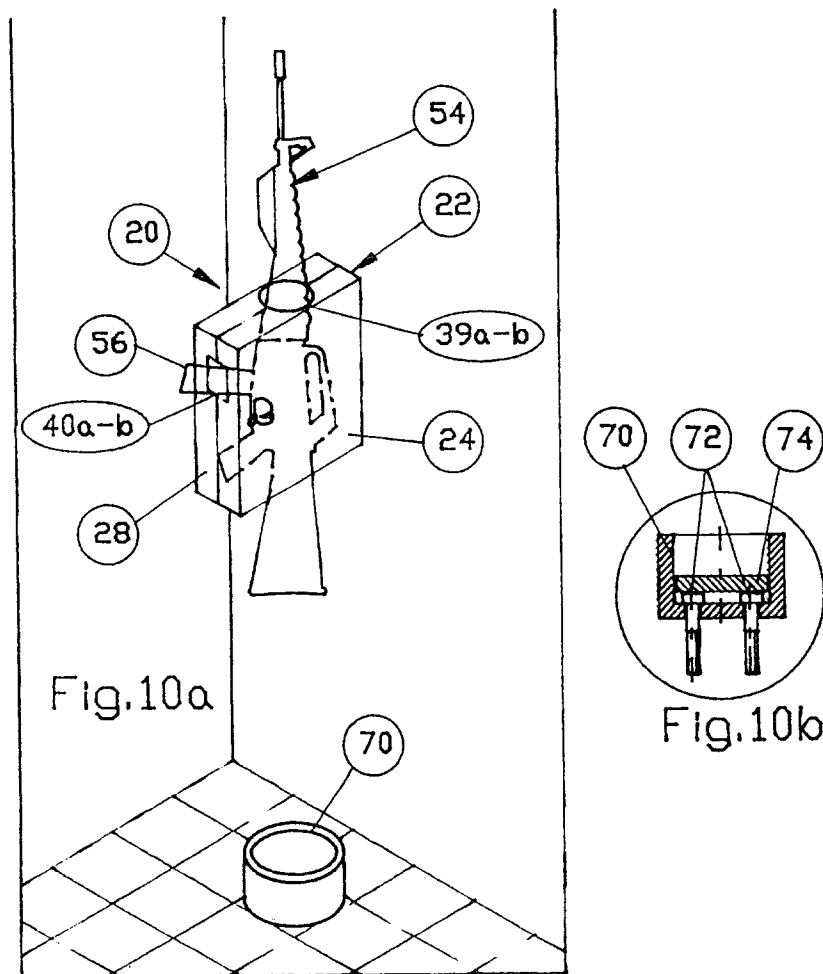


