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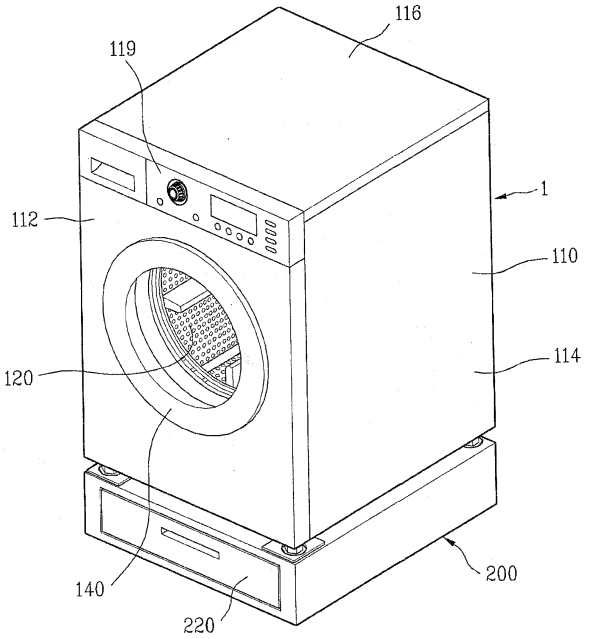
(54) Laundry machine

(57) The present invention relates to a laundry machine capable of washing or drying the laundry.
According to the present invention, there is provided a laundry machine comprising: a first washing tub (120) receiving the laundry: a housing (210) disposed neighboring the first washing tub and having a predetermined space in the inside thereof; a second washing tub (220) provided in the inside of the housing and receiving the laundry separately from the first washing tub; and a support member (250) supporting the second washing tub against the housing, substantially preventing the displacement of the second washing tub from generating due to its load, and limiting the displacement against the vibration of the second washing tub within a predetermined width.

FIG. 1



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Description

[0001] The present invention relates to a laundry machine capable of washing or drying the laundry.

[0002] A washing machine is an electric home appliance washing capable of clothing, and a drying machine is an electric home appliance drying capable of wet clothing, etc. Recently, electric home appliances combining the functions of the washing machine and the drying machine have been widely used. Hereinafter, for the sake of explanatory convenience, the washing machine, the drying machine, and the electric home appliances combining the functions of thereof will be commonly called as a laundry machine.

[0003] The laundry machine is generally classified into a top loading type and a front loading type according to the position in which the laundry is put. And, the laundry machine is classified into a vertical axis type where a drum or a pulsator rotates and a horizontal axis type where a drum horizontally put rotates according to the manner that the washing is made.

[0004] The conventional laundry machine is generally directly installed on the bottom surface, wherein the inlet of the front loading type laundry machine is low so that it is inconvenient for a user to draw in and out the laundry. Therefore, it is requested that the height of the inlet of the laundry machine is more raised.

[0005] Generally, each home is provided with one laundry machine. Therefore, when wishing to wash the laundry classified according to the sorts thereof, a washing machine is used several times. For example, when wishing to wash the laundry by dividing them into the laundry such as adult clothing and the laundry such as underwears and baby clothing, etc., the washing machine is used again in order to wash the latter after the washing of the former is completed. Thereby, a lot of washing time is taken and a lot of energy is also consumed.

[0006] Also, in view of the energy saving, it is not preferable to use a large-sized laundry machine as shown in the prior art when washing a small amount clothing. The washing course provided in the large-sized laundry machine generally expects the case with a lot of washing water so that a lot of water is consumed. And, a lot of power is consumed for rotating a large-sized drum or a pulsator.

[0007] Also, since the washing course expects a large amount laundry, the washing time is comparatively long. And, the large-sized laundry machine is provided with the washing course, expecting mainly general clothing, so that it may not be suitable for washing delicate cloth such as underwears or baby clothing.

[0008] And, even in the case where a small amount laundry is frequently washed, the large-sized washing machine is not suitable. A consumer gathers the laundry over several days or more in order to wash the laundry once by gathering them.

[0009] It is not good for underwears and baby clothing, etc. to be left for a long time in view of sanitation. And, if such laundry is left for a long time, dirt is clung to cloth to causes a problem that it is not cleanly washed.

[0010] Therefore, the necessity of a small-sized laundry machine having much smaller capacity than the conventional large-sized laundry machine has increased. However, despite the small-size, it is not preferable to provide two laundry machines in one home in view of the space utilization, and it is not good either in appearance.

[0011] The present invention proposes to solve the above problem. It is an object of the present invention to provide a laundry machine improving the convenience thereof, with a high positioned laundry inlet.

[0012] The present invention is to provide a laundry machine comprising: at least one first washing tub receiving the laundry; a housing disposed neighboring the first washing tub and having a predetermined space in the inside thereof; a second washing tub provided in the inside of the housing and receiving the laundry separately from the first washing tub; and a support member supporting the second washing tub against the housing, substantially preventing the displacement of the second washing tub from generating due to its load, and limiting the displacement against the vibration of the second washing tub within a predetermined width.

[0013] Also, a case forming a space in the inside is provided, and the housing is installed to be received in the space of the case or to be able to be drawn in and out.

[0014] The support member is provided between a first part vibrating integrally with the second washing tub and a second part vibrating integrally with the housing, and is coupled not to be removed from the first part and the second part.

[0015] Preferably, the support member is substantially made of a rigid body.

[0016] The support member is formed to be applied with tensile force due to the load of the second washing tub.

[0017] Also, the support member, both ends thereof being coupled not to be removed, respectively, in the first part vibrating integrally with the second washing tub and the second part vibrating integrally with the housing, is formed to reduce the vibration by means of the friction force between the first part and the second part, when the vibration of the second washing tub is generated.

[0018] The friction force generated when the second washing tub vibrates is formed to be generated from the portion where the support member is coupled to the first part and the second part.

[0019] The support member is made of material of a rigid body and is coupled to be rotatable within a predetermined angle between the first part and the second part.

[0020] The rotating angle of the support member is limited within a predetermined angle by means of the interference between the support member and the first and second parts coupled to the support member.

[0021] The support member is positioned in order that the second washing tub is returned to its initial position

when the second washing tub does not vibrate.

[0022] The support member is applied with force to couple to the first and second member where a virtual line connecting both ends of the support member intends to be vertical to the ground when the second washing tub does not vibrate.

[0023] The support member is formed to be applied with tensile force due to the weight of the second washing tub.

[0024] Meanwhile, the laundry machine of the present invention further comprises: a first bracket vibrating integrally with the second washing tub and formed with a first hole penetrating through the one side end of the support member; and a second bracket moving integrally with the housing and formed with a second hole penetrating through the other side end of the support member.

[0025] The upper end of the support member is formed to penetrate through the second hole, and the lower end of the support member is formed to penetrate through the first hole.

