



US 20100327531A1

(19) **United States**

(12) **Patent Application Publication**
Bavaro et al.

(10) **Pub. No.: US 2010/0327531 A1**

(43) **Pub. Date: Dec. 30, 2010**

(54) **PORTABLE FIRING BERM**

(60) Provisional application No. 60/975,290, filed on Sep. 26, 2007.

(75) Inventors: **Frank Bavaro**, Plantsville, CT (US); **Scott Bavaro**, Plantsville, CT (US)

Publication Classification

(51) **Int. Cl.**
F41J 13/00 (2009.01)
(52) **U.S. Cl.** **273/410**

Correspondence Address:
Perman & Green, LLP
99 Hawley Lane
Stratford, CT 06614 (US)

(57) **ABSTRACT**

A portable firing berm adapted to capture bullets fired at the berm. The portable berm has a frame forming an opening through which bullets fired at the berm enter the berm and a bullet containment portion communicating with the opening. The bullet containment portion has an integral impact section disposed so that unspent bullets received in the bullet containment portion impact against and are stopped by the impact section, and having an integral bullet containment section arranged to contain bullets and bullet fragments from the impact section. The bullet containment portion is movably mounted to the frame to move substantially as a unit relative to the opening from one position to another position.

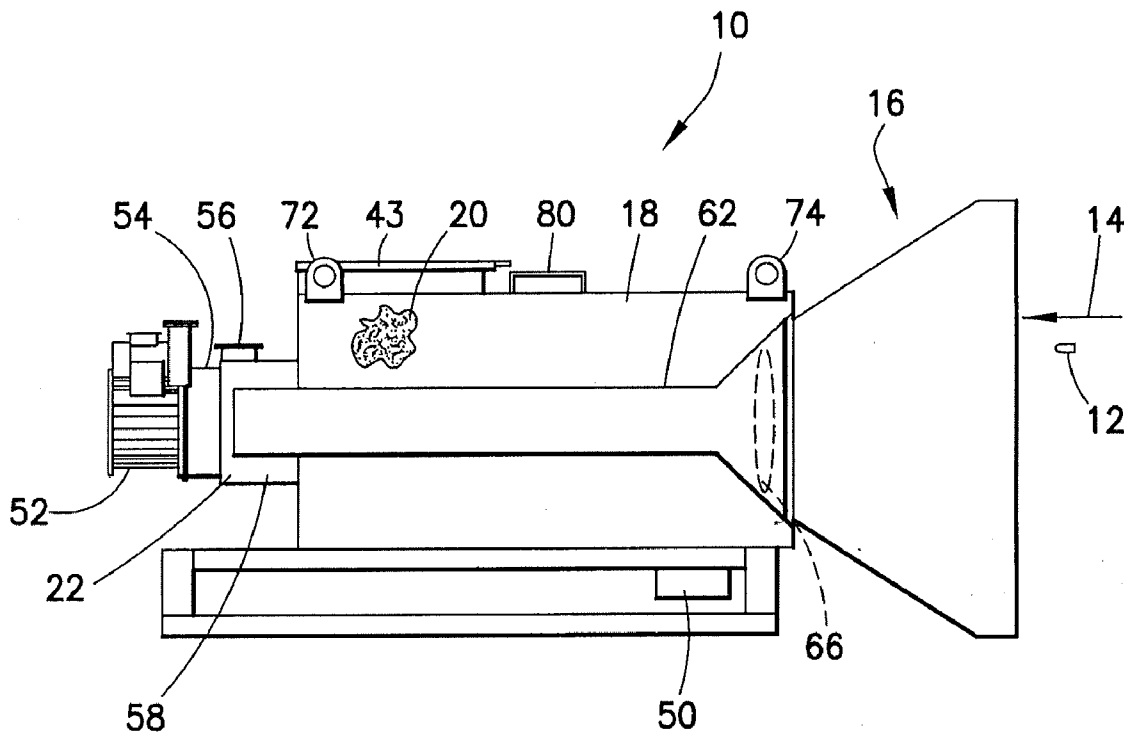
(73) Assignee: **Colt Defense LLC**, Hartford, CT (US)

(21) Appl. No.: **12/802,643**

(22) Filed: **Jun. 10, 2010**

Related U.S. Application Data

(63) Continuation-in-part of application No. 12/238,965, filed on Sep. 26, 2008.



