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A stirring coffee cup

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ABSTRACT

This invention discloses a stirring coffee cup which includes an outer wall 12 and an inner wall 11 is rotatably arranged in the outer wall 12, and the inner wall 11 is provided with an interior cavity 14, and retracting and storing devices 100 are symmetrically arranged on side walls of the interior cavity 14. The bottom wall of the interior cavity 14 is provided with a transmission cavity 64, and the transmission cavity 64 is provided with a transmission apparatus 200. The invention is characterized by simple structure and convenient operation. The stirring coffee cup can store the stirring rods while ensuring the capacity and aesthetics, and it is convenient to clean. Moreover, the stirring coffee cup can automatically stir the coffee and mix the coffee evenly, which improves the flavor of coffee. Therefore, the invention has an important value in use and promotion.

A STIRRING COFFEE CUP

TECHNICAL FIELD

[0001] The present invention relates to the technical field of daily necessities, in particular to a stirring coffee cup.

BACKGROUND OF THE INVENTION

[0002] At present, more and more people like to drink coffee, but coffee is a mixed drink containing a variety of materials. When drinking, it is necessary to manually mix the materials, which is inconvenient to operate, and the stirring cup is not easy to clean. Therefore, the present invention aims to design a stirring coffee cup that is easy to clean and able to evenly stir.

BRIEF SUMMARY OF THE INVENTION

[0003] The purpose of the invention is to provide a stirring coffee cup so as to overcome the problems existing in the prior art.

[0004] A stirring coffee cup according to this invention comprises an outer wall; wherein an inner wall is rotatably arranged in the outer wall, and the inner wall is provided with an interior cavity, and retracting and storing devices are symmetrically arranged on side walls of the interior cavity; wherein a bottom wall of the interior cavity is provided with a transmission cavity, and the transmission cavity is provided with a transmission apparatus; wherein a side wall of the transmission cavity is provided with restoring cavities, and the restoring cavities are provided with a restoring device; wherein the outer wall is provided with a power cavity, and the power cavity is provided with a rotating device and a driving mechanism; wherein the driving mechanism comprises a motor fixedly disposed on a side wall of the power cavity, and the power cavity is provided with a main shaft that is in power connection with the motor, and a main bevel gear is arranged on an end of the main shaft; and the rotating device can be driven to rotate through the transmission apparatus.

[0005] Preferably, the retracting and storing devices comprise upper retracting and storing tanks and lower retracting and storing tanks that are disposed on the side walls of the interior cavity in a horizontally symmetrical manner; taking the left side as an example for detailed description: the upper retracting and storing tanks are provided with upper stirring rods, and the lower retracting and storing tanks are connected with lower stirring rods; wherein front ends of the upper stirring rods are connected with upper shafts, and front ends of the upper shafts are connected with upper bevel gears; wherein front ends of the lower stirring rods are connected with lower shafts, and front ends of the lower shafts are connected with lower bevel gears; wherein lower walls of the upper retracting and storing tanks are provided with rotating cavities; wherein the rotating cavities are provided with synchronizing shafts; wherein top ends of the synchronizing shafts are provided with front bevel gears engaged with the upper bevel gears; wherein bottom ends of the synchronizing shafts are provided with rear shaft gears engaged with the lower bevel gears; wherein outer walls of the synchronizing shafts are provided with driven gears; wherein the rotating cavities are provided with vertical shafts; wherein top ends of the vertical shafts are provided with master gears engaged with the driven gears, and bottom ends of the vertical shafts are provided with left shaft gears; wherein the retracting and storing devices are configured to retract and store the upper stirring rods and the lower stirring rods.

[0006] Preferably, the transmission apparatus comprises an inner shaft disposed in the transmission cavity; wherein a bottom end of the inner shaft is provided with a driven bevel gear engaged with the main bevel gear; wherein an outer wall of the inner shaft is provided with output bevel gears; wherein sleeve spindles are rotatably arranged in the transmission cavity; wherein ends of the sleeve spindles are provided with input bevel gears engaged with the output bevel gears; wherein the side wall of the transmission cavity is provided with the restoring cavities; wherein connecting shafts are rotatably arranged in the restoring cavities; wherein the connecting shafts are connected with the sleeve spindles through spline shafts; wherein side walls of the restoring cavities are provided with conversion cavities and the conversion cavities are provided with horizontal shafts, and ends of the horizontal shafts are provided with right bevel gears engaged with the left shaft gears, and the other ends of the horizontal shafts are in spline connection with the connecting shafts; wherein primary rotating blocks are rotatably arranged on outer walls of the sleeve spindles, and primary springs are elastically provided between the primary rotating blocks and the side wall of the transmission

cavity; wherein a top end of the inner shaft is provided with a cam; wherein the transmission apparatus is configured to transmit power to the retracting and storing devices.

