Abstract: A system and method for target practice, the system including at least one modular shooting target, the shooting target formed of a multilayer panel including a compressible inner layer formed of a low density polymeric foam having a first and a second side, a first bendable rigid high density polymeric sheet affixed to the first side, and a second bendable rigid high density polymeric sheet affixed to the second side.
METHOD, PRODUCT AND MODULAR SYSTEM FOR SHOOTING PRACTICE

FIELD OF THE INVENTION

The present invention relates to a modular system for shooting practice.

BACKGROUND OF THE INVENTION

In recent years, and especially since the beginning of the 21st century, there has been a great rise in the development of the firearms practice industry. Wars, weapons and ammunition have been in existence for many years, but methods, accessories and products for shooting practice and/or combat practice in different situations have only recently begun to make progress, due to the recent development and promotion of innovative and advanced technologies, products and materials.

Technological and industrial progress made in the field of plastics and polymers, as well as electronics, hardware and multimedia, led to increased capabilities for quick and more cost-efficient training products, creating new markets around the world for firearm simulation training products in the fields of defense, sports, and recreation. The concepts and product proposed offer a high-quality and very creative, simple and practical solution that can easily become an integral part of the large and ever-growing industry at this time and for the next few decades, at least.

Accordingly, there is a need for a simple, high quality, modular system for shooting practice.

SUMMARY OF THE INVENTION

The present invention relates to a modular system and method for firearm shooting practice and/or fire arm training simulation. The system includes at least one shooting target formed of a polymeric material that is sturdy yet can be bent, and can withstand the penetration of a plurality of projectiles while leaving clean and minimal sized entrance and exit holes so the target can withstand a large capacity of bullet hits and need not be replaced frequently. The shooter can easily identify a large number of
entrance holes made by the bullets on the target and also enables the shooter to fire many close shots on the same minimal surface area as required. Preferably, the shooting target is very strong and yet very lightweight, and can be bent or folded and then flattened again for ease of storage and transportation, facilitating effective and high quality operation and use.

There is provided according to the present invention a system for target practice including at least one modular shooting target; the shooting target formed of a very strong, lightweight target material; wherein the target material is a multilayer panel including a compressible inner layer of low density polymeric foam having a first and a second side; a first rigid high density sheet polymeric affixed to the first side of the foam layer and a second rigid high density polymeric sheet affixed to the second side of the foam layer. The two outer layers are both bendable.

According to embodiments of the invention, the modular shooting target is formed from a flat target blank shaped and configured to be folded and assembled on site to form the target and disassembled and unfolded to the flat target blank for storage and transportation.

According to embodiments, the system further comprises a target base formed of a flat base blank shaped and configured to be folded and assembled on site to support the target and disassembled and unfolded to the flat base blank for storage and transportation.

According to embodiments of the invention, the system further includes an electronic control system including an electronic controller and communication means, the control system disposed for monitoring hits in the shooting target and outputting signals corresponding thereto.

The system of this embodiment may include a matrix of electrical conductors embedded in the shooting target and circuitry connecting the matrix to the electronic controller adapted and configured for monitoring the electrical conductors and for providing a signal to the electronic controller indicating the location where the projectile penetrated the matrix.
There is also provided, according to the invention, a method for providing target practice, the method including providing at least one modular shooting target, the shooting target formed of a multilayer panel including a compressible inner layer formed of a low density polymeric foam having a first and a second side; a first bendable rigid high density polymeric sheet affixed to said first side; and a second bendable rigid high density polymeric sheet affixed to said second side; reversibly folding on site at least one flat base blank and reversibly assembling therefrom a target base to support the target; and mounting the at least one shooting target in the at least one target base.

