

[54] **RESTRAINED ACCESS PROTECTION APPARATUS**

[76] Inventor: **Gerald Frederick Riseley, Jr.**, 8149
E. 31st Ct., Tulsa, Okla. 74145

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109/38, 42

[56] **References Cited**

UNITED STATES PATENTS

2,194,415 3/1940 Bennett..... 109/6 X
2,072,941 3/1937 Burch et al..... 109/29 X

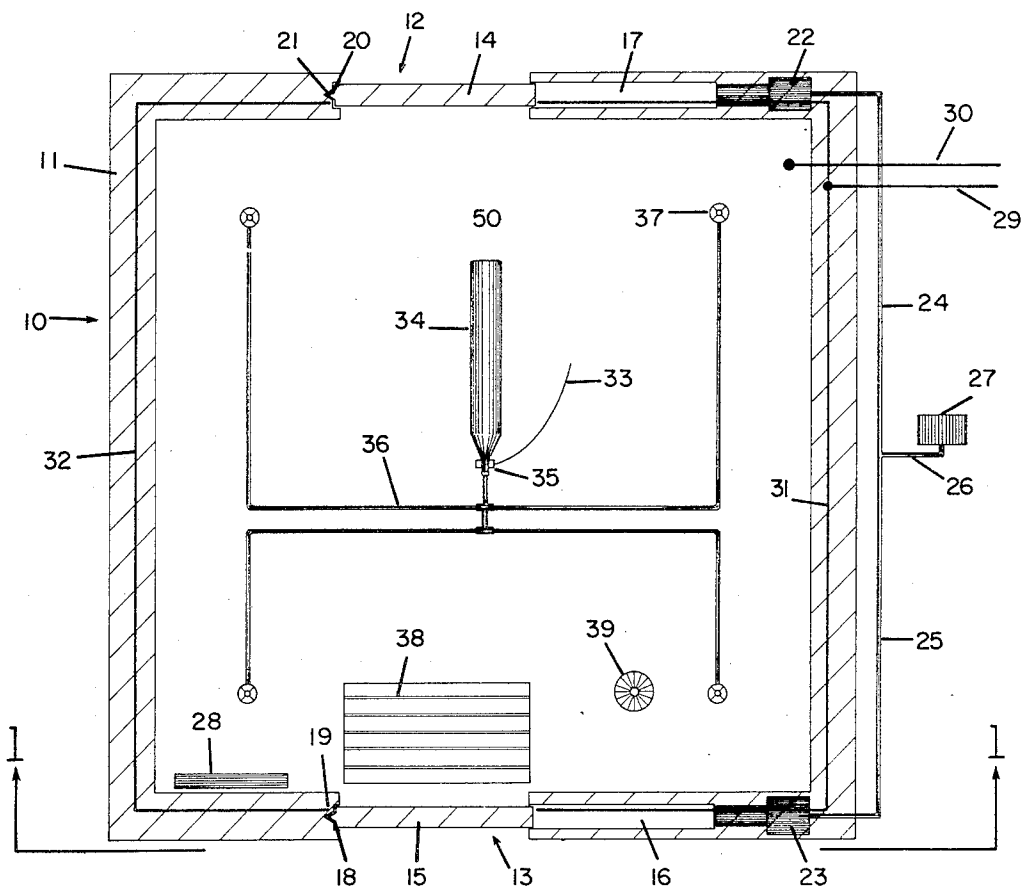
1,367,340 2/1921 Wolfe et al. 109/35 X
1,931,580 10/1933 Johnson 109/38 X
1,214,358 1/1917 Nunn 109/35 X
1,536,804 5/1925 Mason 109/42
2,130,301 9/1938 Goldsmith et al. 109/6
2,217,852 10/1940 Anderson..... 109/29 X