[0007] Preferably, the rotating device comprises an outer shaft rotatably disposed in the power cavity, wherein the outer shaft is fixedly connected with a bottom wall of the inner wall, and a bottom end of the outer shaft is provided with a secondary gear, and the power cavity is provided with a left shaft; wherein a bottom end of the left shaft is provided with a secondary bevel gear engaged with the main bevel gear; wherein an outer wall the left shaft is provided with a primary pulley, and the power cavity is provided with a right shaft; wherein an outer wall of the right shaft is provided with a secondary pulley, and a belt is in transmission connection between the secondary pulley and the primary pulley; wherein a bottom end of the right shaft is provided with a principal gear engaged with the secondary gear; wherein the rotating device is configured to rotate the inner wall, thereby stirring and mixing the coffee in the interior cavity.

[0008] Preferably, the restoring device comprises a one-way winding wheel disposed on the outer wall of the inner shaft, and second rotating blocks are rotatably arranged on outer walls of the connecting shafts; wherein second springs are elastically arranged between the second rotating blocks and the other walls of the restoring cavities; wherein the second rotating blocks are connected with the one-way winding wheel through drive ropes, and the outer walls of the connecting shafts are provided with ratchets; wherein bottom walls of the restoring cavities are provided with pawls in fit connection with the ratchets, and storage springs are elastically provided between outer walls of the horizontal shafts and inner walls of the restoring cavities; wherein the restoring device is configured to return the retracting and storing devices to an initial position.

[0009] The invention has the following benefits: the stirring coffee cup is characterized by simple structure and convenient operation; the stirring coffee cup can store the stirring rods while ensuring the capacity and aesthetics, and the stirring coffee cup is convenient to clean; also, the stirring coffee cup can automatically stir the coffee and mix the coffee evenly, which improves the flavor of coffee. Therefore, the stirring coffee cup has an important value in use and promotion.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] For better explain the technical proposal in the present invention embodiments or the prior art, the drawings to be used in the description of the embodiments or the prior art will be briefly described below.

[0011] FIG. 1 is an overall structural diagram of a stirring coffee cup in this invention.

[0012] FIG. 2 is a schematic structural diagram of "A" in FIG .1.

[0013] FIG. 3 is a schematic structural diagram of "B" in FIG.1.

[0014] FIG. 4 is a schematic structural diagram of "C" in FIG .1.

DETAILED DESCRIPTION OF THE INVENTION

[0015] The invention will be described in detail below referring to FIG. 1 to FIG. 4. For better explanation, the orientations described hereinafter are defined as follows: directions of up, down, left, right, front and rear in the text are identical to the directions of up, down, left, right, front and rear of FIG.1.

[0016] Referring to Figs.1-4, a stirring coffee cup according to this invention comprises an outer wall 12; wherein an inner wall 11 is rotatably arranged in the outer wall 12, and the inner wall 11 is provided with an interior cavity 14, and retracting and storing devices 100 are symmetrically arranged on side walls of the interior cavity 14; wherein the bottom wall of the interior cavity 14 is provided with a transmission cavity 64, and the transmission cavity 64 is provided with a transmission apparatus 200; wherein a side wall of the transmission cavity 64 is provided with restoring cavities 18, and the restoring cavities 18 are provided with a restoring device 400; wherein the outer wall 12 is provided with a power cavity 28, and the power cavity 28 is provided with a rotating device 300 and a driving mechanism 500; wherein the driving mechanism 500 comprises a motor 25 fixedly disposed on a side wall of the power cavity 28, and the power cavity 28 is provided with a main shaft 26 that is in power connection with the motor 25, and a main bevel gear 27 is arranged on an end of the main shaft 26; and the rotating device 300 can be driven to rotate through the transmission apparatus 200.

