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(54) FLOOR BRUSH AND CLEANING DEVICE

BODENBÜRSTE UND REINIGUNGSVORRICHTUNG

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Description

BACKGROUND

FIELD OF THE TECHNOLOGY

[0001] The present invention relates to the field of household appliances technologies, and in particular, to a floor brush and a cleaning device.

BACKGROUND OF THE APPLICATION

[0002] In an existing method for adjusting a rotation speed of a rolling brush, the rolling speed is adjusted by changing an amount of air entering a wind wheel assembly. A known method is to provide a moving portion at an air inlet to control a size of the air inlet. In this way, a wind-driven rolling brush cannot automatically adjust the rotation speed of the rolling brush under different working conditions and needs to be adjusted manually. In addition, under different working conditions, if the rolling brush still works at a set rotation speed, a specific amount of noise is generated, and user experience is not good.

[0003] The patent application DE 603 10 578 T2 discloses a vacuum cleaner suction head comprising: a housing having a suction inlet; a shaker for shaking a floor covering rotatably mounted in the housing; an air turbine for driving said shaker; a turbine air inlet separate from said suction inlet for admitting air to the turbine; and a controller for preventing rotation or reducing the speed of rotation of the shaker, the control being responsive to the speed of rotation of the turbine or the flow of air to or through the turbine.

SUMMARY

[0004] To solve the foregoing problems, the present invention provides a floor brush, including a housing and a rolling brush and a wind wheel assembly disposed in the housing. The wind wheel assembly is connected to the rolling brush through a transmission assembly, and the wind wheel assembly includes a rotating shaft and a wind wheel body disposed on the rotating shaft. A deceleration apparatus is associated with the wind wheel assembly to limit a rotation speed of the wind wheel assembly, and the deceleration apparatus includes a moving portion associated with the rotating shaft of the wind wheel assembly and rotatable as the wind wheel assembly rotates and a stationary portion disposed on a radially outer portion of the moving portion and spaced apart relative to the moving portion. The moving portion has a brake portion configured to come into contact with the stationary portion and generating sliding friction under an action of a centrifugal force of rotation. By disposing a deceleration component associated with a rotation of the wind wheel assembly, the rotation speed of the rolling brush can be automatically controlled when the floor brush cleans different object surfaces, and noise gener-

ated when the floor brush works can be improved. The moving portion further includes a fixed limb, a free end, and a connecting portion connecting the fixed limb with the free end, where the fixed limb is fixedly connected to the rotating shaft, when the rotating shaft rotates, the free end is movable along a direction away from a centre of the rotating shaft, and the brake portion is located on the free end. In this way, one end of the moving portion may be fixed to the rotating shaft, and drive the moving portion to rotate when driven by the rotating shaft. Simultaneously, the free end and the other end of the moving portion may generate sliding friction with the stationary portion under an action of a centrifugal force of rotation, thereby automatically controlling the rotation speed of the rolling brush.

[0005] In a possible embodiment, the stationary portion is disposed at an outer periphery of the moving portion around the moving portion. In this way, the stationary portion and the moving portion are uniformly forced when sliding friction is generated between the moving portion and the stationary portion, to enable the rotation speed of the rolling brush to maintain continuous with no occurrence of stuttering.

[0006] In a possible embodiment, the fixed limb and the connecting portion are formed integrally; or, the fixed limb, the connecting portion, and the free end are formed integrally. In this way, assembly processes can be reduced, and by using a specific material and shape design, the moving portion is fixed and the free end connected to the fixed limb by using the connecting portion generates a displacement under the action of the centrifugal force.

[0007] In a possible embodiment, the fixed limb, the connecting portion and the free end are made of POM plastic. The material is of high strength and stiffness, good elasticity and good wear reduction and resistance. In one aspect, a need of the free end to have good wear resistance is met, and a need for elasticity and stiffness of the connecting portion is also met.

[0008] In a possible embodiment, the connecting portion has a reduced cross section. In this way, the connecting portion can connect the fixed limb with the free end that may displace.

[0009] In a possible embodiment, the deceleration apparatus includes at least two moving portions, and the two moving portions are evenly distributed around the rotating shaft. The moving portions may be evenly forced in a circumferential direction, so as to control the rotation speed of the rolling brush to be even.

[0010] In a possible embodiment, the wind wheel assembly further includes a wind wheel cover, the wind wheel cover including a first chamber and a second chamber, where the wind wheel body and the deceleration apparatus are respectively disposed in the first chamber and the second chamber. The wind wheel body and the deceleration apparatus are disposed in different chambers, so that less dust in the chamber where the wind wheel body is located enters the second chamber,

thereby reducing the impact on the deceleration apparatus.

[0011] In a possible embodiment, the stationary portion is fixedly disposed on an inner wall of the second chamber where the stationary portion is located.