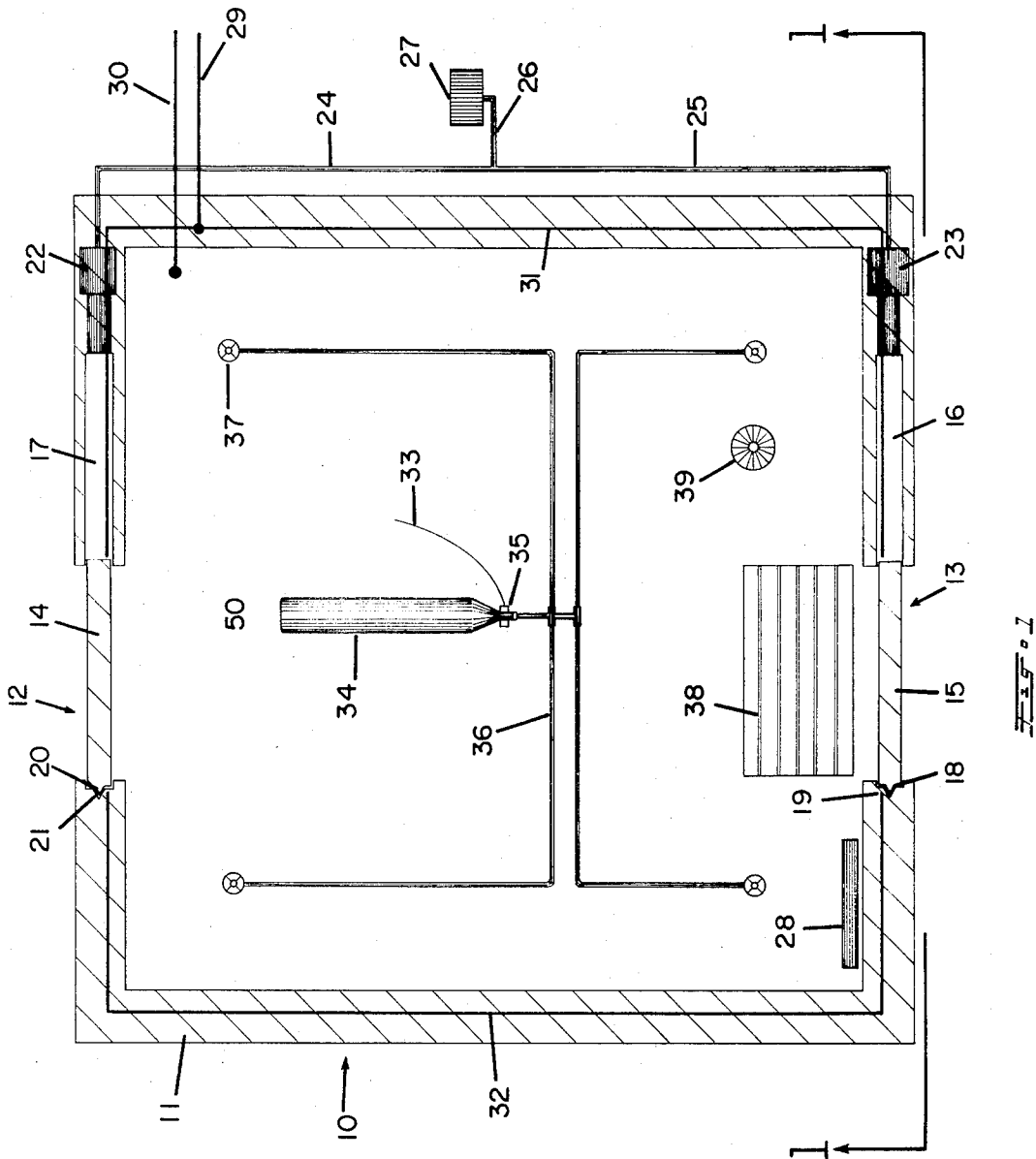
Primary Examiner—Dennis L. Taylor
Attorney—Charles S. Holmes

[57] **ABSTRACT**

An apparatus wherein an intruder may be restrained within a protected area and held captive therein until the proper authorities are summoned in order to deactivate the apparatus, and apprehend the thief, thereby preventing loss of property as well as loss or endangerment of human life.

