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(54) INFLATABLE DOLL

(57) The present disclosure provides an inflatable doll, which includes a body having a first air inlet, a plurality of expandable members received in the body and connected with the body, and an air blower assembly. Each expandable member defines a second air inlet. The air blower assembly includes a first air blower arranged adjacent to the first air inlet and a plurality of second air blowers received in the body and communicated with second air inlets. The first air blower is configured to introduce air into the body to inflate the body and the expandable members. Each second air blower is configured to direct air out of one corresponding expandable member intermittently, so that the expandable members are deformed to move the body.

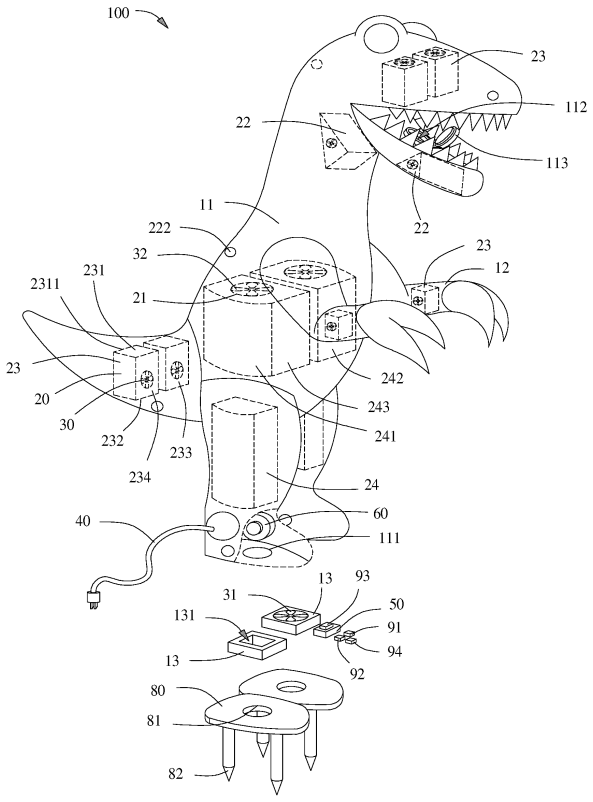


FIG. 2

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Description

FIELD

[0001] The present disclosure relates to the field of dolls, and in particular to an inflatable doll.

BACKGROUND

[0002] At present, all kinds of conventional inflatable dolls are displayed in or in front of supermarkets or amusement parks to attract customers or visitors and create a friendly atmosphere. A conventional inflatable decoration has a body made of fabric material and a barrel which has a base formed on a lower end of the barrel. The body is mounted on the barrel so that the body is suspended above the ground. An air inlet is defined in the base and in communication with the interior of the body and an inflator is mounted on the base. A vent hole is defined in the inflator and corresponds to the air inlet so that air can be blown into the body when the inflator is operating. Hence, the body erects to attract the customers.

[0003] However, the conventional inflatable doll lacks dynamic movement and so soon becomes unattractive to passersby. Therefore, the present disclosure provides an inflatable doll to mitigate or obviate the aforementioned problems.

SUMMARY

[0004] The present disclosure provides an inflatable doll which includes a body having a first air inlet, a plurality of expandable members received in the body and connected with the body, and an air blower assembly. Each expandable member defines a second air inlet. The air blower assembly includes a first air blower configured to introduce air into the body to inflate the body and the expandable members, and a plurality of second air blowers received in the body and communicated with the second air inlets. Each second air blower is configured to direct air out of one corresponding expandable member intermittently, so that the expandable members are deformed to move the body.

[0005] Furthermore, each second air blower is at least partially received in one corresponding second air inlet.

[0006] Furthermore, each second air blower includes a housing, an air inlet portion connected with the housing and received in the expandable member by the second air inlet, and an air outlet portion connected with the housing and arranged outside the expandable member.

[0007] Furthermore, the inflatable doll further includes a plurality of connecting members, each second air blower further includes a fixing portion, each connecting member is connected with one corresponding fixing portion to connect the second air blower with an edge of the second air inlet.

[0008] Furthermore, the expandable members include a plurality of first expandable members and a plurality of second expandable members. Each first expandable member has a substantially triangular prism shape in the inflated state. Each first expandable member includes a bottom surface, two opposite triangular surfaces and and two parallelogram surfaces, an angle formed by the bottom surface and one of the parallelogram surfaces is 30~60° when the first expandable member is inflated. Each second expandable member has a substantially hexahedral shape in the inflated state, at least one surface of each second expandable member is arc-shaped when the second expandable member is inflated, and the arc-shaped surface is connected with the body.

[0009] Furthermore, the expandable members further include at least one third expandable member, the at least one third expandable member includes a first expandable portion, a second expandable portion and a connecting portion, the first expandable portion is communicated with the second expandable portion by the connecting portion, and a notch is defined between the first expandable portion and the second expandable portion.

[0010] Furthermore, the first expandable portion includes a first surface opposite to the connecting portion, the second expandable includes a second surface opposite to the connecting portion, the first surface and the second surface are inclined towards a same direction.

[0011] Furthermore, the first surface includes a first end and a second end, the second surface includes a third end and a fourth end, a first inclining direction from the first end to the second end is parallel with a second inclining direction from the third end to the fourth end.

[0012] Furthermore, the first expandable portion includes a first surface opposite to the connecting portion, the second expandable includes a second surface opposite to the connecting portion, the first surface or the second surface is provided with one second air blower.

[0013] Furthermore, the first expandable portion includes a third surface, the second expandable includes a fourth surface, each of the third surface and the fourth surface defines a connecting hole, the connecting portion defines a through hole, the first expandable portion is communicated with the second expandable portion by the connecting holes and the through hole.

[0014] Furthermore, the body includes a primary portion, at least two expandable members are connected with the primary portion and arranged adjacent to each other at a same height.

[0015] Furthermore, each of the second air blowers includes an air outlet portion the air outlet portions of the second air blowers corresponded to the at least two expandable members faces towards a same direction or opposite directions.

[0016] Furthermore, the body includes at least one secondary portion, at least two expandable members are received in the at least one secondary portion and arranged adjacent to each other at a same height.

[0017] Furthermore, each of the second air blowers includes an air outlet portion, the air outlet portions of the

second air blowers corresponded to the at least two expandable members faces towards a same direction or opposite directions.

[0018] Furthermore, the inflatable doll further includes a controller electrically connected with the air blower assembly, a microphone electrically connected with the controller and configured to collect a voice and transmit a voice signal to the controller, a speaker electrically connected with the controller, a first speech recognizing server electrically connected with the controller and configured to recognize a processed voice signal of controller and transmit a recognition result to the controller, a chip electrically connected with the controller and pre-storing vocabularies and configured to output a feedback to the controller according to the vocabularies and the recognition result, and a second speech recognizing server electrically connected with the controller and configured to transmit another feedback to the speaker, the controller is capable of communicating with a user, and the controller is capable of sending an instruction to the air blower assembly or the speaker to control an operation of the air blower assembly or the speaker according to the voice signal.

[0019] In the technical solution of the present disclosure, the first air blower can direct the external air into the body to inflate the body and the expandable members. The second air blowers are intermittently actuated, so that the second air blowers can intermittently lead out the air in the expandable members independently or synchronously, so as to deform the expandable members and the body. In this way, different portions of the body can move dynamically to attract customers.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] Implementations of the present disclosure will now be described, by way of embodiment, with reference to the attached figures. It should be understood, the drawings are shown for illustrative purpose only, for ordinary person skilled in the art, other drawings obtained from these drawings without paying creative labor by an ordinary person skilled in the art should be within scope of the present disclosure.

FIG. 1 is a structural schematic view of an inflatable doll in an inflated state according to a first embodiment of the present disclosure.

FIG. 2 is an exploded view of the inflatable doll in FIG. 1.

FIG. 3 is a structural schematic view of a first expandable member of the inflatable doll in FIG. 2.

FIG. 4 is a structural schematic view of a second expandable member of the inflatable doll in FIG. 2.

FIG. 5 is a structural schematic view of a third expandable member of the inflatable doll in FIG. 2.

FIG. 6 is a structural block diagram of a controller, a power plug, a lamp, a speaker, and an air blower assembly of the inflatable doll in FIG. 1.

FIG. 7 is a structural schematic view of the inflatable doll in FIG. 1 in a deflated state.

FIG. 8 is a structural schematic view of an inflatable doll according to a second embodiment of the present disclosure.

FIG. 9 is a structural schematic view of the inflatable doll in FIG. 8 in a deflated state.

FIG. 10 is a structural schematic view of an expandable member of the inflatable doll in FIG. 8.

FIG. 11 is another structural schematic view of the expandable member in FIG. 10.

FIG. 12 is a structural schematic view of an inflatable doll according to a third embodiment of the present disclosure.

FIG. 13 is a structural schematic view of an expandable member of the inflatable doll in FIG. 12.

FIG. 14 is a structural schematic view of the second air blower in FIG. 2.

FIG. 15 is a structural schematic view of the second air blower and a portion of the expandable member in FIG. 2.

FIG. 16 is another structural schematic view of the second air blower and a portion of the expandable member in FIG. 2.

FIG. 17 is a further structural schematic view of a connecting member of the inflatable doll.

FIG. 18 is a structural schematic view of the second air blower according to another embodiment.

[0021] The realization of the aim, functional characteristics, advantages of the present disclosure are further described specifically with reference to the accompanying drawings and embodiments.

DETAILED DESCRIPTION

[0022] The technical solutions of the embodiments of the present disclosure will be clearly and completely described in the following with reference to the accompanying drawings. It is obvious that the embodiments to be described are only a part rather than all of the embodiments of the present disclosure. All other embodiments obtained by persons skilled in the art based on the embodiments of the present disclosure without creative efforts shall fall within the protection scope of the present disclosure.

[0023] Referring to figures 1-7 and 14-16, the present disclosure provides an inflatable doll 100 according to a first embodiment. The inflatable doll 100 includes a body 10, a plurality of expandable members 20 and an air blower assembly 30 all received in the body 10. The body 10 includes a primary portion 11 having a first air inlet 111, and at least one secondary portion 12 connected and communicated with the primary portion 11. The expandable member 20 defines a second air inlet 21 communicated with the first air inlet 111. The expandable members 20 are connected with the primary portion 11 and/or the secondary portion 12. The expandable members 20 are

expandable, flexible or deformable, and capable of expanding or contracting under an action of the air blower assembly 30. The expandable members 20 are deformed to move the primary portion 11 and/or the secondary portion 12. In one embodiment, all portions of the expandable member are expandable, flexible and deformable.

[0024] The air blower assembly 30 includes a first air blower 31 received in the primary portion 11 and adjacent to the first air inlet 111, and a plurality of second air blowers 32. Each second air blower 32 is arranged on one corresponding second air blower 32, in detail, each second air blower 32 is at least partially received in one corresponding second air inlet 21. The first air blower 31 is configured to introduce air into the primary portion 11 and the secondary portion 12, to inflate the primary portion 11, the secondary portion 12 and the expandable members 20. Each second air blower 32 is configured to direct air out of one corresponding expandable member 20, the expandable members 20 are deformed to move the primary portion 11 and/or the secondary portion 12. In this way, the expandable members 20 can be controlled to deform independently, and different portions of the inflatable doll 100 can move independently. It should be understood that, the second air blowers 32 in figures 2-5 and 7-13 are presented simplistically.

[0025] The second air blowers 32 are intermittently actuated, so that the primary portion 11 and/or the secondary portion 12 is intermittently inflated or deflated, for bringing the primary portion 11 and/or the secondary portion 12 to move.