[0017] Beneficially, the retracting and storing devices 100 comprise upper retracting and storing tanks 55 and lower retracting and storing tanks 59 that are disposed on the side walls of the interior cavity 14 in a horizontally symmetrical manner; taking the left side as an example for detailed description: the upper retracting and storing tanks 55 are provided with upper stirring rods 13, and the lower retracting and storing tanks 59 are connected with lower stirring rods 15; wherein front ends of the upper stirring rods 13 are connected with upper shafts 53, and front ends of the upper shafts 53 are connected with upper bevel gears 52; wherein front ends of the lower stirring rods 15 are connected with lower shafts 62, and front ends of the lower shafts 62 are connected with lower bevel gears 61; wherein lower walls of the upper retracting and storing tanks 55 are provided with rotating cavities 58; wherein the rotating cavities 58 are provided with synchronizing shafts 56; wherein top ends of the synchronizing shafts 56 are provided with front bevel gears 54 engaged with the upper bevel gears 52; wherein bottom ends of the synchronizing shafts 56 are provided with rear shaft gears 60 engaged with the lower bevel gears 61; wherein outer walls of the synchronizing shafts 56 are provided with driven gears 57; wherein the rotating cavities 58 are provided with vertical shafts 48; wherein top ends of the vertical shafts 48 are provided with master gears 63 engaged with the driven gears 57, and bottom ends of the vertical shafts 48 are provided with left shaft gears 49; wherein the retracting and storing devices 100 are configured to retract and store the upper stirring rods 13 and the lower stirring rods 15.

[0018] Beneficially, the transmission apparatus 200 comprises an inner shaft 43 disposed in the transmission cavity 64; wherein a bottom end of the inner shaft 43 is provided with a driven bevel gear 29 engaged with the main bevel gear 27; wherein an outer wall of the inner shaft 43 is provided with output bevel gears 40; wherein sleeve spindles 42 are rotatably arranged in the transmission cavity 64; wherein ends of the sleeve spindles 42 are provided with input bevel gears 41 engaged with the output bevel gears 40; wherein the side wall of the transmission cavity 64 is provided with the restoring cavities 18; wherein connecting shafts 19 are rotatably arranged in the restoring cavities 18; wherein the connecting shafts 19 are connected with the sleeve spindles 42 through spline shafts 47; wherein side walls of the restoring cavities 18 are provided with conversion cavities 50 and the conversion cavities 50 are provided with horizontal shafts 17, and ends of the horizontal shafts 17 are provided with right bevel gears 51 engaged with the left shaft gears 49, and the other ends of the horizontal shafts 17 are in spline connection with the connecting shafts 19; wherein primary rotating blocks 44 are rotatably arranged on outer walls of the sleeve spindles 42, and primary springs

46 are elastically provided between the primary rotating blocks 44 and the side wall of the transmission cavity 64; wherein a top end of the inner shaft 43 is provided with a cam 65; wherein the transmission apparatus 200 is configured to transmit power to the retracting and storing devices 100.

[0019] Beneficially, the rotating device 300 comprises an outer shaft 32 rotatably disposed in the power cavity 28, wherein the outer shaft 32 is fixedly connected with a bottom wall of the inner wall 11, and a bottom end of the outer shaft 32 is provided with a secondary gear 31, and the power cavity 28 is provided with a left shaft 35; wherein a bottom end of the left shaft 35 is provided with a secondary bevel gear 33 engaged with the main bevel gear 27; wherein an outer wall the left shaft 35 is provided with a primary pulley 38, and the power cavity 28 is provided with a right shaft 34; wherein an outer wall of the right shaft 34 is provided with a secondary pulley 36, and a belt 37 is in transmission connection between the secondary pulley 36 and the primary pulley 38; wherein a bottom end of the right shaft 34 is provided with a principal gear 30 engaged with the secondary gear 31; wherein the rotating device 300 is configured to rotate the inner wall 11, thereby stirring and mixing the coffee in the interior cavity 14.

[0020] Beneficially, the restoring device 400 comprises a one-way winding wheel 39 disposed on the outer wall of the inner shaft 43, and second rotating blocks 22 are rotatably arranged on outer walls of the connecting shafts 19; wherein second springs 23 are elastically arranged between the second rotating blocks 22 and the other walls of the restoring cavities 18; wherein the second rotating blocks 22 are connected with the one-way winding wheel 39 through drive ropes 24, and the outer walls of the connecting shafts 19 are provided with ratchets 20; wherein bottom walls of the restoring cavities 18 are provided with pawls 21 in fit connection with the ratchets 20, and storage springs 16 are elastically provided between outer walls of the horizontal shafts 17 and inner walls of the restoring cavities 18; wherein the restoring device 400 is configured to return the retracting and storing devices 100 to an initial position.

