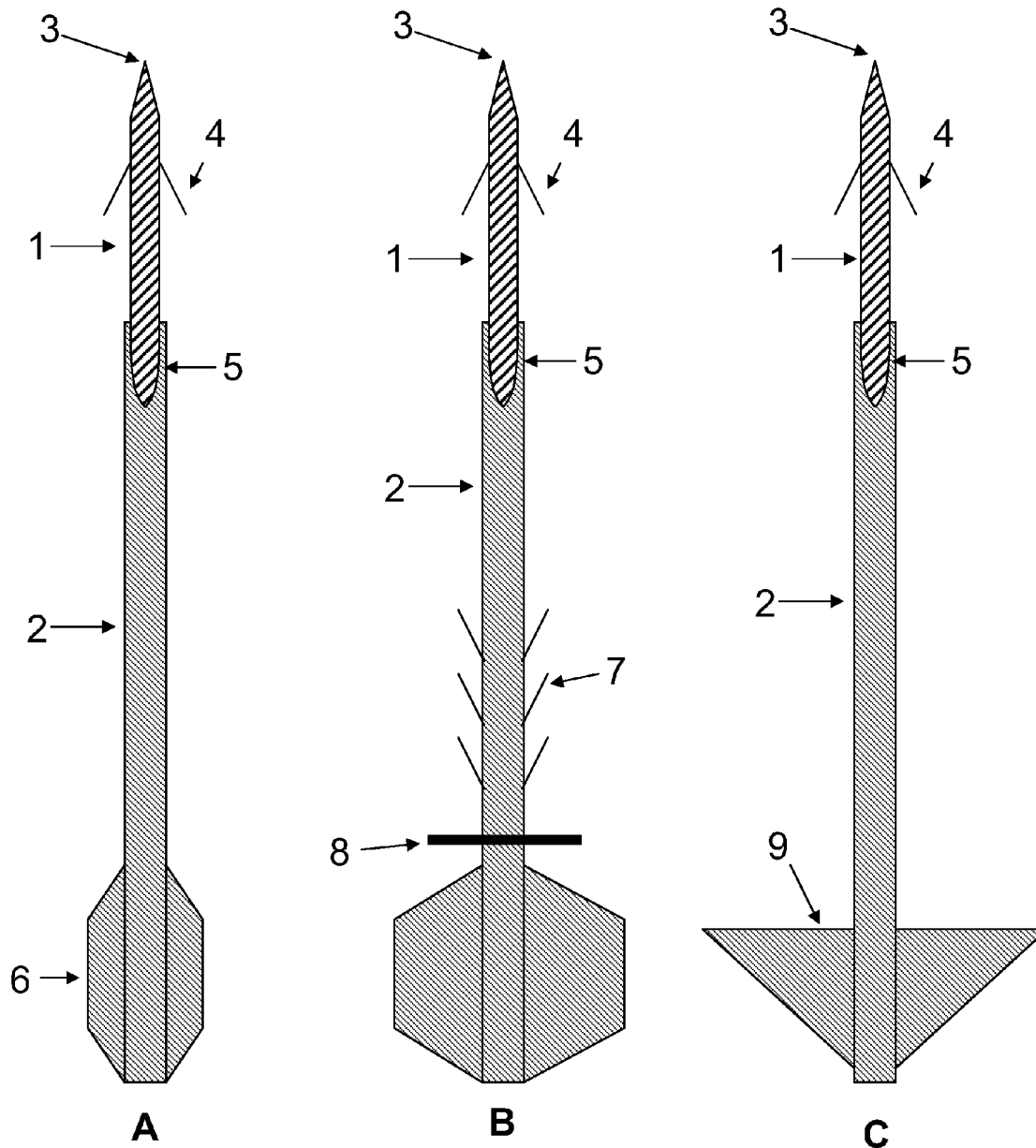




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(19) **United States**(12) **Patent Application Publication**  
**BURDINE et al.**(10) **Pub. No.: US 2013/0220160 A1**(43) **Pub. Date: Aug. 29, 2013**(54) **FLECHETTE DELIVERED RFID***A63B 65/02* (2006.01)*F41B 11/00* (2006.01)(76) Inventors: **ROBERT VAN BURDINE**, Ardmore,  
TN (US); **Dorothy Devine Burdine**,  
Ardmore, TN (US)(52) **U.S. Cl.**USPC ..... **102/439**; 124/56; 124/23.1; 244/137.1;  
473/578(21) Appl. No.: **13/407,701**(22) Filed: **Feb. 28, 2012****Publication Classification**(51) **Int. Cl.***F42B 12/02* (2006.01)*F41B 5/00* (2006.01)(57) **ABSTRACT**

An identification device such as an RFID is delivered and embedded in a target by flechette means for target tracking and identification.