9 Claims, 4 Drawing Figures





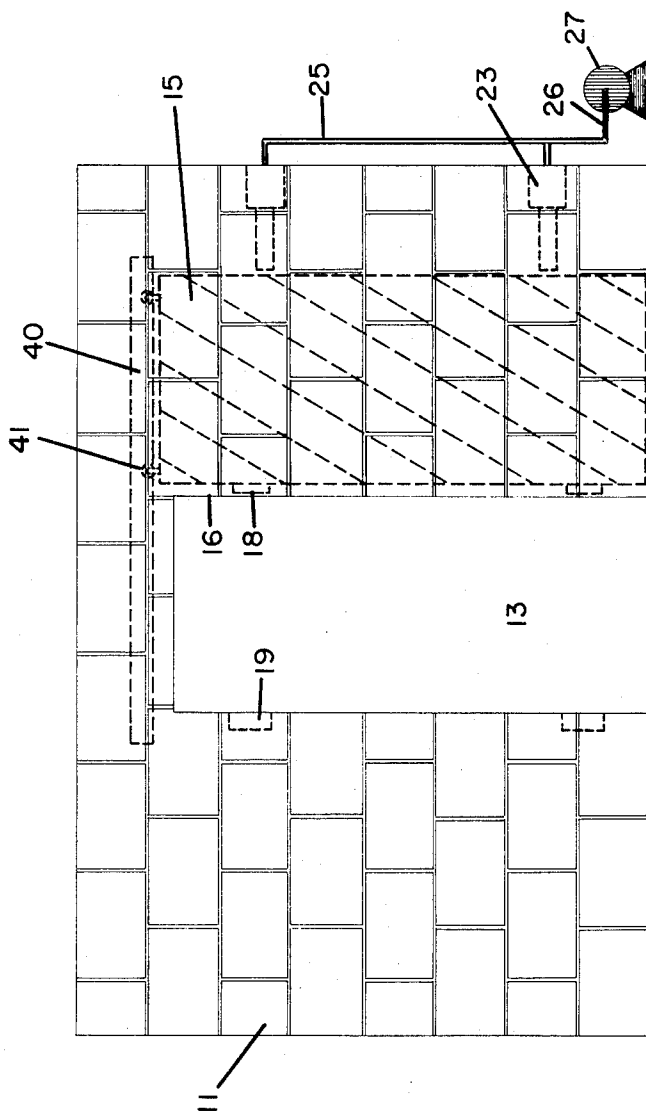
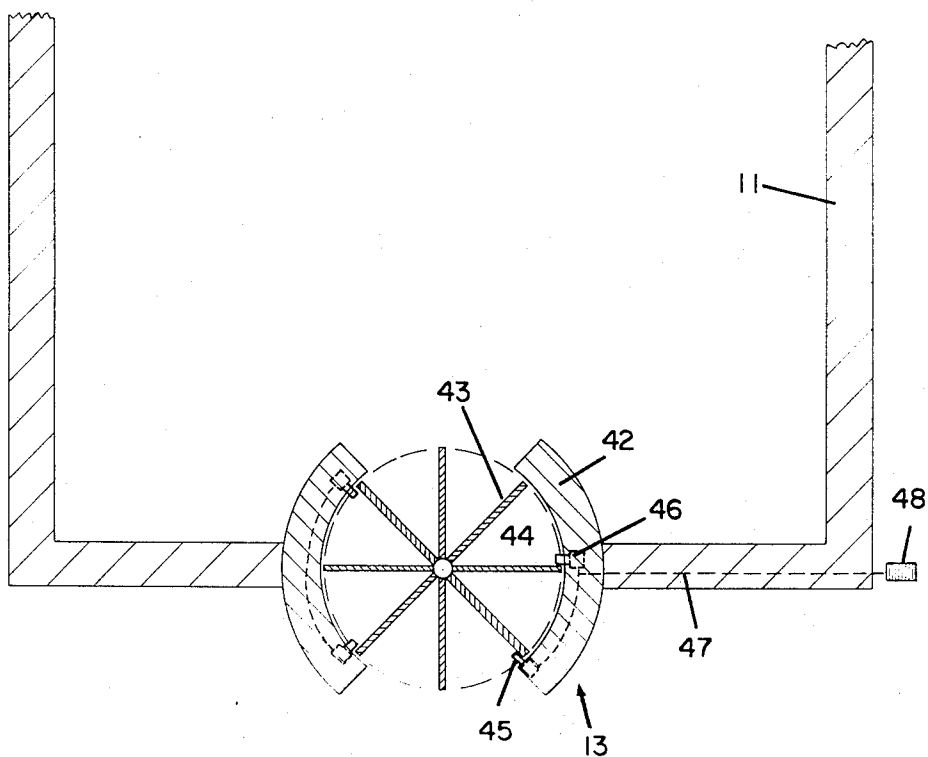
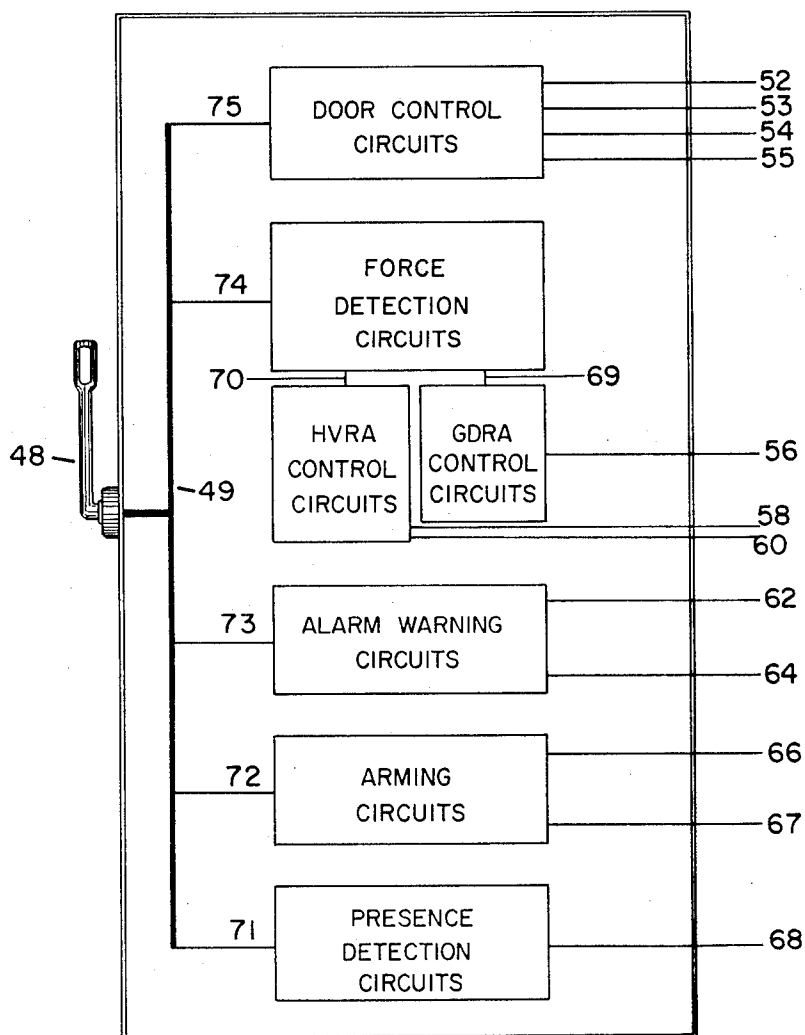


