CLAIMS

1. An automatic medicine distributor, characterized in that, the automatic medicine distributor comprises: a medicine board placing rack, a sliding rack, a medicine taking device, a driving mechanism, a sharp tool and a control mechanism;

the medicine board placing rack is provided with a plurality of medicine storing sections, the plurality of medicine storing sections are configured to store medicine boards, and the sharp tool is connected to the medicine board placing rack;

the sliding rack is arranged opposite to the medicine board placing rack, the medicine taking device is connected to the driving mechanism, and the driving mechanism is configured to drive the medicine taking device to move relative to the sliding rack;

a position information of the medicine storing section corresponding to each medicine board is pre-stored in the control mechanism, the control mechanism is connected to the driving mechanism, and the control mechanism is configured to receive a medicine taking instruction and control the driving mechanism to drive the medicine taking device to move to the corresponding medicine storing section relative to the sliding rack;

the control mechanism is connected to the medicine taking device, and the control mechanism controls the medicine taking device to take medicines, and controls the movement of the medicine taking device relative to the sharp tool, so that the sharp tool cuts open the protective film at the corresponding medicine on the medicine board to make the medicine fall out.

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2. The automatic medicine distributor according to claim 1, wherein the medicine taking device comprises a medicine taking fork and a driving assembly;

one end of the driving assembly is connected to the sliding rack, and the other end is connected to the medicine taking fork, and the driving assembly is configured to drive the medicine taking fork to move in a direction perpendicular to the medicine board placing rack;

the control mechanism is connected to the driving assembly in communication.

3. The automatic medicine distributor according to claim 2, wherein the driving assembly comprises a connecting part, a base, a first motor and a gear;

the connecting part is simultaneously connected with the sliding rack and the base;

the first motor is arranged on the base, and the first motor is communicatively connected to the control mechanism, and the output shaft of the first motor is fixedly connected to the gear;

the medicine taking fork is provided with a gear rack, the medicine taking fork is slidably matched with the base, and the gear is meshed with the gear rack.

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4. The automatic medicine distributor according to claim 3, wherein the medicine taking fork comprises a moving plate and a fork body connected to each other;

the moving plate is slidably matched with the base, and a groove is formed on one surface of the moving plate close to the base; the gear rack is arranged on a side wall of the groove, and the gear is arranged in the groove.

5. The automatic medicine distributor according to claim 4, wherein two rows of fork bodies are provided, the two rows of the fork bodies are arranged on the moving plate at intervals, and the two rows of the fork bodies jointly define a clamping area configured to clamp the medicine board.

6. The automatic medicine distributor according to claim 4 or 5, wherein the automatic medicine distributor further comprises a top cover and a medicine collecting pocket;

the medicine collecting pocket is arranged under the base, and the medicine collecting pocket is connected to the connecting part, the base is provided with a medicine dropping hole, and the medicine collecting pocket is arranged corresponding to the medicine dropping hole;

the bottom of the medicine collecting pocket is provided with an opening, and a baffle is provided at the opening, and a third driving member is connected to the baffle, the third driving member is configured to drive the baffle to move relative to the medicine collecting pocket to open or close the opening;

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the top cover is connected to the base, a first camera is arranged on the top cover, and the first camera is connected to the control mechanism;

the image information of each medicine is pre-stored in the control mechanism;

the first camera is configured to acquire an image information of the medicine in the medicine board on the medicine taking fork and transmit the image information to the control mechanism, the control mechanism judges and records the quantity of medicines in the medicine board at this time, and the control mechanism compares the medicine image in the medicine board on the medicine taking fork with the medicine image corresponding to the medicine taking instruction; when the medicine image in the medicine board on the medicine picking fork is the same as the medicine image corresponding to the medicine taking instruction, the control mechanism controls the first motor to drive the medicine taking fork to move relative to the sharp tool, so that the sharp tool cuts open the protective film of the medicine board corresponding to the medicine;

the first camera is configured to acquire the quantity information of the medicine in the medicine board on the medicine taking fork after the medicine is dissected, and transmit the quantity information to the control mechanism, and the control mechanism records the quantity of the medicines in the medicine board at this time, and calculates the difference between the quantity of medicines in the medicine board before taking medicine and the quantity of medicines in the medicine board after taking medicine, and compares the difference with the quantity of medicines in the medicine taking instruction, when the difference matches the medicine taking instruction, the control mechanism controls the third driving part to move the baffle away from the opening.

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7. The automatic medicine distributor according to claim 6, wherein a second camera is provided at the bottom of the medicine collecting pocket, and the second camera is communicatively connected with the control mechanism;

different prescription information and QR code information are pre-stored in the control mechanism, and each of the QR code information corresponds to one prescription information;

the second camera is configured to acquire the QR code image information on the medicine box, and transmit the QR code image information to the control mechanism, and the control mechanism matches the QR code image information to the corresponding prescription information, and controls actions of the driving mechanism and the medicine taking device according to the prescription information.

8. The automatic medicine distributor according to claim 6 or 7, wherein the moving plate is clamped between the top cover and the base.

