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(54) **STINGER BULLET**

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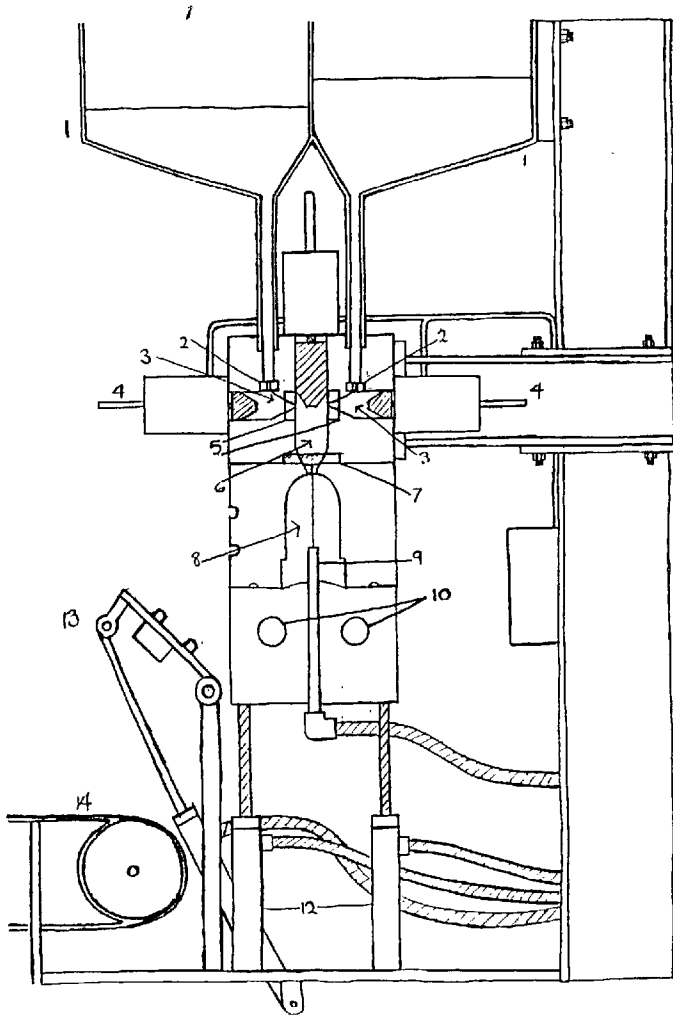
(57) **ABSTRACT**

