Research on innovative design method of concrete batching machine

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Abstract

Concrete batching machine, also known as batching machine, sand automatic batching machine, is a variety of materials such as: sand and stone quantitative distribution of automatic equipment, mainly used in the concrete construction industry, to replace the manual scale or volume measurement. Generally, the existing concrete batching machine pours raw materials into the raw material storage hopper through forklift, which is not only easy to produce dust when discharging, but also unsuitable for forklift to work for a long time in some places. Without the assistance of forklift, the concrete batching machine cannot work, affecting the construction efficiency.

Keywords

Concrete; Batching machine; Product innovation; design.

1. Research content

This design belongs to the technical field of construction machinery, especially relates to a concrete batching machine. The purpose of this design is to provide a kind of concrete batching machine. By adding slide and hopper to the concrete batching machine, the concrete batching machine can be manually fed, which solves the problem that the existing concrete batching machine cannot work effectively without forklift.

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

The design is a concrete batching machine, including frame, bin and hopper; A surface of the frame body is fixed with a plurality of sliding ways; The frame body is fixedly connected with the stock bin; A first rectangular hole is opened on a surface of the stock bin; A second rectangular hole is opened on a surface of the stock bin; The feeding hopper is slide connected with the slide path; The surface of the feeding hopper is fixed with a sliding frame; A first motor is fixed on a surface of the sliding frame; A surface of the sliding frame is fixed with a first lifting ring; The feeding hopper is provided with a sliding groove on a relative inner surface; The inner surface of the chute is sliding connected with a first baffle; A surface of the first baffle is fixed with a plurality of counterweight blocks; The first baffle has a surface fixed finite potential plate; A second lifting ring is fixed on a surface of the limit plate; The second lifting ring and the first motor are connected by a rope rotation.

Further, a surface of the frame body is fixed with a plurality of rails; The circumferential side of the frame body is fixed with a number of reinforcing ribs.

Further, a surface fixing of the stock bin is provided with a plurality of fixing blocks; A second hanging buckle is fixed on a surface of the stock bin; A surface of the stock bin is uniformly arranged with a first hook; The inner surface of the second rectangular hole is fixed with a glass plate.

Further, one end of the slide is fixedly connected with a roof plate; A rotating wheel is fixed on a surface of the top plate; A guide wheel is fixed on a surface of the top plate.

Further, a surface of the stock bin is fixed with a second baffle; The second baffle is uniformly arranged with a first hook; The first hook fits with the first hook.

Further, a surface of the frame body is fixed with an escalator; A third hook is fixed on a surface of the escalator; The third hook is matched with the frame body; A second hook is fixed on a surface of the escalator; The second hook is matched with the second hook.

Further, a surface of the frame body is fixed with a plurality of small belt machines; The surface of the small belt machine is fixed with a plurality of self-locking wheels; A surface of the small belt machine is fixed with a baffle block; The surface of the small belt machine is fixed with a weighing bucket.

2. The design has the following beneficial effects

1. Through the coordination of the second baffle and the stock bin, this design can effectively control the dust during the feeding, protect the environment and guarantee the health of construction personnel.

2, the design through the combination of slide and hopper, the concrete batching machine can be simple and convenient for manual feeding, at the same time forklift feeding more convenient, solve the existing concrete batching machine lack of forklift can not work effectively.

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

3. Design drawings

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 1-9.

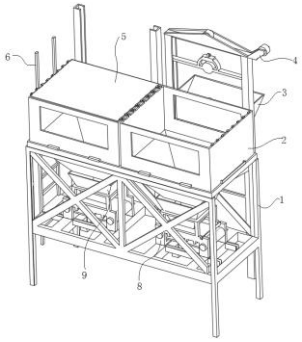

FIG. 1 is the structural diagram of a concrete batching machine designed.

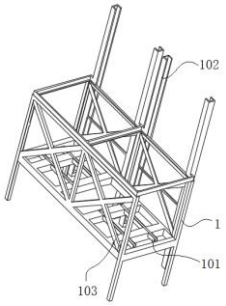

FIG. 2 is the structural diagram of the frame body;

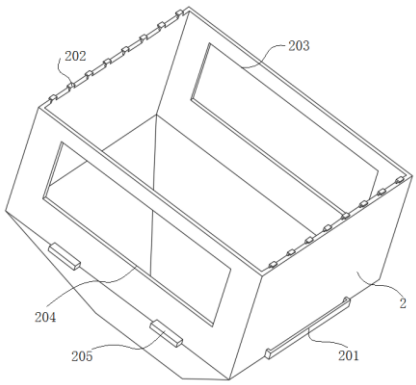

FIG. 3 is the structural diagram of the stock bin;

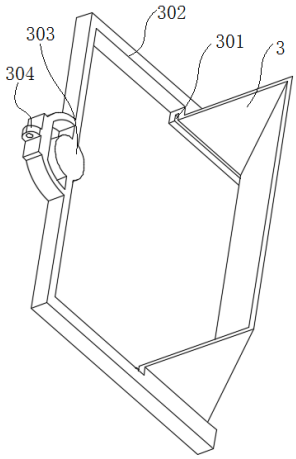

FIG. 4 is the structural diagram of the hopper;