[0026] The body 10 is made of flexible material which can be inflated to expand and erect to a prearranged configuration, and can also be deflated to perform different attractive actions. In detail, the body 10 is made of air-tight cloth, air-tight fabric, rubber, polyphthalamide, thermoplastic urethanes (TPU), polyphenylenesulfide-based fiber (PPS), polyetheretherketone-based fiber (PEEK), nylon, and the like wholly aromatic polyamide fiber, wholly aromatic polyester fiber, polyimide-based fiber, polyetherimide-based fiber, vinylon-based fiber, acrylic-based fiber, cellulose-based fiber, silicon carbide-based fiber, alumina-based fiber, glass-based fiber, carbon-based fiber, steel-based fiber, and the like.

[0027] The expandable member 20 is made of fabric material or flexible plastic material which can be inflated to expand and erect to a prearranged configuration, and can also be deflated to move the body 10. In detail, the expandable member 20 is made of air-tight cloth, air-tight fabric, rubber, polyphthalamide, thermoplastic urethanes (TPU), polyphenylenesulfide-based fiber (PPS), polyetheretherketone-based fiber (PEEK), nylon, and the like wholly aromatic polyamide fiber, wholly aromatic polyester fiber, polyimide-based fiber, polyetherimide-based fiber, vinylon-based fiber, acrylic-based fiber, cellulose-based fiber, silicon carbide-based fiber, alumina-based fiber, glass-based fiber, carbon-based fiber, steel-based fiber, and the like.

[0028] In the preferred embodiment, the inflatable doll 100 is like a dinosaur, the primary portion 11 is a dinosaur body including a belly, a neck and a leg, and the secondary portion 12 includes an arm, a jaw, and a tail. In other embodiments, the inflatable doll 100 may be like a human, a car, a rabbit, and so on.

[0029] An air inlet portion of the first air blower 31 is communicated with the first air inlet 111. So that, the external air may be blown into the body 10. The second air blower 32 is arranged in the expandable member 20 and faces towards the outside of the expandable member 20, and an air outlet portion 321 of the second air blower 32 faces towards the outside of the expandable member 20. So that, the air in the expandable member 20 may be directed out of the expandable member 20, to move the primary portion 11 and/or the secondary portion 12. In detail, the air outlet portion 321 of the second air blowers 32 faces towards a same direction or different directions.

[0030] The expandable member 20 includes an inner side 201 and an outer side 202. The second air inlet 21 passes through the inner side 201 and the outer side 202. The second air blower 32 further includes a housing 320, a first air inlet portion 322 and a second air inlet portion 323 both protruded from the housing 320 and received in the expandable member 20, an air outlet portion 321 is also protruded from the housing 320, and the air outlet portion 321 is arranged outside the expandable member 20. The first air inlet portion 322 is connected with the second air inlet portion 323. Preferably, the first air inlet portion 322 is perpendicular to the second air inlet portion 323. The housing 320 includes a support wall 3203 arranged outside the expandable member 20, a cylindrical body 3204 connected with the support wall 3203 and arranged outside the expandable member 20, and a connecting portion 3205 connected between the cylindrical body 3204 and the first air inlet portion 322 and arranged in the expandable member 20. A fan 3207 is arranged in the cylindrical body 3204 and directs the air in the expandable member out.

[0031] The first air inlet portion 322 extends from the connecting portion 3205 of the housing 320 along a first direction, the first direction is parallel with an axis direction of the housing 320. The air outlet portion 321 extends from the support wall 3203 of the housing 320 along a second direction. The first air inlet portion 322 has a round shape, and a diameter of the first air inlet portion 322 is greater than that of the connecting portion 3205, and a diameter of the cylindrical body 3204 is also greater than that of the connecting portion 3205, so that the first air inlet portion 322, the connecting portion 3205 and the cylindrical body 3204 cooperatively form a fixing portion 3206 which may be a fixing groove. The second direction is perpendicular to the first direction. The second air inlet portion 323 has a semicircle shape and extends from the first inlet portion 322 along the first direction. The first air inlet portion 322 defines at least one first inlet 3221, the second air inlet portion 323 defines at least one second inlet 3231, the air outlet portion 321 defines at least one

outlet 3211 communicated with the first inlet 3221 and the second inlet 3231. The air in the expandable member 20 is directed out by the first inlet 3221, the second inlet 3231 and the outlet 3211, and the air in the body 10 can flow into the expandable member 20 by the outlet 3211, the first inlet 3221 and the second inlet 3231. In one embodiment, an extension direction of the first inlet 3221 is perpendicular to the first direction, an extension direction of the second inlet 3231 is parallel with the first direction, and an extension direction of the outlet 3211 is also perpendicular to the first direction. In another embodiment, as shown in FIG. 18, the air outlet portion 321 of second air blower 32 surround a part of the cylindrical body 3204 of the housing 320, an extension direction of the outlet 3211 is perpendicular to the first direction. The air outlet portion 321 extends along the length direction of the housing.

[0032] An edge of the second air inlet 21 is connected with the second air blower 32 by a connecting member 34, the connecting member 34 includes a connecting strip 204 and a fixing part 205 connected with a first end 2041 of the connecting strip 204, the connecting strip 204 and the fixing part 205 are configured to connect the second air blower 32 with the expandable member 20. In detail, the edge of the second air inlet 21 crimps to form a receiving portion 203, the receiving portion 203 is ring shaped and defines a receiving space 2030 and two opposite via holes 2031 communicated with the receiving space 2030, the second air blower 32 is partially received in the expandable member 20, in detail, the first air inlet portion 322 and the second air inlet portion 323 are both received in the expandable member 20, and the air outlet portion 321 is arranged outside the expandable member 20, the receiving portion 203 surrounds the fixing portion 3206, the connecting strip 204 is received in the receiving portion 203 and surrounds the fixing portion 3206, and a second end 2042 of the connecting strip 204 is inserted in the through hole 2051 of the fixing part 205 to fix the second air blower 32 with the expandable member 20. When the body 10 and the expandable member 20 are inflated, the expandable member 20 can hold the second air blower 32 as the expandable member 20 is connected with the body 10.

[0033] The first air blower 31 and the second air blower 32 are intermittently actuated air blowers. An air drafting capability of the second air blower 32 is lower in pressure than that of the first air blower 31. The first air blower 31 has a power of about 5-300 W, preferably 110-300 W; and the second air blower 32 has a power of about 5-100 W, preferably 20-50 W. The power of the second air blower may be set according to actual needs, so as to adjust the deflation rate of the expandable member 20, further to adjust a deformation rate of the primary portion 11 and/or the secondary portion 12.

[0034] The primary portion 11 further defines at least one air outlet 112. The inflatable doll 100 further includes at least one sealing plug 113 configured to open or airtightly seal the air outlet 112.

[0035] The secondary portion 12 includes at least one up and down moving part and at least one left and right moving part, the up and down moving part of the secondary portion 12 includes the neck, the arm, the leg, the jaw, and the tail, and the left and right moving part of the secondary portion 12 includes the neck, the arm, the leg, the belly, and the tail. It should be understood that, the left and right moving part can also be controlled to move up and down, and the up and down moving part can also be controlled to move left and right.

[0036] The primary portion 11 includes at least one up and down moving part and at least one left and right moving part, the up and down moving part of the primary portion 11 includes the neck, the arm, the leg, the jaw, and the tail, and the left and right moving part of the primary portion 11 includes the neck, the arm, the leg, the belly, and the tail. It should be understood that the left and right moving part can be controlled to move up and down, and the up and down moving part can also be controlled to move left and right.

[0037] In the technical solution of the present disclosure, the first air blower 31 is received in the primary portion 11 and adjacent to the first air inlet 111, the first air blower 31 may direct the external air into the primary portion 11 through the first air inlet 111, to inflate the primary portion 11 and the secondary portion 12. The air in the primary portion 11 and the secondary portion 12 flows into the expandable member 20 through the second air inlet 21, to inflate the expandable member 20. The inflated expandable member 20 can hold the body 10 in an upright state. The second air blowers 32 are intermittently actuated, so that the second air blowers 32 can intermittently lead out the air in the expandable members 20 independently or synchronously, so as to move the primary portion 11 and/or the secondary portion 12. After the second air blowers 32 stop working, the air in the primary portion 11 and the secondary portion 12 flows into the expandable members 20 to inflate the expandable members 20, and the inflated expandable member 20 can deform to move the primary portion 11 and/or the secondary portion 12 again under the action of the second air blowers 32. In this way, the primary portion 11 and/or the secondary portion 12 is intermittently inflated or deflated, to move the primary portion 11 and/or the secondary portion 12. This cycle repeats, different portions of the body 10 can move up and down, and/or move right and left, forming a set of dynamic movements to attract customers.

[0038] Referring to figures 2 and 3, the expandable member 20 includes at least one first expandable member 22 having a substantially triangular prism shape in the inflated state. The at least one first expandable member 22 is received in the primary portion 11 and/or the at least one secondary portion 12, and connected with the primary portion 11 and/or the at least one secondary portion 12. A portion of the first expandable member is sewed with or glued with the primary portion 11 or the at least one secondary portion 12.

[0039] The first expandable member 22 includes a bottom surface 221, two opposite triangular surfaces 222 connected with two sides of the bottom surface 221 respectively, and two parallelogram surfaces 223 connected with the bottom surface 221 and the triangular surfaces 222. An area of a cross section of the first expandable member 22 is gradually decreased in a direction from the bottom surface 221 to the connecting edge 2231. When the first expandable member 22 is inflated, an angle α formed by the bottom surface 221 and the parallelogram surface 223 is about 30-60°. For example, the angle α is 30°, 40°, 50°, or 60°. The second air blower 32 is arranged on the bottom surface 221, the triangular surfaces 222 or the parallelogram surface 223. In one embodiment, at least one of the bottom surface 221, the triangular surface 222, and the parallelogram surface 223 is sewed with or glued with the primary portion 11 or the at least one secondary portion 12. In another embodiment, at least one edge of the first expandable member 22 is sewed with or glued with the primary portion 11 or the at least one secondary portion 12. The second air blower 32 is mounted on the surface of the first expandable member 22 which is not sewed with or glued with the body 10.

[0040] At least one surface of the first expandable member 22 is a flat surface or a curved surface. In one embodiment, the bottom surface 221 is flat or curved. In another embodiment, the triangular surface 222 is flat or curved. In a further embodiment, the parallelogram surface 223 is flat or curved.

[0041] The two parallelogram surfaces 223 are connected with each other, to form a connecting edge 2231, the connecting edge 2231 of the two parallelogram surfaces 223 is sewed or glued with the primary portion 11 or the at least one secondary portion 12, to support the primary portion 11 or the at least one secondary portion 12.

[0042] The expandable member 20 includes a plurality of first expandable members 22, the first expandable members 22 are received in the primary portion 11 and/or the at least one secondary portion 12, and connected with the primary portion 11 and/or the at least one secondary portion 12.

[0043] In one embodiment, the first expandable member 22 is received in the up and down moving part of the primary portion 11 or the at least one secondary portion 12, and connected with the up and down moving part of the primary portion 11 or the at least one secondary portion 12, for bringing the up and down moving part of the primary portion 11 or the at least one secondary portion 12 to move up and down. In detail, the up and down moving part of the primary portion 11 or the at least one secondary portion 12 includes the neck, the jaw, the arm, the leg, and the tail.