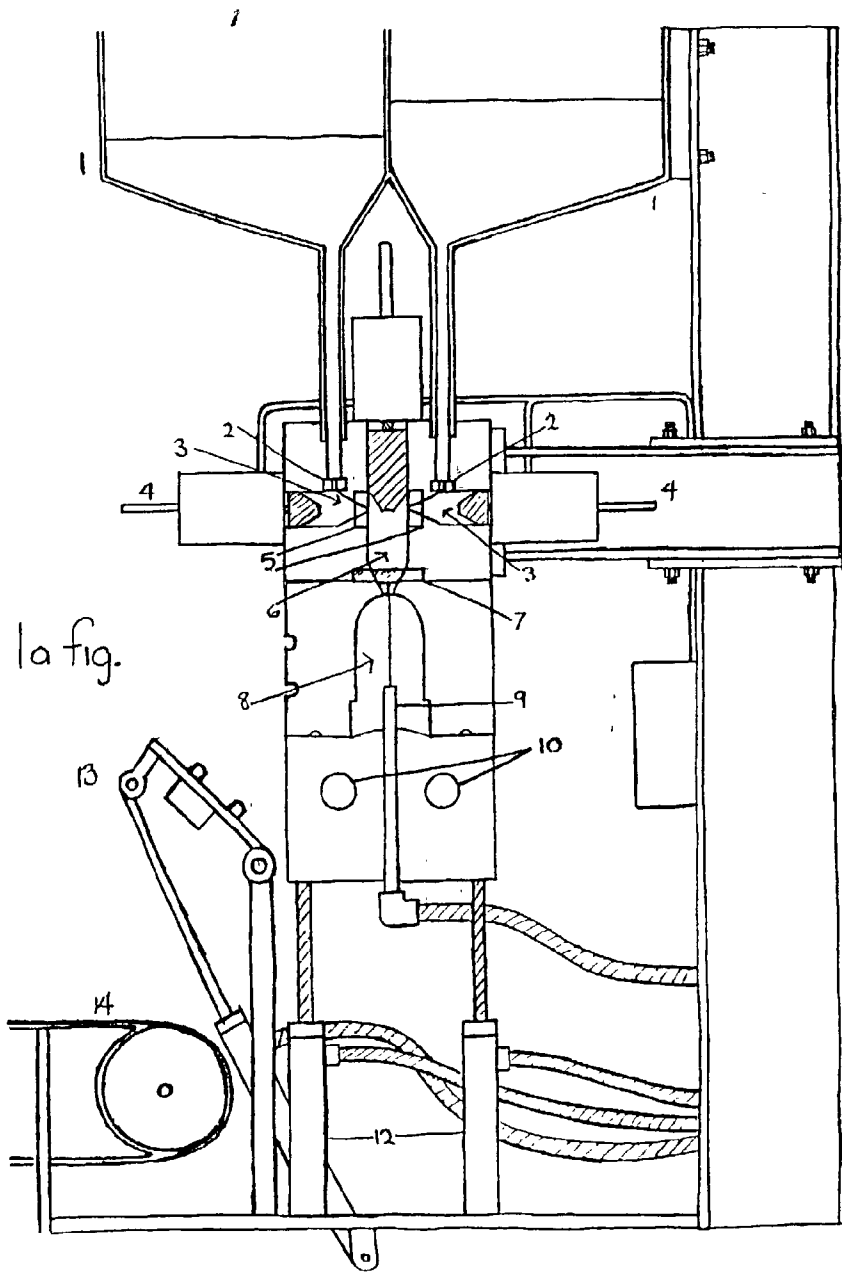
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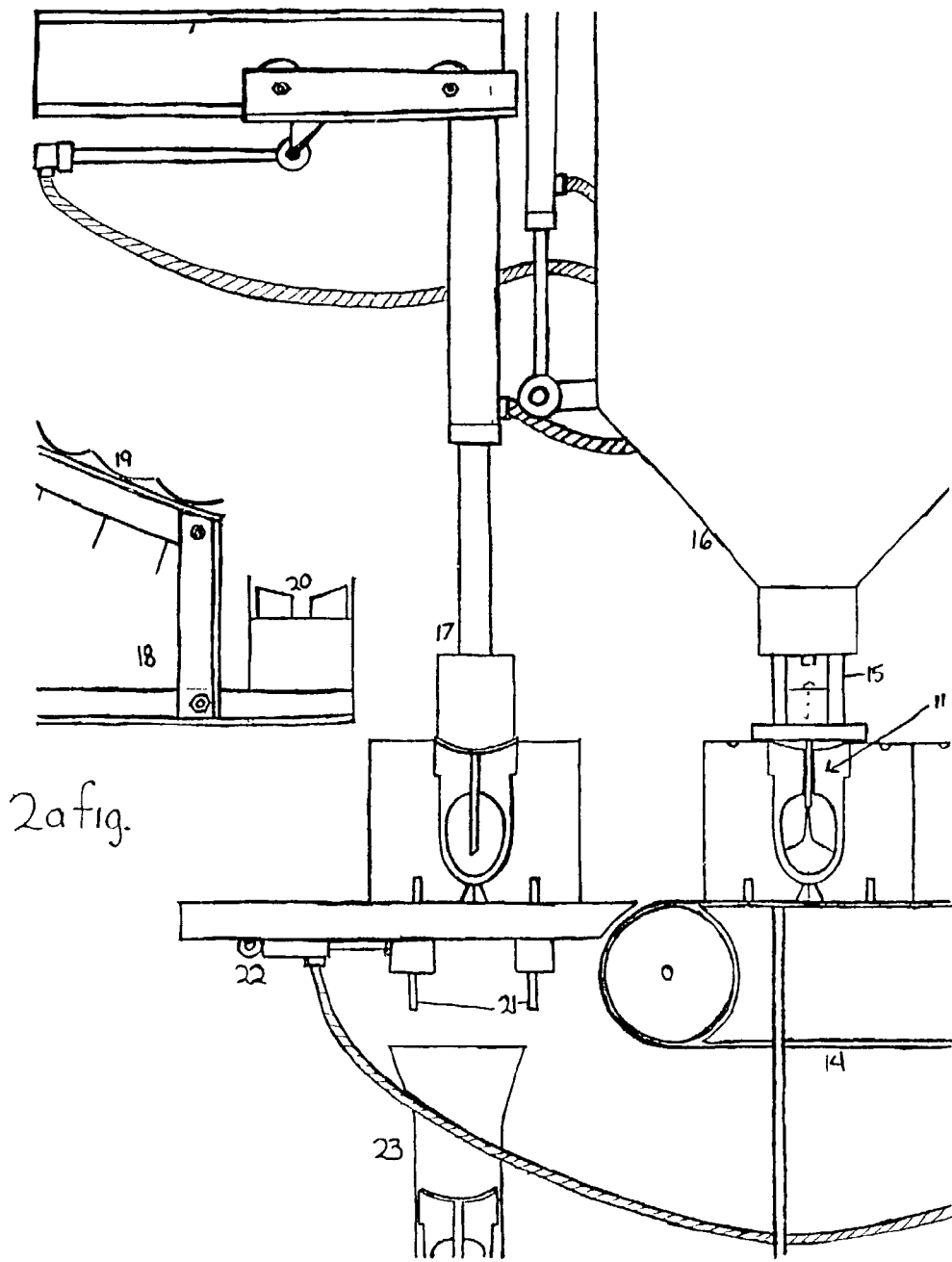
Related U.S. Application Data

