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(54) FILTER COVER ASSEMBLY OF WASHING MACHINE

(76) Inventors: **Yang Hwan No**, Changwon-si (KR); **Jong Seok Kim**, Changwon-si (KR); **Han Ki Cho**, Changwon-si (KR); **Yeon Su Jung**, Changwon-si (KR); **Jung Hoon Kang**, Changwon-si (KR); **Young Hoon Ha**, Masan-si (KR); **Myung Sik Park**, Changwon-si (KR)

Correspondence Address:
FLESHNER & KIM, LLP
P.O. BOX 221200
CHANTILLY, VA 20153 (US)

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(57) **ABSTRACT**

Disclosed is a filter assembly of a washing machine which opens/closes a filter hole provided in a cabinet to replace a filter. The present invention includes a cover fitted to a filter hole provided at a cabinet of the washing machine for loading/unloading a filter, three protrusions extending downward from left, right, and central sides of a lower end of the cover to be inserted in holes at left, right, and central portions of a lower side of a filter case provided in the cabinet, respectively to communicate with the filter hole, and three hooks protruding from left, right, and central sides of an upper end of the cover toward the filter case to be inserted in hook holes at left, right, and central portions of an upper side of the filter case, respectively.

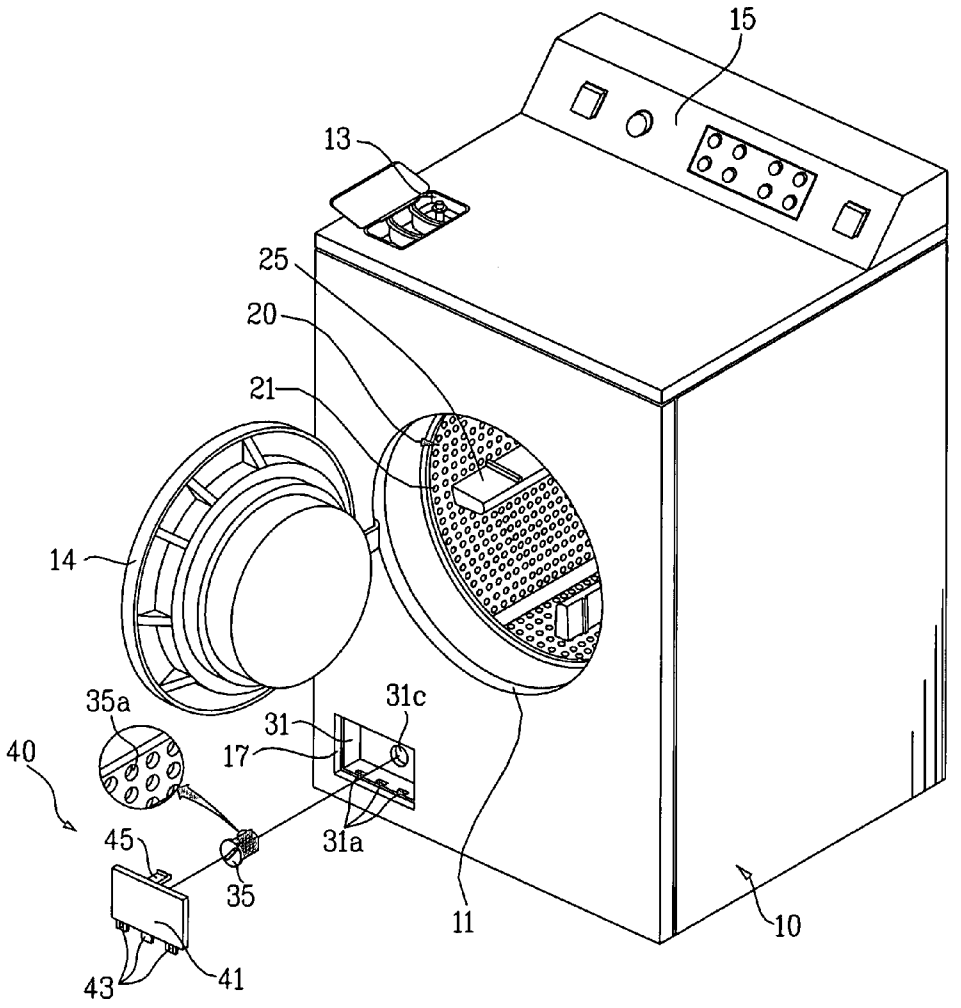


FIG. 1

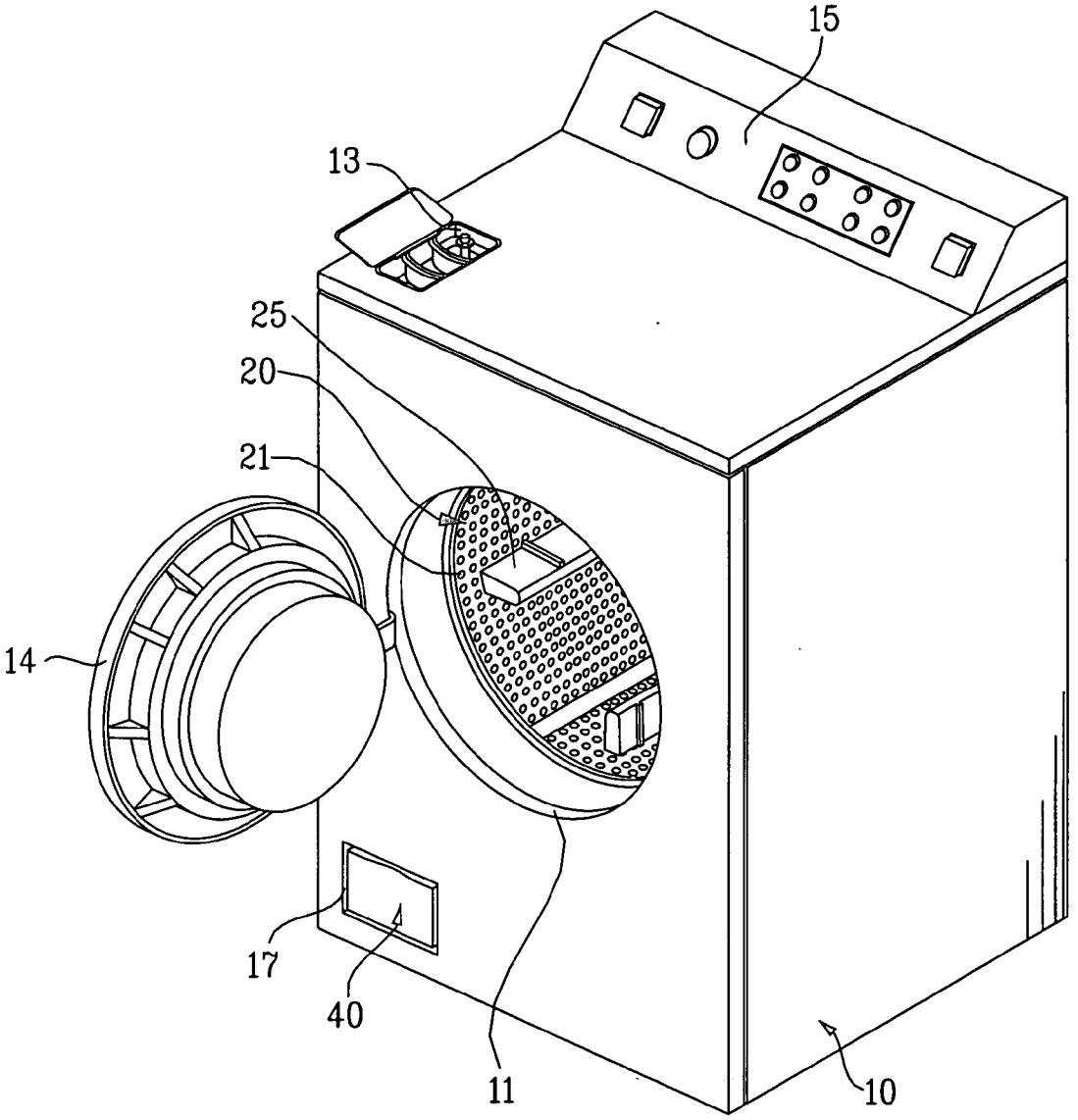


FIG. 2

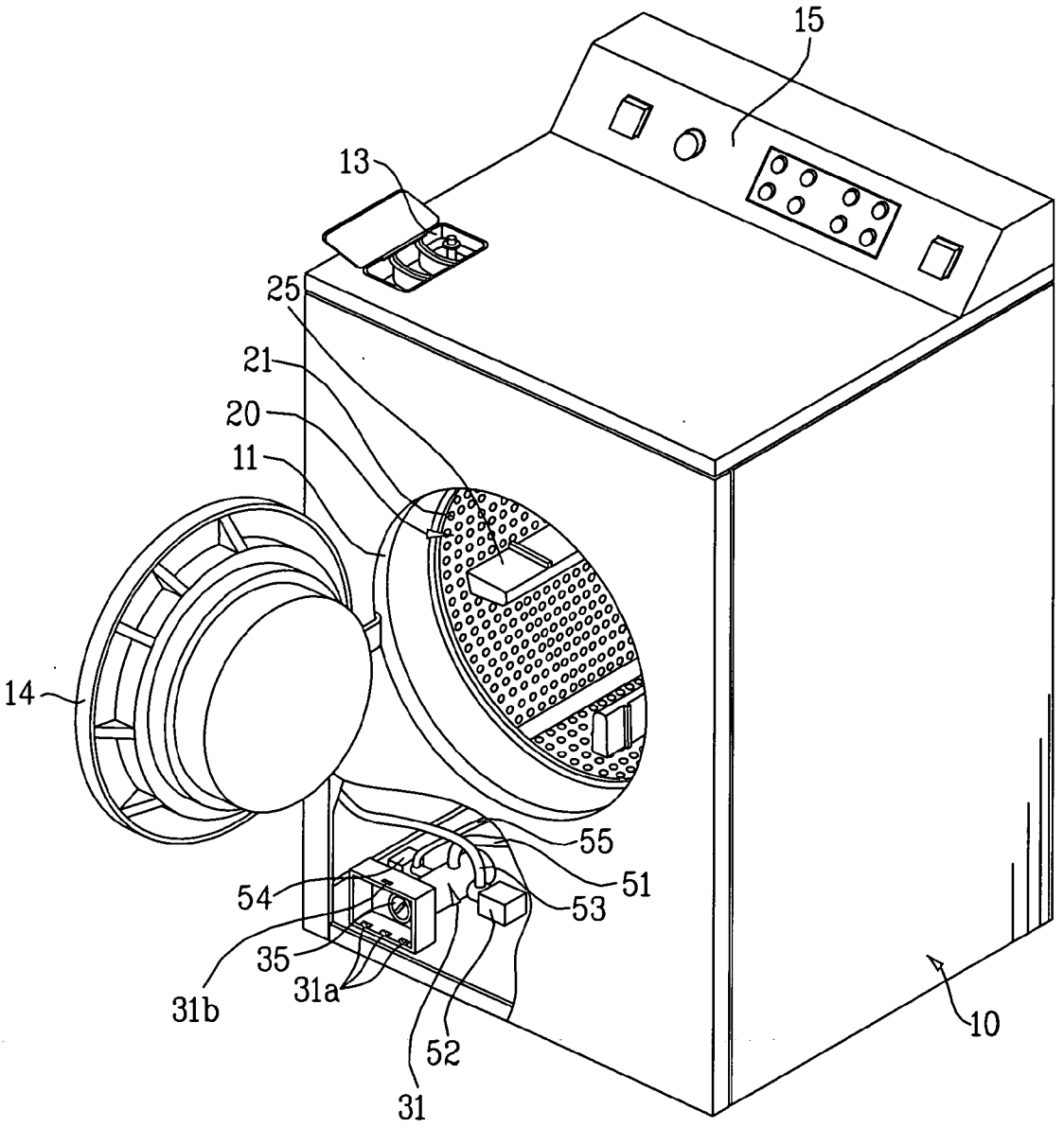


FIG. 3

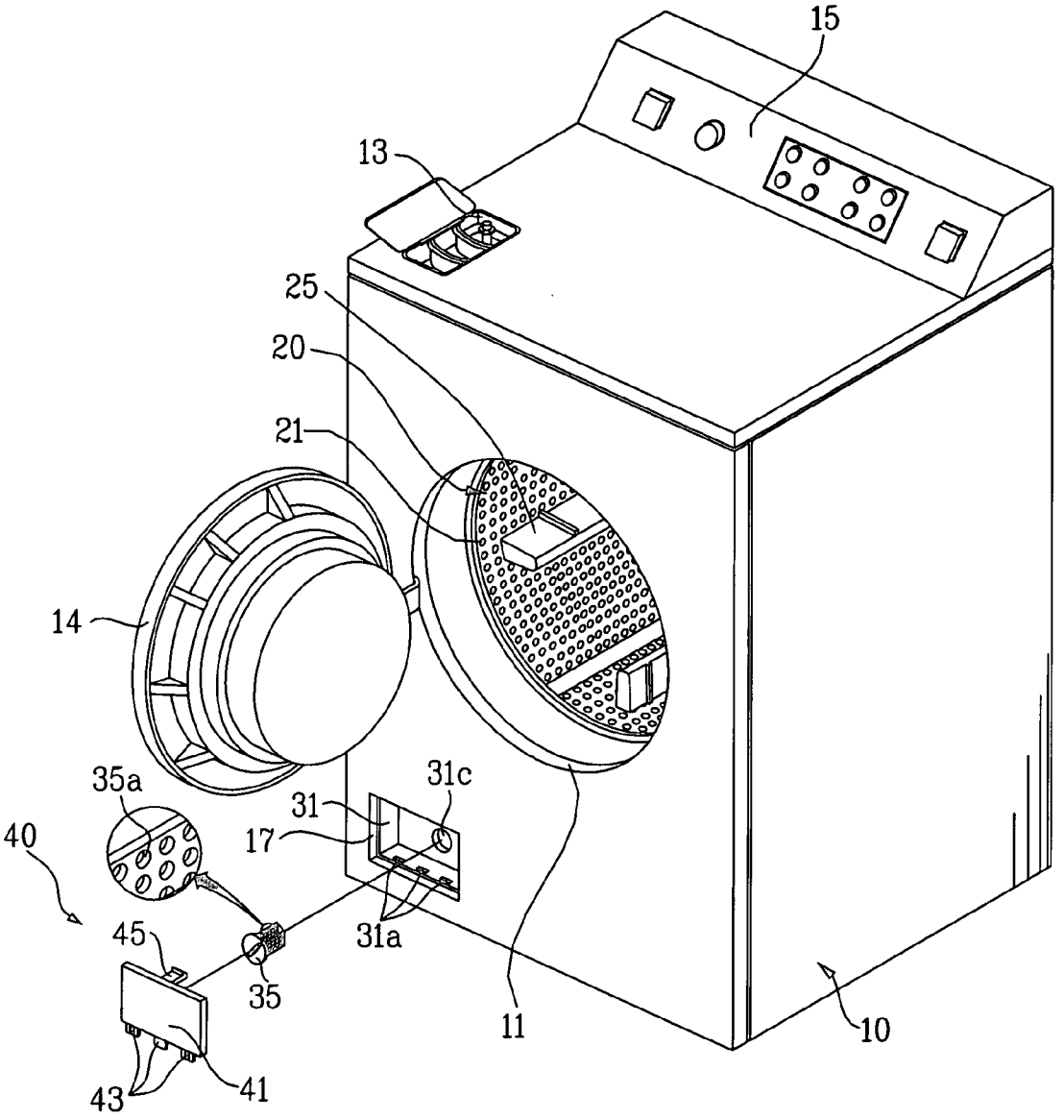


