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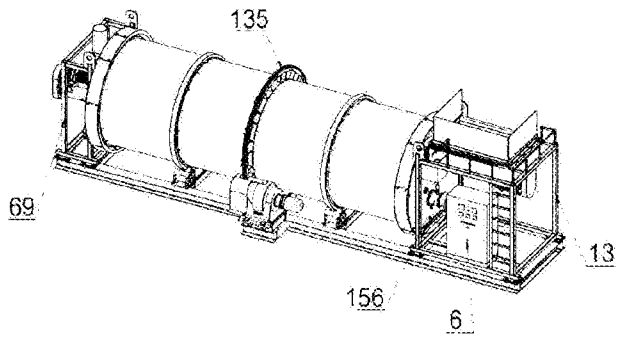
(54) **Biochemical device for fermenting poultry manure.**

(57) Disclosed is a biochemical device for fermenting poultry manure, including a feed assembly, a discharge assembly, a barrel assembly, a heating system, a base assembly and a control system, wherein the feed assembly is used to measure a temperature of poultry manure raw materials and transport the poultry manure raw materials to the barrel assembly after a set temperature is met; the barrel assembly is used for fermentation and biochemical treatment of the poultry manure raw materials, and can always maintain a suitable fermentation temperature; after the fermentation is completed, the discharge assembly measures a temperature of fermented materials, and transports the fermented materials out of the barrel assembly after the set temperature is met. In the present invention, the automatic process of feeding, fermentation and biochemical treatment as well as discharging after fermentation for the poultry manure can be realized only by pre-setting parameters through electronic control by an operator, without manual feeding and discharging, so that not only can the labor intensity of workers be reduced, but also the efficiency in fermentation and biochemical treatment for the poultry manure can be effectively improved.



BIOCHEMICAL DEVICE FOR FERMENTING POULTRY MANURE

Field OF THE INVENTION

The present invention relates to a fermenting device, in particular, to a biochemical device for fermenting poultry manure.

BACKGROUND OF THE INVENTION

Existing fermentation equipment is basically to realize the fermentation of poultry manure. However, in the actual fermentation process, the feeding and discharging of poultry manure is mostly done manually, which not only increases the labor burden of employees, but also greatly reduces work efficiency.

The biochemical device for fermenting poultry manure can perform fermentation and biochemical treatment, and reduce manual operations, so as to accomplish the expected goal, thus being more and more widely used. However, for the sealing of the feeding and discharging in the existing biochemical device for fermenting poultry manure, either the sealing performance is not good, or the sealing performance is good but the parts used for sealing contact are squeezed too much and easily damaged. Further, for the existing biochemical device for fermenting poultry manure, the fermentation process can be performed, but automatic feeding and discharging cannot be performed, which requires a large number of workers for filling without high degree of automation. Moreover, for the existing biochemical device for fermenting poultry manure, the poultry manure will always block the feeding device.

BRIEF SUMMARY OF THE DISCLOSURE

In view of the problems in the prior art, the present invention provides a biochemical device for fermenting poultry manure, wherein the automatic process of feeding, fermentation and biochemical treatment as well as discharging after fermentation for the poultry manure can be realized only by pre-setting parameters through electronic control by an operator, without manual feeding and discharging, so that not only can the labor intensity of workers be reduced, but also the efficiency in fermentation and biochemical treatment for the poultry manure can be effectively improved.

To achieve the above purpose, the technical solutions adopted by the present invention are: a biochemical device for fermenting poultry manure includes a feed assembly, a discharge assembly, a barrel assembly, a heating system, a base assembly and a control system;

the feed assembly comprises a feed frame, a side portion of the feed frame is fixed with a feed flat plate arranged vertically, and two sides of the feed flat plate are fixedly connected to two feed side sealing plates respectively; an end surface of the feed flat plate is provided with a feed temperature measurement device arranged horizontally, four feed temperature measurement device reinforcement plates are evenly distributed around the feed temperature measurement device, and the feed temperature measurement device reinforcement plates are fixedly connected to the feed temperature measurement device and the feed flat plate respectively; an end surface of the feed flat plate is fixed with a heating pipe support outer ring, an air inlet baffle and eight feed flat plate positioning posts, the eight feed flat plate positioning posts are connected with eight feed pressure plates respectively, and all the eight feed pressure plates are connected to a sealing bottom plate; the sealing bottom plate is connected to a sealing fixing ring through a sealing inner ring reinforcing plate, an outer ring of the sealing fixing ring is connected with an inner sealing plate, and an outer ring of the inner sealing plate is connected to four outer pressure plates; the end surface of the feed flat plate is connected to a feed circular pipe, the circular pipe is connected to a shaft sleeve flange, and the shaft sleeve flange is connected to a sliding shaft sleeve; the sliding shaft sleeve is connected to an inner end cover sealing plate, the inner end cover sealing plate is connected to an inner end cover, and the sliding shaft sleeve is movably connected to a sleeve shaft through a sealing ring I; the sliding shaft sleeve is connected to the sealing pressure plate, the sleeve shaft is coaxially connected to one end of the feed spiral, and the other end of the feed spiral passes through the feed flat plate to be coaxially connected to one end of an axle; the other end of the axle is mounted on a driven sprocket pressure plate, the feed spiral is provided inside with a feed grease pipe, and two ends of the feed grease pipe are connected to the axle and the sleeve shaft respectively; the driven sprocket pressure plate is provided with a sprocket shaft sleeve, an inner portion of the sprocket shaft sleeve is connected to the other end of the axle through a flat key, and one side of the sprocket shaft sleeve is connected to a distance sleeve; an inner portion of the sprocket shaft sleeve is provided with a sprocket II, an outer portion of the axle is connected to a spherical roller bearing, and the spherical roller bearing is movably

connected to a rolling bearing seat; one side of the rolling bearing seat is fixed to a rolling bearing cover, the rolling bearing cover is connected to the distance sleeve through a sealing ring II, and the other side of the rolling bearing seat is connected to the wheel edge flange; the wheel edge flange is connected to the wheel edge flange gasket, and the rolling bearing seat is in contact to the axle through a sealing ring III; a lower part of a bottom portion of the feed frame is connected to four bottom plates, and an upper part of the bottom portion of the feed frame is connected to a control cabinet base angle steel; a ladder angle steel is connected between an upper portion and a lower portion of the feed frame; the feed frame is fixed inside with a water tank, the water tank is provided with a float switch mounting plate, and a lower part of the water tank is welded with a pagoda tip; the upper portion of the feed frame is connected to a railing angle steel and a frame angle steel; an upper part of the frame angle steel is provided with a hopper enclosure, and a lower part of the frame angle steel is connected to a hopper bottom plate and a hopper vertical plate; the hopper vertical plate is connected to a chain guard fixing upper angle steel, the chain guard fixing upper angle steel is connected to a sprocket guard lower bracket, and the sprocket guard lower bracket is provided with a sprocket guard; the sprocket guard is fixed on a reducer frame through a chain guard fixing lower angle steel; a reducer is mounted on the reducer frame, and an output end of the reducer is equipped with a sprocket I and fixed by a reducer sprocket pressure plate; the sprocket I is connected to the sprocket II through a chain; an upper portion of the feed frame is connected to two lifting plates, one side of the feeding frame is fixed with a feed threading pipe, and one side of the feed frame is provided with two backwater trough connection angle steels; the backwater trough connection angle steel is connected to a backwater trough baffle, the backwater trough baffle is welded to seven backing plates, and the seven backing plates connect backwater trough lower arc plates;

the discharge assembly comprises a discharge frame, a side portion of the discharge frame is fixed with a discharge flat plate arranged vertically, and two sides of the discharge flat plate are fixedly connected to two discharge side sealing plates respectively; an end surface of the discharge flat plate is provided with a discharge temperature measurement device arranged horizontally, four discharge temperature measurement device reinforcement plates are evenly distributed around the discharge temperature measurement device, and the discharge temperature measurement device reinforcement plates are fixedly connected to the discharge temperature

measurement device and the discharge flat plate respectively; the discharge flat plate is fixed with an air outlet baffle and eight discharge plate positioning posts, an exhaust steel pipe passes through the feed plat plate, and the exhaust steel pipe is connected to an exhaust pipe; a discharge end branch pipe passes through the discharge flat plate, and the discharge end branch pipe is connected to a fixing seat flange; the discharge flat plate is further provided with an observation hole baffle, an observation cover square plate, an inspection hole baffle, an inspection cover plate and an inspection cover pressure plate; a top portion of the discharge frame is provided with two discharge frame lifting plates, an upper part of the discharge frame is connected to a discharge backwater trough connection angle steel, and the discharge backwater trough connection angle steel is connected to a discharge backwater trough baffle; the discharge backwater trough baffle is connected to a discharge backwater trough arc plate through a discharge backwater trough gasket; the discharge frame is connected to a discharge threading pipe, a water pump bottom plate, a discharge spiral support frame and a discharge frame bottom plate; the eight discharge flat plate positioning posts are connected to eight discharge sealing pressure plates respectively, the eight discharge sealing pressure plates are connected to a discharge sealing bottom plate, and the discharge sealing bottom plate is connected to a discharge sealing fixing ring through a discharge sealing inner ring reinforcement plate; an outer ring of the discharge sealing fixing ring is connected to a discharge inner sealing plate, a periphery of the discharge inner sealing plate is connected to four discharge sealing outer pressure plates, and the discharge flat plate is provided with a discharge circular pipe; the discharge circular pipe is connected to a discharge spiral sliding shaft sleeve through a discharge spiral shaft sleeve flange, the discharge spiral sliding shaft sleeve is connected to a discharge spiral inner end cover sealing plate, and the discharge spiral inner end cover sealing plate is connected to a discharge spiral inner end cover; the discharge spiral sliding shaft sleeve is movably connected to a discharge spiral sleeve shaft through a discharge spiral sealing ring I, the discharge spiral sliding sleeve is connected to a discharge spiral sealing pressure plate, and the discharge spiral sleeve shaft is coaxially connected to one end of a discharge spiral; the other end of the discharge spiral is connected to the discharge spiral axle, one end of the discharge spiral axle is mounted on the discharge spiral driven sprocket pressure plate, and the discharge spiral is provided inside with a discharge grease pipe; two ends of the discharge grease pipe are connected to the discharge spiral axle and the discharge spiral sleeve shaft

respectively, the discharge spiral driven sprocket pressure plate is provided with a discharge spiral sprocket shaft sleeve, and an inner portion of the discharge spiral sprocket shaft sleeve is connected to the discharge spiral axle through a discharge spiral flat key; one side of the discharge spiral sprocket shaft sleeve is connected with the discharge spiral distance sleeve, an inner portion of the discharge spiral sprocket shaft sleeve is provided with a discharge spiral sprocket, and an outer portion of the discharge spiral axle is connected to a discharge spiral spherical roller bearing; the discharge spiral spherical roller bearing is movably connected to the discharge spiral rolling bearing seat, one side of the discharge spiral rolling bearing seat is fixed to a discharge spiral rolling bearing cover, and the discharge spiral rolling bearing cover is connected to the discharge spiral distance sleeve through a discharge spiral sealing ring II; the other side of the discharge spiral rolling bearing seat is connected to a discharge spiral wheel edge flange, the rolling bearing seat is connected to the discharge spiral axle through a discharge spiral sealing ring III, and the discharge circular pipe is connected to the discharge reducer frame; a discharge reducer is mounted on the discharge reducer frame, the discharge reducer is connected to the discharge reducer sprocket sleeve, and the discharge reducer sprocket sleeve is connected to a discharge reducer sprocket pressure plate; an output end of the discharge reducer is equipped with a discharge reducer driving sprocket, the discharge reducer sprocket sleeve is connected to the discharge reducer driving sprocket, and the discharge reducer driving sprocket is connected to the discharge spiral sprocket through a discharge chain; a discharge spiral chain guard fixing bracket is fixed on the discharge spiral wheel edge flange, the discharge spiral chain guard fixing bracket is connected to a discharge sprocket guard, a discharge tension wheel fixing angle steel is fixed on the discharging reducer frame, and a discharge spiral tension wheel is fixed on the discharge tension wheel fixing angle steel;

the barrel assembly includes a barrel inner structure, and the barrel inner structure includes end plates distributed on two ends; the end plate is connected to an outer sealing ring, and the two end plates are connected to raising plates, flat plates and supporting angle steels between the two end plates, wherein each of the raising plate is cross-connected to each of the flat plates, there are both five flat pates and supporting angle steels arranged at intervals as five, both the raising plates and the supporting angle steels are fixed with six reinforcement plates, and a pallet is connected between two adjacent raising plates; there are seven pallets distributed circumferentially in a

radial direction and distributed in the axial direction; the outer sealing ring is connected to the sealing plate, the sealing plate is connected to an inner pressure plate, and the pallet is fixed with a screen plate; both the supporting angle steel and the raising plate are connected to the barrel, an outer surface of the barrel is fixed with a thermal insulation cotton, and two ends of the barrel are fixed with retaining rings; the retaining ring is fixed with a color steel plate fixing ring, wheel belt reinforcement plates and gear supporting plates are mounted on the barrel, and the wheel belt reinforcement plate is fixed with a wheel belt; the thermal insulation cotton is fixed with a wheel belt sealing plate, a gear fixing plate is fixed among the gear supporting plate, and the thermal insulation cotton is further fixed with a large gear fixing plate sealing plate and a large gear supporting plate sealing plate;

the heating system comprises a wiring guard, the wiring guard is fixed on a flange, and the flange is connected to an inner pipe flange; the inner pipe flange is fixed with an electric heating pipe, a temperature measurement pipe and two circular rings; the two circular rings are connected to a heating pipe supporting inner ring, a heating inner pipe is sleeved outside the electric heating pipe and the temperature measurement pipe, and the heating inner pipe is connected to one end of an inner water pipe; one end of an outer pipe is connected to a water tank hose, and the other end of the outer end is connected to a discharge end flange; the discharge end flange is fixed with a rubber pad, twelve outer pipe reinforcement plates and a water stop valve; the discharge end flange is connected to a hot water pump, and the other end of an inner water pipe is connected to the discharge end flange;

the base assembly includes two parallel longitudinal beams, and seven parallel beams are connected between the longitudinal beams; two ends of the longitudinal beams are fixed with the feed bottom plate and the discharge bottom plate respectively, and the two longitudinal beams are fixed with respect to supporting wheels respectively; each of the longitudinal beams is fixed with eight wire baffles and a barrel reducer frame, and the barrel reducer frame is provided with a barrel reducer;

the control system is a control cabinet; the control cabinet is used to receive a real-time temperature value feedback from the feed temperature measurement device, the discharge temperature measurement device and the temperature measurement pipe, and is capable of controlling the start and stop of the feed reducer, the discharge reducer, the barrel reducer, the hot

water pump and the electric heating pipe.

Further, twelve circular steels are evenly distributed around the outer pipe, and a plurality of cutting plates are fixed on the circular steels.

Further, the backwater trough lower arc plate is provided with a notch. The notch facilitates the drainage of the water in the backwater trough.

Further, the end plate is provided with ten drainage ports. The notch facilitates quick drainage of the water in the barrel.

Further the feed temperature measurement device, the discharge temperature measurement device and the temperature measurement pipe are all thermocouples.

Compared with the prior art, the present invention combines the feed assembly, the discharge assembly, the barrel assembly, the heating system, the base assembly and the control system, with the following advantages:

1. The structure of the present invention effectively improves the damage of the inner sealing plate caused by a huge force between the sealing plate and the inner sealing plate due to the asymmetry of rotation when the barrel rotates.

2. The operator may realize the whole process of feeding, fermentation and biochemical treatment and discharging through electronic control through the control system, leading to simple operation and saving manpower.

3. The present invention has an automatic mode, and by setting some parameters in advance, the control cabinet may automatically realize the whole process of feeding, fermentation, biochemical treatment and discharging.

4. The present invention may be adjusted correspondingly according to the fermentation temperature required by different poultry manures, thereby adapting to the fermentation of various poultry manures, thereby having a wide application range.