[0044] In another embodiment, the first expandable members 22 are received in the up and down moving parts of the primary portion 11 or the at least one secondary portion 12, and connected with the up and down moving parts of the primary portion 11 or the at least one secondary portion 12. In detail, the up and down moving parts of the primary portion 11 or the at least one secondary portion 12 include at least two selected from the jaw, the neck, the arm, the leg, and the tail.

[0045] Specifically, there are at least two expandable members 22 arranged in the primary portion 11 and arranged adjacent to each other at a same height, the second air blowers 32 corresponding to the at least two expandable members 22 arranged in the primary portion 11 are arranged towards the same direction or arranged towards different directions; there are at least two expandable members 22 arranged in the secondary portion 12 and arranged adjacent to each other at a same height, the second air blowers 32 corresponding to the at least two expandable members 22 arranged in the secondary portion 12 are arranged towards the same direction or arranged towards different directions; there are two expandable members 22 respectively arranged in two secondary portions 12 and arranged adjacent to each other at a same height, the second air blowers 32 corresponding to the two expandable members 22 arranged in the two secondary portions 12 are arranged towards the same direction or towards different directions.

[0046] The first expandable member 22 may be deflated two to eight times per minute under an action of the second air blower 32. Specifically, the first expandable members 22 are deflated in the same rate or different rates.

[0047] In the technical solution of the present disclosure, the at least one first expandable member 22 having a triangular prism shape is received in the primary portion 11 and/or the at least one secondary portion 12, and connected with the primary portion 11 and/or the at least one secondary portion 12. When the at least one first expandable member 22 is filled with air, the inflated first expandable member 22 can hold the primary portion 11 and/or the at least one secondary portion 12 in the upright state. When the second air blower 31 corresponding to the first expandable member 22 works, the second air blower 31 leads out the air in the at least one first expandable member 22, the at least one first expandable member 22 brings the primary portion 11 and/or the at least one secondary portion 12 move downwards. When the second air blower 31 corresponding to the first expandable member 22 stops working, the air in the body 10 flows into the at least one first expandable member 22 to inflate the at least one first expandable member 22, the inflated first expandable member 22 can hold the primary portion 11 and/or the at least one secondary portion 12 in the upright state again. This cycle repeats, the primary portion 11 and/or the at least one secondary portion 12 can move up and down. Further, the angle is configured to limit a downward displacement of the at least one first expandable member 22, and the second air blower 32 is configured to adjust the deflation rate of the expandable member 20, further to adjust the deformation rate of the primary portion 11 and/or the secondary portion 12.

[0048] Referring to figures 2 and 4, the expandable

member 20 includes at least one second expandable member 23 having a substantially hexahedral shape, the at least one second expandable member 23 is received in the primary portion 11 and/or the at least one secondary portion 12 and connected with the primary portion 11 and/or the at least one secondary portion 12.

[0049] A shape of the second expandable member 23 is substantially a cube, a parallelepiped, or an irregular hexahedron. At least one surface of the second expandable member 23 is flat or curved. A portion of the second expandable member 23 is sewed with or glued with the primary portion 11 or the at least one secondary portion 12.

[0050] In one embodiment, a top surface 231 of the hexahedral shaped second expandable member 23 is connected with the primary portion 11 or the at least one secondary portion 12. In detail, the top surface 231 of the hexahedral shaped second expandable member 23 is sewed or glued with the primary portion 11 or the at least one secondary portion 12. In another embodiment, a bottom surface 232 of the hexahedral shaped second expandable member 23 is connected with the primary portion 11 or the at least one secondary portion 12. In detail, the bottom surface 232 of the hexahedral shaped second expandable member 23 is sewed or glued with the primary portion 11 or the at least one secondary portion 12. In a further embodiment, an edge 2311 of the top surface 231 of the hexahedral shaped second expandable member 23 is sewed or glued with the primary portion 11 or the at least one secondary portion 12. The second air blower 32 is arranged on the top surface 231, the bottom surface 232 or a side surface 230.

[0051] In one embodiment, the at least one second expandable member 23 includes a plurality of second expandable members 23, which are received in the primary portion 11 and/or the at least one secondary portion 12 and connected with the primary portion 11 and/or the at least one secondary portion 12.

[0052] In one embodiment, the second expandable member 23 may be received in the up and down moving part of the primary portion 11 or the at least one secondary portion 12, and connected with the up and down moving part of the primary portion 11 or the at least one secondary portion 12, for bringing the up and down moving part of the primary portion 11 or the at least one secondary portion 12 to move up and down. In detail, the up and down moving part of the primary portion 11 or the at least one secondary portion 12 includes the jaw, the neck, the arm, the leg, and the tail. In detail, the second expandable members 23 may be received in the up and down moving parts of the primary portion 11 or the at least one secondary portion 12, and connected with the up and down moving parts of the primary portion 11 or the at least one secondary portion 12, for bringing the up and down moving parts of the primary portion 11 or the at least one secondary portion 12 to move up and down. The up and down moving parts of the primary portion 11 or the at least one secondary portion 12 include at least two selected from the jaw, the neck, the arm, the leg, and the tail.

[0053] In the technical solution of the present disclosure, the at least one second expandable member 23 having a substantially hexahedral shape is received in the primary portion 11 and/or the at least one secondary portion 12 and connected with the primary portion 11 and/or the at least one secondary portion 12. When the at least one second expandable member 23 is filled with air, the inflated second expandable member 23 can hold the primary portion 11 and/or the at least one secondary portion 12 in the upright state. When the second air blower 31 corresponding to the second expandable member 23 works, the second air blower 31 leads out the air in the at least one second expandable member 23, the at least one second expandable member 23 move the primary portion 11 and/or the at least one secondary portion 12. When the second air blower 31 corresponding to the second expandable member 23 stops working, the air in the body 10 flows into the at least one second expandable member 23, the inflated second expandable member 23 can hold the primary portion 11 and/or the at least one secondary portion 12 in the upright state again. This cycle repeats, the primary portion 11 and/or the at least one secondary portion 12 can move up and down.

[0054] At least two second expandable members 23 may be received in the left and right moving part of the primary portion 11 or the at least one secondary portion 12, and connected with the left and right moving part of the primary portion 11 or the at least one secondary portion 12, for bringing the left and right moving part of the primary portion 11 or the at least one secondary portion 12 to move left and right. In detail, the left and right moving part of the primary portion 11 or the at least one secondary portion 12 includes the belly, the neck, the arm, the leg, and the tail.

[0055] In one embodiment, two second expandable members 23 are received in the tail and connected with the tail. A right expandable member 233 deflates and brings the tail to move towards right, then the air in the body 10 flows back into the right expandable member 233 to hold the belly in the upright state. A left expandable member 234 of the two second expandable members 23 deflates and brings the tail to move towards left, then the air in the body 10 flows back into the left expandable member 234 of the two second expandable members 23 to hold the tail in the upright state. This cycle repeats, the belly may move right and left. The right expandable member 233 is parallel with the left expandable member 234. A distance between the right expandable member 233 and the left expandable member 234 is about 10~50cm.

[0056] The second expandable member 23 may be deflated two to eight times per minute under the action of the second air blower 32.

[0057] The right expandable member 233 is contracted for ten to thirty seconds under the action of the second air blower 32, then the left expandable member 234 may be contracted for ten to thirty seconds under the action

of another second air blower 32. The two second air blowers 32 may be intermittently actuated. This cycle repeats, the tail may move right and left.

[0058] Referring to figures 2 and 5, the expandable member 20 includes at least one third expandable member 24 connected with the primary portion 11 and/or the at least one secondary portion 12, the at least one third expandable member 24 includes a substantially irregular hexahedral shape having at least one arc surface 2411. At least one surface of the irregular hexahedron is flat or curved.

[0059] The at least one third expandable member 24 is sewed with or glued with the primary portion 11 or the at least one secondary portion 12. In at least one embodiment, a side surface 241 of the third expandable member 24 is sewed or glued with the primary portion 11 or the at least one secondary portion 12. The side surface 241 is matched in shape with an inner surface of the primary portion 11 or the at least one secondary portion 12. In at least one embodiment, the at least one third expandable member 24 includes a plurality of third expandable members 24 which are received in the primary portion 11 and/or the at least one secondary portion 12, and connected with the primary portion 11 and/or the at least one secondary portion 12. The second air blower 32 is arranged on the side surface 241, the bottom surface or the top surface.

[0060] The third expandable member 24 is received in the up and down moving part of the primary portion 11 or the at least one secondary portion, and connected with the up and down moving part, for bringing the up and down moving part to move up and down. The up and down moving part includes the jaw, the neck, the arm, the leg and the tail.

[0061] In at least one embodiment, the third expandable members 24 may be received in the up and down moving parts of the primary portion 11 or the at least one secondary portion 12, and connected with the up and down moving parts of the primary portion 11 or the at least one secondary portion 12, for bringing the up and down moving parts of the primary portion 11 or the at least one secondary portion 12 to move up and down. In detail, the up and down moving parts of the primary portion 11 or the at least one secondary portion 12 include at least two selected from the jaw, the neck, the arm, the leg, and the tail.

[0062] In at least one embodiment, the third expandable member 24 may be deflated two to eight times per minute under the action of the second air blower 32.

[0063] In the technical solution of the present disclosure, the at least one third expandable member 24 has a substantially irregular hexahedral shape, the irregular hexahedral shape has at least one arc surface 2411, the at least one third expandable member 24 is received in the primary portion 11 and/or the at least one secondary portion 12 and connected with the primary portion 11 and/or the at least one secondary portion 12. When the at least one third expandable member 24 is filled with air, the inflated third expandable member 24 can hold the primary portion 11 and/or the at least one secondary portion 12 in the upright state. When the second air blower 31 corresponding to the third expandable member 24 works, the second air blower 31 leads out the air in the at least one third expandable member 24, the at least one third expandable member 24 brings the primary portion 11 and/or the at least one secondary portion 12 move downwards. When the second air blower 31 corresponding to the third expandable member 24 stops working, the air in the body 10 flows into the at least one third expandable member 24, the inflated third expandable member 24 can hold the primary portion 11 and/or the at least one secondary portion 12 in the upright state again. This cycle repeats, the primary portion 11 and/or the at least one secondary portion 12 can move up and down.

[0064] At least two third expandable members 24 may be received in the left and right moving part of the primary portion 11 or the at least one secondary portion 12, for bringing the left and right moving part to move left and right. In detail, the left and right moving part includes the belly, the neck, the arm, the leg, and the tail.

[0065] In at least one embodiment, two third expandable members 24 are received in the belly and connected with the belly. A right expandable member 242 deflates and brings the belly to move towards right, then the air in the body 10 flows back into the right expandable member 242 to hold the belly in the upright state. A left expandable member 243 parallel with the right expandable member 242 deflates and brings the belly to move towards left, then the air in the body 10 flows back into the left expandable member 243 to hold the belly in the upright state. This cycle repeats, the belly may move right and left. The right expandable member 242 may be contracted for ten to thirty minutes under the action of one second air blower 32, then the left expandable member 243 may be contracted for ten to thirty minutes under the action of another second air blower 32. The two second air blowers 32 may be intermittently actuated. This cycle repeats, the belly may move right and left.

[0066] Referring to figures 1, 2 and 6, the inflatable doll 100 further includes a power plug 40 arranged on the primary portion 11, and a controller 50 received in the primary portion 11, the power plug 40 and the controller 50 are both electrically connected with the air blower assembly 30. The controller 50 has an integrated circuit. The power plug 40 may be connected with an external power supply. The power plug 40 and the controller 50 are both electrically connected with the air blower assembly 30, for controlling operations of the first air blower 31 and the second air blower 32.