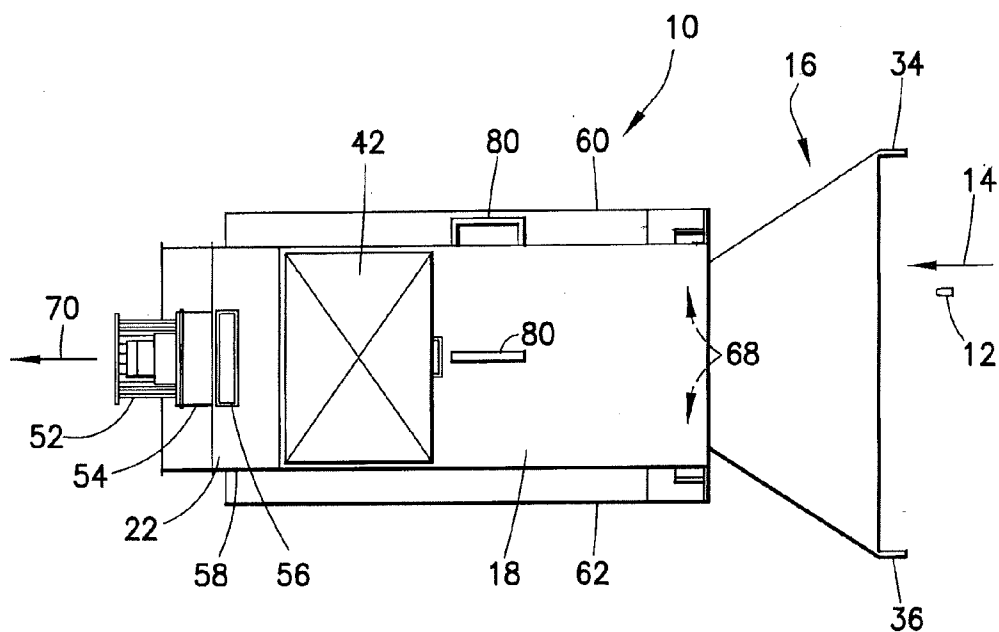


FIG. 1

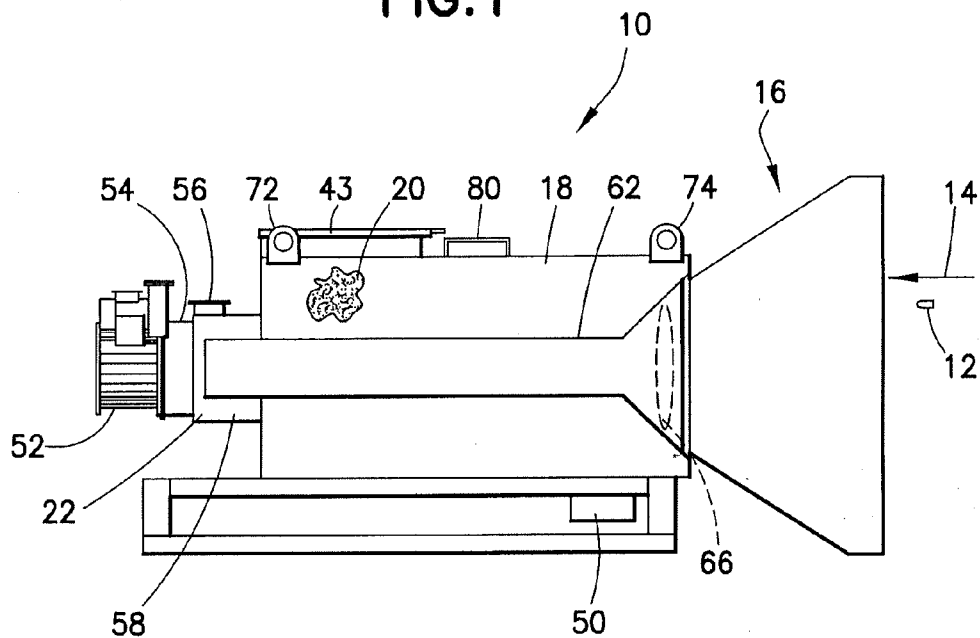


FIG. 2

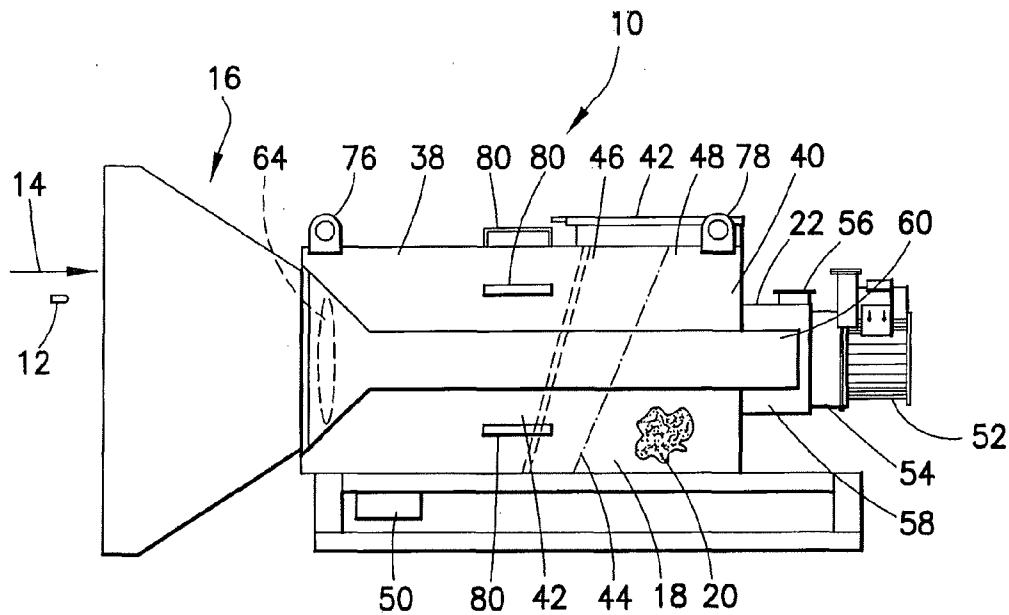


FIG. 3

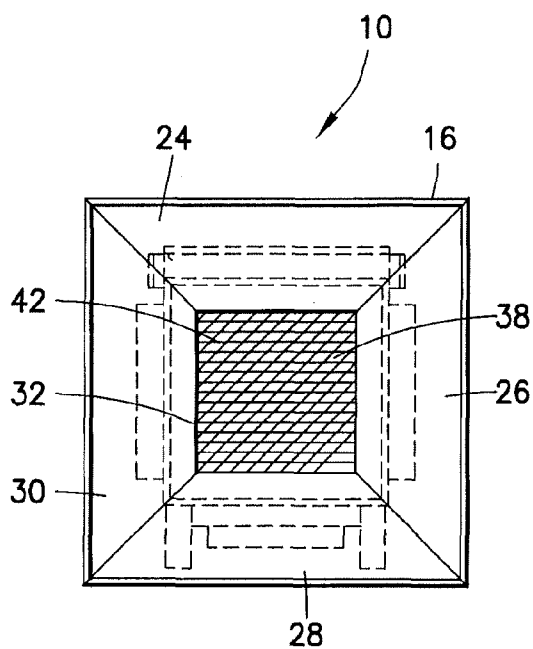


FIG. 4

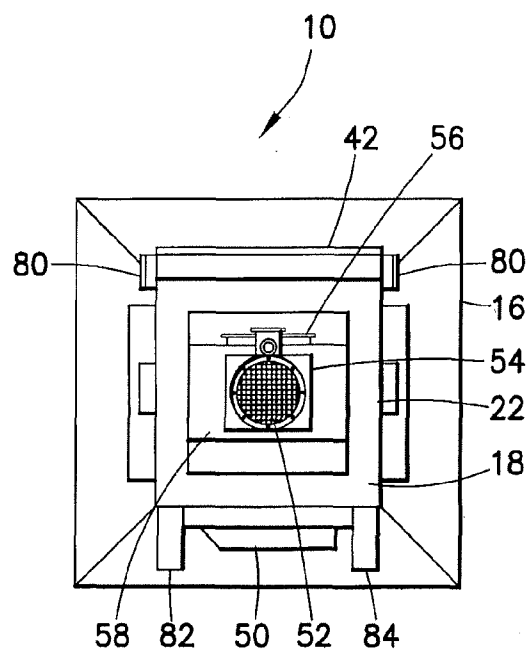


FIG. 5

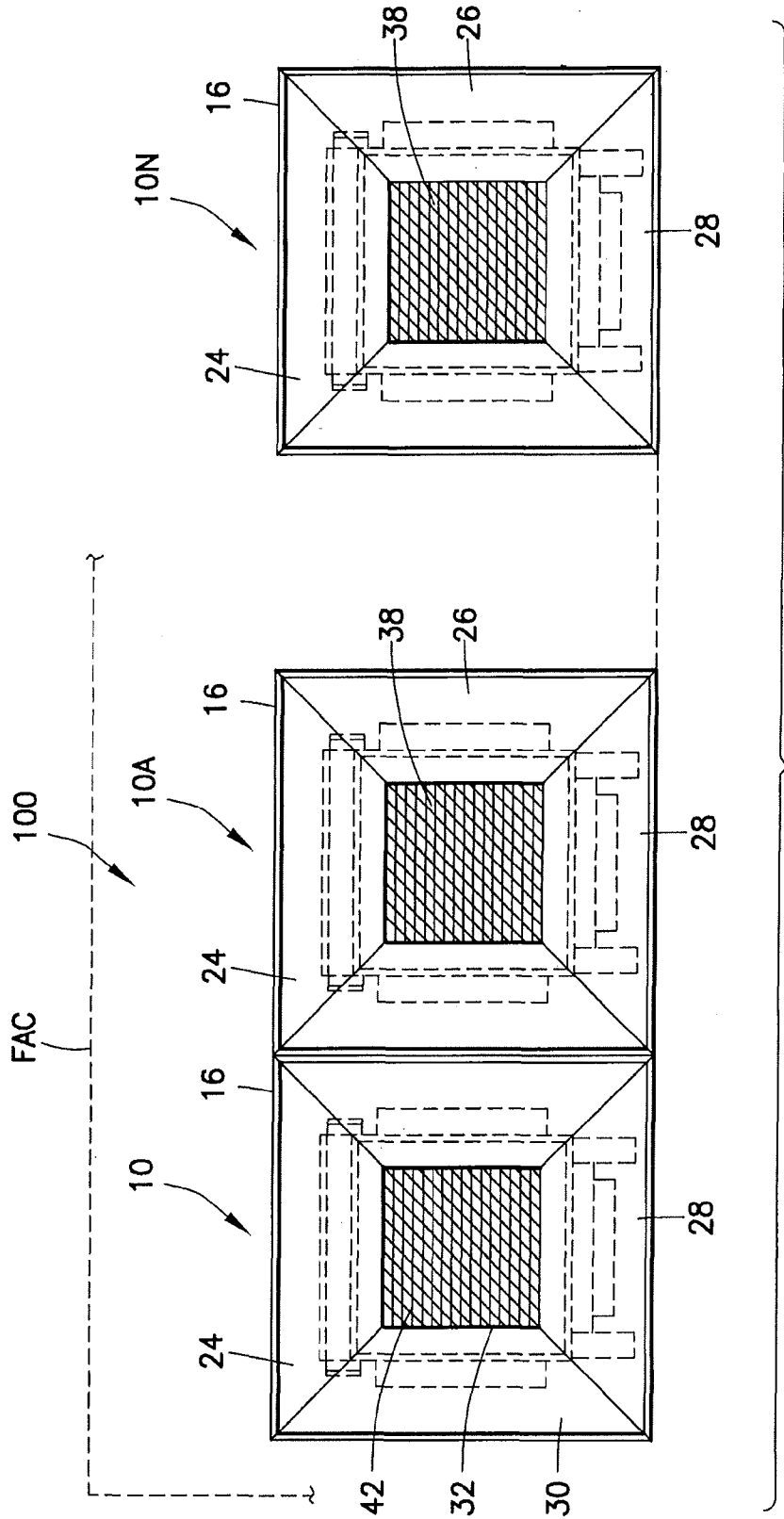