[0012] In a possible embodiment, a first blocking portion is disposed between the first chamber and the second chamber to separate the two chambers.

[0013] In a possible embodiment, the floor brush further includes a second blocking portion, where the first blocking portion is disposed in an inner wall of the wind wheel cover, the second blocking portion is disposed on the rotating shaft, and an inner periphery edge of the first blocking portion is closely attached to an outer periphery edge of the second blocking portion.

[0014] In a possible embodiment, the stationary portion is an annular metal piece.

[0015] In a possible embodiment, the free end or the brake portion has an arc-shaped outer periphery. In a possible embodiment, the wind wheel body and the deceleration apparatus are coaxially disposed. A cleaning device is provided, including the foregoing floor brush.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016]

- FIG. 1 is a structure perspective diagram of a floor brush according to an embodiment of the present invention;
- FIG. 2 is a schematic structural diagram of a wind wheel assembly and a deceleration apparatus in FIG. 1 according to an embodiment of the present invention;
- FIG. 3 is a structural cross-sectional view of the components in FIG. 2;
- FIG. 4 is a structural exploded view of the components in FIG. 2; and
- FIG. 5 is a top view of a deceleration apparatus in an axial direction.

DESCRIPTION OF EMBODIMENTS

[0017] The present invention is described in detail below with reference with the embodiments shown in the accompanying drawings. However, these embodiments do not limit the present invention, and structural or functional transformations made by a person of ordinary skill in the art according to these embodiments are included in the protection scope of the present invention.

[0018] FIG. 1 illustrates a floor brush, including a housing and a rolling brush 10, a wind wheel assembly 20, and a transmission assembly 40 that are disposed in the housing. The basic working principle of the floor brush is

that an air inlet is provided at the bottom of the housing. When the floor brush works, wind enters the wind wheel assembly 20 through the air inlet and drives blades of the wind wheel assembly 20 to rotate, thereby driving the rolling brush 10 to rotate through the transmission assembly 40.

[0019] Referring to FIG. 1 to FIG. 4, the wind wheel assembly 20 includes a rotating shaft 202 and a wind wheel body 201 disposed on the rotating shaft 202. In an embodiment, the wind wheel body 201 further includes a left wind wheel and a right wind wheel, both of which may be disposed on the rotating shaft 202 relative to each other.

[0020] The floor brush further includes a deceleration apparatus 30. The deceleration apparatus 30 may be associated with the wind wheel assembly 20 to limit a rotation speed of the wind wheel assembly 20.

[0021] In an embodiment, the deceleration apparatus 30 may include a moving portion 301 associated with the rotating shaft 202 of the wind wheel assembly 20 and rotatable as the wind wheel assembly 20 rotates.

[0022] In an embodiment, the foregoing association manner may be that the deceleration apparatus 30 and the wind wheel body 201 of the wind wheel assembly 20 are coaxially disposed, that is, disposed on the rotating shaft 202. Therefore, the deceleration apparatus 30 may be associated through the wind wheel assembly 20 and the rotating shaft.

[0023] In an embodiment, the deceleration apparatus 30 may be disposed on at least one side of the wind wheel body 201.

[0024] The deceleration apparatus 30 may be alternatively associated with the wind wheel assembly 20 through another connecting structure, so that the moving portion 301 is rotatable as the wind wheel assembly 20 rotates.

[0025] The deceleration apparatus 30 further includes a stationary portion 302 disposed on a radially outer portion of the moving portion 301 and spaced apart relative to the moving portion 301. The moving portion 301 has a brake portion 303 configured to come into contact with the stationary portion 302 and generating sliding friction under an action of a centrifugal force of rotation. A friction deceleration may be implemented through an interaction between the stationary portion 302 and the brake portion 303.

[0026] In an embodiment, the stationary portion 302 may be disposed on an outer periphery of the moving portion 301 around the moving portion 301. For example, the stationary portion 302 may be a cylinder having an inner surface, or may be an annular body centered on the rotating shaft 202, or may be an annular metal piece. By using annular components, when contact surfaces of the stationary portion and the moving portion come into contact with each other and generate sliding friction, the moving portion is uniformly forced, thereby accurately controlling the force that is applied by the deceleration apparatus to the wind wheel assembly, and further ac-

curately controlling the speed of the wind wheel assembly driving the rolling brush. The stationary portion 302 may be alternatively a plurality of components disposed around the outer periphery of the moving portion, and may not include a continuous circumference.

[0027] The stationary portion 302 should be made of a wear-resistant and heat-resistant material, so that the service life of the stationary portion may be prolonged, and the performance stability of the stationary portion may be maintained during repeated friction between the stationary portion and the brake portion. In an embodiment, the deceleration apparatus 30 may include a plurality of moving portions 301, and the plurality of moving portions 301 are evenly distributed around the rotating shaft 202. For example, the deceleration apparatus 30 includes two moving portions 301, and the two moving portions 301 may be symmetrically distributed around a centre of the rotating shaft, as shown in FIG. 5.

