

LOCKABLE DEVICE FOR THE SECURING OF OBJECTS

FIELD OF INVENTION

5

This invention relates to a device for the securing of objects. The objects placed on the device may be locked to prevent removal. The use of the device is particularly relevant for, though not exclusively so, pistols, rifles, knives, swords, axes and so forth.

10

BACKGROUND

15

In light of the terrorist threat that the world faces today, it has been more important than ever to ensure that firearms do not fall into the wrong hands. In weapon storage facilities around the world, it is standard procedure to keep firearms locked when not in use.

20

25

Currently, the firearms are placed on racks and a metal chain is threaded through the trigger area or any other slot in each firearm. The ends of the chain are locked together with the rack such that the removal of one firearm from the rack would ensure that the other firearms would be strung along together with the rack. However, the threading of the chain through the firearms requires a significant amount of patience, due to the large number of firearms to be threaded on one chain and the size of the slots in relation to the thickness of each chain. Strength is also required to pull the chain through the firearms as there is significant resistance experienced during the process. This is a labourious and inconvenient process.

SUMMARY OF INVENTION

30

There is provided a device for the securing of objects, including: a casing having at least one slot located along at least one edge of the casing for receiving at least one object; at least one primary barrier for holding the at least one object within the at least one slot, the primary barrier movable to a closed position from an open

position; and a rotatable member in mechanical communication with the primary barrier. The device may further include an engagement member connected to the primary barrier such that rotation of the rotatable member engages the engagement member and locks the primary barrier in a closed position.

5

Alternatively, the device may further include an engagement member connected to the primary barrier such that rotation of the rotatable member engages the engagement member and rotates the primary barrier between the open and closed positions.

10

Preferably, the engagement member engages with either a notch or a stopper located along the rotatable member. The primary barrier may preferably be a rotatable rigid plate or rod. It is preferable that the primary barrier and the engagement member are both attached to a rotatable body.

15

There may be a secondary barrier that is separate and substantially parallel to the primary barrier. The rotatable member may have a plurality of stoppers or notches located at pre-determined positions.

20 Preferably, there may be at least one projection located around each slot in the casing to restrict the range of rotation of the primary barrier. At least one projection may preferably be positioned adjacent to the engagement member when the primary barrier is in a closed position.

25 Advantageously, the casing has guides for the rotatable member. The rotatable member may also be operated using a lever. The lever may be secured by locks such as, for example, a key-operated lock, a combination lock or a biometric authentication-based lock.

30 It is advantageous that each slot is inclined at an angle of between 1° – 30° to the edge of the casing. The casing may also include a guide structure at a top surface of the casing for securing the object placed in the slot.

It is preferable that edges of each slot is lined with material that protects objects placed in each slot from being scratched. The lining material used may be, for example, sponge, adhesive tape, or foam.

- 5 A pan or a base with slots may be used with the device for the placement of objects.

Preferably, the device may be made from materials such as, for example, stainless steel, aluminum, or composites. The casing may preferably of a shape such as, for
10 example, rectangular, polygonal, circular, elliptical, or asymmetrical.

The primary barrier may be actuated by gears.

DESCRIPTION OF DRAWINGS

15

In order that the invention may be better understood and readily put into practical effect, there shall now be described by way of non-limitative example only preferred embodiments of the present invention, the description being in reference to the accompanying illustrative drawings in which:

- 20 Figure 1 is a perspective view (with an open casing) of the present invention;
Figure 2 is a top view of a casing used with a view of a barrier component in an "open" position and a view of a barrier component in a "closed" position in a preferred embodiment of the present invention;
Figure 3 is a top view of a barrier component used in a preferred embodiment of the
25 present invention;
Figure 4 is a perspective view of a rod used in a preferred embodiment of the present invention;
Figure 5 is a top view of a segment of the casing with various components interacting in a preferred embodiment of the present invention;
30 Figure 6 is a top view of a base used in a preferred embodiment of the present invention;
Figure 7 is a side view of a base used in a preferred embodiment of the present invention;

Figure 8 is a side view of a preferred embodiment of the present invention;
Figure 9 is a picture of an application of the present invention;
Figure 10 is perspective view of an alternative construction of the present invention;
and
5 Figure 11 is a perspective view of another alternative construction of the present invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