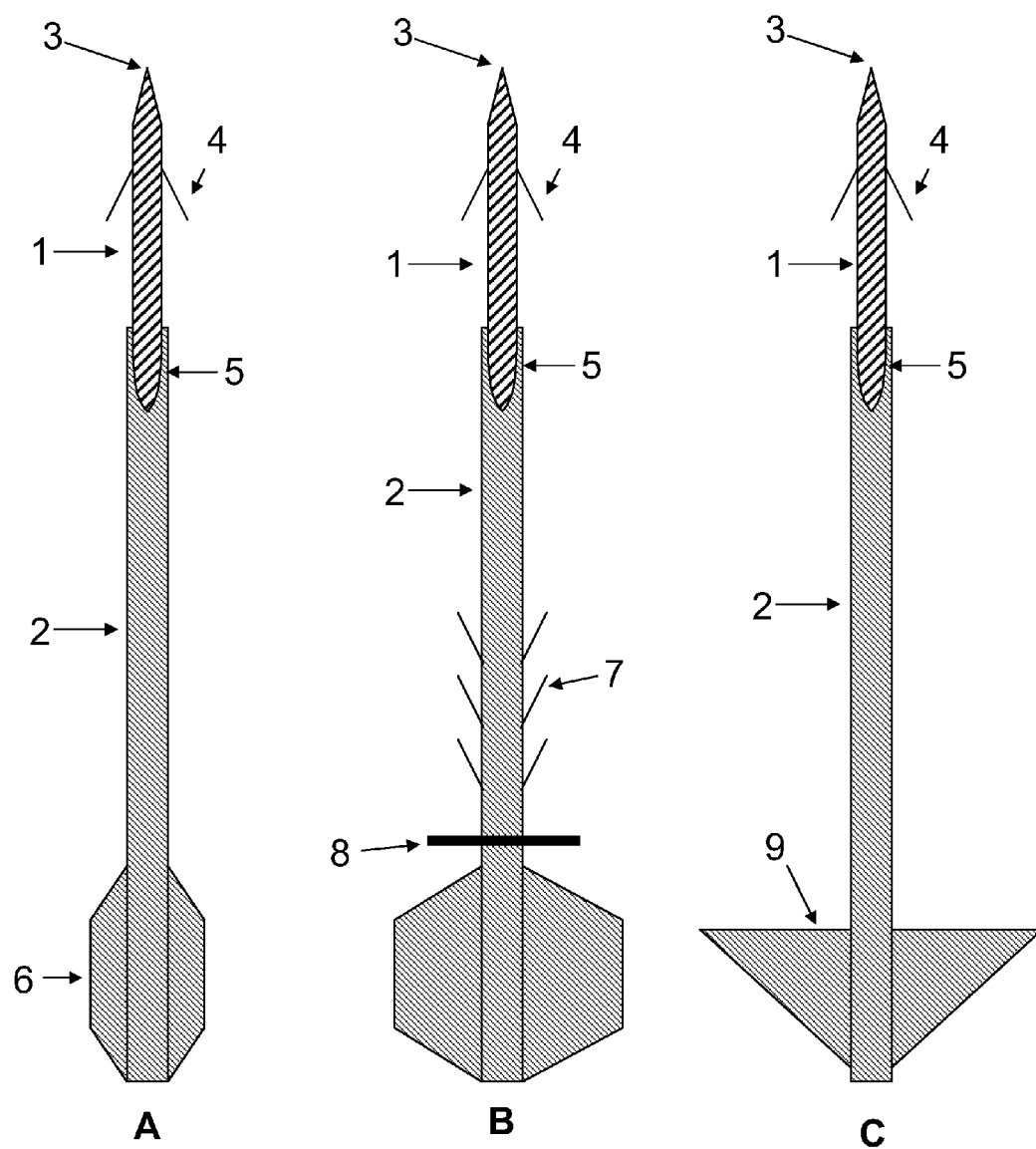
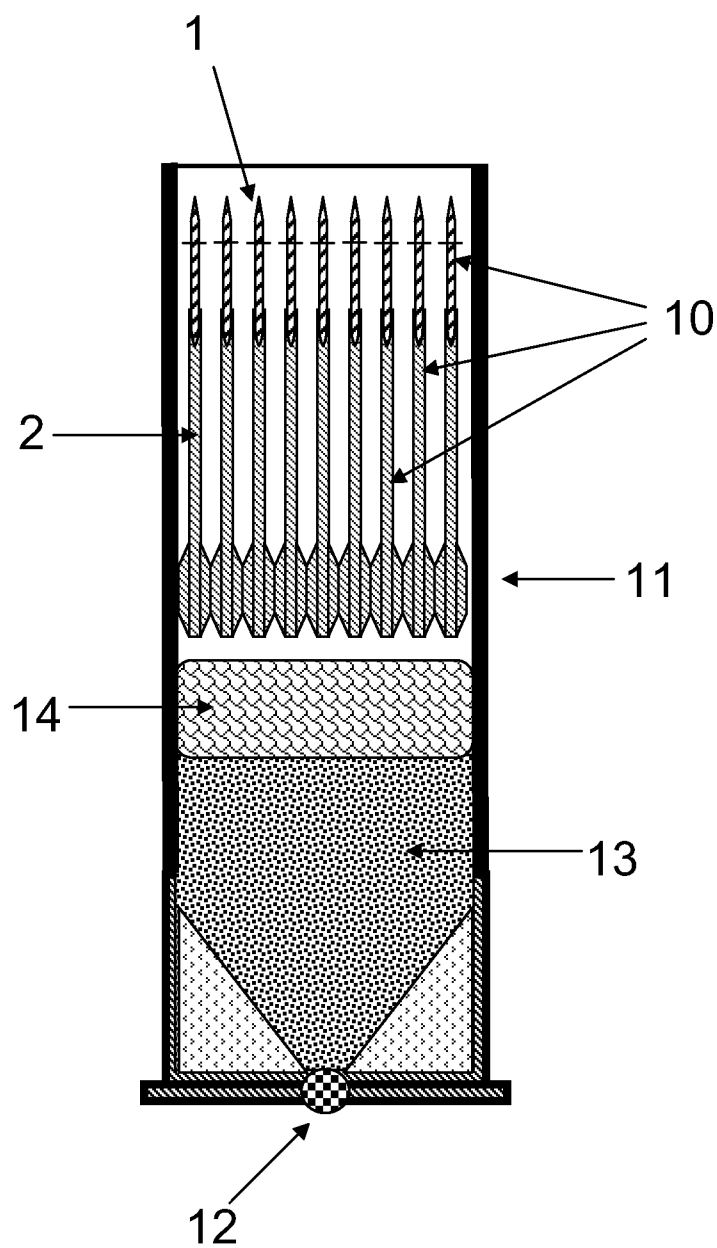
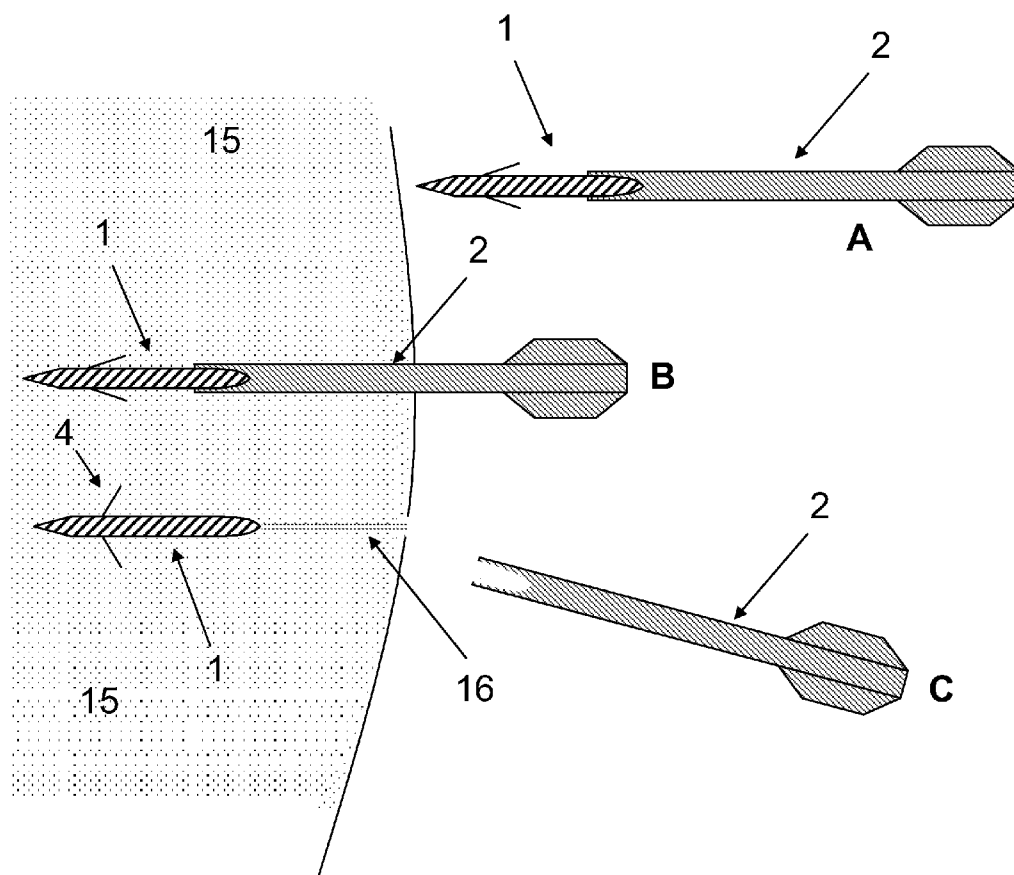