According to embodiments, the shooting target includes an embedded matrix of electrical conductors and circuitry connecting the electrical conductors to an electronic controller; and the method further includes monitoring the electrical conductors; detecting a projectile passing through the matrix by the circuitry; providing a signal from the circuitry to the electronic controller indicating the location where the projectile penetrated the matrix; and determining in the electronic controller, from this signal, where the target was hit.
BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be further understood and appreciated from the following detailed description taken in conjunction with the drawings in which:

Fig. 1 is a schematic illustration of the basic concept for a modular shooting practice system constructed and operative in accordance with one embodiment of the present invention;

Fig. 2 is a schematic illustration of the different parts of the shooting practice system according to one embodiment of the invention;

Figs. 3a-3d are a general drawing of the basic modular product and system, wherein Fig. 3a is an isometric view of a shooting target, according to embodiments of the invention;

Fig. 3b is a plan view of a target base, in an unfolded, unassembled orientation, according to embodiments of the invention;

Fig. 3c is schematic view of a shooting target in an independent stand, according to embodiments of the invention;

Fig. 3d is a schematic view of a shooting target in an integrally formed stand;

Figs. 3e and 3f are schematic front and isometric views of a shooting target in an integrally formed stand according to alternative embodiments of the invention;

Fig. 4a is a schematic cross-sectional illustration of a shooting target according to embodiments of the invention, demonstrating bullet penetration;

Fig. 4b is a cross-sectional view of a shooting target according to embodiments of the invention, demonstrating bullet penetration;

Fig. 4c is a front view of the shooting target of Fig. 4b; and

Fig. 4d is an isometric rear view of the shooting target of Fig. 4b.
DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a modular system and method for practicing shooting of firearms, such as for use at a firing range. This innovative system can be used as a set of separate elements or can be combined in a synergetic modular system. The coordination between the system components of the product optimize and significantly improve professional shooting practice for individuals and/or training groups with a number of shooters. In particular, the modular system permits assembly and dismantling of shooting targets in any desired size or arrangement, according to the practice location. The system includes at least one strong yet lightweight shooting target and a lightweight, foldable base for the target, possibly formed of the same material as the target or formed as an integral part of the target.

Referring now to Fig. 1, the system according to the invention is composed of a number of main components. At least one, and preferably a plurality of shooting targets are provided, together with an associated target base. Targets can have the same or different sizes or shapes, 2- or 3-dimensional characters or shapes, such as figures of people, animals, soldiers, vehicles, tanks, airplanes, shipes, geometrical shapes, as one another, according to the particular shooters and the type of shooting practice in which they are interested. The targets can be formed in any shape or figure for shooting at. Targets are made of a polymeric material that can withstand the penetration of a great number of bullets while still maintaining shape and function over time. This is accomplished by using at least one, and preferably two, high density polymeric layers affixed to a light weight, low density flexible polymer foam layer. The target material preferably is water resistant, lightweight and very strong, and can be used either wet or dry.

The inner layer of the target can be selected from various elastomeric materials, for example, very low density polyethylene, polypropylene, styrene-butadiene copolymer, ethylene-vinyl acetate copolymer, polyurethane, copolymers of SEBS, polychloroprene, neoprene, butadiene-acrylonitrile copolymer, plasticized polyvinyl chloride, or other suitable materials.
The outer polymeric layers are strong and rigid relative to the foam layer, adding to the stability of the target and base. At the same time, the outer layers are elastic enough to return substantially to their original shape after penetration of a projectile, leaving only a hole that is relatively small as compared to the diameter of the projectile. Similarly, the outer layers permit bending or folding of the target and/or the base and retention of the bent shape. If desired, the outer rigid layers can be formed of different polymeric materials, as long as they both are elastic and of high density.

According to embodiments of the invention, the target material includes a sandwich formed of several polymer foam layers alternating with rigid polymeric layers, for example, a rigid outer layer affixed to one side of a first foam layer, a second rigid layer affixed to the second side of the first foam layer, a second foam layer affixed to the other side of the second rigid layer and a second rigid outer layer affixed to the second foam layer. In this case, the different foam layers can be formed of the same polymeric material or different polymeric materials, as can the rigid layers. By way of non-limiting example, these layers can be formed of high density polyethylene, HDPE, Polypropylene, nylon 6 or other suitable materials.

