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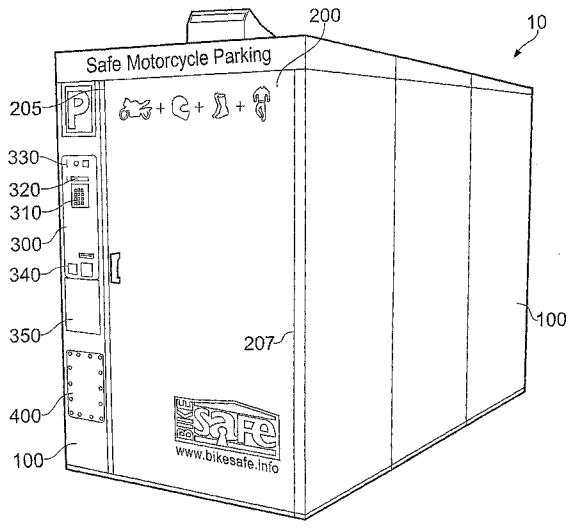
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(54) **Title:** STORAGE SYSTEM




(57) **Abstract:** The present invention relates to storage systems. In particular the invention relates to storage apparatuses for vehicles. A vehicle storage apparatus comprises a container; an aperture through which a vehicle may pass; and a door operable to close the aperture, wherein the apparatus is provided with locking means, the locking means being operable by a user on an outer side of the container to lock the door and to unlock the door, the locking means being further operable by a user on an inner side of the container to unlock the door, wherein the apparatus is further provided with permission- determining means, the permission-determining means comprising means for determining whether a user is permitted to lock the door or to unlock the door, the permission-determining means being adapted to allow a user to lock the door or to unlock the door when it is determined that a user has permission.

WO 2007/029026 A1

# STORAGE SYSTEM

The present invention relates to storage systems. In particular, the invention relates to a system for providing secure storage for a vehicle.

It is known to provide a storage shed for a vehicle, into which a vehicle may be driven. Such sheds are commonly found in residential environments and provide valuable security for vehicles, as well as protecting the vehicle from the effects of rain and heat from the sun.

The problem exists that when a vehicle owner parks their vehicle away from their residence, the vehicle and any associated rider safety equipment secured to the vehicle becomes vulnerable to theft, vandalism and environmental damage.

Theft is a particular problem for motorcycles, since some of the components of a motorcycle may be readily removed. These components are often essential to motorcycle safety, and may be expensive to replace.

Use of motorcycles for transport is of increasing interest to users and traffic management agencies due to congestion and related issues associated with transport of persons. A further disadvantage of motorcycles as a means of transport is the requirement to store safety clothing including a helmet when the vehicle is parked. Typically, a user must either secure clothing to the cycle, rendering it vulnerable to theft and damage, or carry the articles on their person. This can be highly undesirable and in some cases impractical.

There is therefore a need for a secure storage system suitable for public use.

In a first aspect of the invention there is provided a vehicle parking apparatus, comprising:

a container, the container comprising;

an aperture through which an item to be stored may be passed;

a door operable to close the aperture;

door locking means operable to lock and unlock the door;

vehicle securing means operable to releasably secure a vehicle whereby to prevent removal of the vehicle from the vicinity of the apparatus;

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permission determining means configured to allow a user to lock the door or to unlock the door when it is determined that a user has permission, and to secure a vehicle or release a vehicle when it is determined that a user has permission.

Preferably the apparatus further comprises storage means for storing a user's gear.

Preferably the storage means comprises at least one selected from amongst a shelf, a cupboard, a hanger or any other suitable storage means.

The item to be stored may comprise a vehicle.

In the case in which the vehicle is stored wholly within the container, it will be appreciated that the vehicle securing means is provided by the door locking means, since the vehicle is then contained within the container. It will therefore be appreciated that in this case the door locking means operable to lock and unlock the door also provides the vehicle securing means operable to releasably secure a vehicle thereby to prevent removal of the vehicle from the vicinity of the apparatus. In this situation, removal of the vehicle from the vicinity of the apparatus refers to removal of the vehicle from within the apparatus.

By the term 'vehicle' is included motorcycles, other motor vehicles such as cars and quad bikes, wheelchairs, bicycles, watercraft, aircraft, and any other suitable vehicle.

The storage means may be provided in a location such that heat from a vehicle parked within the container may be used to dry items of gear that are wet.

Preferably the locking means is operable by a user on an outer side of the container to lock the door and to unlock the door, the locking means being further operable by a user on an inner side of the container to unlock the door.

The invention has the advantage that the door may be unlocked from inside the container in the event that a person becomes locked within the container. Furthermore, since a secure storage system according to the present invention is provided with permission-determining means, it may be conveniently located for public access and use.

The locking means may comprise a release member, the release member being operable from inside the container to unlock the door.

Preferably a pedal is provided, the pedal being operable from the inner side of the container to operate said release member.

Alternatively or in addition a button may be provided on the inner side of the container, the apparatus being adapted to unlock the door when the button is actuated.

This feature has the advantage that the door may be unlocked easily from inside the container by persons of low height such as a child. Furthermore, in systems having a lock powered by an external power supply, the presence of a release member comprising a pedal operable without the need for an external power supply enables the door to be unlocked by a person inside the apparatus even in the event of a power failure. That is, the pedal can unlock the door by a direct non-powered mechanical linkage. Alternatively or in addition, the means for unlocking the door by direct non-powered mechanical linkage may comprise any other suitable non-powered mechanical linkage.

Preferably the locking means comprises at least one bolt, slidably connected to the door, the at least one bolt being operable to assume an extended condition or a retracted condition, the container being provided with a bolt-receiving aperture, such that with the door in a closed condition and the bolt in an extended condition the bolt is received through said bolt-receiving aperture, to lock the door.

Alternatively, the locking means may comprise at least one bolt, slidably connected to the container, the at least one bolt being operable to assume an extended condition or a retracted condition, the door being provided with a bolt-receiving aperture, such that with the door in a closed condition and the bolt in an extended condition the bolt is received through said bolt-receiving aperture, to lock the door.

Thus, whether the bolt is mounted on the door or the container, with the bolt-receiving aperture provided in a corresponding location of the container or the door, respectively, the door may be locked by sliding the bolt to the extended condition, and unlocked by sliding the bolt to the retracted condition.

Preferably, the locking means is provided with biasing means, the biasing means being adapted to urge the at least one bolt towards said extended condition.

Preferably the locking means comprises a pantograph-type mechanism. Such a mechanism provides a convenient means for releasing a plurality of bolts by translation of a single link member.

The release means may comprise a leadscrew operable by an electric motor.

In an open condition, the door may be substantially contained within the apparatus.

This has the advantage that the door does not protrude from the door when in the open condition, where it is at risk of damage due for example to collision of objects with the door. For example, the door may be a retractable door that swings to lie substantially parallel to a roof of the container, in an upper portion of the container.

The door may be adapted to move from a closed condition to an open condition such that the door remains substantially contained within the apparatus.

This feature has the advantage that a risk of impingement of the door upon an object outside the apparatus as the door is opened is substantially reduced. Thus, risk of damage to an object such as a vehicle, or injury to an object such as a person, is substantially reduced. Furthermore, a constraint on the presence of nearby objects such as bollards or other obstacles is reduced. For example, the door may be of a canopy door type.

The door may be adapted to open by folding of the door. Thus, the door may be of a design such as a sectional door design or a roller door design.

The door may be adapted to open or close by rotation of the door about an axis that is not substantially at one end of the door. This has the advantage that if the apparatus is placed on a slope, a gravitational force acting to promote opening or closure of the door may be reduced.

Preferably the apparatus is provided with a keypad, the apparatus being adapted to request a security code from a user, the apparatus being further adapted to lock the door after the security code has been provided.

Preferably the permission-determining means is adapted to lock the door if the security code entered by a user corresponds to an authorised security code.

Preferably the apparatus is adapted to request a security code from a user before unlocking the door.

Preferably the permission-determining means is be adapted to unlock the door if the security code entered by a user corresponds to an authorised security code.

The authorised security code may correspond to a code transmitted to the apparatus by a remote server.

Preferably the apparatus comprises payment means.

The apparatus may be adapted to ensure that a credit value of a user is sufficient before allowing the door to be unlocked.

Preferably the apparatus is adapted to request a user to make further payment before unlocking the door when a credit value of a user is too low.