[0026] The support member further comprises constraint parts each provided in the ends penetrated through the first hole and the second hole not to be removed from the first hole and the second hole.

[0027] The constraint parts generate friction force by being rubbed with the inner circumferential surface of the first and second holes when the support member rotates.

[0028] The constraint parts each are provided in the both side ends of the support member and are formed to have a larger diameter than the first and the second holes.

[0029] The portion of the support member penetrating through the first and second holes is formed to have a clearance of predetermined distance from the inner circumferential surfaces of the first and second holes.

[0030] The inner circumferential surfaces of the first and second holes are formed in an arc shape forming a portion of a sphere, and the portion of the constraint part connected to the inner circumferential surfaces of the first and second holes is formed to have a spherical arc corresponding to the inner circumferential surfaces of the first and second holes.

[0031] The surface of at least one side of the constraint part of the support member and the inner circumferential surfaces of the first and second holes, rubbed with each other, is made of material maintaining friction force and preventing noise.

[0032] Meanwhile, the laundry machine of the present invention further comprises an elastic support part elastically supporting right and left vibrations of the second washing tub.

[0033] Meanwhile, the laundry machine of the present invention further comprises an elastic support part, one end coupling to the first part and the other end coupling to the second part, to elastically support right and left vibration of the second washing tub.

[0034] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this application, illustrate embodiment(s) of the invention and together with the description serve to explain the principle of the invention. In the drawings:

[0035] FIG. 1 is a perspective view showing a laundry machine according to one embodiment of the present invention;

[0036] FIG. 2 is a vertical cross-sectional view of FIG. 1;

[0037] FIG. 3 is a perspective view showing a laundry machine according to another embodiment of the present invention;

[0038] FIG. 4 is a vertical cross-sectional view of FIG. 3;

[0039] FIG. 5 is a perspective view enlarging a support member of a laundry machine according to the present invention;

[0040] FIG. 6 is a cross-sectional view showing a state where the support member of FIG. 5 rotates;

[0041] FIG. 7 is a perspective view enlarging one embodiment of a coupling part between a support member and a lower bracket;

[0042] FIG. 8 is a perspective view enlarging another embodiment of a coupling part between a support member and a lower bracket; and

[0043] FIG. 9 is a cross-sectional view showing a state where an elastic support part is provided.

[0044] Hereinafter, the embodiments of the present invention which can carry out the technical solutions as above will be described in detail with reference to the accompanying drawings.

[0045] FIGS. 1 and 2 show one embodiment of a laundry machine according to the present invention.

[0046] The laundry machine 1 according to the present invention comprises a cabinet 10 forming an appearance, and a first washing tub 120 provided in the inside of the cabinet 110.

[0047] The cabinet 110 comprises a front cover 112 forming a front, lateral walls forming both sides, a rear wall 114 forming a rear, and a top plate 116 forming a upper surface.

[0048] The front cover 112 of the cabinet 110 is provided with a door 140, and the front upper of the cabinet 110 is provided with a control panel 119 for operating the laundry machine 1.

[0049] And, the first washing tub 120 comprises a first tub 122 storing washing water and a first drum 124 rotatably disposed in the first tub 122.

[0050] The first tub 122 and the first drum 124 are formed to have an opening part formed to be connected to the external for drawing in and out the laundry when the door 140 is opened. Also, the first drum 124 rotates by a motor 130, and the inside thereof is provided with a lot of lifts 126 to proceed with the washing in the manner to lift up and fall the laundry inside the drum at the time of rotation.

[0051] Meanwhile, the opening part may be formed not to face the front of the cabinet but to face the upper side

thereof, and the first washing tub may be formed in a shape not to lie down but to stand against the ground.

[0052] Meanwhile, when the door 140 of the laundry machine 1 is formed in front of the cabinet 110, a user should bend his body to draw in and out the laundry into the inside of the first washing tub 120. Therefore, in order to prevent the user from excessively bending his body, it is requested that the washing tub 120 is positioned above a predetermined height.

[0053] To this end, as shown in FIGS. 1 and 2, a case 200 lifting up the height of the first washing tub at a predetermined height can be used under the laundry machine 1.

[0054] The case 200 can be formed to have a predetermined height so that the cabinet of the laundry machine 1 can be raised to the upper side.

[0055] Also, the case 200 can be formed to have a predetermined space in the inside thereof and to receive the laundry supplies in the inside of the space for efficiently using the space.

[0056] Also, in order for the user to conveniently draw in and out things inside the case 200, the inside of the case 200 has a predetermined space capable of receiving supplies and can be further provided a housing 210 formed to be able to be drawn in and out and received from the space of the case 200.

[0057] Also, the case 20 as above can be installed in the lower of the cabinet 110, and can be installed in the upper side or the side portion thereof, as needed, although not shown in the drawings.

[0058] Meanwhile, the housing 210 as above can be provided in the inside of the case 200 separatedly provided from the cabinet 110 receiving the first washing tub 120, and as shown in FIGS. 3 and 4, it can be provided in the inside of the cabinet 110 to be integrated with the cabinet 110.

[0059] The housing 210 is disposed to be able to be drawn in and out inside the cabinet 110, and can be disposed below of the first washing tub 120.

[0060] Also, the housing 210 is provided in the inside of the cabinet 110, and can be provided in the inside of the case 200 securing a predetermined space so that the housing 210 can be received.

[0061] And, a second washing tub 220 capable of receiving the laundry separately from the first washing tub 120 and then performing the washing can be disposed in the inside of the housing 210.

[0062] The second washing tub 220 can be formed to be operable under control of the controller 119 provided in the cabinet 110.

[0063] The second washing tub 220 is operable independently from the first washing tub 120, and can comprise a second tub receiving washing water and a second drum disposed to be operable in the second tub. Also, the second washing tub 220 can comprise a pulsator provided to be rotatable in the second tub. Further, other washing tubs in various manners not described in the present description can be provided.

[0064] Therefore, as the second washing tub 220 is provided, separately from the first washing tub 120, the washing can be promptly performed by selecting a proper washing tub depending on the amount of the laundry, without the waste of washing water and energy.

[0065] Also, as the first washing tub 120 and the second washing tub 220 each are separately provided to be able to independently operate to each other, they can be formed to have different washing manner, and a user can select and use a more proper washing tub according to the sort and characteristic of the laundry, making it possible to improve washing efficiency and reducing the cloth damage of the laundry.

[0066] Also, dark colored clothes and light colored clothes are classified and washed in order to prevent them from dyeing, in this case, the first washing tub 120 and the second washing tub 220 are classified so that the washing can be performed at once without washing twice, making it possible to reduce washing time.

[0067] As shown in FIGS. 2 and 4, the second washing tub 220 is received in the inside of the housing 210 as described above, and a vibration can be generated depending on an eccentricity of the inside laundry when the second washing tub 220 rotates. Also, there is a tendency to fall into the lower side due to the weight of the laundry and the washing water.