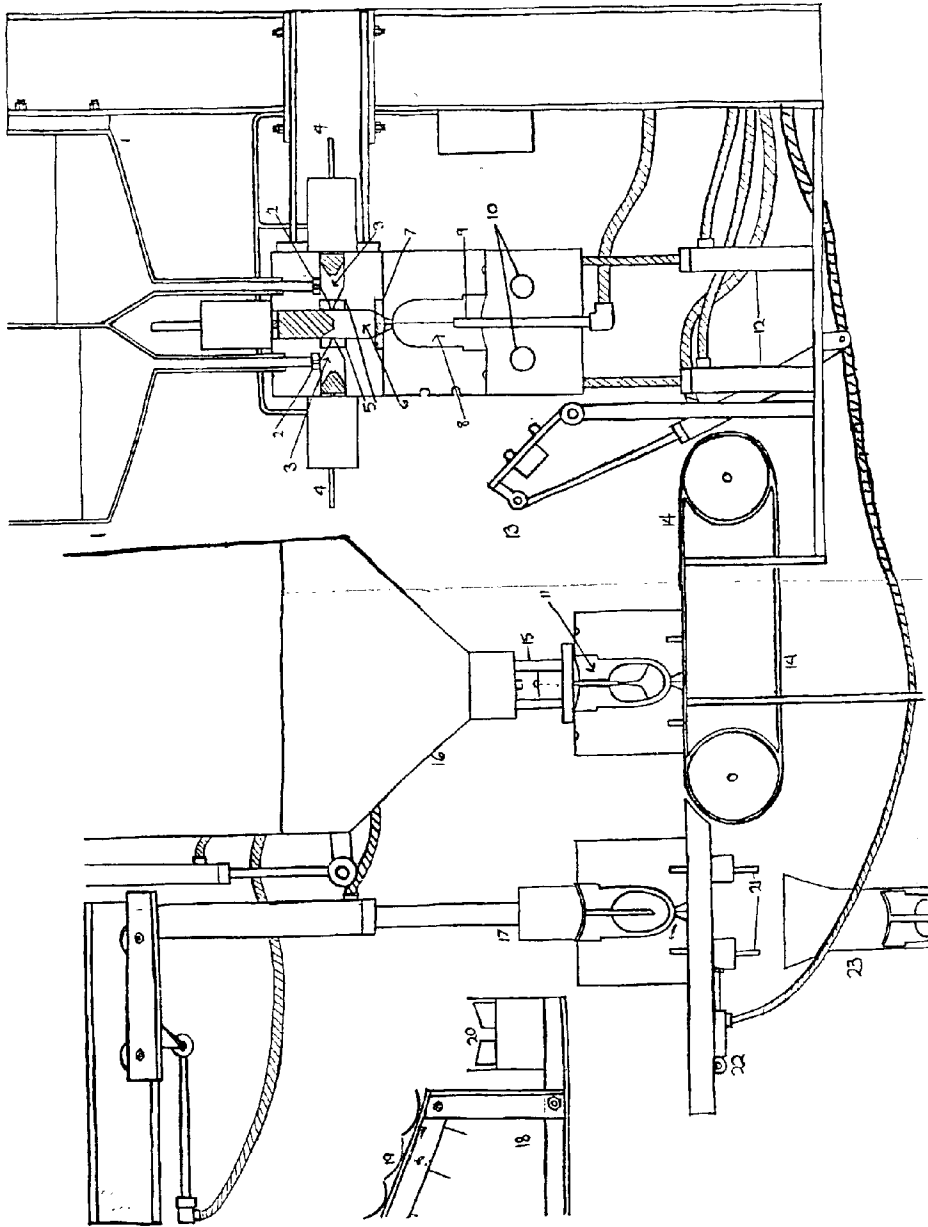
(60) Provisional application No. 60/299,571, filed on Jun. 21, 2001.

