Claims

1. An assemblied unit having a locking mechanism, comprising:

a pair of lateral guide rails, each of the lateral guide rails being configured with a sliding groove along a direction of extension thereof, with openings of the respective sliding grooves of the pair of lateral guide rails facing each other;

a pair of class I plate members disposed between the pair of lateral guide rails, wherein both ends of each of the class I plate members can be inserted into the sliding groove of the corresponding lateral guide rail, both ends of each of the lateral guide rails are respectively configured with an engaging structure, which has an engaging position and a disengaging position, and both ends of each of the class I plate members are configured with a corresponding engaging portion, such that when the engaging portion is slid into the engaging position, the corresponding class I plate member is lockedly engaged with the corresponding lateral guide rail, and when the engaging portion is slid into the disengaging position, the corresponding class I plate member can be disengaged from the sliding groove of the corresponding lateral guide rail;

a spine member configured with a raised sliding block along its direction of extension, wherein on a surface of each of the class I plate members, a class I engaging slot is configured in a direction parallel to the lateral guide rail, the class I engaging slot opening at a side of the class I plate member and terminating at a termination position after it extends across part of a surface of the corresponding plate member, with openings of the class I engaging slots of the pair of class I plate members facing each other; the sliding block of the spine member can be slid in from the opening of the class I engaging slot, and an edge of the sliding block can slidably fit with the class I engaging slot, such that the spine member can be slid along the class I engaging slot but is locked in a direction perpendicular to the surface of the corresponding plate member; and an end of the spine member is configured with a detachment portion having a predetermined length, such that the spine member can be embedded into or detached from the class I engaging slot at the detachment portion in a direction perpendicular to the surface of the corresponding plate member;

at least one eccentric rotation member, wherein a raised rotary sliding block is configured at the bottom of the eccentric rotation member; the rotary sliding block can be slid in from the opening of the class I engaging slot and stay at the termination position of the class I engaging slot, and an edge of the rotary sliding block rotarily fits with the class I engaging slot such that the eccentric rotation member can rotate about a center of the rotary sliding bock but is locked in a direction perpendicular to the surface of the

corresponding plate member; and with the rotary sliding block as a starting point, the eccentric rotation member has two arms extending in different directions, with a long arm having a length greater than that of a short arm;

wherein when the assembled unit is to be shifted to an unlocked state, the pair of class I plate members are in the engaging positions, the end of the spine member without the detachment portion is slid into the class I engaging slot having the eccentric rotation member disposed therein and abuts against the short arm of the eccentric rotation member, and the other end of the spine member configured with the detachment portion overlaps the other class I engaging slot, with a length of overlapping not greater than that of the detachment portion such that the spine member at the overlapping position can be directly embedded into the other class I engaging slot; and

when the assembled unit is to be shifted from an unlocked state into a locked state, the spine member is slid toward the end thereof configured with the detachment portion until it abuts against the termination position of the class I engaging slot accommodating the detachment portion, a length of the detachment portion is smaller than that of the class I engaging slot accommodating it such that at least part of a length of the class I engaging slot accommodating the detachment portion still fits with the sliding block of the spine member, and the eccentric rotation member is rotated such that its long arm abuts against the end of the spine member without the detachment portion.

2. The assembled unit according to claim 1, wherein the eccentric rotation member is configured with a guide face at a peripheral surface facing the spine member during rotation, so as to guide switching between the long arm and the short arm.

3. The assembled unit according to claim 1, wherein the eccentric rotation member is bar-shaped, and the rotary sliding block is a rotation shaft perpendicular to a direction of a length of the eccentric rotation member and is disposed away from a center position of the length, and an end of the rotation shaft bulges to allow it to rotatably fit in the class I engaging slot.

4. The assembled unit according to claim 1, wherein the class I engaging slot has a cross-sectional shape of a swallow-tailed slot, to which a shape of the sliding block of the spine member matches.

5. The assembled unit according to claim 1, wherein the eccentric rotation member is provided in a number of two, and the two eccentric rotation members are disposed in the respective class I engaging slots of the pair of class I plate members.

6. The assembled unit according to claim 1, wherein the assembled unit further comprises a tying band, the end of the spine member without the detachment portion is configured with at least one first through hole, and an end of the long arm of the eccentric rotation member is configured with at least one second through hole, such that the tying band is passed through the first through hole and the second through hole and tightened up in a loop in order to fix the locked state when the assembled unit is in the locked state.

7. The assembled unit according to claim 6, wherein the spine member and the eccentric rotation member both have a hollow structure, the end of the spine member without the detachment portion is configured with two symmetrically distributed first through holes, and the end of the long arm of the eccentric rotation member is configured with two symmetrically distributed second through holes, with the positions of the first through holes and the second through holes corresponding to each other, and the tying band is successively passed through the adjacent first through holes and second through holes and tightened up in a loop.

8. The assembled unit according to claim 6, wherein the end of the spine member without the detachment portion is configured with four symmetrically distributed first through holes, and the end of the long arm of the eccentric rotation member is configured with four symmetrically distributed second through holes, with the positions of the first through holes and the second through holes corresponding to each other, and the tying band is passed through two of the first through holes positioned on a same diagonal line on a cross-section of the spine member and two of the second through holes corresponding to the two of the first through holes and is tightened up in a loop.