9. The automatic medicine distributor according to any one of claims 1-8, wherein the sliding rack comprises a bracket, a vertical sliding rod, a horizontal sliding rod, a first sliding block and a second sliding block;

the medicine board placing rack is connected to the bracket, the vertical sliding rod is arranged in a vertical direction, and the vertical sliding rod is connected to the bracket, the horizontal sliding rod is arranged in a horizontal direction, the horizontal sliding rod and the vertical sliding rod are connected by the first sliding block, and the medicine taking device is connected to the horizontal sliding rod by the second sliding block;

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the driving mechanism comprises a first driving member and a second driving member;

the first driving member is arranged on the vertical sliding rod, and the first driving member is connected with the first sliding block, and the first driving member is configured to drive the first sliding block to slide along the length of the vertical sliding rod;

the second driving member is arranged on the horizontal sliding rod, and the second driving member is connected to the second sliding block, and the second driving member is configured to drive the second sliding block to slide along the length of the horizontal sliding rod.

10. The automatic medicine distributor according to claim 9, wherein the first driving member is an electric push rod, an air cylinder or a hydraulic cylinder; and/or the second driving member is an electric push rod, an air cylinder or a hydraulic cylinder.

11. The automatic medicine distributor according to claim 9 or 10, wherein the first sliding block is sleeved outside the vertical sliding rod; and/or the second sliding block is sleeved outside the horizontal sliding rod.

12. The automatic medicine distributor according to any one of claims 9-11, wherein the number of the vertical sliding rods is two, and the two vertical sliding rods are arranged at parallel intervals, and the horizontal sliding rod is slidably matched with the two vertical sliding rods at the same time.

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13. The automatic medicine distributor according to any one of claims 9-12, wherein the automatic medicine distributor further comprises a medicine box fixing part;

the medicine box fixing part is arranged below the medicine taking device, and the medicine box fixing part is connected to the bracket.

14. The automatic medicine distributor according to any one of claims 1-13, wherein the medicine storing section comprises a storage compartment and a medicine board storing part;

the storage compartment is connected to the medicine board placing rack;

the medicine board storing part is arranged in the storage compartment, and the medicine board storing part is detachably connected to the storage compartment;

the medicine board storing part is provided with a medicine taking port, and the medicine taking port is arranged on one side of the medicine board storing part close to the medicine taking device.

15. The automatic medicine distributor according to claim 14, wherein the medicine board storing part comprises an end plate and two side plates, one side of the two side plates is respectively connected to the end plate, and the medicine taking port is formed between the two side plates on the side away from the end plate;

the inner walls of the two side plates are successively provided with slots horizontally extending from top to bottom, and the slots are configured to support the medicine board.

16. The automatic medicine distributor according to claim 14 or 15, wherein the storage compartment is provided with a sliding opening, and the medicine board storing part is slidably matched with the sliding opening.

17. The automatic medicine distributor according to claim 16, wherein a limiting block is provided on the medicine board storing part, and the limiting block is configured to resist the storage compartment, thereby restricting the position of the medicine board storing part relative to the storage compartment when the medicine board storing part is inserted into the sliding opening.

18. The automatic medicine distributor according to claim 17, wherein a plurality of the limiting blocks is provided, and the plurality of limiting blocks are arranged at intervals along the circumferential direction of the medicine taking port.

19. The automatic medicine distributor according to any one of claims 14-18, wherein the medicine board storing part further comprises a handle, and the handle is connected to the end plate and is located on the side of the end plate away from the medicine taking port.

20. The automatic medicine distributor according to any one of claims 1-19, wherein the automatic medicine distributor further comprises an alarm, the alarm is connected with the controller in communication, and the alarm alarms when the information or quantity of the medicine obtained by the medicine taking device is wrong.

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Claims

1. An automatic medicine distributor, characterized in that, the automatic medicine distributor comprises: a medicine board placing rack, a sliding rack, a medicine taking device, a driving mechanism, a sharp tool and a control mechanism;

the medicine board placing rack is provided with a plurality of medicine storing sections, the plurality of medicine storing sections are configured to store medicine boards, and the sharp tool is connected to the medicine board placing rack;

the sliding rack is arranged opposite to the medicine board placing rack, the medicine taking device is connected to the driving mechanism, and the driving mechanism is configured to drive the medicine taking device to move relative to the sliding rack;

a position information of the medicine storing section corresponding to each medicine board is pre-stored in the control mechanism, the control mechanism is connected to the driving mechanism, and the control mechanism is configured to receive a medicine taking instruction and control the driving mechanism to drive the medicine taking device to move to the corresponding medicine storing section relative to the sliding rack;

the control mechanism is connected to the medicine taking device, and the control mechanism controls the medicine taking device to take medicines, and controls the movement of the medicine taking device relative to the sharp tool, so that the sharp tool cuts open the protective film at the corresponding medicine on the medicine board to make the medicine fall out.

2. The automatic medicine distributor according to claim 1, wherein the medicine taking device comprises a medicine taking fork and a driving assembly;

one end of the driving assembly is connected to the sliding rack, and the other end is connected to the medicine taking fork, and the driving assembly is configured to drive the medicine taking fork to move in a direction perpendicular to the medicine board placing rack.