[0021] In the initial state, the upper stirring rods 13 are maximally located within the upper retracting and storing tanks 55; the lower stirring rods 15 are maximally located within the lower retracting and storing tanks 59, and the cam 65 is disengaged from the primary rotating blocks 44; wherein the input bevel gears 41 are engaged with the output bevel gears 40, and the ratchets 20 are in fit connection with the pawls 21;

[0022] When in use, the motor 25 starts to work and drives the main bevel gear 27 to rotate by the main shaft 26; the main bevel gear 27 drives the synchronizing shafts 56 to rotate by the driven bevel gear 29, the inner shaft 43, the output bevel gears 40, the input bevel gears 41, the sleeve spindles 42, the spline shafts 47, the connecting shafts 19, the horizontal shafts 17, the right bevel gears 51, the left shaft gears 49, the vertical shafts 48, the master gears 63, and the driven gears 57, further the upper stirring rods 13 are driven to rotate by the front bevel gears 54, the upper bevel gears 52 and the upper shafts 53, and at the same time, the lower stirring rods 15 are driven to rotate by the rear shaft gears 60, the lower bevel gears 61, and the lower shafts 62; when the upper stirring rods 13 and the lower stirring rods 15 are rotated to the maximum position, the cam 65 is in fit connection with the primary rotating blocks 44 and drives the sleeve spindles 42 to slide to one side through the primary rotating blocks 44, and the input bevel gears 41 are disengaged from the output bevel gears 40; at the same time, the main bevel gear 27 drives the inner wall 11 to rotate through the secondary bevel gear 33, the left shaft 35, the primary pulley 38, the secondary pulley 36, the right shaft 34, the principal gear 30, the secondary gear 31, and the outer shaft 32, thereby stirring the coffee; when the stirring is completed, the motor 25 reversely works and drives the main bevel gear 27 through the main shaft 26 to rotate reversely, then drives the driven bevel gear 29, the inner shaft 43 and the one-way winding wheel 39 to rotate, and drives the ratchets 20 to slide to the other side through the drive ropes 24 and the connecting shafts 19; the elastic potential energy of the storage springs 16 is released, and the horizontal shafts 17 are reversely rotated, thereby driving the upper stirring rods 13 and the lower stirring rods 15 to reversely rotate back to the initial position.

[0023] The invention has the following benefits: the stirring coffee cup is characterized by simple structure and convenient operation; the stirring coffee cup can store the stirring rods while ensuring the capacity and aesthetics, and the stirring coffee cup is convenient to clean; also, the stirring coffee cup can automatically stir the coffee and mix the coffee evenly, which improves the flavor of coffee. Therefore, the stirring coffee cup has an important value in use and promotion.

[0024] The above is only the specific embodiment of the present invention, but the protection scope of the present invention is not limited thereto, and any changes or substitutions without creative efforts shall fall within the protection scope of the present

invention. Therefore, the claimed protection extent of the invention shall be determined with reference to the appended claims.

CLAIMS

1. A stirring coffee cup according to this invention, comprising an outer wall;
wherein an inner wall is rotatably arranged in the outer wall,
and the inner wall is provided with an interior cavity,
and retracting and storing devices are symmetrically arranged on side walls of the interior cavity;
wherein a bottom wall of the interior cavity is provided with a transmission cavity, and the transmission cavity is provided with a transmission apparatus;
wherein a side wall of the transmission cavity is provided with restoring cavities,
and the restoring cavities are provided with a restoring device;
wherein the outer wall is provided with a power cavity,
and the power cavity is provided with a rotating device and a driving mechanism; wherein the driving mechanism comprises
a motor fixedly disposed on a side wall of the power cavity,
and the power cavity is provided with a main shaft that is in power connection with the motor,
and a main bevel gear is arranged on an end of the main shaft;
and the rotating device can be driven to rotate through the transmission apparatus; the retracting and storing devices comprise upper retracting and storing tanks and lower retracting and storing tanks that are disposed on the side walls of the interior cavity in a horizontally symmetrical manner;
the upper retracting and storing tanks are provided with upper stirring rods,
and the lower retracting and storing tanks are connected with lower stirring rods; wherein front ends of the upper stirring rods are connected with upper shafts,
and front ends of the upper shafts are connected with upper bevel gears;
wherein front ends of the lower stirring rods are connected with lower shafts,
and front ends of the lower shafts are connected with lower bevel gears;