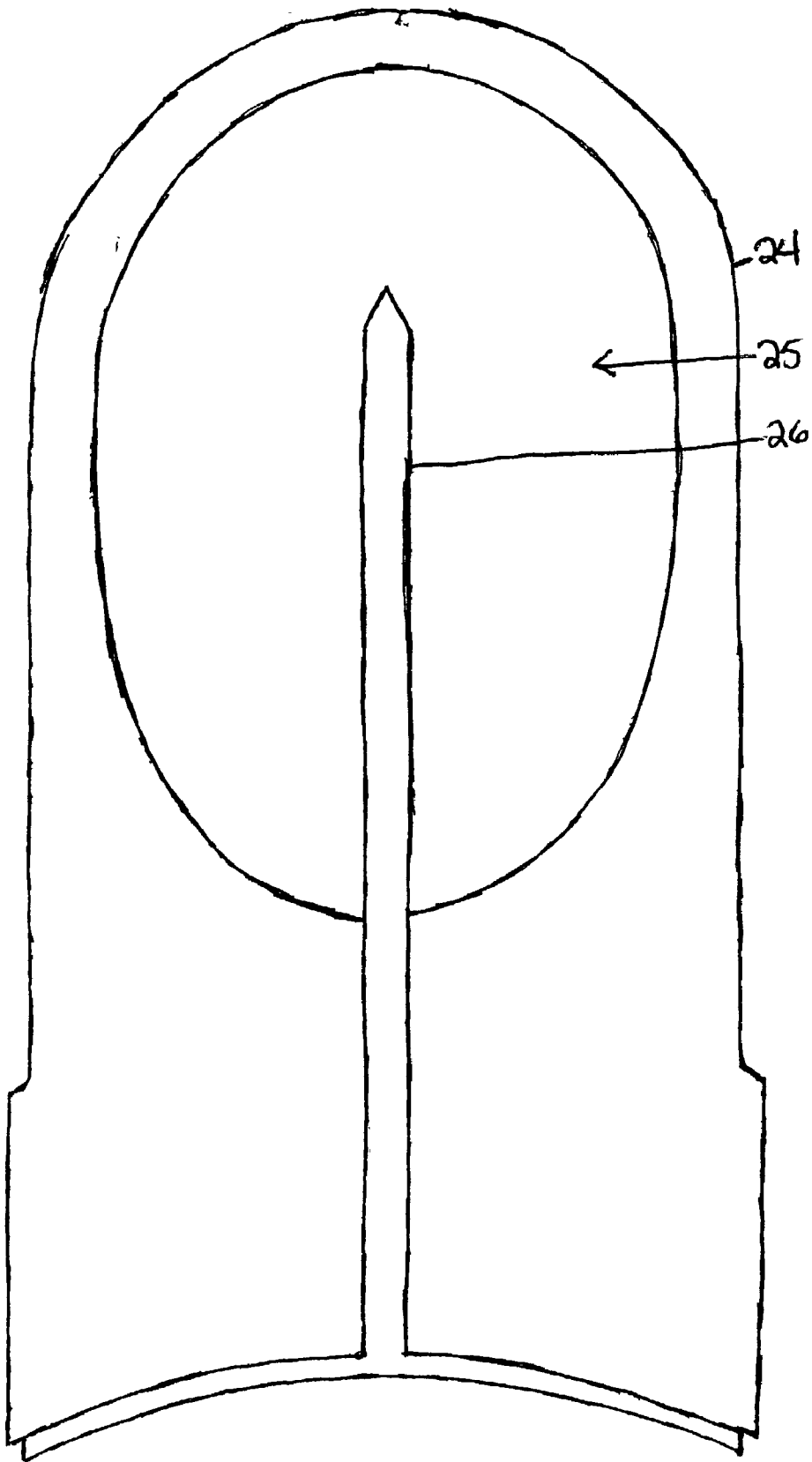
The Stinger Bullet is a synthetic rubber bullet that uses a non-mechanical injection system to inject its target with a liquid tranquilizer or irritant. The recoil action of the hollow rubber shell reduces the force of impact, making the Stinger Bullet a safer alternative to currently existing rubber and plastic bullets.