FIG. 6

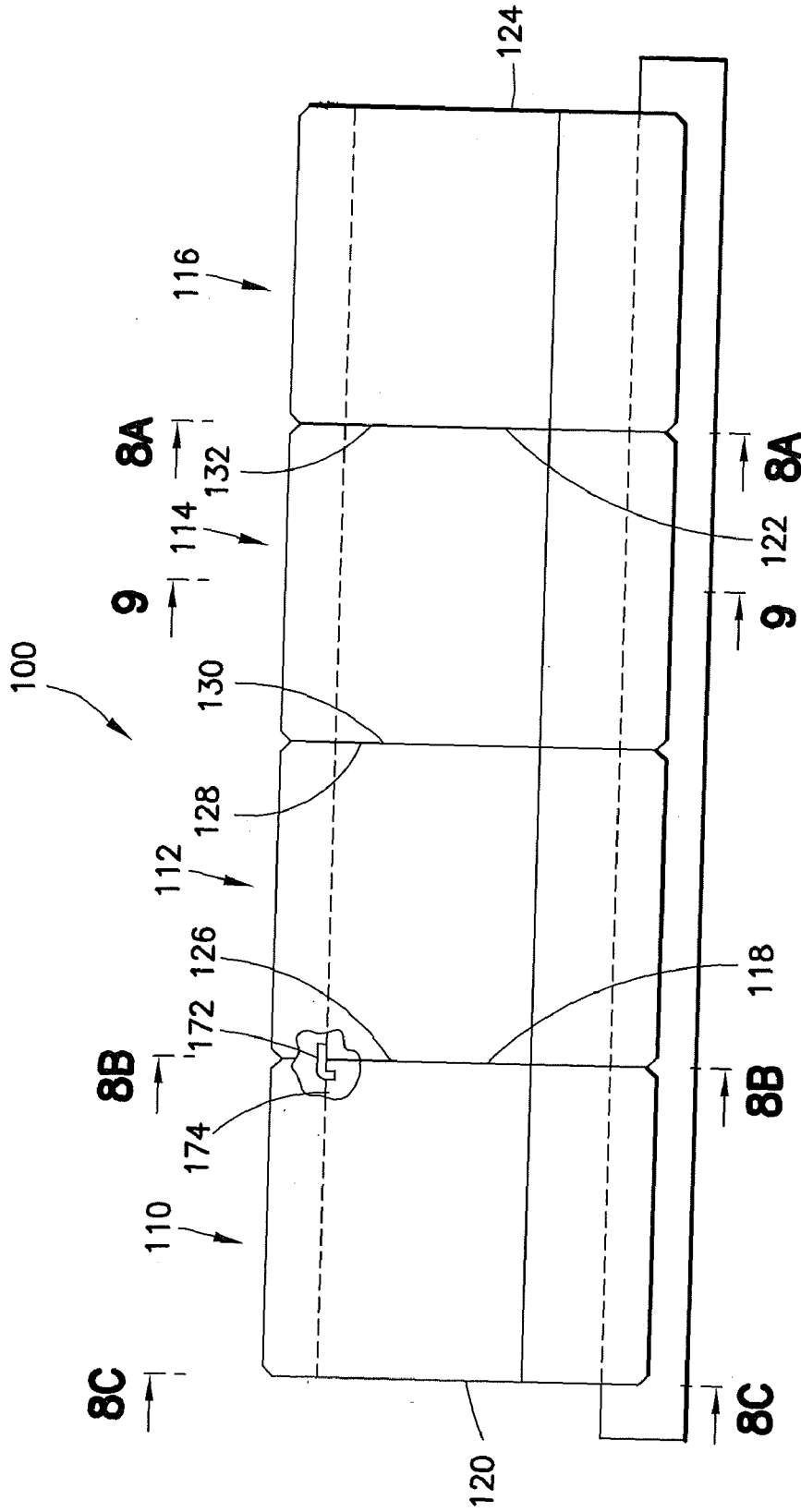


FIG.7

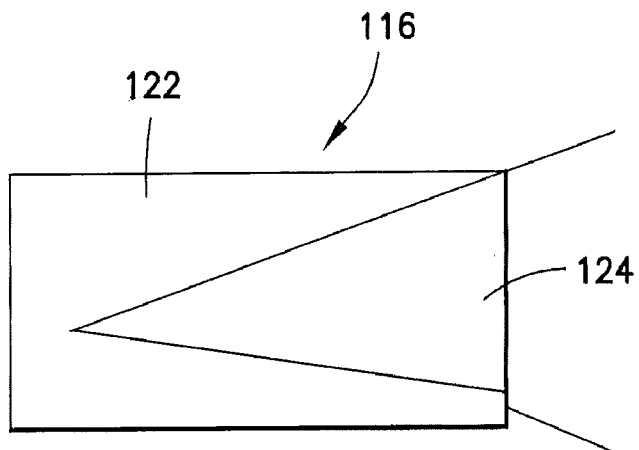


FIG. 8A

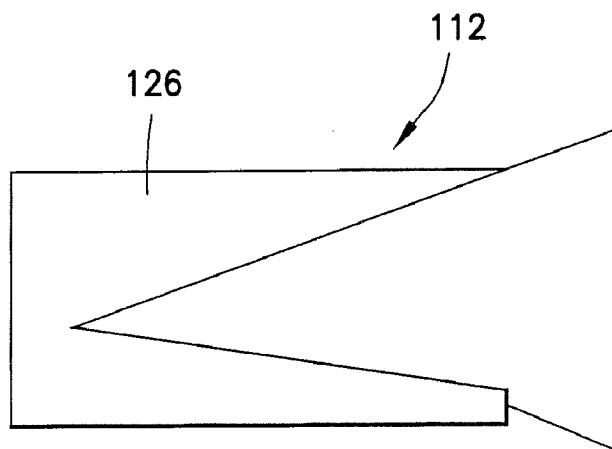


FIG. 8B

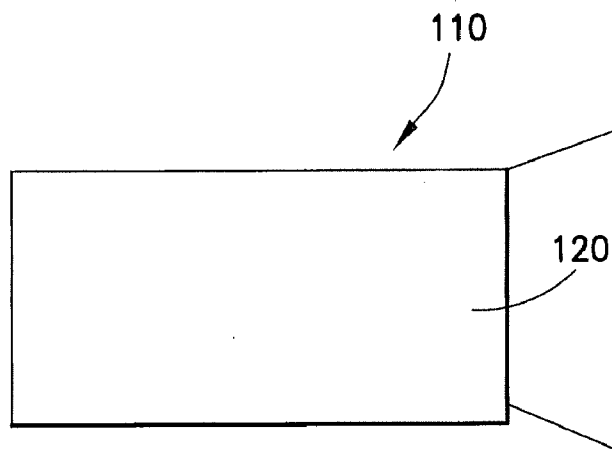


FIG. 8C

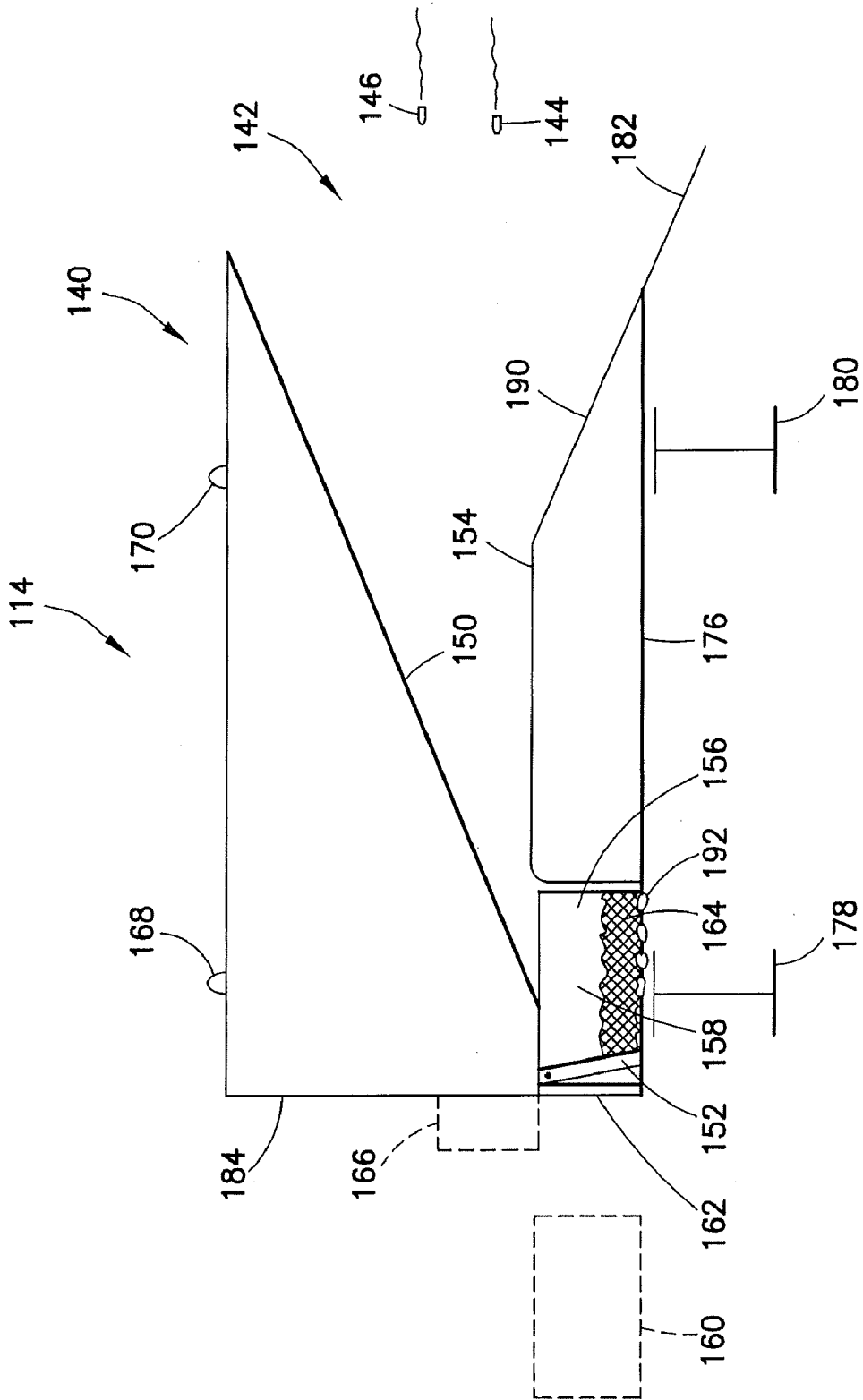


FIG.9

PORTABLE FIRING BERM

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation in part of U.S. patent application Ser. No. 12/238,965 filed Sep. 26, 2008 and claims priority from U.S. Provisional Application Ser. No. 60/975,290, filed Sep. 26, 2007, all incorporated by reference herein in their entirety.