wherein lower walls of the upper retracting and storing tanks are provided with rotating cavities;

wherein the rotating cavities are provided with synchronizing shafts;

wherein top ends of the synchronizing shafts are provided with front bevel gears engaged with the upper bevel gears;

wherein bottom ends of the synchronizing shafts are provided with rear shaft gears engaged with the lower bevel gears;

wherein outer walls of the synchronizing shafts are provided with driven gears; wherein the rotating cavities are provided with vertical shafts;

wherein top ends of the vertical shafts are provided with master gears engaged with the driven gears,

and bottom ends of the vertical shafts are provided with left shaft gears;

wherein the retracting and storing devices are configured to retract and store the upper stirring rods and the lower stirring rods;

the transmission apparatus comprises

an inner shaft disposed in the transmission cavity;

wherein a bottom end of the inner shaft is provided with a driven bevel gear engaged with the main bevel gear;

wherein an outer wall of the inner shaft is provided with output bevel gears;

wherein sleeve spindles are rotatably arranged in the transmission cavity;

wherein ends of the sleeve spindles are provided with input bevel gears engaged with the output bevel gears;

wherein the side wall of the transmission cavity is provided with the restoring cavities;

wherein connecting shafts are rotatably arranged in the restoring cavities;

wherein the connecting shafts are connected with the sleeve spindles through spline shafts;

wherein side walls of the restoring cavities are provided with conversion cavities and the conversion cavities are provided with horizontal shafts,

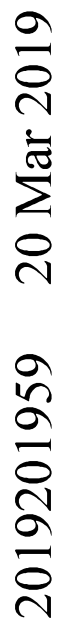
and ends of the horizontal shafts are provided with right bevel gears engaged with the left shaft gears,

and the other ends of the horizontal shafts are in spline connection with the connecting shafts;
wherein primary rotating blocks are rotatably arranged on outer walls of the sleeve spindles,
and primary springs are elastically provided between the primary rotating blocks and the side wall of the transmission cavity;
wherein a top end of the inner shaft is provided with a cam;
wherein the transmission apparatus is configured to transmit power to the retracting and storing devices;
the rotating device comprises
an outer shaft rotatably disposed in the power cavity,
wherein the outer shaft is fixedly connected with a bottom wall of the inner wall,
and a bottom end of the outer shaft is provided with a secondary gear,
and the power cavity is provided with a left shaft;
wherein a bottom end of the left shaft is provided with a secondary bevel gear engaged with the main bevel gear;
wherein an outer wall the left shaft is provided with a primary pulley,
and the power cavity is provided with a right shaft;
wherein an outer wall of the right shaft is provided with a secondary pulley,
and a belt is in transmission connection between the secondary pulley and the primary pulley;
wherein a bottom end of the right shaft is provided with a principal gear engaged with the secondary gear;
wherein the rotating device is configured to rotate the inner wall, thereby stirring and mixing the coffee in the interior cavity.

2. The stirring coffee cup according to claim 1, wherein the restoring device comprises a one-way winding wheel disposed on the outer wall of the inner shaft,
and second rotating blocks are rotatably arranged on outer walls of the connecting shafts;
wherein second springs are elastically arranged between the second rotating blocks and the other walls of the restoring cavities;
wherein the second rotating blocks are connected with the one-way winding wheel through

drive ropes,
and the outer walls of the connecting shafts are provided with ratchets;
wherein bottom walls of the restoring cavities are provided with pawls in fit connection with the ratchets,
and storage springs are elastically provided between outer walls of the horizontal shafts and inner walls of the restoring cavities;
wherein the restoring device is configured to return the retracting and storing devices to an initial position.