Preferably the apparatus is provided with occupant detection means for detecting an occupant. This has the advantage that safety functions may be implemented in order to enhance safety and security of the apparatus.

Preferably, the apparatus is adapted to unlock the door in the event that an occupant is detected by the occupant detection means when the door is in a locked condition.

Preferably, the apparatus is adapted to maintain the door in an unlocked condition in the event that an occupant is detected by the occupant detection means when the door is in an unlocked condition.

Preferably, the apparatus is adapted to ensure that the door is in a closed condition before allowing the door to assume a locked condition.

The apparatus may be provided with means for automatically opening the door when a signal is received from a user. The means for automatically opening the door may comprise at least one selected from amongst an electric motor, a gas strut, or any other suitable device.

The apparatus may be further provided with means for automatically closing the door when a signal is received from a user. The means for automatically closing the door may comprise at least one selected from amongst an electric motor, a gas strut, or any other suitable device.

Alternatively or in addition, the apparatus may be adapted automatically to close the door when the following conditions are met: a predetermined time period has expired since the door was opened, no signal is received from a user, and no occupant is detected by the means for detecting an occupant.

Embodiments of the invention have the feature that heat from a vehicle stored in the container may be used to dry items of gear also stored in the contain that are wet.

The apparatus may comprise means for indicating whether an apparatus is occupied. The means for indicating whether an apparatus is occupied may comprise at least one selected from amongst an indicator lamp, an illuminated panel, and a flag.

Preferably the payment means comprises means for receiving at least one selected from amongst coins, bank notes, tokens, credit cards, debit cards, smart cards, or any other suitable payment means.

The advantage of accepting tokens is that payment for the use of an apparatus may be made, for example, by a retail establishment that the user is visiting during the period the vehicle is stored in the apparatus. When the user returns to the apparatus, the token may be entered into the payment means, and a security code typed at the keypad, enabling the door to be unlocked. Similarly, smart card systems may be employed, for example by subscription parking systems, whereby a user purchases use of an apparatus for a period of (say) one month or one year.

The apparatus may be provided with a secure receptacle for receiving at least one selected from amongst coins, bank notes and tokens.

Preferably, the receptacle is adapted such that access to the receptacle may be provided only from an outer side of the container. The apparatus may be adapted such that access to the receptacle does not permit access to the inner side of the apparatus. This has the advantage that a person emptying the receptacle is not able to access a vehicle or gear stored within the container, thus providing greater security for the vehicle. If access is provided only from outside the apparatus, it is possible to prevent tampering from within the apparatus.

Preferably the apparatus is provided with communication means for communicating with an external computing device. The communication means may comprise a telephone connection, a wireless connection, or a port adapted for connection to a portable computing device.

Preferably the communication means is adapted to provide override control of the locking means. This has the advantage that the locking means may be opened by said external computer in the event that a user forgets their security code.

The apparatus may be adapted to unlock the door when an administration code is entered into the apparatus by a user.

The advantage of this feature is that if a user forgets their security code, the user may telephone an administrator. If the administrator is satisfied that the user is entitled to access the vehicle within the apparatus, the administrator may provide the user with an administration code, which the user enters into the apparatus via the keypad. In response to this administration code, the locking means may unlock the door.

Alternatively or in addition, the apparatus may be adapted to generate an administration code response code in the event that a user enters an administration code into the apparatus.

Preferably the administration code response code enables an administrator to generate an access code, the apparatus being adapted to unlock the door when said access code

is entered into the apparatus. The access code may correspond to the security code entered by the user.

The feature of generating an administration code response code may be implemented by an algorithm stored in computing means of the apparatus.

Alternatively or in addition the access code may be generated from the administration code response code using an algorithm stored in external computing means.

Preferably, internal lighting is provided.

Preferably, power for the apparatus is provided by a solar power system.

The vehicle securing means may comprise a connection member operable to releasably connect to a vehicle.

Thus, a vehicle may be stored outside the container and secured to the u

The connection member may comprise an elongate flexible member.

The elongate flexible member may be provided with means for securing respective end portions of the member to the apparatus, the member being operable to form a loop through an aperture of a vehicle to be secured.

The elongate flexible member may comprise at least one selected from amongst a chain, a wire, a rope, a cable or any other suitable element.

In a second aspect of the invention there is provided a parking installation comprising a plurality of vehicle parking apparatuses.

The installation may comprise a single user payment console arranged to receive payment from a user for each of the parking apparatuses.

The payment console may be further arranged to perform at least one function selected from amongst (i) locking the door and securing the vehicle, and (ii) unlocking the door

and releasing the vehicle, when it is determined that a user has permission to perform the selected function.

In a third aspect of the present invention there is provided a vehicle storage apparatus, comprising:

a container;

an aperture through which a vehicle may pass; and

a door operable to close the aperture,

wherein the apparatus is provided with locking means, the locking means being operable by a user on an outer side of the container to lock the door and to unlock the door, the locking means being further operable by a user on an inner side of the container to unlock the door,

wherein the apparatus is further provided with permission-determining means, the permission-determining means comprising means for determining whether a user is permitted to lock the door or to unlock the door, the permission-determining means being adapted to allow a user to lock the door or to unlock the door when it is determined that a user has permission.

In a fourth aspect of the present invention there is provided a vehicle storage apparatus comprising

a container;

an aperture through which the vehicle may pass; and

a door operable to close the aperture,

wherein the apparatus is provided with locking means,

wherein the apparatus is further provided with permission-determining means, the permission-determining means comprising means for determining whether a user is permitted to lock the door or to unlock the door, the permission-determining means being adapted to allow a user to lock the door or to unlock the door when it is determined that a user has permission.

Throughout the description and claims of this specification, the words "comprise" and "contain" and variations of the words, for example "comprising" and "comprises", means "including but not limited to", and is not intended to (and does not) exclude other moieties, additives, components, integers or steps.

Throughout the description and claims of this specification, the singular encompasses the plural unless the context otherwise requires. In particular, where the indefinite article is used, the specification is to be understood as contemplating plurality as well as singularity, unless the context requires otherwise.

Features, integers, characteristics, compounds, chemical moieties or groups described in conjunction with a particular aspect, embodiment or example of the invention are to be understood to be applicable to any other aspect, embodiment or example described herein unless incompatible therewith.

For a better understanding of the present invention, and to show how it may be carried into effect, reference shall now be made by way of example to the accompanying drawings, in which:

FIGURE 1 is a perspective view of the first embodiment of the invention with the door in a closed condition;

FIGURE 2 is a perspective view of the first embodiment of the invention with the door in an open condition;

FIGURE 3 is a schematic view of a locking mechanism according to the first embodiment of the invention;

FIGURE 4 is an engineering drawing of a locking mechanism according to the first embodiment of the invention; with the mechanism in an unlocked condition;

FIGURE 5 is an engineering drawing of a locking mechanism according to the first embodiment of the invention with the mechanism in a locked condition;

FIGURE 6 shows an instruction panel provided on an outer side of the apparatus for a user;

FIGURE 7 shows a sequence of instructions provided to a user by an apparatus according to the first embodiment of the invention;

FIGURE 8 shows a schematic view of the interconnections between the control electronics; and

FIGURE 9 is a schematic view of a second embodiment of the invention.

According to a first embodiment of the present invention a vehicle storage apparatus 10 comprises a steel container 100 of rugged construction, as shown in Fig. 1. A storage apparatus 10 according to the present embodiment is designed to store a motorcycle 20 (Fig. 2). However, it will be clear to the skilled person that the storage apparatus 10 is readily adaptable to store other kinds of vehicles such as cars, quad bikes, tricycles, bicycles, watercraft, aircraft or any other suitable vehicle.

The container 100 is provided with a control console 300 having a keypad 310 and a display 320. The control console 300 also has a coin insertion slot 330 and a coin changegiver 340. An instruction poster 350 is also provided, reproduced in Fig. 6.

The storage apparatus 10 is further provided with a door 200, connected to the container by hinges, the door having a series of three bolts 210 protruding from a leading edge 205 of the door (Fig. 2). A further three bolts 210 protrude from corresponding locations of the trailing edge 207 of the door 200, as shown in Fig. 3.