[0028] Referring to FIG. 5, in an embodiment, the moving portion 301 may further include a fixed limb 3011, a free end 3012 and a connecting portion 3013 connecting the fixed limb with the free end. The fixed limb 3011 is fixedly connected to the rotating shaft 202. When the rotating shaft 202 rotates, the free end 3012 is movable along a direction away from the centre of the rotating shaft 202 and generates a displacement, to facilitate contact with the stationary portion 302.

[0029] In an embodiment, the free end 3012 may move radially on a plane. The plane may be a plane perpendicular to the rotating shaft 202 or a plane inclined by an angle relative to the rotating shaft 202.

[0030] In an embodiment, when the free end 3012 moves in a radial direction, the connecting portion 3013 and the fixed limb 3011 may also have a displacement change to a certain degree. The displacement change is smaller than a displacement change of the moving portion 301, which is attributed to the material, quality, shape, and the like, of the connecting portion 3013 and the fixed limb 3011.

[0031] In an embodiment, the fixed limb 3011 and the connecting portion 3013 may be formed integrally; or the fixed limb 3011, the connecting portion 3013 and the free end 3012 may be formed integrally. The fixed limb 3011, the connecting portion 3013 and the free end 3012 may be made of a same material, for example, polyoxymethylene (POM) plastic. This type of material is of high strength and stiffness, good elasticity, and good wear reduction and resistance.

[0032] In an embodiment, the connecting portion 3013 may have a reduced cross section, so that the connecting portion 3013 can be driven to deform during the displacement of the free end 3012, making it easier for deformation to occur.

[0033] In particular, when the fixed limb 3011, the connecting portion 3013, and the free end 3012 are made of the same material and formed integrally, the connecting portion 3013 having the reduced cross section may move with the displacement of the free end, and the con-

necting portion drives the free end back to the original position after a centrifugal force at the free end is reduced or decreased. The durability of the connecting portion is also strengthened.

[0034] In an embodiment, the connecting portion 3013 may be an elastic body. When subjected to the centrifugal force, the free end 3012 simultaneously applies a force to the connecting portion 3013. The force includes at least the centrifugal force generated by rotation and a pulling force of the free end 3012 applied to the connecting portion 3013. When the rotation speed of the rotating shaft 202 decreases or when the rotating shaft 202 stops rotating, the connecting portion 3013 may recover the deformation and make the free end 3012 return to the original position.

[0035] In an embodiment, a brake portion 303 may be located on the free end 3012. For example, the brake portion 303 may be disposed on a radially outer side of the free end 3012. When moving, the free end 3012 drives the brake portion 303 to move close to the stationary portion 302 to generate sliding friction.

[0036] The brake portion 303 may be disposed on an outer periphery of the free end 3012. Alternatively, the brake portion 303 and the free end 3012 may be a same component. In an embodiment, the brake portion 303 or the free end 3012 may have an arc-shaped outer periphery.

[0037] In an embodiment, referring to FIG. 5, when two moving portions are evenly disposed in the deceleration apparatus 30, fixed limbs 3011, connecting portions 3013, and free ends 3012 may be respectively symmetrically distributed around the centre of the rotating shaft. The free end 3012 may have an arc-shaped outer periphery that is parallel to the annular stationary portion 302.

[0038] Referring to FIG. 3 and FIG. 4, the wind wheel assembly 20 further includes a wind wheel cover 203. The wind wheel cover 203 may include a first chamber 2031 and a second chamber 2032. The wind wheel body 201 and the deceleration apparatus 30 are respectively disposed in the first chamber 2031 and the second chamber 2032.

[0039] In an embodiment, a first blocking portion 501 is disposed between the first chamber 2031 and the second chamber 2032 to separate the two chambers. The first blocking portion 501 and the wind wheel cover 203 may be formed integrally. In an embodiment, the first blocking portion 501 may be connected to the rotating shaft 202.

[0040] In an embodiment, the first blocking portion 501 and a second blocking portion 502 may be disposed between the first chamber 2031 and the second chamber 2032. The first blocking portion 501 is disposed on an inner wall of the wind wheel cover 203, and may be formed integrally with the wind wheel cover 203. The second blocking portion 502 is disposed on the rotating shaft 202, and an inner periphery edge of the first blocking portion 501 is closely attached to an outer periphery edge

of the second blocking portion 502.

[0041] In an embodiment, the stationary portion 302 is fixedly disposed on an inner wall of the second chamber 2032 where the stationary portion is located.

