HOLDER FOR FIREARM

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ABSTRACT

A holder for attaching a firearm, such as a Taser® gun, to a Remote Mobile Investigator (RMI) robot equipped with a firing interface is disclosed. The holder comprises a housing portion defining a cavity portion for receiving the firearm, the housing portion having a first opening aligned with the barrel of the firearm, thereby allowing the firearm to be fired when housed in the holder and attached to the robot. The housing portion also includes a second opening for establishing an operable connection between the firearm and the firing interface of the robot. A plate member is hingedly attached to the housing portion, the plate member having an open position providing access to the cavity portion, and a closed position sealing the cavity portion. First and second locking devices are provided for releasably securing the plate member in the closed position and for locking the holder on to the robot.
HOLDER FOR FIREARM

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority from U.S. Provisional Patent Application Ser. No. 60/948,777 filed on Jul. 10, 2007, which is incorporated by reference.

FIELD OF THE INVENTION

[0002] The invention relates to a guard or holder for securing a firearm such as a Taser™ gun to a robot.

BACKGROUND OF THE INVENTION

[0003] Remote mobile investigators (RMI) robots are now often being deployed during tactical operations involving armed and/or barricaded individuals in order to provide additional safety for law enforcement personnel. RMI robots can be equipped with various types of equipment so as to customize the RMI to a particular situation and offer an alternative to deploying law enforcement personnel into certain dangerous situations. For instance, when gathering intelligence, an RMI robot can be equipped with video or other surveillance equipment so as to provide additional information to the law enforcement personnel involved in the situation. In other instances, it is desirable to equip the RMI robot with a firearm such as a Taser™ gun so as to avoid having officers or law enforcement personnel in the line-of-fire.

[0004] In the past there has been a concern when using an RMI robot in a tactical operation that requires equipping the RMI with one or more weapons as to whether the weapons would become accessible to the target individuals once the RMI has been deployed and used against law enforcement personnel.

[0005] Various devices are known for housing firearms when not in use or for preventing the firearms from being fired accidentally. However, these devices or systems are not suitable for use with RMI robots or for housing a firearm, such as a Taser™ gun, while still permitting the firearm to be fired.

SUMMARY OF THE INVENTION

[0006] In the present invention, a holder is used to quickly and securely mount a firearm or Taser™ gun to a remote mobile investigator (RMI).

[0007] According to one aspect of the invention there is provided a firearm holder for attachment to a robot equipped with a firing interface. The holder comprises a housing portion defining a cavity portion for receiving a firearm, the housing portion having a first opening aligned with the barrel of the firearm, and a second opening for establishing an operable connection between the firearm and the firing interface of the robot. A plate member is hingedly attached to the housing portion, the plate member having an open position providing access to the cavity portion, and a closed position sealing the cavity portion. A first locking device releasably secures the plate member in the closed position. The firearm holder further includes an extension member projecting rearwardly from the housing portion, the extension member being adapted to receive a corresponding projecting portion on the robot, and a second locking device cooperating with the extension member and said projecting portion for releasably locking said holder on said robot.

DESCRIPTION OF THE DRAWINGS

[0008] Embodiments of the invention will now be described by way of example with reference to the accompanying drawings, in which:

[0009] FIG. 1 is a perspective view of the firearm holder mounted on a remote mobile investigator (RMI) robot;

[0010] FIG. 2 is a side perspective view of the holder shown in FIG. 1; and

[0011] FIG. 3 is a side view of the holder shown in an open position containing a firearm.

DETAILED DESCRIPTION

[0012] Referring to the drawings, there is shown in FIGS. 1-3 a firearm or Taser™ guard or holder 10 according to a preferred embodiment of the invention. In FIG. 1, the holder 10 is mounted on an arm 12 of a remote mobile investigator (RMI) robot 14. The holder 10 houses a firearm 16, such as a Taser™ gun. Typically, Taser™ guns are used as they are self-powered by a battery pack located in the handle of the firearm and can be electrically fired when mounted to the RMI robot 14 through a firing interface that is built into the RMI 14. While the present description is directed to a guard or holder 10 for housing a Taser™ gun, it will be understood that any similarly operated firearm may be used with the holder 10 of the present invention.

