

AN IMPROVED FIREARM REPOSITORY STRUCTURE

FIELD OF THE INVENTION

The present invention relates to a repository structure and more particularly, the present invention relates to an improved firearm repository structure.

5 BACKGROUND OF THE INVENTION

This invention is an improvement over the current applicant's previous patent application in Malaysia. Therefore, much of the prior art from the previous patent application will be cited here for ease of understanding the background of the present invention.

10 In recent years, there is a necessity to provide and to increase the conventional security and access system in a firearm repository or safe storage areas. Such types of firearm repository are commonly available in police stations, military camps, firearm stores and sometime in private residential.

15 Firearms in a police station, military camp or in a firearm store are commonly adapted to be stored in a wide range of repositories such as in containers, strong-rooms, safes, racks and the like. The firearms are normally locked to inhibit unlawful or unauthorized access to the firearms.

20 Large amount of firearms are commonly stored and available at certain government controlled institutions and private stores. In the prior art, firearms are stored in custom made confined areas such as steel or metal containers, strong rooms, and the like. Most of the time, firearms in the said confined areas are arranged on racks and locked inside close cabinets or open cabinets. The said confined area itself is a large repository providing security and access to the firearms held therein. In other words, any unauthorized successful access via these types of repository will give full access to each and every type of firearm held therein. This can be a dangerous situation and could be a national security issue if the firearms contained in the
25 conventional repository fall into the wrong hands, such as a terrorist.

30 It is a common practice that a sufficient number of security personnel are stationed to guard the repository at any given time. This is further enhanced with integrated alarm systems, sensor and close circuit cameras. Unfortunately, even with all these security arrangements, once the repository is open, the firearms contained therein are accessible to anyone. This is because the security measure is more to the repository but not to the firearms held therein.

Another problem with the prior art repository, security and access control system is that authorized personnel not only has access to his designated firearm, but also has access to other firearms in the repository. Sometimes, this could be dangerous if the authorized personnel have bad intention in him. In certain places, an officer is designated to forward
5 firearms to officers on duty and later receive the firearms from the same officers upon completing their duties for safe keeping. The number of firearms recorded and the actual number of firearms existing in the repository may not be the same due to some dishonest personnel. There is no system available to automatically forward and receive firearms from an officer and record the true data.

10 Most prior art firearm repository structures are designed to house only one type of firearm in each slot. Said slots cannot house a different firearm as the said slot is designed only to hold a specific firearm. Therefore, in order to make the better of the repository, a new repository device is required in which each slot could house different firearms in size and design.

15 Thus, by observing the developments of firearm repository, security and access control system and their disadvantages, particularly in mass storage of firearms, the present inventor has introduced an improved firearm repository.

It is also an objective of the present invention, to provide an equally safe repository for firearms where a confined container, safe or strong room is not available or is not practical
20 such as in a firearm store where firearms are displayed for sale and in private houses and offices.

SUMMARY OF THE INVENTION

The present invention relates to a firearm repository which comprises of a box like housing chamber and wherein the repository includes two upstanding sidewalls, a base and a
25 top portion and a front portion. The front portion is further provided with a plurality of slots into which a storage box is inserted therein. The storage box is a square shaped or rectangular shape box with a storage compartment and a lid or cover and wherein the storage compartment further includes foam with recess portions identical to corresponding weapon, handcuff, baton and etc which would be securely placed into it.

30 The lid of the storage box is preferably transparent or could be a solid lid. The recess in the foam can be changed according to the corresponding weapon or matters which will be

securely held therein. For added security the storage box (26) is also embedded with a number of sensors, such as weight sensors, infra red sensors, motion sensors, fingerprint sensors and the like. The entire repository can be provided with a plurality storage box or in such a manner that only part of the repository is provided with the storage box while the rest is other means of storing weapons. Instead of manually inserting and removing the storage box from the slots, an automatic system could be deployed therein such as by hydraulics or pneumatics or mechanical means to move the storage box in and out of the cut out portion.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of a repository according to the present invention.