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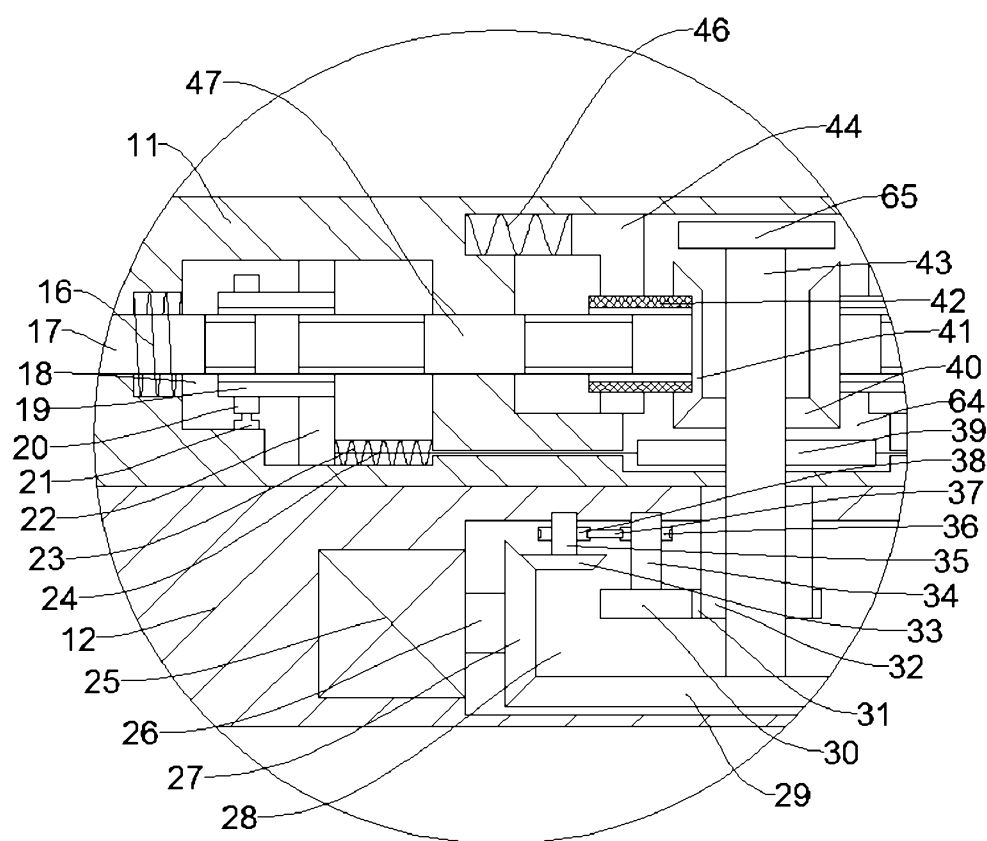