The bolts are operated by a pantograph-like mechanism as shown in Figs. 3 to 5. The bolts 210 are slidable in a lateral direction, engaging with corresponding bolt-receiving apertures 110 of a wall of the container. Link arms 220 connect each bolt 210 to a release member 230 oriented in a substantially vertical plane. The release member 230 is slidable in a slot in an inner panel of the door. A spring 280 provides biasing means to urge the release member 230 against a leadscrew 260 located above the release member 230. The leadscrew 260 is connected to a drive motor 270 (Fig. 3).

When it is desired to lock the door, the drive motor 270 retracts the leadscrew. The release member 230 is thus raised in an upwards direction under the influence of the spring 280, and the bolts 210 are urged laterally outwards to locate within the corresponding bolt-receiving apertures 110 of the container.

When it is desired to unlock the door, the drive motor is operated in a reverse direction. Thus, the lead screw 260 is driven substantially vertically downwards; the release member 230 is lowered, thus retracting the bolts 210.

Alternatively, the release pedal 240 may be depressed. Since the leadscrew 260 is not attached to the release member 230, the release member 230 moves vertically downwards away from the leadscrew 260, thereby retracting the bolts 210.

The control console 300 is provided with control electronics 600 to control the drive motor 270 of the locking mechanism and the payment system.

An indicator flag on the control console 300 is provided to indicate whether or not the apparatus is vacant. If the apparatus is vacant, a user is invited to insert payment (Fig. 7). Once sufficient funds have been provided, the user enters a four digit personal identification number (PIN). The PIN is entered again to confirm the correct number.

A control electronics unit 600 then unlocks the door by operating the drive motor 270, and the user is invited to put their motorcycle and gear inside the apparatus. The door will automatically close after a fixed period of time. Alternatively the user may press a button to close the door at an earlier time.

An occupancy detector detects whether or not a person is contained within the apparatus before allowing the door to close and lock. If a person is detected, the door will not be permitted to be locked. The occupancy detector may have a movement detector such as a passive infrared (PIR) detector. In alternative embodiments an ultrasonic movement detector is used in addition to or as an alterative to the PIR detector. An ultrasonic detector has the advantage that the detector is less likely to be triggered by heat from a vehicle stored in the apparatus.

According to the present embodiment of the invention the door is closed automatically by a door drive motor (not shown), but in alternative embodiments the door may be manually closed.

Since a motorcycle to be stored in the apparatus is likely to be warm, care must be taken in the selection of a suitable occupancy detector, since certain types of passive infra-red sensor may be activated by the heat from the motorcycle. Ultrasonic movement

detectors may be used to detect the movement of a person within the apparatus, for example.

The control console 300 displays a time on the display 320 indicating the storage time (credit) remaining for which the user has paid.

When the user returns, the user enters their PIN again and, provided there is still credit remaining, the door will be unlocked and automatically opened. If the user does not have any credit remaining, they will be requested to provide further payment before the door can be unlocked and opened.

Once the door has been opened, a timer is activated. After expiry of a certain time period the door will automatically close, provided no movement is detected within the apparatus.

If the apparatus detects movement within the apparatus, and the door is in a locked condition, the door is automatically unlocked.

In the unlikely event that a person did become trapped within the apparatus with the door in a locked condition, the person may depress the pedal 240 in order to unlock the door.

Power to the apparatus is provided by a solar panel, thus enhancing the flexibility of location of the apparatus. The apparatus may therefore be located in places where external electric power service is not available.

In the event that a person forgets their PIN, the control electronics unit 600 is provided with an algorithm to enable a remote operator to provide the user with their PIN.

The remote operator first confirms that the user is entitled to open the door (e.g. they are the owner of the vehicle stored inside the apparatus). The operator then provides the user with an administration code which the user enters at the keypad. According to the present embodiment the administration code is the same for each apparatus at a given geographical location. In some embodiments the administration code may differ between apparatuses.

In response, the control electronics 600 provides an administration code response code on the display 320 which the user supplies to the administrator. The administration code response code is generated using an algorithm and the user's PIN. The administrator enters the administration code response code into the computer terminal, which is provided with the same algorithm. The computer terminal is therefore able to recreate the user's PIN, which the administrator may then supply to the user.

If a user returns to the apparatus during the period for which they still have credit, the user can open the door, and then re-close and lock the door. This feature is useful for example when a user wishes to temporarily store items purchased during the period for which the motorcycle is being stored.

The apparatus 10 is provided with a receptacle (not shown) that fits into a chamber 400 in a wall of the container 100 for receiving coins that the user may supply. The chamber 400 is designed such that access to the interior of the container via the chamber 400 is prevented, thus enhancing the security of the apparatus 10.

In some embodiments of the invention, the control electronics 600 are accessible remotely, using a GSM modem 610. The status of the system may be monitored externally via the GSM modem, including usage information such as the amount of payment received by the apparatus 10. This information is helpful in monitoring the profitability of an apparatus 10.

A diagnostic port 500 (Fig. 7) is also provided, within the chamber 400. The diagnostic port enables the control electronics 600 to be overridden in the event of a fault, allowing the apparatus 10 to be unlocked. For example, a computing device may be connected to the diagnostic port 500 in order to interrogate the control electronics 600.

In embodiments of the invention, the control electronics are adapted for connection to a remote server, for example by a telephone connection, a wireless connection, or any other suitable connection. The remote server may communicate with the control electronics to determine a status of the apparatus. For example, the server may access data regarding usage of the apparatus, such as revenue generated and a length of time for which an apparatus has been occupied. Statistical data may be obtained such as the average length of a user's use of the apparatus, and periods of peak demand for apparatuses at a particular location.

Furthermore, the server may be adapted to provide the apparatus with a date regarding a reservation of the apparatus by a user. Thus, for example, a user may log on to a server via an internet connection or other means, or send a text message, to reserve usage of an apparatus at a particular location at a particular time on a particular day. Alternatively or in addition a user may reserve an apparatus for a block period of time, or for certain time periods on workdays or at weekends. Once the reservation has been made, the user is provided with a PIN code. The user may also be requested to pre-pay for the time period for which the apparatus has been reserved.

The apparatus that has been reserved is then unable to be used by another person for the time period for which the apparatus has been reserved. When the user arrives at the apparatus at the pre-booked time, the user may enter their PIN code into the apparatus, to open the apparatus.

This feature has the advantage that a user may be confident that a secure parking area will be available at his or her destination before arriving at the destination.

In embodiments of the invention, if the user has pre-paid for use of the apparatus, the user is not required to make further payment for use of the apparatus. In alternative embodiments, a user is still required to make payment when they arrive at the apparatus to use the apparatus, having reserved use of the apparatus.

An indicator on the control console 300 provides an indication of a status of the apparatus. For example, the console may indicate that the apparatus is vacant, or that the apparatus is in use. In addition, in embodiments of the invention the apparatus provides an indication of a time period during which use of the apparatus is reserved. Furthermore, in embodiments of the invention, the apparatus is adapted to refuse to accept payment that extends a time period for which use of the apparatus has been paid for into a time period during which use of the apparatus has been reserved. Furthermore, in embodiments of the invention, the apparatus is adapted to automatically open when a vehicle is inside the apparatus not corresponding to a vehicle associated with a user that has reserved use of the apparatus, if the user associated with the vehicle in the apparatus has not returned to the apparatus by the commencement of the period for which use of the apparatus has been reserved by the other user.

In some variations on this embodiment of the invention, the control console 300 is configured to control a plurality of vehicle storage apparatuses. Thus, only one control console is needed to control the plurality of storage apparatuses. The storage apparatuses therefore do not need to have integral control consoles 300. An advantage of this embodiment is that the number of control consoles 300 required for a given installation of two or more storage apparatuses is reduced, thereby reducing the cost of the installation. Furthermore, maintenance of only one control console 300 is required for a given installation. By maintenance is included the requirement to empty a coin or token receptacle associated with the storage apparatus.

According to a second embodiment of the invention (FIGURE 9), a storage apparatus 1000 is provided having a container 1100 having a door 1200 and a control console 1300. Operation of the storage apparatus 1000 is similar to the that of the storage apparatus 10 according to the first embodiment. However the storage apparatus 1000 according to the second embodiment differs from the storage apparatus 10 according to the first embodiment in that storage apparatus 1000 is not configured to allow a vehicle to be driven into the container 1100. Rather, the container 1100 is configured for storage of a user's clothing and other similar items. However, the storage apparatus 1000 is provided with a chain 1500 that may be looped through an aperture in a vehicle, such as through an aperture in a wheel of a motorcycle 2000, to secure the vehicle to the apparatus 1000.

