

Modeling Design Method for Complex Structure Product of Chestnut Sheller

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Abstract

Chinese chestnut, also known as chestnut, is a tonic health care products. Chestnuts are rich in nutrients, including sugar, protein, fat, vitamins and inorganic salts. Chestnut has a good prevention and treatment effect on hypertension, coronary heart disease and atherosclerosis. Old people often eat chestnuts, against the old anti - aging, longevity has great benefits. While the traditional method of hand peeling waste time, and cutting mouth with a knife is easy to hurt themselves, chestnut sheller solved the traditional manual peeling heavy labor intensity and low production efficiency.

Keywords

Chestnut; Sheller. Screening device; Product modeling.

1. Background Technology

This design belongs to the technical field of agricultural machinery, especially relates to a screening device of chestnut sheller. Existing technology, the Chinese chestnut sheller is applied to batch shell, usually by friction or roller blade chestnut shell and its lining, because of the existing Chinese chestnut sheller has no screening, chestnut shell after separation, with the last requires human with a shovel equipment such as separation, not only affect the machining efficiency, and waste of human Labour.

2. Design Content

The purpose of this design is to provide a kind of Chinese chestnut sheller screening device, through the structure can be designed three different purpose of screening, chestnut and shell's for complete separation, the existing Chinese chestnut sheller is solved with screening, chestnut shell after separation, with the need to manually with a shovel equipment such as separation, not only affect the machining efficiency, and waste of human Labour.

In order to solve the above technical problems, the design is realized through the following technical solutions:

This design is a screening device for chestnut sheller, including the main box. The inner surface of the main box is fixed with a first screening box, and the bottom of the first screening box is a conical bin. The surface of the side of the main box is fixed with a second screening box.

A sieve plate is fixed on the inner surface of the main box, and a stirring device is fixed on the surface of the sieve plate. An opening is arranged on one side of the main box that is connected with the second screening box, and the opening is rectangular.

Described in the first screen box side surface to open the first export, described the first export end through the main box and extend to the second screening box inside, and described the main box side surface in air separation devices are fixed on the bottom of the first export, described in the air separation device for air gun nozzle, the nozzle mouth oblique upward to the first export, air compressor of air gun nozzle inlet connection a are, as described in the first

box ground to open the first sieve screening, described the first dry eye aperture range in 3-5 cm, as described in the first screen box side surface fixed feeding device;

The inner surface of the second screening box is fixed with a partition whose height is lower than the first outlet. The surface of the second screening box is provided with a second outlet.

Further, the stirring device includes a driving motor, which is fixed at the bottom of the sieve plate. One end of the output shaft of the driving motor is fixed with a driving rod. One end of the driving rod runs through the first screening box and is fixed with an agitator.

Further, the feeding device includes an electric motor, which is fixed on one side of the first screening box. One end of the output shaft of the motor is fixed with a screw rod, which extends to the interior of the first outlet.

Further, the sieve plate is set in an inclined manner, and a second sieve eye is arranged on the surface of the sieve plate. The aperture range of the second sieve eye is 1.5-2cm, and the aperture of the second sieve eye is smaller than that of the first sieve eye.

Further, one side of the main box is provided with an outlet.

Further, the inner surface of the main box and located at the bottom of the sieve plate is matched with a scrap box by sliding a slide.

Further, the top of the main box and the first screening box are of open structure.

This design has the following beneficial effects:

1) this design through the main box, the first screening box and the second screening box structural design, with mixing device, feeding device and air separation device, can carry out three different screening, can be separated chestnut and shell orderly, completely, without manual separation workload, improve the processing efficiency of chestnut sheller.

2) This design can accelerate the first layer screening and improve the screening efficiency through the design of stirring device.

3) This design is convenient for material collection and use through the design of outlet and waste box.

Of course, the implementation of the design of any product does not necessarily need to achieve all the above mentioned advantages.

3. Design Description

In order to more clearly explains the design example of technical solution, below the appended drawings of use necessary to implement the case description is introduced simply, clearly, described below the appended drawings is just this design, some of the cases, for the field common technical personnel, on the premise of not giving creative labor, can also according to the appended drawings for other appended drawings. See figure 1-3.

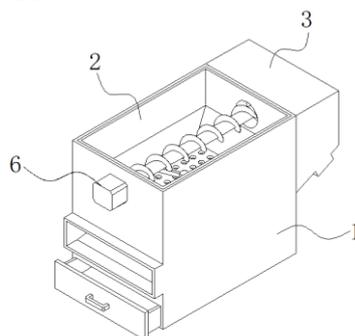


Fig. 1 is the schematic diagram of a screening device designed for a chestnut sheller.