[0013] As shown in FIG. 1, the RMI robot 14 has a base portion 18 adapted to allow the robot 14 to move freely across a surface. In the illustrated embodiment, the base portion 18 of the robot 14 is equipped with tracked wheels, although regular wheels and tires may also be used. The RMI robot 14 has a main body portion 20 from which the arm 12 extends. The RMI robot 14 is powered by a motor (not shown) and is controlled by radio or wireless controls used by the law enforcement personnel. The RMI robot 14 may be equipped with various forms of equipment such as video or surveillance equipment, a robotic hand for manipulating objects or, as in the present case, a firearm.

[0014] According to the preferred embodiment of the invention, holder 10 includes a housing portion 22 and a door or plate member 24 that is hingedly attached to the housing portion 22. As shown in FIG. 3, the housing portion 22 is comprised of a backing plate 26, a first wall 28 that projects substantially at right angles from the backing plate 26 and surrounds at least two adjacent side edges 27, 29 of the backing plate 26, and a second wall 30 that is spaced-apart from the first wall 28 and projects substantially at right angles to backing plate 26. The second wall 30 corresponds to the shape defined by the first wall 28, thereby forming a generally L-shaped cavity 32 having first and second open ends 33, 34. The second wall 30 is also spaced inwardly from the corresponding side edge 35 of the backing plate 26 thereby leaving a portion 36 of the backing plate 26 exposed which extends beyond the L-shaped cavity 32 defined by the first and second walls 28, 30.

[0015] The L-shaped cavity 32 generally corresponds to the shape of the firearm 16 to be housed within the holder 10. The first open end 33 of the housing portion 22 allows the barrel of the firearm to remain exposed so that the firearm 16 can be fired as needed during tactical operations. The second open end 34 of the cavity 32 aligns with the butt of the firearm.
handle. While the second open end 34 is shown as being an open end in the present embodiment, it will be understood that the second end 34 can be adapted so as to be a closed end, if desired.

[0016] The door or plate member 24 is attached to one edge of the first wall 28 of the housing portion 22 by means of a hinge member 38. While the plate member 24 is shown as being attached to the portion of the first wall 28 that corresponds to edge 29 of the backing plate 26, it will be understood that plate member 24 could instead be hingedly attached to the portion of the first wall 28 corresponding to edge 27 of the backing plate 26. Hinge member 38 allows the door or plate member 24 to rotate about the hinge connection between an open position (as shown in FIG. 3) and a closed position (as shown in FIGS. 1 and 2). Plate member 24 is typically the same shape as the backing plate 26 so that when the plate member 24 is in the closed position, the plate member 24 closes the open L-shaped cavity 32 and also has a portion 40 that extends beyond the cavity 32 and overlaps the exposed portion 36 of the backing plate 26.

[0017] In the preferred embodiment, the backing plate 26 and the plate member 24 are each formed with corresponding openings 42, 44 formed in the exposed portions 36, 40 thereof. The openings 42, 44 allow for a padlock, such as an Abloy® type padlock, or any other suitable locking device 46 (not shown) to be inserted through the openings 42, 44 when the plate member 24 is in the closed position. This serves to lock the plate member 24 in a closed position, thereby preventing access to the L-shaped cavity 32 when the firearm or Taser™ gun 16 is housed therein.

[0018] To ensure that the weapon 16 is securely positioned within the L-shaped cavity 32, layers of padding 48 or any other suitable material are used to line the inner surfaces of the cavity 132. Similar layers of padding material 49 are also used on the inside surface of the door or plate member 24 and are positioned so as to correspond to the open L-shaped cavity 32. The layers of padding 48 that line the inside surfaces of the L-shaped cavity 32 ensure that the weapon is properly positioned within the L-shaped cavity 32 with the barrel of the firearm 16 pointing directly through the first open end 33 of the housing portion 22. The padding 48 also ensures that the firearm 16 will not move out of position within the cavity 32 through any jostling or other movement that may occur when the RMI robot 14 is deployed.

[0019] Additional strips of padding material 49 are also used on the inner surface of the door or plate member 24. The strips of padding 49 are positioned on the plate member 24 so as to overlap the L-shaped cavity 32 of the housing portion 22 when the plate member 24 is in the closed position. The additional strips of padding 49 further ensure that the firearm 16 does not move around within the L-shaped cavity 32 as the padding strips 49 press up against and cushion the firearm 16 when the plate member 24 is closed, thereby preventing it from moving around within the cavity.

[0020] In addition to ensuring that the firearm 16 is securely positioned within the L-shaped cavity 32 when the door or plate member 24 is closed, the layers and strips of padding 48, 49 also allow the holder 10 to be easily adapted for use with weapons of various shapes or sizes.