[0068] However, it is general to form the height of the housing 210 provided in the inside of the case 200 not to be high for the sake of convenience in actual use. In other words, if the height of the case 200 is formed to be too high, the opening part of the first washing tub 120 is formed on a too high position when the case 200 is provided below the first washing tub 120 so that the user's convenience rather becomes bad, and if the case 200 is provided above the first washing tub 120, the height of the second washing tub 220 becomes too high so that the user's convenience becomes bad.

[0069] Therefore, it is preferable that the height of the housing 210 is formed not to be too high, and it can further comprise a support member 250 capable of supporting the second washing tub 220 and damping the vibration in the space inside the housing 210.

[0070] In general, the supporting and the damping of the washing tub are made by means of a suspension comprising a cylinder, a piston, a spring and a damper, etc. and formed to be retractable. However, the suspension as above is retracted depending on the weight of the washing tub to allow the washing tub to be fallen so that it is disadvantageous to be used in supporting the second washing tub 220 provided in the inside of the housing 210 having very narrow height and width.

[0071] FIGS. 5 and 6 are views enlarging the support member.

[0072] Therefore, it is preferable that the support member 250 supporting the second washing tub provided in the inside of the housing 210 and damping a vibration is formed to prevent the second washing tub 220 from falling due to its load and to limit the displacement generated

due to the vibration of the second washing tub 220 within a predetermined width.

[0073] It is preferable that the support members 250 are coupled to the portion vibrating integrally with the second washing tub 220 and the portion moving integrally with the housing 210, respectively.

[0074] Hereinafter, the portion vibrating integrally with the second washing tub 220 will be called as a first part 230, and the portion moving integrally with the housing 210 will be called as a second part 240.

[0075] In other words, the support members 250 are provided between the first part 230 and the second part 240, wherein they are coupled to the first part 230 and the second part 240, respectively.

[0076] At this time, it is preferable that the support members 250 are coupled not to be removed from the first part 230 and the second part 240.

[0077] Also, it is preferable that the support member 250, both ends thereof being coupled to the first part 230 and the second part 240, is made of material of a rigid body neither retracted nor deformed regardless of the load of the second washing tub 220.

[0078] Therefore, since the support member 250 is made of material of a rigid body not retracted, while supporting the load of the second washing tub 220, the falling of the second washing tub 220 due to the load of the second washing tub 220 is prevented.

[0079] Also, the support member 250 can be formed to be applied with tensile force due to the load of the second washing tub 220. In other words, the support member 250 is approximately formed in a shape stood from the ground, wherein the second part 240 is coupled to the upper end of the support member 250, and the first part 230 is coupled to the lower end of the support member 250.

[0080] And, the support member can be formed to damp the vibration conveyed from the second washing tub 220 through friction force.

[0081] At this time, it is preferable that the portions where the friction occurs are portions where the support member 250 is coupled to the first part 230 and the support member 250 is coupled to the second part 240.

[0082] Therefore, since the load of the second washing tub 220 acts on the portion where the friction occurs, it is possible to maximize friction force.

[0083] In order that friction occurs in the portion where the support member 250 is coupled to the first part 230 and the support member is coupled to the second part 240 depending on the vibration of the second washing tub 220, it is preferable that the support members 250 is coupled to be movable between the first part 230 and the second part 240 and it is also coupled to be rotatable between the first part 230 and the second part 240.

[0084] To this end, the support member 250 can be formed to have a clearance of predetermined distance in the portions coupled to the first part 230 and the second part 240.

[0085] And, the support member 250 can be coupled so that its rotating angle is limited within a predetermined angle by means of the interference between the support member and the first part 230 and the second part 240.

[0086] Meanwhile, when the second washing tub 220 does not vibrate, the support member 250 can be positioned in order that the second washing tub 220 can be returned to its original initial position.

[0087] To this end, the support member 250 is applied with tensile force due to the weight of the second washing tube 220, in this case, the support member 250 can be applied with force to couple to the first and the second member where a virtual line connecting both ends of the support member rotates to be vertical to the ground when the second washing tub 220 does not vibrate by the tensile force.

[0088] Hereinafter, the support member 250 of the laundry machine according to the present invention will be described in more detail.

[0089] FIGS. 5 and 6 are views enlarging the support member 250.

[0090] The second washing tub 220 is provided with an upper bracket 231. The upper bracket 231 is coupled to vibrate integrally with the second washing tub 220, wherein it corresponds to the aforementioned first part 230.

[0091] And, the housing 210 is provided with a lower bracket 241. The lower bracket 241 is coupled to move integrally with the housing 210, wherein it corresponds to the aforementioned second part 240.

[0092] And, the support members 250 are coupled to the upper bracket 231 and the lower bracket 241, respectively. At this time, the lower bracket 241 is coupled to the upper end of the support member 250 and the upper bracket 231 is coupled to the ower end of the support member 250.

[0093] In other words, the upper bracket 231 is coupled to the lower surface or the side of the second washing tub 220 and is extended to face the lower side, wherein a first hole 233 penetrating through the lower end of the support member 250 is formed on its end. Also, the lower bracket 241 is coupled to the lower surface or the side of the housing 210 and is extended to face the upper side, wherein a second hole 243 penetrating through the upper end of the support member 250 is formed on its end. And, the extended end of the lower bracket 241 is formed to be positioned on a more upper side than the end of the upper bracket 231.

[0094] Therefore, the support member 250 is applied with tensile force due to the load of the second washing tub 220.

[0095] Herein, the first hole 233 and the second hole 243 each can be formed to have a larger diameter than that of the support member 250 penetrating through the first hole 233 and the second hole 243.

[0096] Also, the end of the support member 250 penetrating through the first hole 233 and the second hole 243 can be formed to have a larger diameter than those of the first hole 233 and the second hole 243.

[0097] To this end, constraint parts 252 having a larger diameter than those of the first hole 233 and the second hole 243 can be provided in both ends of the support member 250 penetrating through the first hole 233 and the second hole 243, respectively.

[0098] Therefore, the support member 250 forms a clearance of predetermined distance between the first hole 233 and the second hole 243, not being removed from the first hole 233 and the second hole 243, and is coupled to be rotatable within a predetermined angle.

[0099] Also, when the second washing tub 220 vibrates, the support member 250 rotates by means of the upper bracket 231 vibrating integrally with the second washing tub 220.

[0100] And, friction occurs between the constraint part 252 of the support member 250 and the inner circumferential surfaces of the first hole 233 and the second hole 243 connected to the constraint part 252 so that the vibration damps due to the friction force.

[0101] Also, if the vibration displacement of the second washing tub 220 exceeds a predetermined range, interference between the support member 250 and the upper bracket 231 and the lower bracket 241 occurs so that the rotating angle of the support member 250 is limited. Therefore, the vibration displacement of the second washing tub 220 is also limited by the horizontal and vertical displacement of the maximum rotating angle of the support member 250.