BACKGROUND

[0002] 1. Field

[0003] The disclosed embodiments relate to a firing berm, and more particularly, to a portable firing berm that acts as a bullet trap.

[0004] 2. Description of Earlier Related Developments

[0005] Firing berms are used at shooting ranges as a backstop to capture fragments from cartridges fired at targets and to prevent excessive travel of fired bullets for safety purposes. Lead has become both a safety and environmental concern leading to the use of bullet traps instead of soil based berms. An example of such a trap is disclosed in U.S. Pat. No. 5,486,008 which is hereby incorporated by reference in its entirety. Here, the bullet trap has a spiral deceleration chamber with a lead collection vessel.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] The foregoing aspects and other features of the exemplary embodiments are explained in the following description, taken in connection with the accompanying, drawings, wherein:

[0007] FIG. 1 is a plan view of a portable firing berm incorporating features in accordance with an exemplary embodiment;

[0008] FIG. 2 is a right side elevation view of a firing berm incorporating features in accordance with the exemplary embodiment;

[0009] FIG. 3 is a left side elevation view of a firing berm incorporating features in accordance with the exemplary embodiment;

[0010] FIG. 4 is a front elevation view of a firing berm incorporating features in accordance with the exemplary embodiment;

[0011] FIG. 5 is a rear elevation view of a firing berm incorporating features in accordance with the exemplary embodiment; and

[0012] FIG. 6 is another elevation view of another firing berm in accordance with another exemplary embodiment

[0013] FIG. 7 is a front elevation view of firing berms in accordance with another exemplary embodiment;

[0014] FIG. 8A is a side elevation view of a firing berm;

[0015] FIG. 8B is a side elevation view of a firing berm;

[0016] FIG. 8C is a side elevation view of a firing berm; and

[0017] FIG. 9 is a side section view of a firing berm.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENT(S)

[0018] Referring to FIG. 1, there is shown a plan view of a portable firing berm 10 incorporating features in accordance with an exemplary embodiment. Although the present invention will be described with reference to the embodiment shown in the drawings, it should be understood that the present invention can be embodied in many alternate forms of

embodiments. In addition, any suitable size, shape or type of elements or materials could be used.

[0019] Referring now to FIG. 1, there is shown a plan view of a portable firing berm 10 incorporating features in accordance with an exemplary embodiment. Referring also to FIG. 2, there is shown a right side elevation view of firing berm 10. Referring also to FIG. 3, there is shown a left side elevation view of firing berm 10. Referring also to FIG. 4, there is shown a front elevation view of firing berm 10. Referring also to FIG. 5, there is shown a rear elevation view of firing berm 10. Portable firing berm 10 is movable or capable of being ported between and positioned at different desired locations indoors (e.g. within a building) or outdoors to provide for the capture of bullet fragments from rounds 12, including armor piercing (AP) rounds, (such as and not limited to 0.223 CAL AP or 5.56 mm AP rounds) fired at berm 10, for example in direction 14. Portable berm 10 is shown as a complete assembly movable as a unit without breaking down into sub assemblies and without disassembly and reassembly.

[0020] Portable firing berm 10' may have a funnel portion 16 adapted to funnel and deflect stray rounds into a dry tank portion 18. In alternate embodiments, a funnel portion may not be provided. Dry tank 18 is configured to define an opening through which the bullets enter the dry tank 18 and is configured to define a dry absorption region or section communicating with the opening. The dry absorption region of dry tank 18 has absorbing media fill 20 contained therein. In the exemplary embodiment, the absorbing, media 20 is adapted to absorb energy from the fired rounds, including AP rounds, and is further adapted to capture and contain the bullet fragments. The dry absorption region and absorbing media fill are arranged to absorb the bullets without the bullets or bullet fragments impacting structure of the dry tank. Here, the absorbing media 20 acts to absorb the energy of fired bullets and prevents rounds or fragments from coming in contact with tank portion 18. As such, portable berm 10 captures bullets and bullet fragments in medium 20 of berm 10 substantially eliminating inspection and/or replacement of discrete interior of the portable berm parts as the energy is absorbed by media 20. Thus, the entire unit 10 may operate substantially without continuous periodic or routine inspection or replacement parts after relatively small number of firings.

[0021] Ventilation portion 22 is provided and adapted to ventilate and filter air from within funnel portion 16 and dry tank portion 18. Rounds 12 are fired toward portable berm 10, generally in direction 14 and captured within the dry tank portion 18 and absorbing media 20. Funnel portion 16 is shown having four partitions 24, 26, 28 and 30 angled relative to the line of fire 14 such that rounds hitting funnel portion 16 are directed through opening 32 on the inner portion of funnel 16. Although funnel 16 and opening 32 are shown rectangular in shape, any suitable shape may be used. Funnel 16 is shown fabricated from steel plate where partitions 24, 26, 28, 30 are welded to each other. In alternate embodiments, any suitable material or fabrication technique may be used. In alternate embodiments, the funnel 10R structural similar to the funnel may be positioned within the dry tank. Extensions 34, 36 are provided on partitions 26, 30. Funnel 16 and tank 18 are shown generally in a square shape, however in alternate embodiments, any suitable shape may be provided. For example, the width may be scalable to a much larger width. Dry tank portion 18 is shown fabricated of welded and formed

steel. In alternate embodiments, any suitable material or fabrication technique may be used.

[0022] Dry tank portion 18 has forward chamber 38 and rear chamber 40 (two chambers are shown in FIGS. 1-4, though in alternate embodiments more or fewer chambers may be provided) separated by first wall or partition 42. Partitions 42 may be formed to allow round penetration between chambers 38, 40. The first partition 42 may have any suitable arrangement, such as a screen, and/or may be made from any suitable material allowing the rounds fired at the portable berm to penetrate the partition and pass from chamber 38 into the absorbing media 20. Partition 42 may be removable through the front of berm 10 or through hatch 42. Partition 42 may be located within tank 18 with mounting features in tank that allow partition 42 to be held in place. First partition 42 is shown approximately splitting tank portion 18 in half. In alternate embodiments, partition may be in any suitable position. As will be described, absorbing media 20 is placed in the rear chamber 40 through access hatch 43 where first partition 42 prevents absorbing media 20 from migrating to forward chamber 38. The access hatch shown for example as a formed and welded metal cover, may have a handle allowing easy removal. The hatch may be hinged or loose and may have latching features to keep it in position during transport. As seen best in FIG. 3, in the exemplary embodiment, a second wall 44 or partition (which may be otherwise similar to first partition) may be provided for example, where it is desired that absorbing media 20 have more than one media type, where second wall/screen 44 separates the different media type. In alternate embodiments the second wall 44 may separate similar media types (for example additional media mass is desired inside the chamber 40.) In the exemplary embodiment, rear chamber 40 may be separated by partition 44 into chambers 46, 48 holding the different media. Partitions 42, 44 for example may be made from 1/8" expanded steel partition or any other suitable material, such as a welded steel array.