FIG. 4

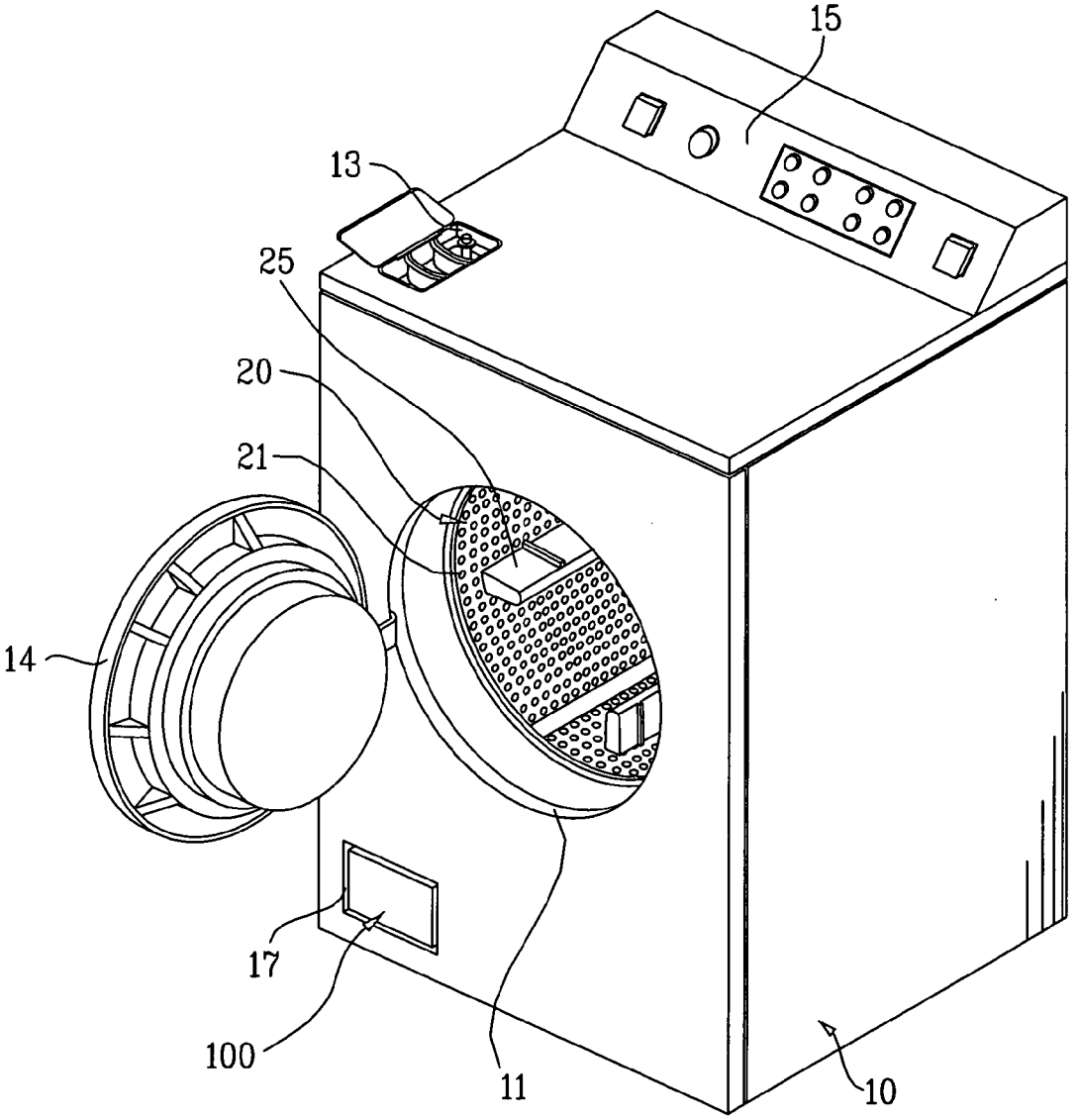


FIG. 5

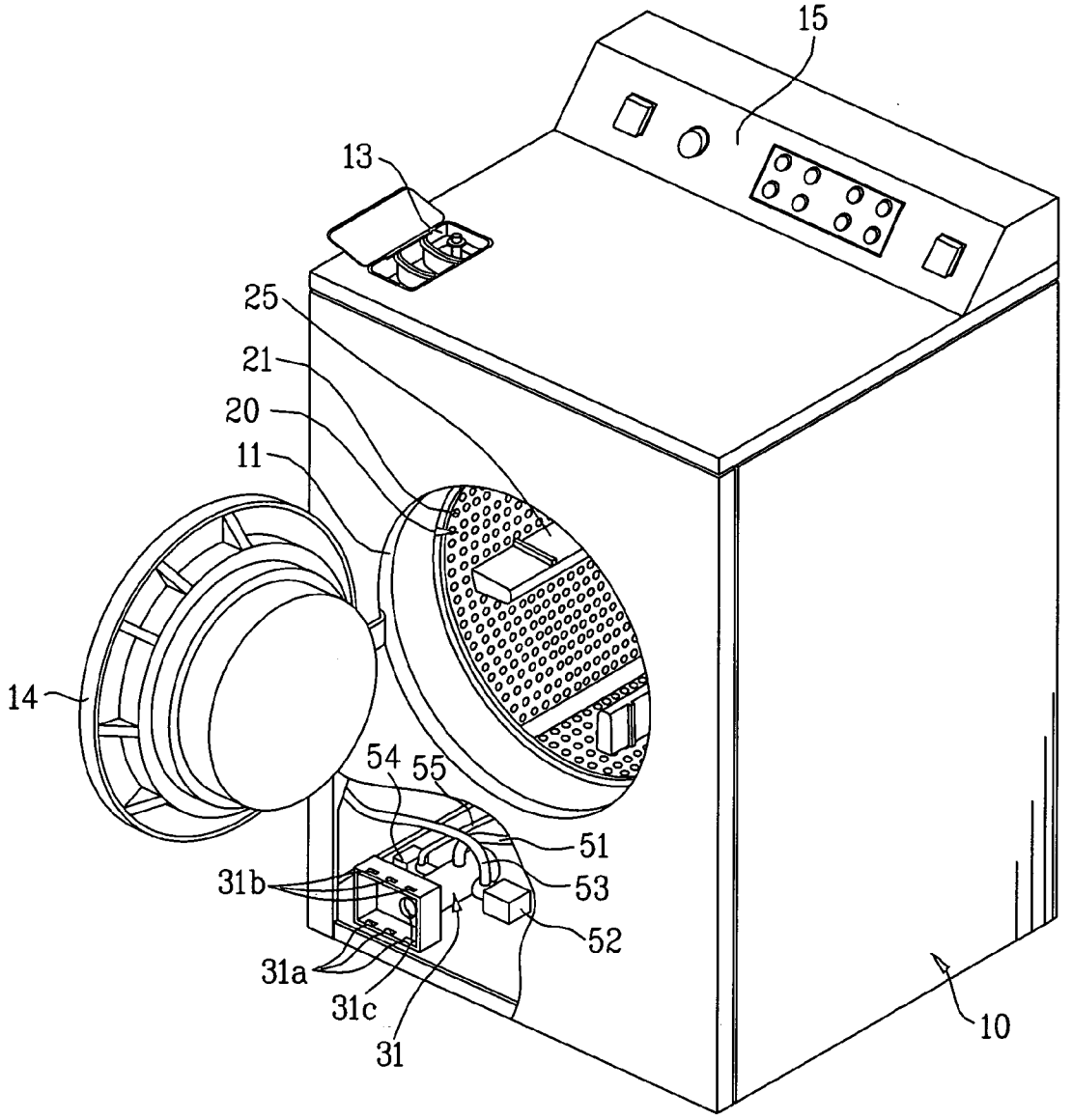


FIG. 6

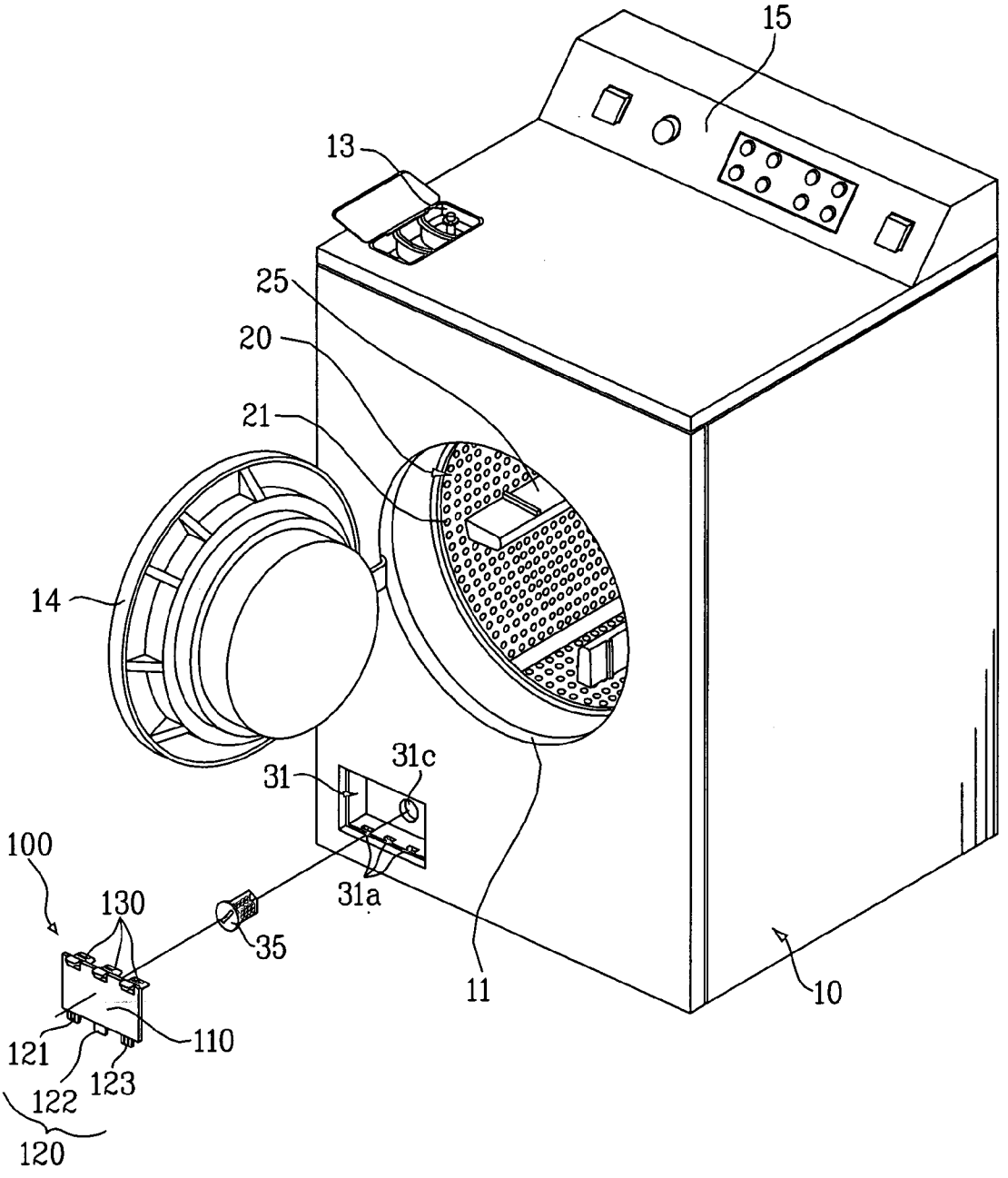


FIG. 7

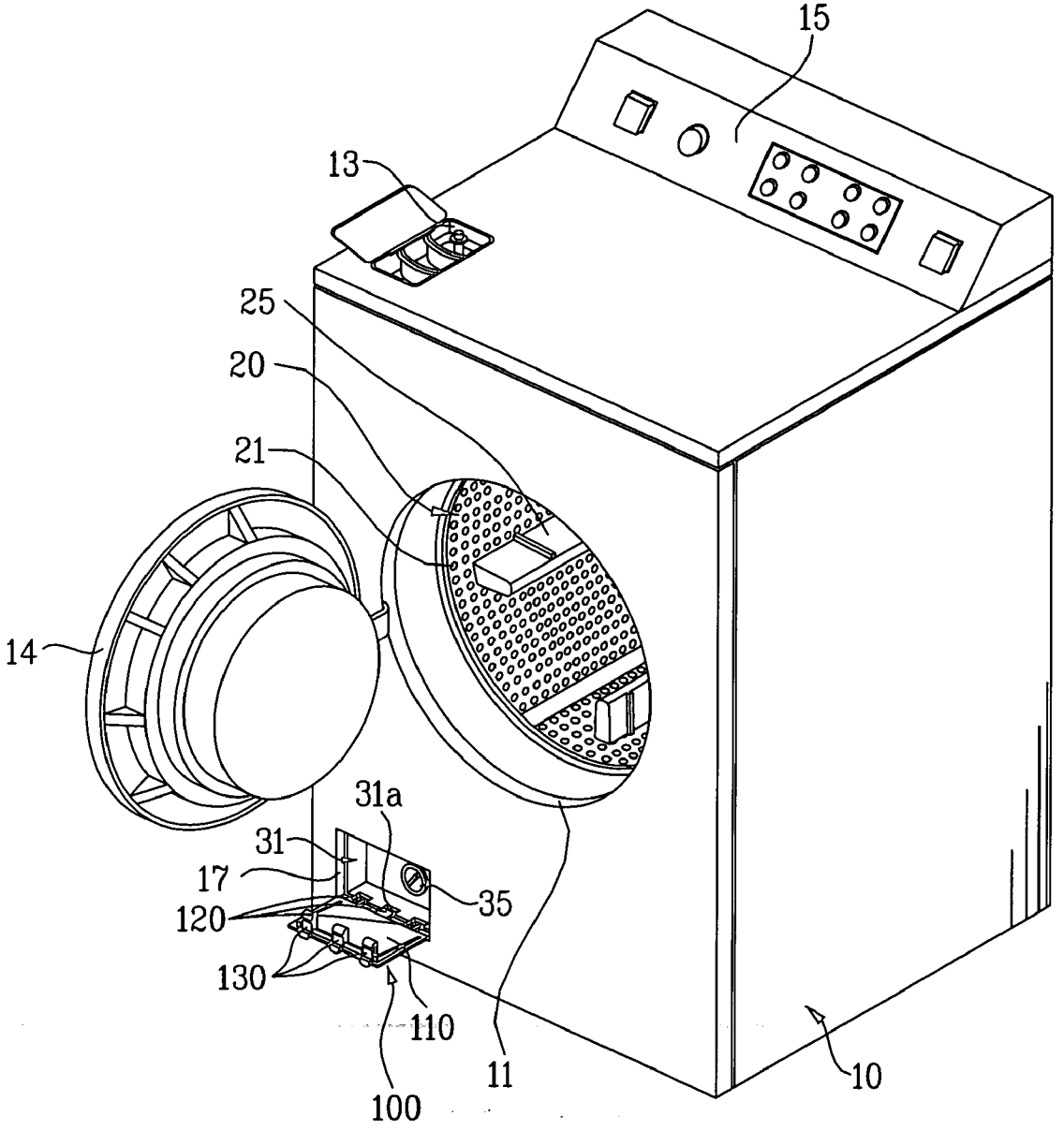
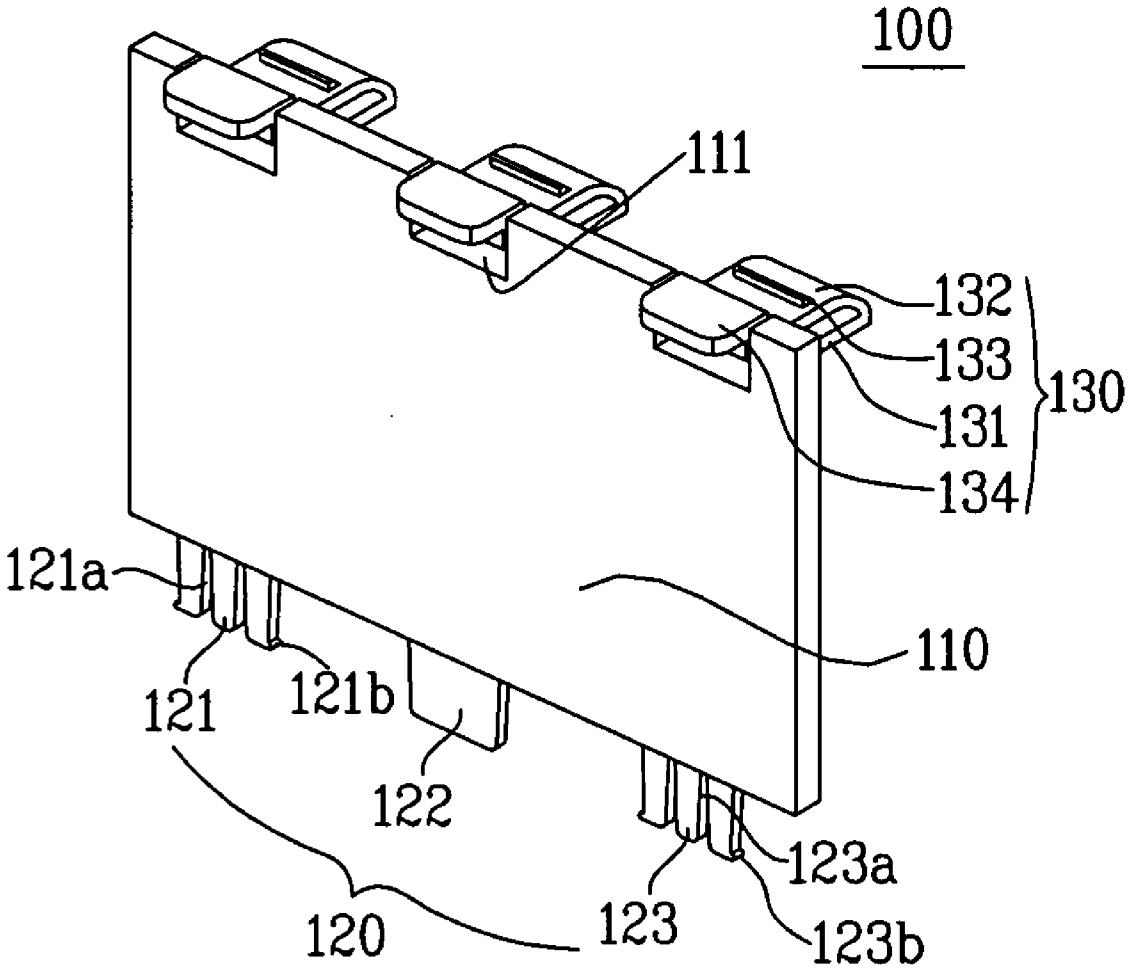