Fig.9



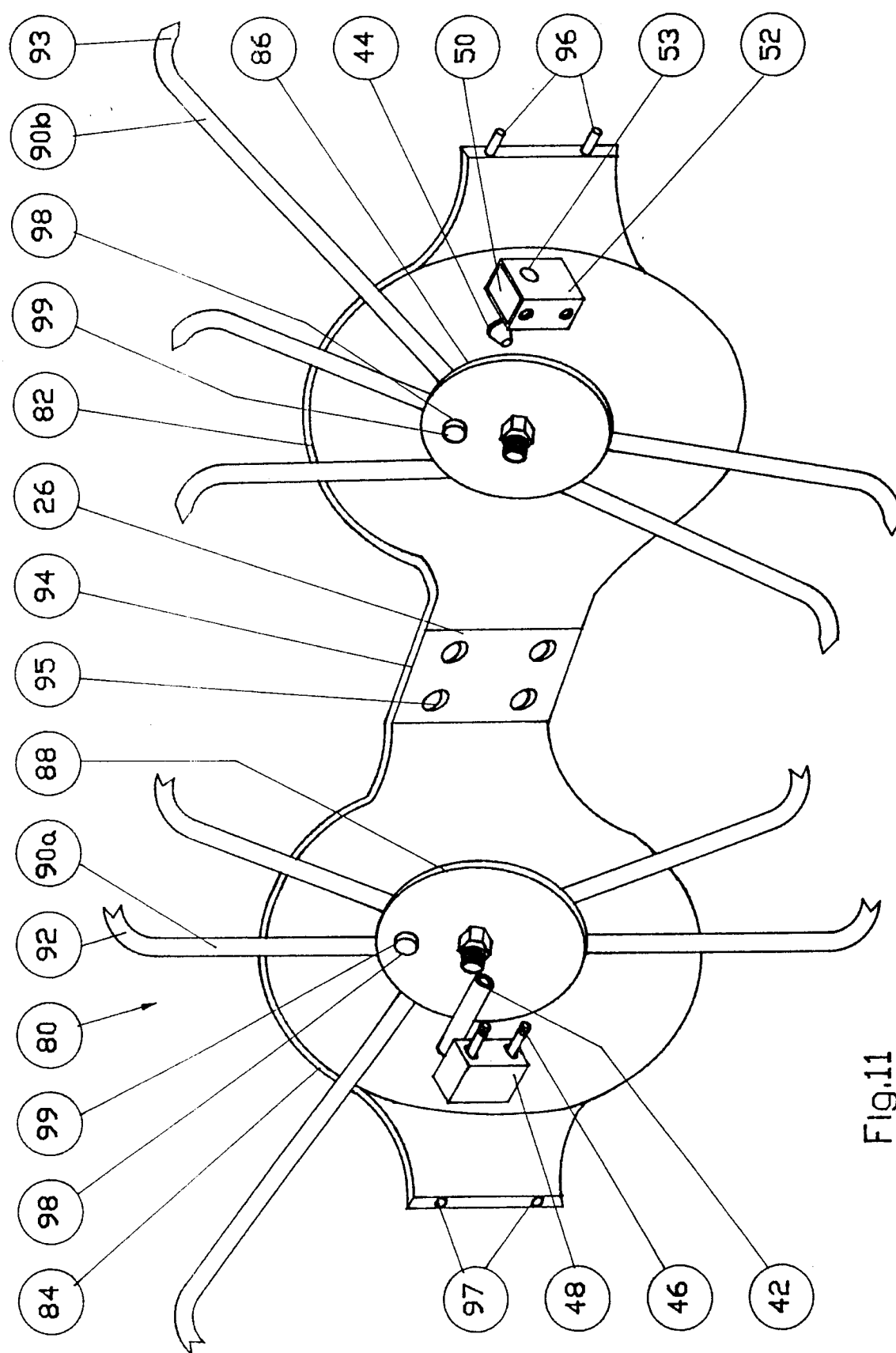