Preferably, the target material is a multilayer polyethylene panel, and most preferably is a multi-layer panel including an inner layer of low density, cross-linked, closed-cell polyethylene foam with two or more rigid high density polyethylene sheets as outer layers. The inner layer provides structure and body to the target, while the outer layers are more rigid yet elastic. One example of a suitable material is Panellofoam™, manufactured by Palziv of Ein Hanatziv, Israel, and marketed by Heelu Modules, Inc., of Tel Aviv, Israel. This polymeric material has features, as described above, that enable penetration of bullets en masse during several practice shooting sessions. Furthermore, this material does not permit projectiles to ricochet off the surface of the target, so is very safe to use from a short distance and as targets for heavy artillery. If desired, the target can be formed incorporating different types of surfaces on selected areas of the target. The preferred materials are completely water resistant and can withstand severe weather conditions, like temperature, dust, humidity, etc.
Preferably, each shooting target 12 is durable and suitable for multiple uses and need not be disposed of after one or two practice sessions. Ideally the targets can withstand penetration by many bullets. The shooting targets 12 can be formed in many different shapes, colors, textures and sizes. Preferably, images or words can be printed on their surface.

The system further includes a target base or stand 14 for holding the target in place. The target base 14 is formed of a flat polymeric panel that can be bent to a shape required to serve as the holder and target base of the target. According to embodiments of the invention, target base 14 is removable and, after the practice, can be unfolded back to a substantially flat sheet for transportation and storage. Alternatively, target base 14 can be integrally formed with the target as a substantially flat sheet and folded to the desired shape to serve as the base of the target. According to some embodiments of the invention, each target has its own target base. Alternatively, several targets can share a common target base or several bases could support one target. Preferably, the target base is a modular, removable stand that is user-friendly and practical for every stage of use (storage with minimum volume, simple and easy transport, quick assembly, dismantling and/or change of targets during a training session, etc.). Preferably, the target base can be folded and reassembled on site for multiple use. The target base could be mounted to the ground or have some weight added to it for stability.

The system may optionally include an electronic system 16 coupled to each target 12. Electronic system 16 can be equipped with appropriate hardware and sensors (not shown) that enable monitoring and review of gunfire through a single shooting target and/or combined gunfire on a number of targets simultaneously. Typically, electronic equipment forming the electronic system 16 is mounted in target base 14 although, alternatively, it can be disposed in any other suitable location. System 16 includes an electronic controller 18. A microphone (not shown) can be mounted in the target base 14 or target 12 and coupled to the electronic controller 18 for receiving and recording a signal indicating that a projectile has hit the target. Similarly, a camera (not shown) can be provided to take photos of the shooting target during or at the end
of the target practice. The digital signals and images can be transmitted in any conventional manner and received in any suitable electronic device by the shooter and/or a coach or officer.

A matrix of electrical conductors (not shown) can be embedded in the shooting target and connected via circuitry to the electronic controller 18. When a projectile passes through the target, it destroys one or more of the electrical conductors and the circuitry is designed and configured to detect projectiles passing through the matrix. This, in turn, provides a signal to the electronic controller of the location where the projectile penetrated the matrix. The electronic controller determines, from this signal, where the target was hit. The electronic system can control the target and speakers can be provided to simulate fighting sounds, if desired. The electronic system can be arranged to collect statistics of each shooter during his or her practice session and forward this information as desired, as via a communication system to which the electronic system is coupled.