According to the second embodiment one end of the chain 1500 is permanently attached to the apparatus 1000, whilst a free end of the chain may be releasably secured to an anchor on an inside of the container 1100. The chain 1500 is disposed to pass through an aperture 1550 in the door 1200 of the apparatus 1000 when in use, so that it may be passed through an aperture of a motorcycle 2000. In variations of the second embodiment the free end of the chain may be secured to an anchor that is not within the container 1100.

According to the second embodiment, the anchor is in the form of a hook within the container 1100. Unauthorised removal of the free end of the chain from the hook is prevented when the door 1200 is closed, since access to the hook from an outside of the container 1100 is prevented by the door 1200.

It will be understood that in alternative embodiments the anchor may be of a different form, and may be located outside the container 1100.

As in the case of variations on the first embodiment, a plurality of storage apparatuses according to the second embodiment of the invention may be controlled from a single control console 1300, the console 1300 being provided either integral to one storage apparatus 1000 or as a separate apparatus.

**CLAIMS:**

1. A vehicle parking apparatus, comprising:

a container, the container comprising;

an aperture through which an item to be stored may be passed;

a door operable to close the aperture;

door locking means operable to lock and unlock the door;

vehicle securing means operable to releasably secure a vehicle whereby to prevent removal of the vehicle from the vicinity of the apparatus;

permission determining means configured to allow a user to lock the door or to unlock the door when it is determined that a user has permission, and to secure a vehicle or release a vehicle when it is determined that a user has permission.

2. Apparatus as claimed in claim 2 wherein the apparatus further comprises storage means for storing a user's gear.

3. Apparatus as claimed in claim 1 or claim 2 wherein the storage means comprises at least one selected from amongst a shelf, a cupboard, a hanger or any other suitable storage means.

4. Apparatus as claimed in claim 1 wherein the item to be stored comprises a vehicle.

5. Apparatus as claimed in claim 4 as dependent on claim 2 or claim 3 wherein said storage means is provided in a location such that heat from a vehicle parked within the container may be used to dry items of gear that are wet.

6. Apparatus as claimed in any preceding claims herein the door locking means is further operable by a user on an inner side of the container to unlock the door.

7. Apparatus as claimed in any preceding claim wherein the locking means comprises a release member, the release member being operable from inside the container to unlock the door.

8. Apparatus as claimed in claim 7 wherein a pedal is provided, the pedal being operable from inside the container to operate the release member.

9. Apparatus as claimed in any preceding claim wherein a button is provided on the inside of the container, the apparatus being adapted to unlock the door when the button is actuated.

10. Apparatus as claimed in any preceding claim wherein the locking means comprises at least one bolt, slidably connected to the door, the at least one bolt being operable to assume an extended condition or a retracted condition, the container being provided with a bolt-receiving aperture, such that with the door in a closed condition and the bolt in an extended condition the bolt is received through said bolt-receiving aperture, to lock the door.

11. Apparatus as claimed in any preceding claim wherein the locking means comprises at least one bolt, slidably connected to the container, the at least one bolt being operable to assume an extended condition or a retracted condition, the door being provided with a bolt-receiving aperture, such that with the door in a closed condition and the bolt in an extended condition the bolt is received through said bolt-receiving aperture, to lock the door.

12. Apparatus as claimed in claim 10 or claim 11 wherein the locking means is provided with biasing means, the biasing means being adapted to urge the at least one bolt towards said extended condition.

13. Apparatus as claimed in any preceding claim wherein the locking means comprises a pantograph-type mechanism.

14. Apparatus as claimed in claim 13 wherein the release means comprises a leadscrew operable by an electric motor.

15. Apparatus as claimed in any preceding claim wherein, in an open condition, the door is substantially contained within the apparatus.

16. Apparatus as claimed in any preceding claim wherein the door is adapted to move from a closed condition to an open condition such that the door remains substantially contained within the apparatus.

17. Apparatus as claimed in any preceding claim wherein the apparatus is provided with a keypad, the apparatus being adapted to request a security code from a user, the apparatus being further adapted to lock the door after the security code has been provided.

18. Apparatus as claimed in claim 17 wherein the permission-determining means is adapted to lock the door if the security code entered by a user corresponds to an authorised security code.

19. Apparatus as claimed in any preceding claim wherein the apparatus is adapted to request a security code from a user before unlocking the door.

20. Apparatus as claimed in claim 19 wherein the permission-determining means is adapted to unlock the door if the security code entered by a user corresponds to an authorised security code.

21. Apparatus as claimed in claim 20 wherein the authorised security code corresponds to a code transmitted to the apparatus by a remote server.

22. Apparatus as claimed in any preceding claim further comprising payment means.

23. Apparatus as claimed in any preceding claim wherein the apparatus is adapted to ensure that a credit value of a user is sufficient before allowing the door to be unlocked.

24. Apparatus as claimed in any preceding claim wherein the apparatus is adapted to request a user to make further payment before unlocking the door when a credit value of a user is too low.

25. Apparatus as claimed in any preceding claim wherein the apparatus is provided with occupant detection means for detecting an occupant.

26. Apparatus as claimed in claim 25 wherein the apparatus is adapted to unlock the door in the event that an occupant is detected by the occupant detection means when the door is in a locked condition.

27. Apparatus as claimed in claim 25 or claim 26 wherein the apparatus is adapted to maintain the door in an unlocked condition in the event that an occupant is detected by the occupant detection means when the door is in an unlocked condition.

28. Apparatus as claimed in any preceding claim wherein the apparatus is adapted to ensure that the door is in a closed condition before allowing the door to assume a locked condition.

29. Apparatus as claimed in any preceding claim wherein the apparatus comprises means for automatically opening the door when a signal is received from a user.

30. Apparatus as claimed in claim 29 wherein the means for automatically opening the door comprises at least one selected from amongst an electric motor, a gas strut or any other suitable device.

31. Apparatus as claimed in any preceding claim wherein the apparatus is provided with means for automatically closing the door when a signal is received from a user.

32. Apparatus as claimed in claim 31 wherein the means for automatically closing the door comprises at least one selected from amongst an electric motor, a gas strut or any other suitable device.

33. Apparatus as claimed in claim 31 or claim 32 wherein the apparatus is further adapted automatically to close the door when the following conditions are met: a predetermined time period has expired since the door was opened, no signal is received from a user, and no occupant is detected by the means for detecting an occupant.

34. Apparatus as claimed in any preceding claim wherein the apparatus comprises means for indicating whether the apparatus is occupied.

35. Apparatus as claimed in claim 34 wherein the means for indicating whether the apparatus is occupied comprises at least one selected from amongst an indicator lamp, an illuminated panel, and a flag.

36. Apparatus as claimed in any preceding claim wherein the payment means comprises means for receiving at lest one selected from amongst coins, bank notes, tokens, credit cards, debit cards, smart cards, or any other suitable payment means.

37. Apparatus as claimed in claim 36 wherein the apparatus is provided with a secure receptacle for receiving at least one selected from amongst coins, bank notes and tokens.

38. Apparatus as claimed in claim 37 wherein the apparatus is adapted such that access to the receptacle is provided only from an outer side of the container.

39. Apparatus as claimed in claim 37 or claim 38 wherein the apparatus is adapted such that access to the receptacle does not permit access to the inner side of the apparatus.

40. Apparatus as claimed in any preceding claim wherein the apparatus is provided with communication means for communicating with an external computing device.

41. Apparatus as claimed in claim 40 wherein the communications means comprises at least one selected from amongst a telephone connection; a wireless connection; and a port adapted for connection to a portable computing device.

42. Apparatus as claimed in claim 40 or claim 41 wherein the communication means is adapted to provide override control of the locking means.

43. Apparatus as claimed in any preceding claim wherein the apparatus is adapted to unlock the door when an administration code is entered into the apparatus by a user.

44. Apparatus as claimed in claim 43 wherein the apparatus is adapted to generate an administration code response code in the event that a user enters an administration code into the apparatus.

45. Apparatus as claimed in claim 44 wherein the administration code response code corresponds to an access code, the locking means being adapted to unlock the door when said access code is entered into the apparatus.

46. Apparatus as claimed in claim 45 wherein the access code corresponds to the security code entered by the user.

47. Apparatus as claimed in any one of claims 44 to 46 wherein the apparatus comprises computing means for generating said administration code response code.

