(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 4 520 210 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
12.03.2025 Bulletin 2025/11

(21) Application number: **24190455.6**

(22) Date of filing: **23.07.2024**

(51) International Patent Classification (IPC):
A42B 3/04 *(2006.01)*

(52) Cooperative Patent Classification (CPC):
A42B 3/0413

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
GE KH MA MD TN

(30) Priority: **13.08.2023 PCT/CN2023/081309**

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(54) **A LOCKABLE ANTI-THEFT HELMET**

(57) The utility model relates to the technical innovation of helmets, especially to a lockable anti-theft helmet (1). The helmet can be locked on a motorcycle with less space occupation by setting this device when it is out of use. And its anti-theft performance is improved through the design that non-users cannot control or adjust components to activate. The utility model consists of a helmet and an anti-theft device which is stalled on the former. The anti-theft device features a lock box (2), an adjustment component (3), two fixed rods (4), two L-shaped sliders (6), gears (7), two lock tongues (8), a rotating shaft (9), a fixed base (12), and two support lugs (13). The two lock tongues are installed on the outer ends of the two L-shaped sliders, respectively. There are two holes designed to connect the lock's operation chamber and two sockets, where the two lock tongues get through to clamp with the pin slots (5) on the two fixing rods.

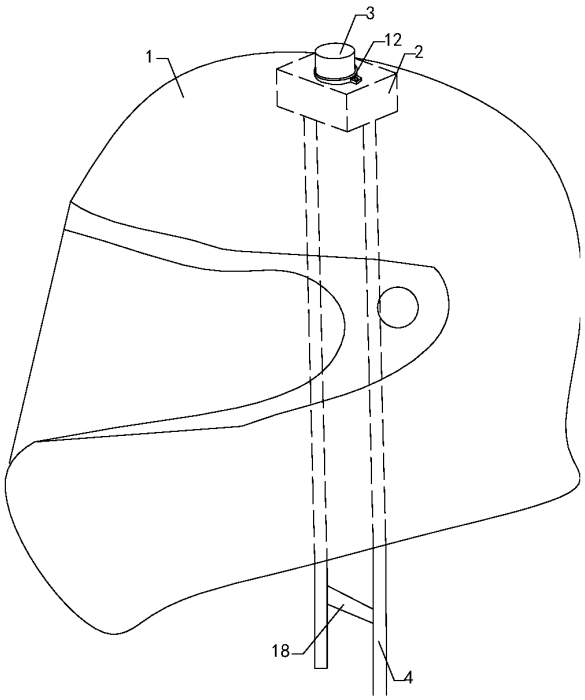

Fig. 1

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Description

Technical Field

[0001] The utility model relates to the technical innovation of helmets, especially to a lockable anti-theft helmet.

Background Technology

[0002] Helmet is a protective equipment for the head, is worn by military personnel during training and combat, and is an indispensable tool for people in transportation, which can be divided into military helmets, police helmets, and civilian helmets, etc.

[0003] Usually, people place helmets in boxes for storage when they are not in use, but boxes not only occupy space but also have poor anti-theft capabilities.

Utility Model Content

[0004] In order to solve the above technical problems, the utility model provides a lockable anti-theft helmet that can be locked on a motorcycle with less space occupation by setting this device when it is out of use. And its anti-theft performance is improved through the design that non-users cannot control the adjustment component to activate.

[0005] The lockable anti-theft helmet of the utility model comprises a helmet and an anti-theft device which is installed on the former. The anti-theft device features a lock box, an adjustment component, two fixed rods, two L-shaped sliders, a gear, two lock tongues, a rotating shaft, a fixed base, and two support lugs. The helmet is internally equipped with a filling layer, which is the installed position of the lock box. The fixed base is installed at the top of the lock box. The adjustment component is installed on the fixed base. Two support lugs are installed at the left and right ends of the fixed base, and fixed at the top of the lock box with bolts. The fixed base is located inside the filling layer of the helmet. The adjustment component is installed at the top of the lock box. Two fixed rods are installed and fixed on the motorcycle. There are pin slots on the upper side of the inner ends of the two fixed rods. Holes are set on the left and right sides of the bottom of the lock box. Two fixed rods can slide to clamp with the two holes of the lock box. There is an operation cavity inside the lock box, in which two L-shaped sliders are staggered to slide. The rotating shaft is installed in the middle of the bottom of the lock box's operation cavity, and rotates at the bottom. The gear is installed on the rotating shaft. The top end of the rotating shaft passes through the lock box's top end, and is connected with the output end of the fixed base and the adjustment component. There are teeth on the inner side of the two L-shaped sliders, and the gear is meshed with two L-shaped sliders. Two lock tongues are installed on the outer ends of the two L-shaped sliders respectively. There are two holes designed to connect the lock's operation cavity and two sockets, where the two lock tongues get through to clamp with the pin slots on the two fixed rods. The adjustment component can adjust the lock as a mechanical one or a smart one.

[0006] The lockable anti-theft helmet of the utility model features a mechanical lock which is provided with the first fixed block, a lock cylinder, a θ-shaped clip, an arc-shaped clip head, three password wheels, three plugs, a spring, a sliding shaft, three auxiliary wheels, three fixed rings, three installation blocks, two connectable rings, a fixed plate, a seal-up, and a rotatable cover. The first fixed block internally equipped with a rotatable cavity, is mounted on the fixed base. It is designed with an opening on its top for connection. The lock cylinder rotates in the rotatable cavity of the first fixed block, and is connected to the top end of the rotating shaft with its bottom. The top end of the lock cylinder is provided with a placement slot. The θ-shaped clip is installed in the placement slot, and it has three connectable rods. The arc-shaped clip head is installed at the right end of the θ-shaped clip. The upper left and right sides of the rotatable cavity of the first fixed block are both equipped with semicircular slots. The arc-shaped clip head is clamped with the right semicircular slot. The top of the lock cylinder is equipped with three wheel slots. The rotatable cover is installed on the top of the lock cylinder, and is rotationally connected to the top of the first fixed block. The rotatable cover has three protruding ports for being connected with three wheel slots on the lock cylinder. The two slots formed by the θ-shaped clip through three connectable rods correspond to the two right wheel slot inside the lock cylinder. The password wheels are in the three wheel slots of the lock cylinder, and the three protruding ports of the rotatable cover. The two password wheels on the right are in the two slots of the θ-shaped clip. The three plugs are installed at the left end of the three connectable rods of the θ-shaped clip respectively. The right end of the three wheel slots in the lock cylinder is connected with a buffer slot, and the far-right end of the buffer slot on the lock cylinder is designed with an installation slot for connection. The second fixed block is installed in the buffer slot of the lock cylinder. There is a shaft slot running through the three wheel slots of the lock cylinder. The sliding shaft is in the shaft slot of the lock cylinder, and the right end of the sliding shaft is connected to the second fixed block. The three auxiliary wheels are located in the three wheel slots of the lock cylinder respectively. Installation slots are set inside the three password wheels. Each set of password wheels is equipped with multiple sets of U-shaped chutes in the installation slots. The multiple sets of U-shaped chutes correspond to the numbers on the three password wheels. The three auxiliary wheels can slide to be connected with the installation slots of the three second fixed blocks. The three fixed rings are installed on the right end of the three auxiliary wheels. There are slots at the top of the three fixed rings. The three installation blocks are installed on the top right side of the three auxiliary wheels. The three installation blocks slide onto the U-shaped

chutes inside the three password wheels for clamping. The three installation blocks correspond to the slots on the three fixed rings. The two connectable rings are installed on the left end of the two auxiliary wheels on the right side. The left ends of two connectable rings are respectively connected to the right ends of two adjacent auxiliary wheels. The seal-up is installed on the left end of the left auxiliary wheel. The left end of the lock cylinder's left wheel slot is connected with an installation slot. The seal-up is in the installation slot of the left end of the lock cylinder. The sliding shaft is located inside the three auxiliary wheels, two connectable rings, and the seal-up. The spring is sleeved on the right side of the sliding shaft. The right end of the spring is connected to the second fixed block, and its left end is connected to the right end of the connectable ring on the right side.