The material and its assembly method enable the construction of a modular, reactive target that can be assembled in a wide range of shapes. The target can be arranged in combination with accompanying accessories or components, such as electronic speakers, light producing devices, smoke machines, noise generators, cameras, all with special connecting joints, that are well-suited for the special material for easy attachment, simulating accessories. Either at the start of the shooting practice or when a projectile penetrates a target, the electronic controller can activate a smoke machine, a lighting device, a sound device either before the shooting practice begins. Alternatively, or in addition, a projectile hit mechanically can launch a flare or fireworks, cause an explosion, make a loud noise. Alternatively, an indication of a hit can be sent to the electronic controller which can actuate an electric device to create smoke, turn on lights, make noises through speaker, etc. According to some embodiments, bags or frangible containers of paint or colored powder can be embedded in the inner foam layer. In this case, the outer layers preferably are transparent. When a projectile breaks the color container, color is dispersed through the foam and some color will be seen through the hole. Alternatively, actuation of the
various electronic devices can be controlled by a remote controller that reprograms the electronic controller in the target base. The accessories can include replaceable parts formed of stronger, more rigid material, that when hit at a proper angle or location, fall out of the target. This can be used, for example, with an image of a rifle or handgun, etc., that when is hit, is pushed out of the target. The controller can actuate a camera and can send a picture of the target to the shooter. Lights can be made to flash on or off by means of a timer, by the electronic controller, or by a remote control. Recorded battle sounds can be played when the target is hit, actuated by the pre-programmed controller or by a remote control unit. A smoke machine or mechanically controlled canister of smoke can provide smoke from the target. It will be appreciated the remote control unit can re-program the controller to actuate different electronic accessories or in a different arrangement or order or switch between them.

It is believed that the original and innovative aspects of this product, system and method include the following. Fig. 3a, represents the first and most basic stage of the product and system for use as a single unit, with a single shooting target 30 only, without any additional component or element or accessory, without combining it with or using it as part of another product for shooting practice use. This target can withstand several thousands of hits and still maintain its durability, stability and good visual appearance. The target is strong and steadfast in the sun and the wind and is water resistant. The target can be used for all caliber shooting, including artillery, armed vehicle, tank target, airplane target, boat target, air to ground bomb target, etc. Preferably, target 30 includes at least one portion 32 that is removable, disposable and replaceable. This permits the portions that become worn out more rapidly to be replaced without requiring replacement of the entire target. Typically one or more replaceable portions 32 will be located in areas of the target of high-usage, such as those representing the head or heart of a person or animal illustrated thereon.

Additional embodiments include the attachment of a removable modular target base 40 to the shooting target 30 (as part of the system or product) to firmly stabilize the target in any type of weather and/or any location in which the shooting takes place.
substantially flat orientation, as exemplified in Fig. 3b, having low volume for
transport and storage. Target base 40 can be folded to the shape of a stand (Fig. 3c) to
hold the target, when at a desired practice location. As can be seen in Fig. 3b, this base
blank includes two foldable flaps 42, each having a pair of connection elements, here
shown as lugs 43, for engaging slits 45 in the base, to retain the target base in the
assembled shape. Another non-limiting example of a folded target base 40' is shown
in Fig. 3d.

The shooting target can be firmly anchored in one quick simple step of
mounting it in the target base, without any other stabilizing procedures that may not
be available on site or that might make it difficult to prepare the target, set it up and
stabilize it. While the target base can be formed of any suitable material, it is preferably
formed of the same material as the target, itself.

According to alternative embodiments of the invention, instead of being an
independent unit, the target base 44 is integrally formed with the shooting target 42.

One exemplary embodiment is illustrated in Figs. 3e and 3f, showing front and
isometric bottom views. When the target is to be transported to the exercise location,
the target base is unfolded and the target and target base can be stacked for storage
and/or transportation. Upon arriving on site, the lower portion of the target is folded,
along pre-scored or perforated lines, to create the target base. In this case, the
electronic system can be disposed in a pocket in the target base. In addition, a hit
counter screen or speakers or on/off switches or an RC unit, etc., can be disposed in a
pocket in the target base.

Preferably, target base 40 can accommodate one or more replaceable
portions, expendable components and accessories. According to embodiments of the
invention, the target can also accommodate a large practice and training exercise
with multiple shooters, artillery weapons and airplane shooting practice. For
example, one base can be provided for a multiplicity of targets for simultaneous
shooting practice. A single electronic system can be provided for all of the targets. In
this case, each shooting target includes its own embedded matrix of electrical
conductors and circuitry connecting the electrical conductors to the electronic controller, permitting the controller to distinguish between them.