[0102] As described above, the constraint part 250 and the first hole 233 and the second hole 243 are rubbed with each other when the support member 250 rotates. At this time, as shown in FIG. 7 or FIG. 8, the inner circumferential surfaces of the first hole 233 and the second hole 243 and the constraint part 252 provided in the end of the support member 250, connected to each other, can be formed to have an approximately spherical contact surface, in order that the support member 250 can smoothly rotate.

[0103] Herein, the shapes of the first hole 233 and the second 243 can be selectively adopted by those skilled in the art depending on necessary friction force between the constraint part 252 and the first hole 233 and the second hole 243, and further can be formed in any other shapes.

[0104] Also, at least any one of the inner circumferential surfaces of the first hole 233 and the second hole 243 or the surface of the constraint part 252, contacted and rubbed with each other not to generate noise at the time of friction, can be made of resin material capable of maintaining friction coefficients and preventing a noise generation.

[0105] The support member having the above structure is applied with tensile force due to the load of the second washing tub 220 so that it is applied with force to couple to the first and second member that the support member always intends to be vertical to the ground.

[0106] In other words, the support member is applied with the force to couple where a straight line connecting both ends of the support member 250 intends to be vertical to the ground. Therefore, the support member 250 always shows a tendency intending to rotate in a direction to be vertical to the ground. Therefore, although the second washing tube 220 suspended by means of the support member 250 is deviated from an initial position when vibrating, it can be returned to the initial position when not vibrating.

[0107] And, an elastic support part 210 elastically supporting right and left vibration of the second washing tube 220 can be further provided. As shown in FIG. 9, the elastic support part 210 can be formed of a spring, and it can be also formed of other constituent such as a rubber band, etc., as needed.

[0108] One end of the elastic support part 210 can be coupled to the first part 230 vibrating integrally with the second washing tub 220, and the other end of the elastic support part 210 can be coupled to the second part 240 vibrating integrally with the housing 210, respectively.

[0109] In other words, one end of the elastic support part 210 can be directly coupled to the second washing tub 220 or be coupled to the upper bracket 231 vibrating integrally with the second washing tub 220, and the other end of the elastic support part 210 can be directly coupled to the housing 210 or be coupled to the lower bracket 241 moving integrally with the housing 210.

[0110] Therefore, the elastic support part 210 elastically supports the right and left vibration of the second washing tub 220, making it possible to more efficiently damp the vibration of the second washing tub 220.

[0111] With the laundry machine according to the present invention, there are the following acting effects:

[0112] First, as the height of a first washing tub of the laundry machine is raised, it is not needed for a user to excessively bend his body when taking the laundry into the first washing tub and taking it out of the first washing tub, making it possible to improve convenience in use.

[0113] Second, as a small capacity second washing tub is installed neighboring the first washing tub, the user can select a washing tub proper for the amount of the laundry, it is possible to reduce unnecessary washing water and waste of energy.

[0114] Third, as the second washing tub can be formed to use a different washing manner from that of the first washing tub, it is possible to select a proper washing manner depending on sorts of the laundry.

[0115] Fourth, as the displacement due to its load of the second washing tub disposed in the narrow space inside can be substantially prevented, making it possible to improve space utilization, and as the vibration displacement width can be limited and the vibration can be damped with the simple structure, it is possible to enlarge the size of the second washing tub at maximum.

[0116] Fifth, as the second washing tub suspended by means of a support member is always returned to an initial position, it is possible to improve stability.

[0117] Although a few embodiments of the present invention have been shown and described, it would be ap-

preciated by those skilled in the art that changes might be made in this embodiment without departing from the principles and spirit of the invention, the scope of which is defined in the claims and their equivalents.

Claims

1. A laundry machine comprising:

a first washing tub receiving the laundry;
a housing disposed neighboring the first washing tub and having a predetermined space in the inside thereof;
a second washing tub provided in the inside of the housing and receiving the laundry separately from the first washing tub; and
a support member supporting the second washing tub against the housing, substantially preventing the displacement of the second washing tub from generating due to its load, and limiting the displacement against the vibration of the second washing tub within a predetermined width.

2. The laundry machine as claimed in claim 1, wherein a case forming a space in the inside is provided, and the housing is installed to be received in the space of the case or to be able to be drawn in and out.

3. The laundry machine as claimed in claim 1 or 2, wherein the support member is provided between a first part vibrating integrally with the second washing tub and a second part vibrating integrally with the housing, and is coupled not to be removed from the first part and the second part.

4. The laundry machine as claimed in claim 3, wherein the support member is substantially made of a rigid body.

5. The laundry machine as claimed in claim 3 or 4, wherein the support member is formed to be applied with tensile force due to the load of the second washing tub.

6. The laundry machine as claimed in any of claims 1 to 5, wherein the support member, both ends thereof being coupled not to be removed, respectively, in a first part vibrating integrally with a second washing tub and the second part vibrating integrally with the housing, is formed to reduce the vibration by means of friction force between the first part and the second part, when the vibration of the second washing tub is generated.

7. The laundry machine as claimed in claim 6, wherein the friction force generated when the second washing tub vibrates is formed to be generated from the portion where the support member is coupled to the first part and the second part.

8. The laundry machine as claimed in claim 6 or 7, wherein the support member is made of material of a rigid body and is coupled to be rotatable within a predetermined angle between the first part and the second part.

9. The laundry machine as claimed in claim 8, wherein the rotating angle of the support member is limited within a predetermined angle by means of the interference between the support member and the first and second parts coupled to the support member.

10. The laundry machine as claimed in claim 8 or 9, wherein the support member is positioned in order that the second washing tub is returned to its initial position when the second washing tub does not vibrate.

11. The laundry machine as claimed in claim 10, wherein the support member is applied with force to couple to the first and second member where a virtual line connecting both ends of the support member intends to be vertical to the ground when the second washing tub does not vibrate.

12. The laundry machine as claimed in claim 10 or 11, wherein the support member is applied with tensile force due to the weight of the second washing tub.

13. The laundry machine as claimed in any of claims 1 to 12, further comprising:

a first bracket vibrating integrally with the second washing tub and formed with a first hole penetrating through the one side end of the support member; and
a second bracket moving integrally with the housing and formed with a second hole penetrating through the other side end of the support member.

14. The laundry machine as claimed in claim 13, wherein the upper end of the support member penetrates through the second hole, and the lower end of the support member penetrates through the first hole.

15. The laundry machine as claimed in claim 13 or 14, wherein the support member further comprises constraint parts each provided in the ends penetrated through the first hole and the second hole not to be removed from the first hole and the second hole.

16. The laundry machine as claimed in claim 15, wherein the constraint parts generate friction force by being

rubbed with an inner circumferential surface of the first and second holes when the support member rotates.

17. The laundry machine as claimed in claim 15 or 16, wherein the constraint parts each are provided in the both side ends of the support member and are formed to have a larger diameter than the first and the second holes.

