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(54) **LIQUID PROJECTILE LAUNCHING AND DETECTING DEVICES AND SET THEREOF**

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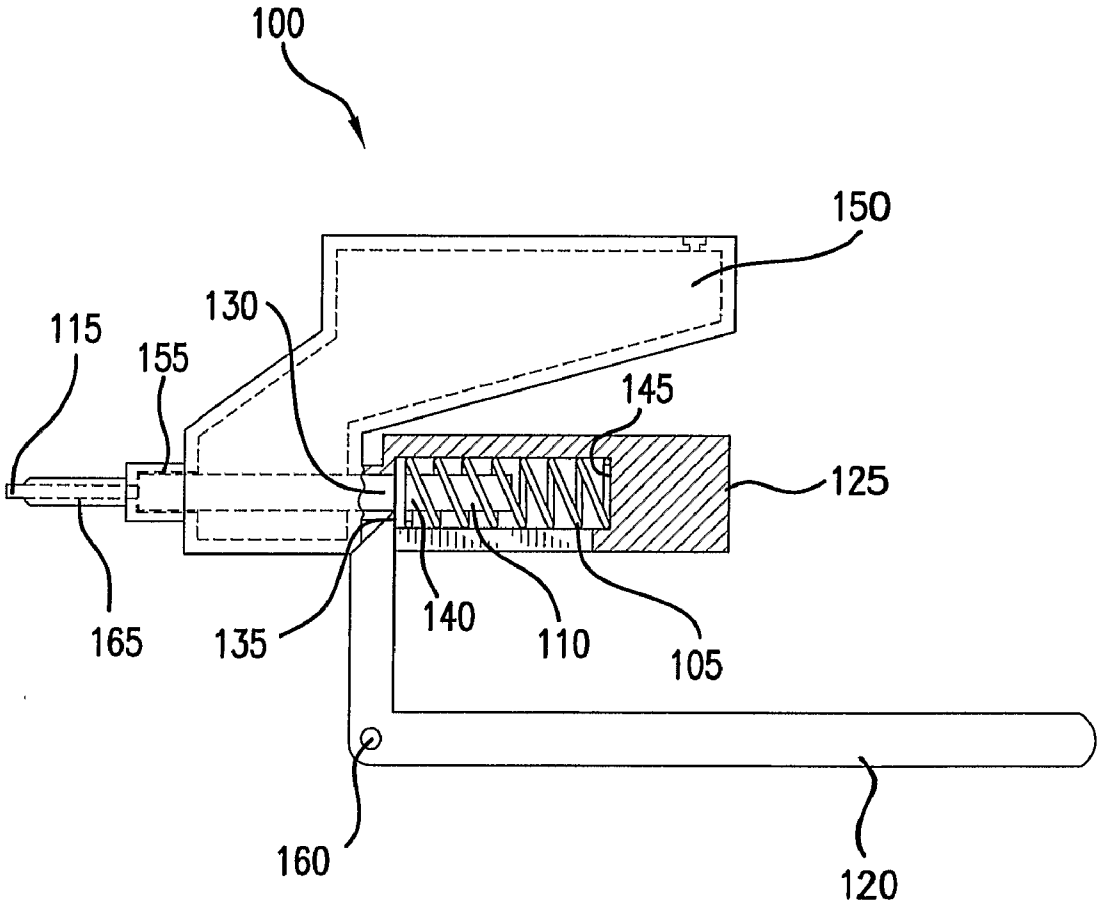
(57) **ABSTRACT**

A set comprises at least one first device comprising at least one liquid reservoir and at least one liquid projectile launching mechanism. When, actuated by the user, the liquid projectile launching mechanism draws a portion of the liquid from the reservoir and launches this portion of liquid outward from the first device. The first device may be designed to be carried by a user or otherwise supported by a user's body. The set further comprises at least one second device comprising a liquid reactive material.