Further embodiments incorporate the use of a variety of accessories for the target to improve or upgrade the range of action or training. For example: A model gun, rifle, hand grenade, figure of a child and/or another additional figure, a dog, book, handbag, and or a movable target part for simulating movement or a hit, formed from the same material or from another material. These accessories can cause the electronic controller to actuate a light or sound system, or can be frangible accessories that are pushed out of the shooting target when they are hit. The raw material and structure of the product and system can offer an unlimited number of attachment connector for coupling the various accessories or elements to the shooting target in a quick and simple manner.

Further embodiments of the invention offer an electronic system including an electronic controller, indicated schematically in Fig. 1, coupled to the target or to the target base, that provides monitoring, quality control, review of the number of shots and their placement on the target and, optionally, transmits this data to at least one pre-selected destination, which can be, for example, the shooter and/or his or her trainer and/or commander, via a communication system to which the electronic controller is coupled. This system can be configured to control and monitor the targets of a number of shooters simultaneously and can also characterize the shooting level of a number of shooters during an integrated training session. If desired, the electronic system can actuate a sound device to simulate a bullet hit sound with every hit and/or can count the hits and display or transfer this data to a smart phone or other pre-selected receiver. The electronic system could also control remotely different parts of the target that can move. For example, a frangible portion can be provided in the target, typically of a more rigid material that the outer layers. When this portion is hit with sufficient force by a projectile, it will be torn away and fall out of the target. Alternatively or in addition, the electronic system could actuate a tape player or speaker to simulate gun fire sounds or other fighting sounds and/or actuate an electric light system to illuminate portions of the target. These reactions to the target being hit can be pre-programmed
into the electronic controller in advance. Alternatively, a remote control unit can be used to override or control the controller to actuate the desired electronic accessories to provide reactions that come from the target system.

The targets of the present invention can withstand the penetration of projectiles into the target material while leaving clean and minimal sized entrance holes. The shooter will then be able to easily identify a large number of entrance holes made by the projectiles on the target, which also enables the shooter to fire many close shots at the same minimal surface area. Referring now to Fig. 4a, there is shown a schematic sectional illustration of a shooting target 50 according to the invention, demonstrating bullet penetration of the target material (for conceptual illustration purposes only). In this embodiment, the target 50 is illustrated as a multi-layer panel including an inner layer 52 of low density cross-linked, closed-cell polyethylene foam with two or more rigid high density polyethylene sheets 54 as outer layers. Due to the very low density of the foam layer, passage of a bullet 56 through the target 50 from the bullet entrance hole 58 to the bullet exit hole 59 causes shrinkage of the polymer material of the inner layer, so that little damage is done to the foam and no tunnel or bore remains in the foam. See, for example, the illustration in Fig. 4b, a cross-sectional view of a target 50 according to embodiments of the invention, demonstrating bullet penetration. Fig. 4c is a front view of target 50 of Fig. 4b, where multiple discrete holes show the passage of projectiles, and Fig. 4d is an isometric rear view of the target of Fig. 4b showing the exit holes of the projectiles. The elastic, high density outer layers are rigid against perpendicular forces so are neatly punctured by the projectiles aimed at the target. Due to the low density of the foam material, the projectile leaves the target on substantially the same course that it entered, leaving the foam substantially intact. Once the projectile has passed through the outer layers, the elasticity of the high density material will cause the ingress hole to return to a much smaller diameter than the diameter of the projectile that created it and the exit holes to return to a somewhat smaller diameter, without further tearing of the sheet. As can be seen, little damage, beyond the puncture itself, is done to the inner foam and to the outer layers, which can continue to mark the passage of additional projectiles at close range to one another.
On the other hand, the high density polymeric outer sheets can be bent or folded relatively easily. Thus, according to embodiments of the present invention, the target is provided as a flat base blank formed of this sandwich material with fold lines or perforation that permit it to be folded on site and assembled to form a 3-dimensional target. In this manner, there can be provided a 3-dimensional target for target practice or shooting from multiple directions. In either case, if the target is flat or folded, the target base is preferably provided as a flat base blank formed of this sandwich material with fold lines or perforation that permit it to be folded on site and assembled to form a 3-dimensional stand or base including slits, perforations or other connecting elements in which the target can be anchored during shooting practice. The system according to claim 2, wherein the target base blank includes connection elements for coupling the target base to the target. These connection elements can be, for example, perforations in the target base to insert legs of the target into, slits in the target base to receive the sides of the target or to receive complementary slots, on the target, or any other suitable connection elements.