Description of Drawings

Fig. 1 is a three-dimensional schematic diagram of the overall structure of the present invention;

Fig. 2 is a three-dimensional schematic diagram in another direction of Fig. 1;

Fig. 3 is a three-dimensional schematic diagram of a feed assembly;

Fig. 4 is a view from a direction A of Fig. 3;

Fig. 5 is a three-dimensional schematic diagram of a feed frame;

Fig. 6 is a schematic diagram of a feed spiral;

Fig. 7 is a cross-section view taken along line A-A of Fig. 6;

Fig. 8 is a three-dimensional schematic diagram of a discharge assembly of the present invention;

Fig. 9 is a three-dimensional schematic diagram in another direction of Fig. 8;

Fig. 10 is a three-dimensional schematic diagram of a discharge frame of the present invention;

Fig. 11 is a three-dimensional schematic diagram in another direction of Fig. 10;

Fig. 12 is a three-dimensional schematic diagram of a discharge spiral of the present invention;

Fig. 13 is a top view of Fig. 12;

Fig. 14 is a cross-sectional view taken along line B-B of Fig. 13;

Fig. 15 is a three-dimensional schematic diagram of a barrel assembly of the present invention;

Fig. 16 is a top view of Fig. 15;

Fig. 17 is a cross-sectional view taken along line C-C of Fig. 16;

Fig. 18 is a three-dimensional schematic diagram of a barrel inner structure of the present invention;

Fig. 19 is a three-dimensional schematic diagram of a barrel of the present invention;

Fig. 20 is a cross-section view of a heating system of the present invention;

Fig. 21 is a three-dimensional schematic diagram of a heating system of the present invention;

Fig. 22 is a partial enlarged view of I in Fig. 21;

Fig. 23 is a partial enlarged view of II in Fig. 21;

Fig. 24 is a partial enlarged view of III in Fig. 21;

Fig. 25 is a partial enlarged view of IV in Fig. 20;

Fig. 26 is a three-dimensional schematic diagram of a base assembly of the present invention.

In figures: 1-barrel reducer frame; 2-feed bottom plate; 3-wire baffle; 4-beam; 5-longitudinal beam; 6-control cabinet; 7-feed temperature measurement device; 8-feed temperature measurement device reinforcement plate; 9-feed flat plat; 10-feed side sealing plate; 11-heating pipe support outer ring; 12-air inlet baffle; 13-feed frame; 14-bottom plate; 15-control cabinet base angle steel; 16-ladder angle steel; 17-water tank; 18-railing angle steel; 19-frame angle steel; 20-lifting plate; 21-backwater trough connection angle steel; 22-pagoda tip; 23-feed threading pipe; 24-feed flat plate positioning post; 25-feed pressure plate; 26-sealing bottom plate; 27-sealing inner ring reinforcement plate; 28-sealing fixing ring; 29-inner sealing plate; 30-outer pressure plate; 31-backwater trough baffle; 32-backing plate; 33-backwater trough lower arc plate; 34-hooper enclosure; 35-hopper bottom plate; 36-feed circular pipe; 37-shaft sleeve flange; 38-sliding shaft sleeve; 39-inner end cover sealing plate; 40-inner end cover; 41-feed spiral; 42-reducer sprocket pressure plate; 43-rolling bearing cover; 44-sprocket shaft sleeve; 45-distance sleeve; 46-driven sprocket pressure plate; 47-rolling bearing seat; 48-wheel edge flange; 49-wheel edge flange gasket; 50-flat key; 51-axle; 52-spherical roller bearing; 53-sealing ring II; 54-sealing ring III; 55-sealing ring I; 56-sleeve shaft; 57-sealing pressure plate; 58-feed grease pipe; 59-hopper vertical plate; 60-chain guard fixing upper angle steel; 61-sprocket guard lower bracket; 62-sprocket guard; 63-chain guard fixing upper angle steel; 64-reducer frame; 65-reducer; 66-sprocket I; 67-chain; 68-sprocket II; 69-discharge frame; 70-discharge flat plate; 71-discharge end branch pipe; 72-discharge temperature measurement device; 73-discharge temperature measurement device reinforcement plate; 74-air outlet baffle; 75-observation hole

baffle: 76-exhaust steel pipe; 77-fixing seat flange; 78-inspection cover plate; 79-inspection cover pressure plate; 80-observation hole baffle; 81-observation cover square plate; 82-discharge flat plate positioning post; 83-discharge frame bottom plate; 84-discharge spiral support frame; 85-discharge side sealing plate; 86-discharge frame lifting plate; 87-discharge backwater trough connection angle steel; 88-water pump bottom plate; 89-discharge threading pipe; 90-exhaust pipe; 91-discharge reducer; 92-discharge sprocket guard; 93-discharge reducer frame; 94-discharge circular pipe; 95-discharge backwater trough arc plate; 96-discharge sealing outer pressure plate; 97-discharge inner sealing plate; 98-discharge sealing bottom plate; 99-discharge spiral shaft sleeve flange; 100-discharge sealing inner ring reinforcement plate; 101-discharge spiral inner end cover; 102-discharge sealing fixing ring; 103-discharge backwater trough baffle; 104-discharge backwater trough arc plate; 105-discharge sealing pressure plate; 106-discharge spiral sliding shaft sleeve; 107-discharge spiral inner end cover sealing plate; 108-discharge spiral sealing ring I; 109-discharge spiral sleeve shaft; 110-discharge spiral sealing pressure plate; 111-discharge spiral; 112-discharge spiral axle; 113-discharge spiral driven sprocket pressure plate; 114-discharge grease pipe; 115-discharge spiral sprocket shaft sleeve; 116-discharge spiral flat key; 117-discharge spiral distance sleeve; 118-discharge spiral sprocket; 119-discharge spiral spherical roller bearing; 120-discharge spiral rolling bearing seat; 121-discharge spiral rolling bearing cover; 122-discharge spiral sealing ring II; 123-discharge spiral wheel edge flange; 124-discharge spiral sealing ring III; 125-discharge reducer driving sprocket; 126-discharge reducer sprocket pressure plate; 127-discharge reducer sprocket sleeve; 128-discharge chain; 129-discharge spiral tension wheel; 130-discharge tension wheel fixing angle steel; 131-discharge spiral wheel edge flange; 132-wheel belt reinforcement plate; 133-gear supporting plate; 134-gear fixing plate; 135-large gear; 136-end plate; 137-retaining ring; 138-screen plate; 139-raising plate; 140-flat plate; 141-outer sealing ring; 142-supporting angle steel; 143-barrel; 144-thermal insulation cotton; 145-color steel plate fixing ring; 146-inner pressure plate; 147-sealing plate; 148-large gear fixing plate sealing plate; 149-large gear supporting plate sealing plate; 150-wheel belt sealing plate; 151-pallet; 152-reinforcement plate; 153-wiring guard; 154-flange; 155-inner pipe flange; 156-outer pipe; 157-heating pipe supporting inner ring; 158-temperature measurement pipe; 159-circular ring; 160-heating inner pipe; 161-electric heating pipe; 162-circular steel; 163-barrel reducer; 164-hot water pump; 165-water stop valve; 166-discharge

end flange; 167-cutting plate; 168-outer pipe reinforcement plate; 169-rubber pad; 170-inner water pipe; 171-water tank hose; 172-discharge bottom plate; 173-supporting wheel.

DETAILED DESCRIPTION OF THE INVENTION

Further description of the present invention is made below.

As shown in Figs. 1 to 4, the present invention includes a feed assembly, a discharge assembly, a barrel assembly, the heating system, a base assembly and the control system;

the feed assembly includes a feed frame 13, a side portion of the feed frame 13 is fixed with a feed flat plate 9 arranged vertically, and two sides of the feed flat plate 9 are fixedly connected to two feed side sealing plates 10 respectively; an end surface of the feed flat plate 9 is provided with a feed temperature measurement device 7 arranged horizontally, four feed temperature measurement device reinforcement plates 8 are evenly distributed around the feed temperature measurement device 7, and the feed temperature measurement device reinforcement plates 8 are fixedly connected to the feed temperature measurement device 7 and the feed flat plate 9 respectively; an end surface of the feed flat plate 9 is fixed with a heating pipe support outer ring 11, an air inlet baffle 12 and eight feed flat plate positioning posts 24, the eight feed flat plate positioning posts 24 are connected with eight feed pressure plates 25 respectively, and all the eight feed pressure plates 25 are connected to a sealing bottom plate 26; the sealing bottom plate 26 is connected to a sealing fixing ring 28 through a sealing inner ring reinforcing plate 27, an outer ring of the sealing fixing ring 28 is connected with an inner sealing plate 29, and an outer ring of the inner sealing plate 29 is connected to four outer pressure plates 30; the end surface of the feed flat plate 9 is connected to a feed circular pipe 36, the feed circular pipe 36 is connected to a shaft sleeve flange 37, and the shaft sleeve flange 37 is connected to a sliding shaft sleeve 38; the sliding shaft sleeve 38 is connected to an inner end cover sealing plate 39, the inner end cover sealing plate 39 is connected to an inner end cover 40, and the sliding shaft sleeve 38 is movably connected to a sleeve shaft 56 through a sealing ring I 55; the sliding shaft sleeve 38 is connected to the sealing pressure plate 57, the sleeve shaft 56 is coaxially connected to one end of the feed spiral 41, and the other end of the feed spiral 41 passes through the feed flat plate 9 to be coaxially connected to one end of an axle 51; the other end of the axle 51 is mounted on a driven sprocket pressure plate 46, the feed spiral 41 is provided inside with a feed grease pipe 58, and

two ends of the feed grease pipe 58 are connected to the axle 51 and the sleeve shaft 56 respectively; the driven sprocket pressure plate 46 is provided with a sprocket shaft sleeve 44, an inner portion of the sprocket shaft sleeve 44 is connected to the other end of the axle 51 through a flat key 50, and one side of the sprocket shaft sleeve 44 is connected to a distance sleeve 45; an inner portion of the sprocket shaft sleeve 44 is provided with a sprocket II 68, an outer portion of the axle 51 is connected to a spherical roller bearing 52, and the spherical roller bearing 52 is movably connected to a rolling bearing seat 47; one side of the rolling bearing seat 47 is fixed to a rolling bearing cover 43, the rolling bearing cover 43 is connected to the distance sleeve 45 through a sealing ring II 53, and the other side of the rolling bearing seat 47 is connected to the wheel edge flange 48; the wheel edge flange 48 is connected to the wheel edge flange gasket 49, and the rolling bearing seat 47 is in contact to the axle 51 through a sealing ring III 54; a lower part of a bottom portion of the feed frame 13 is connected to four bottom plates 14, and an upper part of the bottom portion of the feed frame 13 is connected to a control cabinet base angle steel 15; a ladder angle steel 16 is connected between an upper portion and a lower portion of the feed frame 13; the feed frame 13 is fixed inside with a water tank 17, the water tank 17 is provided with a float switch mounting plate, and a lower part of the water tank 17 is welded with a pagoda tip 22; the upper portion of the feed frame 13 is connected to a railing angle steel 18 and a frame angle steel 19; an upper part of the frame angle steel 19 is provided with a hopper enclosure 34, and a lower part of the frame angle steel 19 is connected to a hopper bottom plate 35 and a hopper vertical plate 59; the hopper vertical plate 59 is connected to a chain guard fixing upper angle steel 63, the chain guard fixing upper angle steel 63 is connected to a sprocket guard lower bracket 61, and the sprocket guard lower bracket 61 is provided with a sprocket guard 62; the sprocket guard 62 is fixed on a reducer frame 64 through a chain guard fixing lower angle steel 63; a reducer 65 is mounted on the reducer frame 64, and an output end of the reducer 65 is equipped with a sprocket I 66 and fixed by a reducer sprocket pressure plate 42; the sprocket I 66 is connected to the sprocket II 68 through a chain 67; an upper portion of the feed frame 13 is connected to two lifting plates 20, one side of the feeding frame 13 is fixed with a feed threading pipe 23, and one side of the feed frame 13 is provided with two backwater trough connection angle steels 21; the backwater trough connection angle steel 21 is connected to a backwater trough baffle 31, the backwater trough baffle 31 is welded to seven backing plates 32, and the

seven backing plates 32 connect backwater trough lower arc plates 33;

the discharge assembly includes a discharge frame 69, a side portion of the discharge frame 69 is fixed with a discharge flat plate 70 arranged vertically, and two sides of the discharge flat plate 70 are fixedly connected to two discharge side sealing plates 85 respectively; an end surface of the discharge flat plate 70 is provided with a discharge temperature measurement device 72 arranged horizontally, four discharge temperature measurement device reinforcement plates 73 are evenly distributed around the discharge temperature measurement device 72, and the discharge temperature measurement device reinforcement plates 73 are fixedly connected to the discharge temperature measurement device 72 and the discharge flat plate 70 respectively; the discharge flat plate 70 is fixed with an air outlet baffle 74 and eight discharge plate positioning posts 82, an exhaust steel pipe 76 passes through the feed plat plate 70, and the exhaust steel pipe 76 is connected to an exhaust pipe 90; a discharge end branch pipe passes through the discharge flat plate 70, and the discharge end branch pipe is connected to a fixing seat flange; the discharge flat plate 70 is further provided with an observation hole baffle 75, an observation cover square plate 81, an inspection hole baffle 75, an inspection cover plate 78 and an inspection cover pressure plate 79; a top portion of the discharge frame 69 is provided with two discharge frame lifting plates 86, an upper part of the discharge frame 69 is connected to a discharge backwater trough connection angle steel 87, and the discharge backwater trough connection angle steel 87 is connected to a discharge backwater trough baffle 103; the discharge backwater trough baffle 103 is connected to a discharge backwater trough arc plate 104 through a discharge backwater trough gasket 85; the discharge frame 69 is connected to a discharge threading pipe 89, a water pump bottom plate 88, a discharge spiral support frame 84 and a discharge frame bottom plate 83; the eight discharge flat plate positioning posts 82 are connected to eight discharge sealing pressure plates 105 respectively, the eight discharge sealing pressure plates 105 are connected to a discharge sealing bottom plate 98, and the discharge sealing bottom plate 98 is connected to a discharge sealing fixing ring 102 through a discharge sealing inner ring reinforcement plate 100; an outer ring of the discharge sealing fixing ring 102 is connected to a discharge inner sealing plate 97, a periphery of the discharge inner sealing plate 97 is connected to four discharge sealing outer pressure plates 96, and the discharge flat plate 70 is provided with a discharge circular pipe 94; the discharge circular pipe 94 is connected to a discharge spiral sliding shaft sleeve 106

through a discharge spiral shaft sleeve flange 99, the discharge spiral sliding shaft sleeve 106 is connected to a discharge spiral inner end cover sealing plate 107, and the discharge spiral inner end cover sealing plate 107 is connected to a discharge spiral inner end cover 101; the discharge spiral sliding shaft sleeve 106 is movably connected to a discharge spiral sleeve shaft 109 through a discharge spiral sealing ring I 108, the discharge spiral sliding sleeve 106 is connected to a discharge spiral sealing pressure plate 110, and the discharge spiral sleeve shaft 109 is coaxially connected to one end of a discharge spiral 111; the other end of the discharge spiral 111 is connected to the discharge spiral axle 112, one end of the discharge spiral axle 112 is mounted on the discharge spiral driven sprocket pressure plate 113, and the discharge spiral 111 is provided inside with a discharge grease pipe 114; two ends of the discharge grease pipe 114 are connected to the discharge spiral axle 112 and the discharge spiral sleeve shaft 109 respectively, the discharge spiral driven sprocket pressure plate 113 is provided with a discharge spiral sprocket shaft sleeve 115, and an inner portion of the discharge spiral sprocket shaft sleeve 115 is connected to the discharge spiral axle 112 through a discharge spiral flat key 116; one side of the discharge spiral sprocket shaft sleeve 115 is connected with the discharge spiral distance sleeve 117, an inner portion of the discharge spiral sprocket shaft sleeve 112 is provided with a discharge spiral sprocket 118, and an outer portion of the discharge spiral axle 112 is connected to a discharge spiral spherical roller bearing 119; the discharge spiral spherical roller bearing 119 is movably connected to the discharge spiral rolling bearing seat 120, one side of the discharge spiral rolling bearing seat 120 is fixed to a discharge spiral rolling bearing cover 121, and the discharge spiral rolling bearing cover 121 is connected to the discharge spiral distance sleeve 117 through a discharge spiral sealing ring II 122; the other side of the discharge spiral rolling bearing seat 120 is connected to a discharge spiral wheel edge flange 123, the rolling bearing seat 120 is connected to the discharge spiral axle 112 through a discharge spiral sealing ring III 124, and the discharge circular pipe 94 is connected to the discharge reducer frame 93; a discharge reducer 91 is mounted on the discharge reducer frame 93, the discharge reducer 91 is connected to the discharge reducer sprocket sleeve 127, and the discharge reducer sprocket sleeve 127 is connected to a discharge reducer sprocket pressure plate 126; an output end of the discharge reducer 91 is equipped with a discharge reducer driving sprocket 125, the discharge reducer sprocket sleeve 127 is connected to the discharge reducer driving sprocket 125, and the discharge