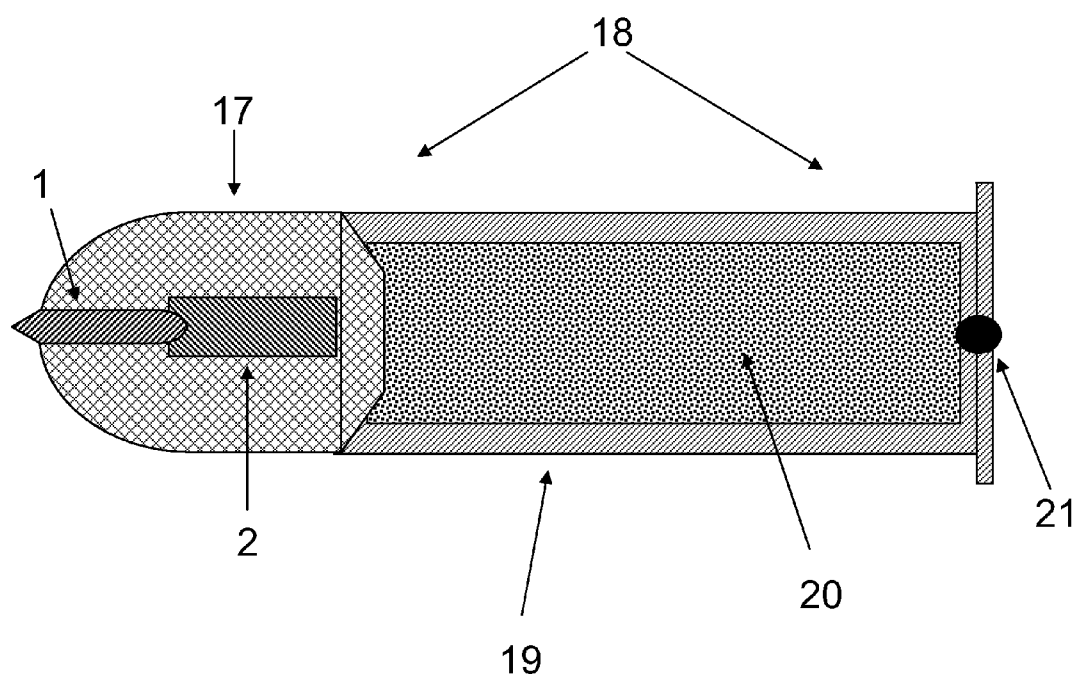
FIG. 1



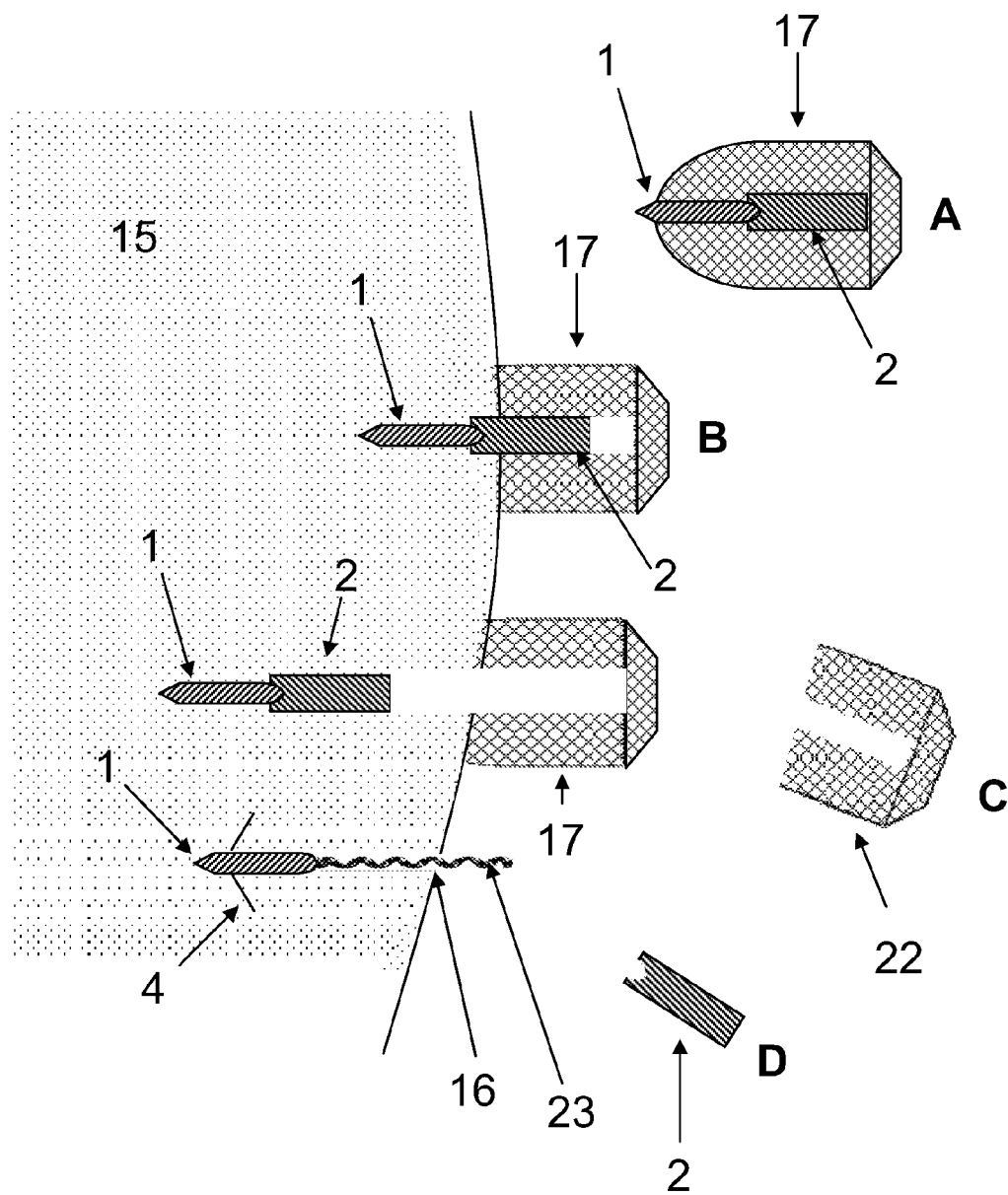
**FIG. 2**



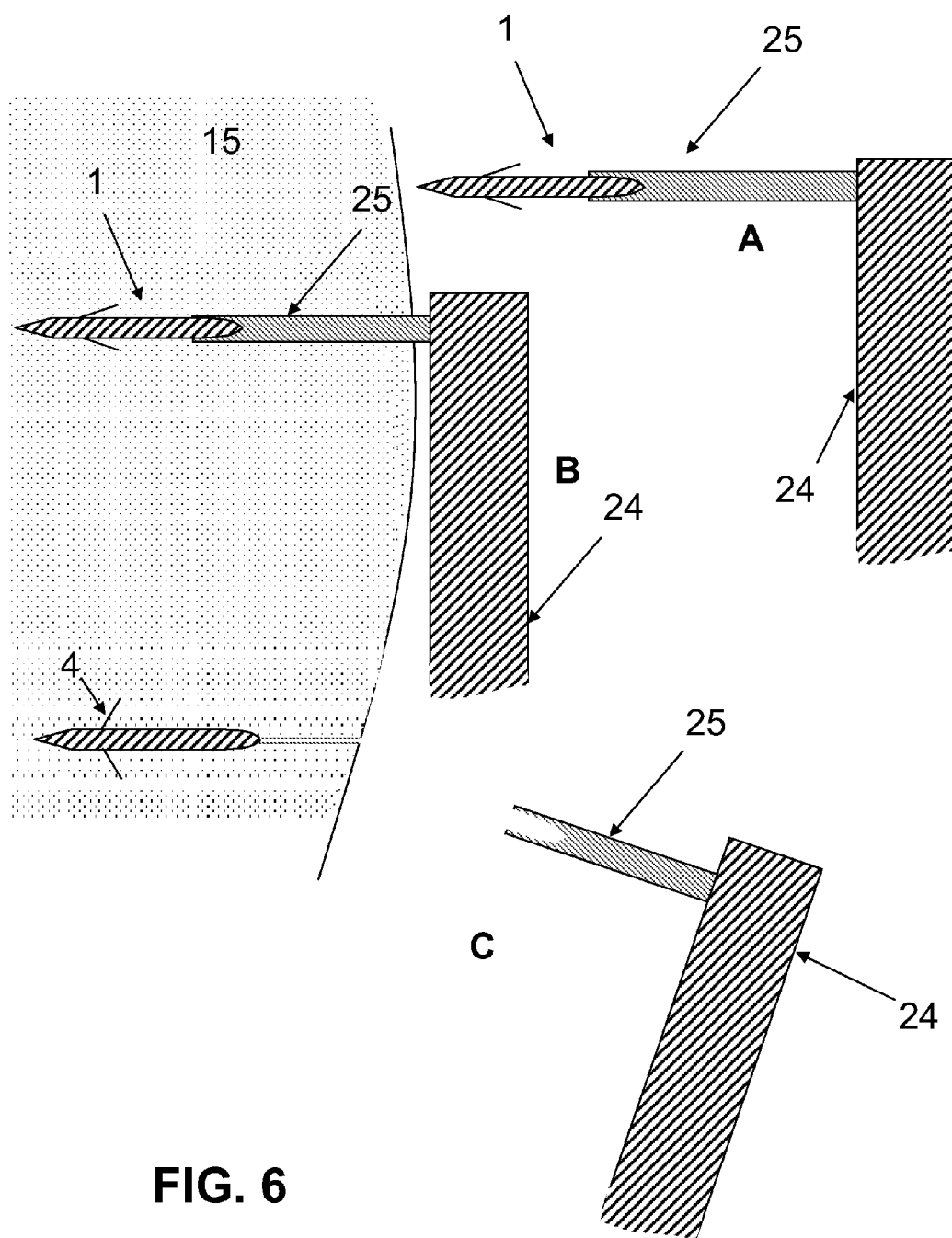
**FIG. 3**



**FIG. 4**



**FIG. 5**



**FIG. 6**

## FLECHETTE DELIVERED RFID

### FIELD OF THE INVENTION

**[0001]** The present invention relates generally to an identification device such as an RFID launched on a projectile, and more particularly to an identification device launched on a flechette adapted for launching from a shotgun, rifle, handgun, bow or other type of propelling device, and impacting a target transferring the identification device by penetrating the target and embedding then separating the tracking device. Projectiles include flechettes, rubber, plastic and other non-metallic solid, hollow and surfaced bullets, paint ball rounds, and similar manner of propellable projectile. Identification devices include electronically readable devices including RFID chips, magnetic materials, plastic and non-plastic materials with electronic properties useful for identification.

### BACKGROUND OF THE INVENTION

**[0002]** Flechettes generally are small, dart-like projectiles that are typically dispensed at high velocities and in large numbers to damage various types of targets. As they are unpowered and generally have no secondary propulsive elements, they rely on kinetic energy in the form of momentum as the energy transfer mechanism. They are generally designed to have minimum aerodynamic drag so that they can travel over long distances at high velocities with good accuracy. Flechettes may be individually dispensed from a gun, dispensed in numbers from a gun in a shotgun-like manner, air dropped or dispensed in numbers from the warhead of a rocket or missile.

**[0003]** Kinetic impact munitions include rubber bullets that are rubber or rubber-coated projectiles including projectiles made from plastic, wax, and wood of the class that can be fired from either standard firearms or dedicated riot guns. They are intended to be a non-lethal alternative to metal projectiles. Such kinetic impact munitions are meant to cause pain but not serious injury. These types of bullet are most commonly associated with use in riot control and to disperse protests. These rounds can be fired from rifles or pistols, and are also available as rubber bullets used in riot shotguns, and are available in a variety of types. For example, both rubber buckshot rounds, containing multiple rubber balls per cartridge, and rubber baton rounds, containing a single projectile, are available.