[0067] The inflatable doll 100 further includes a speaker 60 received in the primary portion 11 or the secondary portion 12, the speaker 60 is electrically connected with the controller 50. The speaker 60 is arranged in the primary portion 11 or the secondary portion 12, and can may play songs, stories, sounds of dinosaurs, etc. The

controller 50 may adjust a deflation time and a deflation frequency of the expandable member 20, for bringing the body 10 to dance according to a rhythm of the music.

[0068] The inflatable doll 100 further includes at least one lamp 70 received in the primary portion 11 or the secondary portion 12, or arranged on an outer surface of the primary portion 11 or the secondary portion 12, the at least one lamp 70 is electrically connected with the controller 50. In at least one embodiment, the inflatable doll 100 includes a plurality of lamps 70. The lamp 70 may emit white light or color light. The lamp 70 may be a LED lamp.

[0069] In another embodiment, at least one lamp 70 is arranged on the outer surface of the primary portion 11 or the secondary portion 12, for attracting the customers.

[0070] The inflatable doll 100 further includes a microphone 91, a first speech recognizing server 92, a chip 93, and a second speech recognizing server 94 all received in the body 10. The microphone 91 is configured to collect a voice and transmit a voice signal to the controller 50. The first speech recognizing server 92 is electrically connected with the controller 50 and configured to recognize the voice signal and transmit a recognition result to the controller 50. The chip 93 is electrically connected with the controller and pre-storing vocabularies and configured to output a feedback to the controller 50 according to the vocabularies. The second speech recognizing server 94 transmits the feedback to the speaker 60, to communicate with user. It should be understood that, the feedback transmitted to the speaker 60 by the second speech recognizing server 94 contains a sound signal or a sound information, as such the speaker 60 can play sound or answer the user after receiving the feedback from the second speech recognizing server 94.

[0071] The controller 50 processes the voice signal and transmits the processed voice signal to the first speech recognizing server 92, the first speech recognizing server 92 recognizes the processed voice signal, and transmits the recognition result to the controller 50. The controller 50 sends the recognition result to the chip 93, then the chip 93 output the feedback to the controller 50 according to the vocabularies. The controller 50 sends the feedback to the second speech recognizing server 94, then the second speech recognizing server 94 transmits the feedback to the speaker 60, to communicate with user. In this way, the inflatable doll 100 may intelligently communicate with user. The chip 93 may be arranged on the controller 50. The controller 50 is configured to send an instruction to the air blower assembly 30, the speaker 60, or the lamp 70, to control an operation of the air blower assembly 30, the speaker 60, or the lamp 70.

[0072] After receiving the voice signal, the controller 50 may send one instruction to the first air blower 31 to control the first air blower 31 to start working or stop working. After receiving the voice signal, the controller 50 may send one instruction to the second air blower 32 to control the second air blower 32 to start working or stop working. In detail, after the controller 50 receiving the voice signal, the controller 50 may send one instruction to the second air blower 32 to control the second air blower 32 to work intermittently. After the controller 50 receiving the voice signal, the controller 50 may send one instruction to the speaker 60 to control the speaker 60 to play songs, stories, sounds of dinosaurs, etc. After receiving the voice signal, the controller 50 may send one instruction to the lamp 70 to control the lamp 70 to emit light. The inflatable doll 100 may change movements according to the rhythm of the music, and may move fast or slow according to the rhythm of music.

[0073] The inflatable doll 100 further includes a base 80 connected with the body 10 and the first air blower 31. The base 80 is attached to a bottom end of the primary portion 11, so that the body 10 is suspended above the ground. The base 80 defines a third air inlet 81 communicated with the first air inlet 111. The first air blower 31 is adjacent to the first air inlet 111 and the third air inlet 81. The base 80 further includes at least one foot 82 arranged on a surface of the base 80 opposite to the body 10. In detail, the base 80 includes a plurality of feet 82 spaced apart from each other, the feet 82 are arranged on the surface of the base 80 opposite to the body 10.

[0074] The inflatable doll further includes a supporting element 13 arranged in the primary portion 11 and supported by the base 80, the supporting element 13 is connected with the first air blower 31. The supporting element 13 is arranged on the bottom end of the primary portion 11. The supporting element 13 defines a fourth air inlet 131, the fourth air inlet 131 is communicated with the third air inlet 81 and the first air inlet 111.

[0075] Referring to figures 8-11, the present disclosure provides an inflatable doll 100' according to a second embodiment, the inflatable doll 100' is similar with the inflatable doll 100 in structure, and the differences between the two at least include: the expandable member further includes at least one fourth expandable member 25' received in the body, the at least one fourth expandable member 25' includes a first expandable portion 251', a second expandable portion 252' and a connecting portion 253', the first expandable portion 251' is communicated with the second expandable portion 252' by the connecting portion 253'.

[0076] Across section of the first expandable portion 251' or the second expandable portion 252' is substantially trapezoidal shaped. A cross section of the connecting portion 253' is substantially circular, square or irregular shaped.

[0077] In one embodiment, the connecting portion 253' is rigid and cannot deform. In another embodiment, the connecting portion 253' is flexible, so the connecting portion 253' is also expandable and deformable to move the body 10', a cross-sectional area of the first expandable portion 251' is one to three times that of the connecting portion 253', or a cross-sectional area of the second expandable portion 252' is one to three times that of the connecting portion 253', so that a notch 254' is formed

between the first expandable portion 251' and the second expandable portion 252'. The first expandable portion 251' and the second expandable portion 252' can deform into the notch 254', so that the body 10' can deform rapider compared with the first to third expandable members, and the deformation amount of the body 10' is greater than that of the body 10 in the first embodiment. Specifically, the body 10' can move down more distance in less time compared with the first to third expandable members.

[0078] The first expandable portion 251' includes a first surface 2511' opposite to the connecting portion 253', the second expandable 252' includes a second surface 2523' opposite to the connecting portion 253', the first surface 2511' is parallel with the second surface 2523', the first surface 2511' and the second surface 2523' are inclined towards a same direction to increase a size of the notch 254'. The first surface 2511' includes a first end 2501' and a second end 2502', the second surface 2523' includes a third end 2503' and a fourth end 2504', a first inclining direction from the first end 2501' to the second end 2502' is parallel with a second inclining direction from the third end 2503' to the fourth end 2504'. In this way, a distance between the first end 2501' and the fourth end 2504' is larger, and the first end 2501' and the fourth end 2504' can move the body 10' to deform more when the first end 2501' and the fourth end 2504' are connected with the body 10'.

[0079] The second surface 2523' defines the second air inlet 21', and the second air blower 32' is at least partially received in the second air inlet 21'. The first surface 2511' faces towards the foot, and the second surface 2523' faces towards head of the body.

[0080] The first expandable portion 251' further includes a third surface 2513', the second expandable portion 252' further includes a fourth surface 2521', each of the third surface 2513' and the fourth surface 2521' defines a connecting hole 2515', the connecting portion 253' defines a through hole 2531', the first expandable portion 251' is communicated with the second expandable portion 252' by the connecting holes 2515' and the through hole 2531'. The first expandable portion 251' further includes a fifth surface 2512' connected between the first surface 2511' and the third surface 2513', the second expandable portion 252' further includes a sixth surface 2522' connected between fourth surface 2521' and the second surface 2523'.

[0081] It should be understood that, the expandable members in the second embodiment includes at least one fourth expandable member 25' and the the first to third expandable members. Or the expandable members in the second embodiment only includes the fourth expandable members 25'.

[0082] Referring to figures 12-13, the present disclosure provides an inflatable doll 100" according to a third embodiment, the inflatable doll 100" is similar with the inflatable doll 100' in structure, and the difference between the two at least includes: the first surface 2511" defines the second air inlet 21", and the second air blower 32" is at least partially received in the second air inlet 21".

[0083] The above description is merely some embodiments. It should be noted that for one with ordinary skills in the art, improvements can be made without departing from the concept of the present disclosure, but these improvements shall fall into the protection scope of the present disclosure.

Claims

1. An inflatable doll (100), comprising:

   a body (10), having a first air inlet (111); and
   a plurality of expandable members (20), received in the body (10) and connected with the body (10), each expandable member (20) defines a second air inlet (21);
   an air blower assembly (30), comprising:

   a first air blower (31), configured to introduce air into the body (10) to inflate the body (10) and the expandable members (20); and
   a plurality of second air blowers (32), received in the body (10) and communicated with the second air inlets (21), each second air blower (32) is configured to direct air out of one corresponding expandable member (20) intermittently, so that the expandable members (20) are deformed to move the body (10).

2. The inflatable doll according to claim 1, wherein each second air blower (32) is at least partially received in one corresponding second air inlet (21).

3. The inflatable doll according to claim 2, wherein each second air blower (32) comprises:

   a housing (320);
   an air inlet portion, connected with the housing (320) and received in the expandable member (20); and
   an air outlet portion (321), connected with the housing (320) and arranged outside the expandable member (20).

4. The inflatable doll according to claim 2, further comprises a plurality of connecting members (34), each second air blower (32) further comprises a fixing portion (3206), each connecting member (34) is connected with one corresponding fixing portion (3206) to connect the second air blower (32) with an edge of the second air inlet (21).

5. The inflatable doll according to claim 1, wherein the

expandable members (20) comprise:

a plurality of first expandable member (22), having a substantially triangular prism shape in the inflated state, each first expandable member (22) comprises a bottom surface (221), two opposite triangular surfaces (222) and and two parallelogram surfaces (223), an angle formed by the bottom surface (221) and one of the parallelogram surfaces (223) is 30~60° when the first expandable member (22) is inflated; and
a plurality of second expandable member (23), having a substantially hexahedral shape in the inflated state, at least one surface of each second expandable member (23) is arc-shaped when the second expandable member (23) is inflated, and the arc-shaped surface is connected with the body (10).

6. The inflatable doll according to claim 1, wherein the expandable members (20) further comprise at least one third expandable member (25'), the at least one third expandable member (25') comprises a first expandable portion (251'), a second expandable portion (252') and a connecting portion (253'), the first expandable portion (251') is communicated with the second expandable portion (252') by the connecting portion (253'), and a notch (254') is defined between the first expandable portion (251') and the second expandable portion (252').

7. The inflatable doll according to claim 6, wherein the first expandable portion (251') comprises a first surface (2511') opposite to the connecting portion (253'), the second expandable (252') comprises a second surface (2523') opposite to the connecting portion (253'), the first surface (2511') and the second surface (2523') are inclined towards a same direction.

8. The inflatable doll according to claim 7, wherein the first surface (2511') comprises a first end (2501') and a second end (2502'), the second surface (2523') comprises a third end (2503') and a fourth end (2504'), a first inclining direction from the first end (2501') to the second end (2502') is parallel with a second inclining direction from the third end (2503') to the fourth end (2504').

9. The inflatable doll according to claim 6, wherein the first expandable portion (25 1') comprises a first surface (2511') opposite to the connecting portion (253'), the second expandable (252') comprises a second surface (2523') opposite to the connecting portion (253'), the first surface (2511') or the second surface (2523') is provided with one second air blower (32').

10. The inflatable doll according to claim 6, wherein the first expandable portion (251') comprises a third surface (2513'), the second expandable (252') comprises a fourth surface (2521'), each of the third surface (2513') and the fourth surface (2521') defines a connecting hole (2515'), the connecting portion (253') defines a through hole (2531'), the first expandable portion (251') is communicated with the second expandable portion (252') by the connecting holes (2515') and the through hole (2531').