reducer driving sprocket 125 is connected to the discharge spiral sprocket 118 through a discharge chain 128; a discharge spiral chain guard fixing bracket 123 is fixed on the discharge spiral wheel edge flange 131, the discharge spiral chain guard fixing bracket 131 is connected to a discharge sprocket guard 92, a discharge tension wheel fixing angle steel 130 is fixed on the discharging reducer frame 93, and a discharge spiral tension wheel 129 is fixed on the discharge tension wheel fixing angle steel 130;

the barrel assembly includes a barrel inner structure, and the barrel inner structure includes end plates 136 distributed on two ends; the end plate 136 is connected to an outer sealing ring 141, and the two end plates 136 are connected to raising plates 139, flat plates 140 and supporting angle steels 142 between the two end plates, wherein each of the raising plate 139 is cross-connected to each of the flat plates 140, there are both five flat pates 140 and supporting angle steels 142 arranged at intervals as five, both the raising plates 139 and the supporting angle steels 142 are fixed with six reinforcement plates 152, and a pallet 151 is connected between two adjacent raising plates 139; there are seven pallets 151 distributed circumferentially in a radial direction and distributed in the axial direction; the outer sealing ring 141 is connected to the sealing plate 147, the sealing plate 147 is connected to an inner pressure plate 146, and the pallet 143 is fixed with a screen plate 138; both the supporting angle steel 142 and the raising plate 139 are connected to the barrel, an outer surface of the barrel is fixed with a thermal insulation cotton 144, and two ends of the barrel are fixed with retaining rings 137; the retaining ring 137 is fixed with a color steel plate fixing ring 145, wheel belt reinforcement plates 132 and gear supporting plates 133 are mounted on the barrel, and the wheel belt reinforcement plate 132 is fixed with a wheel belt; the thermal insulation cotton 144 is fixed with a wheel belt sealing plate 150, a gear fixing plate 134 is fixed among the gear supporting plate 133, and the thermal insulation cotton 144 is further fixed with a large gear fixing plate sealing plate 148 and a large gear supporting plate sealing plate 149;

the heating system includes a wiring guard 153, the wiring guard 153 is fixed on a flange 154, and the flange 154 is connected to an inner pipe flange 155; the inner pipe flange 155 is fixed with an outer pipe 156 and a heating inner pipe 160; the flange 154 is fixed with an electric heating pipe 161, a temperature measurement pipe 158 and two circular rings 159; the two circular rings 159 are connected to a heating pipe supporting inner ring 157, a heating inner pipe

160 is sleeved outside the electric heating pipe 161 and the temperature measurement pipe 158, and the heating inner pipe 160 is connected to one end of an inner water pipe 170; one end of an outer pipe 156 is connected to a water tank hose 171, and the other end of the outer pipe 156 is connected to a discharge end flange 166; the discharge end flange 166 is fixed with a rubber pad 169, twelve outer pipe reinforcement plates 168 and a water stop valve 165; the discharge end flange 166 is connected to a hot water pump 164, and the other end of an inner water pipe 170 is connected to the discharge end flange 166;

the base assembly includes two parallel longitudinal beams 5, and seven parallel beams 4 are connected between the longitudinal beams 5; two ends of the longitudinal beams 5 are fixed with the feed bottom plate 2 and the discharge bottom plate 172 respectively, and the two longitudinal beams 5 are fixed with respect to supporting wheels 173 respectively; each of the longitudinal beams 5 is fixed with eight wire baffles 3 and a barrel reducer frame 1, and the barrel reducer frame 1 is provided with a barrel reducer 163;

the control system 6 is a control cabinet; the control cabinet 6 is used to receive a real-time temperature value feedback from the feed temperature measurement device 7, the discharge temperature measurement device 72 and the temperature measurement pipe 158, and is capable of controlling the start and stop of the feed reducer, the discharge reducer 91, the barrel reducer 163, the hot water pump 164 and the electric heating pipe 161.

Further, twelve circular steels 162 are evenly distributed around the outer pipe 156, and a plurality of cutting plates 167 are fixed on the circular steels 162.

Further, the backwater trough lower arc plate 33 is provided with a notch. The notch facilitates the drainage of the water in the backwater trough.

Further, the end plate 136 is provided with ten drainage ports. The notch facilitates quick drainage of the water in the barrel.

Further the feed temperature measurement device 7, the discharge temperature measurement device 72 and the temperature measurement pipe 158 are all thermocouples.

The working process is: the staff pre-set a barrel fermentation temperature range value, a feed temperature range value, a discharge temperature range value, a fermentation time and an

interval time, and pass them to the control cabinet 6 for storage; the control cabinet 6 first controls the feed reducer to start for further causing the feed spiral 41 of the feed assembly to start to rotate so as to transport the raw material of poultry manure into the barrel, and then the feed temperature measurement device 7 feeds back the temperature of the detected poultry manure raw materials to the control cabinet 6 while the control cabinet 6 comparing the detected value with the set feed temperature range value, wherein if the detected value is within the set range value, the control cabinet will continue to maintain the working state of the feed reducer until the poultry manure raw materials are completely transported into the barrel, and the control cabinet 6 stops the work of the feed reducer; if the detected value is not within the set range value, the control cabinet 6 stops the work of the feed reducer and sends out an alarm prompt, then the staff checks the temperature abnormality of the poultry manure raw materials in time; when the poultry manure raw material meet the feed temperature range value, the feeding process of the poultry manure raw materials is completed;

subsequently, the control cabinet 6 controls the electric heating pipe 161 to start heating for further then heating the water in the inner water pipe 170 while the hot water pump 164 pumping the heated water to the entire barrel, and the temperature measurement pipe 158 feeds back the detected temperature of the inner water pipe 170 to the control cabinet 6 in real time while the control cabinet 6 compares the detected value with the set barrel fermentation temperature range value, wherein if the detected value is not within the barrel fermentation temperature range value, the control cabinet 6 continues to maintain the working state of the electric heating pipe 161 until the detected value is within the barrel fermentation temperature range value; then, the control cabinet 6 controls the electric heating pipe 161 to stop working, and controls the barrel reducer 163 to start working for further driving the barrel to start rotating; at this time, the poultry manure raw materials are fermented and biochemically processed in the barrel, and during the fermentation and biochemical processing, the temperature measurement pipe 158 feeds back the temperature value of the inner water pipe 170 detected in real time to the control cabinet 6 while the control cabinet 6 comparing the detected value with the barrel fermentation temperature range value, wherein if the detected value is lower than a lower limit of the barrel fermentation temperature range value, the control cabinet 6 controls the electric heating pipe 161 to turn on again so as to heat the water in the inner water pipe 170 again until the detected value reaches the

barrel fermentation temperature range value, and the operation of the electric heating pipe 161 is stopped; the above process may be cycled to ensure that the poultry manure raw materials in the cylinder are always at the temperature required for fermentation and biochemical treatment; after the continuous fermentation time reaches the set fermentation time, the control cabinet 6 controls the discharge reducer 91 to start, and then the discharge spiral 111 of the discharge assembly starts to rotate, and the materials after fermentation and biochemical treatment are transported out of the barrel; then, the discharge temperature measurement device 72 feeds back the detected output material temperature to the control cabinet 6, and the control cabinet 6 compares the detected value with the set discharge temperature range value, wherein if the detected value is within the discharge temperature range, the control cabinet 6 makes the discharge reducer 91 continue to work until the discharge process of all materials is completed; if the detected value is higher than an upper limit of the discharge temperature range value, the control cabinet 6 controls the discharge reducer 91 to stop working; after waiting for a set interval time, the discharge reducer 91 is started again and whether the discharge temperature is within the discharge temperature range value is checked again, wherein if the discharge temperature is not within the discharge temperature range value, the discharge reducer 91 is stopped again to be in a waiting state until the discharge temperature is within the discharge temperature range, and then the discharge reducer 91 continues to work to complete the discharge process for materials.

1. A biochemical device for fermenting poultry manure, comprising a feed assembly, a discharge assembly, a barrel assembly, a heating system, a base assembly and a control system;

the feed assembly comprises a feed frame, a side portion of the feed frame is fixed with a feed flat plate arranged vertically, and two sides of the feed flat plate are fixedly connected to two feed side sealing plates respectively; an end surface of the feed flat plate is provided with a feed temperature measurement device arranged horizontally, four feed temperature measurement device reinforcement plates are evenly distributed around the feed temperature measurement device, and the feed temperature measurement device reinforcement plates are fixedly connected to the feed temperature measurement device and the feed flat plate respectively; an end surface of the feed flat plate is fixed with a heating pipe support outer ring, an air inlet baffle and eight feed flat plate positioning posts, the eight feed flat plate positioning posts are connected with eight feed pressure plates respectively, and all the eight feed pressure plates are connected to a sealing bottom plate; the sealing bottom plate is connected to a sealing fixing ring through a sealing inner ring reinforcing plate, an outer ring of the sealing fixing ring is connected with an inner sealing plate, and an outer ring of the inner sealing plate is connected to four outer pressure plates; the end surface of the feed flat plate is connected to a feed circular pipe, the circular pipe is connected to a shaft sleeve flange, and the shaft sleeve flange is connected to a sliding shaft sleeve; the sliding shaft sleeve is connected to an inner end cover sealing plate, the inner end cover sealing plate is connected to an inner end cover, and the sliding shaft sleeve is movably connected to a sleeve shaft through a sealing ring I; the sliding shaft sleeve is connected to the sealing pressure plate, the sleeve shaft is coaxially connected to one end of the feed spiral, and the other end of the feed spiral passes through the feed flat plate to be coaxially connected to one end of an axle; the other end of the axle is mounted on a driven sprocket pressure plate, the feed spiral is provided inside with a feed grease pipe, and two ends of the feed grease pipe are connected to the axle and the sleeve shaft respectively; the driven sprocket pressure plate is provided with a sprocket shaft sleeve, an inner portion of the sprocket shaft sleeve is connected to the other end of the axle through a flat key, and one side of the sprocket shaft sleeve is connected to a distance sleeve; an inner portion of the sprocket shaft sleeve is provided with a sprocket II, an outer portion of the axle is connected to a spherical roller bearing, and the spherical roller bearing is movably

connected to a rolling bearing seat; one side of the rolling bearing seat is fixed to a rolling bearing cover, the rolling bearing cover is connected to the distance sleeve through a sealing ring II, and the other side of the rolling bearing seat is connected to the wheel edge flange; the wheel edge flange is connected to the wheel edge flange gasket, and the rolling bearing seat is in contact to the axle through a sealing ring III; a lower part of a bottom portion of the feed frame is connected to four bottom plates, and an upper part of the bottom portion of the feed frame is connected to a control cabinet base angle steel; a ladder angle steel is connected between an upper portion and a lower portion of the feed frame; the feed frame is fixed inside with a water tank, the water tank is provided with a float switch mounting plate, and a lower part of the water tank is welded with a pagoda tip; the upper portion of the feed frame is connected to a railing angle steel and a frame angle steel; an upper part of the frame angle steel is provided with a hopper enclosure, and a lower part of the frame angle steel is connected to a hopper bottom plate and a hopper vertical plate; the hopper vertical plate is connected to a chain guard fixing upper angle steel, the chain guard fixing upper angle steel is connected to a sprocket guard lower bracket, and the sprocket guard lower bracket is provided with a sprocket guard; the sprocket guard is fixed on a reducer frame through a chain guard fixing lower angle steel; a reducer is mounted on the reducer frame, and an output end of the reducer is equipped with a sprocket I and fixed by a reducer sprocket pressure plate; the sprocket I is connected to the sprocket II through a chain; an upper portion of the feed frame is connected to two lifting plates, one side of the feeding frame is fixed with a feed threading pipe, and one side of the feed frame is provided with two backwater trough connection angle steels; the backwater trough connection angle steel is connected to a backwater trough baffle, the backwater trough baffle is welded to seven backing plates, and the seven backing plates connect backwater trough lower arc plates;

the discharge assembly comprises a discharge frame, a side portion of the discharge frame is fixed with a discharge flat plate arranged vertically, and two sides of the discharge flat plate are fixedly connected to two discharge side sealing plates respectively; an end surface of the discharge flat plate is provided with a discharge temperature measurement device arranged horizontally, four discharge temperature measurement device reinforcement plates are evenly distributed around the discharge temperature measurement device, and the discharge temperature measurement device reinforcement plates are fixedly connected to the discharge temperature

measurement device and the discharge flat plate respectively: the discharge flat plate is fixed with an air outlet baffle and eight discharge plate positioning posts, an exhaust steel pipe passes through the feed plat plate, and the exhaust steel pipe is connected to an exhaust pipe; a discharge end branch pipe passes through the discharge flat plate, and the discharge end branch pipe is connected to a fixing seat flange; the discharge flat plate is further provided with an observation hole baffle, an observation cover square plate, an inspection hole baffle, an inspection cover plate and an inspection cover pressure plate; a top portion of the discharge frame is provided with two discharge frame lifting plates, an upper part of the discharge frame is connected to a discharge backwater trough connection angle steel, and the discharge backwater trough connection angle steel is connected to a discharge backwater trough baffle; the discharge backwater trough baffle is connected to a discharge backwater trough arc plate through a discharge backwater trough gasket; the discharge frame is connected to a discharge threading pipe, a water pump bottom plate, a discharge spiral support frame and a discharge frame bottom plate; the eight discharge flat plate positioning posts are connected to eight discharge sealing pressure plates respectively, the eight discharge sealing pressure plates are connected to a discharge sealing bottom plate, and the discharge sealing bottom plate is connected to a discharge sealing fixing ring through a discharge sealing inner ring reinforcement plate; an outer ring of the discharge sealing fixing ring is connected to a discharge inner sealing plate, a periphery of the discharge inner sealing plate is connected to four discharge sealing outer pressure plates, and the discharge flat plate is provided with a discharge circular pipe; the discharge circular pipe is connected to a discharge spiral sliding shaft sleeve through a discharge spiral shaft sleeve flange, the discharge spiral sliding shaft sleeve is connected to a discharge spiral inner end cover sealing plate, and the discharge spiral inner end cover sealing plate is connected to a discharge spiral inner end cover; the discharge spiral sliding shaft sleeve is movably connected to a discharge spiral sleeve shaft through a discharge spiral sealing ring I, the discharge spiral sliding sleeve is connected to a discharge spiral sealing pressure plate, and the discharge spiral sleeve shaft is coaxially connected to one end of a discharge spiral; the other end of the discharge spiral is connected to the discharge spiral axle, one end of the discharge spiral axle is mounted on the discharge spiral driven sprocket pressure plate, and the discharge spiral is provided inside with a discharge grease pipe; two ends of the discharge grease pipe are connected to the discharge spiral axle and the discharge spiral sleeve shaft

respectively, the discharge spiral driven sprocket pressure plate is provided with a discharge spiral sprocket shaft sleeve, and an inner portion of the discharge spiral sprocket shaft sleeve is connected to the discharge spiral axle through a discharge spiral flat key; one side of the discharge spiral sprocket shaft sleeve is connected with the discharge spiral distance sleeve, an inner portion of the discharge spiral sprocket shaft sleeve is provided with a discharge spiral sprocket, and an outer portion of the discharge spiral axle is connected to a discharge spiral spherical roller bearing; the discharge spiral spherical roller bearing is movably connected to the discharge spiral rolling bearing seat, one side of the discharge spiral rolling bearing seat is fixed to a discharge spiral rolling bearing cover, and the discharge spiral rolling bearing cover is connected to the discharge spiral distance sleeve through a discharge spiral sealing ring Ⅱ; the other side of the discharge spiral rolling bearing seat is connected to a discharge spiral wheel edge flange, the rolling bearing seat is connected to the discharge spiral axle through a discharge spiral sealing ring Ⅲ, and the discharge circular pipe is connected to the discharge reducer frame; a discharge reducer is mounted on the discharge reducer frame, the discharge reducer is connected to the discharge reducer sprocket sleeve, and the discharge reducer sprocket sleeve is connected to a discharge reducer sprocket pressure plate; an output end of the discharge reducer is equipped with a discharge reducer driving sprocket, the discharge reducer sprocket sleeve is connected to the discharge reducer driving sprocket, and the discharge reducer driving sprocket is connected to the discharge spiral sprocket through a discharge chain; a discharge spiral chain guard fixing bracket is fixed on the discharge spiral wheel edge flange, the discharge spiral chain guard fixing bracket is connected to a discharge sprocket guard, a discharge tension wheel fixing angle steel is fixed on the discharging reducer frame, and a discharge spiral tension wheel is fixed on the discharge tension wheel fixing angle steel;

the barrel assembly comprises a barrel inner structure, and the barrel inner structure comprises end plates distributed on two ends; the end plate is connected to an outer sealing ring, and the two end plates are connected to raising plates, flat plates and supporting angle steels between the two end plates, wherein each of the raising plate is cross-connected to each of the flat plates, there are both five flat pates and supporting angle steels arranged at intervals as five, both the raising plates and the supporting angle steels are fixed with six reinforcement plates, and a pallet is connected between two adjacent raising plates; there are seven pallets distributed

circumferentially in a radial direction and distributed in the axial direction; the outer sealing ring is connected to the sealing plate, the sealing plate is connected to an inner pressure plate, and the pallet is fixed with a screen plate; both the supporting angle steel and the raising plate are connected to the barrel, an outer surface of the barrel is fixed with a thermal insulation cotton, and two ends of the barrel are fixed with retaining rings; the retaining ring is fixed with a color steel plate fixing ring, wheel belt reinforcement plates and gear supporting plates are mounted on the barrel, and the wheel belt reinforcement plate is fixed with a wheel belt; the thermal insulation cotton is fixed with a wheel belt sealing plate, a gear fixing plate is fixed among the gear supporting plate, and the thermal insulation cotton is further fixed with a large gear fixing plate sealing plate and a large gear supporting plate sealing plate;

the heating system comprises a wiring guard, the wiring guard is fixed on a flange, and the flange is connected to an inner pipe flange; the inner pipe flange is fixed with a electric heating pipe, a temperature measurement pipe and two circular rings; the two circular rings are connected to a heating pipe supporting inner ring, a heating inner pipe is sleeved outside the electric heating pipe and the temperature measurement pipe, and the heating inner pipe is connected to one end of an inner water pipe; one end of an outer pipe is connected to a water tank hose, and the other end of the outer end is connected to a discharge end flange; the discharge end flange is fixed with a rubber pad, twelve outer pipe reinforcement plates and a water stop valve; the discharge end flange is connected to a hot water pump, and the other end of an inner water pipe is connected to the discharge end flange;