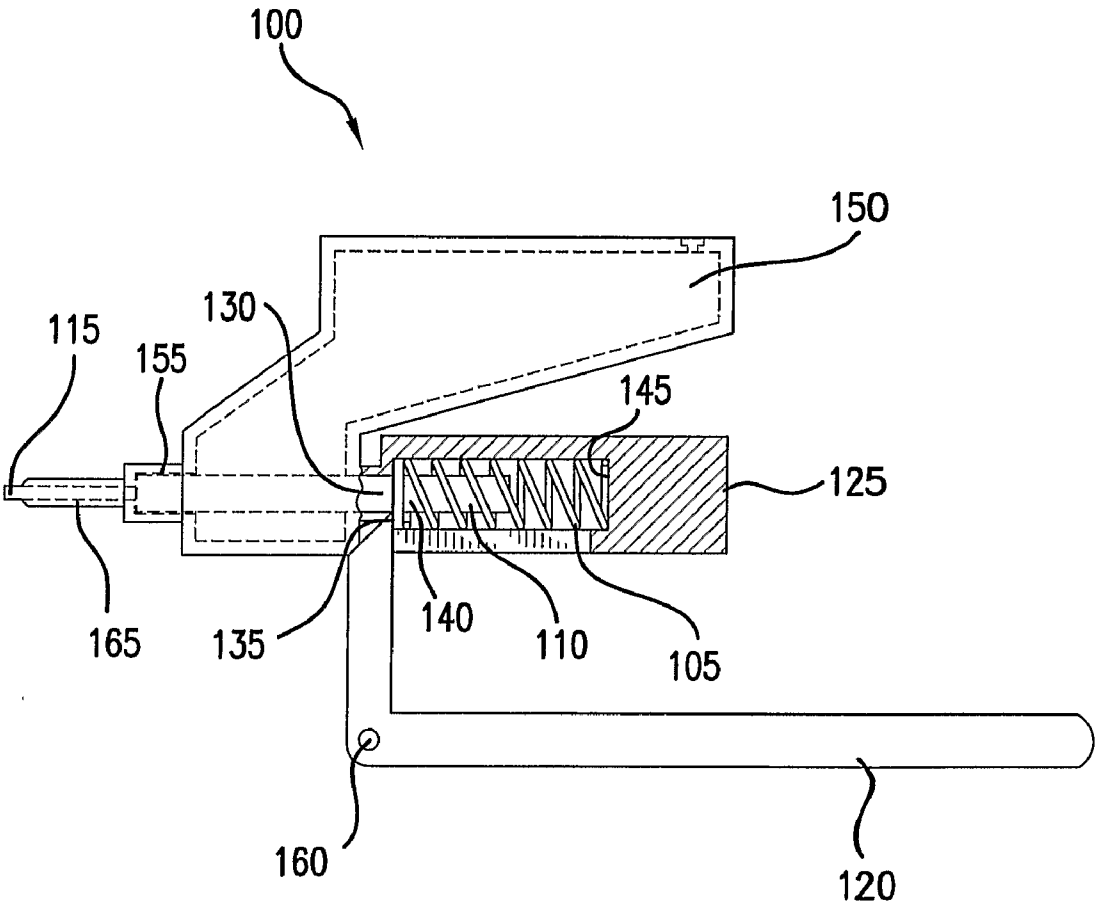


FIG. 1

LIQUID PROJECTILE LAUNCHING AND DETECTING DEVICES AND SET THEREOF

[0001] The present invention relates generally to a devices for launching a liquid projectile and to targets made of liquid-reactive substances, and to sets of such devices and targets.

[0002] Devices which simulate weapons, or which can be used to simulate combat, are perennially popular. Typically, such devices produce sounds which indicate when the simulated weapon is being fired. Devices simulating weapons were then devised which consisted of a light-projecting mechanism. Such devices were sold with a light-detecting mechanism that could be worn on the body, which emitted sound or light when hit by light projected from an opponent's weapon. However, consumers typically preferred that the simulated weapons actually shoot a projectile with sufficient force to strike an opponent or other target. Unfortunately, confusion or disputes often arose during game play concerning whether a player has actually been struck by a projectile.

[0003] Sophisticated air- or gas-driven paintball guns are now available, which forcefully project ammunition consisting of a hollow ball filled with paint or dye. The balls burst on impact, leaving no doubt as to whether a target or individual has been struck. These paintball guns, ammunition and related gear are generally expensive. Moreover, the paintballs launched by such guns can be dangerous, requiring protective gear to be worn by individuals during play. The paintballs also produce messy paint splatters on impact, both on individuals playing the game as well as in the game-playing area. Thus, paintball guns are expensive to acquire and maintain, and are not suitable for children.

[0004] What is needed, therefore, is device or set of devices simulating weapons or combat, which launch a projectile with sufficient force to strike an opponent but which will not cause injuries or produce an inordinate mess. The device or set of devices would include a means for indicating whether an individual or target has been struck by a projectile. Such a device would desirably be inexpensive to acquire and operate.

[0005] Liquid projectiles can be launched from devices which simulate weapons with sufficient velocity to strike an opponent, but without causing injury. Liquid reactive materials can be worn by individuals playing a game, or can comprise part of a target.

[0006] The invention thus provides a set comprising at least one first device comprising at least one liquid reservoir and at least one liquid projectile launching mechanism in fluid communication with the fluid reservoir. When actuated by the user, the liquid projectile launching mechanism draws a portion of the liquid from the reservoir and launches this portion of liquid outward from the device. The first device may be designed to be carried by a user or otherwise supported by a user's body. The set further comprises at least one second device comprising a liquid reactive material.

[0007] The set of the invention can be provided as a kit or a game, comprising at least two first devices and at least two second devices of the invention, and optionally instructions for use or rules for game play.