[0007] The lockable anti-theft helmet of the utility model features a smart lock which consists of an installation block, a micro motor, a worm shaft, a worm wheel, a chip, a signal receiving and transmitting module, and a battery component. The installation block is installed in the middle of the top of the lock box, and it is internally equipped with an operation cavity and a device cavity. The micro motor is installed on the left side of the bottom end of the operation cavity. The worm shaft can rotate, and its right end is installed on the lower side of the right end of the operation cavity of the installation block. The left end of the worm shaft is connected to the output end of the micro motor. The worm shaft is engaged with the worm wheel, which is installed on the top of the rotating shaft. The chip and the signal receiving and transmitting module are both installed in the device cavity of the installation block. The signal receiving and transmitting module is electrically connected to the chip. The signal receiving and transmitting module can be equipped with corresponding mini programs. The battery component is installed in the device cavity of the installation block, which supplies power to the micro motor, the chip, and the signal receiving and transmitting module.

[0008] The lockable anti-theft helmet of the utility model features a rotatable cover which is provided with multiple sets of anti-slip ribs on its outer side.

[0009] The lockable anti-theft helmet of the utility model features a filling layer in the helmet, which is the placement position for the lock box and the fixed base. The adjustment component extends to the upper side of the helmet, and is sealed up with the helmet.

[0010] The lockable anti-theft helmet of the utility model features a rotatable cover that has indicator arrows on the front and rear sides of its top, and an alignment arrow on the right side of its top.

[0011] The lockable anti-theft helmet of the utility model features the first fixed block, and a rotatable cover. The left end of the first fixed block is designed with the first pinhole for connection, and the first pinhole corresponds to the position of the seal-up. The left end of the rotatable cover is provided with the second pinhole for connection, and the first pinhole corresponds to the position of the second pinhole.

[0012] The lockable anti-theft helmet of the utility model features a reinforcing rod which is installed on the lower side between two fixed rods.

[0013] Compared with the existing technology, the beneficial effect of the utility model is as follows: When the helmet is out of use, insert the lock box on the helmet into two fixed rods, and the latter are then inserted into the two sockets of the lock box. Then, by activating the adjustment component, which drives the rotating shaft to rotate, the rotating shaft meshes the gear with the two L-shaped sliders, the two L-shaped sliders drive the two lock tongues to move outward, and the two lock tongues pass through the two holes of the lock box and are clamped with the pin slots on the two fixed rods, thereby locking the helmet as a whole on the two fixed rods. When the helmet needs to be used, activate the adjustment component, which drives the rotating shaft to rotate reversely, the gear is meshed reversely with two L-shaped sliders, and the two L-shaped sliders drive the two lock tongues to retract and separate from the pin slots on the two fixed rods. Then, remove the lock box 2 on the helmet 1 from the two fixed rods 4 for use. The helmet can be locked on a motorcycle with less space occupation by setting this device when it is out of use. And its anti-theft performance is improved through the design that non-users cannot control the adjustment component to activate.

Description of the Attached Figures

[0014]

Fig. 1 is a schematic diagram of the structure of the utility model;

Fig. 2 is a schematic diagram of the connection structure of the lock box and the smart lock in Fig. 1;

Fig. 3 is a schematic diagram of the connection structure of the L-shaped slider and the gear;

Fig. 4 is a schematic diagram of the connection structure of the lock box and the fixed base;

Fig. 5 is a schematic diagram of the connection structure of the adjustment component and the fixed base;

Fig. 6 is a schematic diagram of the connection structure of the lock box and the mechanical lock;

Fig. 7 is an exploded view of the fixed block and the rotatable cover;

Fig. 8 is a schematic diagram of the connection structure of the rotatable cover and the fixed block;

Fig. 9 is a schematic diagram of the connection structure of the fixed block and the support lug;

Fig. 10 is a schematic diagram of the structure of the mechanical lock;

Fig. 11 is a schematic diagram of the connection structure of the lock cylinder and the θ-shaped clip;

Fig. 12 is a schematic diagram of the connection structure of the rotatable cover and the indicator

arrows;

Fig. 13 is a schematic diagram of the enlarged structure of B in Fig. 11;

Fig. 14 is a schematic diagram of the enlarged structure of A in Fig. 10;

Fig. 15 is a schematic diagram of the connection structure of the lock box and the L-shaped slider;

Fig. 16 is a schematic diagram of the structure of the smart lock;

[0015] Markings in the attached figures: 1. Helmet; 2. Lock box; 3. Adjustment component; 4. Fixed rod; 5. Pin slot; 6. L-shaped slider; 7. Gear; 8. Lock tongue; 9. Rotating shaft; 10. Rotatable cover; 11. Anti-slip rib; 12. Fixed base; 13. Support lug; 14. Indicator arrow; 15. Alignment arrow; 16. First pinhole; 17. Second pinhole; 18. Reinforcing rod; 311. Fixed block; 312. Lock cylinder; 313. θ-shaped clip; 314. Arc-shaped clip head; 315. Password wheel; 316. Semicircular slot; 317. Plug; 318. Spring; 319. Sliding shaft; 3110. Auxiliary wheel; 3111. Fixed ring; 3112. Slot; 3113. Installation block; 3114. Connectable ring; 3115. Fixed plate; 3116. Seal-up; 3117, U-shaped chute; 321. Installation block; 322. Micro motor; 323. Worm shaft; 324. Worm wheel; 325, Chip; 326. Signal receiving and transmitting module; 327. Battery component.

Specific Implementation Methods

[0016] Next, a further detailed description of the specific implementation method of the utility model is provided in combination with the attached figures and implementation examples. The following implementation examples are used to illustrate the utility model, but are not intended to limit the scope of the utility model.

[0017] As shown in Figs. 1 through 16, a lockable anti-theft helmet of the utility model comprises a helmet 1 and an anti-theft device which is installed on the former. The anti-theft device comprises a lock box 2, an adjustment component 3, two fixed rods 4, two L-shaped sliders 6, a gear 7, two lock tongues 8, a rotating shaft 9, a fixed base 12, and two support lugs 13. The helmet 1 is internally equipped with a filling layer, which is the installed position of lock box 2. The fixed base 12 is installed at the top of the lock box 2. The adjustment component 3 is installed on the fixed base 12. Two support lugs 13 are installed at the left and right ends of the fixed base 12, and fixed at the top of the lock box 2 with bolts. The fixed base 12 is located inside the filling layer of the helmet 1. The adjustment component 3 is installed at the top of the lock box 2. Two fixed rods 4 are installed and fixed on the motorcycle. There are pin slots 5 on the upper side of the inner ends of the two fixed rods 4. Holes are set on the left and right sides of the bottom of the lock box 2. Two fixed rods 4 can slide to clamp with the two holes of the lock box 2. There is an operation cavity inside the lock box 2, in which two L-shaped sliders 6 are staggered to slide. The shaft 9 is installed in the middle of the bottom of the operation cavity of the lock box 2, and rotates at the bottom. The gear 7 is installed on the shaft 9. The top end of the shaft 9 passes through the top end of the lock box 2, and is connected with the output end of the fixed base 12 and the adjustment component 3. There are teeth on the inner side of the two L-shaped sliders 6, and the gear 7 is meshed with two L-shaped sliders 6. Two locking tongues 8 are installed on the outer ends of the two L-shaped sliders 6 respectively. There are two holes designed to connect the operation cavity and two sockets of the lock box 2, where the two lock tongues 8 get through to clamp with the pin slots 5 on the two fixed rods 4. The adjustment component 3 can adjust the lock as a mechanical one or a smart one.

[0018] When the helmet 1 is out of use, insert the lock box 2 on the helmet 1 into two fixed rods 4, and the latter are then inserted into the two sockets of the lock box 2. Then, by activating the adjustment component 3, which then drives the rotating shaft 9 to rotate, the rotating shaft 9 meshes the gear 7 with the two L-shaped sliders 6. The two L-shaped sliders 6 then drive the two lock tongues 8 to move outward, and the latter pass through the two holes of the lock box 2 and are clamped with the pin slots 5 on the two fixed rods 4, thereby locking the helmet 1 as a whole on the two fixed rods 4. When the helmet 1 needs to be used, activate the adjustment component 3, which drives the rotating shaft 9 to rotate reversely, the gear 7 is meshed reversely with two L-shaped sliders 6, and the two L-shaped sliders 6 drive the two lock tongues 8 to retract and separate from the pin slots 5 on the two fixed rods 4. Then, remove the lock box 2 on the helmet 1 from the two fixed rods 4 for use. The helmet 1 can be locked on a motorcycle with less space occupation by setting this device when it is out of use. And its anti-theft performance is improved through the design that non-users cannot control the adjustment component 3 to activate.