The base assembly comprises two parallel longitudinal beams, and seven parallel beams are connected between the longitudinal beams; two ends of the longitudinal beams are fixed with the feed bottom plate and the discharge bottom plate respectively, and the two longitudinal beams are fixed with respect to supporting wheels respectively; each of the longitudinal beams is fixed with eight wire baffles and a barrel reducer frame, and the barrel reducer frame is provided with a barrel reducer;

the control system is a control cabinet; the control cabinet is used to receive a real-time temperature value feedback from the feed temperature measurement device, the discharge temperature measurement device and the temperature measurement pipe, and is capable of controlling the start and stop of the feed reducer, the discharge reducer, the barrel reducer, the hot

water pump and the electric heating pipe.

2. The biochemical device for fermenting poultry manure according to claim 1, wherein twelve circular steels are evenly distributed around the outer pipe, and a plurality of cutting plates are fixed on the circular steels.

3. The biochemical device for fermenting poultry manure according to claim 1, wherein the backwater trough lower arc plate is provided with a notch.

4. The biochemical device for fermenting poultry manure according to claim 1, wherein the end plate is provided with ten drainage ports.

5. The biochemical device for fermenting poultry manure according to claim 1, wherein the feed temperature measurement device, the discharge temperature measurement device and the temperature measurement pipe are all thermocouples.

BL-5183

REVENDICATIONS

1. Dispositif biochimique de fermentation de fumier de volaille, comprenant un ensemble d'alimentation, un ensemble de décharge, un ensemble de cuve, un système de chauffage, un ensemble de base et un système de commande ;

l'ensemble d'alimentation comprend un cadre d'alimentation, une partie latérale du cadre d'alimentation est fixée à une plaque plate d'alimentation agencée verticalement, et deux côtés de la plaque plate d'alimentation sont respectivement reliés de manière fixe à deux plaques d'étanchéité côté alimentation ; une surface d'extrémité de la plaque plate d'alimentation est pourvue d'un dispositif de mesure de température d'alimentation agencé horizontalement, quatre plaques de renforcement de dispositif de mesure de température d'alimentation sont uniformément réparties autour du dispositif de mesure de température d'alimentation, et les plaques de renforcement de dispositif de mesure de température d'alimentation sont respectivement reliées de manière fixe au dispositif de mesure de température d'alimentation et à la plaque plate d'alimentation ; une surface d'extrémité de la plaque plate d'alimentation est fixée à une bague externe de support de tuyau de chauffage, à un déflecteur d'entrée d'air et à huit montants de positionnement de plaque plate d'alimentation, les huit montants de positionnement de plaque plate d'alimentation sont respectivement reliés à huit plaques de pression d'alimentation, et toutes les huit plaques de pression d'alimentation sont reliées à une plaque de fond d'étanchéité ; la plaque de fond d'étanchéité est reliée à une bague de fixation d'étanchéité par l'intermédiaire d'une plaque de renforcement de bague interne d'étanchéité, une bague externe de la bague de fixation d'étanchéité est reliée à une plaque d'étanchéité interne, et une bague externe de la plaque d'étanchéité interne est reliée à quatre plaques de pression externes ; la surface d'extrémité de la plaque plate d'alimentation est reliée à un tuyau circulaire d'alimentation, le tuyau circulaire est relié à une bride de manchon d'arbre, et la bride de manchon d'arbre est reliée à un

manchon d'arbre coulissant ; le manchon d'arbre coulissant est relié à une plaque d'étanchéité de couvercle d'extrémité interne, la plaque d'étanchéité de couvercle d'extrémité interne est reliée à un couvercle d'extrémité interne, et le manchon d'arbre coulissant est relié de manière mobile à un arbre de manchon par l'intermédiaire d'une bague d'étanchéité I ; le manchon d'arbre coulissant est relié à la plaque de pression d'étanchéité, l'arbre de manchon est relié de manière coaxiale à une extrémité de la spirale d'alimentation, et l'autre extrémité de la spirale d'alimentation passe à travers la plaque plate d'alimentation pour être reliée de manière coaxiale à une extrémité d'un axe ; l'autre extrémité de l'axe est montée sur une plaque de pression de pignon entraîné, la spirale d'alimentation est pourvue à l'intérieur d'un tuyau de graisse d'alimentation, et deux extrémités du tuyau de graisse d'alimentation sont respectivement reliées à l'axe et à l'arbre de manchon ; la plaque de pression de pignon entraîné est pourvue d'un manchon d'arbre de pignon, une partie interne du manchon d'arbre de pignon est reliée à l'autre extrémité de l'axe par l'intermédiaire d'une clavette plate, et un côté du manchon d'arbre de pignon est relié à un manchon d'écartement ; une partie interne du manchon d'arbre de pignon est pourvue d'un pignon II, une partie externe de l'axe est reliée à un roulement à rotule sur rouleaux, et le roulement à rotule sur rouleaux est relié de manière mobile à un siège de roulement ; un côté du siège de roulement est fixé à un couvercle de roulement, le couvercle de roulement est relié au manchon d'écartement par l'intermédiaire d'une bague d'étanchéité II, et l'autre côté du siège de roulement est relié à la bride de bord de roue ; la bride de bord de roue est reliée au joint de bride de bord de roue, et le siège de roulement est en contact avec l'axe par l'intermédiaire d'une bague d'étanchéité III ; une partie inférieure d'une partie de fond du cadre d'alimentation est reliée à quatre plaques de fond, et une partie supérieure de la partie de fond du cadre d'alimentation est reliée à une cornière en acier de base d'armoire de commande ; une cornière en acier d'échelle est reliée entre une partie supérieure et une partie inférieure du cadre d'alimentation ; le cadre d'alimentation est fixé, à l'intérieur, à un réservoir d'eau, le réservoir d'eau est pourvu d'une plaque de montage de commutateur à flotteur, et une partie

inférieure du réservoir d'eau est soudée avec une pointe de pagode ; la partie supérieure du cadre d'alimentation est reliée à une cornière en acier de garde-corps et à une cornière en acier de cadre ; une partie supérieure de la cornière en acier de cadre est pourvue d'une enceinte de trémie, et une partie inférieure de la cornière en acier de cadre est reliée à une plaque de fond de trémie et à une plaque verticale de trémie ; la plaque verticale de trémie est reliée à une cornière en acier supérieure de fixation de garde-chaîne, la cornière en acier supérieure de fixation de garde-chaîne est reliée à un support inférieur de protège-pignon, et le support inférieur de protège-pignon est pourvu d'un protège-pignon ; le protège-pignon est fixé sur un cadre de réducteur par l'intermédiaire d'une cornière en acier inférieure de fixation de garde-chaîne ; un réducteur est monté sur le cadre de réducteur, et une extrémité de sortie du réducteur est équipée d'un pignon I et fixée par une plaque de pression de pignon de réducteur ; le pignon I est relié au pignon II par l'intermédiaire d'une chaîne ; une partie supérieure du cadre d'alimentation est reliée à deux plaques de levage, un côté du cadre d'alimentation est fixé à un tuyau de filetage d'alimentation, et un côté du cadre d'alimentation est pourvu de deux cornières en acier de liaison de bac de retour d'eau ; la cornière en acier de liaison de bac de retour d'eau est reliée à un déflecteur de bac de retour d'eau, le déflecteur de bac de retour d'eau est soudé à sept plaques d'appui, et les sept plaques d'appui relient des plaques d'arc inférieures de bac de retour d'eau ;

l'ensemble de décharge comprend un cadre de décharge, une partie latérale du cadre de décharge est fixée à une plaque plate de décharge agencée verticalement, et deux côtés de la plaque plate de décharge sont respectivement reliés de manière fixe à deux plaques d'étanchéité côté décharge ; une surface d'extrémité de la plaque plate de décharge est pourvue d'un dispositif de mesure de température de décharge agencé horizontalement, quatre plaques de renforcement de dispositif de mesure de température de décharge sont uniformément réparties autour du dispositif de mesure de température de décharge, et les plaques de renforcement de dispositif de mesure de température de décharge sont respectivement reliées de manière fixe au dispositif de mesure de température de décharge et à la plaque plate de

décharge ; la plaque plate de décharge est fixée à un déflecteur de sortie d'air et huit montants de positionnement de plaque de décharge, un tuyau d'échappement en acier passe à travers la plaque plate d'alimentation, et le tuyau d'échappement en acier est relié à un tuyau d'échappement ; un tuyau de dérivation d'extrémité de décharge passe à travers la plaque plate de décharge, et le tuyau de dérivation d'extrémité de décharge est relié à une bride de siège de fixation ; la plaque plate de décharge est en outre pourvue d'un déflecteur de trou d'observation, d'une plaque carrée de couvercle d'observation, d'un déflecteur de trou d'inspection, d'une plaque de couvercle d'inspection et d'une plaque de pression de couvercle d'inspection ; une partie supérieure du cadre de décharge est pourvue de deux plaques de levage de cadre de décharge, une partie supérieure du cadre de décharge est reliée à une cornière en acier de liaison de bac de retour d'eau de décharge, et la cornière en acier de liaison de bac de retour d'eau de décharge est reliée à un déflecteur de bac de retour d'eau de décharge ; le déflecteur de bac de retour d'eau de décharge est relié à une plaque d'arc de bac de retour d'eau de décharge par l'intermédiaire d'un joint de bac de retour d'eau de décharge ; le cadre de décharge est relié à un tuyau de filetage de décharge, à une plaque de fond de pompe à eau, à un cadre de support de spirale de décharge et à une plaque de fond de cadre de décharge ; les huit montants de positionnement de plaque plate de décharge sont respectivement reliés à huit plaques de pression d'étanchéité de décharge, les huit plaques de pression d'étanchéité de décharge sont reliées à une plaque de fond d'étanchéité de décharge, et la plaque de fond d'étanchéité de décharge est reliée à une bague de fixation d'étanchéité de décharge par l'intermédiaire d'une plaque de renforcement de bague interne d'étanchéité de décharge ; une bague externe de la bague de fixation d'étanchéité de décharge est reliée à une plaque d'étanchéité interne de décharge, une périphérie de la plaque d'étanchéité interne de décharge est reliée à quatre plaques de pression externes d'étanchéité de décharge, et la plaque plate de décharge est pourvue d'un tuyau circulaire de décharge ; le tuyau circulaire de décharge est relié à un manchon d'arbre coulissant de spirale de décharge par l'intermédiaire d'une bride de manchon d'arbre de spirale de décharge, le manchon d'arbre

coulissant de spirale de décharge est relié à une plaque d'étanchéité de couvercle d'extrémité interne de spirale de décharge, et la plaque d'étanchéité de couvercle d'extrémité interne de spirale de décharge est reliée à un couvercle d'extrémité interne de spirale de décharge ; le manchon d'arbre coulissant de spirale de décharge est relié de manière mobile à un arbre de manchon de spirale de décharge par l'intermédiaire d'une bague d'étanchéité de spirale de décharge I, le manchon coulissant de spirale de décharge est relié à une plaque de pression d'étanchéité de spirale de décharge, et l'arbre de manchon de spirale de décharge est relié de manière coaxiale à une extrémité d'une spirale de décharge ; l'autre extrémité de la spirale de décharge est reliée à l'axe de spirale de décharge, une extrémité de l'axe de spirale de décharge est montée sur la plaque de pression de pignon entraîné de spirale de décharge, et la spirale de décharge est pourvue à l'intérieur d'un tuyau de graisse de décharge ; deux extrémités du tuyau de graisse de décharge sont reliées respectivement à l'axe de spirale de décharge et à l'arbre de manchon de spirale de décharge, la plaque de pression de pignon entraîné de spirale de décharge est pourvue d'un manchon d'arbre de pignon de spirale de décharge, et une partie interne du manchon d'arbre de pignon de spirale de décharge est reliée à l'axe de spirale de décharge par l'intermédiaire d'une clavette plate de spirale de décharge ; un côté du manchon d'arbre de pignon de spirale de décharge est relié au manchon d'écartement de spirale de décharge, une partie interne du manchon d'arbre de pignon de spirale de décharge est pourvue d'un pignon de spirale de décharge, et une partie externe de l'axe de spirale de décharge est reliée à un roulement à rotule sur rouleaux de spirale de décharge ; le roulement à rotule sur rouleaux de spirale de décharge est relié de manière mobile au siège de roulement de spirale de décharge, un côté du siège de roulement de spirale de décharge est fixé à un couvercle de roulement de spirale de décharge, et le couvercle de roulement de spirale de décharge est relié au manchon d'écartement de spirale de décharge par l'intermédiaire d'une bague d'étanchéité de spirale de décharge II ; l'autre côté du siège de roulement de spirale de décharge est relié à une bride de bord de roue de spirale de décharge, le siège de roulement est relié à l'axe de spirale de

décharge par l'intermédiaire d'une bague d'étanchéité de spirale de décharge III, et le tuyau circulaire de décharge est relié au cadre de réducteur de décharge ; un réducteur de décharge est monté sur le cadre de réducteur de décharge, le réducteur de décharge est relié au manchon de pignon de réducteur de décharge, et le manchon de pignon de réducteur de décharge est relié à une plaque de pression de pignon de réducteur de décharge ; une extrémité de sortie du réducteur de décharge est équipée d'un pignon d'entraînement de réducteur de décharge, le manchon de pignon de réducteur de décharge est relié au pignon d'entraînement de réducteur de décharge, et le pignon d'entraînement de réducteur de décharge est relié au pignon de spirale de décharge par l'intermédiaire d'une chaîne de décharge ; un support de fixation de garde-chaîne de spirale de décharge est fixé sur la bride de bord de roue de spirale de décharge, le support de fixation de garde-chaîne de spirale de décharge est relié à un protège-pignon de décharge, une cornière en acier de fixation de roue de tension de décharge est fixée sur le cadre de réducteur de décharge, et une roue de tension de spirale de décharge est fixée sur la cornière en acier de fixation de roue de tension de décharge ;