Figure 2 is a perspective view of the storage box according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention as shown in Figure 1 generally comprises of a repository (10). The repository (10) is basically a box like housing chamber. The repository (10) includes two upstanding sidewalls (14, 14'), a base (16), a top portion (18) and a front portion (20), Figure 1.

The front portion (20) is further provided with a plurality of slots (24) (not illustrated) into which a storage box (26) is inserted therein.

The storage box (26) is a square shaped or rectangular shape box with a storage compartment and a lid or cover. The storage compartment further includes foam with recess portions identical to corresponding weapon, handcuff, baton and etc what would be securely placed into it. The lid of the storage box (26) is preferably transparent or could be a solid lid. The recess in the foam can be changed according to the corresponding weapon or matters which will be securely held therein. For added security the storage box (26) is also embedded with a number of sensors, such as weight sensors, infra red sensors, motion sensors, fingerprint sensors and the like.

Other features of the repository (10) have been described in the present invention previous application and will not be described hereinafter as the features are either similar or identical thereto.

The entire repository (10) can be provided with a plurality storage box (26) as shown in Figure 1. The said storage box (26) can also be provided in such a manner that only part of the repository (10) is provided with the storage box (26) while the rest is other means of storing weapons just as the applicant's previous invention. In another embodiment (not
5 illustrated) the storage box (26) can be either vertically or horizontally positioned.

The number of storage boxes and the size of the said storage boxes truly depend on the requirement and space available.

Alternatively, instead of manually inserting and removing the storage box (26) from the slots (24), an automatic system could be deployed therein. This could be done by
10 providing hydraulics or pneumatics or mechanical means to move the storage box (26) the cut out portion (20). Certain scanning means could be provided therein in order to identify the type of firearm and once the scan is complete the cut out portion (20) will move to the desired height corresponding to the length of the firearm.

Further improvements could be added to the present invention such as installing LED
15 lights which are connected to sensors and connected to the locking mechanism. The sensors consist of a simple general circuitry that is known by one skilled in the art. The status of the locking mechanism is indicated visually by these LED lights. The LED light have a difference in color to indicate when the storage box (26) is securely locked or deactivated meaning an unlocked position for removal of storage box (26) the repository (10).

20 The working mechanism of the present invention and further features not described earlier will be described now in detailed.

For ease of describing the working mechanism of the present invention, a plurality storage boxes (26) complete with random enforcement tools and weapons are held therein are removeably positioned in the slots (24). At this time, the locking mechanism is in its locked
25 position. A reader is provided on the repository (10) would thereafter read the sensor located on the storage box (26) to confirm that the storage box (26) is positioned in the right slot by the right user. Here we would like to add that alternately, further sensors such as weight sensors, weapon ID sensor and any other sensors could be incorporated in the repository (10) and storage box (26) for identification purpose.

In this preferred embodiment a Radio Frequency Identification (RFID) chip is installed in each of the items in the storage box (26) and on each of the storage box (26). This RFID chip transmits details to a reader which reads the data in the RFID chip and communicates with a preprogrammed computer to identify the presence of the correct storage box (26) and the items held therein with the correct slot (26). With the installation of this RFID chip, each storage box (26) and each items in the storage box (26) will have its own unique identity. In any case of theft or intrusion, the missing weapon can be immediately identified and all details regarding the weapon can be obtained. Note that the RFID chip is an existing technology and is purchased and specified for utilization in the repository (10).

It should be noted that all identification details and passwords or any other identification items have been stored and preprogrammed in a computer. In the present embodiment, at least one keypad or access card or fingerprint identification is utilized as additional security measures. Alternatively, a combination of any of the former can be utilized to maximize security. When an authorized personal requires a firearm from the repository, he will have to perform certain security procedures before getting access to the firearm. The said authorized personals are now referred as Officer A, B, C and D and their designated storage boxes (26) are referred as A1, B1, C1 and D1 All data pertaining to Officer A, B, C and D and their boxes A1, B1, C1 and D1 have been preprogrammed in the computer system. Each of the officers will be given a password and an access card. The fingerprints of each of the officers have already been recorded in the database.