[0019] The lockable anti-theft helmet of the utility model features a mechanical lock which is provided with the first fixed block 311, a lock cylinder 312, a θ-shaped clip 313, an arc-shaped clip head 314, three password wheels 315, three plugs 317, a spring 318, a sliding shaft 319, three auxiliary wheels 3110, three fixed rings 3111, three installation blocks 3113, two connectable rings 3114, a fixed plate 3115, a seal-up 3116, and a rotatable cover 10. The first fixed block 311 internally equipped with a rotatable cavity, is mounted on the fixed base 12. It is designed with an opening on its top for connection. The lock cylinder 312 rotates in the rotatable cavity of the first fixed block 311, and is connected to the top end of the rotating shaft 9 with its bottom. The top end of the lock cylinder 312 is provided with a placement slot. The θ-shaped clip 313 is installed in the placement slot, and it has three connectable rods. The arc-shaped clip head 314 is installed at the right end of the θ-shaped clip 313. The upper left and right sides of the rotatable cavity of the first fixed block 311 are both equipped with semicircular slots 316. The arc-shaped clip head 314 is clamped with the right semicircular slot 316. The top of the lock cylinder

312 is equipped with three wheel slots. The rotatable cover 10 is installed on the top of the lock cylinder 312, and is rotationally connected to the top of the first fixed block 311. The rotatable cover 10 has three protruding ports for being connected with three wheel slots on the lock cylinder 312. The two slots formed by the θ-shaped clip 313 through three connectable rods correspond to the two right wheel slots inside the lock cylinder 312. The password wheels 315 are in the three wheel slots of the lock cylinder 312, and the three protruding ports of the rotatable cover 10. The two password wheels 315 on the right are in the two slots of the θ-shaped clip 313. The three plugs 317 are installed at the left end of the three connectable rods of the θ-shaped clip 313 respectively. The right end of the three wheel slots in the lock cylinder 312 is connected with a buffer slot, and the far-right end of the buffer slot on the lock cylinder 312 is designed with an installation slot for connection. The second fixed block 3115 is installed in the buffer slot of the lock cylinder 312. There is a shaft slot running through the three wheel slots of the lock cylinder 312. The sliding shaft 319 is in the shaft slot of the lock cylinder 312, and the right end of the sliding shaft 319 is connected to the second fixed block 3115. The three auxiliary wheels 3110 are located in the three wheel slots of the lock cylinder 312 respectively. Installation slots are set inside the three password wheels 315. Each set of password wheels 315 is equipped with multiple sets of U-shaped chutes 3117 in the installation slots. The multiple sets of U-shaped chutes 3117 correspond to the numbers on the three password wheels 315. The three auxiliary wheels 3110 can slide to be connected with the installation slots of the three second fixed blocks 3115. The three fixed rings 3111 are installed on the right end of the three auxiliary wheels 3110. There are slots 3112 at the top of the three fixed rings 3111. The three installation blocks 3113 are installed on the top right side of the three auxiliary wheels 3110. The three installation blocks 3113 slide onto the U-shaped chutes 3117 inside the three password wheels 315 for clamping. The three installation blocks 3113 correspond to the slots 3112 on the three fixed rings 3111. The two connectable rings 3114 are installed on the left end of the two auxiliary wheels 3110 on the right side. The left ends of two connectable rings 3114 are respectively connected to the right ends of two adjacent auxiliary wheels 3110. The seal-up 3116 is installed on the left end of the left auxiliary wheel 3110. The left end of the lock cylinder's 312 left wheel slot is connected with an installation slot. The seal-up 3116 is in the installation slot of the left end of the lock cylinder 312. The sliding shaft 319 is located inside the three auxiliary wheels 3110, two connectable rings 3114, and the seal-up 3116. The spring 318 is sleeved on the right side of the sliding shaft 319. The right end of the spring 318 is connected to the second fixed block 3115, and its left end is connected to the right end of the connectable ring 3114 on the right side;

[0020] By setting the first fixed block 311, lock cylinder 312, θ-shaped clip 313, arc-shaped clip head 314, password wheel 315, semicircular slot 316, plug 317, spring 318, sliding shaft 319, auxiliary wheel 3110, fixed ring 3111, slot 3112, installation block 3113, connectable ring 3114, fixed plate 3115, seal-up 3116, U-shaped chutes 3117 and rotatable cover 10, when it's necessary to insert the two lock tongues 8 into the pin slots 5 of the two fixed rods 4 to lock the helmet 1, the user spins the three password wheels 315 to rotate. And when all three password wheels 315 rotate to the correct position, the three plugs 317 on the θ-shaped clip 313 correspond to the slots 3112 on the three fixed rings 3111, and then rotate the lock cylinder 312 through the rotatable cover 10. The arc-shaped clip head 314 rotates out of the right semicircular slot 316, and then drives the θ-shaped clip 313 to move to the left. The three plugs 317 on the θ-shaped clip 313 are inserted into the slots 3112 of the three fixed rings 3111, the lock cylinder 312 rotates to drive the rotating shaft 9 to rotate, and then the latter is coordinated with the two L-shaped sliders 6 through the gear 7 to drive the two lock tongues 8 to move. After the θ-shaped clip 313 rotates 180 degrees, the arc-shaped clip head 314 corresponds to the position of the left semicircular slot 316, Afterwards, the user disturbs the numbers on three password wheels 315, which in turn drive the three fixed rings 3111 to rotate through the three auxiliary wheels 3110. The three fixed rings 3111 push out the three plugs 317, and the latter drive the θ-shaped clip 313 to move. The arc-shaped clip head 314 on the θ-shaped clip 313 is clamped with the left semicircular slot 316. At this time, the two lock tongues 8 are clamped with the pin slots 5 on the two fixed rods 4 to lock helmet 1. When the helmet 1 needs to be unlocked, repeat the above operation in reverse to retract the two lock tongues 8 to separate from the two pin slots 5 on the fixed rod 4 to unlock the helmet 1, which serves to control the lock box 2 to lock or unlock the helmet 1.

[0021] The lockable anti-theft helmet of the utility model features a smart lock which consists of an installation block 321, a micro motor 322, a worm shaft 323, a worm wheel 324, a chip 325, a signal receiving and transmitting module 326, and a battery component 327. The installation block 321 is installed in the middle of the top of the lock box 2, and it is internally equipped with an operation cavity and a device cavity. The micro motor 322 is installed on the left side of the bottom end of the operation cavity. The worm shaft 323 can rotate, and its right end is installed on the lower side of the right end of the operation cavity of the installation block 321. The left end of the worm shaft 323 is connected to the output end of the micro motor 322. The worm shaft 323 is engaged with the worm wheel 324, which is installed on the top of the rotating shaft 9. The chip 325 and the signal receiving and transmitting module 326 are both installed in the device cavity of the installation block 321. The signal receiving and transmitting module 326 is electrically connected to the chip 325. The signal receiving and transmitting module 326 can be equipped with corresponding mini programs. The battery component 327 is installed in

the device cavity of the installation block 321, which supplies power to the micro motor 322, the chip 325, and the signal receiving and transmitting module 326;

[0022] By setting up the installation block 321, micro motor 322, worm shaft 323, worm wheel 324, chip 325, signal receiving and transmitting module 326, and battery component 327, the user opens the downloaded mini program on the mobile phone, and then the signal receiving and transmitting module 326 is connected to the mobile phone mini program. Then the mobile phone sends a lock signal to the signal receiving and transmitting module 326, which sends a signal to the chip 325. The chip 325 analyzes the instructions and controls the micro motor 322, which then drives the worm shaft 323 to rotate, and the worm shaft 323 meshes with the worm wheel 324. The worm wheel 324 drives the rotating shaft 9 to rotate, thereby fixing the lock box 2 to the two fixed rods 4 to lock the helmet 1. When the helmet 1 needs to be used, send an unlocking signal to the signal receiving and transmitting module 326 through the mobile phone. Then the signal receiving and transmitting module 326 sends a signal to the chip 325, which analyzes the command and controls the micro motor 322. The micro motor 322 then drives the worm shaft 323 to rotate, and the latter meshes with the worm wheel 324, which drives the rotating shaft 9 to rotate, causing the two lock tongues 8 to retract and separate from the pin slots 5 on the two fixed rods 4, thereby removing the lock box 2 from the two fixed rods 4 to unlock the helmet 1, which serves to fix the lock box 2 onto two fixed rods 4.