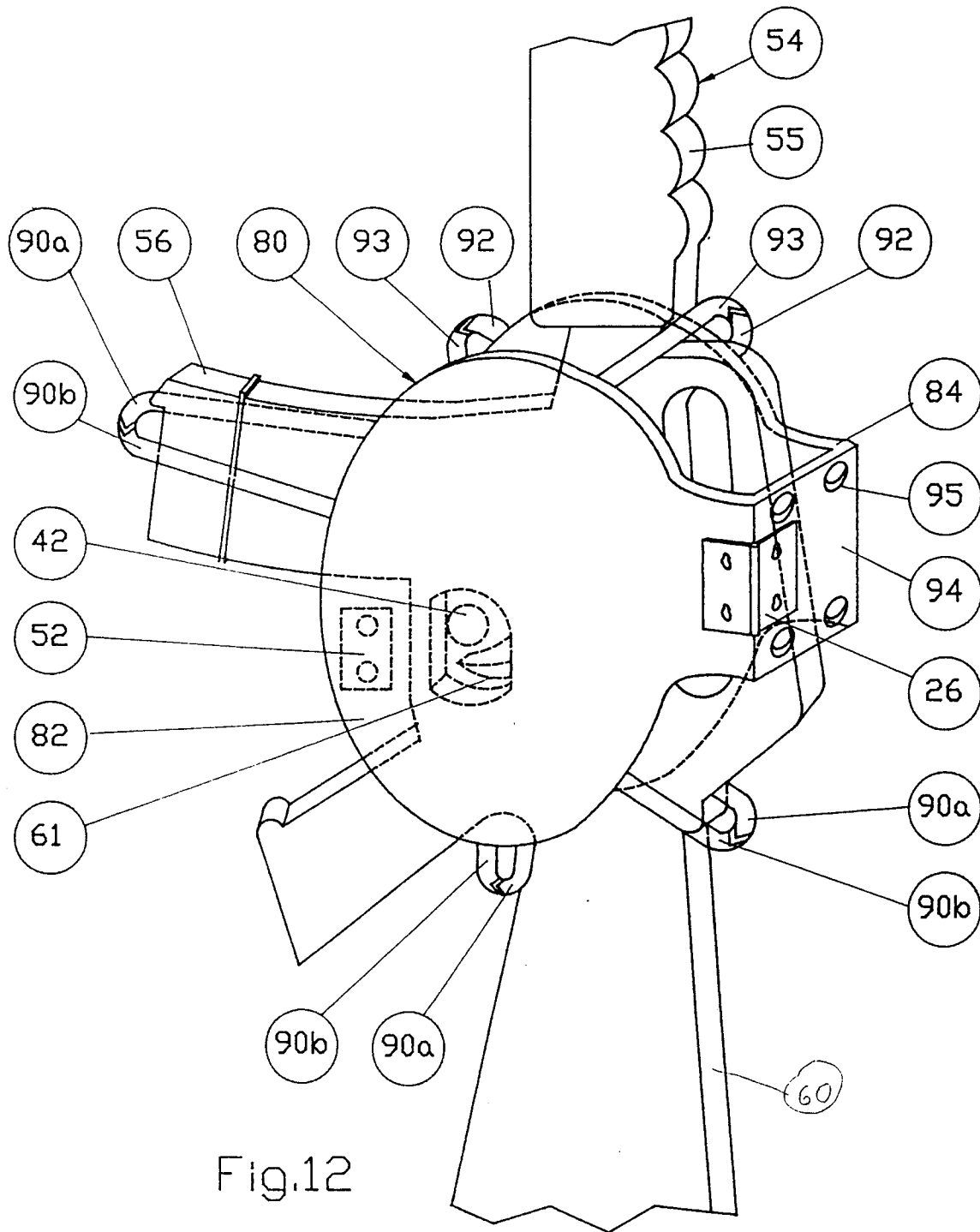