[0042] Widths of the stationary portion 302 and the second chamber 2032 in an axial direction may be the same, so that the stationary portion 302 may be fixed through the first blocking portion 501 and a cover on the other side of the second chamber 2032. The stationary portion 302 may be fixed on the wind wheel cover or the inner wall of the second chamber 2032 in another fixing manner. This is not limited here. An embodiment of the present invention further discloses a cleaning device having the foregoing floor brush. The cleaning device may be an upright cleaner, a hand-held vacuum cleaner, a canister vacuum cleaner, or a wet and dry vacuum cleaner.

[0043] The cleaning device can work by driving the rolling brush by using the wind wheel assembly.

[0044] Based on the foregoing floor brush and the cleaning device having the floor brush, a specific working manner of the cleaning device are described below.

[0045] Generally, when a specific amount of wind is drawn in through the air inlet at the bottom of the floor brush, the wind wheel body 201 is subjected to a wind action and drives the rolling brush 10 to rotate at a preset rotation speed. However, when the cleaning device cleans surfaces of different materials, an actual rotation speed of the rolling brush 10 is lower than the preset rotation speed because the rolling brush 10 is subjected to different degrees of friction.

[0046] When the cleaning device works on a floor, the wind wheel assembly 20 drives the rolling brush 10 to rotate. Generally, the rolling brush 10 rotates at a first rolling brush rotation speed, for example, 5000 r/min. During the rotation, the deceleration apparatus 30 rotates with the rotating shaft, and the moving portion 301 of the deceleration apparatus 30 moves away from the centre of the rotating shaft 202 under an action of a centrifugal force of rotation, comes into contact with the stationary portion 302, and performs circular movement against the stationary portion 301. In this process, the moving portion 301 is subjected to a frictional resistance and also hinders the rotation of the rotating shaft 202, causing the rotation speed of the rolling brush 10 to decrease to, for example, 1800 r/min.

[0047] When the cleaning device works on a carpet, similarly, the wind wheel assembly 20 drives the rolling brush 10 to rotate. Generally, the rolling brush 10 rotates at a second rolling brush rotation speed, for example, 2000 r/min. During the rotation, the deceleration apparatus 30 rotates with the rotating shaft 202, and the moving portion 301 of the deceleration apparatus 30 moves away from the centre of the rotating shaft under an action of a centrifugal force of rotation, comes into contact with the stationary portion 302, and performs circular movement against the stationary portion 302. In this process, the moving portion 301 is subjected to a frictional resist-

ance and also hinders the rotation of the rotating shaft 202, causing the rotation speed of the rolling brush 10 to decrease to, for example, 1800 r/min.

[0048] The foregoing descriptions are merely specific implementations of the present invention, but are not intended to limit the protection scope of the present invention. Any modification or replacement readily figured out by a person skilled in the art within the technical scope disclosed in the present invention shall fall within the protection scope of the present invention. Therefore, the protection scope of the present invention shall be subject to the protection scope of the claims.

LIST OF REFERENCE SIGNS

[0049]

10	rolling brush
20	wind wheel assembly
30	deceleration apparatus
40	transmission assembly
201	wind wheel body
202	rotating shaft
203	wind wheel cover
301	moving portion
302	stationary portion
303	brake portion
501	first blocking portion
502	second blocking portion
2031	first chamber
2032	second chamber
3011	fixed limb
3012	free end
3013	connecting portion

Claims

1. A floor brush, comprising a housing and a rolling brush (10) and a wind wheel assembly (20) disposed in the housing, the wind wheel assembly (20) being connected to the rolling brush (10) through a transmission assembly (40), and the wind wheel assembly (20) comprising a rotating shaft (202) and a wind wheel body (201) disposed on the rotating shaft (202), a deceleration apparatus (30) is associated with the wind wheel assembly (20) to limit a rotation speed of the wind wheel assembly (20), and the deceleration apparatus (30) comprises a moving portion (301) associated with the rotating shaft (202) of the wind wheel assembly (20) and rotatable as the wind wheel assembly (20) rotates and a stationary portion (302) disposed on a radially outer portion of the moving portion (301) and spaced apart relative to the moving portion (301), the moving portion (301) having a brake portion (303) configured to come into contact with the stationary portion (302) and generating sliding friction under an action of a centrifugal