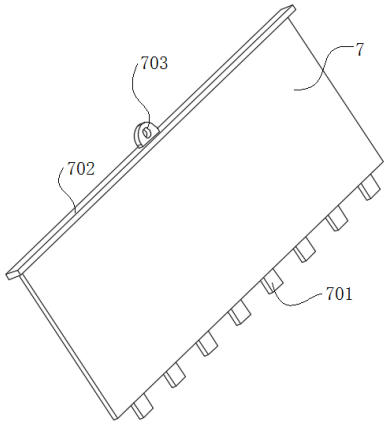

FIG. 5 is the structural diagram of the first baffle;

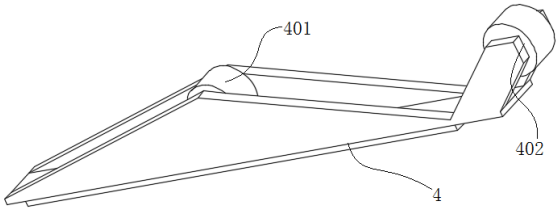

FIG. 6 shows the roof structure;

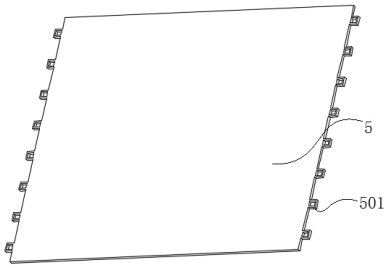

FIG. 7 is the structural diagram of the second baffle.

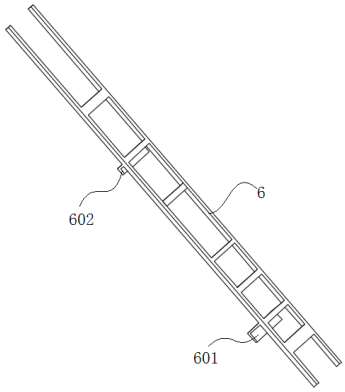

Figure 8 is the structural diagram of escalator;

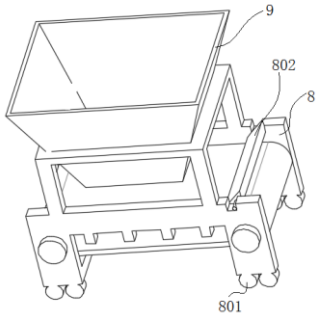

FIG. 9 is the assembly drawing of the small belt conveyor and weighing hopper.

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

1 - the frame body, 2 - bin, 3 - hopper, roof, 4-5 - the second baffle, escalators, 6-7 - the first baffle, 8 - small belt conveyor, 9 - weighing hopper, 101 - track, 102 - slide, 103 - stiffener, 201 - second hang buckle, 202 - the first link, 203 - the first rectangle holes, 204 - the second rectangular hole, 205 - fixed block, 301 - chute, a 302 - slide rack, 303 - the first motor, 304 - the first rings, and 401 - turning wheel, 402 - guide wheel, 501 - the first hang buckle, peg 601-3, 602 - the second link, 701- counterweight block, 702- limit plate, 703- second ring, 801- self-locking wheel, 802- stop block.

Involved in the field of construction machinery technology. The design includes a frame, a bin and a hopper; A surface of the frame body is fixed with a plurality of sliding ways; The frame body is fixedly connected with the stock bin; A first rectangular hole is opened on a surface of the stock bin; A second rectangular hole is opened on a surface of the stock bin; The feeding hopper is slide connected with the slide path; The surface of the feeding hopper is fixed with a sliding frame; A first motor is fixed on a surface of the sliding frame; A surface of the sliding frame is fixed with a first lifting ring; The feeding hopper is provided with a sliding groove on a relative inner surface; The inner surface of the chute is sliding connected with a first baffle. The design through the combination of slide and hopper, the concrete batching machine can be simple and convenient for manual feeding, at the same time make forklift feeding more convenient, solve the existing concrete batching machine lack of forklift can not work effectively.

The utility model relates to a concrete batching machine, which comprises a frame (1), a bin (2) and a hopper (3);

A surface of the frame body (1) is fixed with a plurality of sliding ways (102); The frame body (1) is fixedly connected with the stock bin (2); A first rectangular hole (203) is opened on the surface of the stock bin (2); A second rectangular hole (204) is opened on a surface of the stock bin (2);

The feeding hopper (3) is connected with the slide path (102); The surface of a feeding hopper (3) is fixed with a sliding frame (302); A surface of the sliding frame (302) is fixed with a first motor (303); A first lifting ring (304) is fixed on a surface of the sliding frame (302); The feeding hopper (3) is provided with a sliding groove (301) on a relative inner surface;

The inner surface of the chute (301) is sliding connected with a first baffle (7); A surface of the first baffle (7) is fixed with a plurality of counterweight blocks (701); The first baffle (7) has a surface fixed finite position plate (702); A surface of the limit plate (702) is fixed with a second lifting ring (703); The second lifting ring (703) is connected with the first motor (303) by a rope rotation.