Operation of the system of the present invention is as follows. The modular products and system described above can be used for individual, independent target practice or can be combined for parallel use as designated by a trainer or the shooters, themselves. The modular elements can be combined to meet specific needs by erecting or assembling a single shooting target that stands alone and/or an exercise and training session that incorporates a number of shooters and a number of different components. Each target can be a simple target or a complex target composed of additional elements and accessories. When a single shooting trainee or a group of trainees wish to use the system, they can choose from a very wide variety of options to provide professional and easy use, operation, control, dismantling and quick storage of the modular components of the system.

Examples of options available with this system:

- Shooting at a single, simple target figure, without the addition of any supplementary component or accessory.
• An option to remove and replace disposable elements or components on the target that have become highly saturated with bullet holes or that react to the hitting of the bullet by falling out of the target, as described above.

• Use of figure targets representing targets of all types and shapes with accessories and other training devices.

• Shooting at a figure target assembled on a modular, removable target base (suited for a wide range of targets, sizes and colors).

• Addition of accessories and components to the figure targets.

• Incorporation and introduction of an electronic system for control and monitoring and, if desired, reacting to penetration of a target by a single shooter or group shooting practice.

It is a particular feature of the invention that the target base and the targets are easily dismantled and disassembled to component parts which, for the most part, can be unfolded, if necessary, and lie flat. Thus, they have very low carrying and storing volume. As stated above, the target base is modular and foldable and unfoldable back to the original base blank. Similarly, if the target is a 3-dimensional target, it, too is foldable and unfoldable on site back to the original target blank. It will be appreciated that the folding shape or method could be changed according to the support needed by the specific target. The target and target base illustrated above show one option of a specific foldable shape, having 2 notches for support of the target and supporting legs. Alternative options include connector lugs arranged to engage complementary apertures on the base or target. Thus, the reusable targets and other components of the system can be used, dismantled and stored after use.

The electronic system offers control and review of performance of the shooters, and preferably permits simulation of sounds of the gunfire. The electronic system preferably also is composed of modular parts in or on the base of the target, according to the needs of the trainee or trainer. Preferably, the electronic system can identify the location of the shots on the target. The electronic system and its operating program can collect data regarding the location of the shots on all of the targets and integrate the
information into a database that presents a "picture" of the shooting practice session, with online updates of the status of hits on each target, as explained above. The electronic system can simulate hits on a living being, for example, by movement of a frangible part of the target, broadcast sounds, flashing lights, or other reaction.

The modular system of the invention can incorporate a number of modular components in different combinations, and can incorporate different polymer materials and components with hardware and software.

The system and method presented hereinabove offer a solution which has not been offered heretofore. Since the business world is constantly growing, a fast and direct line of communication has developed between manufacturers in different countries all over the world. Consumer usage is continuously on the rise and has become even more significant in the global market today. It therefore follows that, by presenting the production industry and potential markets with an original and practical product that provides an innovative and high quality solution for so many customers, especially in the firearms industry, it will be possible to reach out to a multitude of customers and develop a strong and substantial business. Therefore, it is quite likely that we are on the verge of a new industrial enterprise that holds a great potential for success, both on commercial and financial levels. Furthermore, the present invention combines conceptual simplicity with ingenuity. The originality and quality of the product and method can be brought to fruition and optimal execution in our era, thanks to advanced technological capabilities of execution, production, quality, and finishing, especially in the fields of complex materials and/or electronics and/or hardware.