18. The laundry machine as claimed in any of claims 13 to 17, wherein the portion of the support member penetrating through the first and second holes has a clearance of predetermined distance from the inner circumferential surfaces of the first and second holes.

19. The laundry machine as claimed in any of claims 16 to 18, wherein the inner circumferential surfaces of the first and second holes are formed in an arc shape forming a portion of a sphere, and the portion of the constraint part connected to the inner circumferential surfaces of the first and second holes is formed to have a spherical arc corresponding to the inner circumferential surfaces of the first and second holes.

20. The laundry machine as claimed in any of claims 16 to 19, wherein the surface of at least one side of the constraint part of the support member and the inner circumferential surfaces of the first and second holes, rubbed with each other, is made of material maintaining friction force and preventing noise.

21. The laundry machine as claimed in any of claims 1 to 20, further comprising an elastic support part elastically supporting right and left vibrations of the second washing tub.

22. The laundry machine as claimed in any of claims 3 to 21, further comprising an elastic support part, one end coupling to the first part and the other end coupling to the second part, to elastically support right and left vibration of the second washing tub.

FIG. 1

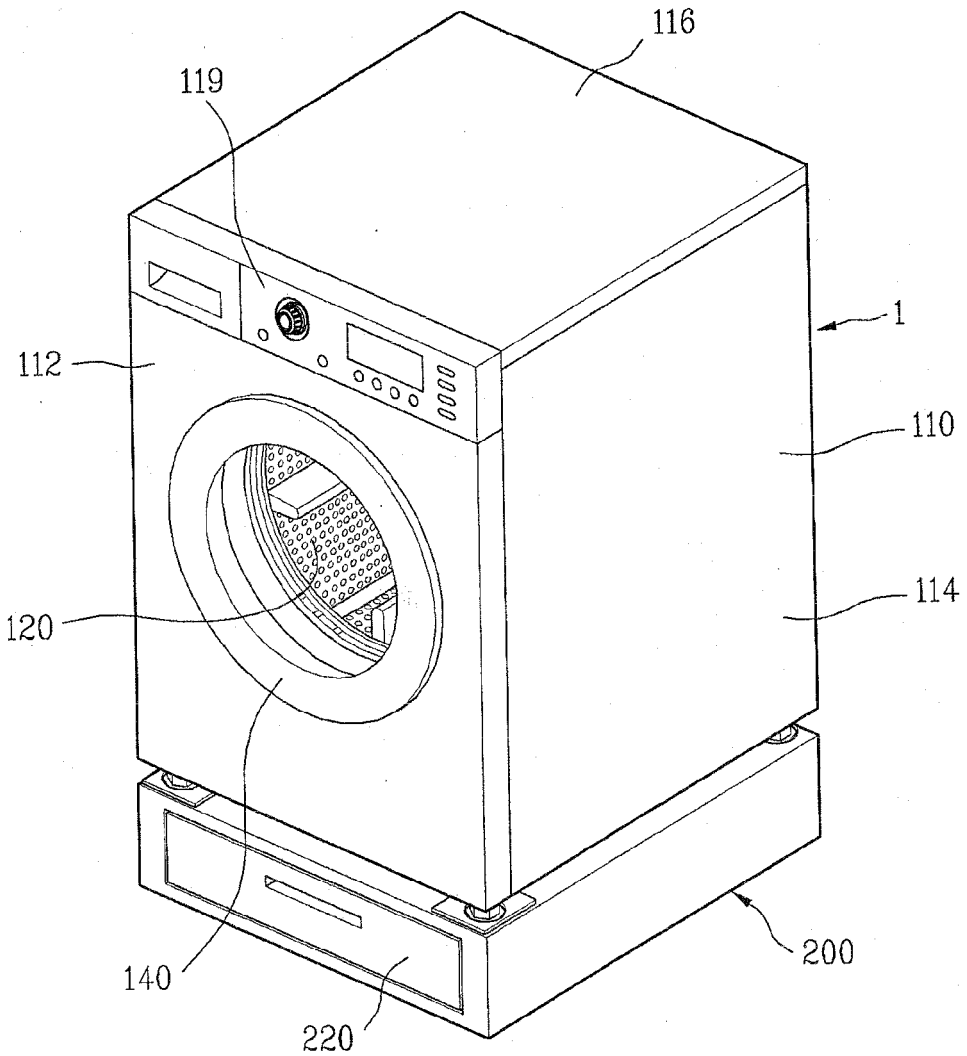

FIG. 2

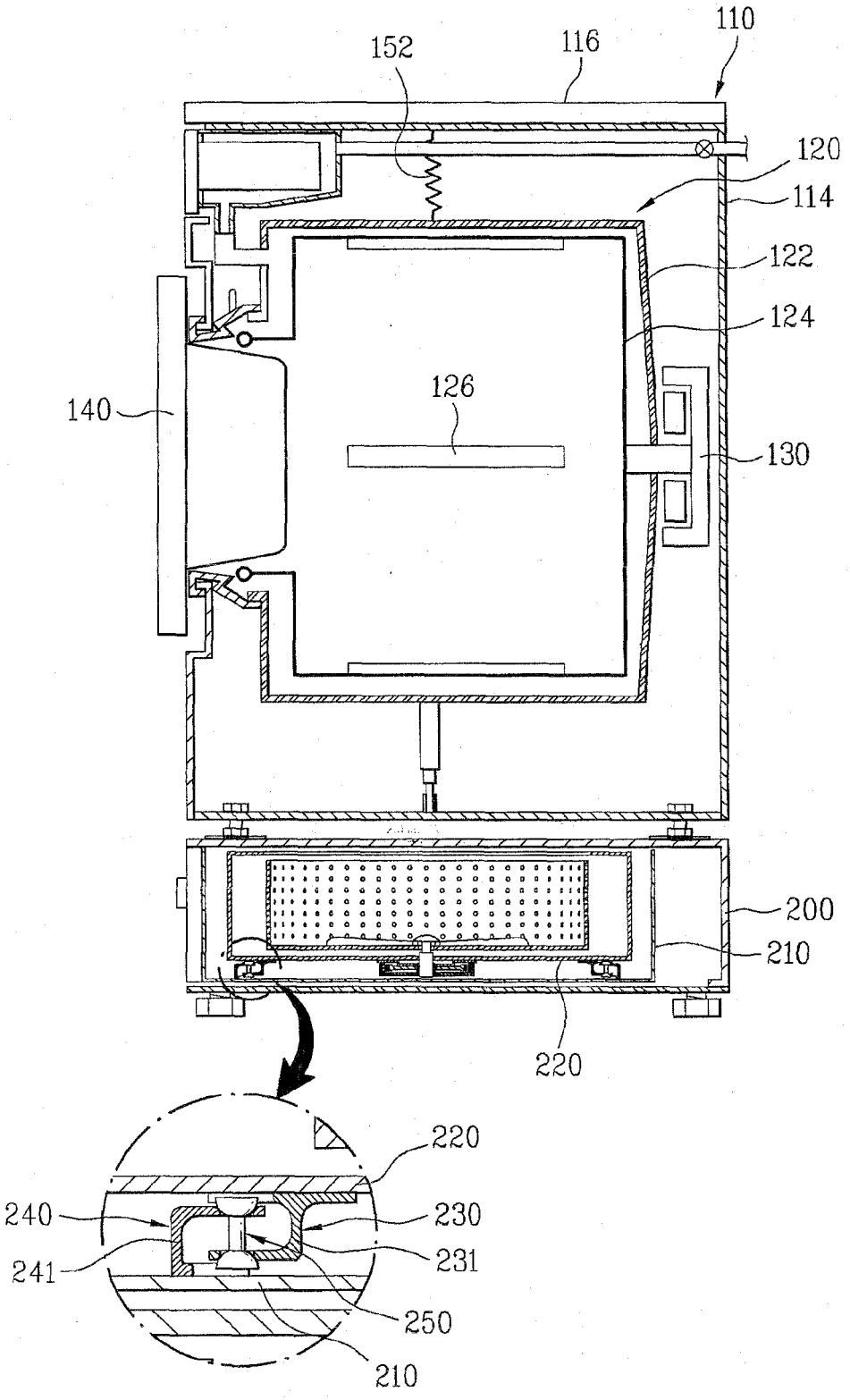
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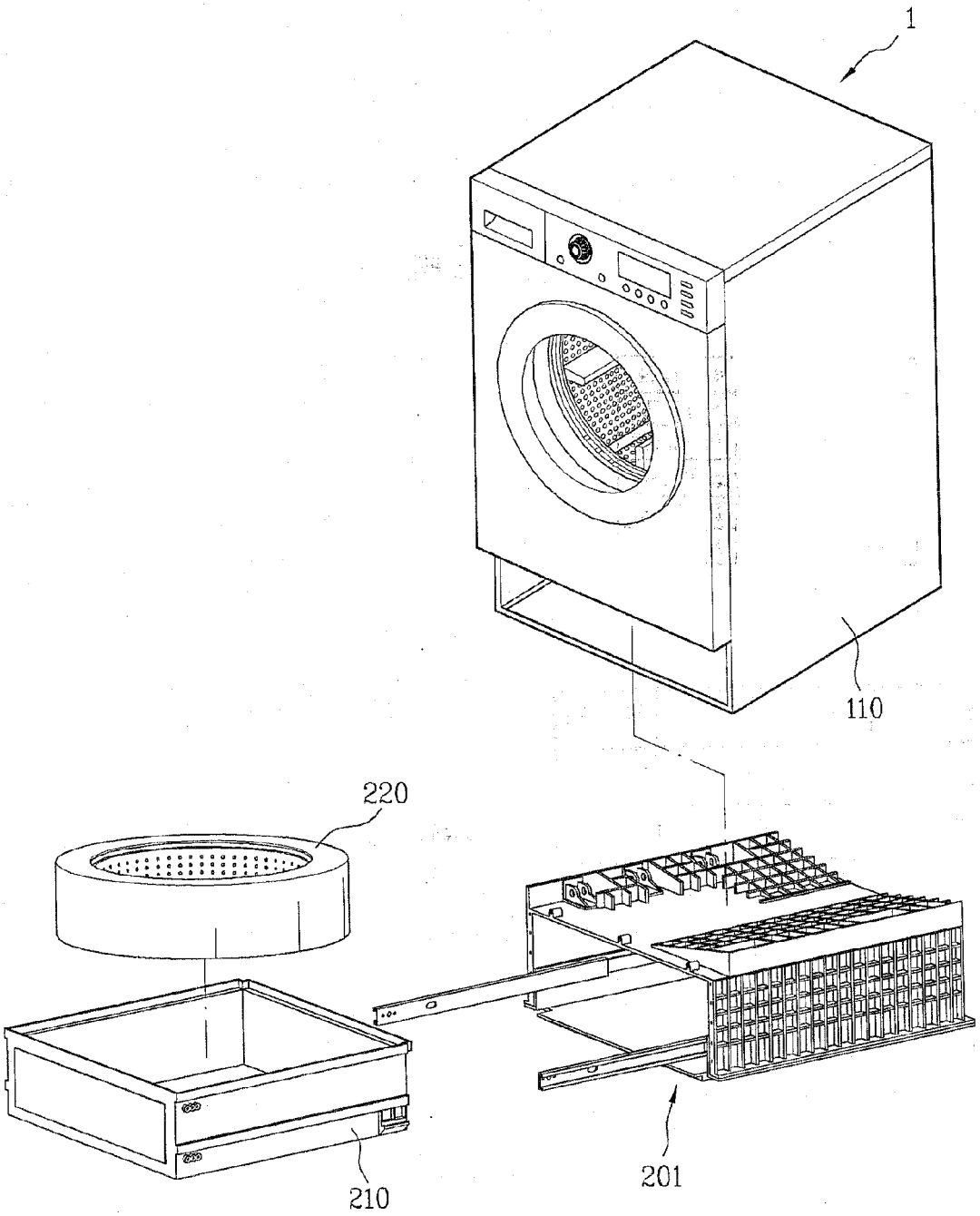
FIG. 3