[0023] Partitions 42, 44 are shown at an angle, for example, and 80 degree angle to prevent excessive pressure on partitions 42, 44 from aggregate 20. In alternate embodiments, any suitable angle could be provided. In alternate embodiments, the second partition may be impenetrable to rounds fired into berm 10 and impacting the second partition. For example, the second partition may be formed from plate steel or any other suitable material such as ceramics or composites of sufficient strength to stop impacting bullets/fragments. In alternate embodiments more or fewer partitions or walls (similar to partitions 42, 44) may be provided and defining more or fewer chambers that may be filled with the same or different media. In other alternate embodiments one or more of the chambers may hold no media.

[0024] Collection tray or cleanout box 50 may be provided in communication with forward chamber 38 to allow removal of fragments that may collect in forward chamber 38. Tray 50 may be stationary and fixed. In alternate embodiments, tray 50 may be removable, for example by sliding relative to tank 18. Absorbing media 20 is provided to absorb the energy of rounds fired at portable berm 10 and to capture fragments from the rounds. Absorbing media 20 may be crushed stone or gravel. In alternate embodiments, absorbing media 20 may be any suitable material that may be suitable to absorb the energy of rounds fired and capture fragments. Absorbing media 20 may comprise more than one media; either mixed or separated. In the event they are separated, second partition 44 (e.g.

screen) may separate the different media, for example as noted before, where rear chamber 40 may be separated by partition 44 into chambers 46, 48 holding the different media. Here, front chamber 46 may contain a first berm adapted to absorb the initial energy and may be made up of a suitable material, such as iron oxide pellets and rear chamber 48 may contain a suitable material, such as gravel or crushed stone. In alternate embodiments, any suitable combination or mix of media may be used. In alternate embodiments, more or less partitions may be provided with more layers of berm.

[0025] Ventilation portion 22 is adapted to force ventilate and filter air from within the funnel portion or the dry tank portion. In alternate embodiments the ventilation portion may employ natural or convective ventilation. In the exemplary embodiment, ventilation portion 22 has an exhaust fan 52, fan plenum 54, HEPA filter portion 56, forward plenum 58 and left and right ducts 60, 62. Left and right ducts 60, 62 are in communication with forward chamber 38 through duct slots 64, 66 in the side partitions of forward chamber 38. In alternate embodiments ventilation ducts may be located in any desired position and more and fewer ducts may be used. In the embodiment shown, an air curtain 68 is formed at the opening 32 whereby air is ducted through the HEPA filter 56 and exhausted through fan 52 in direction 70. Forward plenum 58 may also be in communication with rear chamber 40 of dry tank portion 18 where air is ventilated through the media 20. Plenum 58 in combination with exhaust fan 52 provide negative pressure between the tank portion 18 and ambient surrounding the berm 10 forcing contaminated air through HEPA filter 56. Fan 52 may be suitably sized, for example, sized to provide 30 cubic feet per minute flow for a 4'x8'x4' tank portion 18. In alternate embodiments, any suitable fan or duct configuration may be used.

[0026] In the exemplary embodiment, portable berm 10 has suitable lift or carry points, such as eyes 72, 74, 76, allowing for example a crane or other implement to lift berm 10 with a sling. Eyes 72, 74, 76, 78 are shown welded to chamber 18. In alternate embodiments, any suitable combination of features may be provided. Handles 80 are also provided, for example to allow fork lifting of berm 10. Supporting frames 82, 84 are also provided to support berm 10 and allow berm 10 to be pulled from one location to another. The berm 10 may have a transport system, such as wheels, or may be placed on a transport, so that the berm may be transported and repositioned at different locations as desired. Berm 10 is shown provided with a desired finish such as with camouflage paint. In alternate embodiments, any suitable finish may be used.

[0027] As noted before, the berm 10 is suitable for use singly (or in combination with other berms, as will be described further below) as a firing berm (to stop and absorb fired rounds) indoors, within the confines of a building or facility, or outdoors. As may be realized, the portable berm may be ported, substantially as a unit without disassembly and reassembly, to any desired location, indoors and outdoors in order to a firing berm at the location. Also, in the exemplary embodiment the portable berm 10 may be moved to and between any number of different locations so that the firing berm positioned at one location may be subsequently repositioned, substantially as a unit, at any other desired location. As noted above, the portable berm may be used singly, and in combination with other berms in order to define a berm having different selectable variable configurations. Referring now to FIG. 6, there is shown a front elevation view of a firing berm 100 in accordance with another exemplary embodi-

ment. In the exemplary embodiment, firing berm 100 may be modular and include one or more berm modules 10, 10A-10N that may be positioned as desired in order to form a firing berm of desired shape and size. In the exemplary embodiment, the portable berm modules of firing berm 100 may be substantially similar to each other and to portable berm 10 described before (similar features are similarly numbered). In alternate embodiments, the modular firing berm may be formed of different modules. In the exemplary embodiment shown in FIG. 6, the berm modules 10, 10A-10N are shown arrayed serially, for example purposes. As may be realized berm modules 10, 10A-10N may be added or removed to vary the length of the firing berm 100 as desired. Modules may be positioned side by side as shown in FIG. 6 to form for example a substantially continuous wall berm. In the exemplary embodiment the modules may be positioned with the rim edges of the funnel portion 16 substantially in contact with each other, or somewhat overlapped to prevent fired rounds from escaping between the adjoining funnel portions 16. As may be realized, modules may also be positioned to form a sectioned firing berm configuration. Firing berm sections may be aligned with each other or angled relative to each other. In the exemplary embodiment, the modular firing berm 100 is shown within a facility or building FAC (shown in phantom), though and as may be realized, the firing berm (or a desired portion thereof) may be repositioned outside the building. In other alternate embodiments, the berm modules may be positioned one over the other, for example to vary the height of the firing berm. Then a firing berm of any size, or shape may be erected at any location and may then be readily modified or moved to another location by transport and placement of the portable berm modules 10, 10A-10N.