- force of rotation **characterized in that** the moving portion (301) further comprises a fixed limb (3011), a free end (3012), and a connecting portion (3013) connecting the fixed limb with the free end, wherein the fixed limb (3011) is fixedly connected to the rotating shaft (202), when the rotating shaft (202) rotates, the free end (3012) is movable along a direction away from a centre of the rotating shaft, and the brake portion (303) is located on the free end (3012).
2. The floor brush according to claim 1, **characterized in that** the stationary portion (302) is disposed on an outer periphery of the moving portion (301) around the moving portion (301).
 3. The floor brush according to any of preceding claims, **characterized in that** the fixed limb (3011) and the connecting portion (3013) are formed integrally; or the fixed limb (3011), the connecting portion (3013), and the free end (3012) are formed integrally.
 4. The floor brush according to claim 3, **characterized in that** the fixed limb (3011), the connecting portion (3013), and the free end (3012) are made of POM plastic.
 5. The floor brush according to claim 3, **characterized in that** the connecting portion (3013) has a reduced cross section.
 6. The floor brush according to claim 1, **characterized in that** the deceleration apparatus (30) comprises at least two moving portions (301), the two moving portions (301) being evenly distributed around the rotating shaft (202).
 7. The floor brush according to claim 1, **characterized in that** the wind wheel assembly (20) further comprises a wind wheel cover (203), the wind wheel cover (203) comprising a first chamber (2031) and a second chamber (2032), wherein the wind wheel body (201) and the deceleration apparatus (30) are respectively disposed in the first chamber (2031) and the second chamber (2032).
 8. The floor brush according to claim 7, **characterized in that** the stationary portion (302) is fixedly disposed on an inner wall of the second chamber (2032) where the stationary portion is located.
 9. The floor brush according to claim 7, **characterized in that** a first blocking portion (501) is disposed between the first chamber (2031) and the second chamber (2032) to separate the two chambers.
 10. The floor brush according to claim 9, **characterized by** further comprising a second blocking portion (502), wherein the first blocking portion (501) is disposed on an inner wall of the wind wheel cover (203), the second blocking portion (502) is disposed on the rotating shaft (202), and an inner periphery edge of the first blocking portion (501) is closely attached to an outer periphery edge of the second blocking portion (502).
 11. The floor brush according to claim 1 or 2, **characterized in that** the stationary portion (302) is an annular metal piece.
 12. The floor brush according to claim 1, **characterized in that** the free end (3012) or the brake portion (303) has an arc-shaped outer periphery.
 13. The floor brush according to claim 1, **characterized in that** the wind wheel body (201) and the deceleration apparatus (30) are coaxially disposed.
 14. A cleaning device comprising the floor brush according to any one of claims 1 to 13.

Patentansprüche

1. Bodenbürste, die ein Gehäuse und eine Rollbürste (10) und eine in dem Gehäuse angeordnete Windradbaugruppe (20) umfasst, wobei die Windradbaugruppe (20) über eine Getriebebaugruppe (40) mit der Rollbürste (10) verbunden ist und die Windradbaugruppe (20) eine Rotationswelle (202) und einen an der Rotationswelle (202) angeordneten Windradhauptteil (201) umfasst, eine Abbremsvorrichtung (30) zum Begrenzen einer Drehzahl der Windradbaugruppe (20) mit der Windradbaugruppe (20) verknüpft ist und die Abbremsvorrichtung (30) einen mit der Rotationswelle (202) der Windradbaugruppe (20) verknüpften beweglichen Abschnitt (301), der sich drehen kann, wenn sich die Windradbaugruppe (20) dreht, und einen feststehenden Abschnitt (302) umfasst, der an einem radial außenliegenden Abschnitt des beweglichen Abschnitts (301) angeordnet und von dem beweglichen Abschnitt (301) beabstandet ist, wobei der bewegliche Abschnitt (301) einen Bremsabschnitt (303) aufweist, der so konfiguriert ist, dass er mit dem feststehenden Abschnitt (302) in Kontakt kommt und unter Einwirkung einer Zentrifugalkraft der Rotation Gleitreibung erzeugt, **dadurch gekennzeichnet, dass** der bewegliche Abschnitt (301) ferner einen befestigten Schenkel (3011), ein freies Ende (3012) und einen Verbindungsabschnitt (3013) umfasst, der den befestigten Schenkel mit dem freien Ende verbindet, wobei der befestigte Schenkel (3011) fest mit der Rotationswelle (202) verbunden ist, wenn sich die Rotationswelle (202) dreht, das freie Ende (3012) in einer von einer Mitte der Rotationswelle weg führenden Richtung beweglich ist und sich der Bremsabschnitt (303)

an dem freiem Ende (3012) befindet.

