What is claimed is:

1. A grinding robot, comprising a main rack (60) and a flip bracket (70) pivotally connected to the main rack (60) through a pin shaft (73), wherein a flip device is further provided between the flip bracket (70) and the main rack (60) and comprises:

a first drive portion (10) disposed on the main rack (60); and

a linkage mechanism (20), wherein one end of the linkage mechanism (20) is pivotally connected to the main rack (60), another end of the linkage mechanism (20) is pivotally connected to the flip bracket (70), and a spacing exists between a pivot point between the flip bracket (70) and the main rack (60) and a pivot point between the flip bracket (70) and the linkage mechanism (20),

wherein the first drive portion (10) is drivingly connected to the linkage mechanism (20), when driven by the first drive portion (10), the linkage mechanism (20) is capable of driving the flip bracket (70) to be flipped relative to the main rack (60), and the flip bracket (70) has a first state in which the flip bracket (70) is folded relative to the main rack (60) and a second state in which the flip bracket (70) is extended relative to the main rack (60).

2. The grinding robot of claim 1, wherein the linkage mechanism (20) further comprises:

a first link (21), wherein one end of the first link (21) is pivotally connected to the main rack (60) through a rotary shaft (30), and the first link (21) is drivingly connected to the first drive portion (10); and

a second link (22), wherein one end of the second link (22) is pivotally connected to another end of the first link (21) through a first connecting shaft (50), and another end of the second link (22) is pivotally connected to the flip bracket (70) through a third connecting shaft (25).

3. The grinding robot of claim 2, wherein the first link (21) comprises a first rod segment (23) and a second rod segment (24), wherein one end of the first rod segment (23) is pivotally connected to the main rack (60) through the rotary shaft (30), another end of the first rod segment (23) is connected to one end of the second rod segment (24), another end of the second rod segment (24) is pivotally connected to the first drive portion (10), and the first link (21) is pivotally connected to the one end of the second link (22) through the first connecting shaft (50) at a position where the first rod segment (23) and the second rod segment (24) are connected.

4. The grinding robot of claim 2, wherein:

the first link (21) comprises a first rod segment (23);

the flip device further comprises a crank (40) connected to the rotary shaft (30); and

the rotary shaft (30) is fixedly connected to the first rod segment (23), the crank (40) is connected to the first drive portion (10), and through the crank (40) and the rotary shaft (30), the first drive portion (10) drives the first rod segment (23) to rotate, so as to drive, through the second link (22), the flip bracket (70) to be flipped.

5. The grinding robot of claim 2, wherein a ratio of a linear distance between the rotary shaft (30) and the first connecting shaft (50) to a linear distance between the first connecting shaft (50) and the third connecting shaft (25) is greater than or equal to 1.9 and less than or equal to 2.2.

6. The grinding robot of claim 4, further comprising:

a first limiting column (81) disposed on the rack (60) and configured to limit a limit position where the first link (21) of the linage mechanism (20) swings backward relative to the rack (60); and

a second limiting column (82) disposed on the rack (60) and configured to limit a limit position where the first link (21) of the linage mechanism (20) swings forward relative to the rack (60).

7. The grinding robot of claim 6, wherein the first limiting column (81) and the second limiting column (82) are disposed above the rotary shaft (30), and the first link (21) is provided with a protruding finger (219) between the first limiting column and the second limiting column.

8. The grinding robot of claim 1, further comprising:

a grinding mechanism (90) provided with a grinding disc (91) and position-adjustably disposed on the main rack (60); and

a second drive portion (100) disposed between the main rack (60) and the grinding mechanism (90) and configured to drive the grinding mechanism (90) to move, so as to adjust a posture of the grinding disc (91).

9. The grinding robot of claim 8, wherein:

the flip bracket (70) is provided with a first support wheel (130); and

in a case where the flip bracket (70) is in the first state, projections of the flip bracket (70) and the first support wheel (130) on the grinding disc (91) of the grinding mechanism (90) are

within a region where a surface of the grinding disc (91) is located.