FIG. 2





RESTRAINED ACCESS PROTECTION APPARATUS**BACKGROUND OF THE INVENTION**

The present invention relates to apparatus wherein a thief may be restrained within a protected area. More particularly, the apparatus of the present invention is a system wherein a positive restraining device is provided to hold a selected person or persons captive at the scene of a crime until he may be apprehended by the appropriate law enforcement officials.

The ever increasing onslaught of criminal activity has shown particular increase within those areas normally thought to be protected, for example, banks, stores, and other financial and commercial institutions, wherein burglar alarm systems, barred windows, heavily bolted and locked doors, and security patrols are utilized in order to protect property and human life. All conventional criminal deterrent techniques and apparatus have a disadvantage in that they require either human intervention, in order to apprehend the criminal offender after the alarm system is activated, or require the activity of one or more individuals in order to inhibit the criminal activities. Often times an intruder will activate a burglar alarm and enter unauthorized areas through building exits or windows and be allowed ample time to secure property or to obviate confinement safety devices containing valuables therein, and be afforded adequate time to exit from the building before the proper authorities are summoned and gain access thereto the suspected burglary. These devices are inadequate as they completely eliminate the authorities from having the ability to restrain the burglar within the burglarized area. These devices normally only allow authorities to recognize that a crime has occurred and that one or more criminals may be involved, requiring all the skills of law enforcement agencies in order to apprehend the criminal.