10 Referring to Figure 1, there is provided a perspective view of a device 20 for the secure placement of objects. Figure 1 shows the device 20 with an unsealed casing 22 to show the various components in the device 20. The device 20 includes a rectangular casing 22. The casing 22 may include at least one slot 24 along a first edge 26 of the casing 22. The slot 24 may be exposed at a first end 30 along the
15 first edge 26 and closed at a second end (not shown). The second end may be closed in the shape of a curved or straight "U" (Figure 2) when viewed from above. The second end may also be closed in the shape of a "V" when viewed from above. There may be a plurality of slots 24 located along the entire first edge 26 of the casing 22. Should the breadth of the casing 22 be sufficiently wide to contain twice
20 the number of required components of device 20 in a mirror-ed arrangement, a plurality of slots may also be located along an entire second edge 32 of the casing 22. The first 26 and second 32 edges of the casing 22 may be parallel. The casing 22 may also have curved edges such that the casing 22 may be elliptical, or circular, or asymmetrically shaped. Figure 2 shows a top view of the casing 22 with
25 the primary barrier 34 shown in open 50 and closed 52 positions. The slots 24 may be inclined at an angle for an object 18 to be placed into the slot 24 without obstruction from the primary barrier 34, and for a secondary barrier 38 to come into contact with the object 18 such that the primary barrier 34 is automatically moved to a closed position 52 when the object 18 is placed towards a closed end 66 of the
30 slot 24. The angle of incline may be between $1^{\circ} - 30^{\circ}$. Hence, objects 18 are more easily placed within such inclined slots 24.

The edges of each slot 24 may be lined with material that protects an object 18 placed in each slot 24 from being scratched. The lining material may be selected from materials such as, for example, sponge, adhesive tape, and foam. The object 18 may be objects that are required to be kept securely, such as, for example, pistols, rifles, knives, swords, axes and so forth.

Referring to Figure 9, the casing 22 may include a guide structure 102 at a top surface 21 of the casing 22. The guide structure 102 may be a wire structure (as shown) or a plastic molding used to anchor a barrel 104 of a pistol 100 in a pre-determined direction. The guide structure 102 may ease the placement of the object 18 into the slot 24.

The casing 22 may have at least one cylindrical block 28 located alongside each slot 24. At least one rotatable primary barrier 34 is attached to a rotatable body like a hollow cylinder 36 which may be sleeved on the cylindrical block 28 in the casing 22 to move from an open position ("50" in Figure 2) to a closed position ("52" in Figure 2). The block 28 and the inner surface of the sleeve of the primary barrier 34 may be lubricated with grease or may be coated with a layer of graphite to lower the friction between the surfaces. The hollow cylinder 36 may also include a secondary barrier 38 that may be substantially parallel to the primary barrier 34. The primary barrier 34 may be used to seal each slot 24 while the secondary barrier 38 may be used as a backing for the placement of objects 18 in each slot 24 from the open position ("50" in Figure 2) to the closed position ("52" in Figure 2) without manual re-positioning of the primary barrier 34. Placing an object 18 into the slot 24 would automatically seal the slot 24 with the use of the secondary barrier 38. The secondary barrier 38 may be removed such that the primary barrier 34 is required to be manually positioned to the closed position ("51" in Figure 2) at every instance.

An engagement member 40 may also be attached to the hollow cylinder 36. The engagement member 40 may be positioned adjacent to the secondary barrier 38 at any orientation that allows engagement to a rotatable member 42. Figure 1 shows the engagement member 40 in a perpendicular position adjacent to the secondary

barrier 38. Figure 3 shows a top view of the hollow cylinder 36 and the primary barrier 34, the secondary barrier 38 and the engagement member 40.

The engagement member 40 may be a component of a system for locking the primary barrier 34 in the closed position ("51" in Figure 2). The system for locking the primary barrier 34 may include a rotatable member like a rod 42 with either stoppers 44 or notches (not shown) located at pre-determined positions along the rod 42. Referring to Figure 10, the stopper 44 may include a rectangular member 45 that impedes the movement of engagement member 40 when the primary barrier 34 is in a closed position. The rectangular member 45 may be flat or inclined at an angle. The rectangular member 45 may be attached to the rod 42, the stopper 44 or to both the rod 42 and the stopper 44. The rod 42 is shown in Figure 4. The rod 42 may be of a cross-section such as, for example, circular, elliptical, and polygonal. The rod 42 may have a uniform cross-section or may comprise portions of varying cross-sections.

Referring to Figure 5, a segment of the casing 22 is shown together with the components of the locking system in a closed position. The rod 42 is anchored to the casing 22 with guides 46. The rod 42 may be attached to a lever 70 (Figure 1). The lever 70 may be operated to rotate the rod 42. The lever 70 may be lockable using a key-operated lock, a combination lock or a biometric authentication-based lock. The object 18 is placed in the closed position as shown. The hollow cylinder 36 is sleeved on the cylindrical block 28 that may be positioned to either side of the slot 24.