[0008] The invention further provides a method of playing a game, comprising the steps of providing at least a first device of the invention and at least one second device of the invention, and firing liquid projectiles from the first device toward the second device, such that the second device can be struck by the liquid projectiles. The step of firing liquid projectiles can optionally be repeated until the game is concluded.

[0009] The invention yet further provides a method of marketing a set of devices, kit or game of the invention, comprising packaging the set of devices, kit or game with at least one additional item.

[0010] For the purpose of illustrating the invention, there are shown in the drawings forms which are exemplary; it being understood, that this invention is not limited to the precise arrangements and instrumentalities shown.

[0011] FIG. **1** is an exemplary liquid projectile launching device of the invention.

[0012] It will be appreciated that the following description is exemplary and is not intended to define or limit the invention, other than in the appended claims.

[0013] A first device of the invention comprises a body which can support at least one liquid reservoir and at least one liquid projectile launching mechanism. The body can be made in any suitable size and shape capable of supporting the liquid reservoir and liquid projectile launching mechanism, for example in the shape of a gun or other hand-held or free-standing weapon. The body can also comprise appendages or other attachments which may move independently of the body or other components of the first device.

[0014] Thus, the first device can simulate a gun; e.g., handgun or pistol, rifle, shotgun, machine gun or machine pistol, archaic firearms such as flintlocks, matchlocks, blunderbusses and the like, and archaic projectile weapons such as bows, crossbows, slings and slingshots and the like. The first device can also simulate a free-standing or mobile weapon; e.g., a cannon or carronade, mortar, howitzer, or other artillery piece; or other more archaic projectile-throwing siege engines such as onagers, mangonels, trebuchets, ballistae or other catapults; tanks; mobile guns, and the like.

[0015] The first device can comprise one or more colors, designs or indicia, for example for the purpose of decoration or to indicate different group affiliations. Such colors, designs or indicia can be those associated with actual armies, sports teams or sports or military figures.

[0016] The first device can be any suitable size which allows a person to handle the device and actuate the liquid projectile launching mechanism, as can be readily determined by one skilled in the art. For example, the device can be from about 10 cm to about 1000 cm (e.g., about 50 cm to about 700 cm, about 150 cm to about 400 cm, or about 250 cm) in length (i.e., from left to right sides), from about 5 cm to about 500 cm (e.g., about 50 cm to about 250 cm, or about 100 cm to about 150 cm) in height, and from about 5 cm to about 25 cm (e.g., about 10 cm to about 20 cm, or about 15 cm) in depth (i.e., from front to back). Greater or lesser values are contemplated for the height, length and breadth of the first device.

[0017] All or part of the first device can be fabricated from any suitably rigid material, such as heavy gauge paper or cardboard, woods, metals, plastics, rubbers or synthetic resins, as are known in the art, by standard techniques for producing devices simulating weapons and the like. For example, the first device can be fabricated by injection molding or other suitable technique from commercially-available material such as thermo plastic polyurethane (TPU); ionomer resin; ethylene vinyl acetate (EVA); thermo plastic styrenics (TPS); melt processable rubber (MPR); thermo plastic vulcanate (TPV); thermo plastic olefin (TPO); thermo plastic

ester elastomer (TPEE); thermo plastic elastomer (TPE); thermoplastic rubber (TPR); polypropylene (PP), polyethylene terphthalate (PET), polyvinyl chloride (PVC), acrylonitrile-butadiene-styrene terpolymer (ABS); a polycarbonate and acrylonitrile-butadiene-styrene terpolymer blend (PC/ABS); flexible plastic such as polystyrene sheet or polymethylmethacrylate (PMMA, marketed as "PERSPEX" by ICI Acrylics, Inc.); other acrylics; metal (e.g., stainless steel, aluminum, copper); wood; or any combination thereof. Other suitable materials and forming methods will be apparent to those skilled in the art.

[0018] The first device may be supplied fully assembled or as a kit, wherein a user assembles the first device by popping out prefabricated parts along lines of weakness from a flat piece of plastic, metal or any other suitable material, and then attaches the liquid projectile reservoir and liquid projectile launching mechanism. Generally, the assembly of the device will not require the aid of tools and/or adhesives, and all the parts can be joined together by the snap-fit of the parts themselves.

[0019] The liquid reservoir can comprise any closed or open container suitable for holding liquid. For example, the liquid reservoir can comprise a thin-walled plastic container with a removable cap. In practice, the liquid reservoir can be refilled when the liquid has been depleted during play. Alternatively, the liquid reservoir may not include a removable cap or other means for refilling, and the first device or the liquid reservoir would then be discarded when the liquid in the reservoir is depleted, and the entire first device or the liquid reservoir replaced. (It is envisioned that such a liquid reservoir could be disposable, or provided in a small, inexpensive disposable first device.) The liquid reservoir can be constructed from any suitable material, such as the materials described above for the body, according to techniques within the skill in the art. The liquid reservoir can also be constructed to withstand internal pressure, for example if the air and liquid within the reservoir are pressurized in preparation for firing liquid projectiles. The liquid reservoir can be supported by the body. As used herein, "supported by the body" means that the liquid reservoir can be located on the outside of the body, inside the body, or can extend through the body. It is specifically contemplated that the liquid reservoir can be coextensive with the body; for example, the liquid reservoir can be formed by the body, and this configuration is included in the meaning of "supported by the body".