48. Apparatus as claimed in claim 45 or any claim depending therefrom, wherein the access code is generated from the administration code response code using an algorithm stored in external computing means.

49. Apparatus as claimed in any preceding claim wherein the apparatus is provided with internal lighting.

50. Apparatus as claimed in any preceding claim wherein power is provided to the apparatus by a solar power system.

51. Apparatus as claimed in any preceding claim wherein the vehicle securing means comprises a connection member operable to releasably connect to a vehicle.

52. Apparatus as claimed in claim 51 wherein the connection member comprises an elongate flexible member.

53. Apparatus as claimed in claim 52 wherein the elongate flexible member is provided with means for securing respective end portions of the member to the apparatus, the member being operable to form a loop through an aperture of a vehicle to be secured.

54. Apparatus as claimed in claim 53 wherein the elongate flexible member comprises at least one selected from amongst a chain, a wire, a rope, a cable or any other suitable element.

55. A parking installation comprising a plurality of vehicle parking apparatuses as claimed in any of claims 1 to 54.

56. An installation as claimed in claim 55 further comprising a single user payment console arranged to receive payment from a user.

57. An installation as claimed in claim 56 wherein the payment console is further arranged to perform at least one function selected from amongst (i) locking the door and securing the vehicle, and (ii) unlocking the door and releasing the vehicle, when it is determined that a user has permission to perform the selected function.