STINGER BULLET

[0001] This application claims benefit of provisional application No. 60/299,571, filed Jun. 21, 2001.

CROSS-REFERENCE TO RELATED APPLICATIONS

[0002] Not Applicable

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0003] Not Applicable

REFERENCE TO SEQUENCE LISTING, A TABLE, OR A COMPUTER PROGRAM LISTING COMPACT DISC APPENDIX

[0004] Not Applicable

BACKGROUND OF THE INVENTION

[0005] The Stinger Bullet is a non-lethal rubber bullet with many applications. The Stinger Bullet is an effective and safe alternative to current riot/crowd control ammunition. It is also a safe and convenient alternative for law enforcement officers in close situations where lethal force would previously have been employed. The Stinger Bullet also provides a non-lethal, effective alternative for use by citizens with hand guns, to defend their homes and families. The use of this bullet instead of conventional rounds would reduce the number of fatal accidents involving children with guns. The Stinger Bullet is a form of non-lethal ammunition, a new, safer type of rubber bullet.

[0006] Other "non-lethal" types of ammunition include plastic bullets, aka baton rounds, which are cylinder shaped projectiles, four inches long and one and a half inches in diameters rubber pellet shotgun shells, which are solid rubber, and rubber bullets, which consist of a layer of rubber surrounding a lead core.

[0007] Rubber bullets are the most widely used by law enforcement, in crowd control situations. A drawback of rubber bullets is that they have been known to cause fatal or permanently disabling injuries, especially when fired at close range and when fired high. Many people are permanently blinded by rubber bullets.

[0008] According to the BBC News website, at Health, Thursday, May 23, 2002, "Rubber bullets are unsafe and should never be used by authorities to control riots, doctors have warned . . . Researchers in Israel said the ammunition which is supposed to be safer than live rounds and inflict only superficial damage, causes "significant" injury and death and should be banned" Furthermore, this article states, ". . . firing the (rubber) bullets on civilians made it "impossible to avoid severe injuries to vulnerable body regions such as the head, neck and upper torso, leading to substantial mortality, morbidity and disability.""

[0009] Rubber pellet shotgun shells are less dangerous than rubber bullets, though not completely safe. The major limitation of these pellets is inconvenience. Police officers generally leave their shotguns in their vehicles, as they're bulky to carry. Non-lethal bullets are needed that can conveniently be shot from and reloaded in handguns.

