CLAIMS

1. A lower shell assembly, comprising:

a lower shell body, comprising a bottom portion and a side portion, the bottom portion comprising a first side and a second side which are opposite to each other, and the side portion being arranged around the bottom portion to form a cavity on the first side of the bottom portion;

a first module, installed on the second side of the bottom portion; and

a second module, installed on the second side of the bottom portion and spaced apart from the first module,

wherein the first module is configured to rotate around a rotating axis, the second module is configured to rotate around an axis perpendicular to the rotating axis, and the rotating axis extends in a direction from the first side to the second side,

wherein the bottom portion comprises a first installing portion and a second installing portion, the first installing portion is a part of the bottom portion corresponding to the first module, the second installing portion is a part of the bottom portion corresponding to the second module, the side portion has a connecting surface away from the bottom portion, and a distance between the first installing portion and the connecting surface is smaller than a distance between the second installing portion and the connecting surface so that a height difference is provided between the first installing portion and the second installing portion,

wherein the lower shell assembly further comprises a covering shell portion, wherein the second module comprises a cleaning frame and a walking component, and the bottom portion comprises a first opening for installing the walking component and the covering shell portion, the covering shell portion is installed on the bottom portion and is configured to receive a part of the walking component, the cleaning frame has a second opening to avoid the walking component,

wherein the bottom portion is provided with a position limiting column on the second side, the cleaning frame is provided with a position limiting hole, and the position limiting column is matched with the position limiting hole so that the cleaning frame is connected with the bottom portion by a fastener;

the lower shell assembly further comprises a middle cover, the middle cover is located on the first side of the bottom portion and is installed on the bottom portion, an air chamber is provided between the middle cover and the bottom portion, and the second installing portion of the bottom portion has an adsorption hole, and a matching position between the position limiting column and the position limiting hole is communicated with the air chamber through the adsorption hole, so that the matching position between the position limiting column and the position limiting hole serves as an air leakage detection hole;

the lower shell assembly further comprises a negative pressure mechanism, and the negative pressure mechanism comprises at least one air chamber, an air inlet covering, at least one fan, and an air outlet covering, wherein the air outlet covering comprises at least two air outlet channels.

2. The lower shell assembly according to claim 1, wherein the cleaning frame is provided with double-layer ribs, and the bottom portion is provided with double-layer ribs, and the double-layer ribs on the cleaning frame are ring-shaped and form grooves therebetween, the double-layer ribs on the bottom portion are ring-shaped and form grooves therebetween,

the double-layer ribs on the cleaning frame and the double-layer ribs on the bottom portion are arranged in a manner of inserting with each other, and the bottom portion has an extension guide portion on the second side,

a height of the extension guide portion is smaller than a height of each of the double-layer ribs on the bottom portion so that a movement space is provided between the cleaning frame and the bottom portion and the cleaning frame has a movement amount in a height direction,

the double-layer ribs on the bottom portion and the double-layer ribs on the cleaning frame provide guide on direction for movement of the cleaning frame in the height direction,

the extension guide portion is located outside the double-layer ribs on the bottom portion, one of the double-layer ribs on the cleaning frame is arranged in the groove between the double-layer ribs on the bottom portion, and the other one of the double-layer ribs on the cleaning frame is arranged in a groove formed by the extension guide portion and a rib of the bottom portion close to the extension guide portion.

3. The lower shell assembly according to claim 2, wherein the bottom portion is further provided with a sealing rib on the second side, and the sealing rib is located inside the double-layer ribs on the bottom portion, the sealing rib and a rib of the double-layer ribs on the bottom portion close to the sealing rib form a receiving space for receiving a sealing member, and the height of the extension guide portion is smaller than a height of the sealing rib, the sealing member is configured to be compressible, a height of the sealing member is greater than the height of any one of the double-layer ribs, and is greater than the height of the sealing rib.

4. The lower shell assembly according to any one of claims 1-3, wherein the air chamber comprises a first sub-air chamber corresponding to the first module, a second sub-air chamber corresponding to the second module, and an electronic control valve configured to selectively control an opening area of the first sub-air chamber or the second sub-air chamber.

5. The lower shell assembly according to any one of claims 1-4, wherein the air chamber comprises a first sub-air chamber corresponding to the first module, a second sub-air chamber corresponding to the second module, a first electronic control valve, and a second electronic control valve,

the first electronic control valve is configured to control the opening area of the first sub-air chamber; the second electronic control valve is configured to control the opening area of the second sub-air chamber.

6. The lower shell assembly according to any one of claims 1-5, further comprising a wiper strip arranged at the front portion and/or rear portion of the walking component in a walking direction.

7. The lower shell assembly according to any one of claims 1-6, wherein the walking component comprises at least one roller, and a cleaning portion is provided on at least one side of the roller to clean dirt on the roller.

8. The lower shell assembly according to any one of claims 1-7, wherein at least one sub-adsorption region is provided in the cleaning frame, wherein

each sub-adsorption region comprises at least one sub-adsorption hole, sub-adsorption holes are spaced apart from each other, and a cross-section of each sub-adsorption hole is smaller than an opening cross-section of the second opening.

9. The lower shell assembly according to any one of claims 1-8, wherein the first module and the second module are arranged side by side, and a rotation centerline of the first module is at a first symmetry plane of the second module, the first symmetry plane is a plane passing through a center of the second module in a direction perpendicular to a straight-line walking direction of the second module.

10. The lower shell assembly according to any one of claims 1-9, comprising a plurality of first modules and a plurality of second modules, wherein the plurality of first modules are spaced apart from each other, and the plurality of second modules are arranged side by side and arranged at intervals, and a rotation centerline of each first module does not overlap with a straight-line walking direction of each second module.

11. A cleaning device, comprising the lower shell assembly according to any one of claims 1-10.

12. The cleaning device according to claim 11, further comprising:

at least one misstep switch, arranged on at least one end portion of the cleaning device, configured to detect moving position information of the cleaning device, and feed back the moving position information to the cleaning device, so as to control walking state of the cleaning device;

and/or, at least one air leakage detection hole, arranged on at least one end portion of the cleaning device, configured to detect the moving position information of the cleaning device and feed back the moving position information to the cleaning device, so as to control the walking state of the cleaning device;

a one-way portion, the one-way portion being unidirectional in an air outlet direction of the cleaning device; and

a first cleaning member and a second cleaning member, the first cleaning member being connected with the first module and being arranged on a side of the first module away from the lower shell body, and the second cleaning member being connected with the second module and being arranged on a side of the second module away from the lower shell body.