Fig.11



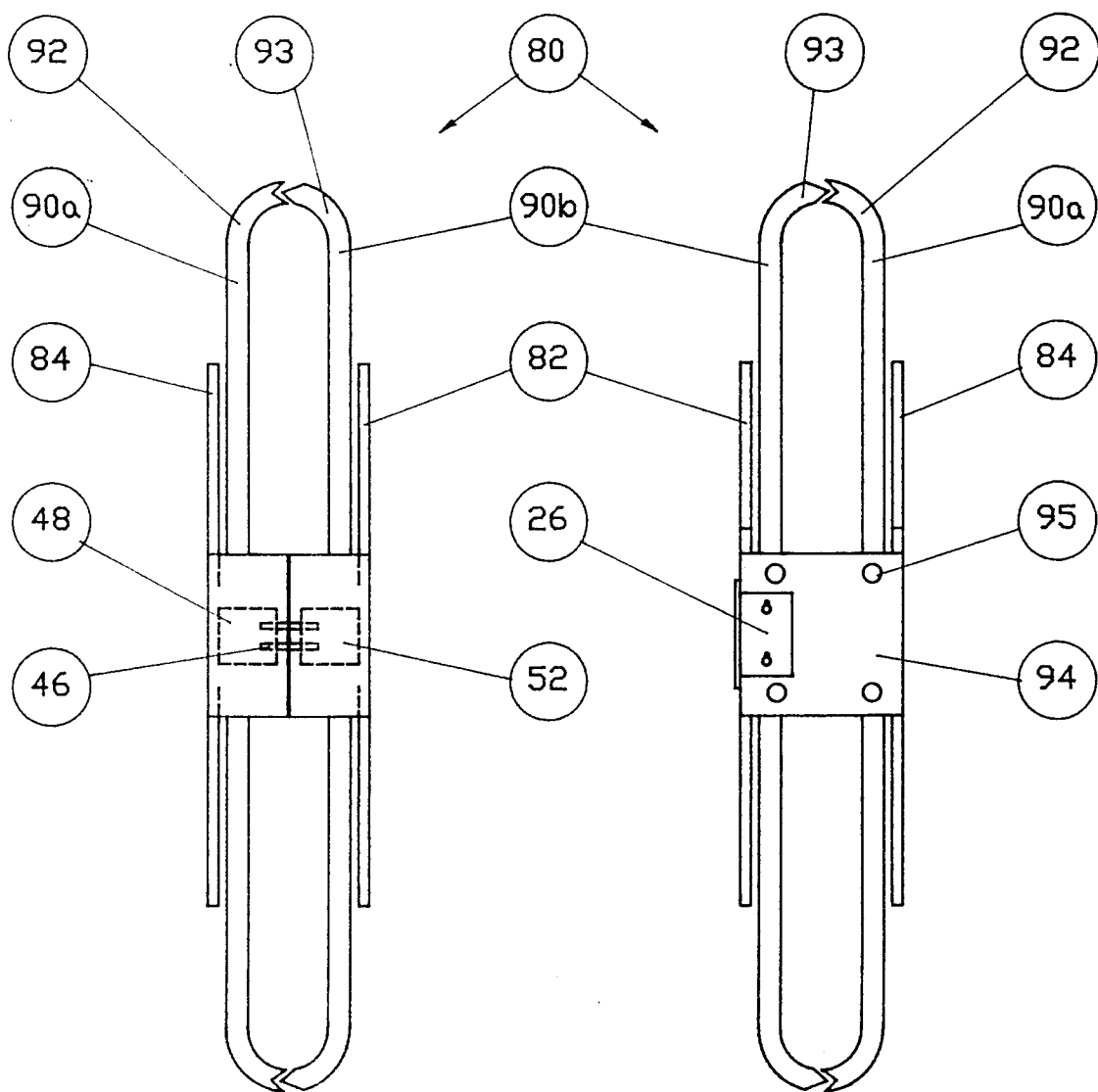


Fig.13

FIG.14



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 93 11 4848

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
X	US-A-5 138 786 (FISCHER) * the whole document * ---	1,4,5, 8-11,13, 16	F41A17/54 F41A17/02 A47B81/00
X	GB-A-2 224 431 (ADAMS) * page 3, line 18 - page 8, last paragraph; claims; figures * ---	1,4,5, 8-11,13, 16	
X	GB-A-2 243 183 (GLOWER) * the whole document * ---	1,4-6, 8-13,16	
X	US-A-1 513 267 (PARKS) * the whole document * ---	1,4,5, 8-11,13, 16	
A	DE-A-26 14 250 (SPORT + JAGD HANDELSGESELLSCHAFT MBH) * claims; figures * ---	6,7	TECHNICAL FIELDS SEARCHED (Int.Cl.5)
A	US-A-4 499 681 (BAKO ET AL) * claims; figures * ---	1-3, 13-15	F41A A47B F41C
D,A	US-A-4 084 341 (CERVANTES) ---		
D,A	US-A-4 328 687 (RITCHIE) ---		
D,A	US-A-4 198 026 (CAPOLUPO) ---		
D,A	US-A-5 022 536 (PIERSON) ---		
D,A	US-A-4 813 252 (RAY) -----		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 4 January 1994	Examiner Douskas, K
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			