What is required is apparatus and a method wherein a criminal may be restrained within an unauthorized area into which he has gained access and held in abeyance until the appropriate law enforcement officials may be summoned in order to apprehend the criminal, not allowing the criminal to deviate from the restrained area or to exchange property contained therein.

It is the object of the present invention to provide apparatus for restraining an intruder within a protected limited access area.

It is a further object of the present invention to provide a method wherein a thief may be restrained within a protected access area for subsequent apprehension by a law enforcement official.

It is still a further object of the present invention to provide a method and apparatus wherein a criminal may be restrained within a given area, disarmed and held therein to obviate any loss of property or human life, until proper law enforcement officials may be summoned, to remove the unarmed and restrained criminal therefrom.

With these and other objects in mind, the present invention may be more readily understood through referral to the accompanying drawings and following discussion:

SUMMARY OF THE INVENTION

The objects of the present invention are accomplished through utilization of apparatus and a method for restraining an intruder within a limited access area

of a building. The apparatus comprises a walled enclosure forming a limited access area, having one or more entryways contained therein. Entry doors are positioned within each of the entryways of the limited access area and having said entry door appearing to be nonstationary. A sensor is provided within the limited access area to detect the present of an intruder within the limited access area. Means are provided for permanently positioning the entry door in a permanently closed position upon the detection of the presence of the intruder so as to restrain the intruder within the limited access area.

The apparatus may further comprise means for warning the intruder of his entrapment within the limited access area with said means being responsive to the permanent positioning of the entry door in the closed position. Also provided may be means for restraining the intruder from attempting to gain access to the exterior of the limited access area, these means preferably being activated in response to the intruder exerting force against the walls of the entry door to the limited access area.

It is preferred that the means for restraining the intruder from attempting to gain access to the exterior of the limited access area comprise a gas supply containing a human activity restraining gas and means for introducing the gas within the limited access area. For example, the restraining gas may be confined under pressure and the means for introducing the restraining gas within the limited access area may comprise a gas delivery line, one end of which is connected to the gas supply and the other end entering the limited access area and having a gas distribution nozzle connected to the end of the gas delivery line for even distribution of the gas within the limited access area. The means for restraining the intruder from attempting to gain access to the exterior of the limited area may also comprise a network of electrical conductors formed within the walls and entry door exposed to the interior of the limited access area and an electrical energy supply connected to the network of electrical conductors.

The means for the permanent positioning of the entry door in a closed position may comprise various and sundry embodiments of mechanical and electrical apparatus. A preferred means for the permanent positioning of the entry door in a closed position may comprise the entry door being normally opened and contained within the wall of the entryway adjacent to the entryway and a pneumatic piston having a piston base braced against the enclosure wall with the piston head contacting the entry door and further comprising a mechanical lock contained within the wall of the entryway opposite the wall containing the entry door, said lock engaging the entry door as it is driven across the entryway, and holds the entry door permanently in a closed position.

The objects of the present invention may also be accomplished through a process for restraining an intruder within a limited access area of a building, said process comprising the step of detecting the presence of an intruder within the limited access area. Subsequent to detecting the presence of the intruder, an additional step is provided of confining the intruder within the limited access area by permanently closing the one or more entry doors of the limited access area and warning the intruder of the entrapment. The process may further comprise restraining the intruder from

attempting to gain access to the exterior of the limited access area.

BRIEF DESCRIPTION OF THE DRAWING

The present invention may be more readily understood by referral to the accompanying drawing, in which:

FIG. 1 represents a top view of an enclosed limited access area of a building in which the apparatus for restraining an intruder is depicted;

FIG. 2 depicts a front view of the limited access area of the building depicted in FIG. 1 as taken along line 1,1 and illustrates one embodiment of an entry door and a means for permanently positioning the entry door in a closed position;

FIG. 3 represents a limited access area which is comprised of the restricted segmented area of a revolving door having means for permanently positioning the door in a closed position; and