[0010] Another supposedly non-lethal type of ammunition is plastic bullets, also known as baton rounds. These are made of solid PVC, weigh 4.75 ounces, and are fired

[0011] at velocities of up to 170 miles per hour from grenade-launcher type weapons. Research carried out by the USA based Law Enforcement Assistance Administration proved that they could not be used at an effective range without causing injury in the "severe damage region". Plastic bullets are widely used in the north of Ireland, and have killed 17 Irish people, half of those under sixteen years of age, and have maimed and injured thousands more since the 1970's. The European Parliament has twice called for plastic bullets to be banned. International human rights organizations such as Amnesty International and Human Rights Watch have also called for their banning. These bullets are used as a method of crowd control. Manufacturers guidelines call for baton rounds to be fired at the ground when used as crowd control, so that they will bounce up and hit the lower body. These guidelines are often ignored, and they are shot directly at people. The previously mentioned BBC article had this to say about plastic bullets, "the study also highlighted previous research which suggested that even plastic bullets may not be safe and may cause more severe head injuries."

[0012] This same BBC article states, "The authors (of the study) called for new types of bullets to be developed. They said: "New types of ammunition with higher accuracy and less force of impact than those currently in use are urgently needed." "The Stinger Bullet is this ammunition."

BRIEF SUMMARY

[0013] The Stinger Bullet is a synthetic rubber bullet which uses a fluid injection system to immobilize its target. A rubber shell encloses a fluid reservoir, filled with an irritant or tranquilizer. It is fitted with a metal piece, consisting of an injector, a pin-shaped protrubence, and a rear blast shield to protect the bullet from the concussion of firing. The rubber bullet compresses on impact, causing the injector to pierce the shell, and the skin of the target, injecting the target with irritant or tranquilizer sufficient to immobilize. The compression of the Stinger Bullet upon impact redirects forward momentum laterally, causing the bullet to rebound, eliminating the danger of penetration of the skin by the entire bullet. This holds true even at close range, making these bullets ideal for use in situations where previously existing "non-lethal" rounds are impractical and exceedingly harmful or deadly.

[0014] The design of The Stinger Bullet overcomes the limitations of previous "non-lethal" ammunitions. The Stinger Bullet is less likely to seriously injure or maim someone, even when aimed high or at close range. The Stinger Bullet will be manufactured for use in handguns as well as rifles and other firearms. The Stinger Bullet is presented as a genuinely non-lethal choice for ammunition, for use in subduing criminals and dispersing riotous crowds. It is also presented as an additional safeguard against fatal firearm accidents involving children. This bullet can be used by homeowners for self-protection, without endangering the lives of their curious children.

BRIEF DESCRIPTION OF THE SEVERAL
VIEWS OF THE DRAWING

[0015] FIG. 1a Cross-Section of Rubber Injection System

- [0016] 1 fluid reservoirs
- [0017] 2. gate valves
- [0018] 3 fluid compartments
- [0019] 4 plungers
- [0020] 5 gate valves
- [0021] 6 central mixing chamber
- [0022] 7 gate valve
- [0023] 8 bullet mold
- [0024] 9 air tube
- [0025] 10 refrigeration lines
- [0026] 12 hydraulic legs
- [0027] 13 magnetic hinged arm
- [0028] 14 conveyor belt

[0029] FIG. 2a Cross section of Fluid Injection System and Blast Shield/Injector to bullet Assembly

- [0030] 11 bullet shell
- [0031] 14 conveyor belt
- [0032] 15 fluid dispenser
- [0033] 16 fluid reservoir
- [0034] 17 Hydraulic arm on rollers with magnetic tip
- [0035] 18 rack of blast shield/injectors
- [0036] 19 blast shield/injectors
- [0037] 20 adhesive well
- [0038] 21 hydraulic pins
- [0039] 22 hydraulic arm
- [0040] 23 storage container