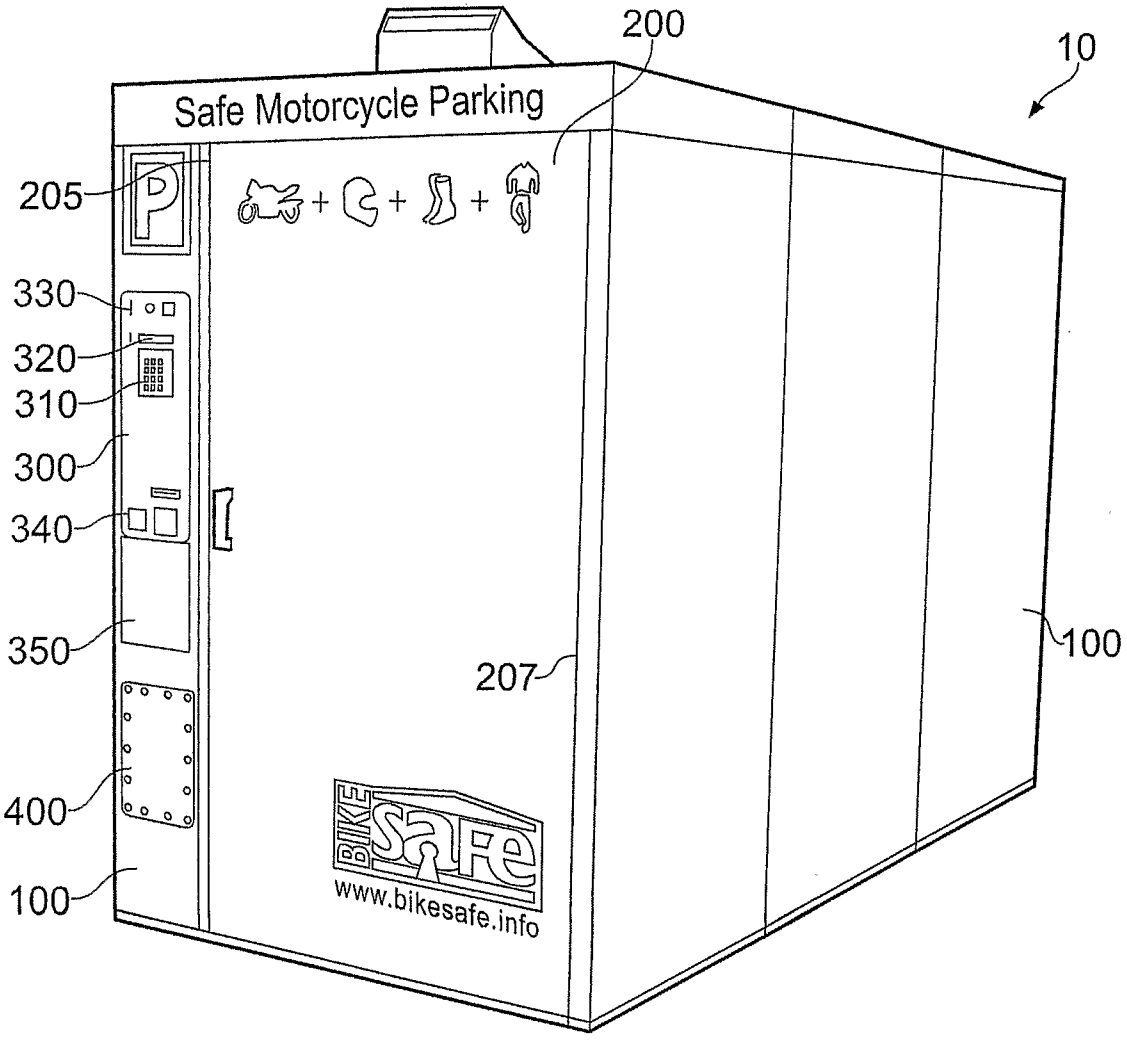

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BIKE safe
www.bikesafe.info

Fig. 1

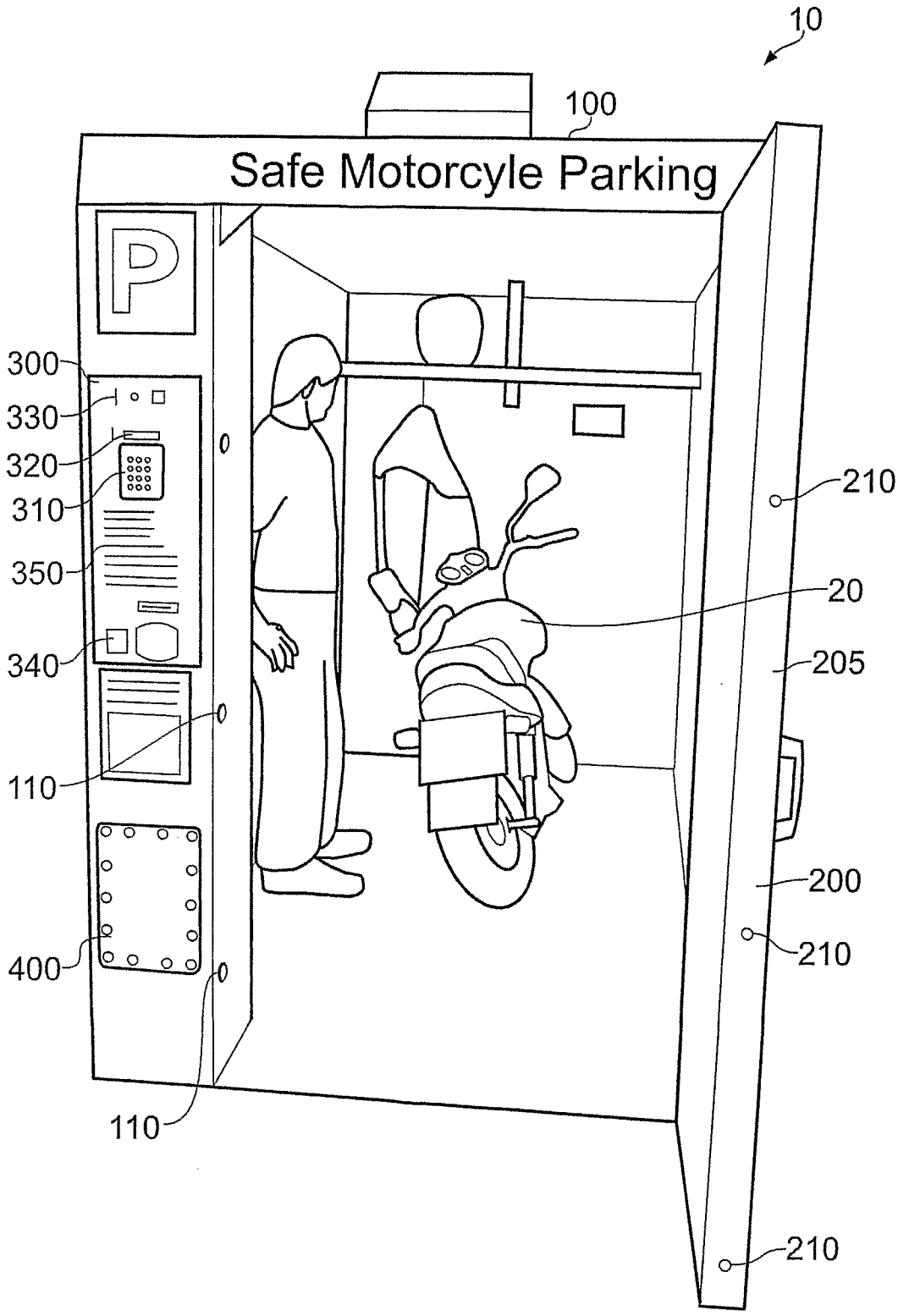

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Fig. 2

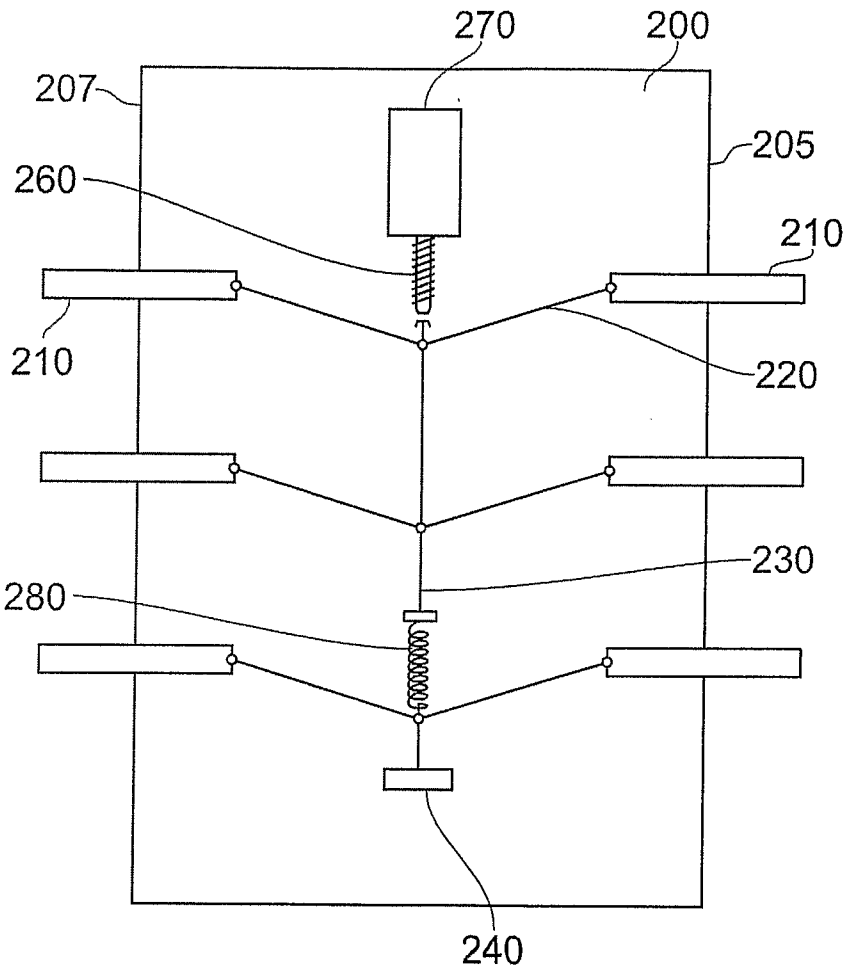



Fig. 3

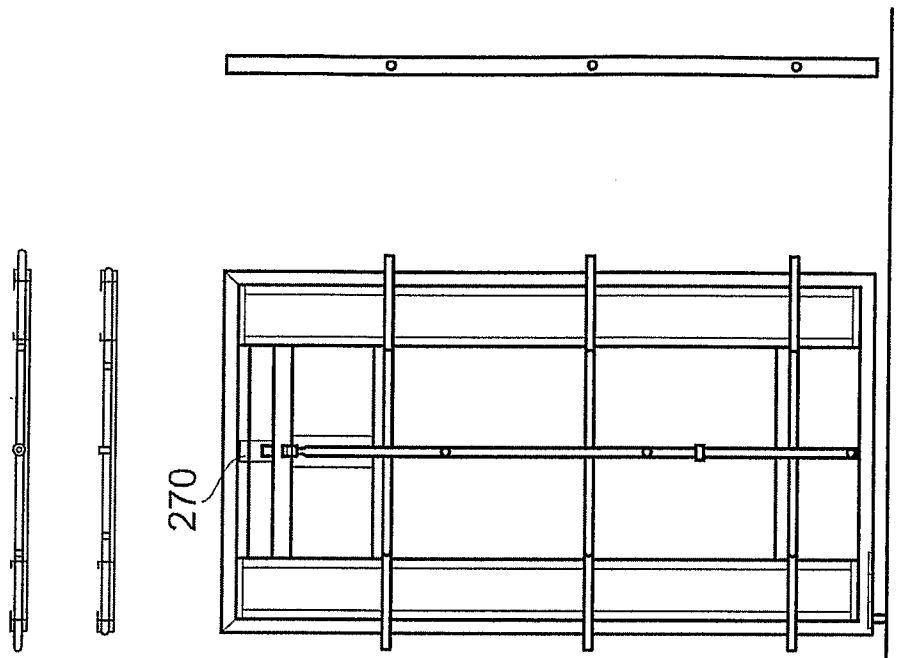



Fig. 5

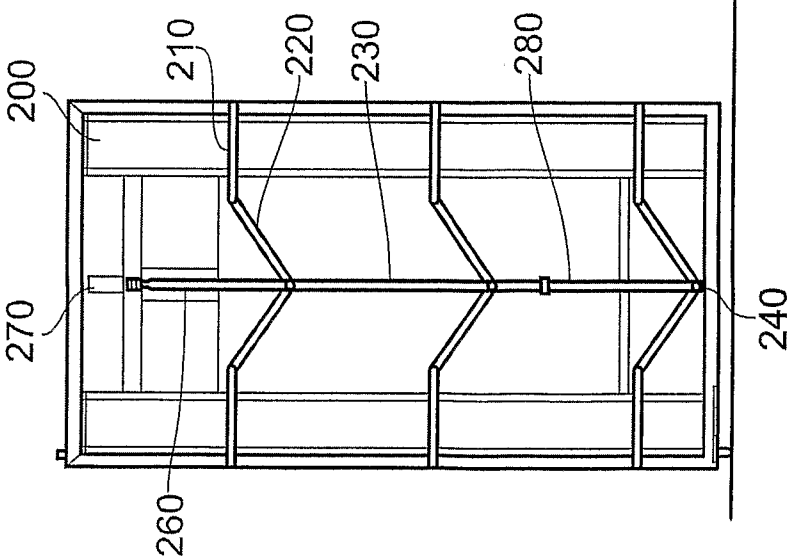



Fig. 4

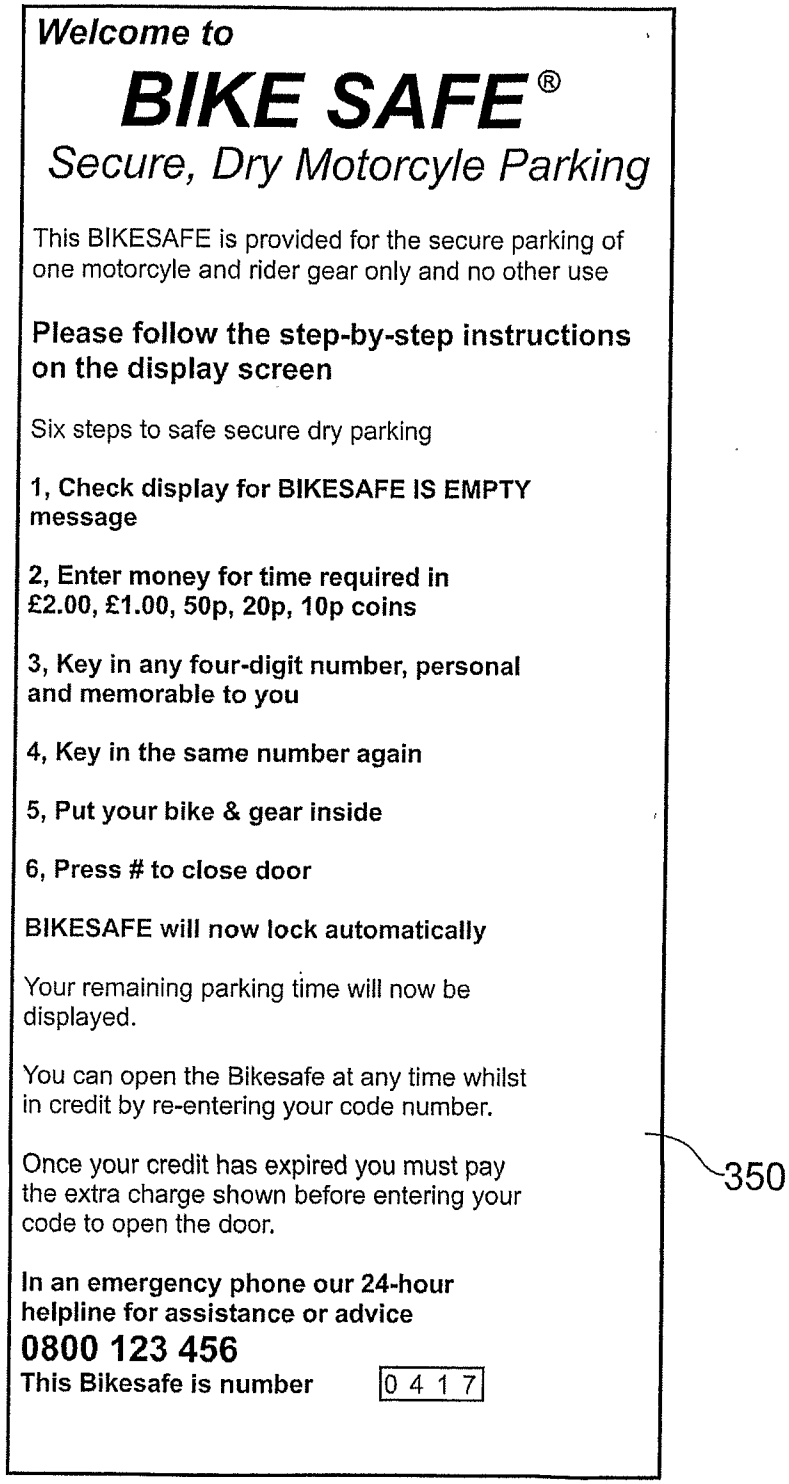

Welcome to
BIKE SAFE®
Secure, Dry Motorcyle Parking
This BIKESAFE is provided for the secure parking of one motorcyle and rider gear only and no other use
Please follow the step-by-step instructions on the display screen
Six steps to safe secure dry parking
1, Check display for BIKESAFE IS EMPTY message
2, Enter money for time required in £2.00, £1.00, 50p, 20p, 10p coins
3, Key in any four-digit number, personal and memorable to you
4, Key in the same number again