[0023] The lockable anti-theft helmet of the utility model features a rotatable cover 10 which is provided with multiple sets of anti-slip ribs 11 on its outer side;

[0024] By setting the anti-slip ribs 11, the friction of the rotatable cover 10 can be increased, making it easier to rotate the rotatable cover 10.

[0025] The lockable anti-theft helmet of the utility model features a filling layer in the helmet 1, which is the placement position for the lock box 2 and the fixed base 12. The adjustment component 3 extends to the upper side of the helmet 1, and is sealed up with the helmet 1;

[0026] Not only can it protect the lock box 2, but it is also convenient to operate the adjust component 3.

[0027] The lockable anti-theft helmet of the utility model features a rotatable cover 10 that has indicator arrows 14 on the front and rear sides of its top, and an alignment arrow 15 on the right side of its top;

[0028] By setting the indicator arrows 14 and the alignment arrow 15, it is convenient to prompt the user to rotate the direction of the rotatable cover 10 and to align the numbers on the three password wheels 315 with the alignment arrow 15.

[0029] The lockable anti-theft helmet of the utility model features the first fixed block 311, and a rotatable cover 10. The left end of the first fixed block 311 is designed with the first pinhole 16 for connection, and the first pinhole 16 corresponds to the position of the seal-up 3116. The left end of the rotatable cover 10 is provided with the second pinhole 17 for connection, and the first pinhole 16 corresponds to the position of the second pinhole 17;

[0030] By setting the first pinhole 16 and the second pinhole 17, when it is necessary to modify the digital passwords on the three password wheels 315, put the pin through the first pinhole 16 and the second pinhole 17, and then the pin presses against the seal-up 3116 and drives it to move to the right. The seal-up 3116 drives the three auxiliary wheels 3110, three fixed rings 3111, and two connectable rings 3114 to move to the right. The spring 318 undergoes elastic deformation, and the three installation blocks 3113 detach from the U-shaped chutes 3117 inside the three password wheels 315. Then, rotate the three password wheels 315 to adjust their upward numbers. After the digital passwords of the three password wheels 315 are modified, remove the pin from the first pinhole 16 and the second pinhole 17, and the spring 318 will rebound to drive three auxiliary wheels 3110, three fixed rings 3111, two connectable rings 3114, and the seal-up 3116 to move left and reset. The installation blocks 3113 on the three auxiliary wheels 3110 will be clamped with the corresponding U-shaped chutes 3117 in the three password wheels 315, so that the digital password of the three password wheels 315 can be successfully modified, which serves to modify the digital password of the three password wheels 315.

[0031] The lockable anti-theft helmet of the utility model features a reinforcing rod 18 which is installed on the lower side between two fixed rods 4;

[0032] By setting the reinforcing rod 18, it can reinforce the two fixed rods 4.

[0033] The utility model relates to a lockable anti-theft helmet. When it is in operation, first, when the helmet 1 is not in use, insert the lock box 2 on the helmet 1 into two fixed rods 4, and the latter are then inserted into the two sockets of the lock box 2. Then, by activating the adjustment component 3, which then drives the rotating shaft 9 to rotate, the rotating shaft 9 meshes the gear 7 with the two L-shaped sliders 6. The two L-shaped sliders 6 then drive the two lock tongues 8 to move outward, and the latter pass through the two holes of the lock box 2 and are clamped with the pin slots 5 on the two fixed rods 4, thereby locking the helmet 1 as a whole to the two fixed rods 4. When the helmet 1 needs to be used, activate the adjustment component 3, which drives the rotating shaft 9 to rotate reversely, the gear 7 is meshed reversely with two L-shaped sliders 6, and the two L-shaped sliders 6 drive the two lock tongues 8 to retract and separate from the pin slots 5 on the two fixed rods 4. Then, remove the lock box 2 on the helmet 1 from the two fixed rods 4 for use.

[0034] The utility model relates to a lockable anti-theft helmet. Its installation method, connection method or setting method are common mechanical methods, and can be implemented as long as the beneficial effects can be achieved; The micro motor 322, chip 325, signal receiving and transmitting module 326, and battery component 327 of the lockable anti-theft helmet of the utility

model are purchased in the market. Technical personnel in the industry only need to install and operate them according to the attached instruction manual.

[0035] The above is only the preferred implementation method of the utility model. It should be pointed out that for ordinary technical personnel in this field, on the premise of not departing from the technical principles of the utility model, a number of improvements and variations can be made, which should also be regarded as the protection scope of the utility model.

Claims

1. It is a lockable anti-theft helmet, comprising a helmet (1) and an anti-theft device which is installed on the former. The anti-theft device features a lock box (2), an adjustment component (3), two fixed rods (4), two L-shaped sliders (6), gears (7), two lock tongues (8), a rotating shaft (9), a fixed base (12), and two support lugs (13). The helmet (1) is internally equipped with a filling layer where is the installed position of lock box (2). The fixed base (12) is installed at the top of the lock box (2). The adjustment component (3) is installed on the fixed base (12). Two support lugs (13) are installed at the left and right ends of the fixed base (12), and fixed at the top of the lock box (2) with bolts. The fixed base (12) is located inside the filling layer of the helmet (1). The adjustment component (3) is installed at the top of the lock box (2). Two fixed rods (4) are installed and fixed on the motorcycle. There are pin slots (5) on the upper side of the inner ends of the two fixed rods (4). Holes are set on the left and right sides of the bottom of the lock box (2). Two fixed rods (4) can slide to clamp with the two holes of the lock box (2). There is an operation chamber inside the lock box (2), in which two L-shaped sliders (6) are staggered to slide. The shaft (9) is installed in the middle of the bottom of the lock box's (2) operation chamber, and rotates at the bottom. The gears (7) are installed on the shaft (9). The top end of the shaft (9) passes through the lock box's (2) top end, and is connected with the output end of the fixed base (12) and the adjustment component (3). There are teeth on the inner side of the two L-shaped sliders (6), and the gears (7) is meshed with two L-shaped sliders (6). Two locking tongues (8) are installed on the outer ends of the two L-shaped sliders (6) respectively. There are two holes designed to connect the lock's (2) operation chamber and two sockets, where the two lock tongues (8) get through to clamp with the pin slots (5) on the two fixing rods (4). The adjustment component (3) can adjust the lock as a mechanical one or a smart one.