2. Bodenbürste nach Anspruch 1, **dadurch gekennzeichnet, dass** der feststehende Abschnitt (302) an einem Außenumfang des beweglichen Abschnitts (301) um den beweglichen Abschnitt (301) herum angeordnet ist. 5
3. Bodenbürste nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der befestigte Schenkel (3011) und der Verbindungsabschnitt (3013) oder der befestigte Schenkel (3011), der Verbindungsabschnitt (3013) und das freie Ende (3012) einstückig ausgebildet sind. 10
4. Bodenbürste nach Anspruch 3, **dadurch gekennzeichnet, dass** der befestigte Schenkel (3011), der Verbindungsabschnitt (3013) und das freie Ende (3012) aus dem Kunststoff POM hergestellt sind. 15
5. Bodenbürste nach Anspruch 3, **dadurch gekennzeichnet, dass** der Verbindungsabschnitt (3013) einen geringeren Querschnitt aufweist. 20
6. Bodenbürste nach Anspruch 1, **dadurch gekennzeichnet, dass** die Abbremsvorrichtung (30) mindestens zwei bewegliche Abschnitte (301) umfasst, die gleichmäßig um die Rotationswelle (202) herum verteilt sind. 25
7. Bodenbürste nach Anspruch 1, **dadurch gekennzeichnet, dass** die Windradbaugruppe (20) ferner eine Windradabdeckung (203) umfasst, die eine erste Kammer (2031) und eine zweite Kammer (2032) umfasst, wobei der Windradhauptteil (201) und die Abbremsvorrichtung (30) in der ersten Kammer (2031) beziehungsweise der zweiten Kammer (2032) angeordnet ist. 30
8. Bodenbürste nach Anspruch 7, **dadurch gekennzeichnet, dass** der feststehende Abschnitt (302) fest an einer Innenwand der zweiten Kammer (2032) angeordnet ist, in der sich der feststehende Abschnitt befindet. 35
9. Bodenbürste nach Anspruch 7, **dadurch gekennzeichnet, dass** zwischen der ersten Kammer (2031) und der zweiten Kammer (2032) zum Trennen der beiden Kammern ein erster Sperrabschnitt (501) angeordnet ist. 40
10. Bodenbürste nach Anspruch 9, **dadurch gekennzeichnet, dass** sie ferner einen zweiten Sperrabschnitt (502) umfasst, wobei der erste Sperrabschnitt (501) an einer Innenwand der Windradabdeckung (203) angeordnet ist, der zweite Sperrabschnitt (502) an der Rotationswelle (202) angeordnet ist und ein Innenumfangsrand des ersten Sperrab-

schnitts (501) nahe an einem Außenumfangsrand des zweiten Sperrabschnitts (502) angebracht ist.

11. Bodenbürste nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** es sich bei dem feststehenden Abschnitt (302) um ein rundes Metallstück handelt. 5
12. Bodenbürste nach Anspruch 1, **dadurch gekennzeichnet, dass** das freie Ende (3012) oder der Bremsabschnitt (303) einen bogenförmigen Außenumfang aufweist. 10
13. Bodenbürste nach Anspruch 1, **dadurch gekennzeichnet, dass** der Windradhauptteil (201) und die Abbremsvorrichtung (30) koaxial angeordnet sind. 15
14. Reinigungsgerät mit der Bodenbürste nach einem der Ansprüche 1 bis 13. 20

Revendications

1. Brosse de sol, comprenant un boîtier et une brosse roulante (10) et un ensemble formant roue à vent (20) disposé dans le boîtier, l'ensemble formant roue à vent (20) étant relié à la brosse roulante (10) par le biais d'un ensemble de transmission (40), et l'ensemble formant roue à vent (20) comprenant une tige rotative (202) et un corps de roue à vent (201) disposé sur la tige rotative (202), un appareil de décélération (30) est associé à l'ensemble formant roue à vent (20) pour limiter une vitesse de rotation de l'ensemble formant roue à vent (20), et l'appareil de décélération (30) comprend une partie mobile (301) associée à la tige rotative (202) de l'ensemble formant roue à vent (20) et apte à entrer en rotation à mesure que l'ensemble formant roue à vent (20) effectue une rotation et une partie fixe (302) disposée sur une partie radialement externe de la partie mobile (301) et espacée par rapport à la partie mobile (301), la partie mobile (301) présentant une partie frein (303) configurée pour entrer en contact avec la partie fixe (302) et générant un frottement glissant sous l'action d'une force de rotation centrifuge **caractérisée en ce que** la partie mobile (301) comprend en outre un membre fixe (3011), une extrémité libre (3012) et une partie de liaison (3013) reliant le membre fixe à l'extrémité libre, dans laquelle le membre fixe (3011) est relié de manière fixe à la tige rotative (202), lorsque la tige rotative (202) est en rotation, l'extrémité libre (3012) est mobile le long d'une direction s'éloignant du centre de la tige rotative, et la partie frein (303) est située sur l'extrémité libre (3012). 25
2. Brosse de sol selon la revendication 1, **caractérisée en ce que** la partie fixe (302) est disposée sur une périphérie externe de la partie mobile (301) autour

de la partie mobile (301).