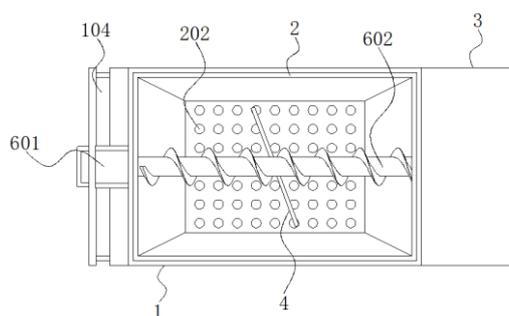


Fig. 2 is a structural diagram of top view view in FIG. 1;

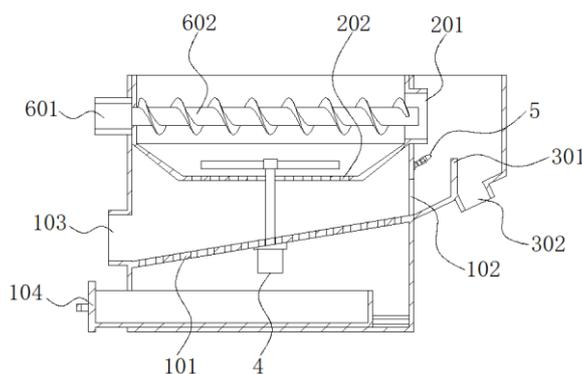


Fig. 3 shows the internal structure of FIG. 1.

In the attached figure, the parts represented by each label are listed as follows:

1- main box, 2- first screening box, 3- second screening box, 4- stirring unit, 5- air separation unit, 6- feeding unit, 101- sieve plate, 102- opening, 103- outlet, 104- scrap box, 201- first outlet, 202- first sieve hole, 301- baffle board, 302- second outlet, 601- motor, 602- screw rod.

Involved in the field of agricultural machinery technology. This design including the main box, the first screening were fixed on the surface of the main trunk box, box fixed on one side of the surface has a second selection box, the sieve plate is fixed on the surface of in the cabinet, a sieve plate fixed on the surface of stirring device, the main box side open box connected with a second screening of opening, the first screen box side surface to open the first export, the export side throughout the main box and extend to the second screening box inside, one side of a main box surface and air separation devices are fixed at the bottom of the first exports. Through the structural design of the main box, the first screening box and the second screening box, together with the mixing device, the feeding device and the air separation device, three different screening can be carried out, the chestnut and shell can be separated orderly and completely, eliminating the workload of manual separation, improve the processing efficiency of the chestnut sheller.

1) A screening device for chestnut sheller includes a main box (1), which is characterized by that the inner surface of the main box (1) is fixed with a first screening box (2), and one side of the main box (1) is fixed with a second screening box (3);

A sieve plate (101) is fixed on the inner surface of the main box (1). A stirring device (4) is fixed on the surface of the sieve plate (101). An opening (102) is arranged on one side of the main box (1) to communicate with the second screening box (3).

Described in the first screening box (2) opened the first export side surface (201), described the first export one end (201) through the main box (1) and extended to the second screen box (3) internal, described the main box (1) on one side of the surface and in the first export (201) at the bottom of the fixed be winnowing device (5), as described in the first screening box (2)

the ground to open the first sieve (202), as described in the first screening box (2) the side surface of the fixed feeding device (6);

The inner surface of the second screening box (3) is fixed with a baffle (301), and the surface of the second screening box (3) is provided with a second outlet (302).

2) according to claim 1 a kind of Chinese chestnut sheller screening device, its characteristics is described in the mixing device (4) includes a drive motor, drive motor stated fixed installed on the bottom of the sieve plate (101), described the drive motor output shaft end fixed transmission rod, described the transmission rod end through the first screening box (2) and a fixed stirrer.

3) according to claim 1 a kind of Chinese chestnut sheller screening device, its characteristics is described in the feeding device (6) including motor (601), described in the motor (601) fixed installed on the first screen box (2) side, described in the motor output shaft end fixed with screw (601) (602), described in the screw (602) at one end extends to the first export (201).

4) According to a screening device of chestnut sheller mentioned in claim 1, its feature is that the sieve plate (101) is set in an inclined manner, and a second sieve hole is arranged on a surface of the sieve plate (101), and the aperture of the second sieve hole is smaller than that of the first sieve hole (202).

5) According to a screening device of chestnut sheller mentioned in claim 1, its feature is that one side of the main box (1) is provided with an outlet (103).

6) According to the screening device of chestnut sheller mentioned in claim 1, its feature is that the inner surface of the main box (1) and the bottom slide of the sieve plate (101) are matched with the scrap box (104).

7) According to a screening device of chestnut sheller mentioned in claim 1, its feature is that the top of the main box (1) and the first screening box (2) are of open structure.