11. The inflatable doll according to any one of claims 1 to 10, wherein the body (10) comprises a primary portion (11), at least two expandable members (20) are connected with the primary portion (11) and arranged adjacent to each other at a same height.

12. The inflatable doll according to claim 11, wherein each of the second air blowers (32) comprises an air outlet portion (321), the air outlet portions (321) of the second air blowers (32) corresponded to the at least two expandable members (20) faces towards a same direction or opposite directions.

13. The inflatable doll according to any one of claims 1 to 10, wherein the body (10) comprises at least one secondary portion (12), at least two expandable members (20) are received in the at least one secondary portion (12) and arranged adjacent to each other at a same height.

14. The inflatable doll according to claim13, wherein each of the second air blowers (32) comprises an air outlet portion (321), the air outlet portions (321) of the second air blowers (32) corresponded to the at least two expandable members (20) faces towards a same direction or opposite directions.

15. The inflatable doll according to any one of claims 1 to 10, further comprising:

a controller (50), electrically connected with the air blower assembly (30);
a microphone (91), electrically connected with the controller (50) and configured to collect a voice and transmit a voice signal to the controller (50);
a speaker (60), electrically connected with the controller (50);
a first speech recognizing server (92), electrically connected with the controller (50) and configured to recognize a processed voice signal of controller (50) and transmit a recognition result to the controller (50);
a chip (93), electrically connected with the controller (50) and pre-storing vocabularies, the chip (93) is configured to output a feedback to the controller (50) according to the vocabularies

and the recognition result; and

a second speech recognizing server (94), electrically connected with the controller (50) and configured to transmit another feedback to the speaker (60), so that the controller (50) is capable of communicating with a user, and the controller (50) is capable of sending an instruction to the air blower assembly (30) or the speaker (60) to control an operation of the air blower assembly (30) or the speaker (60) according to the voice signal.

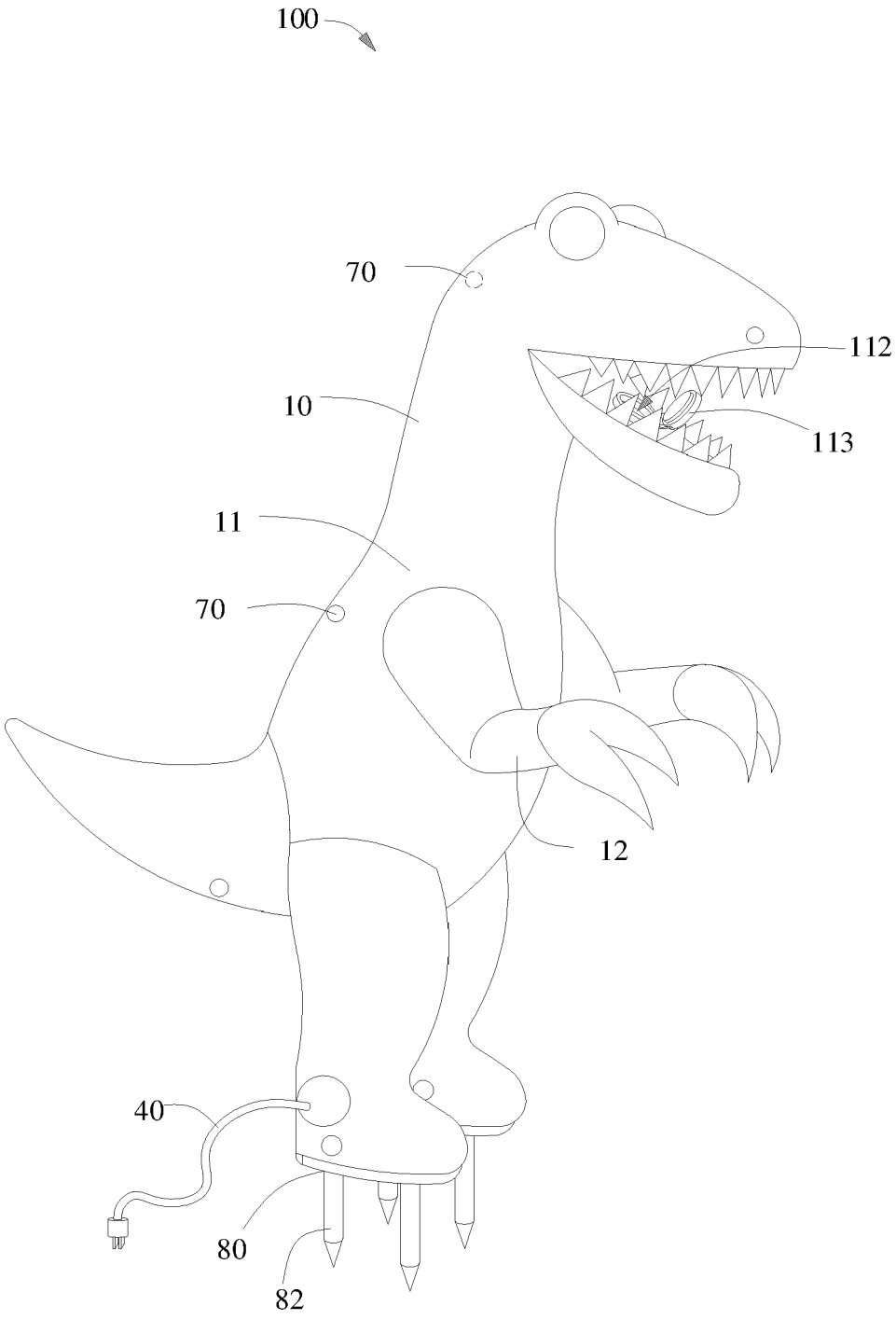


FIG. 1

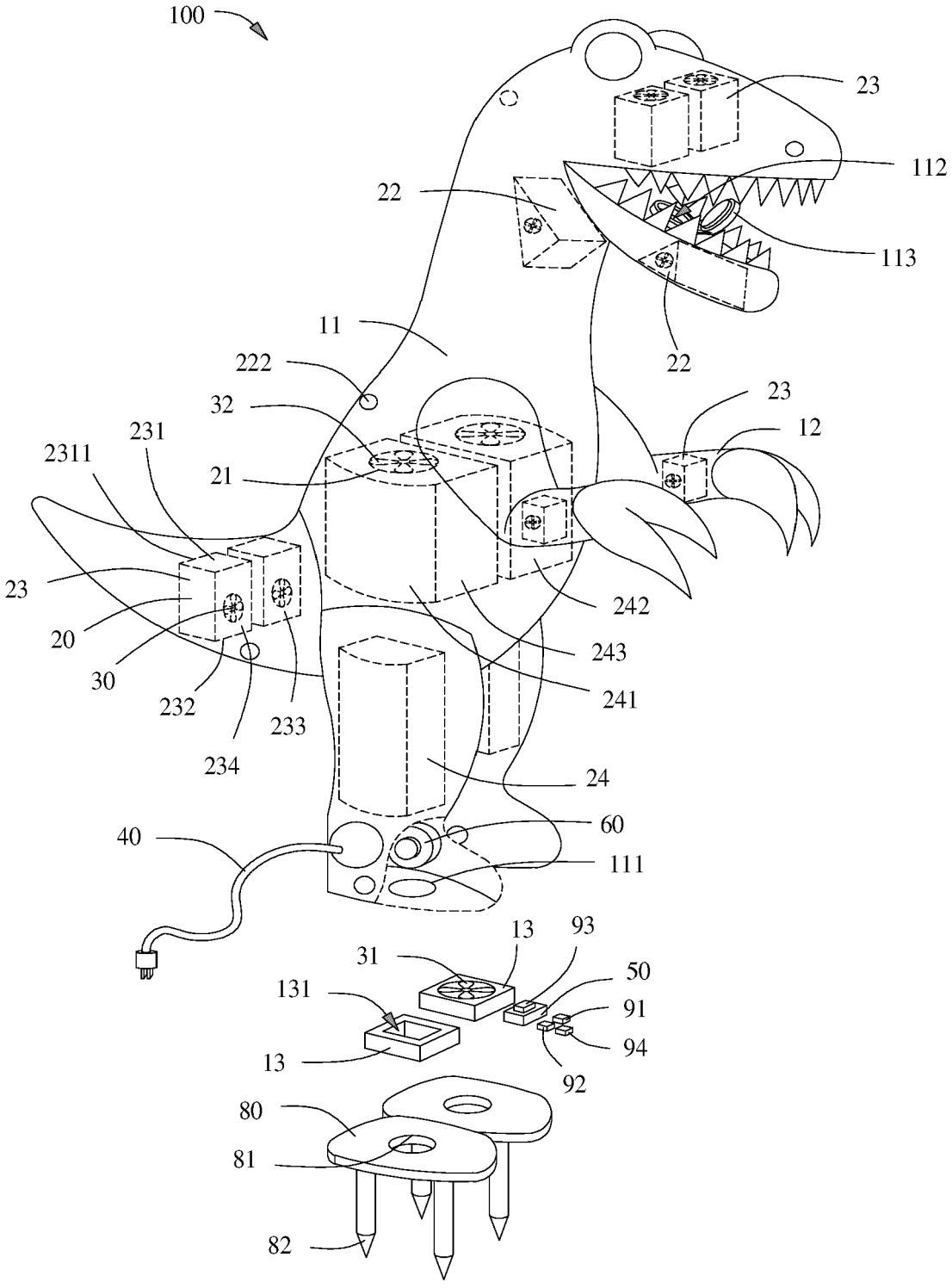

100
23
112
22
113
11
222
22
32
23
231
12
2311
21
23
242
20
243
30
241
232
233
234
24
40
60
111
13
93
31
50
131
91
94
13
92
80
81
82