[0020] At least one liquid projectile launching mechanism is in fluid communication with one or more liquid reservoirs, for example through a tube or other suitable conduit. A liquid projectile launching mechanism can be supported by the body. As used herein, "supported by the body" means that the liquid projectile launching mechanism can be located on the outside of the body, inside the body, or can extend through the body. When located outside the body, the liquid projectile launching mechanism can function independently of the body, and can comprise all the elements (including a liquid reservoir) necessary to store and launch a liquid projectile. Such independently functioning liquid projectile launching mechanisms can be interchangeable from device to device. Alternatively, the liquid projectile launching mechanism and the liquid reservoir can be located separately outside the body, and can be removed or interchanged with the liquid projectile launching mechanism or liquid reservoirs on other devices. The liquid projectile launching mechanism can also be located in the body, and the liquid reservoir can be separate; for example, when the first device simulates a gun, and the liquid reservoir can be carried on a belt or back-pack. In any case, that portion of the liquid projectile launching mechanism which discharges and directs the liquid projectile away from the body (called the "discharge tube," see below) should not be obstructed by the body so that the liquid projectile can be launched unimpeded.

[0021] The liquid projectile launching mechanism can comprise any suitable mechanism for drawing liquid from the liquid reservoir and launching a portion of liquid outwardly from the device. For example, the liquid projectile launching mechanism can comprise a simple manual or electric pump mechanism such as are commonly found in plastic squirt guns; see, e.g., U.S. Pat. Nos. 6,892,902 and 5,373,975, the entire disclosures of which is herein incorporated by reference. The pump can force liquid directly through and out the liquid projectile launching mechanism, for example by actuating a piston operably connected to series of valves which allow the liquid to be forcibly ejected from the liquid projectile launching mechanism. Alternatively, the pump can pressurize the liquid reservoir such that the liquid travels through and out the liquid projectile launching mechanism when a valve between the liquid reservoir and liquid projectile launching mechanism is released. The pump can also be configured to draw liquid into the liquid reservoir to replenish the liquid supply therein.

[0022] The liquid projectile launching mechanism can also comprise a bladder or other flexible-walled container. The bladder or other flexible-walled container can be filled to overcapacity to create internal pressure, such that liquid can be expelled through an opening in the liquid projectile launching mechanism. The liquid projectile launching mechanism comprising a bladder or other flexible-walled container can also be squeezed to expel the liquid. Where a liquid projectile launching mechanism comprises a bladder or other flexible-walled container, the liquid projectile launching mechanism and the liquid reservoir can be essentially coextensive. For example, the bladder or other flexible-walled container can be the liquid reservoir.

[0023] The liquid projectile launching mechanism can also comprise a mechanism which expels hollow or porous projectiles, which are filled or saturated with a liquid. Such mechanisms are known in the art, and can comprise pneumatic systems, spring-loaded systems, or systems in which the projectile is expelled by the potential energy of a rubber band or other elastic material, such as are known in the art. As used herein, a liquid projectile thus includes hollow or porous projectiles, which are filled or saturated with a liquid. In such configurations, the liquid reservoir may contain liquid, or may comprise a magazine or other similar container for holding the hollow or porous liquid projectiles. It is also contemplated that the first device can comprise further magazines or similar containers for holding the hollow shells or porous material before the liquid has been added. Liquid from a liquid reservoir can then be apportioned into the hollow shells or porous materials to form the liquid projectile before the projectile is fired.

[0024] When actuated, the liquid projectile launching mechanism expels liquid projectiles through at least one discharge tube. The discharge tube is considered part of the liquid projectile launching mechanism. The discharge tube can extend away from the body, and may be constructed so that it can be aimed independently of the body; i.e., the discharge tube can be positioned to point or aim in different

directions without necessarily changing the orientation of the device. For example, the discharge tube, or the entire liquid projectile launching mechanism, can be seated on a ball bearing, so that the shooting direction can be changed without moving or changing the orientation of other parts of the device. Alternatively, the discharge tube is aimed by manipulation of the entire first device by the user, for example when aiming a simulated handgun or rifle. The discharge tube can comprise cylinders of differing diameter (see, e.g., FIG. **1**) and can comprise other components such as a nozzle.