3. Brosse de sol selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le membre fixe (3011) et la partie de liaison (3013) sont formées d'un seul tenant ; ou le membre fixe (3011), la partie de liaison (3013) et l'extrémité libre (3012) sont formés d'un seul tenant. 5
4. Brosse de sol selon la revendication 3, **caractérisée en ce que** le membre fixe (3011), la partie de liaison (3013) et l'extrémité libre (3012) sont réalisés en plastique POM. 10
5. Brosse de sol selon la revendication 3, **caractérisée en ce que** la partie de liaison (3013) présente une section transversale réduite. 15
6. Brosse de sol selon la revendication 1, **caractérisée en ce que** l'appareil de décélération (30) comprend au moins deux parties mobiles (301), les deux parties mobiles (301) étant distribuées de manière homogène autour de la tige rotative (202). 20
7. Brosse de sol selon la revendication 1, **caractérisée en ce que** l'ensemble formant roue à vent (20) comprend en outre un capot de roue à vent (203), le capot de roue à vent (203) comprenant une première chambre (2031) et une seconde chambre (2032), dans laquelle le corps de roue à vent (201) et l'appareil de décélération (30) sont disposés respectivement dans la première chambre (2031) et la seconde chambre (2032). 25 30
8. Brosse de sol selon la revendication 7, **caractérisée en ce que** la partie fixe (302) est disposée de manière fixe sur une paroi interne de la seconde chambre (2032) où la partie fixe est située. 35
9. Brosse de sol selon la revendication 7, **caractérisée en ce que** la première partie bloquante (501) est disposée entre la première chambre (2031) et la seconde chambre (2032) pour séparer les deux chambres. 40 45
10. Brosse de sol selon la revendication 9, **caractérisée en ce qu'elle** comprend en outre une seconde partie bloquante (502), dans laquelle la première partie bloquante (501) est disposée sur une partie interne du capot de roue à vent (203), la seconde partie bloquante (502) est disposée sur la tige rotative (202), et un bord de périphérie interne de la première partie bloquante (501) est fixé étroitement à un bord de périphérie externe de la seconde partie bloquante (502). 50 55
11. Brosse de sol selon la revendication 1 ou 2, **caractérisée en ce que** la partie fixe (302) est une pièce

métallique annulaire.

12. Brosse de sol selon la revendication 1, **caractérisée en ce que** l'extrémité libre (3012) ou la partie frein (303) présente une périphérie externe en forme d'arc.
13. Brosse de sol selon la revendication 1, **caractérisée en ce que** le corps de roue à vent (201) et l'appareil de décélération (30) sont disposés coaxialement.
14. Dispositif de nettoyage comprenant la brosse de sol selon l'une quelconque des revendications 1 à 13.