There may be three protrusions positioned around each slot 24. A first protrusion 60 is positioned adjacent to the engagement member 40 such that the protrusion 60 impedes the engagement member 40 from moving beyond the protrusion 60. The first protrusion 60 aids in the locking of the primary barrier 34 in a closed position. When the engagement member 40 is blocked by the protrusion 60, the rod 42 is rotated such that the stopper 44 impedes a first end 62 of the engagement member 40. The first end 62 of the engagement member 40 may also be impeded by a notch in the rod 42. In this position, the primary barrier 34 remains in a locked

position and prevents the object 18 from being removed from the slot 24. It can be seen that the primary barrier 34 may be lockable even with the absence of the secondary barrier 38. However, when there is a secondary barrier 38, a second protrusion 64 may be positioned at the closed end 66 of the slot 24 to impede the rotational motion of the secondary barrier 38. The second protrusion 64 may also impede the rotational motion of the engagement member 40 when the primary barrier 34 is not locked in a closed position. A third protrusion 68 may be positioned towards a first end 30 of a slot 24 to impede the rotational motion of the primary barrier 34 when the primary barrier 34 is not locked in a closed position. A biasing system may be incorporated such that the primary barrier 34 "snaps" open when the stopper 44 is rotated away from the first end 62 of the engagement member 40. The stopper 44 may also be bendable in one direction such that the first end 62 of the engagement member 40 pushes the stopper 44 in the bendable direction and is impeded by the stopper 44 when the engagement member 40 is inclined to move in the opposite direction.

Figure 11 shows an alternative to the use of the three protrusions as mentioned in the earlier paragraph. A first guide plane surface 67 may replace the third protrusion 68 to impede the rotational motion of the primary barrier 34. A second guide plane surface 65 may replace the second protrusion 64 to impede the rotational motion of the secondary barrier 38.

The primary barrier 34 may be actuated by gears to cause a rotational movement between the open and closed positions. The primary barrier 34 may either be a rigid plate (as shown) or a rigid rod.

The engagement member 40 may also be set up such that a rotation of the rotational member 42 would cause a corresponding movement of the primary barrier 34 between the open and closed positions.

The device 20 may be employed in conjunction with a pan 120 for the placement of bases of objects 18. Referring to Figure 6, the pan 120 may be used to contain the bases of objects 18. The pan 120 may have slots 122 for the placement of the

bases of objects 18. The bases of objects 18 may include, for example, the handles of swords, the butts of rifles, the handles of axes and so forth. Referring to Figure 7, there is a sidewall 124 on a base 126 of the pan 120. The top portions of objects 18 may be placed in the slots 24 of the device 20. The top portions of
5 objects 18 may include, for example, the blades of swords, the barrels of rifles, the blades of axes and so forth.

Figure 8 shows the use of the device 20 together with a pan 20 to store a rifle 150. The barrel 152 of the rifle 150 is placed in a slot 24 of the device 20 with the butt
10 154 of the rifle 150 placed in the hole (not shown) of the pan 120. The device 20 may also be used without the pan 120.

Figure 9 shows the device 20 used for a handgun, such as, for example, revolvers, pistols and so forth. When the device 20 is employed for handguns, a trigger guard
15 would be positioned in the region between the primary barrier 34 and the secondary barrier 38.

All major components of the device 20 may be made from materials such as, for example, stainless steel, aluminum, and composites. Such materials are durable
20 and hard-wearing. The device 20 may be maintenance free for the life of the product.

Whilst there has been described in the foregoing description preferred embodiments of the present invention, it will be understood by those skilled in the
25 technology concerned that many variations or modifications may be made to details of design or construction without departing from the present invention.

The present invention extends to all features disclosed either individually, or in all possible permutations and combinations.

CLAIMS

1. A device for the securing of objects, including:
a casing having at least one slot located along at least one edge of the
5 casing for receiving at least one object;
at least one primary barrier for holding the at least one object within the at
least one slot, the primary barrier movable to a closed position from an open
position; and
a rotatable member in mechanical communication with the primary barrier.

10

2. The device as claimed in claim 1, further including an engagement member
connected to the primary barrier such that rotation of the rotatable member engages
the engagement member and locks the primary barrier in a closed position.

15

3. The device as claimed in claim 1, further including an engagement member
connected to the primary barrier such that rotation of the rotatable member engages
the engagement member and rotates the primary barrier between the open and
closed positions.

20

4. The device as claimed in either claim 2 or 3, wherein the engagement
member engages with a stopper located along the rotatable member.

5. The device as claimed in either claim 2 or 3, wherein the engagement
member engages with a notch located along the rotatable member.

25

6. The device as claimed in any one of claims 1 to 5, wherein the primary
barrier is a rotatable rigid plate.

30

7. The device as claimed in any one of claims 1 to 5, wherein the primary
barrier is a rotatable rigid rod.

8. The device as claimed in any one of claims 1 to 7, wherein the primary
barrier and the engagement member are both attached to a rotatable body.