l'ensemble de cuve comprend une structure interne de cuve, et la structure interne de cuve comprend des plaques d'extrémité réparties sur deux extrémités ; la plaque d'extrémité est reliée à une bague d'étanchéité externe, et les deux plaques d'extrémité sont reliées à des plaques de levage, à des plaques plates et à des cornières en acier de support entre les deux plaques d'extrémité, dans lequel chacune des plaques de levage est interconnectée à chacune des plaques plates, il existe à la fois cinq plaques plates et des cornières en acier de support agencées à des intervalles de cinq, les plaques de levage et les cornières en acier de support sont fixées à six plaques de renforcement, et une palette est reliée entre deux plaques de levage adjacentes ; il existe sept palettes circonférentiellement réparties dans une direction radiale et réparties dans la direction axiale ; la bague d'étanchéité externe est reliée à la plaque d'étanchéité, la plaque d'étanchéité est reliée à une plaque de pression interne, et la palette est fixée à une plaque perforée ; la cornière en acier de support et la plaque de levage sont toutes deux reliées à la

cuve, une surface externe de la cuve est fixée à un coton d'isolation thermique, et deux extrémités de la cuve sont fixées à des bagues de retenue ; la bague de retenue est fixée à une bague de fixation de plaque d'acier colorée, des plaques de renforcement de courroie de roue et des plaques de support d'engrenage sont montées sur la cuve, et la plaque de renforcement de courroie de roue est fixée à une courroie de roue ; le coton d'isolation thermique est fixé à une plaque d'étanchéité de courroie de roue, une plaque de fixation d'engrenage est fixée entre les plaques de support d'engrenage, et le coton d'isolation thermique est en outre fixé à une grande plaque d'étanchéité de plaque de fixation d'engrenage et une grande plaque d'étanchéité de plaque de support d'engrenage ;

le système de chauffage comprend un protège-câblage, le protège-câblage est fixé sur une bride, et la bride est reliée à une bride de tuyau interne ; la bride de tuyau interne est fixée à un tuyau de chauffage électrique, à un tuyau de mesure de température et à deux bagues circulaires ; les deux bagues circulaires sont reliées à une bague interne de support de tuyau de chauffage, un tuyau interne de chauffage est emmanché à l'extérieur du tuyau de chauffage électrique et du tuyau de mesure de température, et le tuyau interne de chauffage est relié à une extrémité d'un tuyau d'eau interne ; une extrémité d'un tuyau externe est reliée à un tuyau souple de réservoir d'eau, et l'autre extrémité du tuyau externe est reliée à une bride d'extrémité de décharge ; la bride d'extrémité de décharge est fixée à un tampon en caoutchouc, à douze plaques de renforcement de tuyau externe et à une soupape d'arrêt d'eau ; la bride d'extrémité de décharge est reliée à une pompe à eau chaude, et l'autre extrémité d'un tuyau d'eau interne est reliée à la bride d'extrémité de décharge ;

l'ensemble de base comprend deux poutres longitudinales parallèles, et sept poutres parallèles sont reliées entre les poutres longitudinales ; deux extrémités des poutres longitudinales sont respectivement fixées à la plaque de fond d'alimentation et à la plaque de fond de décharge, et les deux poutres longitudinales sont respectivement fixées par rapport à des roues de support ; chacune des poutres longitudinales est fixée à huit déflecteurs de fil et à un

cadre de réducteur de cuve, et le cadre de réducteur de cuve est pourvu d'un réducteur de cuve ;

le système de commande est une armoire de commande ; l'armoire de commande est utilisée pour recevoir une rétroaction en temps réel de la valeur de température à partir du dispositif de mesure de température d'alimentation, du dispositif de mesure de température de décharge et du tuyau de mesure de température, et est capable de commander le démarrage et l'arrêt du réducteur d'alimentation, du réducteur de décharge, du réducteur de cuve, de la pompe à eau chaude et du tuyau de chauffage électrique.

2. Dispositif biochimique de fermentation de fumier de volaille selon la revendication 1, dans lequel douze éléments circulaires en acier sont uniformément répartis autour du tuyau externe, et une pluralité de plaques de coupe sont fixées sur les éléments circulaires en acier.

3. Dispositif biochimique de fermentation de fumier de volaille selon la revendication 1, dans lequel la plaque d'arc inférieure de bac de retour d'eau est pourvue d'une encoche.

4. Dispositif biochimique de fermentation de fumier de volaille selon la revendication 1, dans lequel la plaque d'extrémité est pourvue de dix orifices de vidange.

5. Dispositif biochimique de fermentation de fumier de volaille selon la revendication 1, dans lequel le dispositif de mesure de température d'alimentation, le dispositif de mesure de température de décharge et le tuyau de mesure de température sont tous des thermocouples.