2. As specified in Claim 1, the lockable anti-theft helmet features a mechanical lock which is provided with the first fixing block (311), a lock cylinder (312), a θ-shaped clip (313), an arc-shaped clip head (314), three password wheels (315), three plugs (317), a spring (318), sliding shafts (319), three auxiliary wheels (3110), three fixing rings (3111), three mounting blocks (3113), two connecting rings (3114), a fixing plate (3115), seal-up (3116), and a rotatable cover (10). The first fixing block (311) internally equipped with a rotatable cavity, is mounted on the fixed base (12). It is designed with an opening on its top for connection. The lock cylinder (312) rotates in the rotatable cavity of the first fixed block (311), and is connected to the top end of the rotatable shaft (9) with its bottom. The top end of the lock cylinder (312) is provided with a placement slot. The θ-shaped clip (313) is installed in the placement slot, and it has three connectable rods. The arc-shaped clip head (314) is installed at the right end of the θ-shaped clip (313). The upper left and right sides of the rotatable cavity of the first fixed block (311) are both equipped with semicircular slots (316). The arc-shaped clip (314) is clamped with the right semicircular slot (316). The top of the lock cylinder (312) is equipped with three slots. The rotatable cover (10) is installed on the top of the lock cylinder (312), and is rotationally connected to the top of the first fixed block (311). The rotatable cover (10) has three extension ports for being connected with three slots on the lock cylinder (312). The two slots formed by the θ-shaped clip (313) through three connectable rods correspond to the two right grooves inside the lock cylinder (312). The password wheel (315) is in the three grooves of the lock cylinder (312), and the three protruding ports of the rotatable cover (10). The two password wheels (315) on the right are in the two grooves of the θ-shaped clip (313). The three plugs (317) are installed at the left end of the three connectable rods of the θ-shaped clip (313) respectively. The right end of the three grooves in the lock cylinder (312) is connected with a buffer groove, and the far-right end of the buffer groove on the lock cylinder (312) is designed with an installation slot for connection. The second fixed block (3115) is installed in the buffer groove of the lock cylinder (312). There is a shaft groove running through the three grooves of the lock cylinder (312). The sliding shaft (319) is in the shaft groove of the lock cylinder (312), and the right end of the sliding shaft (319) is connected to the second fixed block (3115). The three auxiliary wheels (3110) are located in the three grooves of the lock cylinder (312) respectively. Installation grooves are set inside the three password wheels (315). Each set of password wheels (315) is equipped with multiple sets of U-shaped chutes (3117) in the installation slots. The multiple sets of U-shaped chutes (3117) correspond to the numbers on the three password wheels (315). The three auxiliary wheels (3110) can slide to be connected with the installation slots of the three second fixing blocks

(3115). The three fixing rings (3111) are installed on the right end of the three auxiliary wheels (3110). There are slots (3112) at the top of the three fixing rings (3111). The three installation blocks (3113) are installed on the top right side of the three auxiliary wheels (3110). The three installation blocks (3113) slide onto the U-shaped groove (3117) inside the three password wheels (315) for clamping. The three installation blocks (3113) correspond to the groove (3112) on the three fixed rings (3111). The two connectable rings (3114) are installed on the left end of the two auxiliary wheels (3110) on the right side. The left ends of two connectable rings (3114) are respectively connected to the right ends of two adjacent auxiliary wheels (3110). The seal-up (3116) is installed on the left end of the left auxiliary wheel (3110). The left end of the lock cylinder's (312) left groove is connected with an installation groove. The seal-up (3116) is in the installation groove of the left end of the lock cylinder (312). The sliding shaft (319) is located inside the three auxiliary wheels (3110), two connectable rings (3114), and the seal-up (3116). The spring (318) is sleeved on the right side of the sliding shaft (319). The right end of the spring (318) is connected to the second fixed block (3115), and its left end is connected to the right end of the connectable ring (3114) on the right side.

3. As specified in Claim 1, the lockable anti-theft helmet features a smart lock which consists of an installation block (321), a micro motor (322), a worm shaft (323), a worm wheel (324), a chip (325), a signal receiving and transmitting module (326), and a battery component (327). The installation block (321) is installed in the middle of the top of the lock box (2). The installation block (321) is internally equipped with an operation chamber and a device chamber. The micro motor (322) is installed on the left side of the bottom end of the operation chamber. The worm shaft (323) can rotate, and its right end is installed on the lower side of the right end of the operation chamber of the installation block (321). The left end of the worm shaft (323) is connected to the output end of the micro motor (322). The worm shaft (323) is engaged with the worm wheel (324). The worm wheel (324) is installed on the top of the rotatable shaft (9). The chip (325) and the signal receiving and transmitting module (326) are both installed in the device chamber of the installation block (321). The signal receiving and transmitting module (326) is electrically connected to the chip (325). The signal receiving and transmitting module (326) can be equipped with corresponding mini programs. The battery component (327) is installed in the device cavity of the installation block (321), which supplies power to the micro motor (322), the chip (325), and the signal receiving and transmitting module (326).

4. As specified in Claim 2, the lockable anti-theft helmet features a rotatable cover (10) which is provided with multiple sets of anti-slip ribs (11) on its outer side.

5. As specified in Claim 1, the lockable anti-theft helmet features a filling layer in the helmet (1), where is the placement position for the lock box (2) and the fixing base (12). The adjusting component (3) extends to the upper side of the helmet (1), and is sealed up with the helmet (1).

6. As specified in Claim 2, the lockable anti-theft helmet features a rotatable cover (10) that has indicator arrows (14) on the front and rear sides of its top, and alignment arrows (15) on the right side of its top.

7. As specified in Claim 2, the lockable anti-theft helmet features the first fixing block (311), and a rotatable cover (10). The left end of the first fixing block (311) is designed with the first pinhole (16) for connection, and the first pinhole (16) corresponds to the position of the seal-up (3116). The left end of the rotatable cover (10) is provided with the second pinhole (17) for connection, and the first pinhole (16) corresponds to the position of the second pinhole (17).

8. As specified in Claim 1, the lockable anti-theft helmet features a reinforcing rod (18) which is installed on the lower side between two fixed rods (4).