**[0004]** The present invention combines an identification device such as an RFID or other electronically readable device that can penetrate and stay in a target via a delivery systems comprised of a flechette. The flechette may be an independently flying projectile together with the RFID comprising an aerodynamic body or the flechette and RFID assembly may comprise a sub-unit in other carriers such as rubber bullets and the like. In this manner, standard guns of many types may be provided with ammunition that not only provides for the original purpose, but also tags the target with an RFID device for later identification or tracking of the target.

### SUMMARY OF THE INVENTION

**[0005]** The present invention is directed to the method and apparatus of a launched projectile such as a flechette that is constructed for rapid and efficient delivery of an electronically detectable device such as an RFID to a target, and the embedding of that device in the target. The projectiles may be

launched over a considerable range with accuracy and precision from any conventional firearm.

**[0006]** Radio-Frequency Identification Device (RFID) is a technology that uses communication via radio waves to exchange data between a reader and an electronic tag attached to or within an object for the purpose of identification and tracking. Some tags can be read from several meters away and beyond the line of sight of the reader.

**[0007]** There are three primary types of RFID tag: passive RFID tags, which have no power source and require an external electromagnetic field to initiate a signal transmission; active RFID tags, which contain a battery and can transmit signals once an external source has been successfully identified; and battery assisted passive RFID tags, which sometimes require an external source to activate but have significant higher forward link capability providing greater range.

**[0008]** For the present invention the term "flechette" refers to an RFID carrier structure. As a free flight ballistic delivery device the flechette is capable of stable flight, ballistic, guided or propelled, comprising: a body; a means for propelling the structure; a forebody having a center of aerodynamic pressure forward of a center of gravity; and a stabilizing portion providing a center of gravity for the structure that is forward of a center of aerodynamic pressure for the structure including and comprising of and combinations of the shapes of Rectangular Prisms, Triangular Prisms, Hexagonal Prisms, Square Pyramids, Rectangular Pyramids, Triangular Pyramids, Hexagonal Pyramids, Cylinders, Cones, Rods and Spheres. The flechette provides momentum and maintains flight orientation when in free flight. When comprised as a subcomponent in a primary carrier such as a bullet the flechette is not aerodynamic and simply provides the driving momentum to penetrate the personnel or object and drive the RFID below the skin or surface.

**[0009]** In one aspect of the present invention a shotgun launched projectile comprises; a flechette or plurality of flechettes each having a forward cavity, and having an opening at the front of the forward cavity with an inner diameter sized to fit over the container for an RFID device; an RFID device that is housed or constructed to fit securely within the forward cavity of said flechette and is fitted with apparatus for penetration of the intended target, further fitted with apparatus such as a bendable but stiff wire, and further surface coated with adhesive to secure the RFID device within the target; further provided with a separation joint between the RFID and the flechette; further provided with a filament antenna trailing behind the RFID and upon separation of the flechette and the embedded RFID the filament antenna extending through the penetration path and outside the surface for the purpose of enhanced radio frequency communication.

**[0010]** It is a preferred embodiment of the present invention that a payload assembly is mounted on the leading end of the flechette, the payload assembly further configured for safely releasing a payload associated therewith in a controlled manner during delivery in absence of shrapnel formation or fragmentation; said payload comprising an RFID.

**[0011]** In yet another aspect of the present invention, a cartridge is provided that comprises; a non-lethal bullet having an integrated flechette having a forward cavity, and having an opening at the front of the forward cavity with an inner diameter sized to contain or mount an RFID device; an RFID device that is housed or constructed to fit securely within the forward cavity of said flechette and is fitted with apparatus for



penetration of the intended target, and is fitted with apparatus, such as a bendable but stiff filament positioned transverse to the direction of travel, to secure the RFID device within the target; further configured for safely releasing the RFID in a controlled manner during delivery in absence of shrapnel formation or fragmentation.

**[0012]** The flechette is equipped with an expanded or expanding stop plate that will stop the further penetration of the flechette by engaging the stop plate and carrying it against the surface spreading out the force and stopping further penetration. It is a preferred embodiment that the flechette can stop at a predetermined depth and place the RFID at a determined depth of penetration into the penetrated body part. It is a preferred embodiment of the present invention that the RFID be equipped with means to resist being pulled out of the body part along the penetration path, and further that the flechette and the RFID have an integrated separation joint that fails when tension is placed on the flechette, such as by tugging on the exposed, non-penetrated length of the flechette to pull it out, and that the flechette and the RFID separate, the flechette being removed by tugging or pulling and the RFID remaining embedded in the body below the surface. In this manner, a person penetrated with such an equipped flechette would believe that the penetrating object had been removed while the RFID remains buried in the body for later tracking and identification of the person. when equipped with a trailing antenna filament the extends through the penetration opening beyond the surface to the outside, the filament is provided to break when stressed or pulled leaving the tip of the filament antenna at the surface providing enhanced radio communication and preventing the extraction of the RFID by pulling the antenna filament.

**[0013]** Trees may be equipped with RFID devices while still growing by firing the RFID equipped flechettes into the trunks. In this manner a tree may be readily identified when cutting or when delivered to the sawmill for processing. A dye element may be included in the flechette or carrier round to dye mark trees as they are tagged. In a similar manner domestic or wild animals may be tagged and the date and other information recovered from the RFID when the animal passes by a sensor or is delivered for processing.

**[0014]** Magnets, magnetic materials, metal shapes, plastic shapes, ceramic shapes, Electronic Identification Devices and similar items may all take the place of the RFID in these examples and embodiments. It is a preferred embodiment of the present invention that a projectile be fitted to carry an electronically detectable device that will penetrate and embed in a target and render it detectable through the presence of the embedded electronically detectable device. It is a further embodiment of the present invention that the electronically detectable device provide information regarding when targets were fired upon and penetrated with a particular kind and type of electronically detectable device.

**[0015]** It is an embodiment of the present invention that the RFID be programmed or otherwise modified upon firing such that it records the time of the firing and the identification of the firing weapon or delivery system.

**[0016]** The present invention may be delivered by any projective means including paint balls, blowguns, arrows, spears and hand held implements such as riot batons. A riot baton or club may be equipped with a dispenser to propel by momentum or with propulsive assistance a flechette and RFID assembly. In the case of the baton the flechette may be replaced by an integral and retained component of the baton

that holds and inserts the RFID into the target. After the penetration is made and the RFID placed into the target, the baton is re-equipped, either manually or automatically, with another RFID for delivery on the next blow. In this manner the target is marked for later identification with minor wounding from the RFID insertion facilitating dispersion in the case of riot control.