Drawings

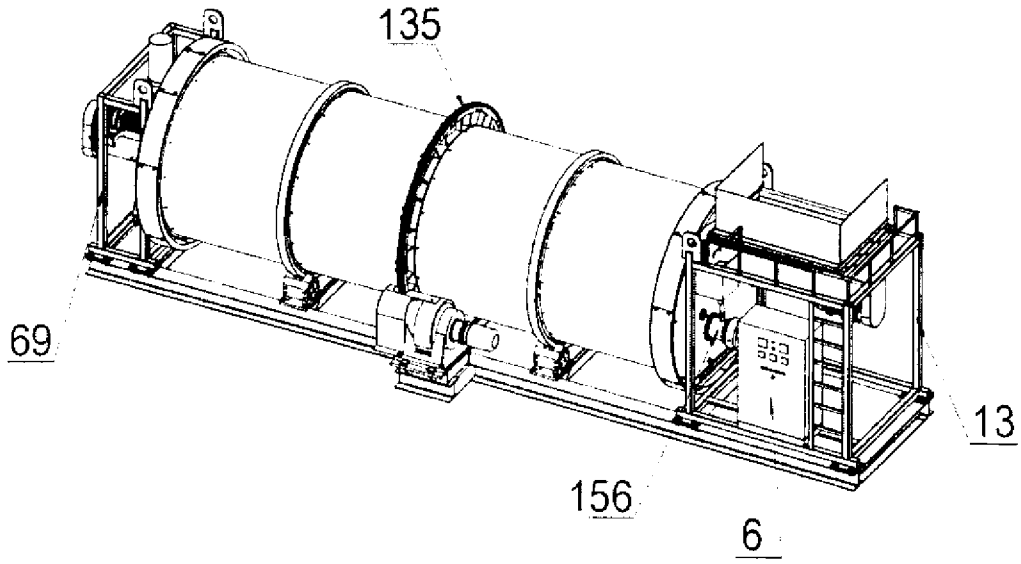


Fig. 1

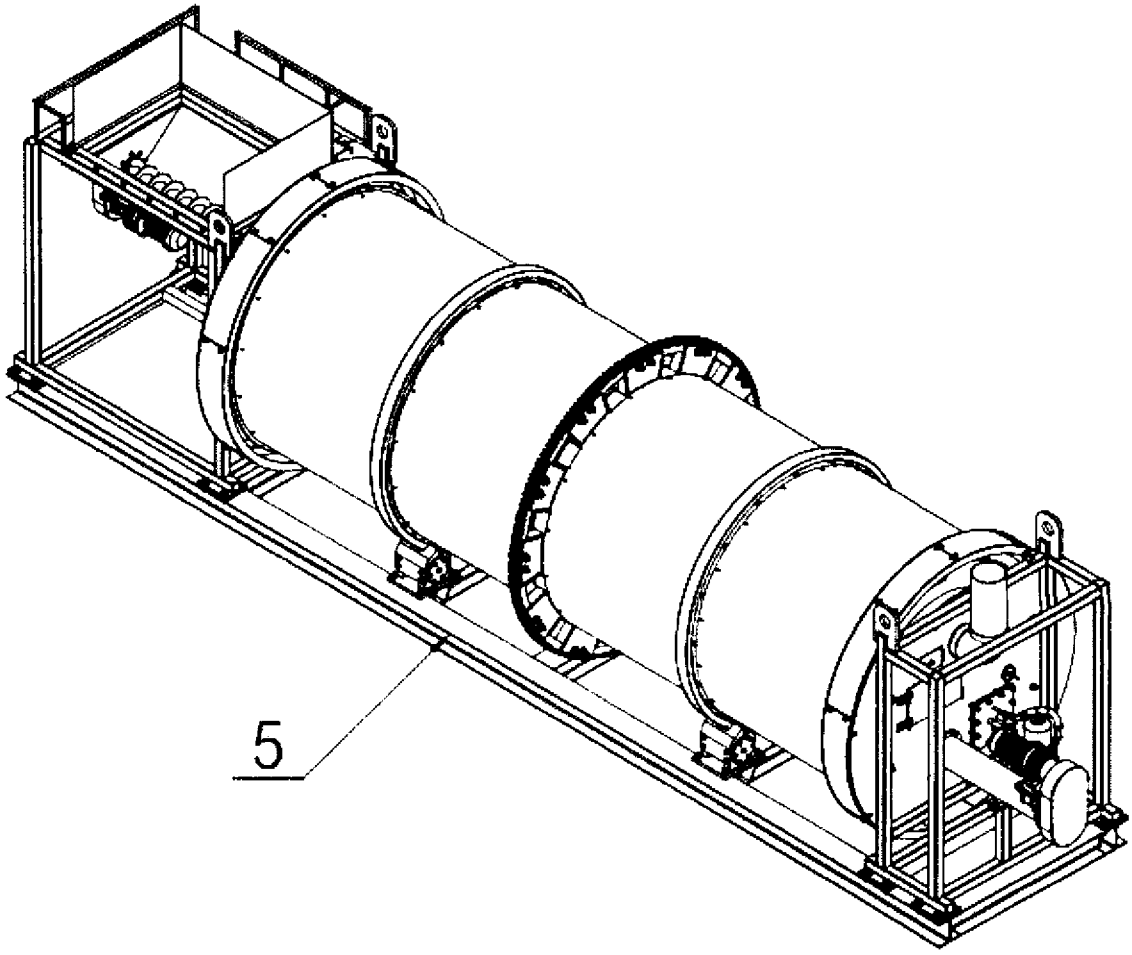


Fig. 2

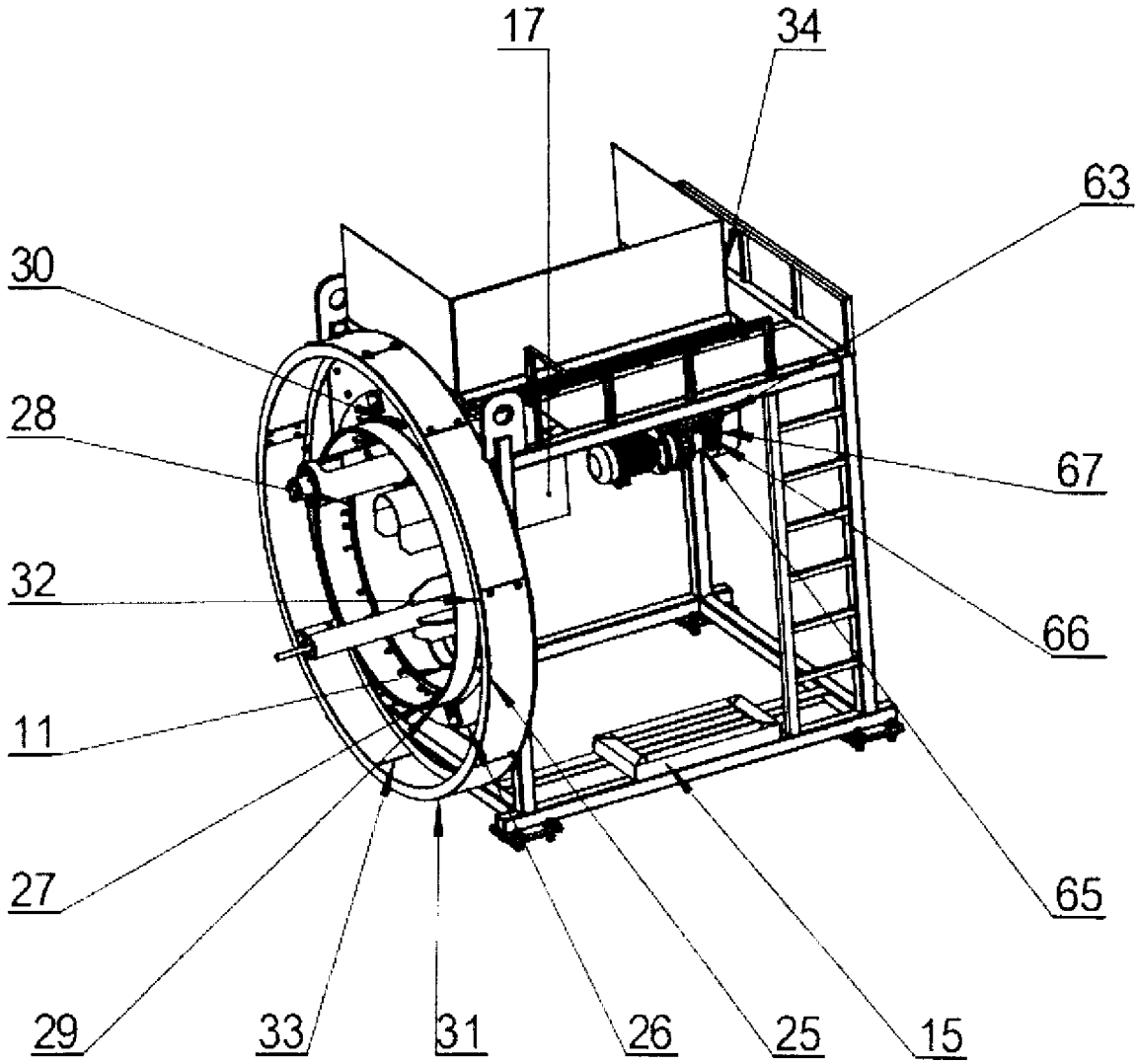


Fig. 3

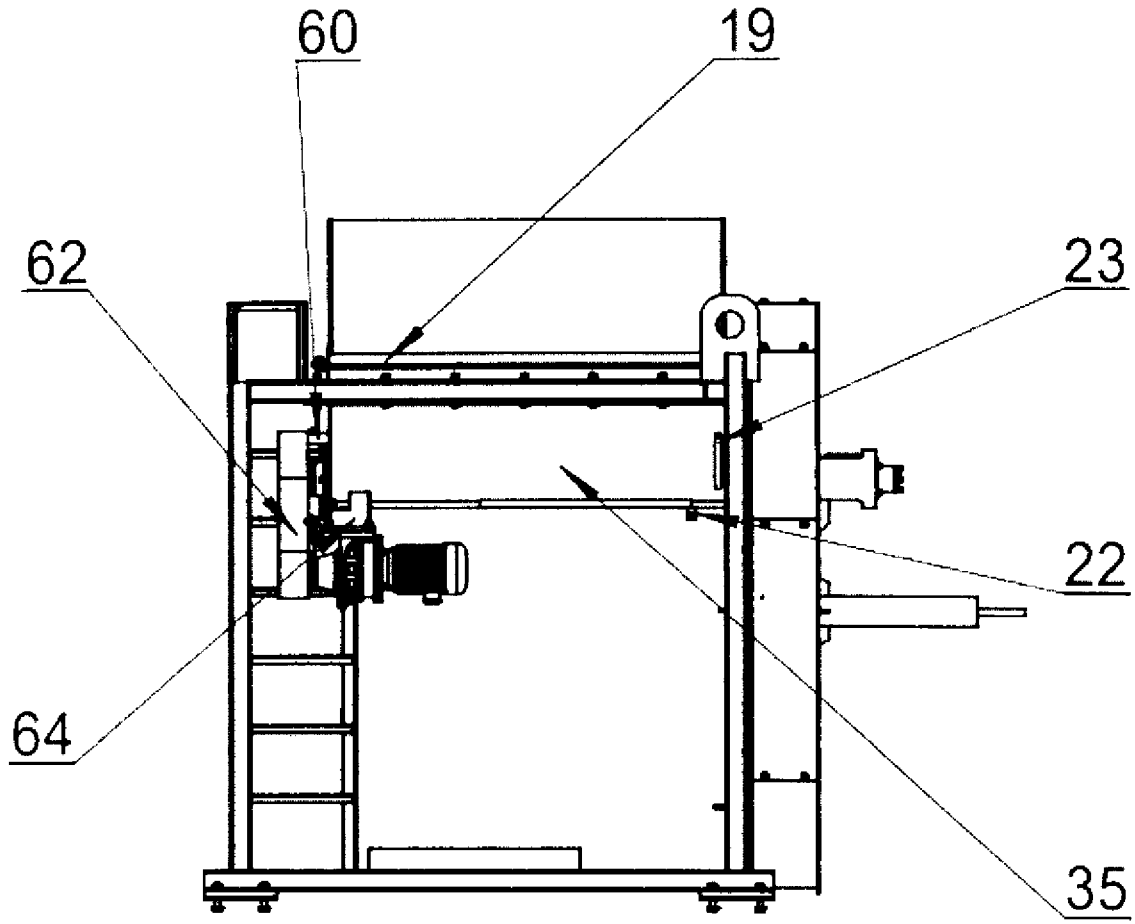


Fig. 4

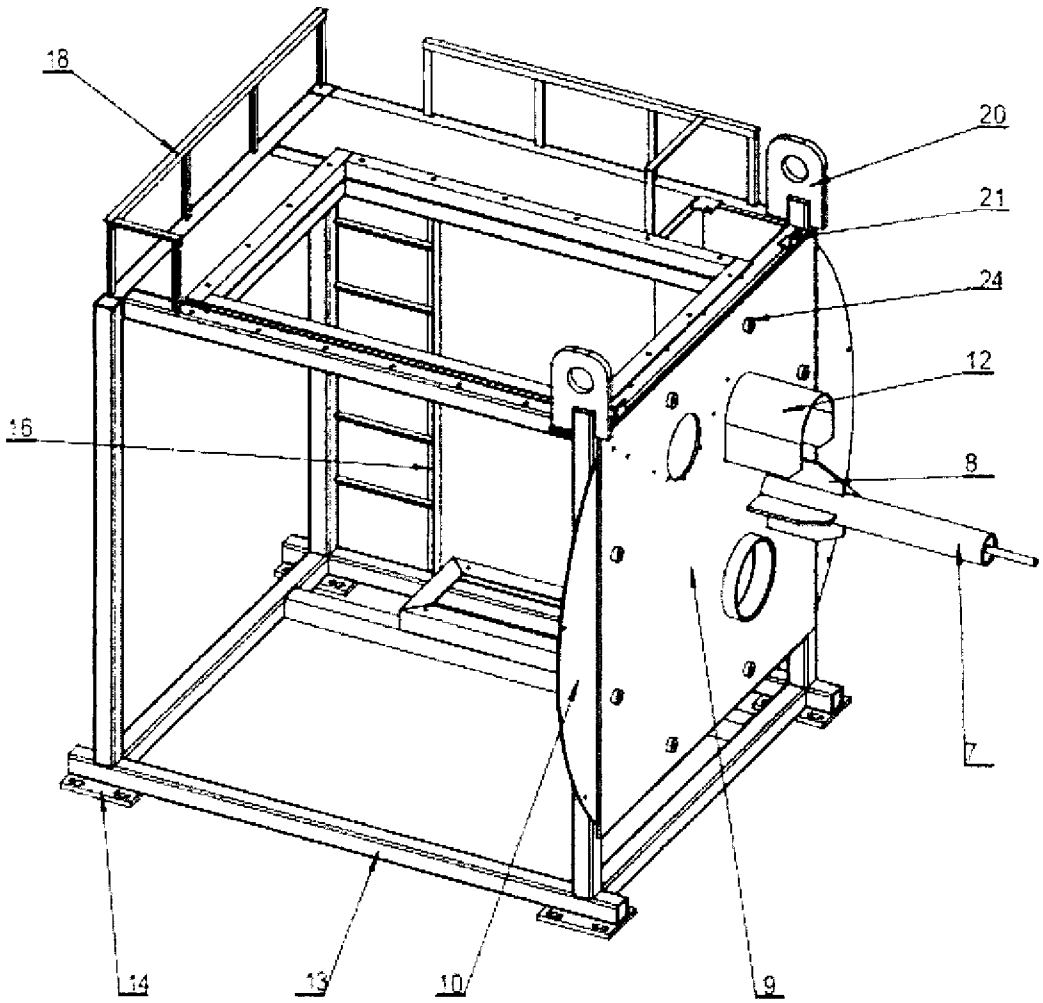


Fig. 5

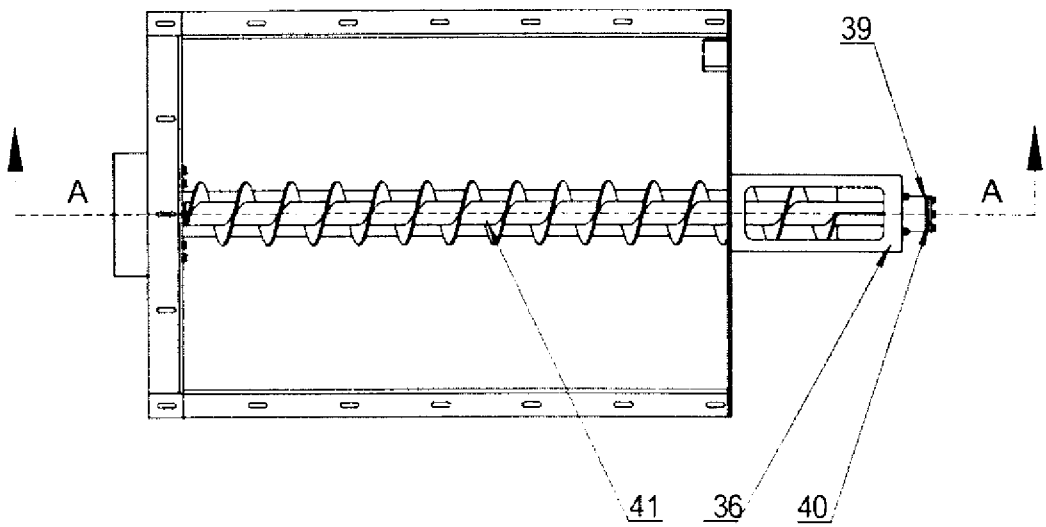

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Fig. 6

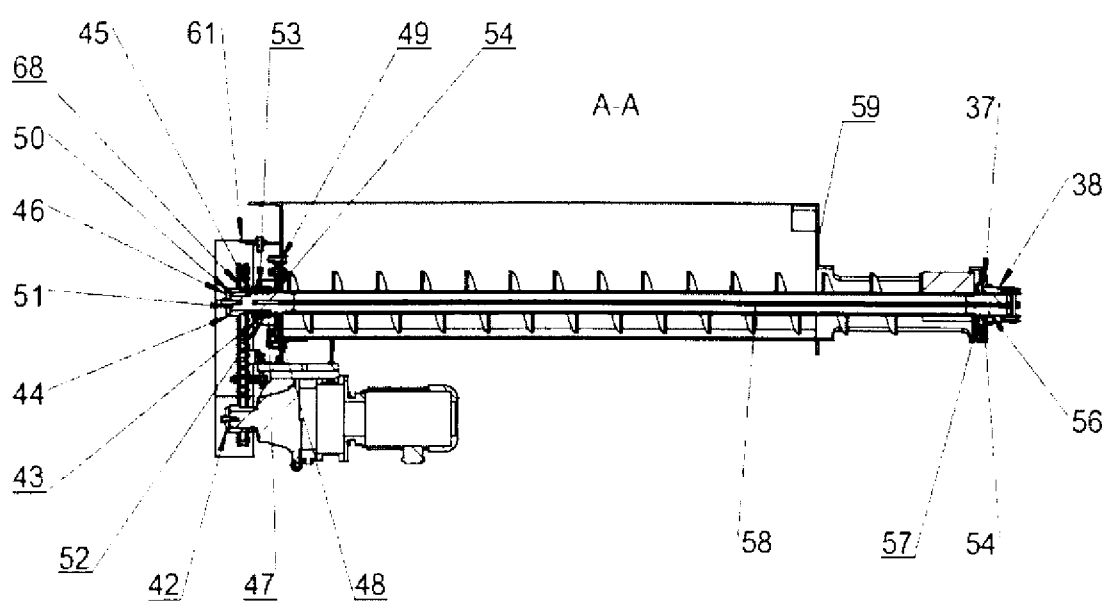
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Fig. 7