10. The grinding robot of claim 1, wherein:

the main rack (60) is provided with a grinding mechanism (90) and a plurality of moving wheels (121); wherein when the grinding robot is in operation, at least part of the plurality of moving wheels (121) and the grinding mechanism (90) are in contact with the ground, so as to form a working surface;

the grinding robot further comprises a loading rack (30a) comprising at least one second support wheel; and

the loading rack (30a) is configured to be movably connected to the main rack (60) so that when the loading rack (30a) is driven by the main rack (60), the at least one second support wheel is capable of being non-coplanar with the working surface of the grinding robot.

11. The grinding robot of claim 1, further comprising a first guide portion (112) and a second guide portion (312) between the main rack (60) and a loading rack (30a), wherein the first guide portion (112) forms a guide space, and the second guide portion (312) is movably disposed in the guide space; and

when the loading rack (30a) moves relative to the main rack (60), the second guide portion (312) slides in the guide space.

12. The grinding robot of claim 11, wherein the guide space is a guide groove and the second guide portion (312) is a guide pin inserted into the guide groove.

13. The grinding robot of claim 11, wherein the loading rack (30a) and the main rack (60) are detachably connected through a movable mechanism.

14. The grinding robot of claim 13, wherein the movable mechanism comprises a telescopic structure (40a) having an extended state and a retracted state;

the main rack (60) comprises a first connecting portion (111), and the loading rack (30a) comprises a second connecting portion (311) mated with the first connecting portion (111); and

in a case where the telescopic structure (40a) is in the extended state, the first connecting portion (111) and the second connecting portion (311) are capable of being movably connected; and in a case where the telescopic structure (40a) is in the retracted state, the first connecting portion (111) and the second connecting portion (311) are capable of being separated.

15. The grinding robot of claim 14, wherein the telescopic structure (40a) comprises a fastener (41), a movable member (42), and a drive mechanism (43), wherein the fastener (41) is mounted on the main rack (60) or the loading rack (30a); and

the movable member (42) is movably disposed on the fastener (41), and the drive mechanism (43) is configured to drive the movable member (42) to extend or retract relative to the fastener (41) so that the telescopic structure is in the extended state or the retracted state.

16. The grinding robot of claim 15, wherein a first mating surface (411) is provided on the fastener (41), a second mating surface (431) mated with the first mating surface (411) is provided on the drive mechanism (43), and the drive mechanism (43) enables the first mating surface (411) to be mated with or to be staggered with the second mating surface (431);

wherein when the first mating surface (411) is mated with the second mating surface (431), the movable member (42) protrudes from the fastener (41); and when the first mating surface (411) is staggered with the second mating surface (431), the movable member (42) retracts relative to the fastener (41).

17. The grinding robot of claim 16, wherein:

the telescopic structure (40a) further comprises an elastic reset (44), wherein the elastic reset (44) is disposed between the fastener (41) and the movable member (42) and configured to keep the movable member (42) in the extended state; and

the first mating surface (411) and the second mating surface (431) each comprise an inclined surface and a tip abutting surface.

18. The grinding robot of claim 16, wherein the fastener (41) and the movable member (42) are provided with threads that are mated with each other, the drive mechanism (43) drives the movable member (42) to rotate around an axis of the movable member (42), and the movable member (42) is capable of extending or retracting relative to the fastener (41).

19. The grinding robot of claim 16, wherein:

the fastener (41) and the movable member (42) are connected to each other by a thread and a pin shaft; and

the pin shaft is inserted into a screw ring of the thread, the drive mechanism (43) drives the movable member (42) to rotate around an axis of the movable member (42), and the pin shaft is capable of moving to different screw rings along the thread so that the movable member (42) is capable of extending or retracting relative to the fastener (41).

20. The grinding robot of claim 10, wherein the loading rack (30a) comprises at least three second support wheels, and at least one of the at least three second support wheels is a lift support wheel (32).