FIG. 2

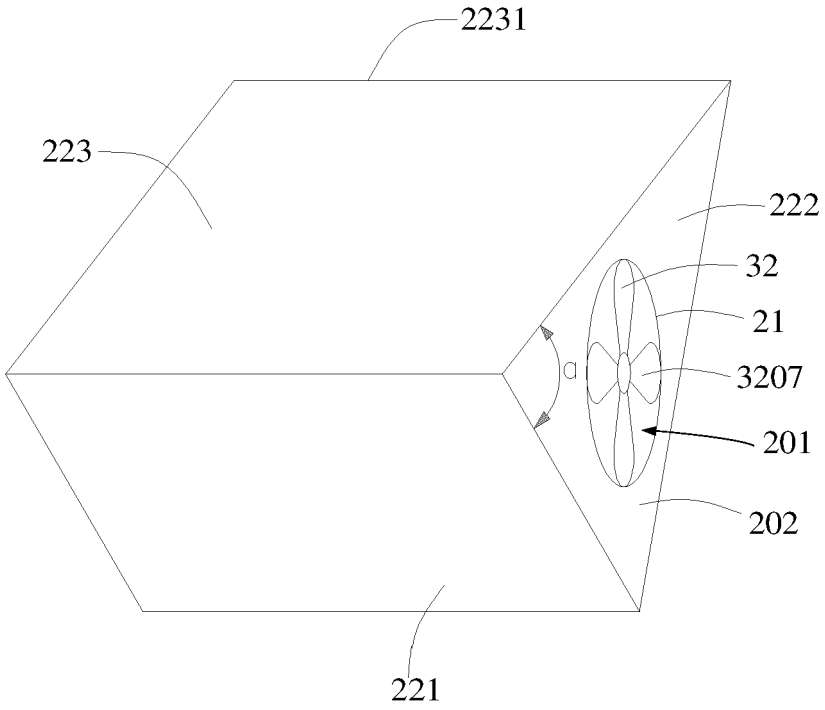


FIG. 3

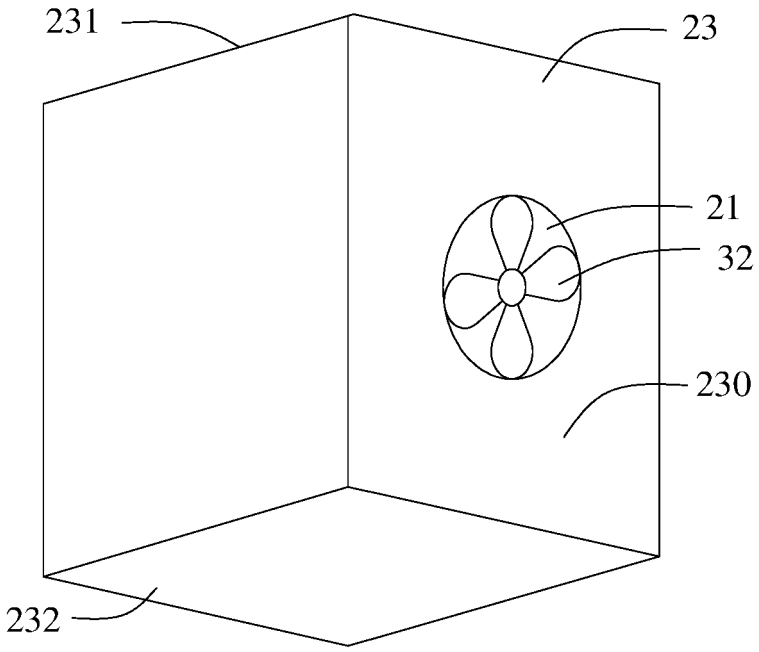


FIG. 4

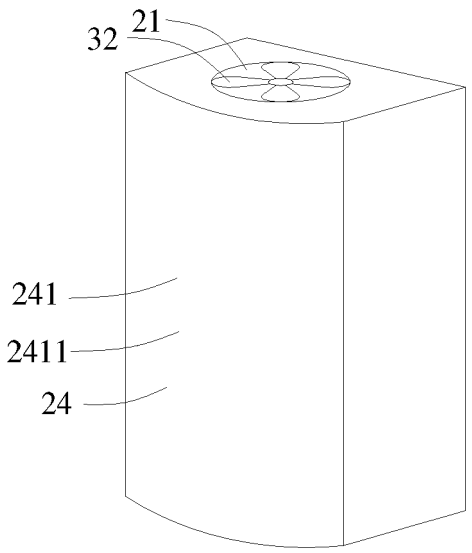

32
21
241
2411
24

FIG. 5

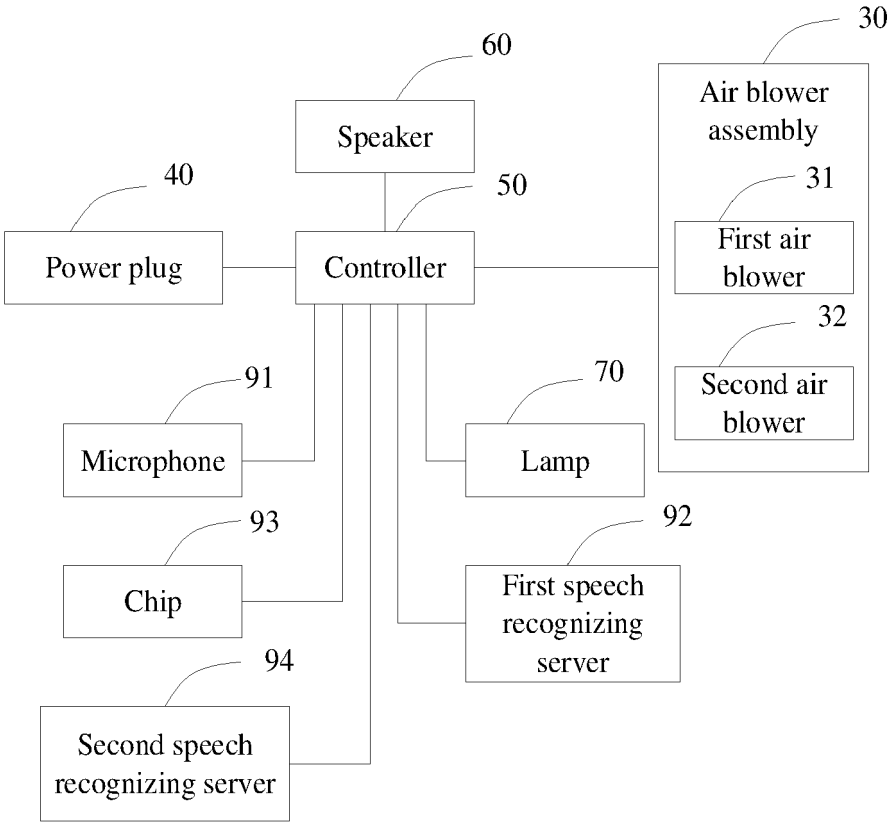

30
60
Air blower assembly
Speaker
40
50
31
Power plug
Controller
First air blower
32
91
70
Second air blower
Microphone
Lamp
93
92
Chip
First speech recognizing server
94
Second speech recognizing server