Each of the officers A, B, C and D will first have to verify their fingerprints at a main control room before their can proceed to the firearm repository (10). After each fingerprints of each of the officers are verified, the officers will then proceed to the repository (10) accompanied by another authorized/on duty Officer E. Officer E has already recorded his fingerprints in the system as Officer in charge on that particular day. In the system, a floor plan of the position of the repository is shown and the storage boxes A1, B1, C1 and D1 designated for Officers A, B, C and D respectively are indicated thereto. By this means, the computer and other officers in charged would be able to see and record the transaction. Officer A is only designated to have access to his storage box A1 and the same applies to officers B, C and D. After approaching the repository (10), each of the officers is again required to place their fingerprints on the fingerprint reader on the repository (10) followed by

the fingerprints of Officer E. This is done in a sequential manner. Both the fingerprints of both Officers A and E will be verified by the system with the preprogrammed fingerprints.

Once the fingerprints are verified, the system will then send a signal to the repository to activate the locking mechanism from the locked position to its unlock position and also indicated by the LED lights. Officer A will then have access to his storage box A1. Upon removal of the storage box A1, receiver of the RFID will detect the absence of the chip, thus keeping track of information during the removal of the storage box A1 from the repository (10). The same procedure is repeated for officers B, C and D to access their storage boxes B1, C1 and D1. Officer A will then empty the content of the storage box A1 by removing all or some of the content from the storage box A1. While opening the storage box A1, the Officer A also need to activate the locking mechanism on the storage box by means of a RFID card, scanner, finger print, passcode and etc, independently or in combination. Each time an item is removed from the storage box sensor would indicate the action and send the data to the central computer. This could be done wired or wirelessly. When the officers returns their storage boxes (26) back to the firearm repository (10), each of the officers will have to go through the same procedure again and safely place their boxes at their original position. It is to be noted that once the boxes have been removed from the repository (10) and the content has been fully cleared or partly cleared or not cleared at all, the storage box is placed back in its location and the locking mechanism has been designed to automatically activate to its locked position. Therefore, when the Officer A places his fingerprint on the fingerprint reader on the repository (10), only one slot be activated to be in the unlocked position. Upon return of the storage box (26), the receiver of the RFID will detect the presence of the chip as they come in contact, thus keeping track of information during return of the storage box (26) to the repository (10) including all its content. The locking mechanism has also been designed in such a manner that if Officer A failed to access his storage box A1 within a designated period of time, the locking mechanism will be automatically activated by the system and the box A1 will be locked in its position again. Officer A will then have to go through the entire verification procedure again.

All transactions of accessing the storage box (26) by the officers are recorded. Examples of data recorded in the central processing unit are like name of the Officers, name of the Officer E, the time the storage box (26) was removed from the repository (10) and the time they were returned to the repository (10) for each officers, which repository was accessed by the officers, what type of firearms was accessed to, slot number and etc. All the above

information will be reflected on the main computer screen which is supervised by an operator. At any time during the procedure to access the storage box, the officers may be required to key in their password or place their ID card on the card reader on top of the fingerprint identification for further verification purposes. Besides the fingerprint verification method, there are other types of accessing methods that can be executed currently known in this field or to be developed.

However, these are just alternative features that can be included in this preferred embodiment.

The present invention is also connected to a plurality of alarm devices positioned at strategic locations in the-building. All the alarm will be reflected in the main computer and the operator can see which alarm system is active and which is not active. The actual position of any alarm triggered will be displayed in the computer generated floor plan and the security can act upon the area immediately. If in any case, an unauthorized person tries to remove the firearms stored in the present firearm repository (10), the available alarm response will be triggered and the security will be notified immediately. The present repository is provided with a plurality of sensor which can detect even a slight movement in the firearms. However, these sensors have been configured in such a manner that if the firearms are forcibly moved several times, an alarm will be triggered and a signal is sent to the main control room. The officer in charge will be alerted of the invasion. Further movements of the firearms will generate a complete alarm alert in the entire building. The computer system is able to generate the floor plan, in which the trespassing has been identified. The computer system is also able to indicate which repository is being forcibly unlocked and for further security measures, all doors giving access to the said repository can be automatically sealed. Besides the alarm devices mentioned above, a gas alarm spray is installed at the preferred embodiment. This device can be installed internally or externally to the repository (10). If the Gas Alarm Spray is to be placed internally, it will be placed in the rack where the firearms are stored. If the Gas Alarm Spray is to be placed externally, the gas alarm will be secured within close proximity of the repository. The Gas Alarm Spray is connected to security sensors which will be reflected on the main computer as discussed earlier in regards to all the other alarm devices. As mentioned earlier, upon an invasion the alarm devices will trigger a complete alarm alert. This will trigger the Gas Alarm Spray wherein the alarm will defensively spray a non-lethal pepper