[0028] Referring now to FIG. 7 there is shown a front elevation view of a bank of firing berms in accordance with another exemplary embodiment. Referring also to FIG. 8A, there is shown a side elevation view taken along view line 8A-8A of the firing berm in FIG. 7. Referring also to FIG. 8B, there is shown a side elevation view of another firing berm from view line 8B-8B in FIG. 7. Referring also to FIG. 8C, there is shown a side elevation view of yet another firing berm. Referring also to FIG. 9, there is shown a side section view of still yet another firing berm. As seen in FIG. 7, a number of firing berm modules 100 are shown as berm 110, berm 112, berm 114 and berm 116. Berm modules 100 comprise a portable integrated module with deflection plates and movable trap and containment chambers where berm modules 100 are portable and adapted to capture bullets fired at the individual berms as well as cross berm. Although four portable berms are shown arrayed to form a combined berm, more or less berms may be provided such as for example to vary the width or frontage of the combined berm as described. By way of further example, a single berm 110, 112, 116 may be used, or as many berms as may be desired. The array of berm modules are shown with the mid-modules 112, 114 having open sides in the impact and deflection region to prevent ricochets (e.g. from projectiles with a trajectory crossing or coincident with intermediate side walls) between adjoining modules. In the exemplary embodiment, the end modules 110, 116 may have closed sides depending on which end of side by side array the end module is located. For example, the left end berm 110 has left side closed and the right end berm 116 has right side closed. Berm modules 100 may be sized standard for shipping, for example sized to allow 4 modules to be transported on a standard truck bed. In

alternate embodiments, the berm modules may be sized so that more or less modules may be accepted or accommodated on a standard truck bed. Berm modules 100 may be fabricated from and use common sheet stock plate sizes so as to substantially eliminate cutting of plate to fabricate the berm 110, 112, 114, 116 structure. In the exemplary embodiment shown in FIG. 7, a mating flange 172 may mate with corresponding feature 174 for side by side coupling to other modules, for example, coupling module 110 to module 112. The configuration shown in FIG. 7 is merely exemplary and in alternate embodiments the mating flanges and features coupling adjoining berms in the array may have any other desired configuration. The mating flanges may be provided at any portion of the berm, for example along to top, back or any suitable location. In alternate embodiments, more or less mating features may be provided. As previously desired in the exemplary embodiment, each berm module may have one or more open lateral sides (e.g. sides extending from the front berm opening 142, see FIG. 9, to the back wall section 184). For example, left outermost berm module 110 has one open side 118 and one closed side 120 as can be seen in FIG. 8C. As a further example, right outermost berm module 116 has one open side 122 and one closed side 124 as can be seen in FIG. 8A. Intermediate berm modules 112 and 114 may have two open sides 126, 128, 130, 132 as can be seen in FIG. 8B. As may be realized, in alternate embodiments, berm modules may have closed lateral sides, such as when a single module berm is desired.

[0029] Referring again to FIG. 9, in the exemplary embodiment portable berm 114 may have frame 140 forming an opening 142 through which bullets 144, 146 fired at the berm enter berm 114. The configuration of the representative berm 114 shown in FIG. 9 is exemplary and in alternate embodiments the berm may have any desired shape and arrangement. Portable berm 114 has first impact portion or directional plate 150 connected to frame 140 and disposed to deflect bullets, towards the containment portion, entering opening 142, or chamber 156. Deflector 152 is movably connected to frame 140 as will be described further below. Upper directional plate 150 may be made from steel, for example 1/4" plate steel, and is shown inclined, for example at about 20 degrees (though in alternate embodiments the pitch may be different). The lower plate 154 is shown substantially flat with inclined portion 190 and extends in length sufficiently to provide containment for fragments such that fragments may be swept into the back containment portion 156. Here, the lower plate or second impact portion 154 may also be connected to the frame 140 and is arranged below the first impact portion 150. The second impact portion 154 is arranged to provide another containment portion with the second impact portion 154 communicating with bullet containment portion 156. As noted before the second impact portion 154 in the exemplary embodiment may be positioned to prevent undesired escape of bullets, ricochets, and fragments from the berm and facilitate ease of entry into the containment portion 156, such that bullets and bullet fragments captured by or landed on the second impact portion 154 may be for example swept into the bullet containment portion 156. Bullet containment portion 156 communicates with opening 142 with the bullet containment portion having an integral impact section 152 disposed so that unspent bullets received in the bullet containment portion impact against and are stopped by the impact section 152. Impact section 152 forms a steel end plate that stops stray rounds from the front of movable containment portion

156. Impact section **152** provides an integral rear deflector and stop plate, for example, may be formed from 1.0" armor plate and be provided at about 60 degrees opposite pitch to directional plate **150**. In alternate embodiments the pitch may be different as desired, for example, the impact section may be pitched forwards at a suitable angle. In alternate embodiments, any pitch, thickness or suitable material may be provided. Here, bullet containment portion **156** has an integral bullet containment section **158** arranged to contain bullets and bullet fragments from the impact section **152**. In the exemplary embodiment, bullet containment portion **156**, or at least a portion thereof, is movably mounted to the frame **140** to move substantially as a unit relative to the opening from one position to another position **160**. Back wall section **184** has opening **162** for removal of movable impact and trap containment portion **156** of berm **114**. In the exemplary embodiment shown, the movable or removable section is shown as being substantially coincident with the containment portion **156**, though in alternate embodiments, the movable section, with integral impact section and containment layer may be only part of the containment portion and movable without moving or removing the complete containment portion. In other alternate embodiments the movable or removable containment section may have an integral impact section but no containment layer or may have a movable containment layer without impact section. In the exemplary embodiment, gate or access door **162** may be provided to access portion **156**. The bullet containment portion is movable to a position where the containment section **156** is accessed for contained bullets and bullet fragments. Here, containment section **156** comprises a movable bullet containment portion **158** with integral impact section **152** and integral dry containment media **164** and is movable as a unit to access containment. In the embodiment shown, section **156** is shown as a slidable drawer mounted for example on rollers **192**. In alternate embodiments, any suitable movable system may be used, for example, the embodiment shown is slidable to the back of berm **114** whereas in alternate embodiments, berm **114** could open in any other direction or manner, for example in a drop down or slide out sideways manner. Drawer **156** also is shaped to hold an integral dry containment layer to hold dry containment media **164**, such as sand, earth or any other suitable dry media suitable to hold fragments. In alternate embodiments any other suitable containment media may be used (including liquid media), or no containment media may be used. Here, bullet containment portion **156** is dry and utilizes an absorbing media fill **164** arranged to absorb and contain the bullets and bullet fragments.

[0030] Berm **114** is movable as a unit without disassembly or re-assembly. Frame **140** has a base **176** that is shown as a flat plate and allows placement of berm **114** on any support structure with a flat seating surface. For example, structural sections **178**, **180** such as an "I" or "C" may be provided or alternately, construction blocks or rail road ties may support berm **114** as shown. The base has front valance/mask plate **182** to protect from under rounds. Alternately, the gap between the lower plate and the top of the base may be closed with for example with sand bags. Ventilation portion **166** may be provided adapted to ventilate and filter air from within the bullet containment portion. Lifting points **168**, **179** may also be provided coupled to the frame **140**.

[0031] Thus, in accordance with one exemplary embodiment, a portable firing berm is provided. The portable firing berm is adapted to capture bullet fragments from rounds fired

at the berm. The portable firing berm has a funnel portion and a dry tank portion connected to the funnel portion. The funnel portion is configured to funnel and deflect rounds into the dry tank portion. The dry tank portion has absorbing media fill therein, the absorbing media being arranged to capture and contain the bullet fragments.