5, Put your bike & gear inside
6, Press # to close door
BIKESAFE will now lock automatically
Your remaining parking time will now be displayed.
You can open the Bikesafe at any time whilst in credit by re-entering your code number.
Once your credit has expired you must pay the extra charge shown before entering your code to open the door.
In an emergency phone our 24-hour helpline for assistance or advice
0800 123 456
This Bikesafe is number
0 4 1 7
350

Fig. 6

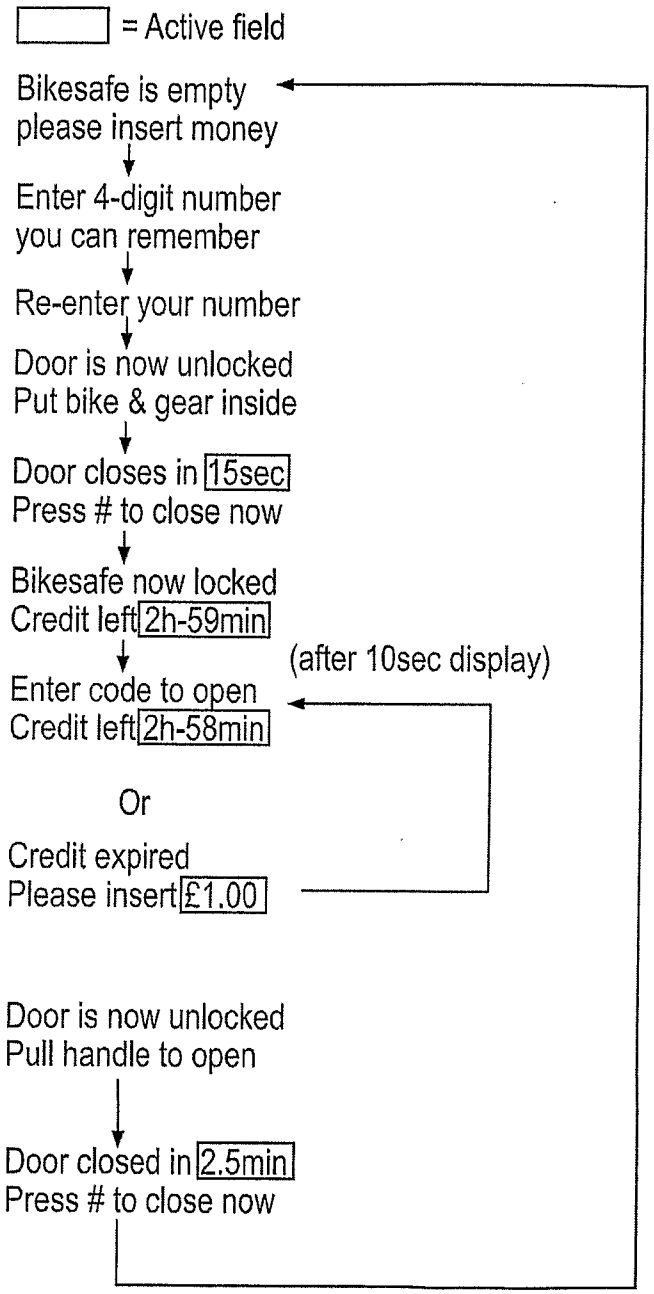

= Active field
Bikesafe is empty
please insert money
Enter 4-digit number
you can remember
Re-enter your number
Door is now unlocked
Put bike & gear inside
Door closes in 15sec
Press # to close now
Bikesafe now locked
Credit left 2h-59min
(after 10sec display)
Enter code to open
Credit left 2h-58min
Or
Credit expired
Please insert £1.00
Door is now unlocked
Pull handle to open
Door closed in 2.5min
Press # to close now