substance to disorient the intruder, thus providing extra time for the security personnel's to arrive at the scene of intrusion.

According to the present invention, the General Packet Radio Service (GPRS) system is preferably included in the present invention. The purpose of this system is more for security reasons. Existing GPRS system is purchased wherein the detector chip is installed in the firearm and preprogrammed computer mainframe. This mainframe keeps track of the whereabouts of the firearm, thus if a firearm was to be stolen or missing, it can instantly be located. Besides security reasons, the GPRS can also provide on the whereabouts of the officer in possession of the firearm. Note that the GPRS system is an existing technology and can be linked up with the RFID chip in the case of tracking the missing or stolen firearms.

In a police station or a military camp, firearms are kept in different locations for different departments/divisions. The present invention has been designed in such a manner that each and every firearm repository in each section of a building can be connected via a plurality of communication cables to a central processing unit. This central processing unit can either be positioned in the building or in the same area or can be remotely positioned in another place.

The central processing unit will be able to record and monitor all transaction done in accessing a firearm. In the same time, the designated authorities can also keep track of the firearms in stock for future actions such as purchase of new firearms and etc.

Further to this, if there is a power failure in the building, a backup power supply is made available immediately. If in any case the repository failed to unlock the firearm even after an identifying the authorized personnel, then an Officer in charge will manually unlock the firearms. Besides the fact of unlocking the repository in case of failure, the manual unlocking device is also used for emergency situations whereby an instant release of all firearms is required. There are numerous ways of doing this. However, the present inventor has utilized a button means to manually unlock the firearms.

In the present invention, the firearm repository is designed to safely store a rifle but however the present repository can also be redesigned with some minor modification to store other types of firearms such as a handgun and etc.

Further to this, any type of locking mechanism known in the art can be adopted to replace the present locking mechanism as long as the purpose of providing such features is established as in the present invention.

CLAIMS

1. A firearm repository (10) which comprises of a box like housing chamber and wherein the repository (10) includes two upstanding sidewalls (14, 14'), a base (16) and a top portion (18) and a front portion (20) and wherein the front portion (20) is further provided with a
5 plurality of slots (24) into which a storage box (26) is inserted therein and wherein the storage box (26) is a square shaped or rectangular shape box with a storage compartment and a lid or cover and wherein the storage compartment further includes foam with recess portions identical to corresponding weapon, handcuff, baton and etc which would be securely placed into it.
- 10 2. A firearm repository (10) as claimed in Claim 1 wherein the lid of the storage box (26) is preferably transparent or could be a solid lid.
3. A firearm repository (10) as claimed in Claim 1 wherein the recess in the foam can be changed according to the corresponding weapon or matters which will be securely held therein.
- 15 4. A firearm repository (10) as claimed in Claim 1 wherein for added security the storage box (26) is also embedded with a number of sensors, such as weight sensors, infra red sensors, motion sensors, fingerprint sensors and the like.
5. A firearm repository (10) as claimed in Claim 1 wherein the entire repository (10) can be provided with a plurality storage box (26) or in such a manner that only part of the
20 repository (10) is provided with the storage box (26) while the rest is other means of storing weapons.
6. A firearm repository (10) as claimed in Claim 1 wherein instead of manually inserting and removing the storage box (26) from the slots (24), an automatic system could be deployed therein such as by hydraulics or pneumatics or mechanical means to move the storage box
25 (26) in and out of the cut out portion (20).