FIG. 4 depicts a block schematic diagram of an embodiment of a control circuit which may be utilized to activate and maintain the limited access protection apparatus of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The limited access protection apparatus of the present invention provides a positive restraining device to hold an intruder in abeyance until the appropriate law enforcement authorities may be summoned. The operation of one embodiment of the limited access protection apparatus of the present invention may be more easily disclosed by referral to FIG. 1. The apparatus of the present invention is depicted in FIG. 1 as positioned within a limited access area 10 of a building being comprised of several walls 11. In the particular embodiment illustrated in FIG. 1, the limited access area 10 represents a controlled door entrance being comprised of an entrance 13 and exit 12 having entry door 15 and exit door 14 contained therein. The entry and exit doors 15 and 14, respectively, are positioned from within slide-ways 16 and 17, respectively, against the opposing walls 11 of the entrance 13 and exit 12. Means are provided for permanently positioning the doors in a closed position. The means are depicted in a preferred embodiment to comprise pneumatic piston drives 23 and 22 utilized to position the entry and exit doors 15 and 14, respectively, in the permanently closed position. The pneumatic piston drives 23 and 22 are activated by fluid pump 27 passing fluid under hydraulic pressure through inlet line 26 and piston drive lines 25 and 24 to pneumatic piston drives 23 and 22, respectively.

The means for permanently positioning the doors in a closed position are preferably responsive to the detection of the presence of an intruder within the limited access area 10. The means for detecting the presence of an intruder within the limited access area 10 may comprise, as depicted, a pressure sensitive floor sensor 38 comprising a floor mat positioned about the immediate interior of the limited access area 10 in front of the entrance 13. The positioning of the pressure sensitive floor sensor 38 affords a direct means for detecting the presence of an intruder within the limited access area 10. An electronic signal is transmitted by the pressure sensitive floor sensor 38 to the fluid pump 27 which activates the permanent positioning of the entry and exit doors 15 and 14 in a closed position. The means for activating the permanent positioning of the

entry and exit doors 15 and 14 in a closed position are not disclosed in FIG. 1 but may comprise various activation means, for example the fluid pump 27 having drive means comprising a servo motor, said motor being readily activated by the electronic signal transmitted by the pressure sensitive floor sensor 38. The entry and exit doors 15 and 14 and the enclosure walls 11 are made of materials of suitable strength to prevent the escape of the intruder by use of his physical strength, or by the aid of weapons or objects he may utilize, for example a gun or hammer. The doors are generally made of strong glass with steel reinforcement mesh to conceal the presence of the limited access protection apparatus. However, the advantages of being a deterrent are gained by making the presence of the apparatus known by using plainly visible steel mesh reinforcements in the doors as well as steel faced enclosure walls. The deterrent force is further enhanced by displaying a warning sign of the apparatus. The entry door is provided with an electrically controlled latch 78 which meshes with a lock hinge 19 contained within the enclosure wall 11 of the entrance 13, used to prevent the opening of the entry door. The exit door 14 has a similar latch 20 which meshes with a lock hinge 21 constructed within the enclosure wall 11 of the exit 12.

Although depicted as a sliding door, the entry and exit doors may be of any type including; single direction or double direction swing (in and out); revolving; manually or power operated, for example electric, hydraulic, pneumatic; etc. The apparatus of the present invention may be located at any entrance and/or exit door as well as passageway, hallway, ramp, elevator, vehicle or any desired area such as within a building.

The apparatus may further comprise means for warning the intruder of his entrapment within the limited access area. These means may comprise a warning sign 28, which may be activated and responsive to the permanent positioning of the entry and exit doors 15 and 14. The warning means may further comprise a warning speaker 39, having an electronic recording which is electronically transmitted through said warning speaker 39 in conjunction with the permanent positioning of the entry and exit doors 15 and 14. The recording and warning sign 28 indicate the intruder's predicament.

The apparatus may further comprise means for restraining the intruder from attempting to gain access to the exterior of the limited access area 10. The restraining means may comprise a canister or bottle 34 containing gas under pressure with an electrically controlled release valve 35 controlled by an electronic lead 33 connected to the control circuit described hereinafter. The gas is a type to impair or restrain human activity but generally having the characteristics not to cause injury to the intruder. The gas used may consist of tear gas, MACE, or of other gases of a similar nature. The released gas through distribution line 36 and nozzle 37 will fill the limited access area 10 and restrain the trapped person until the arrival of the law enforcement authorities.