It will be appreciated that the concept of the method and system and the innovative integration presented heretofore are the result of acquired knowledge and vast experience in the fields of practice or training and production of systems in the field of firearms training practice or various shooting accessories. The original and innovative method, product and modular system presented is composed of a number of functions and components that can contribute to or improve the capabilities of the practice sessions and training level of the shooters, sharp-shooters and snipers and anyone who is intent on improving his or her shooting abilities. The products, system,
and innovative method presented heretofore were developed to provide a creative and
original solution for the field of shooting practice in combination with an electronic
system (or without) to control and review and react the shooting results and
progression of the training session.

The product presented heretofore is modular and composed of a number of
components and/or various elements and accessories to offer a practical, professional
and quick solution for the entire range of options needed for different types of shooting
practice sessions.

While the invention has been described with respect to a limited number of
embodiments, it will be appreciated that many variations, modifications and other
applications of the invention may be made. It will further be appreciated that the
invention is not limited to what has been described hereinabove merely by way of
example. Rather, the invention is limited solely by the claims which follow.
CLAIMS

1. A system for target practice, the system comprising:
   at least one modular shooting target;
   the shooting target formed of a multilayer panel including:
      a compressible inner layer formed of a low density polymeric foam
      having a first and a second side;
      a first bendable rigid high density polymeric sheet affixed to said first
      side; and
      a second bendable rigid high density polymeric sheet affixed to said
   second side.

2. The system according to claim 1, wherein said at least one modular
   shooting target is formed from a flat target blank shaped and configured to be folded
   and assembled on site to form the target and disassembled and unfolded to said flat
   target blank for storage and transportation.

3. The system according to claim 1 or claim 2, further comprising a target
   base formed of a flat base blank shaped and configured to be folded and assembled on
   site to support the target and disassembled and unfolded to said flat base blank for
   storage and transportation.

4. The system according to claim 2 wherein said target base blank is
   integrally formed with the target.

5. The system according to claim 2, wherein the target base blank includes
   connection elements for coupling the target base to the target.

6. The system according to any of claims 2 to 4, wherein the base blank is
   formed from a multilayer panel including:
a compressible inner layer of low density polymeric foam having a first and a second side;
a first bendable rigid high density polymeric sheet affixed to said first side; and
a second bendable rigid high density polymeric sheet affixed to said second side.

7. The system according to any one of claims 1-5, wherein the foam is selected from a group including: low density, cross-linked, closed-cell polyethylene foam, polypropylene, styrene-butadiene copolymer, ethylene-vinyl acetate copolymer, polyurethane, copolymers of SEBS, polychloroprene, neoprene, butadiene-acrylonitrile copolymer, plasticized polyvinyl chloride and wherein said first and second rigid sheets are formed of material selected from group including high density polyethylene, HDPE, Polypropylene, nylon 6.

8. The system according to any one of claims 1-5, wherein the target is formed of Pannellofoam™.

9. The system according to any one of claims 2-5, wherein the target base base blank is formed of Pannellofoam™.

10. The system according to any one of the preceding claims, further comprising an electronic control system including an electronic controller and communication means, the control system disposed for monitoring hits in the shooting target and outputting signals corresponding thereto.

11. The system according to claim 9, further comprising a matrix of electrical conductors embedded in the shooting target and circuitry connecting the matrix to the electronic controller adapted and configured for monitoring the electrical conductors and for providing a signal to the electronic controller indicating the location where the projectile penetrated the matrix.
12. The system according to claim 10, further comprising at least one of a microphone, a camera, a loudspeaker associated with the target and coupled to the electronic controller.

13. The system according to any one of the preceding claims, further comprising at least one accessory mounted on the target, said accessory selected from group including a speaker, noise generator, a lighting device, a smoke machine, an electrically or mechanically controller canister of smoke.