[0032] In accordance with another exemplary embodiment, a portable firing berm for capturing bullet fragments from bullets fired at the berm is provided. The berm has a frame and a dry tank connected to the frame. The dry tank is configured to define an opening through which the bullets enter the dry tank. The dry tank is configured to define a dry bullet absorption section communicating with the opening. The dry bullet absorption section is arranged to absorb and stop bullets, fired at the berm and entering unspent through the opening into the dry bullet absorption section.

[0033] In accordance with another exemplary embodiment, a portable firing berm adapted to capture bullets fired at the berm is provided. The portable berm has a frame forming an opening through which bullets fired at the berm enter the berm and a bullet containment portion communicating with the opening. The bullet containment portion has an integral impact section disposed so that unspent bullets received in the bullet containment portion impact against and are stopped by the impact section, and having an integral bullet containment section arranged to contain bullets and bullet fragments from the impact section. The bullet containment portion is movably mounted to the frame to move substantially as a unit relative to the opening from one position to another position.

[0034] In accordance with another exemplary embodiment, a portable firing berm adapted to capture bullets fired at the berm is provided. The portable berm has a frame forming an opening through which bullets fired at the berm enter the berm, and a bullet containment portion communicating with the opening, the bullet containment portion having an integral impact section disposed so that unspent bullets received in the bullet containment portion impact against and are stopped by the impact section, and having an integral bullet containment section arranged to contain bullets and bullet fragments from the impact section. The impact portion is movably mounted to the frame to move relative to the frame from a position inside the frame to another position located at least partially outside of the frame.

[0035] In accordance with another exemplary embodiment, a portable firing berm adapted to capture bullets fired at the berm is provided. The portable berm has a frame forming an opening through which bullets fired at the berm enter the berm, and a first impact portion connected to the frame and disposed to deflect bullets entering the opening, and a bullet containment portion communicating with the opening, the bullet containment portion having an integral impact section disposed so that unspent bullets received in the bullet containment portion impact against and are stopped by the impact section, and having an integral bullet containment section arranged to contain bullets and bullet fragments from the impact section. The bullet containment portion is movably mounted to the frame to move substantially as a unit relative to the opening from one position to another position. The bullet containment portion is movable to a position where the containment section is accessed for contained bullets and bullet fragments.

[0036] It should be understood that the foregoing description is only illustrative of the invention. Various alternatives and modifications can be devised by those skilled in the art

without departing from the invention. Accordingly, the present invention is intended to embrace all such alternatives, modifications and variances.

What is claimed is:

1. A portable firing berm adapted to capture bullets fired at the berm, the portable berm comprising:

a frame forming an opening through which bullets fired at the berm enter the berm; and

a bullet containment portion communicating with the opening, the bullet containment portion having an integral impact section disposed so that unspent bullets received in the bullet containment portion impact against and are stopped by the impact section, and having an integral bullet containment section arranged to contain bullets and bullet fragments from the impact section;

wherein, the bullet containment portion is movably mounted to the frame to move substantially as a unit relative to the opening from one position to another position.

2. The portable firing berm of claim 1 further comprising an impact portion connected to the frame and disposed to deflect bullets entering the opening into the containment portion; and wherein the bullet containment portion is dry and utilizes an absorbing media fill arranged to absorb and contain the bullets and bullet fragments.

3. The portable firing berm of claim 1 wherein the berm is movable as a unit without disassembly or re-assembly.

4. A modular firing berm comprising a number of firing berm modules, wherein the portable firing berm of claim forms at least one of the firing berm modules, and wherein each berm module has one or more open sides.

5. A modular firing berm comprising a number of firing berm modules, wherein the portable firing berm of claim forms at least one of the firing berm modules, and wherein each berm module has one or more open sides, and wherein outermost berm modules have one open side, and wherein intermediate berm modules have two open sides.

6. The portable firing berm of claim 1 further comprising a ventilation portion adapted to ventilate and filter air from within the bullet containment portion.

7. The portable firing berm of claim 1 further comprising lifting points coupled to the frame.

8. A portable firing berm adapted to capture bullets fired at the berm, the portable berm comprising:

a frame forming an opening through which bullets fired at the berm enter the berm;

a bullet containment portion communicating with the opening, the bullet containment portion having an integral impact section disposed so that unspent bullets received in the bullet containment portion impact against and are stopped by the impact section, and having an integral bullet containment section arranged to contain bullets and bullet fragments from the impact section;

wherein the impact section is movably mounted to the frame to move relative to the frame from a position inside the frame to another position located at least partially outside the frame.

9. The portable firing berm of claim 8, further comprising a first impact portion connected to the frame and disposed to deflect bullets entering the opening into the containment portion;

a second impact portion connected to the frame and arranged below the first impact portion; and

wherein, the second impact portion is arranged to provide another containment portion, and wherein the second impact portion communicates with the bullet containment portion such that bullets and bullet fragments captured by the second impact portion may be swept into the bullet containment portion.

10. The portable firing berm of claim 8 wherein the bullet containment portion is dry and utilizes an absorbing media fill arranged to absorb and contain the bullets and bullet fragments.

11. The portable firing berm of claim 8 wherein the berm is movable as a unit without disassembly or re-assembly.

12. A modular firing berm comprising a number of firing berm modules, wherein the portable firing berm of claim forms at least one of the firing berm modules, and wherein each berm module has one or more open sides.

13. The portable firing berm of claim 8 further comprising a ventilation portion adapted to ventilate and filter air from within the bullet containment portion.

14. The portable firing berm of claim 8 further comprising lifting points coupled to the frame.

15. A portable firing berm adapted to capture bullets fired at the berm, the portable berm comprising:

a frame forming an opening through which bullets fired at the berm enter the berm;

a first impact portion connected to the frame and disposed to deflect bullets entering the opening; and

a bullet containment portion communicating with the opening, the bullet containment portion having an integral impact section disposed so that unspent bullets received in the bullet containment portion impact against and are stopped by the impact section, and having an integral bullet containment section arranged to contain bullets and bullet fragments from the impact section;

wherein, the bullet containment portion is movably mounted to the frame to move substantially as a unit relative to the opening from one position to another position, and wherein the bullet containment portion is movable to a position where the containment section is accessed for contained bullets and bullet fragments.

16. The portable firing berm of claim 15 wherein the bullet containment portion is dry and utilizes an absorbing media fill arranged to absorb and contain the bullets and bullet fragments.

17. The portable firing berm of claim 15 wherein the berm is movable as a unit without disassembly or re-assembly.

18. A modular firing berm comprising a number of firing berm modules, wherein the portable firing berm of claim forms at least one of the firing berm modules, and wherein each berm module has one or more open sides.

19. The portable firing berm of claim 15 further comprising a ventilation portion adapted to ventilate and filter air from within the bullet containment portion.

20. The portable firing berm of claim 15 further comprising lifting points coupled to the frame.