The means for restraining the intruder may further comprise a high voltage restraining device consisting of an electrical conductance metal formed as connection and interconnection wires 31 and 32, controlled by the main circuit. A high voltage electrical source of AC or DC current is provided with ground 30 being the floor 50 of the limited access area. The conductance metals

may be of several designs including: wire mesh and woven, welded, tied, or of similar construction; sheets; strips; panels; foils; or film. The electronic circuit is completed through the entry and exit doors 15 and 14, preferably by the doors being formed of the conductance metal or faced therewith. The metals are placed on the inner surfaces of the doors and/or enclosure walls or sandwiched in the glass doors and enclosure walls. The placement of the metals can be concealed, or made noticeable for deterrent purposes. The installation of the metals includes wires if the metals are not continuous or directly connected to each other. The metals are connected to form an electrical circuit to conduct high voltage electrical energy to the person or persons within the limited access area when the main control circuit is energized and the trapped intruder attempts a forceable exit.

The entry door 15 and the associated apparatus of the present invention is more readily depicted in FIG. 2, a front view taken along line 1,1 of FIG. 1. The enclosure wall 11 is illustrated to contain entrance 13 and the entry door 15 enclosed within the slideway 12. A slide bar 40 is mounted within the wall 11 so as to allow the entry door 15, having rollers 41 thereon the upper portion and positioned within the races of the slide bar 40, to be passed from the slideway 16 into the entry 13. The entry door 15 may be permanently positioned in a closed position, as described, through the activation of the pneumatic piston drive 23 by hydraulic fluid as passed from pump 27 through inlet line 26 into piston drive line 25. The entry door is permanently retained within the entrance 13, against the wall 11, by the lock hinge 19 and latch 18 as previously disclosed.

FIG. 3 is presented to illustrate still another embodiment of the limited access protection apparatus of the present invention. In FIG. 3, an enclosure wall 11 is depicted having an entry 13 comprising a revolving door 43 contained within a conclave enclosure wall 42. An intruder's presence is detected within the revolving door segment 44, for example by a photoelectric circuit or by a remote control television viewer which an operator scans and activates the permanent positioning means. These means may comprise pneumatic piston driven stops 45, driven by pistons 46 as hydraulically connected by fluid lines 47 to a fluid pump 48. The stops 45 are normally contained within races within the conclave enclosure wall 42 but are protruded into the revolving door segments 44 and cease the revolution of the revolving door 43.

The operation of the limited access protection is described most readily by referral to FIG. 4, a schematic diagram of one embodiment of a main control circuit of the present invention. The main control circuit is armed by the on positioning of main switch 48, the doors are under the electrical control of the door control circuit 75 electrically connected to the entry and exit doors. The door control circuit 75 functions to lock the entry door and the exit door through electrical line 52 and the electrical latches through electrical lines 54 and 55, after the intruder is detected within the limited access area by the presence detection circuit 71 responsive to the intruder presence sensor. Once the main control circuit is armed, the doors are locked in a permanent position after the intruder enters the limited access area preventing the intruder from exiting the limited access area. Subsequently, the force detection circuits 74 are activated by the electrical signal 68

of the presence detection circuits 71 which activates the restraining aid circuits.

When all doors are locked the gas discharge restraining aid 70 (GDRA) and/or the high voltage restraining aid 89 (HVRA) control circuits are energized. If these circuits are operational, the person or persons within the restrained area are exposed to gas release by electrical lines 56 and high voltage energy through electrical line 55 and ground 60 if they attempt to forceably exit. The alarm warning circuit 73, comprising a sign or a speaker within the limited access area, is activated through electrical line 62 when the alarm warning circuits 75 are energized. The sign is activated by lighting a hidden display panel, or releasing a cover from the face of the sign. The sign is not apparent or readable when the doors are not locked. The speaker may be activated through electrical line 64 and sound a pre-recorded message. The sign or speaker message will instruct the intruder within the limited access area not to attempt to exit or he will be exposed to restraining gas and electrical shock. Furthermore it will instruct the intruder that law enforcement personnel are on the way and notify the authorities through a private alarm line. The arming circuit 72 consists of a switch that is manually or automatically set, for example by a time clock, which activates the main control circuit when it is activated. Normally the arming circuit is a foot to hand operated switch activated by the robbed store employee during working hours, or set by him when he leaves the business at closing hours. The arming circuit 72 activates the arming switch through electrical connector 66 and the automatic door latches through electrical connection 67.