[0025] A discharge tube can be positioned anywhere on the body which allows liquid projectiles to be projected outwardly from the device when the liquid projectile launching mechanism is actuated. As discussed above, the liquid projectile launching mechanism can be manually or electronically actuated. If electronically actuated, the liquid projectile launching mechanism can fire multiple liquid projectiles in succession without further input from the user, until the electronic signal is stopped or the liquid reservoir is depleted. Multiple liquid projectiles can also be fired in succession by manual actuation of the liquid projectile launching mechanism. Alternatively, manual or electronic actuation of the liquid projectile launching mechanism can result in the expulsion of essentially all the liquid in the liquid reservoir at once.

[0026] As used herein, a "liquid projectile" is a portion of liquid, for example in the form of a drop, projected outwardly from the device by the liquid projectile shooting mechanism. Once fired from the first device, the liquid projectile is preferably not enclosed in any container. A liquid projectile also does not necessarily have a fixed or constant volume or mass, and the volume or mass of the liquid projectile may vary from device to device or between "shots" fired from the device. It is understood that the liquid projectile can comprise a portion of the liquid in the liquid reservoir, or can comprise essentially all the liquid in the liquid reservoir of the device; i.e., all the liquid in the reservoir can be expelled as one "shot." The velocity of the liquid projectile when launched from a first device can vary, but is sufficient to propel the liquid projectile at least some distance from the first device.

[0027] The liquid which can be used to form the liquid projectiles of the invention can include any suitable liquid which is compatible with the device components, and which has a suitably low viscosity such that it can be discharged from the liquid projectile launching mechanism. Suitable liquids include water, such as tap water, spring water, salt water, sugar water or mineral water; inks, such as "disappearing" and other non-permanent inks and permanent inks; dyes, for example washable or other non-permanent dyes and permanent dyes; fluorescent liquids; perfumes; juices; liquid candies and acidic or basic liquids. Generally, acidic or basic liquids for use in the invention comprise a weak acid or base, so as not to damage the device or device components and surrounding object, or injure a user.

[0028] An exemplary liquid projectile launching mechanism is shown in FIG. **1**. With reference to FIG. **1**, the exemplary liquid projectile launching mechanism **100** comprises a spring **105** engaged with piston **110** such that the spring **105** forces the piston **110** forward (toward the nozzle **115**) when the spring **105** is compressed by action of the trigger **120** as described below. The piston **110** is seated in housing **125**, which comprises a channel through with the piston **110** can extend. In use, the liquid projectile launching mechanism is actuated by depressing trigger **120** such that the piston is drawn backward (away from nozzle **115**) by virtue of the contact between the trigger **120** and piston surface **130** by flange **135**. As the piston **110** is drawn backward, spring **105** is compressed between piston surface **140** and housing surface **145**. When the piston **110** is drawn backwards, water from the fluid reservoir **150** will fill the interior of the cylinder **155**. Upon reaching essentially the full range of depression, the trigger **120** pivots around a bearing (marked as hole **160**), causing the flange **135** to lose contact with piston surface **130** and releasing the piston **110**. The piston **110** is then biased forward by the spring **105**, and the liquid in the interior of cylinder **155** will travel through the discharge tube **165** and finally out through the nozzle **115** with sufficient velocity to project the liquid away from the nozzle.

[0029] The first device can also comprise electronic components other than, and optionally connected to, any electronic components comprising the liquid projectile launching mechanism. Such electronic components can be activated along with any electronic components comprising the liquid projectile launching mechanism, or can be activated separately. For example, the first device can comprise components for the electronic generation of sound and/or light. The device can also comprise attachments that are connected to drive motors activated by the electronics.

[0030] Electronics suitable for use in the first device can include a power source box, or battery box which can be located suitably in the body, for containing batteries or another suitable power source. Suitable wires can be used to couple operable components such as incandescent lights, LED's, switches and speakers. These components can be contained in the body, located outside and supported by the body, or can extend through the body. For example, one or more portions of the body can be lighted or adapted to glow by providing a suitable light source such as an LED mounted adjacent to a chamber with transparent or translucent portion.

[0031] The electronic components can be activated by actuation of the liquid projectile launching mechanism and/or by the flow of liquid through the liquid projectile launching mechanism. For example, a switch can be mounted adjacent to a conduit or a flexible or soft portion of a conduit, such as conduit carrying pressurized liquid from the liquid reservoir to or through the liquid projectile launching mechanism. The deformation or expansion of the conduit can move one contact element of the switch into contact with the other element, thus activating the electronics.

[0032] With regard to fastening, mounting, attaching or connecting components of the invention to form the first device, unless specifically described otherwise, such are intended to encompass suitable conventional fasteners such as screws, nut and bolt connectors, threaded connectors, snap rings, detent arrangements, clamps such as screw clamps and the like, rivets, toggles, pins and the like, as are known in the art. Components can also be connected by adhesives, glues, welding, ultrasonic welding, and friction fitting or deformation, if appropriate, and appropriate liquid and/or airtight seals or sealing devices can be used, as are known in the art. Electronic portions of the device can use conventional, commercially available electronic components, connectors and devices such as suitable wiring, connectors, printed circuit boards, microchips, speakers, lights, LED's, liquid crystal displays, pressure sensors, liquid level sensors, audio components, inputs, outputs and the like.