FIG. 6

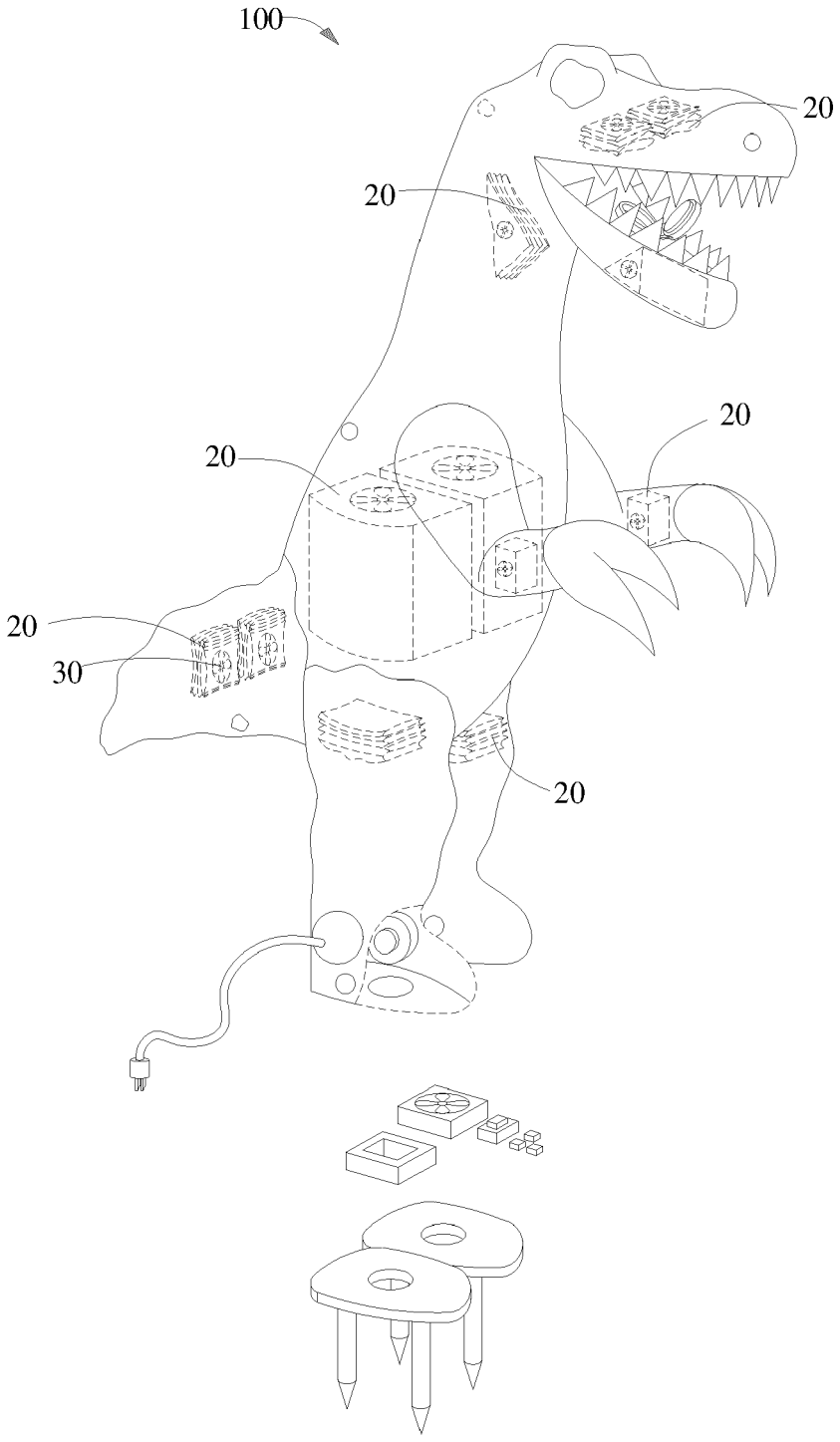


FIG. 7

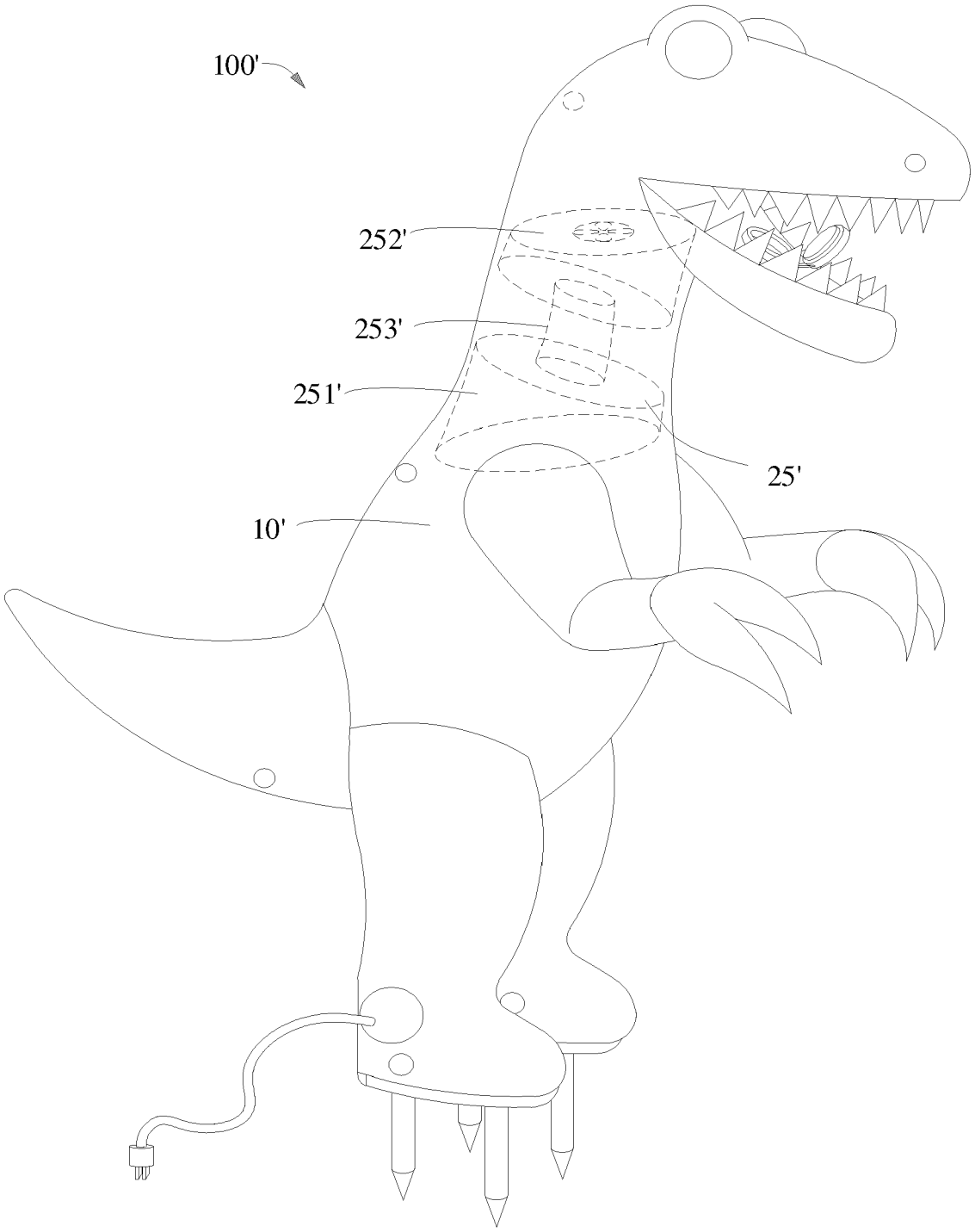


FIG. 8

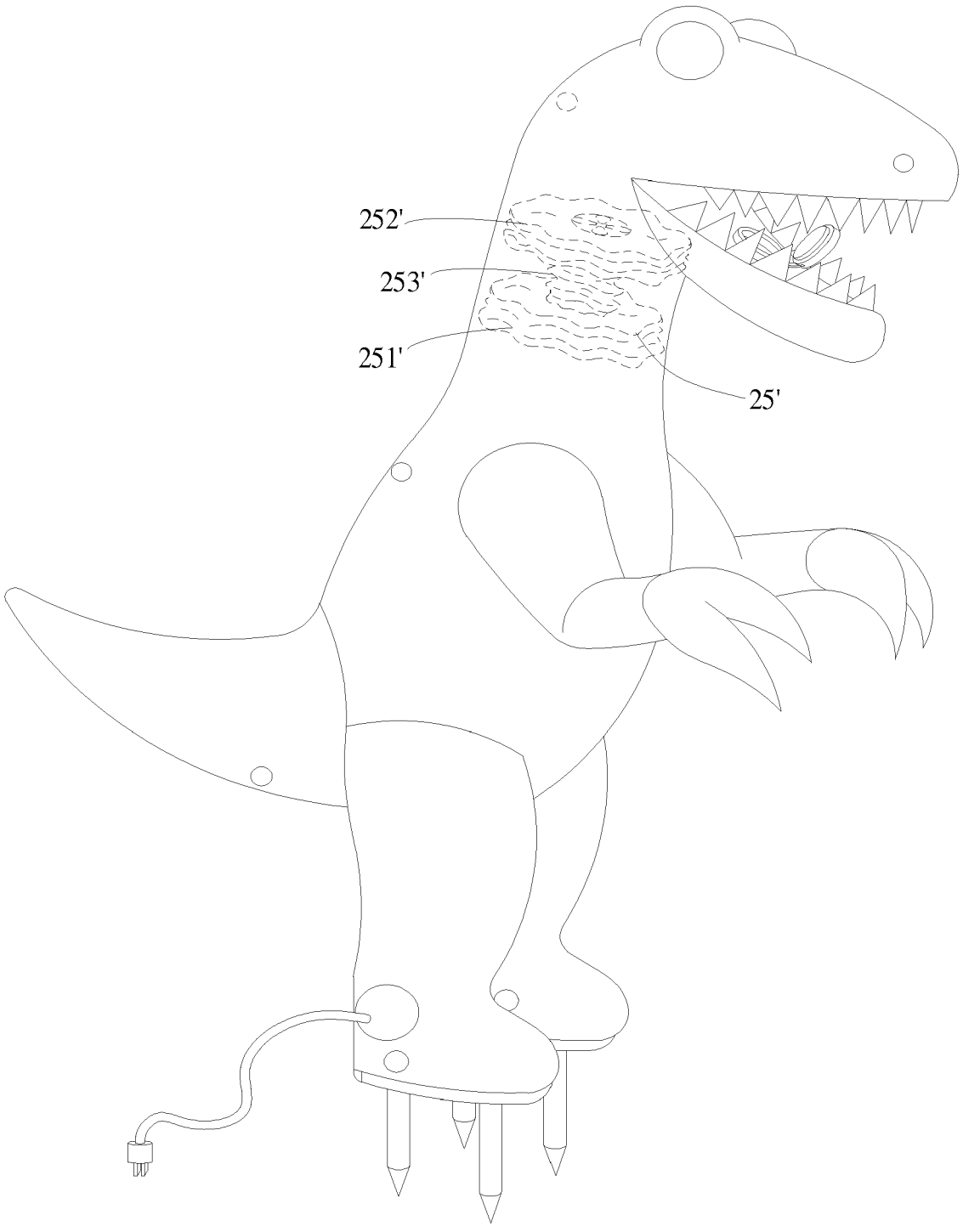


FIG. 9

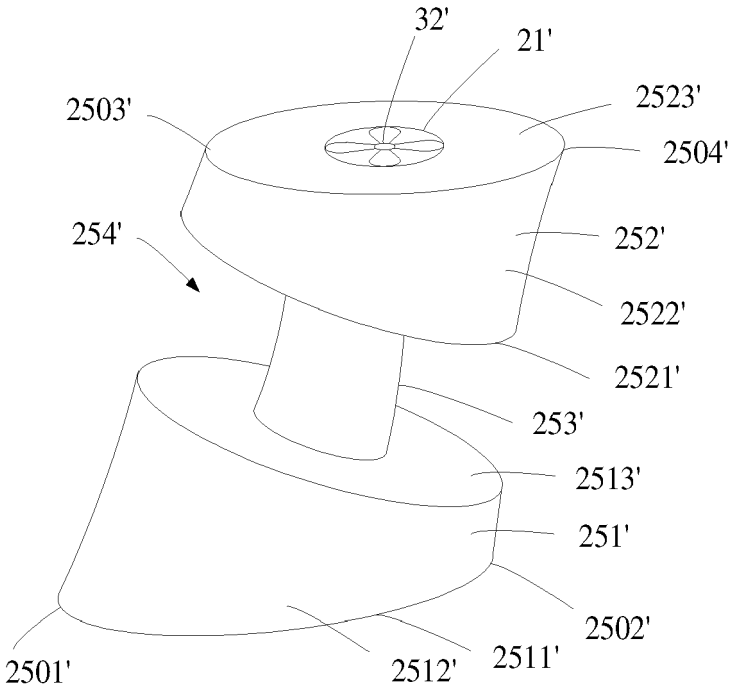

32'
21'
2503'
2523'
2504'
254'
252'
2522'
2521'
253'
2513'
251'
2502'
2501'
2512'
2511'

FIG. 10

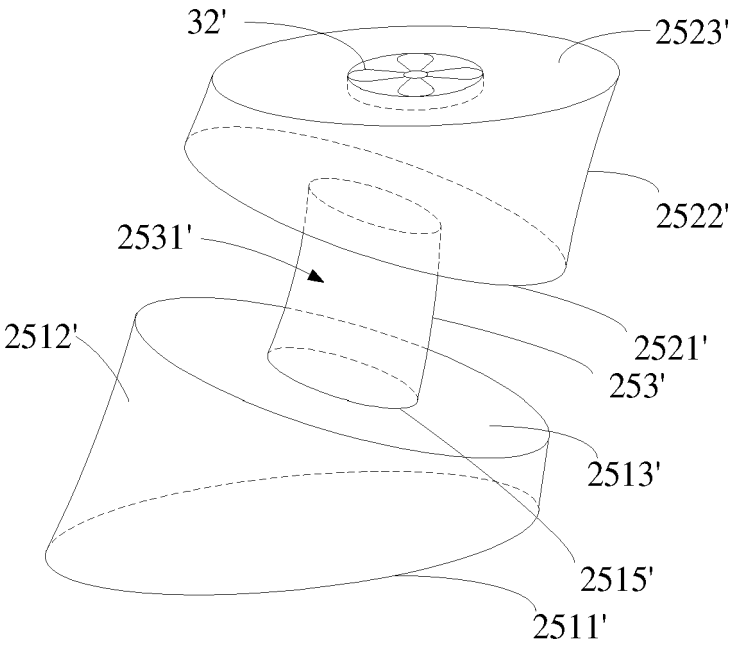

32'
2523'
2522'
2531'
2512'
2521'
253'
2513'
2515'
2511'