**[0017]** Unless otherwise defined, all terms (including technical and scientific terms) used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. It will be further understood that terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the specification and relevant art, and should not be interpreted in an idealized or overly formal sense unless expressly so defined herein. Well-known functions or constructions may not be described in detail for brevity and/or clarity.

**[0018]** For the present invention, the term "RFID" refers to an identification device and is herein used interchangeably with and including the electronic Radio Frequency Identification Device (RFID), electronically readable device, electronically detectable identifications such as magnets, metals and electrically active plastics. Other identification devices interchangeably used for the term "RFID" in the present invention include those comprised of metal, magnetic material, radioactive material, biologicals, chemicals, dyes, drugs, paper, plastic, ceramic, glass, wood, fiber, filaments or other organic materials.

**[0019]** For the present invention, the term "adhesive" refers to a glue or sticky substance that can adhere, stick or bond items together on a permanent or temporary basis. The term "adhesive" includes drying, pressure sensitive, contact, heated, reactive, single part, multi part, natural and synthetic adhesive materials. Materials that may form an adhesive surface include gels, gelatins, syrups, oils, waxes, liquids, solids, glues, mixtures, cements, compositions, acrylate copolymers, cyanoacrylates, drying adhesives, shrinking adhesives, pressure sensitive adhesives, contact cements, contact adhesives, reactive adhesives, thermally plastic adhesives, thermally setting adhesives, liquids, solvents, synthetics, chemicals, compounds, reactants, one and multipart adhesives, natural and synthetic adhesives, resins, hardeners, emulsions and any material that will adhere to a surface and provide a tacky or sticky surface for the adherence of the RFID.

**[0020]** The term "chemically coated" refers to any coating on the RFID or RFID and flechette assembly including adhesive, chemicals, drugs, local anesthetics, analgesics, pain inducers or relievers, pyrolytic, friction, plastic, fabric, paint or minerals of any kind

**[0021]** For the present invention the terms "person", "personnel", "target" and "object" are used interchangeably to indicate a penetrable surface of any kind such as a human body, body part, animal, vegetable, tree, stalk, fruit, robot, automotive component, aircraft, shoe, boot, tread, tire, track, ice and any other surface of any kind.

**[0022]** For the present invention the interchangeable terms "propelled" and "propellant" and "thrown" includes all chemical propellants, initiators, primary and secondary explosives, expanding materials, pressurized gasses, gas generators, expanding gasses, springs, mechanical linkages, mechanical mechanisms, expanding liquids, compressible solids, tensionable solids, elastomers electrical actuators and their propulsive action as well as the acceleration due to

gravity or the momentum imparted due to starting velocity when dropped from an aircraft or other moving vehicle.

**[0023]** For the present invention the term “stop plate” refers to a means for the distribution of the force of momentum, carried by the motion of the flechette and RFID, across an area of the surface such that the penetration of the flechette will be impeded and penetration slowed and halted limiting the depth to which the RFID will be penetrated and placed in the body. The term “stop plate” may also refer to any means of impeding the penetration of the flechette into the body including flechette surface roughness, grooves, ridges and the use of fast acting adhesives.

**[0024]** For the present invention the terms “tags” and “penetrates” and “embedding” in their respective tenses are interchangeable and refer to the insertion and retention of the RFID below a surface into the body.

**[0025]** For the present invention the term “baton” refers to a striking implement such as a club, cane or stick, intended to strike a person, animal or object. Usually comprising a weapon, the baton includes police and military striking devices such as those used to dispel riots and subdue assailants.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0026]** The invention may be understood by reference to the following description taken in conjunction with the accompanying drawings, in which the leftmost significant digit(s) in the reference numerals denote(s) the first figure in which the respective reference numerals appear, and in which:

**[0027]** FIG. 1A is a cross sectional view of an electronically readable device mounted on a carrying projectile flechette according to the present invention.

**[0028]** FIG. 1B is a cross sectional view of an electronically readable device mounted on a carrying projectile flechette where the flechette is equipped with apparatus for stopping the flechette from completely passing through the skin of the target.

**[0029]** FIG. 1C is a cross sectional view of an electronically readable device mounted on a carrying projectile flechette where the flechette has tail fins adapted to prevent the flechette from completely penetrating the skin of the target.

**[0030]** FIG. 2 is a cross sectional view of multiple flechettes each tipped with an electronically readable device mounted in a standard shotgun shell.

**[0031]** FIG. 3A represents a flechette tipped with an electronically readable device flying towards a target.

**[0032]** FIG. 3B represents a flechette tipped with an electronically readable device penetrating the target to a depth prescribed by the design of the flechette.

**[0033]** FIG. 3C represents a flechette and an electronically readable device where the flechette has been dislodged or pulled out of the target and the electronically readable device remains embedded beneath the skin of the target.

**[0034]** FIG. 4 is a cross sectional view of a flechette tipped with an electronically readable device mounted in a non-lethal rubber or similar bullet mounted in a cartridge shell such as that used in a pistol or rifle.

**[0035]** FIG. 5A represents a flechette tipped with an electronically readable device mounted in a non-lethal rubber or similar bullet that is flying towards a target.

**[0036]** FIG. 5B represents a flechette tipped with an electronically readable device mounted in a non-lethal rubber or similar bullet that is impacting a target. The non-lethal bullet

is stopping at the surface of the target and the contained flechette and electronically readable device are driven into the targets skin.

**[0037]** FIG. 5C represents a flechette tipped with an electronically readable device mounted in a non-lethal rubber or similar bullet that has impacted and penetrated beneath the skin of a target. The non-lethal bullet is stopping at the surface of the target and the contained flechette and electronically readable device are driven under the targets skin. The non-lethal bullet then bounces or otherwise falls away from the targets skin leaving the flechette and electronically readable device embedded in the target.

**[0038]** FIG. 5D represents the electronically readable device embedded in the target and the flechette falling away after the flechette is pulled or otherwise removed from the target. In this manner, the target may remove the flechette and be unaware that the electronically readable device is still embedded under the targets skin. An external RFID antenna in the form of a filament is shown.

**[0039]** FIG. 6 depicts a baton delivered RFID showing the RFID in the baton ready for delivery in FIG. 6A. The baton strikes the target and penetrates the targets surface inserting the RFID in FIG. 6B. FIG. 6C shows the baton pulled away from the target leaving the RFID implanted in the target.