9. The device as claimed in any one of claims 1 to 8, further including a secondary barrier that is separate and substantially parallel to the primary barrier.

5 10. The device as claimed in any one of claims 1 to 9, wherein the rotatable member has a plurality of stoppers located at pre-determined positions.

11. The device as claimed in any one of claims 1 to 9, wherein the rotatable member has a plurality of notches located at pre-determined positions.

10

12. The device as claimed in any one of claims 1 to 11, further including at least one projection located around each slot in the casing to restrict the range of rotation of the primary barrier.

15 13. The device as claimed in claim 12, wherein the at least one projection is positioned adjacent to the engagement member when the primary barrier is in a closed position.

14. The device as claimed in any one of claims 1 to 13, wherein the casing has
20 guides for the rotatable member.

15. The device as claimed in any one of claims 1 to 14, wherein the rotatable member is operated using a lever.

25 16. The device as claimed in claim 15, wherein the lever is lockable using a lock selected from the group comprising: a key-operated lock, a combination lock and a biometric authentication-based lock.

17. The device as claimed in any one of claims 1 to 16, wherein each slot is
30 inclined at an angle to the edge of the casing.

18. The device as claimed in claim 17, wherein the slot is inclined at an angle in the range of 1° – 30° .

19. The device as claimed in any one of claims 1 to 18, wherein the casing includes a guide structure at a top surface of the casing for securing the object placed in the slot.

5

20. The device as claimed in any one of claims 1 to 19, wherein edges of each slot is lined with material that protects objects placed in each slot from being scratched.

10 21. The device as claimed in claim 20, wherein lining material is selected from the group of materials selected from: sponge, adhesive tape, and foam.

22. The device as claimed in any one of claims 1 to 21, further including a pan for the placement of objects.

15

23. The device as claimed in any one of claims 1 to 21, further including a base with slots for the placement of objects.

20 24. The device as claimed in any one claims 1 to 23, wherein the device is made from materials selected from the group comprising: stainless steel, aluminum, and composites.

25 25. The device as claimed in any one of claims 1 to 24, wherein the casing is of a shape selected from the group comprising: rectangular, polygonal, circular, elliptical, and asymmetrical.

26. The device as claimed in claim 1, wherein the primary barrier is actuated by gears.

30 27. A component for use in a device as claimed in any one of claims 1 to 26, including:

a rotatable body;

a primary barrier fixedly positioned substantially tangential to the rotatable

body; and

an engagement member connected to the rotatable body;

wherein the rotatable body allows for rotational movement of the primary barrier.

5

28. The component as claimed in claim 27, further including a secondary barrier connected to the rotatable body that is separate and substantially parallel to the primary barrier.

10

29. The component as claimed in either claim 27 or 28, wherein the component is made from materials selected from the group comprising: stainless steel, aluminum, and composites.

15

30. A casing for use in a device as claimed in any one of claims 1 to 26, including:

at least one slot along an edge of the casing; and

at least one projection fixedly positioned around each slot,

wherein the at least one projection is positioned on the casing around each slot to restrict the range of rotation of a rotatable primary barrier.

20

31. The casing as claimed in claim 30, wherein each slot is inclined at an angle to the edge of the casing.

25

32. The casing as claimed in either claim 30 or 31, wherein the casing includes a guide structure at a top surface of the casing.

33. The casing as claimed in any one of claims 30 to 32, wherein the casing includes guides for a rotatable member.

30

34. The casing as claimed in any one of claims 30 to 33, wherein edges of each slot is lined with material that protects objects placed in each slot from being scratched.

35. The casing as claimed in claim 34, wherein lining material is selected from the group of materials selected from: sponge, adhesive tape, and foam.

36. The casing as claimed in any one of claims 30 to 35, wherein the casing is
5 made from materials selected from the group comprising: stainless steel, aluminum, and composites.

37. A rod for use in a device as claimed in any one of claims 1 to 26, including:
stoppers located at pre-determined positions along the rod, wherein the rod is of a
10 cross-section selected from a shape in the group comprising: circular, elliptical, and polygonal.

38. A rod for use in a device as claimed in any one of claims 1 to 26, including:
notches located at pre-determined positions along the rod, wherein the rod is of a
15 cross-section selected from a shape in the group comprising: circular, elliptical, and polygonal.

39. The rod as claimed in either claim 37 or 38, wherein the rod has a uniform
cross-section.

20

40. The rod as claimed in either claim 37 or 38, wherein the rod comprises
portions of varying cross-sections.

41. The device as claimed in any one of claims 1 to 26, wherein the object may
25 be selected from the group comprising: a barrel of a rifle, a trigger guard of a pistol, a blade of a sword, and a blade of an axe.

42. The casing as claimed in claim 31, wherein the slot is inclined at an angle in
the range of 1° – 30° .

30