2. According to a concrete batching machine mentioned in claim 1, its feature is that a surface of the frame body (1) is fixed with a number of rails (101); The circumferential side of the frame body (1) is fixed with a number of reinforcing ribs (103).

3. According to a concrete batching machine mentioned in claim 1, its feature is that there are several fixed blocks (205) fixed on the surface of the material bin (2); A second latch (201) is fixed on a surface of the stock bin (2); A surface of the stock bin (2) is uniformly distributed and fixed with a first hook (202); The inner surface of the second rectangular hole (204) is fixed with a glass plate.

4. According to a concrete batching machine mentioned in claim 1, its feature is that one end of the slide (102) is fixedly connected with a roof (4); A rotating wheel (401) is fixed on a surface of the top plate (4); A guide wheel (402) is fixed on a surface of the top plate (4).

5. According to a concrete batching machine mentioned in claim 1, its feature is that a second baffle (5) is fixed on a surface of the stock bin (2); The second baffle (5) is fixed with a first latch (501) on the circumferential side; The first hook (501) is matched with the first hook (202).

6. According to a concrete batching machine mentioned in claim 1, its characteristics lie in that an escalator (6) is fixed on a surface of the frame body (1); A third hook (601) is fixed on the surface of the escalator (6); The third hook (601) fits with the frame body (1); A second hook (602) is fixed on a surface of the escalator (6); The second hook (602) is matched with the second hook (201).

7. According to a concrete batching machine mentioned in claim 1, its feature is that a surface of the frame body (1) is fixed with a number of small belt machines (8); The surface of a small belt machine (8) is fixed with a plurality of self-locking wheels (801); The surface of a small belt machine (8) is fixed with a baffle block (802); The surface of a small belt machine (8) is fixed with a weighing bucket (9).

3. 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.

In the description of the design, need to understand is that the term "opening", "up", "down", "thickness", "top", "in", "length", "inside" and "around" indicates a location or position, is only to describe the design and the simplified description, rather than instructions or suggest referring to components or elements must have a specific location, in a specific orientation structure and operation, therefore cannot be interpreted as limiting the design.

Please refer to figure 1-5. This design is a concrete batching machine, including frame 1, bin 2 and hopper 3; The frame body 1 has four sliding ways 102 fixed on the surface; Frame 1 is fixedly connected with stock bin 2; There is a first rectangular hole 203 on the surface of bin 2 for feeding; A second rectangular hole 204 is opened on the surface of bin 2; Feeding hopper 3 is connected with

slide track 102; The surface of the feeding hopper 3 is fixed with a sliding frame 302; The first motor 303 is fixed on the surface of the sliding frame 302, which is used to control the rise and fall of the first baffle 7; The first lifting ring 304 is fixed on the surface of the sliding frame 302. The first lifting ring 304 is connected with the motor by ropes. There are 301 slides on both the inner surface of the feeding hopper 3. The inner surface of the chute 301 is sliding connected with the first baffle 7; There are eight counterweight blocks 701 fixed on the surface of the first baffle 7 to prevent foreign bodies from blocking the chute 301 when the first baffle 7 falls. The first baffle 7 a surface fixed finite plate 702; A second lifting ring 703 is fixed on the surface of the limit plate 702; The second sling 703 is connected with the first motor 303 by rope-rotating connection.

As shown in FIG. 2, there are several orbits 101 fixed on the surface of frame 1. A number of stiffeners 103 are fixed on the side of the frame to enhance the stability of the frame.

As shown in FIG. 3, there are several fixed blocks 205 fixed on the surface of bin 2. The second buckle 201 is fixed on the surface of bin 2; 202 the first hook is fixed on the surface of bin 2; Glass plate is fixed on the inner surface of the second rectangular hole 204 to facilitate observation of the inside of the stock bin.

As shown in FIG. 1 and FIG. 6, one end of slide 102 is fixedly connected with roof plate 4; A rotating wheel 401 is fixed on the top plate 4 surface; Top plate 4 a surface fixed guide wheel 402.

As shown in FIG. 1 and FIG. 7, a second baffle 5 is fixed on the surface of bin 2 to prevent dust flying and protect the environment. The first latch 501 is fixed on the side of the second baffle at 5 weeks; 501 of the first hook works with 202 of the first hook.

As shown in FIG. 1 and FIG. 8, escalator 6 is fixed on the surface of frame 1, which is convenient for workers to operate. Escalator 6 a surface fixed with a third hook 601; The third hook 601 coordinates with frame body 1; A second hook is fixed on the surface of escalator 6. The second hook 602 is matched with the second hook 201.

As shown in FIG. 1 and FIG. 9, two small belt grinders 8 are fixed on the surface of frame 1; Small belt machine 8 a surface fixed with eight self-locking wheel 801, convenient for small belt machine 8 movement; The surface of small belt machine 8 is fixed with block 802 to prevent raw material overflow; Small belt machine 8 a surface fixed with a weighing bucket 9.

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.

4. 5. Conclusion

This preferred embodiment of the design is only used to help explain 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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