**[0040]** While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof have been shown by way of example in the drawings and are herein described in detail. It should be understood, however, that the description herein of specific embodiments is not intended to limit the invention to the particular forms disclosed, but on the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

#### DETAILED DESCRIPTION OF SPECIFIC EMBODIMENTS

**[0041]** Illustrative embodiments of the invention are described below. In the interest of clarity, not all features of an actual implementation are described in this specification. It will of course be appreciated that in the development of any such actual embodiment, numerous implementation-specific decisions must be made to achieve the developer's specific goals, such as compliance with system-related and business-related constraints, which will vary from one implementation to another. Moreover, it will be appreciated that such a development effort might be complex and time-consuming but would nevertheless be a routine undertaking for those of ordinary skill in the art having the benefit of this disclosure.

**[0042]** FIG. 1A is a cross sectional view of an electronically readable device 1 mounted on a carrying projectile flechette 2. The transfer method of electronically readable device 1 to a target by the action of flechette 2 is a preferred embodiment of the present invention. As the flechette 2 is fired from a gun, dropped from an airplane or otherwise thrown, it carries electronically readable device 1 to a target and embeds electronically readable device 1 in the target. Electronically readable device 1 may be chemically coated as required. By this method the target has been made identifiable at a later time and information about the target such as where and when the target was tagged may be recorded in the electronically readable device 1 and can be available at a later time. The penetrator tip 3 of the electronically readable device 1 is pointed or blunted, hardened or softened as desired for best penetration of the intended target. If the target is the body of a car the

penetrator tip 3 will be hardened and sharpened for penetration of sheet steel or fiberglass. If the target is a riot participant then the penetrator tip 3 will be shaped and hardened for the penetration of clothing, human skin and flesh. If the target is a wild animal then the penetrator tip 3 will be chosen for the penetration of fur, hide and animal tissue. The electronically readable device 1 is equipped to resist falling out or being extracted from the target by retaining device 4. Retaining device 4 is a mechanical arrangement of flexible plastic or metal wires or expanders or filaments that lay against the sides of electronically readable device 1 during flight and penetration of the target, but are springy and are forced outward forming a resistance to the electronically readable device 1 backing out of the target. In this manner the electronically readable device 1 is secured within the target and is not readily removable. The electronically readable device may be further coated with an adhesive to resist movement or extraction. The flechette 2 has a forward cavity 5 in which electronically readable device 1 is fitted. Forward cavity 5 holds the electronically readable device 1 securely for the firing and flight to the target of flechette 2, and provides for the release of the electronically readable device 1 by separation from the flechette 2 after the target is impacted and penetrated. Forward cavity 5 may also provide for the containment of chemicals such as water activated materials to facilitate the immediate release of electronically readable device 1 upon penetration of an animal or person. Flechette 2 is equipped with aerodynamic stabilizer 6 represented here as fins. Aerodynamic stabilizer 6 may be comprised of fins, flutes, tapers, stamps, bumps, nodes, streamers, parachutes or other aerodynamic configuration suitable to provide for the required stability of flechette 2 in flight.

[0043] FIG. 1B is a cross sectional view of an electronically readable device 1 mounted on a carrying projectile flechette 2 where the flechette 2 is equipped with apparatus expanding stop device 7 comprised of a reverse mechanical arrangement of flexible plastic or metal wires or expanders that lay against the sides of flechette 2 during flight, but are springy and are forced outward forming a resistance to the flechette 2 penetrating the target upon impact. Stop plate 8 is a ring device shaped such as a washer that provides a stopping surface and distribution of the force of the impacting flechette 2 and electronically readable device 1, stopping the flechette 2 from completely penetrating beneath the skin of the target.

[0044] FIG. 1C is a cross sectional view of an electronically readable device 1 mounted on a carrying projectile flechette 2 where the flechette has reversed tail fins 9 adapted to spread the force of impact of the penetrating flechette 2 and prevent the flechette 2 from completely penetrating the skin of the target.

[0045] FIG. 2 is a cross section showing flechettes 2 and electronically readable devices 1 duplicated and formed as a plurality of projectiles forming projectile array 10. Projectile array 10 may be propelled or dispensed by any desired means. For example a gun shell such as a shotgun shell 11 may be used to propel one or more of the projectile array 10. In the illustrated embodiment, a propelling charge 13 is disposed behind the projectile array 10 and initiated by explosive primer 12 within the shotgun shell casing 11. Upon detonation of the explosive charge 13, the wadding 14 contains and cushions the expanding gas of the propelling charge 13, propelling the projectile array 10 through the barrel of a gun and toward a target. The projectile array 10, however, may be

propelled by any chosen means, such as by compressed gas or air, a rocket, a biasing member (e.g., a spring), or by other such methods.

[0046] FIG. 3A represents a flechette 2 tipped with an electronically readable device 1 flying towards a target 15.

[0047] FIG. 3B represents a flechette 2 tipped with an electronically readable device 1 penetrating the target 15 to a depth prescribed by the design of the flechette 1.

[0048] FIG. 3C represents a flechette 2 and an electronically readable device 1 where the flechette 2 has been dislodged or pulled out of the target 15 and the electronically readable device 1 remains embedded beneath the skin of the target 15. Retaining device 4 has opened and retains electronically readable device 1 within target 15. If target 15 is a soft tissue such as a human or an animal, the wound 16 will close with the removal of flechette 15, and the penetrating article will appear to have been removed with electronically readable device 1 still implanted beneath the skin of the target 15.

[0049] FIG. 4 is a cross sectional view of a flechette 2 tipped with an electronically readable device 1 mounted in a non-lethal rubber or similar bullet 17 mounted in a cartridge 18 such as that used in a pistol or rifle. The flechette 2 and electronically readable device 1 may form part of a bullet 17 attached to cartridge 18. In such an embodiment, the cartridge 18 comprises a casing 19 containing a propellant 20 and a primer 21 suitable for initiating propellant 20. A firing mechanism (not shown) of a gun activates the primer 21, which, in turn, detonates the explosive propellant 20. The propulsive energy created as a result of the detonation of the explosive propellant 20 propels the bullet 17 along with the integrated flechette 2 and electronically readable device 1 through a barrel of a gun and toward a target 15.

[0050] FIG. 5A represents a flechette 2 tipped with an electronically readable device 1 mounted in a non-lethal rubber or similar bullet 17 that is flying towards a target 15.