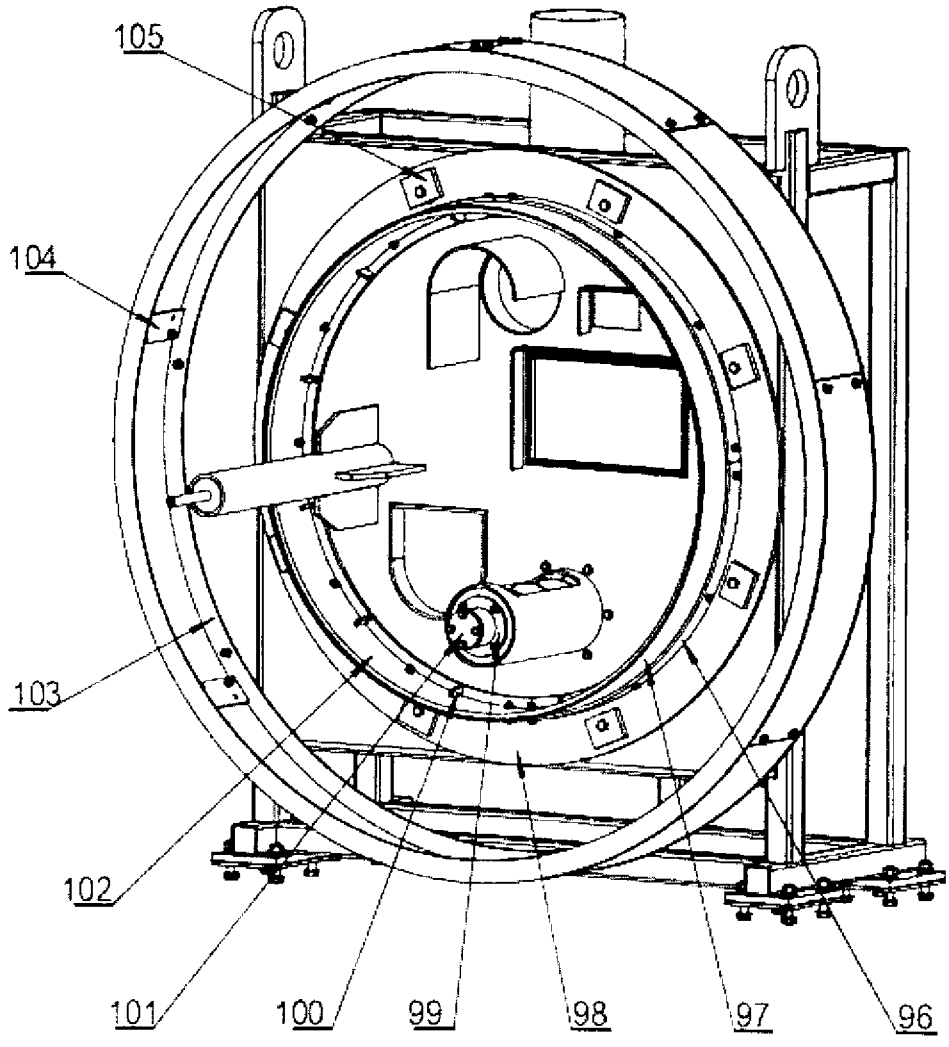

Fig. 8

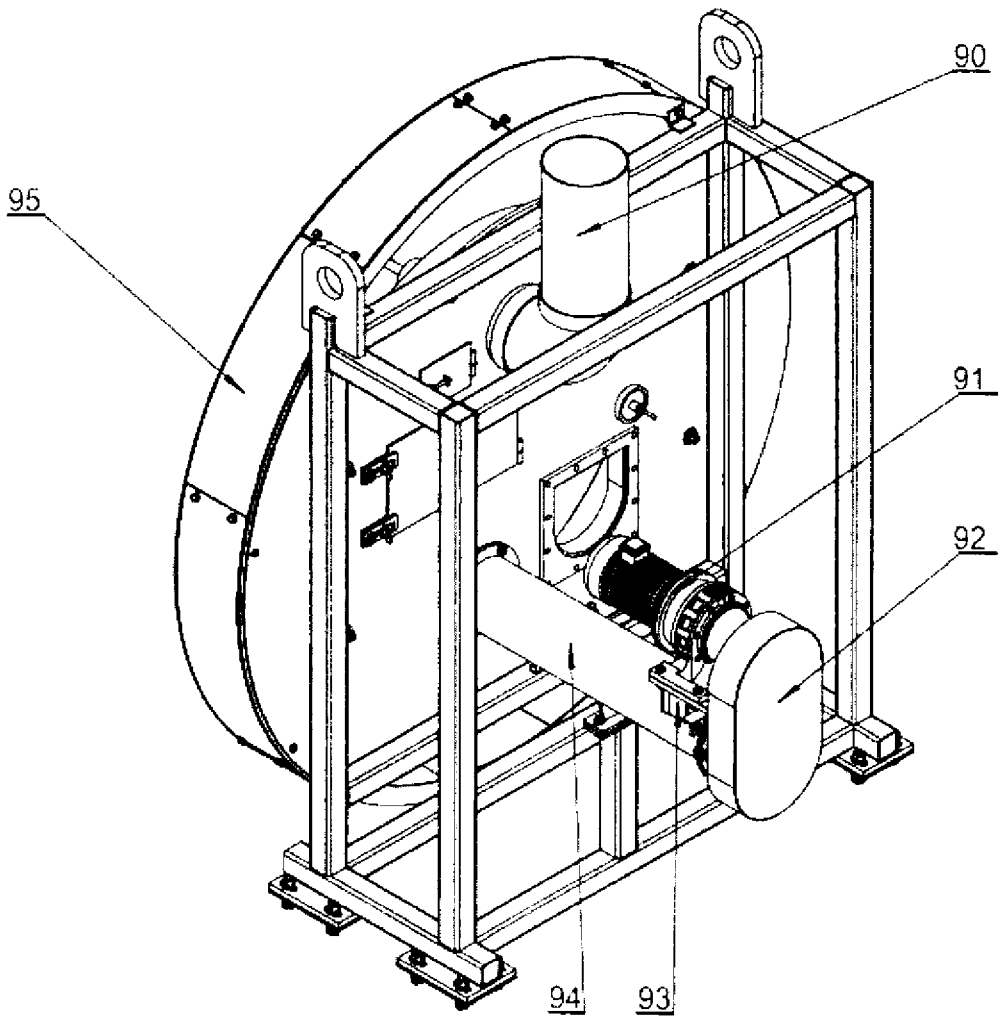

Fig. 9

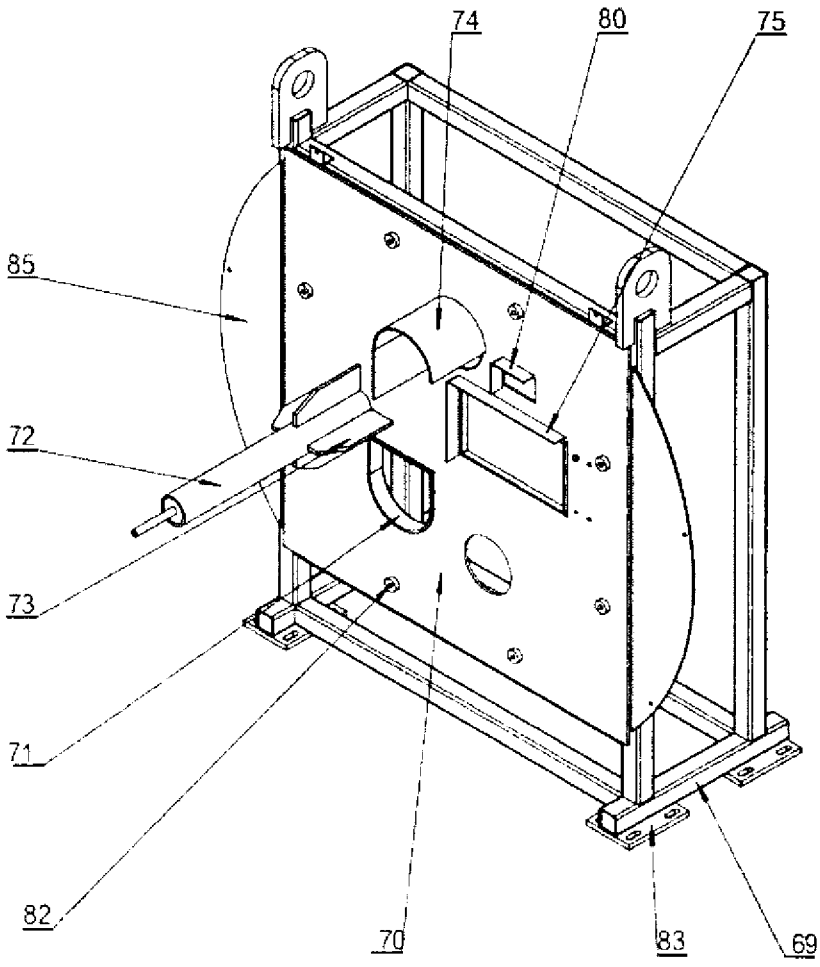

Fig. 10

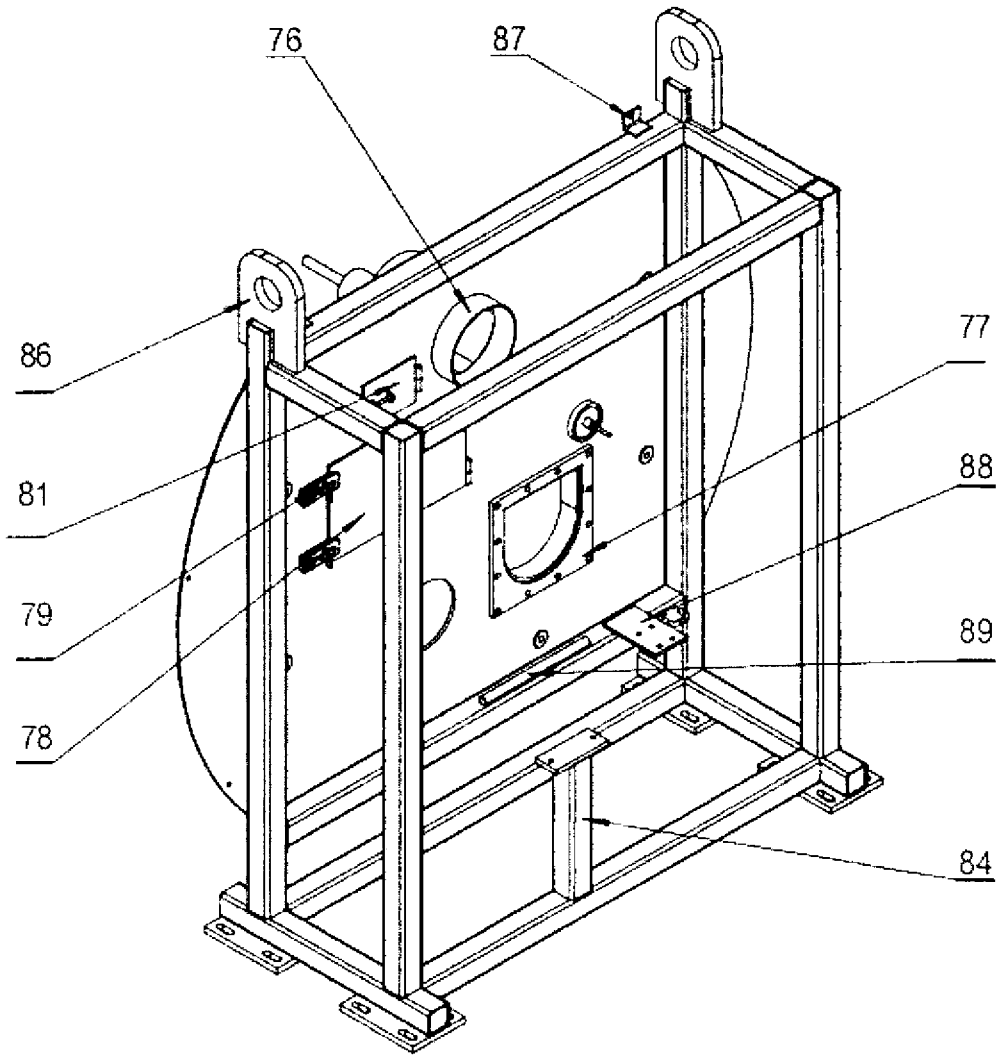

Fig. 11

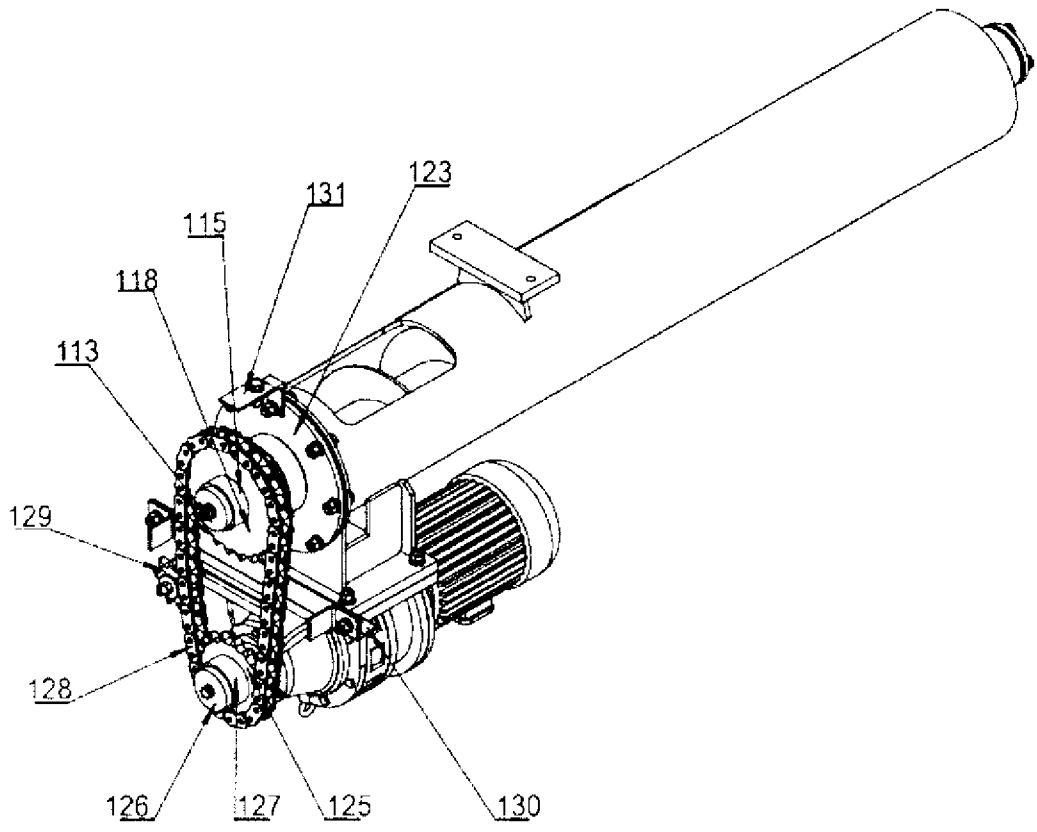
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Fig. 12

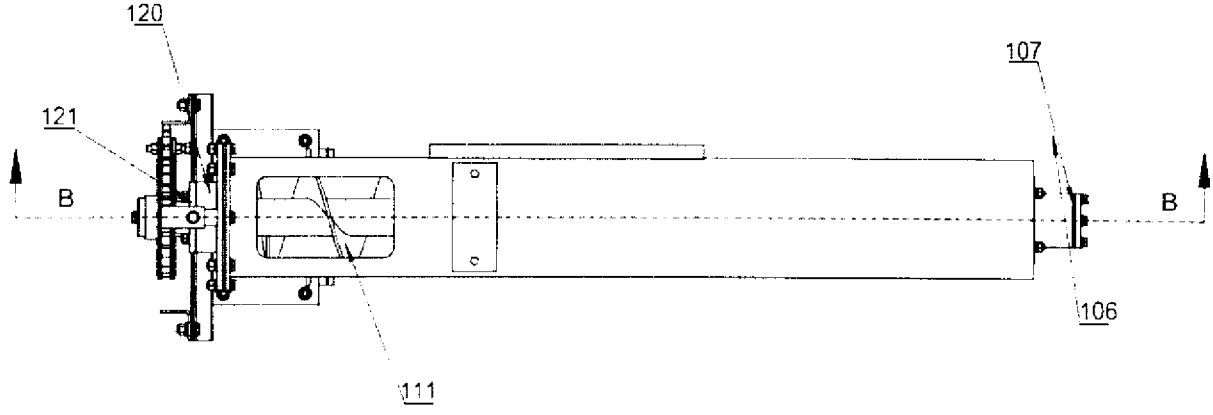
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Fig. 13

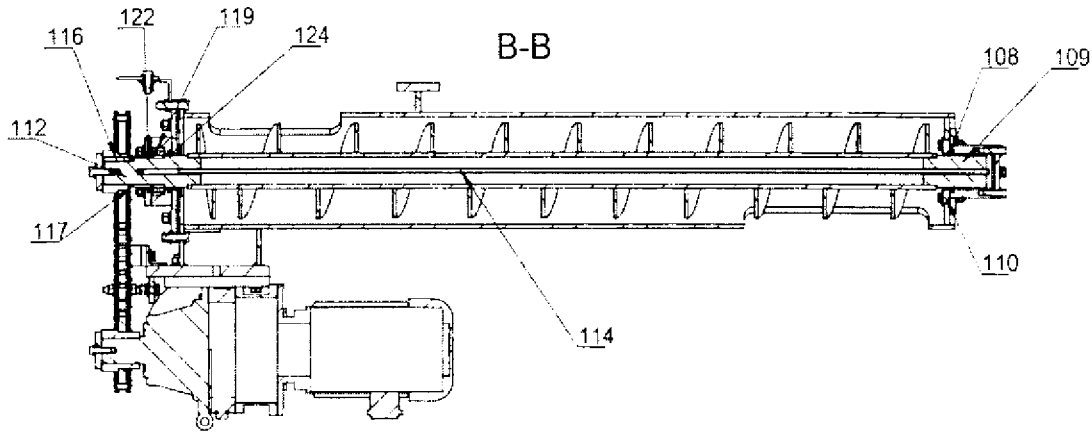
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Fig. 14

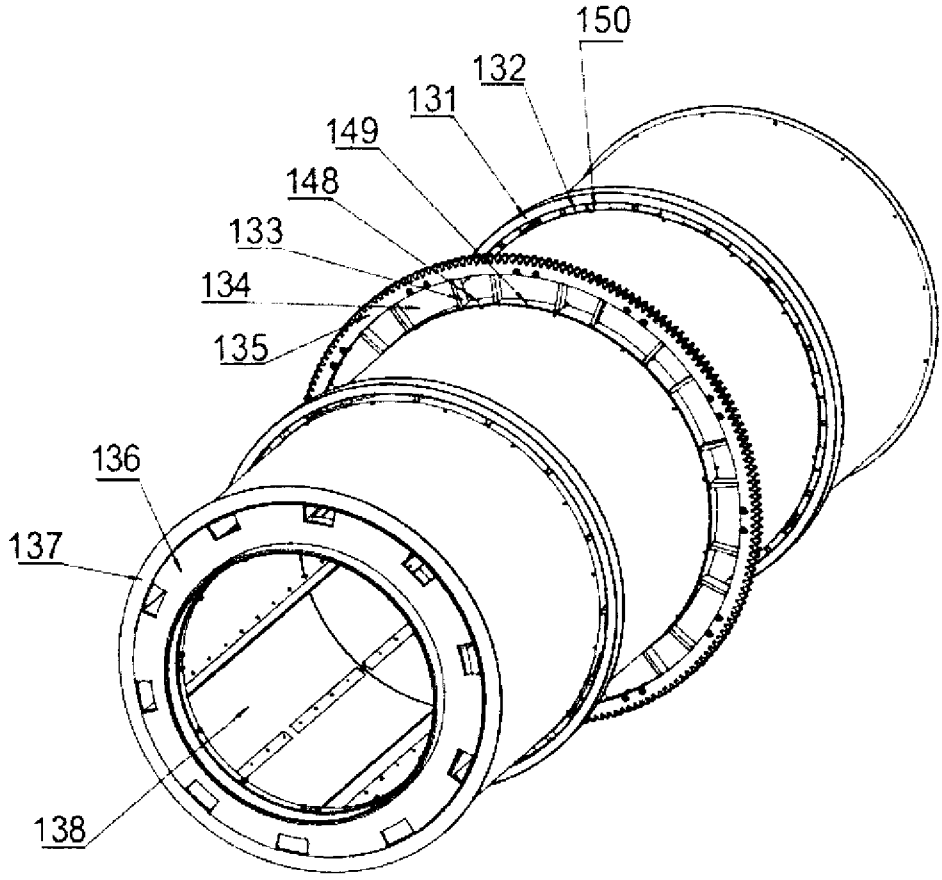
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Fig. 15