Figure 2

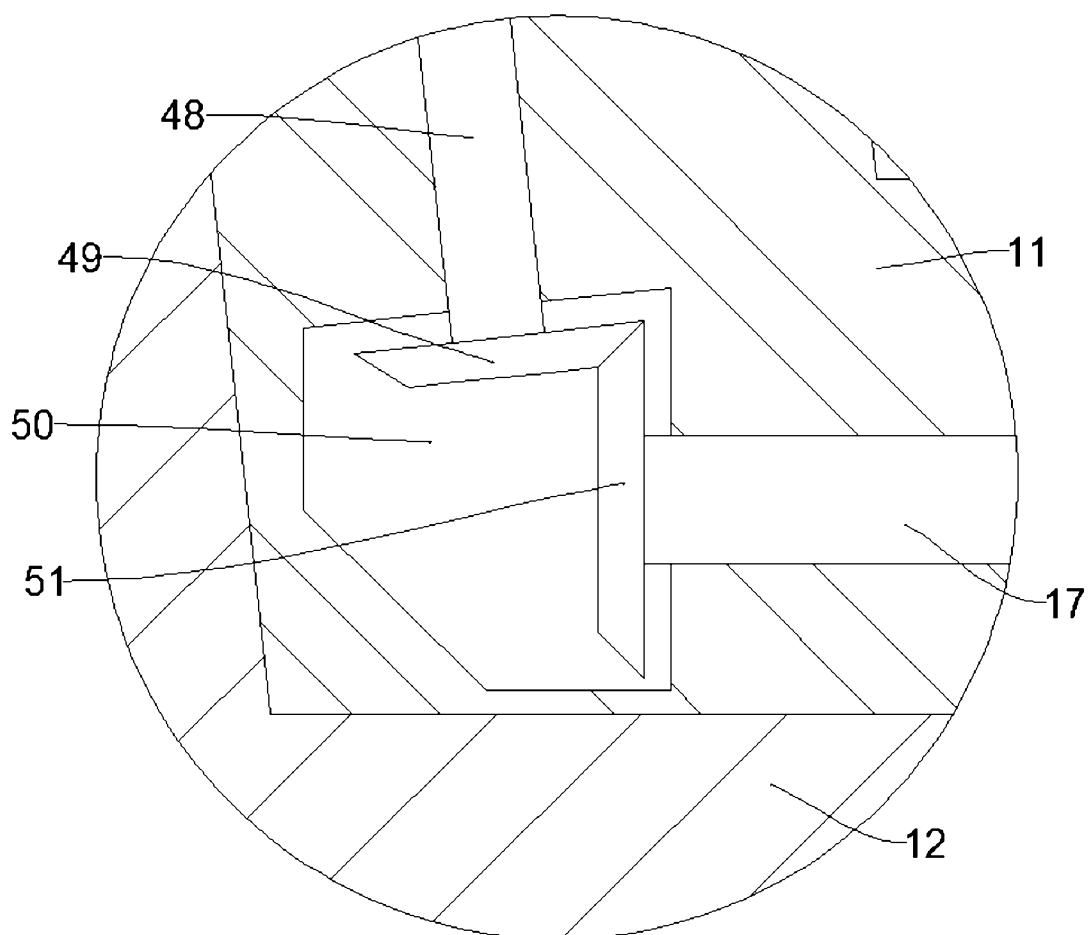


Figure 3

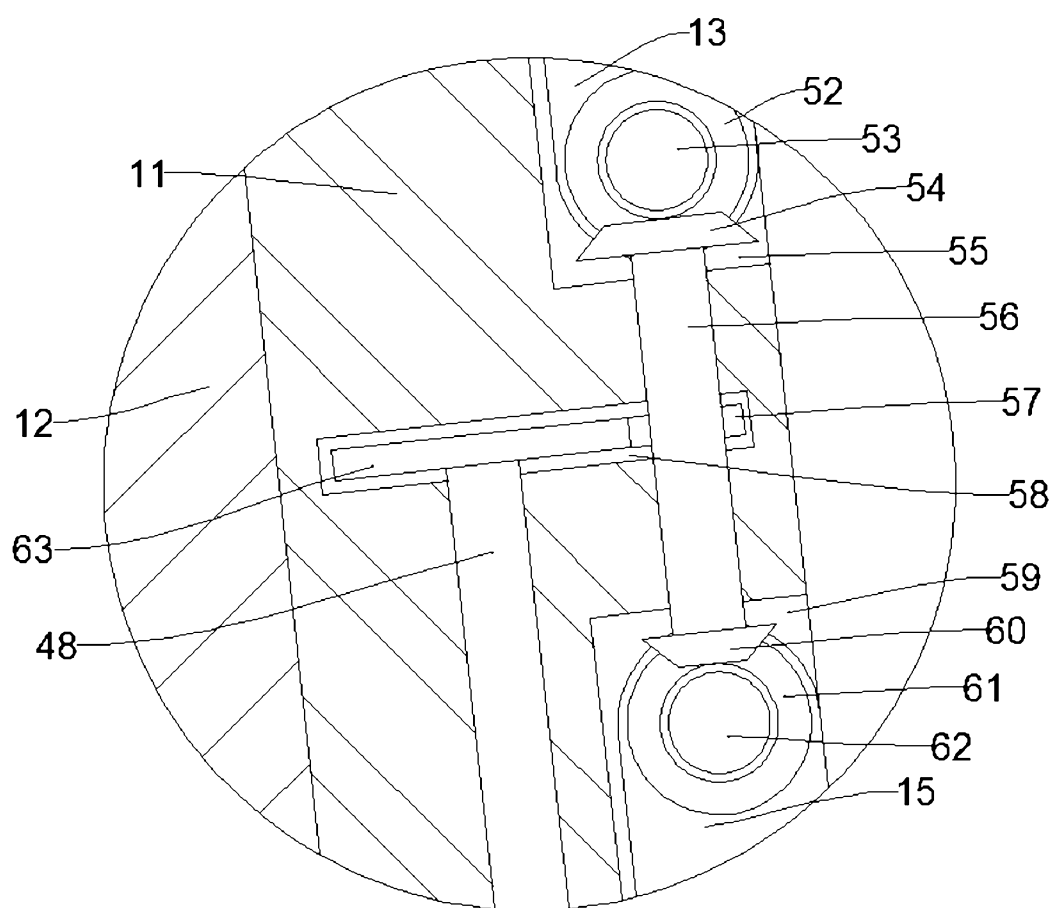


Figure 4