[0051] FIG. 5B represents a flechette 2 tipped with an electronically readable device 1 mounted in a non-lethal rubber or similar bullet 17 that is impacting a target 15. The non-lethal bullet 17 is stopping at the surface of the target 15 and the contained flechette 2 and electronically readable device 1 are driven through the surface and into the target 15.

[0052] FIG. 5C represents a flechette 2 tipped with an electronically readable device 1 mounted in a non-lethal rubber or similar bullet 17 that has impacted and penetrated beneath the skin of a target 15. The non-lethal bullet 17 is stopping at the surface of the target 15 and the contained flechette 2 and electronically readable device 1 are driven under the target 15 skin. The non-lethal bullet 17 then bounces or otherwise falls away from the target 15 skin leaving the flechette 2 and electronically readable device 1 embedded in the target 15. The flechette 2 may be selected to stop at the target 15 skin surface or penetrate completely into target 15. The bullet 17 is shown deformed by the impact as deformed bullet 22 falling away from the target 15.

[0053] FIG. 5D represents the electronically readable device 1 embedded in the target 15 and the flechette 2 falling away after the flechette 2 is pulled out of wound 16 or otherwise removed from the target 15. The RFID external antenna 23 is shown extending outside the surface of target 15 to better facilitate radio communication. Retaining device 4 has opened and retains electronically readable device 1 within target 15. If target 15 is a soft tissue such as a human or an animal, the wound 16 will close with the removal of flechette 15, and the penetrating article will appear to have been

removed with electronically readable device 1 still implanted beneath the skin of the target 15. In this manner, the target 15 may remove the flechette 2 and be unaware that the electronically readable device 1 is still embedded under the targets 15 skin.

[0054] FIG. 6A represents a baton 24 equipped with a holder 25 tipped with an electronically readable device 1 mounted so as to make an impacting contact with target 15.

[0055] FIG. 6B represents a baton 24 equipped with a holder 25 tipped with an electronically readable device 1 mounted making an impacting contact with target 15 and driving electronically readable device 1 into the target 15. The baton 24 is stopping at the surface of the target 15 and the electronically readable device 1 is driven through the surface and into the target 15 to the depth set by the length of holder 25.

[0056] FIG. 6C represents the electronically readable device 1 embedded in the target 15 and the baton 24 equipped with a holder 2 being pulled away from the target 15. Retaining device 4 has opened and retains electronically readable device 1 within target 15. If target 15 is a soft tissue such as a human or an animal, the wound 16 will close with the removal of baton 24 and holder 2. In this manner, the target 15 may be unaware that the electronically readable device 1 has been embedded under the targets 15 skin.

[0057] The particular embodiments disclosed above are illustrative only, as the invention may be modified and practiced in different but equivalent manners apparent to those skilled in the art having the benefit of the teachings herein. Furthermore, no limitations are intended to the details of construction or design herein shown, other than as described in the claims below. It is therefore evident that the particular embodiments disclosed above may be altered or modified and all such variations are considered within the scope and spirit of the invention. Accordingly, the protection sought herein is as set forth in the included claims.

We claim:

1. The method for the delivery and implantation of an RFID comprising an RFID, a flechette, a fitted cavity on the flechette containing the RFID, the flechette being propelled into a target; the RFID penetrating the target.

2. The method as in claim 1 wherein the RFID is further comprised with means for penetrating the target; means for separating from the carrier flechette once embedded in the target; and means to retain itself against extraction once in the target.

3. The method as in claim 1 wherein the RFID is further comprised with means for an external antenna for radio communication, said antenna deploying through the penetration beyond the surface of the object, said antenna being breakable at force levels below that necessary to extract the embedded RFID.

4. The method as in claim 1 wherein the flechette is further comprised with means for penetrating the target; means for separating from the RFID once embedded in the target; and stop plate means to retain itself against further penetration once the stop plate means impacts the surface of the target.

5. The method of claim 1 wherein the flechette with mounted RFID is propelled as a member within a plurality of flechettes comprising; a plurality of flechettes each having a forward cavity, and having an opening at the front of the forward cavity with an inner diameter sized to fit an RFID device.

6. The method of claim 1 wherein the flechette with mounted RFID is propelled by means of a shotshell; air cannon means; aerial deployment means; artillery means, cannon means; and expanding gas means.

7. The method of claim 1 wherein the flechette with mounted RFID is propelled as a single member, aerodynamic guidance and stability being provided by the shape and weighting of the flechette with mounted RFID comprising: a body; a means for propelling the structure; a forebody having a center of aerodynamic pressure forward of a center of gravity; and a stabilizing portion providing a center of gravity for the structure that is forward of a center of aerodynamic pressure for the structure including and comprising of and combinations of the shapes of Rectangular Prisms, Triangular Prisms, Hexagonal Prisms, Square Pyramids, Rectangular Pyramids, Triangular Pyramids, Hexagonal Pyramids, Cylinders, Cones, Rods and Spheres.

8. The method of claim 7 wherein the propulsive element is a cartridge.

9. The method of claim 8 further comprising a non-lethal bullet having an integrated flechette having a forward cavity, and having an opening at the front of the forward cavity with an inner diameter sized to contain or mount an RFID device; an RFID device that is housed or constructed to fit securely within the forward cavity of said flechette and is fitted with apparatus for penetration of the intended target, and is fitted with apparatus, such as a bendable but stiff filament positioned transverse to the direction of travel, to secure the RFID device within the target; further configured for safely releasing the RFID in a controlled manner during delivery in absence of shrapnel formation or fragmentation.

10. The method of claim 1 wherein the flechette and RFID are further comprised within a carrier bullet; the carrier bullet providing aerodynamic guidance and stability; the flechette providing momentum to drive the RFID into the target upon impact.

11. The method of claim 1 wherein the flechette is fixed as a carrier element for the RFID onto a baton; the baton impacts onto the target; the RFID is penetrated into the target to the depth defined by the length and penetration of the carrier element; the baton impacting the target limits the depth of penetration of the RFID; the baton is withdrawn carrying the carrier element away and leaving the RFID within the target.

12. The method of claim 10 wherein the baton comprises means for the loading of another RFID onto the carrier element; said means being automatic and loading the next RFID from a supply within the baton.

13. The method of claim 1 further comprising a marking dye element.

14. The method of claim 1 wherein the RFID element is modified upon firing such that it records the time of the firing and the identification of the delivery system.

15. The method of claim 1 further comprising the propulsive element to be a gun.

16. The method of claim 1 further comprising the propulsive element to be compressed gas.

17. The method of claim 1 further comprising the propulsive element to be a bow.

18. The method of claim 1 further comprising the propulsive element to be an aircraft.

19. The method of claim 1 further comprising the propulsive element to be compressed gas.

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