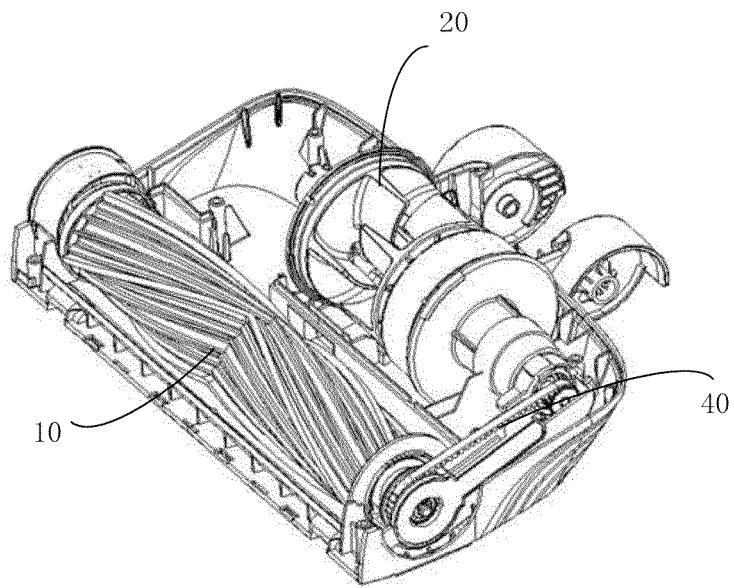


FIG. 1

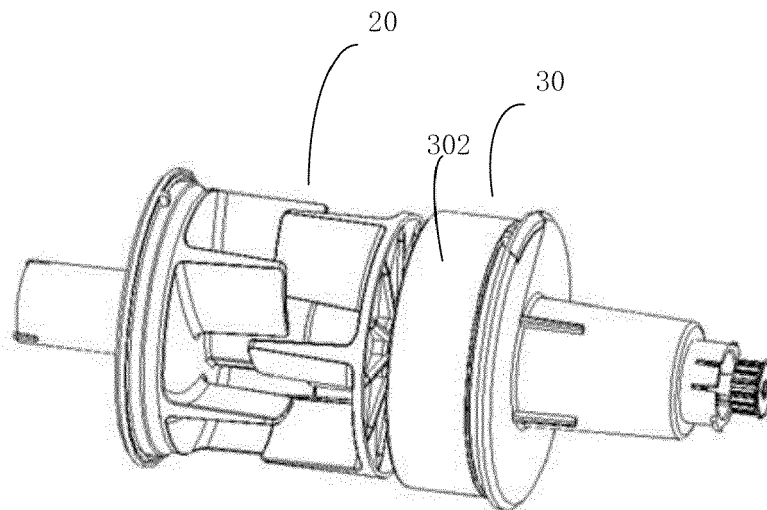


FIG. 2

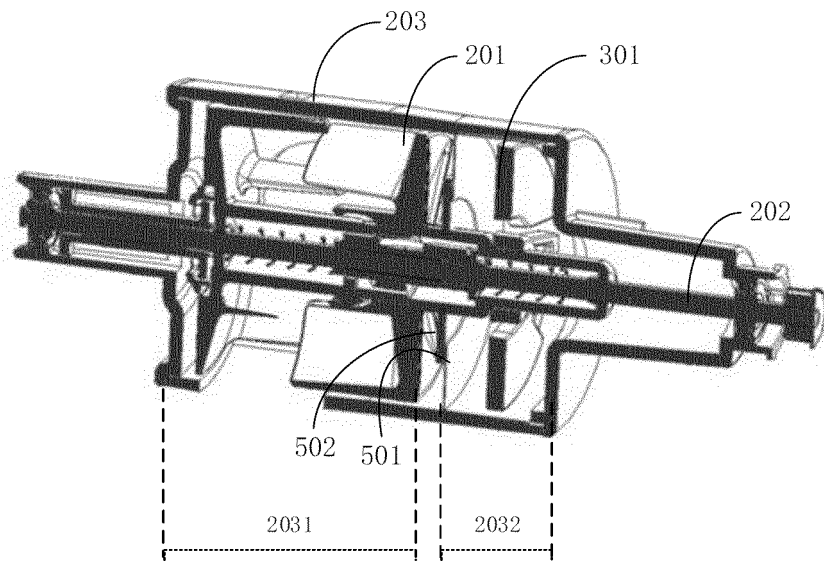


FIG. 3

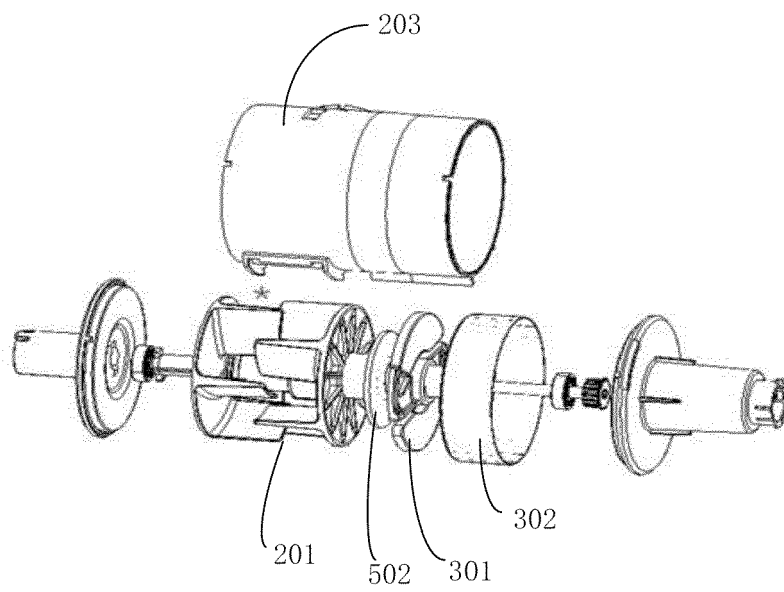


FIG. 4

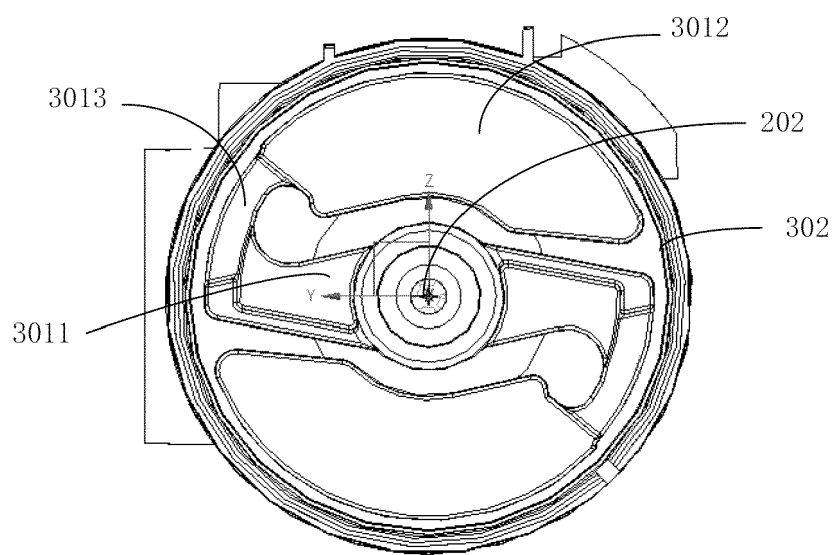


FIG. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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