[0033] The invention also provides a second device, which comprises a liquid reactive material. As used herein, a "liquid reactive material" is any material which undergoes a change

when contacted by a liquid. For example, the liquid reactive material can comprise a substance which changes electrical characteristics (such as impedance), changes color, or loses or gains opacity when contacted with a liquid. Suitable liquid reactive materials include a plastic or cloth that changes color when becoming wet, or a surface which has been coated with a particulate (e.g., dust, sand, fiberglass, or the like) on the surface, which particulate changes color or becomes transparent when wet, revealing an underlying color.

[0034] For example, the second device can comprise a liquid-responsive switch closing or opening an electric circuit between a battery and a light or sound source when in contact with liquid. A suitable liquid-responsive switch, as is known in the art, comprises a pair of electric terminals impressed with a certain voltage potential. When in the dry state, the impedance between the terminals is very high and the current allowed to circulate is virtually nil. However, when wet, the impedance is dramatically reduced establishing an electrical path which sets a simple transistor circuit in the conduction state, closing the electric circuit between the battery and the light source. Thus, the second device can be activated to emit sound and/or light when struck by a liquid projectile from another source. This arrangement can be used to indicated a "score" or "hit" by a liquid projectile when simulating combat or team sports play with the devices of the invention. A liquid-activated switch can also be operably connected to a liquid projectile launching mechanism, such that the liquid projectile launching mechanism is temporarily inactivated or rendered inoperable when the device is struck by liquid.

[0035] Other suitable liquid reactive materials include materials which react when contacted with an acidic or basic solution, such as a pH indicator which changes color upon contact with an acid or a base. A suitable pH indicator is one which changes to a certain color (e.g., blue) when contacted with an acidic solution, and changes to another color (e.g., pink or red) when contacted with a basic solution. Thus, a set, game or kit of the invention can comprise at least two first devices, and at least two second devices comprising a pH indicator. One of the first devices can carry an acidic liquid in its liquid reservoir, and another first device can carry a basic solution. Hits from the first device carrying the acidic solution will cause the second devices to turn a first color, whereas hits from the first device carrying the basic solution will cause the second devices to turn a second color. The initial color of the pH indicator on a given second device can be restored by removing the acidic or basic solution (such as by washing with water), or by neutralizing with an acidic or basic solution, as appropriate.

[0036] The second device can be separate from the first device, or can be carried on or integral to the first device. Numerous configurations of the first and second device are therefore possible and contemplated. For example, where the first and second devices are separate, the first device can comprise a handheld item such as a simulated weapon (e.g., a handgun, rifle or machine gun), and the second device can comprise an article to be worn or carried by a user, such as a shirt, vest, chest plate or other articles worn on the torso; pants; socks, shin guards, shoes or shoe coverings, or other articles worn on the feet or legs; belt (including a harness or Sam Browne belt); badge, necklace, medallion or the like; helmet, hat or other headcovering; gloves, rings or other articles worn on the hands; forearm or wrist guards or other articles worn on the arms; mask, eyeglasses or other articles worn on the face; a shield or the like; or combinations thereof. An exemplary second device can comprise a full or partial suit of armor. For example, mutiple second devices can be provided with the game, kit or set of the invention, wherein the second devices comprise different articles of clothing or pieces of armor (e.g., a chest plate and a back plate, connected by shoulder straps, or the like).

[0037] The second device can also comprise a free-standing or independently-moving or randomly-appearing item, such as an obstacle or target. Exemplary targets can include items that are thrown or otherwise projected into the air, or "pop-up" targets representing opponents which appear at random intervals and/or locations during game play. Such "pop-up" targets can be controlled by electronics such as are described above, as is known in the art.

[0038] Where the first and second devices are integral, or the second device is supported by the first device, the first device can comprise a handheld or other item such as a simulated weapon (e.g., a handgun, rifle or machine gun) and the second device can comprise a target area or other designated area on the first device. As discussed above, the liquid reactive area can be operably connected to the liquid projectile launching mechanism of the first device, such that the liquid projectile launching mechanism is temporarily disabled when the liquid reactive area is contacted by liquid.

[0039] Different portions of the second device can comprise at least two liquid reactive materials which react differently from each other when wet. For example, one portion of the second device can comprise a material which turns a first color (e.g., green) when wet, and a second portion of the same second device can comprise a material which turns a second color (e.g., blue) when wet. Thus, a set, game or kit of the invention can comprise at least two second devices which at least one portion comprising different liquid reactive materials which react differently when wet.

[0040] A second device comprising a target can also comprise materials which react differently from each other when wet. For example, the outer areas of the target (which are typically considered lower scoring) can comprise a first liquid reactive material which turns a first color when wet, and the inner areas of the target, such as the "bulls-eye" or center (typically considered higher-scoring) can comprise a second liquid reactive material which turns a second color when wet.