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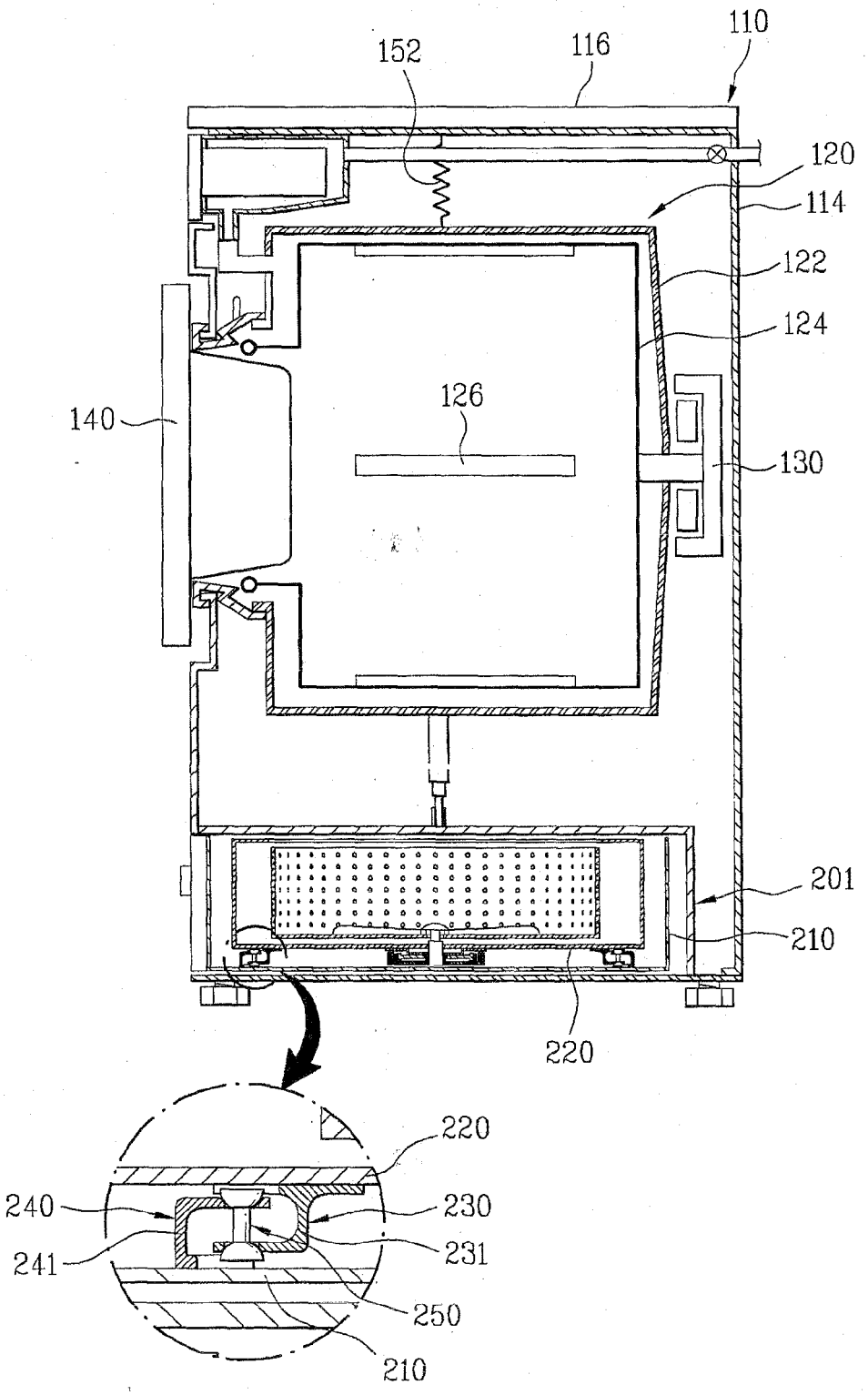
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FIG. 5

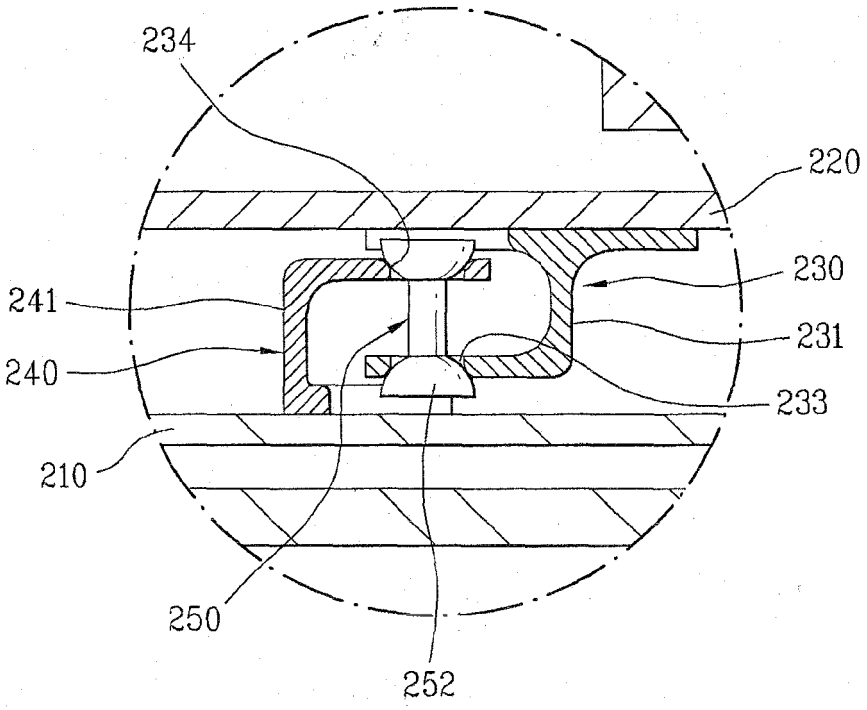
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FIG. 6

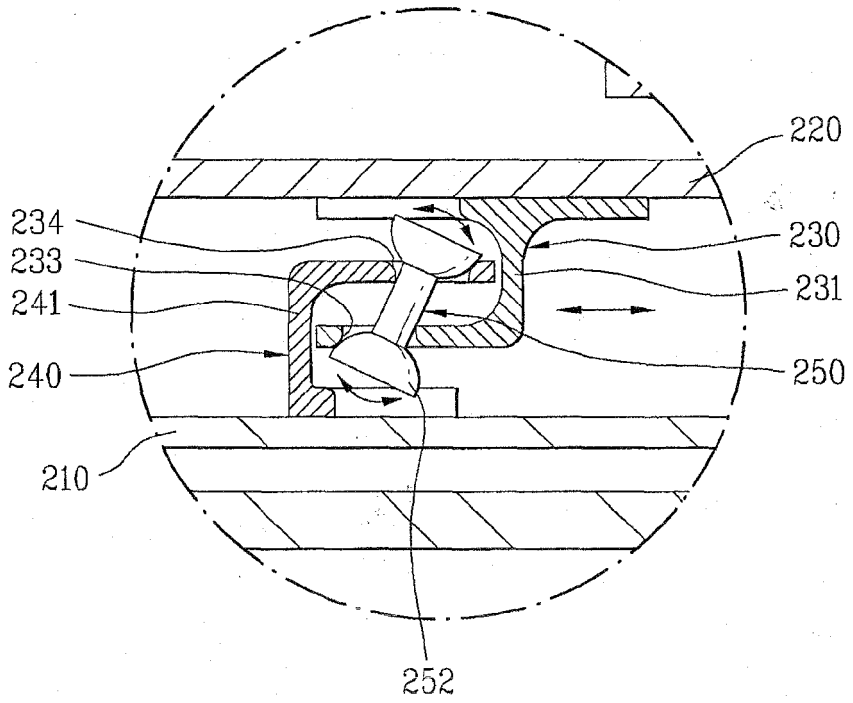
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FIG. 7