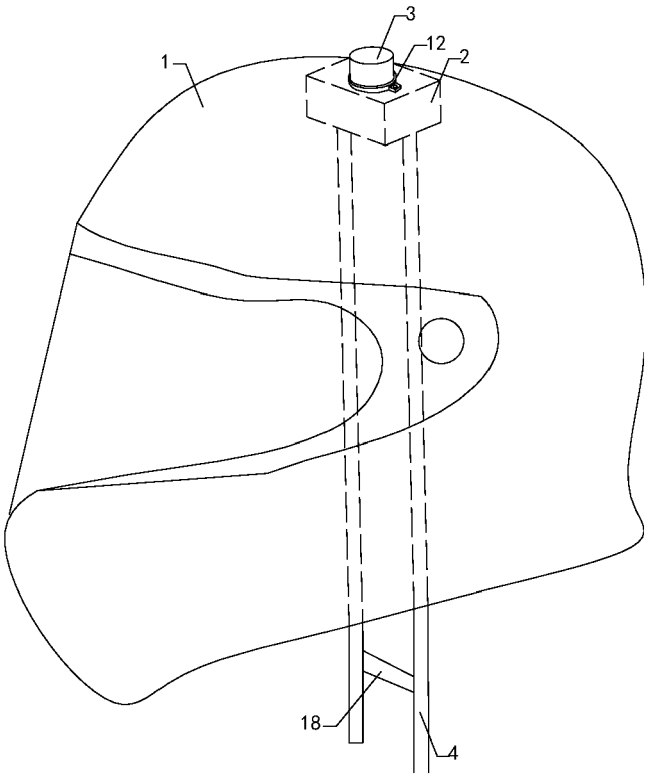

Fig. 1

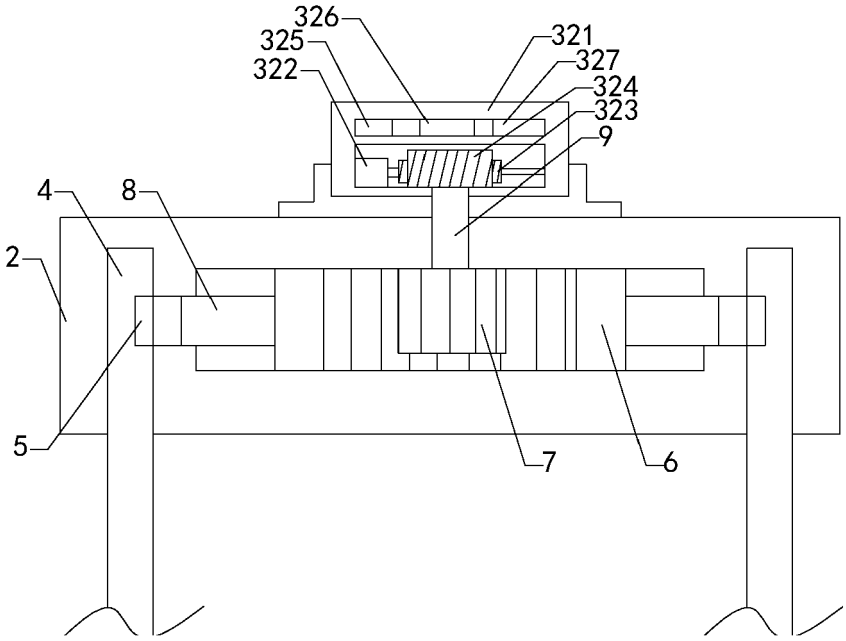

Fig. 2

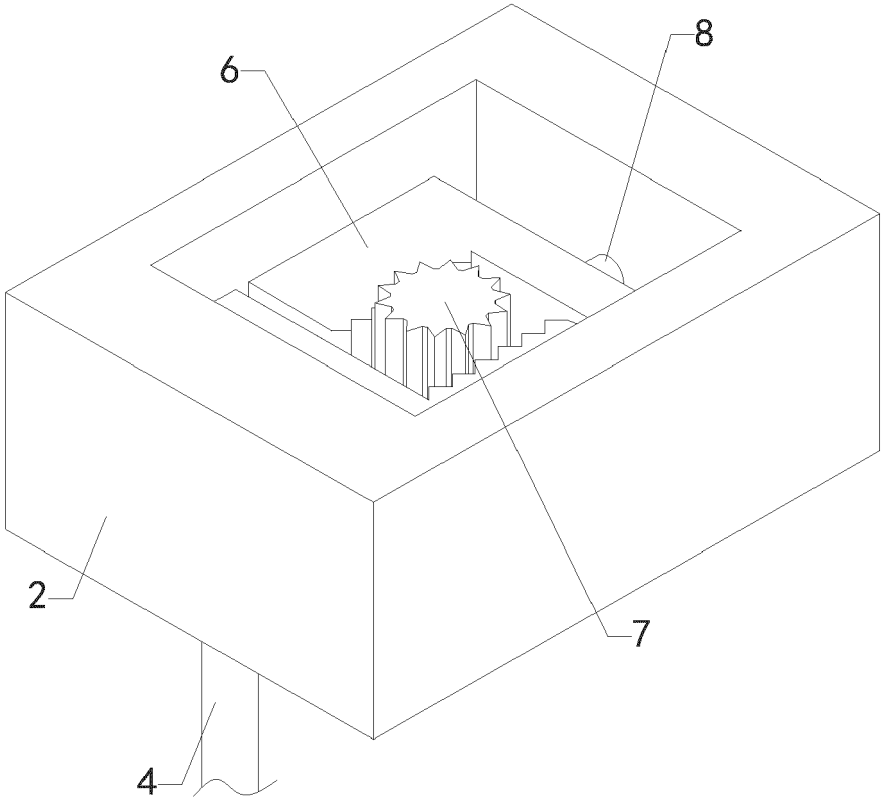

Fig. 3

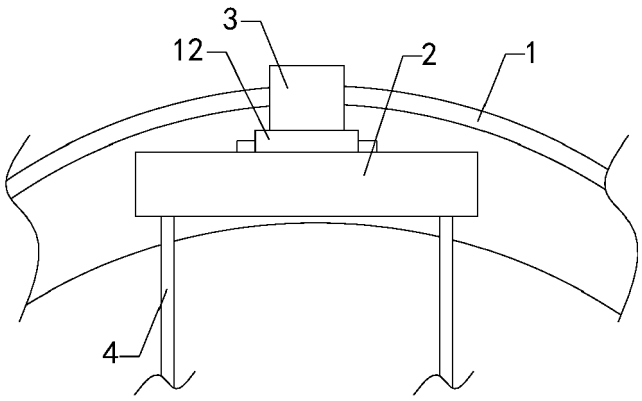

Fig. 4

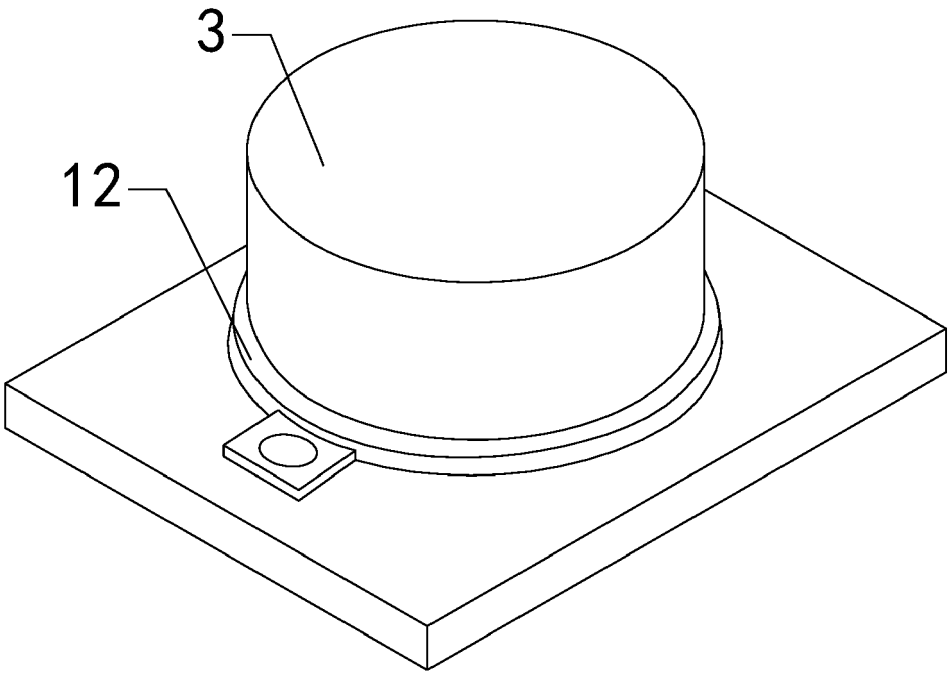

Fig. 5

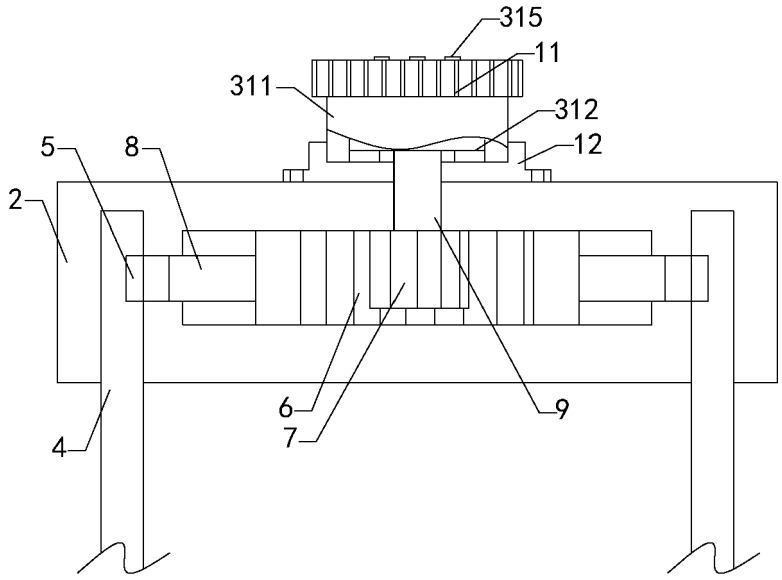

Fig. 6

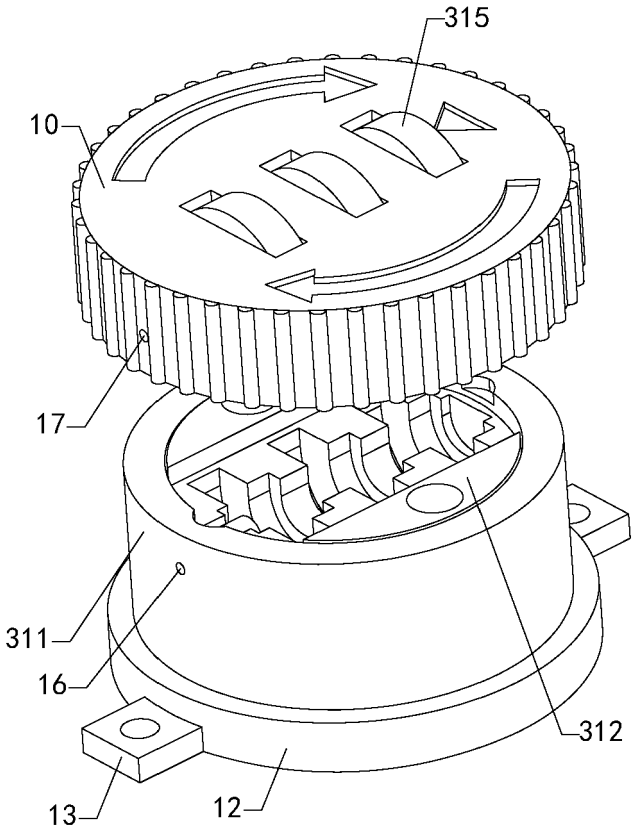

Fig. 7

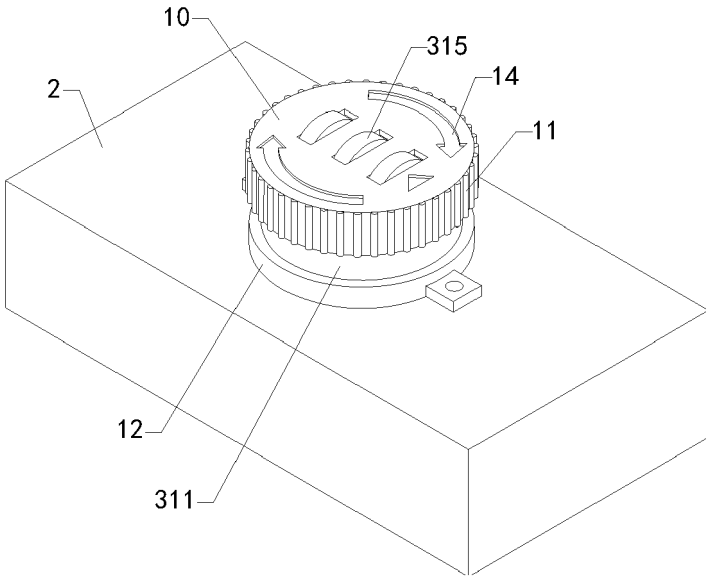

Fig. 8

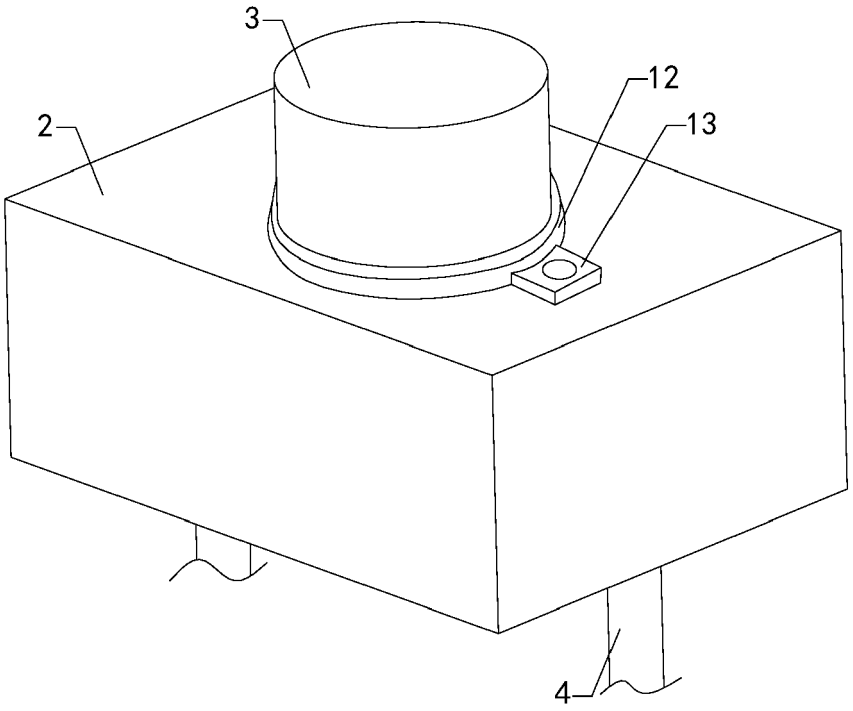

Fig. 9