[0041] FIG. 3a Cross Section of Manufacturing System

- [0042] See numbers for FIGS. 1a and 2a

[0043] FIG. 4a Cross Section of a Stinger Bullet

- [0044] 24 rubber shell
- [0045] 25 fluid reservoir
- [0046] 26 metal backing, blastshield/injector

DETAILED DESCRIPTION OF THE
INVENTION

[0047] The Stinger bullet is a synthetic rubber bullet which uses a fluid injection system to immobilize its target. It consists of a synthetic rubber shell, filled with fluid (a tranquilizer or an irritant), and fitted with a metal backing (blast shield). Protruding from the metal backing into the fluid-filled cavity of the bullet is a metal pin-shaped injector. The backing and injector are one piece. This acts as a non-mechanical injection system.

[0048] When fired, The Stinger Bullet compresses on impact, causing the injector to puncture the rubber membrane and the skin of the target. The force of the compression causes fluid to be injected into the target, through the hole created by the injector. The recoil action of the rubber prevents the bullet itself from penetrating the skin. This results in a bullet that is considerably safer than previous rubber and plastic bullets. The force of impact is also reduced compared to previous bullets, due to the recoil action of the hollow rubber shell of The Stinger Bullet. The impact of other rubber and plastic bullets can cause severe jury.

[0049] The fact that The Stinger Bullet can be filled with a variety of liquid tranquilizers or irritants makes for a bullet with many unique strengths and possibilities. Tranquilizers may be used in situations where law enforcement are intent on capturing and subduing a criminal, or for use in self-defense by citizens. Irritants would be used in crowd control situations when deterrment is the objective. An injection would cause enough discomfort to disperse a crowd, without doing significant physical damage.

[0050] The Stinger Bullet is made by an injection molding process called inject and blow. The high temperature rubber is made by mixing a two part solution just prior to molding. Two fluid reservoirs hold the-rubber solution. A gate valve controls the flow of solution into two small compartments, into each of which, a plunger draws a measured amount of solution. These gate valves then close and a second set opens to a central chamber. Plungers then spray the two parts together into this central mixing chamber. Next, another gate valve opens, to the bullet mold, and the center plunger pushes the mixed, measured rubber solution into the bullet mold. An air tube then blows a bubble of air into the center of the solution, forming it to the bullet mold. The mold is cooled by refrigeration, and the rubber shell is formed.

[0051] Next, the hydraulic legs lower, and the mold is disengaged from-the rubber injector. A magnetic, hinged arm attaches to the mold and flips it over onto a conveyor, which moves it to beneath the fluid injector. The fluid reservoir then lowers, activating the fluid dispenser. A measured amount of fluid is injected into the bullet, and the bullet mold is conveyed down the line to have the backing attached.

[0052] A hydraulic arm on a roller, with a magnetic tip, lifts an injector/blast shield from a rack of injector/blast shields, and dips it in the adhesive well. This injector is then inserted into the bullet and adhered in place. Hydraulic pins lock into the form and the two sides of the form are pulled apart by a hydraulic arm. The magnetic tip releases the bullet, dropping it into a storage container. Molds are designed to make one hundred or more bullets at a time.

1 what I claim as my invention is a rubber bullet, non-mechanical injection system, comprised of:

- a. A hollow rubber shell enclosing a
- b. fluid reservoir, backed by
- c. a metal backing, which acts as a blast shield and is fitted with a metal pin-shaped injector

2 A system according to claim 1 where the rubber bullet is made of a high temperature synthetic.

3 A system according to claim 1 where non-mechanical means that injection is not caused by an independent moving part.

4 A system according to claim 1 where rubber bullet acts as a reservoir for fluid to be injected.

5 A system according to claim 1 where injection happens by the internal injector piercing the rubber, creating a channel for the fluid to escape.

6 What I claim as my invention is that the injector pierces the rubber by compression of the rubber bullet

7 A system according to claim 6 where compression of the rubber redirects momentum laterally

8 A system according to claim 6 where the recoil of the rubber counteracts the force of the forward momentum

9 A system according to claim 6 where by releasing the energy of forward momentum through the fluid injected, stops the bullet from penetrating

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