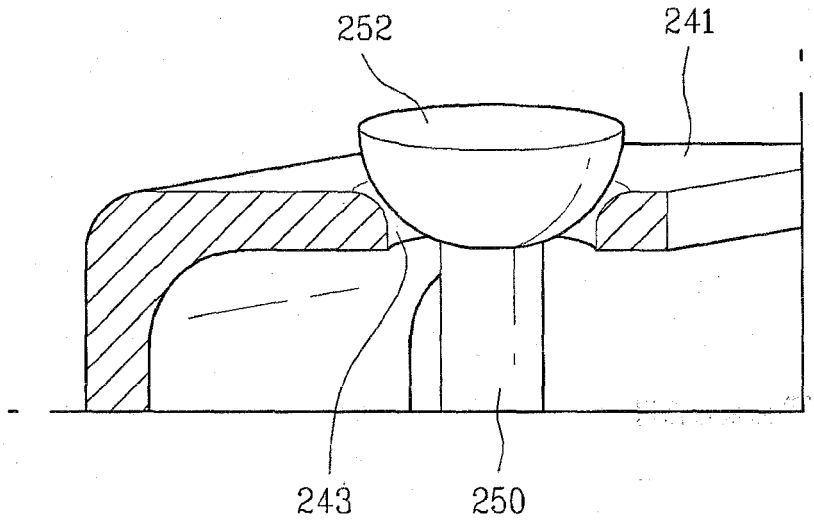


FIG. 8

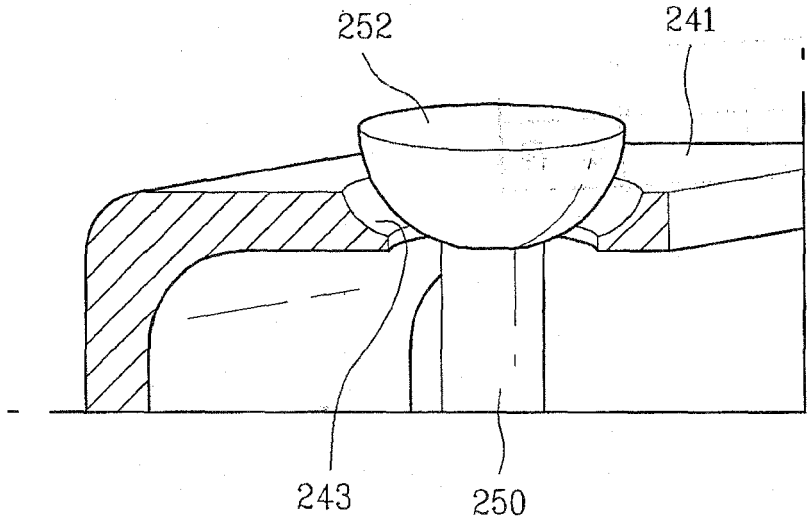
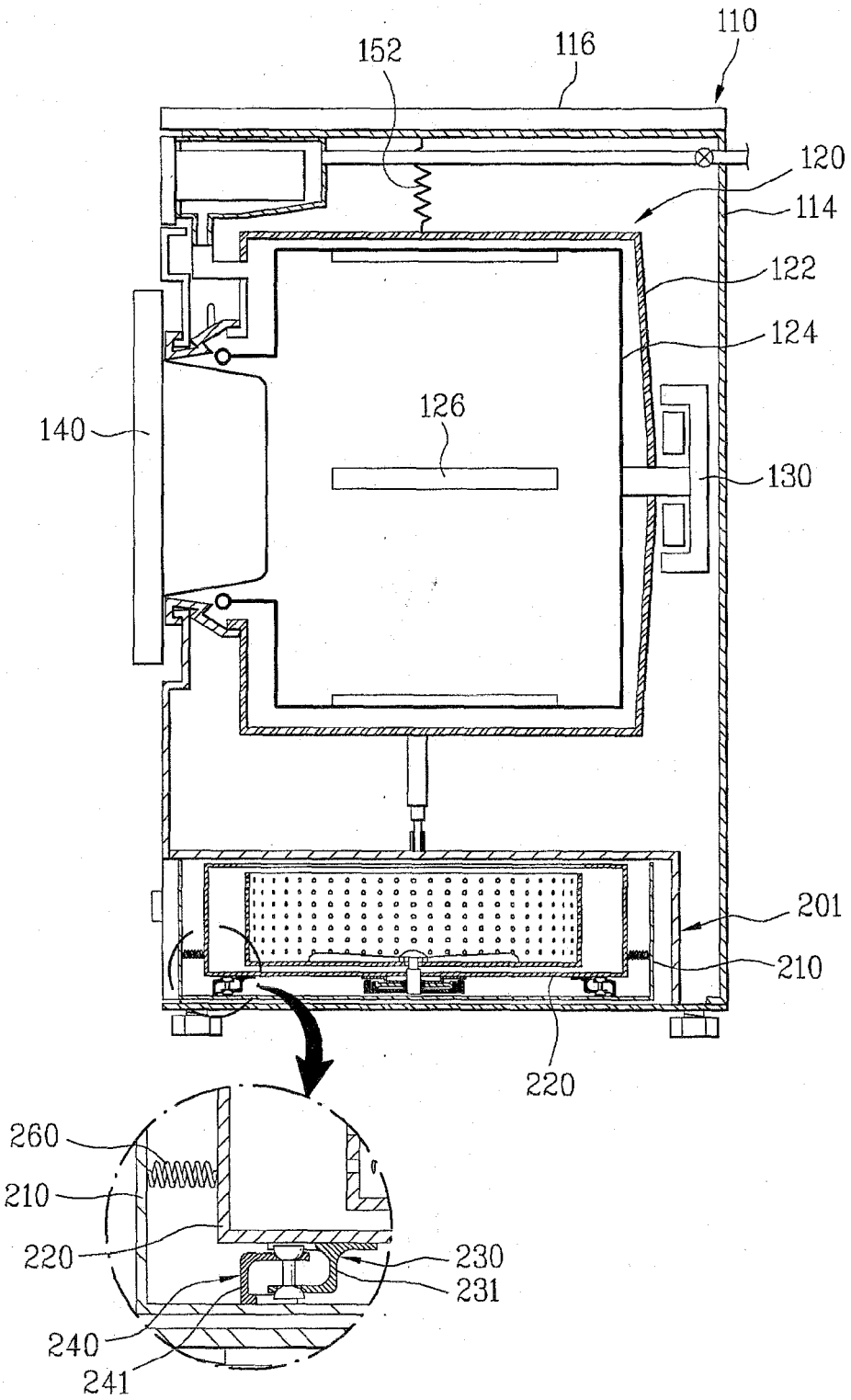


FIG. 9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EUROPEAN SEARCH REPORT

Application Number
EP 08 15 1274

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Y	US 2006/059960 A1 (HANSEN TED L [US]) 23 March 2006 (2006-03-23) * paragraph [0024] - paragraph [0030]; figures 2,3,5,7,8 * * paragraph [0033] - paragraph [0036] *	6-22	
E	WO 2008/069607 A (LG ELECTRONICS INC [KR]; JEONG SEONG HAE [KR]; JO SEONG JIN [KR]) 12 June 2008 (2008-06-12) * figure 3 *	1-4	

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D06F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	19 March 2009	Hannam, Martin

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