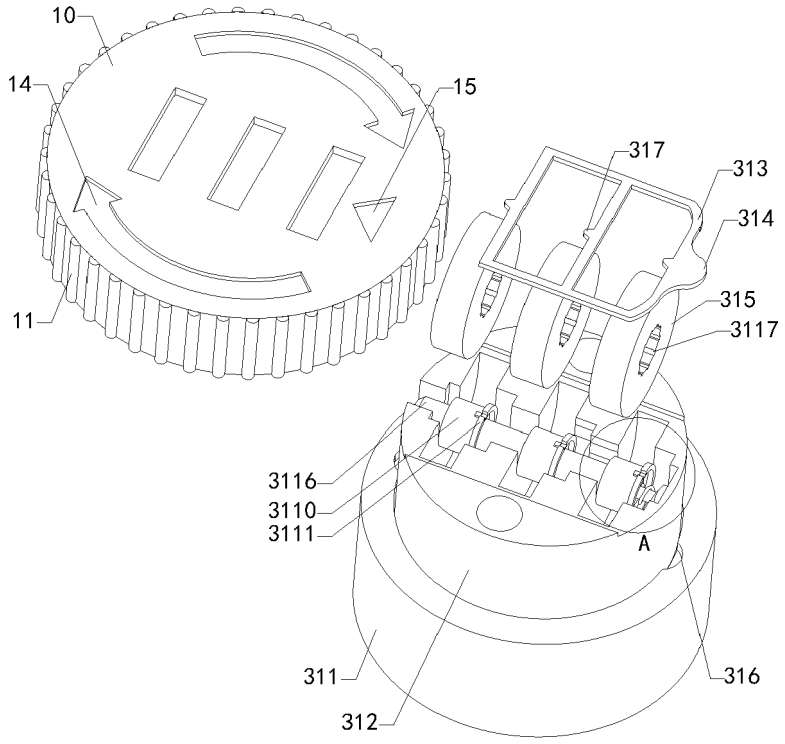

Fig.10

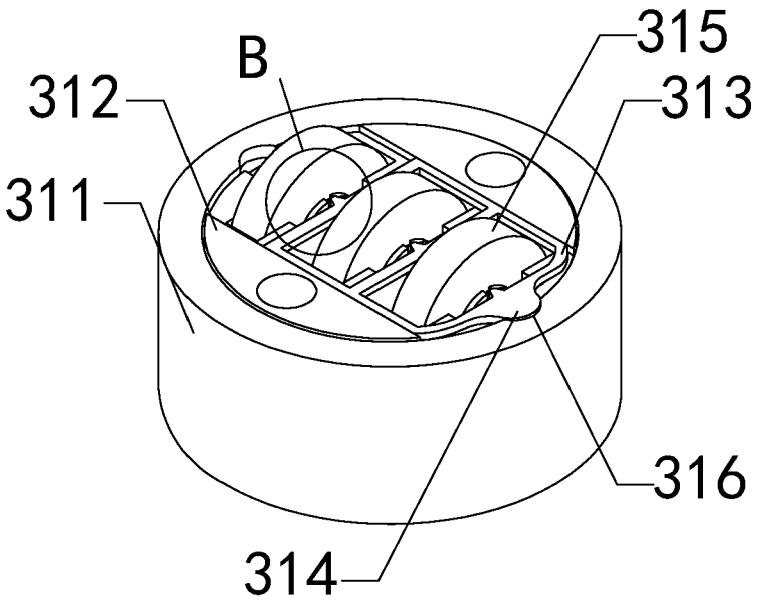

Fig. 11

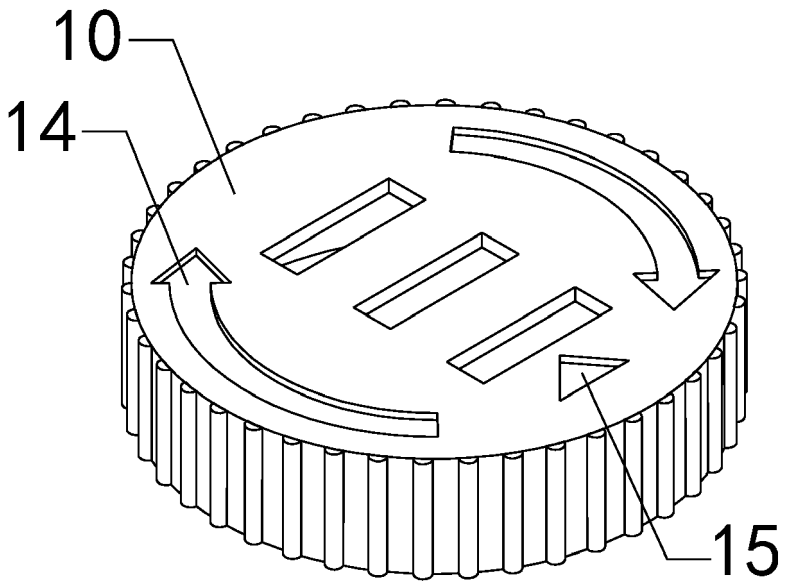

Fig. 12

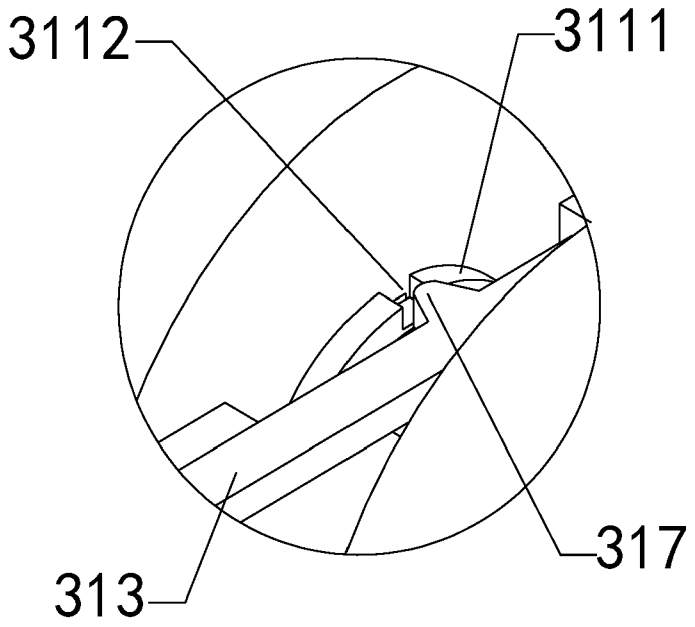

Fig. 13

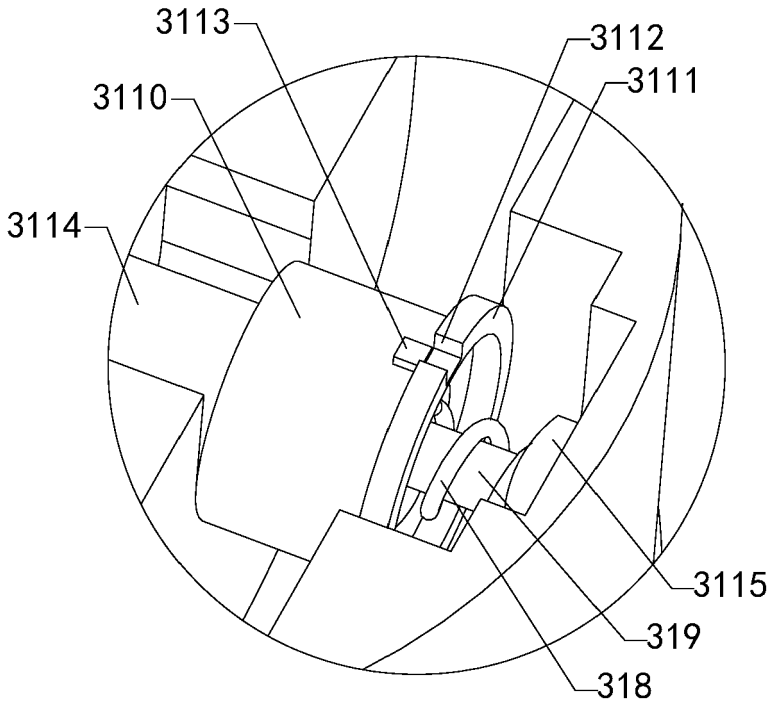

Fig.14

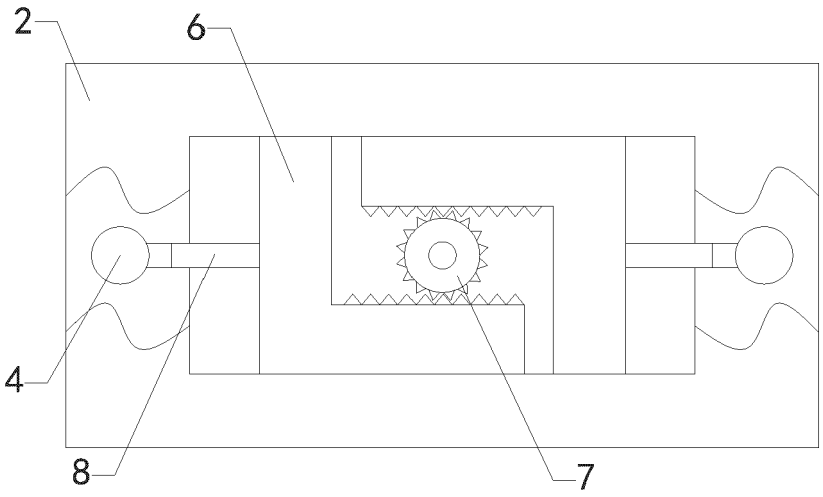

Fig. 15

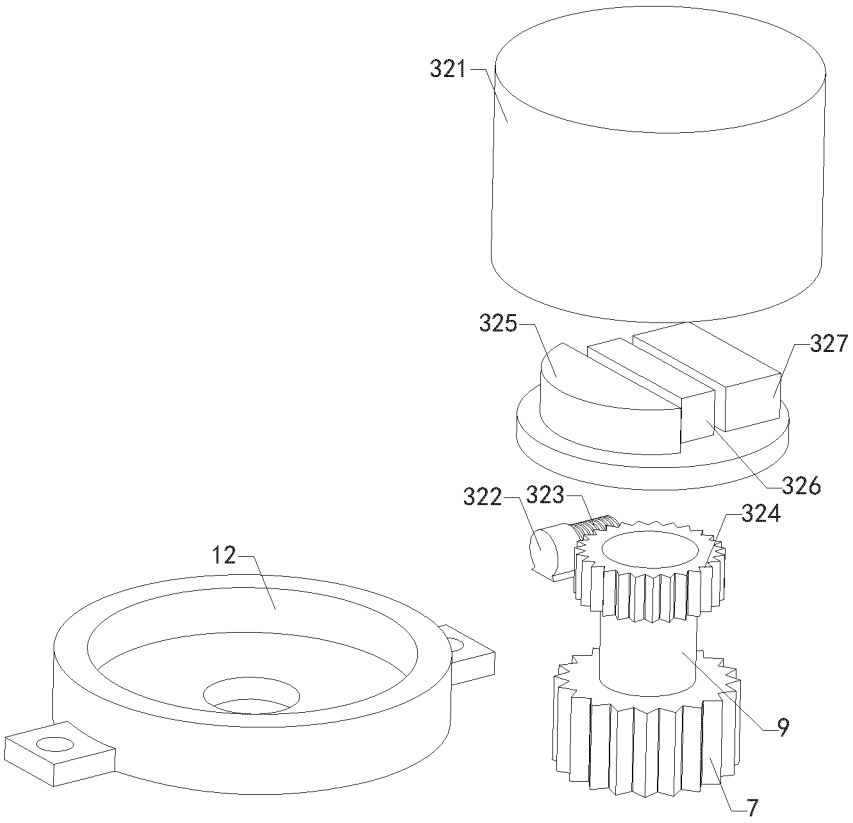

Fig. 16

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EUROPEAN SEARCH REPORT

Application Number
EP 24 19 0455

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	CN 205 180 467 U (YUAN BEISHA) 27 April 2016 (2016-04-27) * the whole document *	1-8	INV. A42B3/04
A	FR 2 423 609 A1 (TODD JOHN [AU]) 16 November 1979 (1979-11-16) * the whole document *	1-8	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	28 January 2025	Breuil, Paul

CATEGORY OF CITED DOCUMENTS

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28-01-2025

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