FIG. 11

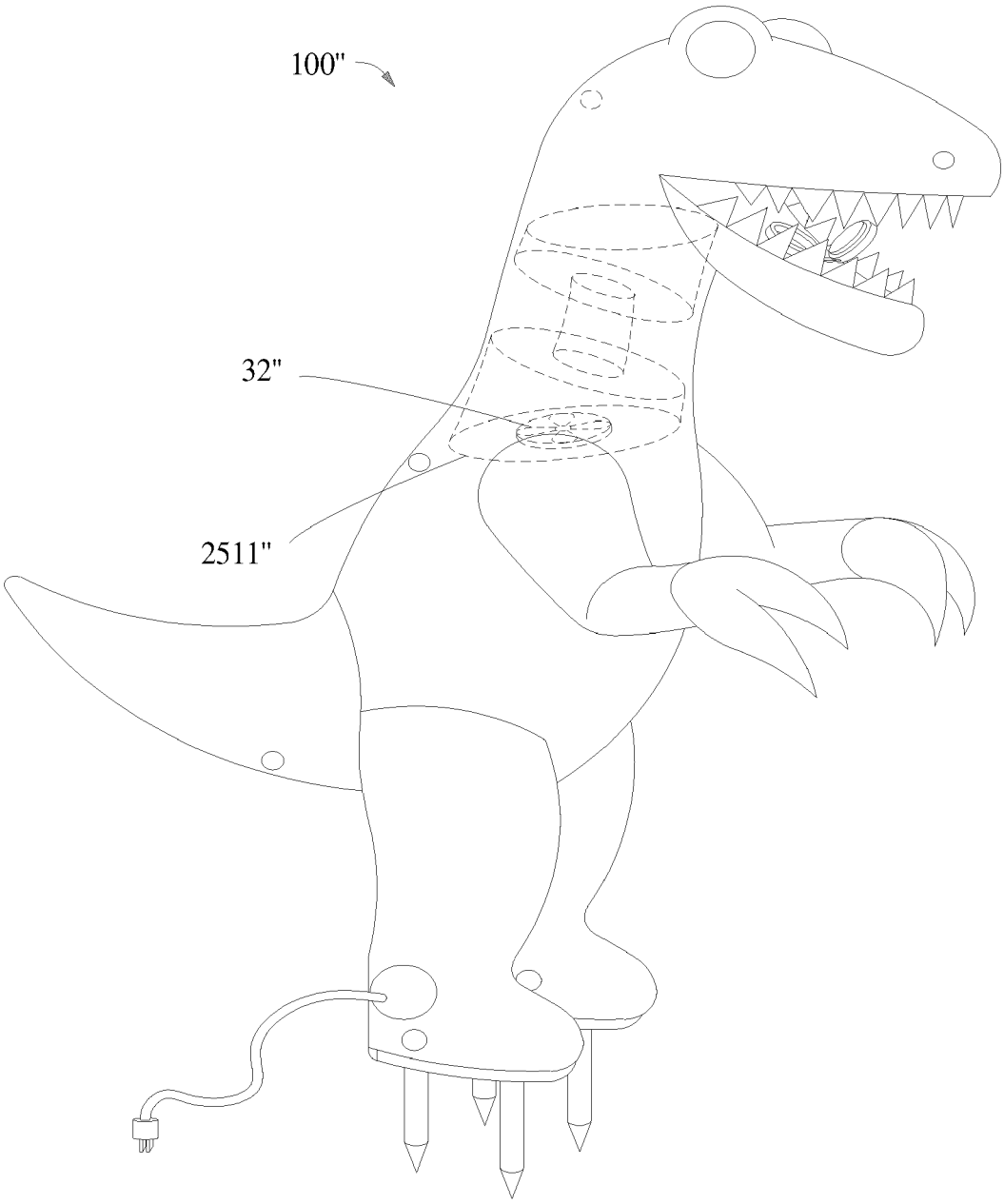


FIG. 12

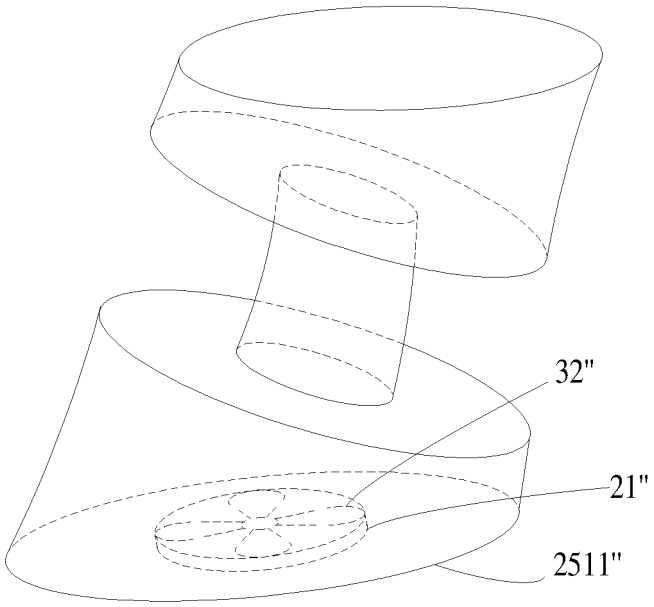


FIG. 13

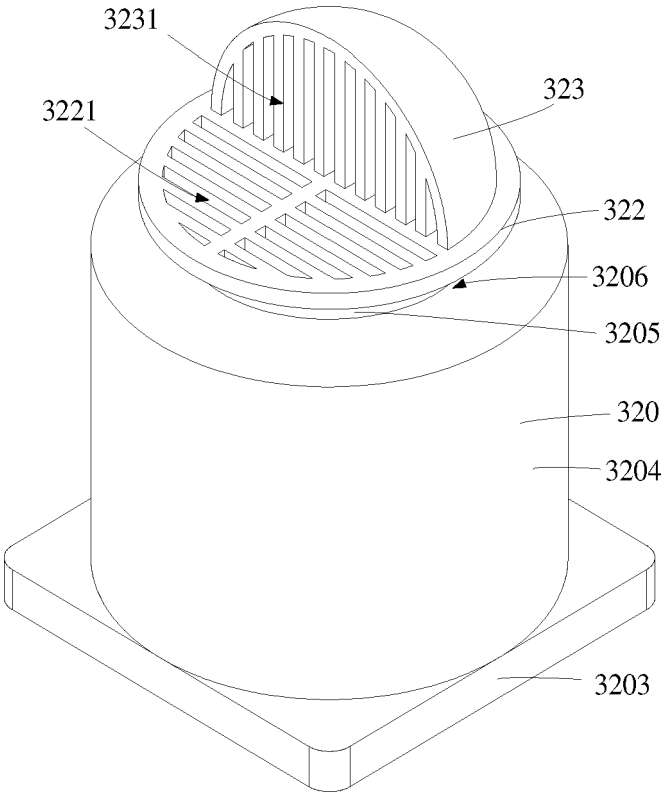


FIG. 14

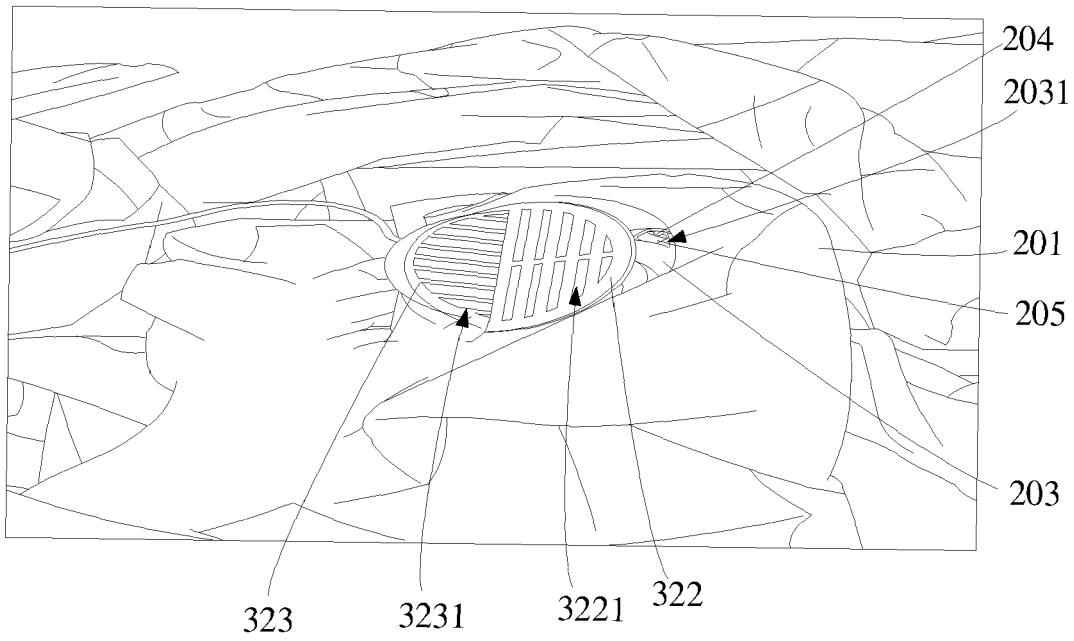

204
2031
201
205
203
323
3231
3221
322

FIG. 15

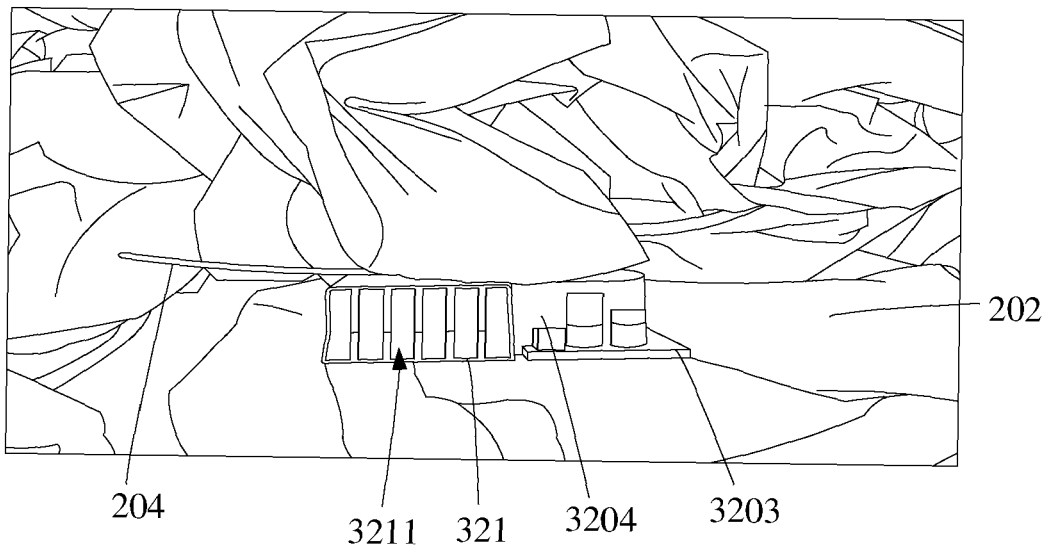

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FIG. 16

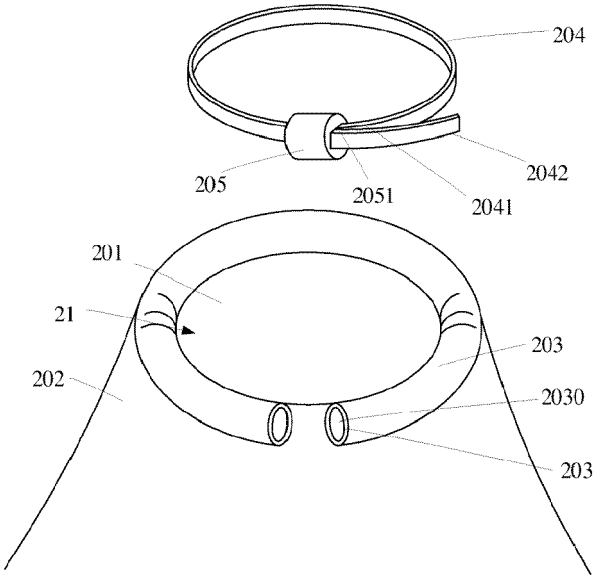

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FIG. 17

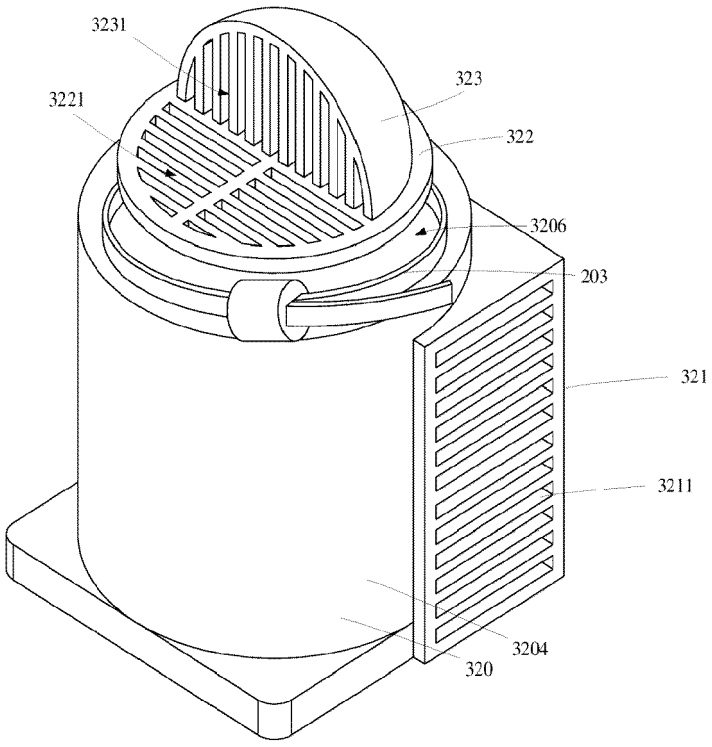

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FIG. 18

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EUROPEAN SEARCH REPORT

Application Number
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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
Munich	5 August 2024	Schindler-Bauer, P

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