TWIN-SCREW FEEDING DEVICE FOR WASTE PLASTIC CRACKING FURNACE

Specification

TECHNICAL FIELD

The present utility model relates to the technical field of feeding of plastic cracking equipment, in particular to a twin-screw feeding device for a waste plastic cracking furnace.

BACKGROUND ART

The technology of waste plastic cracking for oil production is to convert high molecular compounds into a variety of low molecular compounds by using the principle of thermal cracking. Low molecular compounds are easy to store and easy to transport, have high energy density, and are easy to use. In addition, waste plastic cracking oil can also be used as a fuel to be used for combustion in steel plants, cement plants, boiler heating, heavy oil generators, etc., and can also be further refined to achieve the recycling and reuse of waste plastics, which is more environmentally friendly.

In the process of waste plastic cracking processing, a cracking furnace will be used. The feeding structure of the cracking furnace in the prior art mostly adopts single-screw feeding, which has low feeding speed, inability to control the flow of discharging as needed, and low practicality.

In view of the above problems, a twin-screw feeding device for a waste plastic cracking furnace is proposed.

SUMMARY

The purpose of the present utility model is to provide a twin-screw feeding device for a waste plastic cracking furnace, which solves the problems of low feeding speed, inability to control the speed of discharging as needed, and low practicality in the background art.

To achieve the above purpose, the present utility model provides the following technical solution: A twin-screw feeding device for a waste plastic cracking furnace, including a conveying pipeline, a baffle is fixedly connected to a left side of an inside of the conveying pipeline, two conveying screws run through and are rotationally connected to an inside of the baffle, belt pulleys are fixedly connected to outsides of tail ends of left sides of the two conveying screws, a motor is fixedly connected to the left side of an inside of the conveying pipeline, a discharge barrel runs through and is fixedly connected to a top of the conveying pipeline, an adjustment assembly is provided inside the discharge barrel, a mounting frame runs through and is fixedly connected to the left side of the conveying pipeline, a cooling fan is provided inside the mounting frame, a dust cover is provided at an outer side of the mounting frame, connecting blocks are fixedly connected to both sides of the dust cover, toughed elastic sheets are fixedly connected to inner sides of the connecting blocks, pressing blocks are fixedly connected to outer sides of the toughed elastic sheets, disassembly blocks are fixedly connected to both sides of the mounting frame, the disassembly blocks are fixedly connected to an outer side of the conveying pipeline, slots are provided at left sides of the disassembly blocks, notches are provided at outer sides of the disassembly blocks, the notches are communicated with the slots, and a mounting flange is fixedly connected to an outside of a right side of the conveying pipeline.

By adopting the above technical solution, the cooling fan can dissipate heat from the motor inside the conveying pipeline, and by pressing the pressing blocks at both sides of the dust cover with the hands, the toughed elastic sheets can produce deformation shrinkage, so that the tail ends of the toughed elastic sheets can be separated from the restriction of the limit blocks, and the dust cover can be disassembled and cleaned.

As a further description of the above technical solution: the adjustment assembly includes an intercepting plate, an outside of the intercepting plate is fixedly connected to an inner wall of the discharge barrel, a through groove runs through and is provided at an inside of the intercepting plate, telescopic grooves are formed in both sides inside the through groove, electric push rods are fixedly

connected inside the two telescopic grooves, and adjustment plates are fixedly connected to output ends of the electric push rods.

By adopting the above technical solution, the adjustment assembly can change the opening and closing degree of the through groove through the adjustment plates, thereby achieving precise control of the flow of materials and ensuring that the materials can stably enter the conveying pipeline in accordance with the processing capacity and process requirements of the cracking furnace.

As a further description of the above technical solution: support plates are rotationally connected to tail ends of right sides of the two conveying screws, and both ends of the support plates are fixedly connected to the conveying pipeline.

By adopting the above technical solution, the support plates can play a role in supporting the tail ends of the two conveying screws.

As a further description of the above technical solution: two limit blocks are fixedly connected to insides of the slots, and the limit blocks are provided at both sides of the notches.

By adopting the above technical solution, the tail ends of the outer sides of the toughed elastic sheets can be limited by the limit blocks.

As a further description of the above technical solution: belts are provided at outsides of the two belt pulleys.

By adopting the above technical solution, the transmission effect is achieved, and the two conveying screws can be driven to rotate synchronously.

As a further description of the above technical solution: the motor is provided on a left side of the baffle, and an output end of the motor is fixedly connected to the conveying screw at the front end.

By adopting the above technical solution, the conveying screws can be driven to rotate by the motor.

As a further description of the above technical solution: the telescopic grooves are provided inside the intercepting plate.

By adopting the above technical solution, the two sides of the top of the intercepting plate are inclined.

As a further description of the above technical solution: the adjustment plates are provided inside the telescopic grooves, and outsides of the adjustment plates are slidably connected to inner walls of the telescopic grooves.