[0041] The second device can also comprise one or more liquid reactive materials arranged in a pattern or design, such as for a game board (e.g., tic tac toe, checkers, darts, etc.), field of play for a team sport, or the like. Such second devices can comprise articles of clothing worn by a user, such as are described above. Hits from liquid projectiles fired from a first device will cause different portions of the patterned liquid reactive materials to change color, allowing users to play a game in this manner, rather than using actual game pieces. For example, users can take turns firing liquid projectiles at a second device comprising liquid reactive material arranged in the pattern of a dart board. The liquid projectile will cause a color or some other change when it hits, indicating the point of impact. Different point values can be assigned to different areas of the game board. Alternatively, a second device comprising liquid reactive material arranged in the pattern of a tic tac toe board. Each square of the board can comprise, for example, a liquid reactive material such as a pH indicator that reacts differently when wetted with an acidic or basic solution. The liquid reactive material can be arranged in each square of the tic tac toe board in various patterns, for example X's and/or O's. Two users can take turns firing liquid projec-

tiles from a first device at the game board, attempting to mark three squares in a row. One user can fire liquid projectiles comprising an acidic solution, while the other user can fire liquid projectiles comprising a basic solution. Hits from each user will be registered on the game board as different colors.

[0042] The second device can comprise one or more colors, designs or indicia, for example for the purpose of decoration or to indicate different group affiliations. Such colors, designs or indicia can be those associated with actual armies, sports teams or sports or military figures. The second device can be any suitable size which allows a person to use, carry or wear the device, as can be readily determined by one skilled in the art. In addition to the liquid reactive material, the second device can be fabricated from any suitably rigid material using standard techniques, such as described above for the first device. Likewise, electronics suitable for use in the second device and the means and techniques for fastening, mounting, attaching or connecting components of the invention to form the second device, are as described above for the first device and are within the skill in the art.

[0043] Sets, games or kits of the invention can be marketed by packaging the set, game or kit with at least one additional item for sale, such as candy or gum, stickers, electronic items, and promotional items such as contests or lotteries and team or league paraphernalia.

[0044] The first and second devices of the invention can be utilized to play games in which a user is required to hit an opponent's second device. Thus, the invention provides a kit or game comprising at one first device and at least one second device, and suggested rules of play. For example, the kit or game can comprise sufficient first and second devices for two teams or armies of players, with each team or army comprising 1, 2, 3, 4, 5, 10, 20, 50 or more first and second devices.

[0045] Generally, a game of the invention can be played in an open indoor or outdoor area. The playing surface can be natural or artificial, and can be, for example, generally planar, uneven or multi-leveled.

[0046] The area in which a game of the invention is played can be marked or otherwise carry indicia which simulate, for example, battle fields or fields of play for one or more team sports. It is understood that the markings or indicia which simulate a battle field or field of play can include rear areas, sideline areas or other areas where individuals not actively participating in the group activity would be located. One skilled in the art is familiar with the indicia, relative dimensions and configurations of fields of play for team sports, and can readily adapt such indicia, dimensions or configurations for use with the present invention.

[0047] The kit or game of the invention can also comprise other items, such as a foldable housing to contain the first and second devices when not in use, extra liquid or liquid reservoirs, scorecards or other devices to record game statistics and results, candy or gum, toys, electronic devices (such as for producing light and sound effects or play-by-play announcements during game play), a timing device, stickers or the like for decorating the first or second devices, and promotional items such as contests or lotteries and team or league paraphernalia.

[0048] The precise rules of play for a game of the invention depend on the type of game desired to be played. For example, the game can comprise rules of play simulating combat. Such rules can be readily designed and understood by one skilled in the art.

[0049] In one such game, first and second devices sufficient for two armies can be provided. The individuals playing the game decide beforehand which army shall have initial possession of which parts of the battle field, and which army can attack first. For example, the armies can occupy different sections of the battlefield, or one army can occupy the entire battle field, and the second army can attempt to "invade" the occupied territory.

[0050] The game is begun by one or more individuals of a given army attacking individuals of the other army by firing liquid projectiles from their first devices at the second devices of the other army. A player will be "wounded" or "killed" if his or her second device is struck by the liquid projectile. The "wounded" or "killed" player is then removed from the battle field or left in place, and game play continues. "Wounded" players may be re-introduced to the game after a suitable amount of time has passed, simulating recovery of the wounded soldier.

[0051] The game progresses with each army attempting to secure the predetermined objective, and continues until the expiration of a predetermined time period, the objective is achieved or all the individuals of one army have been "wounded" or "killed." The surviving army or army in possession of the predetermined objective wins the game.