4. Specific Implementation Methods

The following is a clear and complete description of the technical scheme in the design embodiments based on the attached drawings in the design embodiments. Obviously, the described embodiments are only part of the design embodiments, not all of the embodiments. Based on the embodiments in this design, all other embodiments obtained by ordinary technicians in this field without making creative labor are within the scope of protection of this design.

See as shown in figure 1-3, this design is a kind of Chinese chestnut sheller screening device, including the main case 1, the main box fixed on the inner surface is first selection box 2, first 2 at the bottom of the screen box for the conical bin, the main box fixed a second selection box 3 1 side surface, the second screening box 3 at the bottom of the slope, near the main box 1 side is low;

The inner surface of the main box 1 is fixed with sieve plate 101, and the surface of sieve plate 101 is fixed with mixing device 4. The side of the main box 1 is provided with an opening 102 connected with the second screening box 3, which is a rectangular opening.

First selection box opened the first export 201 2 side surface, the first export 201 end through the main box 1 and extend to the second screening box inside 3, the main box 1 side surface and air separation devices are located at the bottom of the first export 201 fixed 5, air separation unit 5 for the gun nozzle, nozzle mouth oblique upward to the first export, air compressor of air gun nozzle inlet connection a are, for the first screening box 2 ground to open the first sieve 202, the first sun eye 202 aperture is 4 cm, the first screen box 2 side surface fixed feeding device (6);

The inner surface of the second screening box 3 is fixed with a baffle 301. The height of the baffle 301 is lower than that of the first outlet 201. The surface of the second screening box 3 is provided with a second outlet 302.

The stirring device 4 includes a drive motor, which is fixed at the bottom of sieve plate 101. One end of the output shaft of the drive motor is fixed with a transmission rod, and the other end runs through the first screening box 2 and is fixed with a stirrer.

Among them, feeding device 6 includes motor 601, which is fixed on one side of the first screening box 2. One end of output shaft of motor 601 is fixed with spiral rod 602, and one end of the spiral rod 602 extends to the interior of the first outlet 201.

Among them, the sieve plate 101 is set in an inclined manner, and there is a second sieve eye on the surface of the sieve plate 101. The aperture of the second sieve eye is 2cm, and the aperture of the second sieve eye is smaller than that of the first sieve eye 202.

One side of the main box 1 is provided with an outlet 103.

Among them, the inner surface of the main box 1 is located at the bottom of sieve plate 101, and the waste box 104 is equipped with sliding rail.

Among them, the top of the main box 1 and the first screening box 2 are of open structure.

5. One Specific Application of the Present Embodiment Is

Device fixed installation within the Chinese chestnut sheller and master box 1 set in the bottom discharging correct, shell machining after discharging and chestnut chestnut shell will together into the first screen box 2, start mixing plant 4 and feed unit 6, mixing plant 4 on the drive motor drives the agitator will be stirred and chestnut chestnut shell, because of the Chinese chestnut shell weight greater than, and there is stung shell together with stirring natural located above Chinese chestnut, the bottom of the peanuts and broken shells from the first sieve 202 fall into the top sieve plate 101, chestnut shell and a few large Chinese chestnut will stay at the first screen box 2, Motor drive screw rotation 602 601 will shell and send the big chestnut exported from the first 201, start the air separation device may become a client such as air compressor, air blow out from the air separation unit 5, chestnut shell and exported from the first 201 natural whereabouts, due to the big chestnut shell weight greater than, chestnut is nearly vertical fall in 301 near the openings on the other side of the 102 partition shell will be blown to the other side of the baffle plate 301, then the Chinese chestnut is rolled out 102 into the 101 top sieve plate, shell from the second discharge port 302 fall into the machine outside, among them, 101 into the sieve plate at the top of the broken shells and screening of Chinese chestnut will be the last, Because the broken shell is smaller than the chestnuts, it will fall into the waste box 104 through the second sieve hole of sieve plate 101, and the chestnuts will stay on the sieve plate 101, and finally take out the chestnuts from the outlet 103.

In the description of this specification, a reference to the term "an embodiment", "an example", "a concrete example", etc., means that the specific features, structures, materials or features described by the embodiment or example are included in at least one embodiment or example of the design. In this specification, a schematic representation of the above terms does not necessarily refer to the same embodiment or example. Furthermore, the specific features, structures, materials, or features described may be combined in an appropriate manner in any one or more embodiments or examples.

6. Conclusion

The above disclosed preferred embodiments of the design are only used to help elaborate the design. Preferred embodiments do not describe in detail all the details nor do they limit the invention to the specific embodiments described. Obviously, according to the contents of this

manual, a lot of modifications and changes can be made. The purpose of selecting and describing these embodiments in this manual is to better explain the principle and practical application of this design, so that technicians in the technical field can well understand and use this design. This design is only limited by the claim and its full scope and equivalent.

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