By adopting the above technical solution, it is convenient for the adjustment plates to be telescopic in the telescopic grooves.

Compared with the prior art, the present utility model has the beneficial effects as follows:

1、In the twin-screw feeding device for the waste plastic cracking furnace provided in the present utility model, first, the discharge barrel, the intercepting plate, the through groove, the telescopic grooves, the electric push rods, the adjustment plates, the belt pulleys and the conveying screws cooperate mutually to work, and the motor and the belt pulleys cooperate with the belts, so that the two conveying screws can be driven synchronously to rotate in the conveying pipeline, and the material conveying efficiency is improved; and the adjustment assembly can change the opening and closing degree of the through groove through the adjustment plates, thereby achieving precise control of the flow of materials and ensuring that the materials can stably enter the conveying pipeline in accordance with the processing capacity and process requirements of the cracking furnace.

2、In the twin-screw feeding device for the waste plastic cracking furnace provided in the present utility model, the motor, the conveying pipeline, the mounting frame, the cooling fan, the dust cover, the connecting blocks, the toughed elastic sheets, the pressing blocks, the disassembly blocks, the slots, the notches and the limit blocks cooperate mutually to work, the cooling fan can dissipate heat from the motor in the conveying pipeline, and by pressing the pressing blocks at both sides of the dust cover with the hands, the toughed elastic sheets can produce deformation shrinkage, so that the tail ends of the toughed elastic sheets can be separated from the restriction of the limit blocks, and the dust cover can be disassembled and cleaned.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic diagram of an overall structure according to the present utility model;

FIG. 2 is a schematic diagram of an internal structure of a conveying pipeline according to the present utility model;

FIG. 3 is a cross-sectional view of an intercepting plate of the present utility model; and

FIG. 4 is a schematic structural diagram of a dust cover according to the present utility model.

In the figures: 1. Conveying pipeline; 2. Motor; 3. Baffle; 4. Conveying screw; 5. Belt pulley; 6. Belt; 7. Support plate; 8. Discharge barrel; 9. Intercepting plate; 10. Through groove; 11. Telescopic groove; 12. Electric push rod; 13. Adjustment plate; 14. Mounting frame; 15. Cooling fan; 16. Dust cover; 17. Connecting block; 18. Toughed elastic sheet; 19. Pressing block; 20. Disassembly block; 21. Slot; 22. Notch; 23. Limit block; 24. Mounting flange.

DETAILED DESCRIPTION OF EMBODIMENTS

The technical solutions in the embodiments of the present utility model will be described clearly and completely with reference to the drawings in the embodiments of the present utility model. Obviously, the described embodiments are only parts of the embodiments of the present utility model, not all of the embodiments. Based on the embodiments in the present utility model, all other embodiments obtained by a person of ordinary skill in the art without creative effort fall within the scope of protection of the present utility model.

In order to further understand the content of the present utility model, the present utility model is described in detail with reference to the accompanying drawings.

Referring to FIGs. 1-4, a twin-screw feeding device for a waste plastic cracking furnace of the present utility model includes a conveying pipeline 1 for conveying materials; a baffle 3 is fixedly connected to a left side of an inside of the conveying pipeline 1 to facilitate the mounting of two conveying screws 4; the two conveying screws 4 run through and are rotationally connected to an inside of the

baffle 3, and can convey the materials; belt pulleys 5 are fixedly connected to outsides of tail ends of left sides of the two conveying screws 4; a motor 2 is fixedly connected to the left side of an inside of the conveying pipeline 1; a discharge barrel 8 runs through and is fixedly connected to a top of the conveying pipeline 1 to facilitate the discharging of the materials; an adjustment assembly is provided inside the discharge barrel 8; a mounting frame 14 runs through and is fixedly connected to the left side of the conveying pipeline 1 to facilitate the mounting of a cooling fan 15; the cooling fan 15 is provided inside the mounting frame 14,and is driven by the motor; a dust cover 16 is provided at an outer side of the mounting frame 14 to achieve a dust control effect; connecting blocks 17 are fixedly connected to both sides of the dust cover 16 to achieve a connection effect; toughed elastic sheets 18 are fixedly connected to inner sides of the connecting blocks 17, and are U-shaped; pressing blocks 19 are fixedly connected to outer sides of the toughed elastic sheets 18, and the toughed elastic sheets 18 can be deformed through the pressing blocks 19; disassembly blocks 20 are fixedly connected to both sides of the mounting frame 14, and the disassembly blocks 20 are fixedly connected to an outer side of the conveying pipeline 1; slots 21 are provided at left sides of the disassembly blocks 20 to facilitate the movement of the pressing blocks 19; notches 22 are provided at outer sides of the disassembly blocks 20, and the notches 22 are communicated with the slots 21; and a mounting flange 24 is fixedly connected to an outside of a right side of the conveying pipeline 1,and the mounting flange 24 at the right side of the conveying pipeline 1 is used for connecting the feeding device with the cracking furnace, thereby ensuring that the materials can enter the cracking furnace from the feeding device.