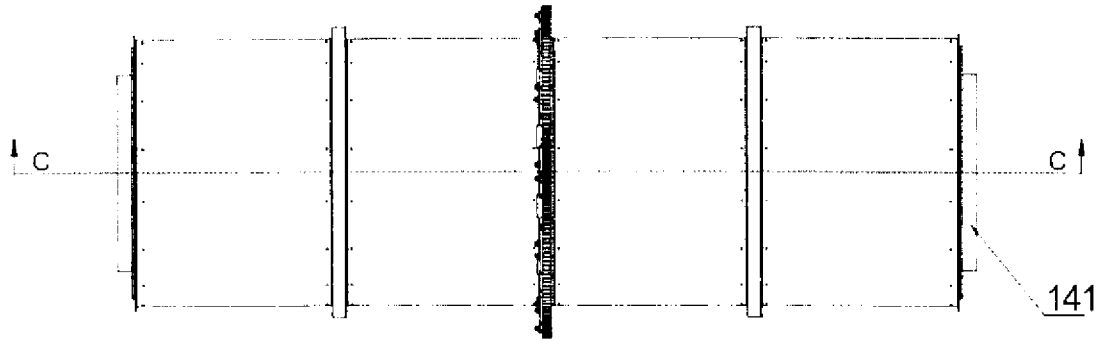

Fig. 16

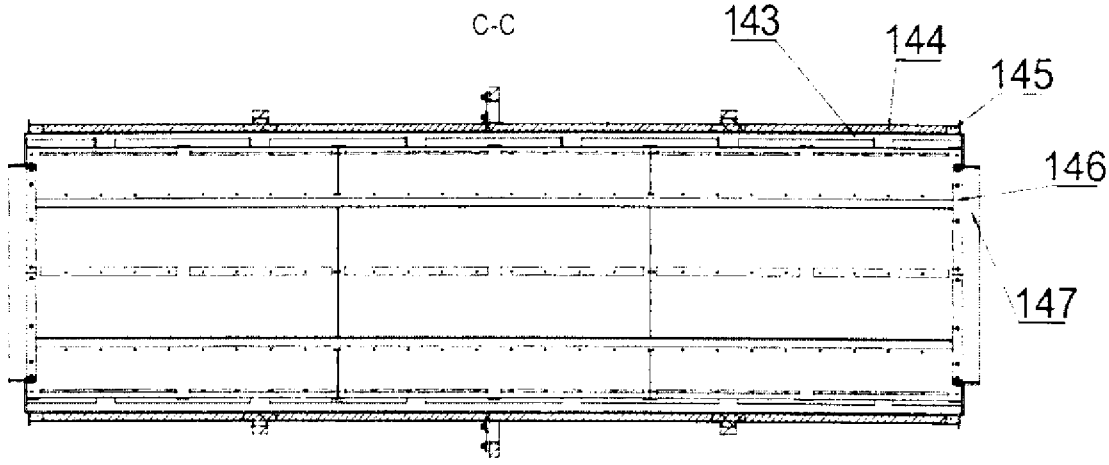

Fig. 17

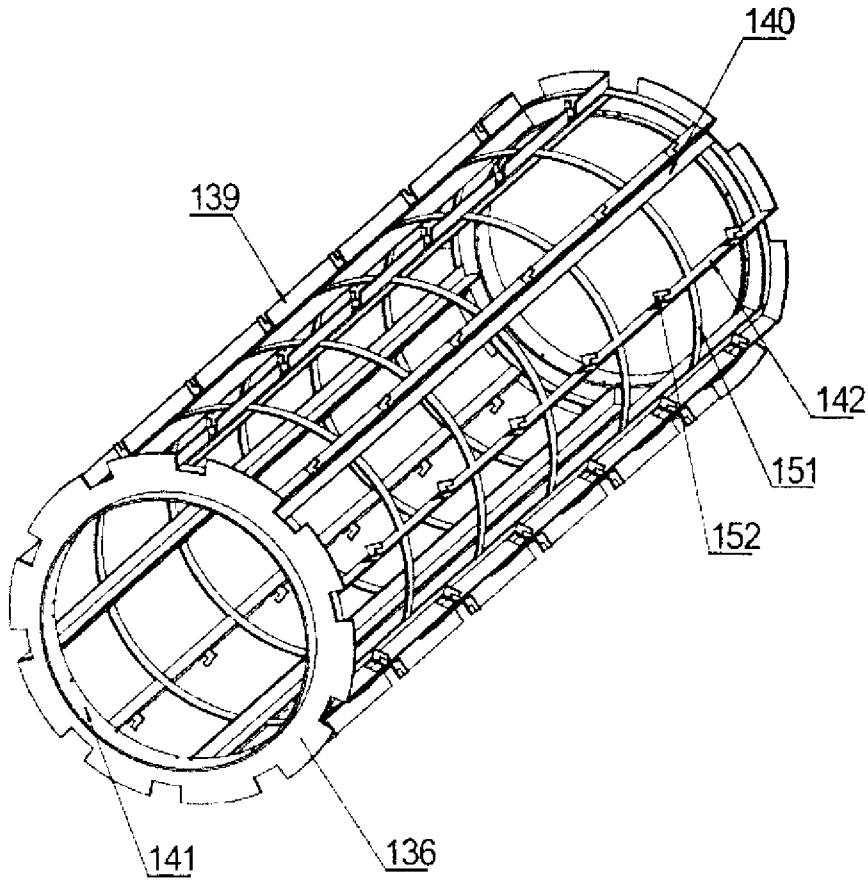

Fig. 18

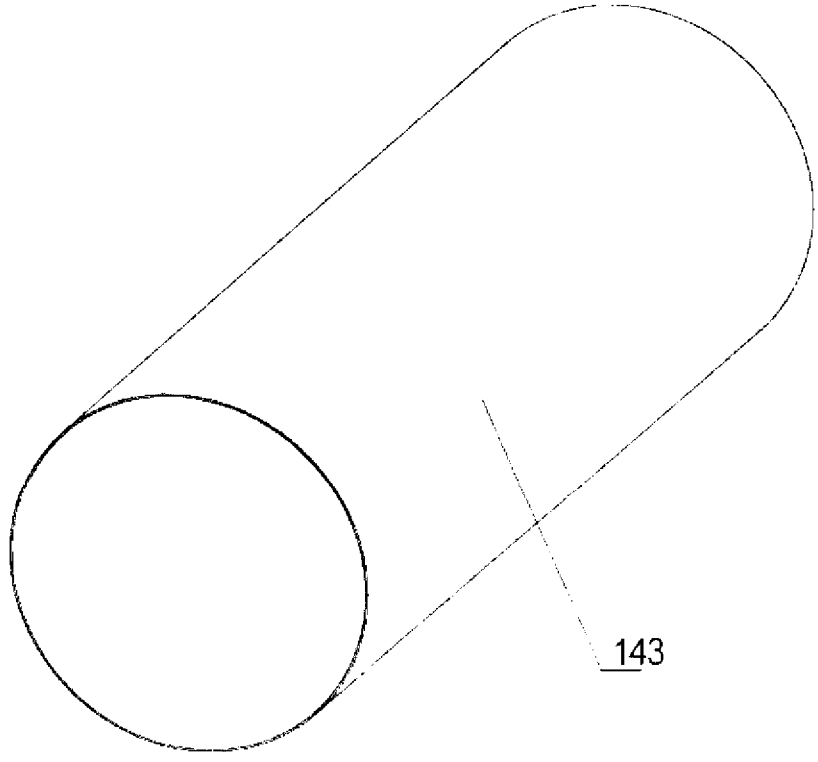

Fig. 19

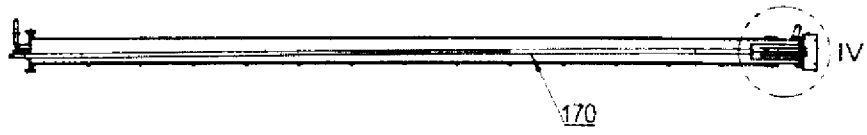

Fig. 20

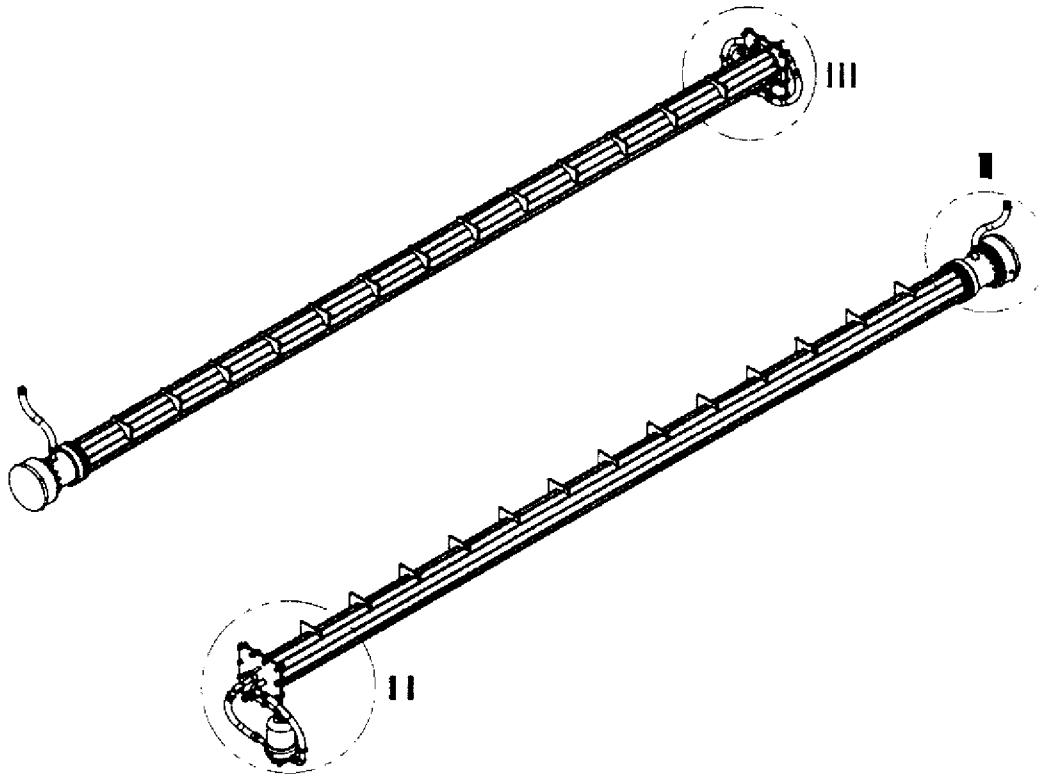

Fig. 21

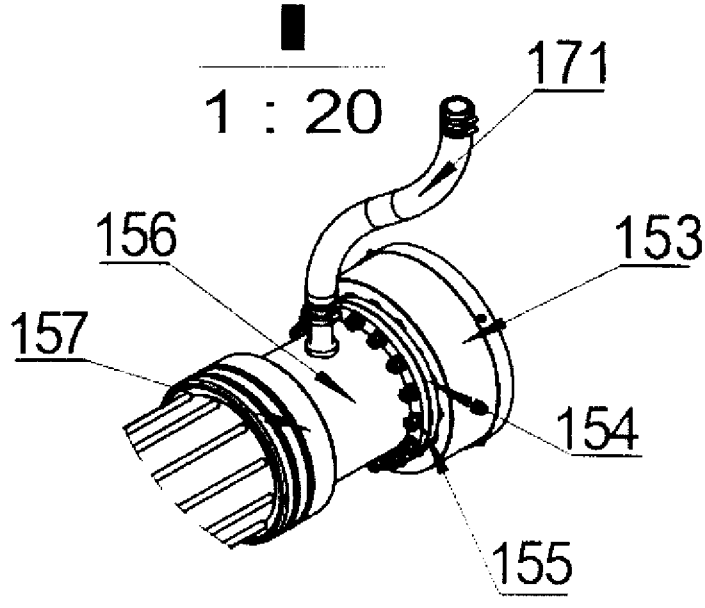

Fig. 22

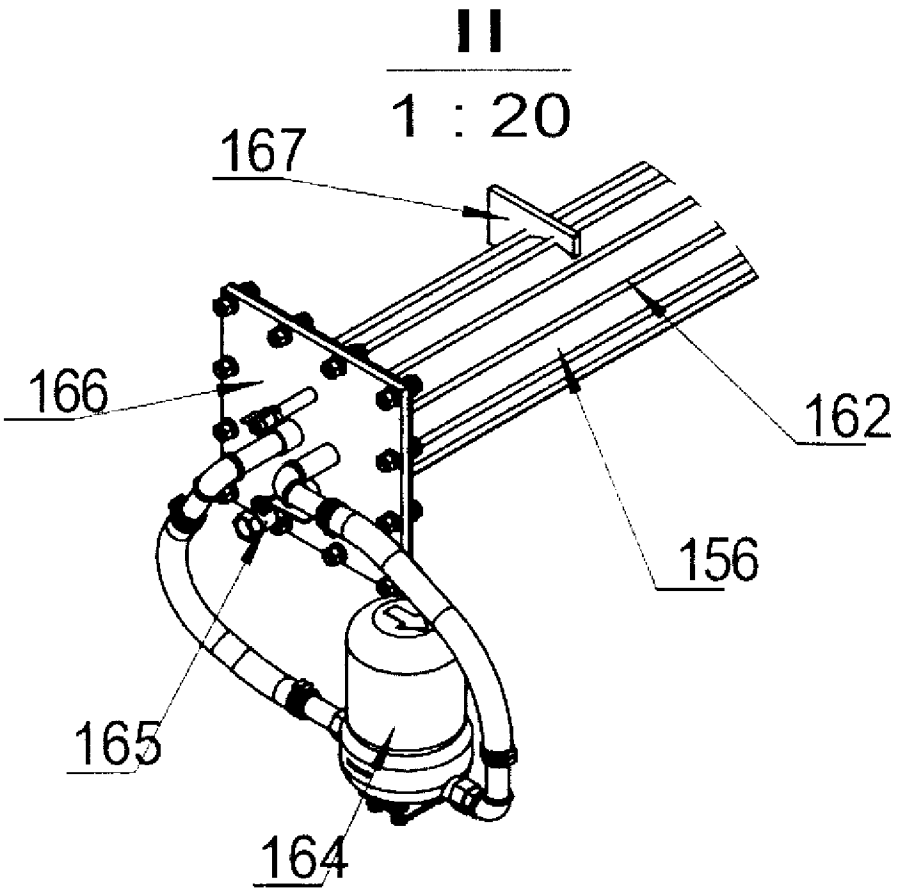

Fig. 23

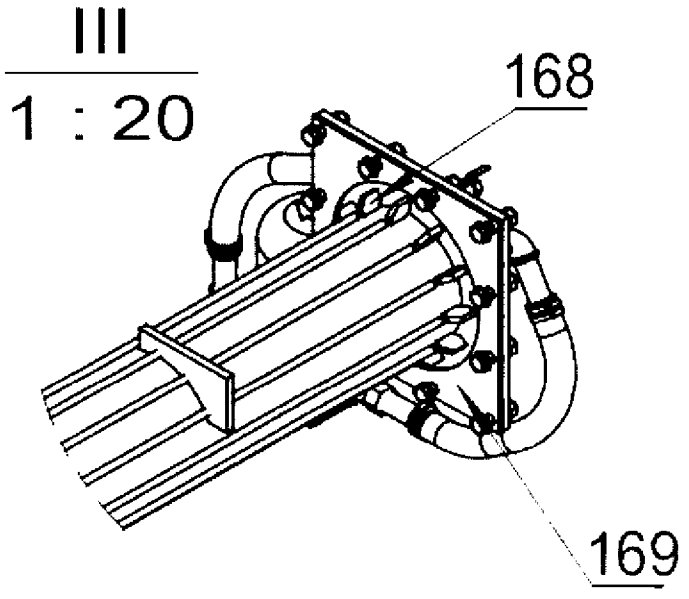

Fig. 24

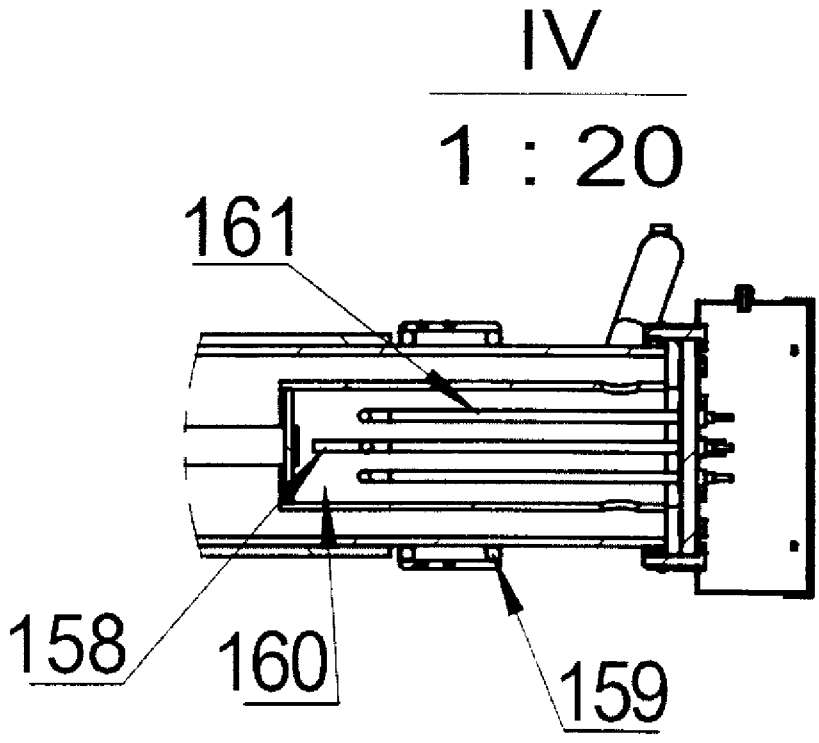

Fig. 25

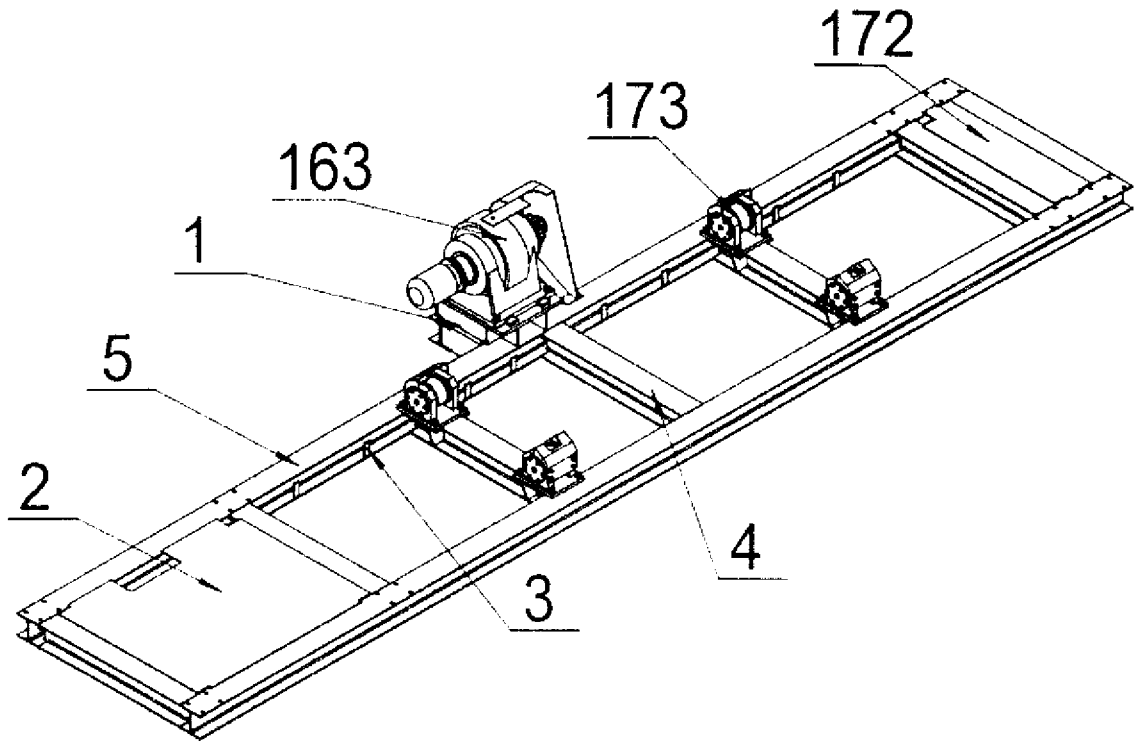

Fig. 26