3. The automatic medicine distributor according to claim 2, wherein the driving assembly comprises a connecting part, a base, a first motor and a gear;

one end of the connecting part is connected to the sliding rack, and the other end is connected to the base;

a first motor is arranged on the base, the first motor is connected to the control mechanism, and the output shaft of the first motor is connected to the gear;

the medicine taking fork is provided with a gear rack, and the gear is meshed with the gear rack.

4. The automatic medicine distributor according to claim 3, wherein the medicine taking fork comprises a moving plate and a fork body;

the moving plate is connected to the fork body, and a groove is formed on one surface of the moving plate close to the base; along the length direction of the moving plate, the gear rack is arranged on a side wall of the groove, the gear is arranged in the groove, and the gear is matched with the gear rack.

5. The automatic medicine distributor according to claim 4, wherein the automatic medicine distributor further comprises a top cover and a medicine collecting pocket;

the medicine collecting pocket is arranged under the base, and the medicine collecting pocket is connected to the connecting part, the base is provided with a medicine dropping hole, and the medicine collecting pocket is arranged corresponding to the medicine dropping hole;

the bottom of the medicine collecting pocket is provided with an opening, a baffle is provided at the opening, and a third driving member is connected to the baffle;

the top cover is located above the medicine taking fork, and the top cover is connected to the base, the top cover is provided with a first camera, and the first camera is connected to the control mechanism;

the image information of each medicine is pre-stored in the control mechanism;

the first camera is configured to acquire an image information of the medicine in the medicine board on the medicine taking fork and transmit the image information to the control mechanism, the control mechanism judges and records the quantity of medicines in the medicine board at this time, and the control mechanism compares the medicine image in the medicine board on the medicine taking fork with the medicine image corresponding to the medicine taking instruction, when the medicine image in the medicine board on the medicine picking fork is the same as the medicine image corresponding to the medicine taking instruction, the control mechanism controls the first motor to drive the medicine taking fork to move relative to the sharp tool, so that the

sharp tool cuts open the protective film of the medicine board corresponding to the medicine;

the first camera is configured to acquire the quantity information of the medicine in the medicine board on the medicine taking fork after the medicine is dissected, and transmit the quantity information to the control mechanism, and the control mechanism records the quantity of the medicines in the medicine board at this time, and calculates the difference between the quantity of medicines in the medicine board before taking medicine and the quantity of medicines in the medicine board after taking medicine, and compares the difference with the quantity of medicines in the medicine taking instruction, when the difference matches the medicine taking instruction, the control mechanism controls the third driving part to move the baffle away from the opening.

6. The automatic medicine distributor according to claim 1, wherein the sliding rack comprises a bracket, a vertical sliding rod, a horizontal sliding rod, a first sliding block and a second sliding block;

the vertical sliding rod is arranged in a vertical direction, and the vertical sliding rod is connected to the bracket, the horizontal sliding rod is arranged in a horizontal direction, the horizontal sliding rod and the vertical sliding rod are connected by the first sliding block, and the medicine taking device is connected to the horizontal sliding rod by the second sliding block;

the driving mechanism comprises a first driving member and a second driving member;

the first driving member is arranged on the vertical sliding rod, and the first driving member is connected with the first sliding block, and the first driving member is configured to drive the first sliding block to slide along the length of the vertical sliding rod;

the second driving member is arranged on the horizontal sliding rod, and the second driving member is connected to the second sliding block, and the second driving member is configured to drive the second sliding block to slide along the length of the horizontal sliding rod.

7. The automatic medicine distributor according to claim 1, wherein the medicine storing section comprises a storage compartment arranged on the medicine board placing rack and a medicine board storing part;

the storage compartment is connected to the medicine board placing rack;

the medicine board storing part is arranged in the storage compartment, and the medicine board storing part is detachably connected to the storage compartment;

the medicine board storing part is provided with a medicine taking port, and the medicine taking port is arranged on one side of the medicine board storing part close to the medicine taking device.

8. The automatic medicine distributor according to claim 7, wherein the medicine board storing part comprises an end plate and two side plates, one side of the two side plates is respectively connected to the end plate, and the medicine taking port is formed between the two side plates on the side away from the end plate;

the inner walls of the two side plates are successively provided with slots horizontally extending from top to bottom, and the slots are configured to support the medicine board.

9. The automatic medicine distributor according to claim 6, wherein the automatic medicine distributor further comprises a medicine box fixing part;
the medicine box fixing part is arranged below the medicine taking device, and the medicine box fixing part is connected to the bracket.

10. The automatic medicine distributor according to claim 5, wherein a second camera is provided at the bottom of the medicine collecting pocket, and the second camera is connected with the control mechanism;
different prescription information and QR code information are pre-stored in the control mechanism, and each of the QR code information corresponds to one prescription information;
the second camera is configured to acquire the QR code image information on the medicine box, and transmit the QR code image information to the control mechanism, and the control mechanism matches the QR code image information to the corresponding prescription information, and controls actions of the driving mechanism and the medicine taking device according to the prescription information.