[0021] In order to attach the guard or holder 10 to the arm 12 of the RMI robot 14, the holder 10 is provided with an extension member 50 that projects rearwardly, with respect to the direction of the barrel of the firearm 16, from the first wall 28 of the housing portion 22 along an axis generally parallel to the axis of the barrel of the firearm 16. In the preferred embodiment, the extension member 50 is a tubular member adapted to receive a corresponding projecting portion 52 on the arm 12 of the RMI robot 14 (see FIG. 2). Both the extension member 50 and the corresponding projecting portion 52 of the RMI robot 14 have transverse openings 54, 56 formed therein. When the holder 10 is positioned on the RMI robot 14, the openings 54 in the extension member 50 align with the corresponding openings 56 formed in the projecting portion 52 of the arm 12. This allows a second padlock or other suitable locking device 58 (not shown) to be inserted through the openings 54, 56 to thereby lock the guard or holder 10 in place on the arm 12 of the robot 14. This prevents the holder 10 from being easily removed from the arm 12 of the RMI robot 14 when the robot 14 is used in a tactical operation.

[0022] The holder 10 further includes an opening or access port 60 formed in the first wall 28 of the housing portion 22. The access port 60 provides a means for the firearm or Taser™ gun 16 to be connected to the RMI firing interface. As shown most clearly in FIG. 2, a cable 62 from the RMI firing interface system is inserted through the access port 60 and is connected to the Taser™ gun 16. This allows the Taser™ gun 16 to be fired remotely by law enforcement personnel.

[0023] With the Taser™ gun 16 and holder 10 securely mounted on the RMI robot 14, the RMI robot 14 can be deployed by means of remote control to assist law enforcement personnel during tactical operations. Once the RMI robot 14 is within range of the target individual, the Taser™ gun 16 can be fired by means of the interconnection between the Taser™ gun 16 and the firing interface of the robot 14. The Taser™ gun 16 cannot be easily removed by the target individual as it is locked safely within the holder 10 which in turn is securely locked to the arm 12 of the robot 14. Should the target individual approach the RMI robot 14, law enforcement personnel can fire the Taser™ gun 16 to neutralize any threat.

[0024] While the present invention has been described with reference to a preferred embodiment, it will be understood by persons skilled in the art that the invention is not limited to the precise embodiment described, and that variations or modifications can be made without departing from the scope of the invention as disclosed herein.

We claim:
1. A firearm holder for attachment to a robot equipped with a firing interface, said holder comprising:
   a housing portion defining a cavity portion for receiving a firearm, said housing portion having a first opening aligned with the barrel of said firearm, and a second opening for establishing an operable connection between said firearm and the firing interface of said robot;
   a plate member hingedly attached to said housing portion, said plate member having an open position providing access to said cavity portion, and a closed position sealing said cavity portion;
   a first locking device for releasable securing said plate member in said closed position;
   an extension member projecting rearwardly from said housing portion, said extension member being adapted so as to receive a corresponding projecting portion on said robot; and
   a second locking device cooperating with said extension member and said projecting portion for releasably locking said holder on said robot.
2. A firearm holder as claimed in claim 1, wherein said firearm is a Taser™ gun.

3. A firearm holder as claimed in claim 1, wherein said housing portion includes:
   a backing plate having a portion extending beyond the boundary of the cavity portion;
   said plate member also having a portion extending beyond the boundary of the cavity portion, said portion of the backing plate and said portion of the plate member overlapping each other when said plate member is in said closed position;
   wherein said portion of the backing plate and said portion of the plate member have corresponding openings formed therein for receiving said first locking device to lock said plate member in said closed position.

4. A firearm holder as claimed in claim 3, wherein said first locking device is a padlock.

5. A firearm holder as claimed in claim 1, wherein said extension member and said projecting portion are interlocking tubular members each having transverse openings formed therein, each of said transverse openings aligning with each other when said extension member and projecting portion are positioned in their interlocking relationship for receiving said second locking device.

6. A firearm holder as claimed in claim 5, wherein said second locking device is a padlock.

7. A firearm holder as claimed in claim 1, wherein said cavity portion is lined with layers of padding material for supporting said firearm in position inside said cavity portion.

8. A firearm holder as claimed in claim 7, wherein said plate member further includes strips of padding material for supportingly engaging said firearm when said plate member is in said closed position.

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