9. The assembled unit according to claim 6, wherein the assembled unit further comprises a locking piece, the spine member and the eccentric rotation member have a cavity, the locking piece is adapted to be placed on a diagonal line on a cross-section of the cavity, and the locking piece does not press close to any inner side wall of the cavity, so as to prevent the eccentric rotation member from rotating about a center of the rotary sliding block.

10. The assembled unit according to claim 9, wherein the locking piece has a third through hole, and the tying band is passed through the third through hole to fix the locking piece.

11. The assembled unit according to claim 9, wherein a cross section of the locking piece has the same shape as a cross section of the spine member and a cross section of the eccentric rotation member.

12. The assembled unit according to claim 9, wherein the assembled unit further comprises a

chip, which is attached on the locking piece, the chip stores first authentication information, and a surface in a middle portion of the tying band records second authentication information which matches the first authentication information, so that by comparing the first authentication information and the second authentication information, matching between the chip and the tying band can be confirmed.

13. The assembled unit according to claim 12, wherein a surface of an end of the tying band further records third authentication information, the third authentication information matching the first authentication information and the second authentication information, and when the tying band is used, the end of the tying band having the recorded third authentication information is cut off to be saved as a stub.

14. The assembled unit according to claim 12, wherein the chip also stores material list information of the assembled unit, the material list information including the name, quantity, and records of loss and replacement of components of the assembled unit.

15. The assembled unit according to claim 6, wherein the spine member and the eccentric rotation member have a cavity, and both ends of the tying band can cooperate with each other and be tightened up, the tightening point of the tying band being located inside the cavity.

16. The assembled unit according to claim 15, wherein an end of the tying band has a length margin after tightening up, and the length margin extends toward the cavity of the spine member.

17. The assembled unit according to any one of claims 1-16, wherein the first locking structure comprises an insertion hole, the insertion hole being disposed in the sliding groove, and the lateral guide rail has an open chamber, the insertion hole bringing the sliding groove into communication with the open chamber, the engaging portion extends through the insertion hole into the open chamber, and the engaging portion has an insertion slot, such that when the engaging portion is slid into the engaging position, the insertion slot engages with a chamber wall of the open chamber, and when the engaging portion is slid into the disengaging position, the insertion slot disengages from the chamber wall of the open chamber.

18. The assembled unit according to any one of claims 1-16, wherein the assembled unit further comprises a class II plate member, which is disposed between the pair of class I plate members, both ends of each class II plate member can be inserted into the corresponding sliding grooves of the two lateral guide rails, each of the lateral guide rails has said engaging structures configured at positions other than both ends thereof, each class II plate member has a corresponding engaging portion disposed at both ends thereof; when the engaging portion is slid into the engaging position, the corresponding class II plate member

engages with the lateral guide rail, and when the engaging portion is slid into the disengaging position, the corresponding class II plate member can be disengaged from the sliding groove of the lateral guide rail;

and on a surface of each class II plate member, a class II engaging slot is disposed in a direction parallel to the lateral guide rail, the class II engaging slot extends across a whole surface of the corresponding plate member and matches the position of the engaging slot on an adjacent plate member, the sliding block of the spine member can slidably fit with the class II engaging slot, such that the spine member can be slid along the class II engaging slot but is locked in a direction perpendicular to the surface of the corresponding plate member.

19. The assembled unit according to any one of claims 1-16, wherein the assembled unit further comprises a class III plate member, which is disposed between the pair of class I plate members, both ends of each class III plate member can be inserted into the corresponding sliding grooves of the lateral guide rails and slid freely along the sliding groove; on a surface of each class III plate member, a class II engaging slot is disposed in a direction parallel to the lateral guide rail; the class II engaging slot extends across a whole surface of the corresponding plate member and matches the position of the engaging slot on an adjacent plate member; the sliding block of the spine member can slidably fit with the class II engaging slot, such that the spine member can be slid along the class II engaging slot but is locked in a direction perpendicular to the surface of the corresponding plate member.

20. The assembled unit according to any one of claims 1-16, wherein the assembled unit further comprises a spacer disposed between plate members and/or spacers for filling a gap between adjacent plate members and/or spacers; on a surface of each spacer, a class II engaging groove is disposed in a direction parallel to the lateral guide rail; the class II engaging slot extends across a whole surface of the corresponding spacer and matches the position of the engaging slots on adjacent plate members and/or spacers; the sliding block of the spine member can slidably fit with the class II engaging slot, such that the spine member can be slid along the class II engaging slot but is locked in a direction perpendicular to the surface of the corresponding spacer.

21. The assembled unit according to any one of claims 1-16, wherein the lateral guide rail has a double-layer structure, the first and second layers of the lateral guide rail are configured with sliding grooves parallel to each other, plate members can be installed on the first and second layers of the lateral guide rail, the engaging slot of the plate member on the first layer is disposed opposite to the engaging slot

of the plate member on the second layer, sliding blocks are configured on opposite sides of the spine member, the sliding blocks on both sides of the spine member respectively fit with the engaging slot of the plate member on the first layer and the engaging slot of the plate member on the second layer; when the detachment portion of the spine member is made to detach from the class I engaging slot, the class I plate member can be deformed slightly, such that the spine member can be disengaged from the class I engaging slot in a direction perpendicular to the corresponding class I plate member.