14. The system according to any one of the preceding claims, wherein at least one target includes a plurality of shooting targets, each having an embedded matrix and circuitry corresponding to that matrix, and the electronic control system is configured to receive signals from each of the different shooting targets for monitoring, individually, performance of each of a number of shooters simultaneously and characterize the shooting level of each said shooter.

15. The system according to any one of the preceding claims, wherein at least one portion of said shooting target that is removable.

16. A method for providing target practice, the method comprising:
providing at least one modular shooting target, the shooting target formed of a multilayer panel including:
   a compressible inner layer formed of a low density polymeric foam having a first and a second side;
   a first bendable rigid high density polymeric sheet affixed to said first side; and
   a second bendable rigid high density polymeric sheet affixed to said second side;
reversibly folding on site at least one flat base blank and reversibly assembling therefrom a target base to support the target; and

mounting the at least one shooting target in the at least one target base.

17. The method according to claim 15 further comprising disassembling and unfolding said target base to said flat base blank for storage and transportation.

18. The method according to claim 15, wherein said shooting target includes an embedded matrix of electrical conductors and circuitry connecting the electrical conductors to an electronic controller; and the method further comprising:
monitoring the electrical conductors;
detecting a projectile passing through the matrix by the circuitry;
providing a signal from the circuitry to the electronic controller indicating the location where the projectile penetrated the matrix; and
determining in the electronic controller, from this signal, where the target was hit.

19. The method according to claim 18, further comprising transmitting data indicating the location where the projectile penetrated the matrix, via a communication system to which the electronic controller is coupled, to at least one destination selected from the group including: the shooter, a trainer, and a commander.

20. The method according to any one of claims 18-19, further comprising calculating statistics of each shooter during his or her practice session and forwarding this information.

21. The method according to any one of claims 18-20, further comprising:
detecting a penetration of the shooting target; and
in response thereto, sending a signal to actuate at least one device selected from the group including a sound generator, a light, a smoke machine, and an electronically actuated accessory.

22. The method according to any one of claims 18-21, wherein the controller can be re-programmed by a remote controller to actuate different electronic accessories or a different arrangement or switch between them.
Electronic system to monitor and review shooting and or controlling the target and/or simulating fighting sounds

Base / Stand
Retractable modular and or foldable stand that serves as the holder and base of the target and/or electronic equipment

Shooting Targets
Various sizes, shapes, colors, textures

Accessories
Additional accessories and components: Special connecting joints are well-suited for the special material for easy attachment, simulating accessories.

Fig. 2
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

IPC (2017.01) F41J 1/00, F41J 5/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC (2017.01) F41J 1/00, F41J 5/00, E04C 2/24, F41J 5/04, F41J 5/14

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Databases consulted: Esp@cenet, Google Patents, FamPat database, Derwent Innovation

Search terms used: modular shooting target, polymeric foam, bendable rigid polymeric sheet, electronic scoring indicator, electronic controller, foldable base

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>A</td>
<td>US 8523 185 B1 DON HERBERT GILBREATH 03 Sep 2013 (2013/09/03) Fig 1 and description thereof in reference to sensor signalling following hit</td>
<td>10-22</td>
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<tr>
<td>A</td>
<td>JP H1 183393 A BABCOCK HITACHI KK 26 Mar 1999 (1999/03/26) Figs. 5-8</td>
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[X] Further documents are listed in the continuation of Box C.  
[X] See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is essential to establish the publication date of another document (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"Q" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"Z" document member of the same patent family

Date of the actual completion of the International search 24 Sep 2017

Date of mailing of the international search report 27 Sep 2017

Name and mailing address of the ISA:

Israel Patent Office

Technology Park, Bldg.5, Malcha, Jerusalem, 9695101, Israel

Facsimile No. 972-2-5651616

Authorized officer

COHAY Mattan

Telephone No. 972-2-565161 1

Form PCT/ISA/2 (ii) (second sheet) (January 2015)
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