Fig. 7

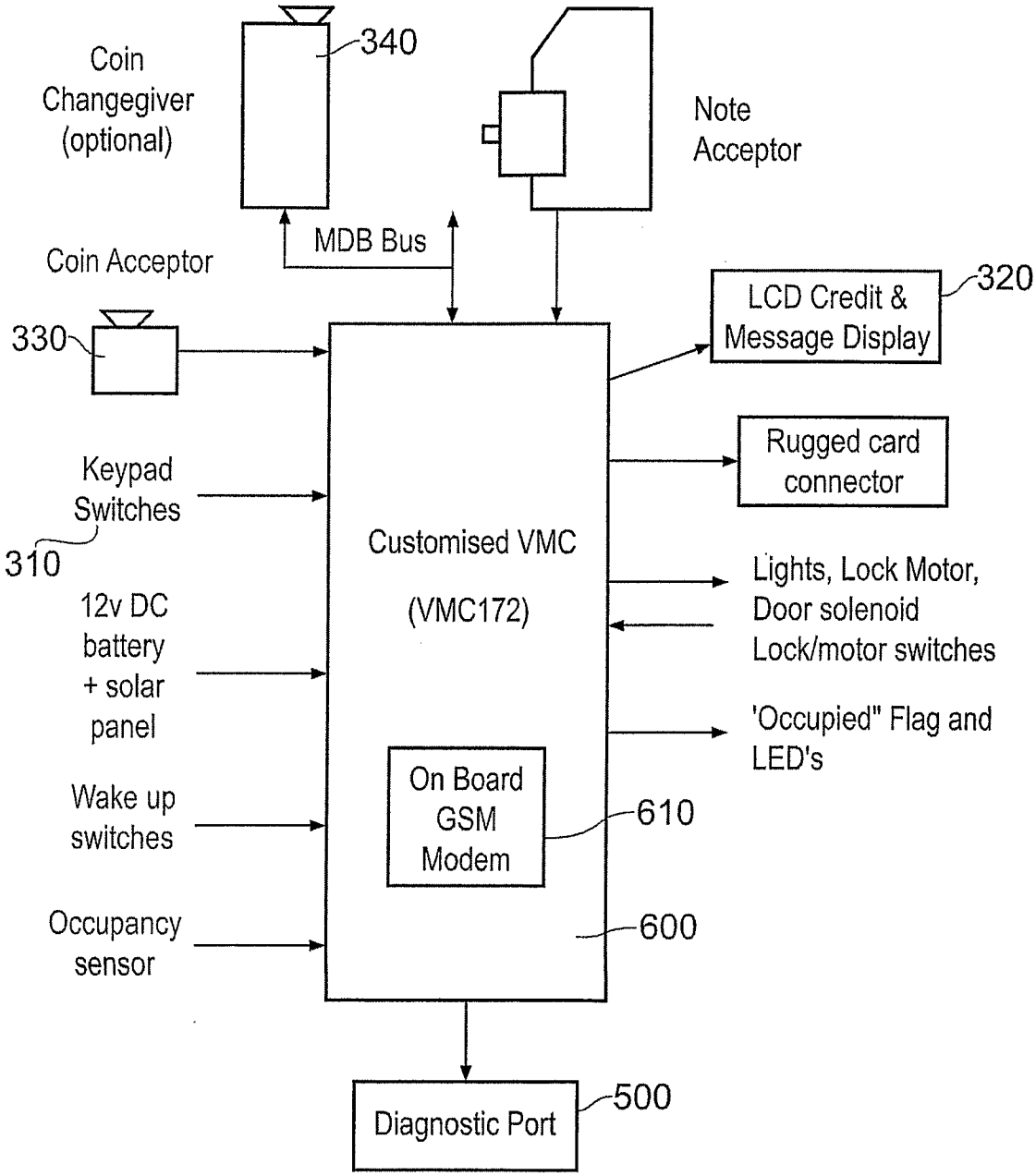

Coin
Changegiver
(optional)
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Note
Acceptor
MDB Bus
Coin Acceptor
330
LCD Credit &
Message Display
320
Rugged card
connector
Keypad
Switches
310
Customised VMC
(VMC172)
Lights, Lock Motor,
Door solenoid
Lock/motor switches
12v DC
battery
+ solar
panel
'Occupied" Flag and
LED's
On Board
GSM
Modem
610
Wake up
switches
Occupancy
sensor
600
Diagnostic Port
500

Fig. 8

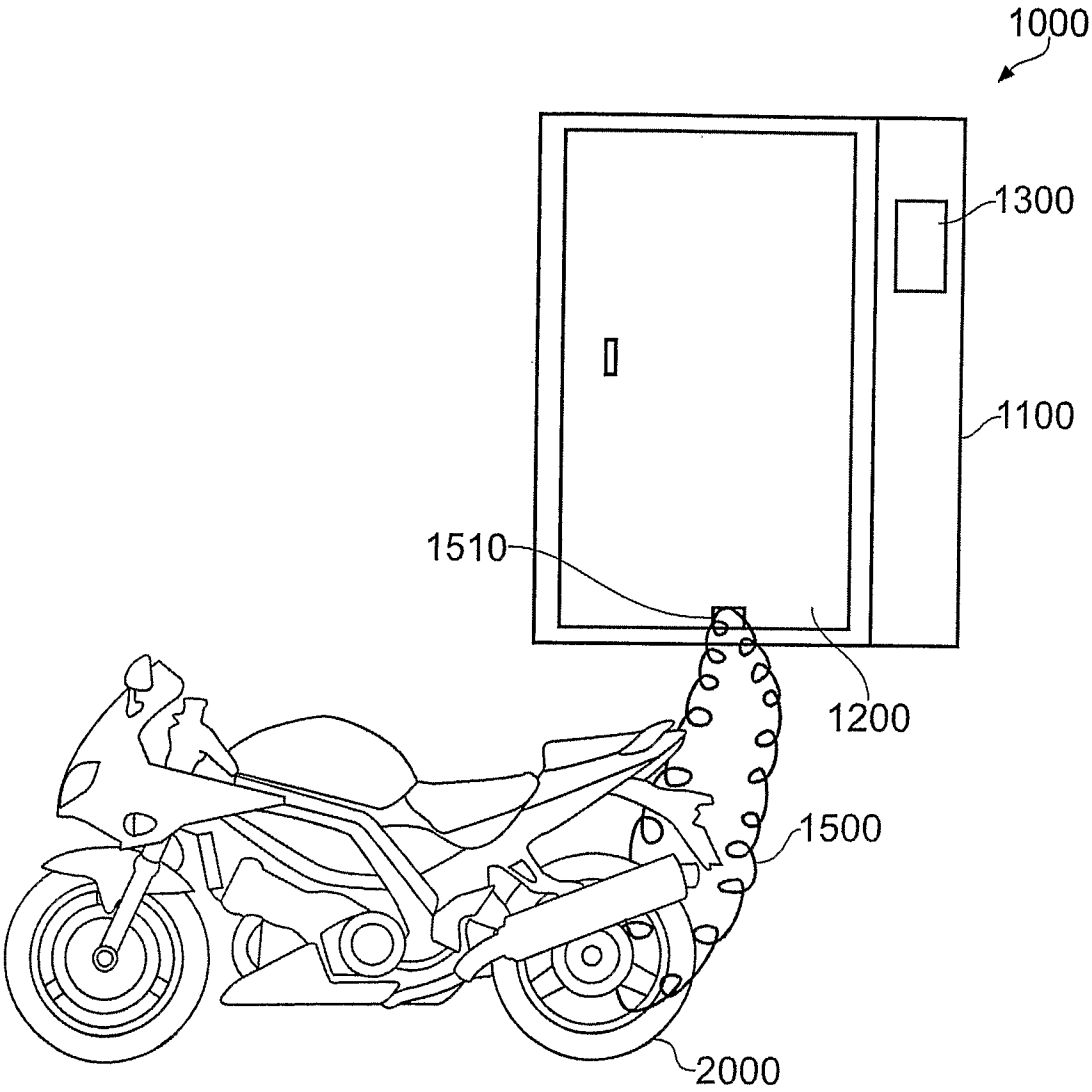



Fig. 9

# INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2006/003353

A. CLASSIFICATION OF SUBJECT MATTER
INV. E04H6/00 B62H3/00 B62H5/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
E04H B62H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X | FR 2 764 261 A1 (BICYPARK SA [FR])<br>11 December 1998 (1998-12-11)<br>the whole document | 1,2,4,5,<br>17-20,<br>22-28,<br>33,34,<br>36-38,<br>40,41,<br>43-47,<br>50-52,55 |
| X | WO 97/14861 A (JENKINS JOHN [CA])<br>24 April 1997 (1997-04-24)<br>the whole document | 1-7,15,<br>16,55 |
| X | FR 2 611 791 A1 (LIBRE SERVICE CONSIGNE SA [FR]) 9 September 1988 (1988-09-09)<br>the whole document | 1,2,4,5,<br>10,11,55 |

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

| Date of the actual completion of the international search | Date of mailing of the international search report |
|---|---|
| 23 November 2006 | 30/11/2006 |

| Name and mailing address of the ISA/ | Authorized officer |
|---|---|
| European Patent Office, P.B. 5818 Patentlaan 2<br>NL – 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,<br>Fax: (+31-70) 340-3016 | Delzor, François |

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# INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2006/003353

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X | US 3 989 327 A (CANDELARIA ARTHUR R)<br>2 November 1976 (1976-11-02)<br>the whole document | 1-3,<br>51-55 |
| Y | | 56,57 |
| Y | US 4 920 334 A (DEVOLPI DEAN R [US])<br>24 April 1990 (1990-04-24)<br>the whole document | 56,57 |
| A | | 1,51 |

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/GB2006/003353

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
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| | | EP 0986684 A1 | 22-03-2000 |
| | | WO 9855716 A1 | 10-12-1998 |
| WO 9714861 A | 24-04-1997 | AU 7208396 A | 07-05-1997 |
| FR 2611791 A1 | 09-09-1988 | NONE | |
| US 3989327 A | 02-11-1976 | NONE | |
| US 4920334 A | 24-04-1990 | NONE | |