The main control circuit functions in either of two modes; automatic or tripped. The automatic mode immediately connects a high voltage energy source to the conducting metals of the limited access area when the main control circuit is energized. In the tripped mode, the high voltage energy source is not connected to the conductance metals until the trip switch has been activated, subsequent to activation of the control circuit. The trip switch can be of many varieties such as a force detector on the doors and/or enclosure walls, cracked or broken glass or enclosure wall detector, etc.

Therefore, the limited access protection apparatus is a positive restraining device designed to hold a selected person or persons captive at the scene of the crime until he can be apprehended by law enforcement officials. The presence of the apparatus of the present invention is also a strong deterrent to the would-be thief preventing loss of property as well as loss of human life. The identity of the apparatus can be hidden, or emphasized by the type of materials used for construction. The apparatus is used to restrain the exit of any unauthorized person at any building, exit, or point within a building. For example, property such as a cash register or safe containing money or jewelry could be located within a limited access area located within a building and an unsuspecting burglar would be restrained within the limited access area until he is apprehended by law enforcement officials.

The present invention has been disclosed herein with particular respect to certain preferred embodiments thereof. It should be understood, however, that other embodiments are comprehended within the scope of the present invention without particular discussion thereof.

Therefore, I claim:

1. Apparatus for restraining an intruder within a limited access area of a building, which comprises:

- a. a walled enclosure forming a limited access area in combination with the floor and ceiling of the building and having one or more entryways contained therein;
- b. an entry door positioned within each of the one or more entryways and having said entry door appearing to be non-stationary;
- c. an electronic sensor positioned within the limited access area to detect the presence of an intruder within the limited access area; and
- d. mechanical means for permanently positioning the one or more entry doors in a closed position responsive to the detection of the presence of the intruder by the electronic sensor so as to restrain the intruder within a limited access area.

2. The apparatus of claim 1 further comprising means for warning the intruder of his entrapment within the limited access area, said means being responsive to the permanent positioning of the entry door in a closed position.

3. The apparatus of claim 2 further comprising means for restraining the intruder from attempting to gain access to the exterior of the limited access area.

4. The apparatus of claim 3 wherein the means for restraining the intruder from attempting to gain access to the exterior of the limited access area are responsive to the intruder exerting force against the walls or entry door of the limited access area.

5. The apparatus of claim 4 wherein the means for restraining the intruder from attempting to gain access to the exterior of the limited access area comprise:

- a. a gas supply containing a human activity restraining gas; and
- b. means for introducing the restraining gas within the limited access area.

6. The apparatus of claim 5 in which the restraining gas is confined under pressure and the means for intro-

ducing the restraining gas within the limited access area comprise:

- a. a gas delivery line, one end of which is connected to the gas supply and the other end thereof entering the limited access area; and
- b. a gas distribution nozzle connected to the end of the gas delivery line exposed to the interior of the limited access area.

7. The apparatus of claim 4 wherein the means for restraining the intruder from attempting to gain access to the exterior of the limited access area comprise:

- a. a network of electrical conductors formed within the walls and entry door exposed to the interior of the limited access area; and
- b. an electrical energy supply connected to the network of electrical connectors.

8. The apparatus of claim 1 wherein one or more entry doors are (entry door is) normally opened (and) with each of the entry doors contained within the wall of the entryway adjacent to the entry and the means for permanently positioning each of the entry doors (door) in a closed position comprise:

- a. a pneumatic piston having a piston base braced against the enclosure wall and the piston head in contact (contacting) with the entry door; and
- b. a mechanical lock contained within the wall of the entryway opposite the wall containing the entry door, said lock engages the entry door as it is pneumatically driven across the entryway and holds (hold) the entry door permanently in a closed position.

9. The apparatus of claim 1 wherein the entryway is a circular revolving door and the walled enclosure is formed of the sides of the revolving door with the limited access area being defined by the floor, ceiling and sides of the revolving door and the point at which the sides of the revolving door contact the concave wall of the building.

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