[0052] While the present invention has been described in connection with the examples discussed above and the various figures, it is to be understood that other similar examples may be used, or modifications or additions may be made to the described examples for performing the same function of the present invention without deviating therefrom. Therefore, the present invention should not be limited to any single example, but rather should be construed in breadth and scope in accordance with the recitation of the appended claims.

What is claimed is:

1. A set comprising at least one first device comprising a body, a fluid reservoir supported by the body, and a liquid projectile launching mechanism supported by the body and in fluid communication with the fluid reservoir, and at least one second device comprising a liquid reactive material.

2. The set of claim **1**, wherein the first and second device are independent.

3. The set of claim **1**, wherein the second device is carried by or is integral with the first device.

4. The set of claim **1**, wherein the liquid reservoir is disposable.

5. The set of claim **1**, wherein the liquid reservoir comprises flexible walls.

6. The set of claim **1**, wherein the liquid projectile launching mechanism comprises a pump.

7. The set of claim **1**, wherein the liquid projectile launching mechanism comprises a piston.

8. The set of claim **1**, wherein the liquid projectile launching mechanism comprises a pressurized liquid reservoir.

9. The set of claim **1**, wherein the liquid projectile launching mechanism comprises an aimable discharge tube.

10. The set of claim **1**, wherein the liquid projectile launching mechanism is electronically activated.

11. The set of claim **1**, wherein then first and second devices further comprise electronics.

12. The set of claim **11**, wherein the electronics generate sound or light.

13. The set of claim **11**, wherein the electronics are activated by actuation of the liquid projectile launching mechanism.

14. The set of claim **11**, wherein the electronics are activated by the flow of liquid through the liquid projectile launching mechanism.

15. The set of claim **1**, wherein the first device simulates an item selected from the group consisting of a pistol, rifle, shotgun, machine gun, machine pistol, flintlock gun, matchlock gun, blunderbuss, bow, crossbow, sling, slingshot, cannon, carronade, mortar, howitzer, onager, mangonel, trebuchet, ballista, tank and mobile gun.

16. The set of claim **1**, wherein the liquid reactive material comprises a substance which changes electrical characteristics, changes color, or loses or gains opacity when contacted with a liquid.

17. The set of claim **1**, wherein the liquid reactive material comprises a liquid-responsive switch.

18. The set of claim **17**, wherein the a liquid-responsive switch is operably connected to the liquid projectile launching mechanism.

19. The set of claim **1**, wherein the liquid reactive material comprises a pH indicator.

20. The set of claim **1**, wherein the second device comprises an article to be worn or carried by a user.

21. The set of claim **20**, wherein the article to be worn or carried by a user is selected from the group consisting of articles worn on the torso, articles worn on the feet or legs, articles worn on the head, articles worn on the hands, articles worn on the arms, articles worn on the face, and combinations thereof.

22. The set of claim **1**, wherein the second device comprises an item selected from the group consisting of a shirt, vest, chest plate, pants, socks, shin guards, shoes, shoe coverings, belt, badge, necklace, medallion, helmet, hat, gloves, ring, forearm guard, wrist guard, mask, eyeglasses, shield, full or partial suit of armor, and combinations thereof.

23. The set of claim **1**, wherein the second device comprises a free-standing, independently-moving or randomly-appearing item.

24. The set of claim **1**, wherein the second device comprises an obstacle or target.

25. The set of claim **1**, wherein the second device comprises a target area on the first device.

26. The set of claim **1**, wherein the second device comprises at least two liquid reactive materials which react differently from each other when wet.

27. A kit comprising at least one set of claim **1** and instructions for using the set.

28. A game comprising at least one set of claim **1** and rules for game play.

29. The game of claim **28**, wherein the game simulates combat.

30. A method of playing a game, comprising the steps of:

(1) providing the set of claim **1**;

(2) firing liquid projectiles from the first device toward the second device, such that the second device is struck by the liquid projectiles; and

(3) optionally repeating step (1).

31. A method of marketing the set of claim **1**, comprising packaging the set with at least one additional item.

32. The method of claim **31**, wherein the additional item is selected from the group consisting of a foldable housing to contain the first and second devices when not in use, liquid, a liquid reservoir, devices to record game statistics and results, candy, gum, toys, electronic devices, timing devices, stickers, and promotional items.

33. A method of marketing the kit of claim **27**, comprising packaging the kit with at least one additional item.

34. The method of claim **33**, wherein the additional item is selected from the group consisting of a foldable housing to contain the first and second devices when not in use, liquid, a liquid reservoir, devices to record game statistics and results, candy, gum, toys, electronic devices, timing devices, stickers, and promotional items.

35. A method of marketing the game of claim **28**, comprising packaging the game with at least one additional item.

36. The method of claim **35**, wherein the additional item is selected from the group consisting of a foldable housing to contain the first and second devices when not in use, liquid, a liquid reservoir, devices to record game statistics and results, candy, gum, toys, electronic devices, timing devices, stickers, and promotional items.

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