Referring to FIGs. 2 and 3, the adjustment assembly includes an intercepting plate 9, an outside of the intercepting plate 9 is fixedly connected to an inner wall of the discharge barrel 8, a through groove 10 runs through and is provided at an inside of the intercepting plate 9, telescopic grooves 11 are provided at both sides of an inside of the through groove 10, electric push rods 12 are fixedly connected to insides of the two telescopic grooves 11, adjustment plates 13 are fixedly connected to output ends of the electric push rods 12, the telescopic grooves 11 are

provided at the intercepting plate 9, the adjustment plates 13 are provided at the telescopic grooves 11, and outsides of the adjustment plates 13 are slidably connected to inner walls of the telescopic grooves 11; and the adjustment assembly can change the opening and closing degree of the through groove 10 through the adjustment plates 13, thereby achieving precise control of the flow of materials and ensuring that the materials can stably enter the conveying pipeline 1 in accordance with the processing capacity and process requirements of the cracking furnace.

Referring to FIGs. 2 and 4, support plates 7 are rotationally connected to tail ends of right sides of the two conveying screws 4, and both ends of the support plates 7 are fixedly connected to the conveying pipeline 1; and the support plates 7 can achieve the effect of supporting the tail ends of the two conveying screws 4. Two limit blocks 23 are fixedly connected to insides of the slots 21, and the limit blocks 23 are provided at both sides of the notches 22. The tail ends of the outer sides of the toughed elastic sheets 18 can be limited by the limit blocks 23. Outsides of the two belt pulleys 5 are provided with belts 6 to achieve a transmission effect, and the two conveying screws 4 can be driven to rotate synchronously. The motor 2 is provided at the left side of the baffle 3, and the output end of the motor 2 is fixedly connected to the conveying screw 4 at the front end, and the conveying screws 4 can be driven to rotate by the motor 2.

Working Principle: When working, the motor 2 is first started, and the motor 2 drives the conveying screw 4 at the front end that is connected thereto to rotate. Since belt pulleys 5 are fixedly connected to outsides of tail ends of left sides of the two conveying screws 4, and the two belt pulleys 5 are connected by belts 6, the rotation of the conveying screw 4 at the front end will be driven by the belts 6 to make the conveying screw 4 at the rear end rotate synchronously, and the waste plastic materials enter the conveying pipeline 1 from the discharge barrel 8. The adjustment assembly in the discharge barrel 8 is used to control the discharging speed and discharging amount of the materials. When adjustment is required, the electric push rods 12 in the telescopic grooves 11 are started, and the electric push rods 12 push the adjustment plates 13 to slide in the telescopic grooves 11, thereby changing the opening and closing degree of the through groove 10, achieving

precise control of the flow of materials, and ensuring that the materials can stably enter the conveying pipeline 1 in accordance with the processing capacity and process requirements of the cracking furnace. The materials entering the conveying pipeline 1 are continuously pushed towards the right under the action of the two rotating conveying screws 4. Finally, the materials are conveyed into the cracking furnace for a cracking reaction. During the operation of the device, the cooling fan 15 in the mounting frame 14 will work to dissipate heat for components such as the motor 2 to prevent the components from being overheated and damaged due to long-term operation. The dust cover 16 is used to prevent foreign dust and other impurities from entering the mounting frame 14 and affecting the operation of the cooling fan 15. When the dust cover 16 is mounted, the toughed elastic sheets 18 on both sides of the dust cover 16 are inserted into the slots 21. The U-shaped toughed elastic sheets 18 are squeezed by the limit blocks 23 to shrink, and the pressing blocks 19 enter the slots 22. When the toughed elastic sheets 18 completely enter the slots 21, the toughed elastic sheets 18 are separated from the squeeze of the limit blocks 23, thereby resetting, and stretching in the slots 21. The toughed elastic sheets 18 are limited by the limit blocks 23 to complete the mounting of the dust cover 16.

It should be noted that relational terms such as first and second herein are only used herein to distinguish one entity or operation from another entity or operation, and do not necessarily require or imply any such actual relationship or order between these entities or operations. Moreover, the terms "include", "comprise" or any other variations thereof are intended to cover non-exclusive inclusions, so that a process, method, article or device including a series of elements includes not only those elements, but also includes other elements not explicitly listed, or also includes elements inherent to such process, method, article or device.

Although the embodiments of the present utility model have been shown and described, it can be understood by those of ordinary skill in the art that various changes, modifications, substitutions and variations can be made to these embodiments without departing from the principles and spirit of the present utility

model, and the scope of the present utility model is defined by the attached claims and their equivalents.