FIG. 8


100
111
132
133
131
134
130
121a
110
121
121b
122
123a
120
123
123b

FILTER COVER ASSEMBLY OF WASHING MACHINE

[0001] This application claims the benefit of Korean Application(s) No. 10-2002-0075024 filed on Nov. 28, 2002, which is/are hereby incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a filter assembly of a washing machine for removing particles from water, and more particularly, to a filter assembly of a washing machine which opens/closes a filter hole provided in a cabinet to replace a filter.

[0004] 2. Discussion of the Related Art

[0005] Generally, a washing machine is an apparatus for eliminating dirt or filth attached to a laundry using reaction between water and detergent.

[0006] Such a washing machine is classified into a pulsator type, an agitator type, and a drum type. The agitator type washing machine rotates an agitator protruding from a bottom center of a tub in forward and reverse directions to perform washing. The pulsator type washing machine rotates a disc-type pulsator on a bottom of a tub in forward and reverse directions to perform washing using a frictional force between a generated current and a laundry. And, the rum type washing machine rotates a drum holding water, detergent, and laundry at low speed to perform washing. In this case, a plurality of tumbling ribs protrude from an inside of the tub.

[0007] If washing is performed using one of the various type washing machines, particles such as lint and the like are separated from the laundry. Lots of particles are accordingly contained in the used water after completion of the washing.

[0008] Meanwhile, the used water is generally discharged outside using a drain pump. In such a case, such particles as lint and the like are frequently stuck in an impeller of the drain pump or a motor shaft, whereby drain capacity of the washing machine is lowered, noise is generated, and the drain pump may be out of order.

[0009] Lately, many efforts are made to development of a washing machine equipped with a filter assembly enabling to remove particles involved in water.

[0010] Moreover, since particles are naturally gathered in a filter of an operating washing machine, the filter should be cleaned or replaced. Hence, a hole for taking out the filter and a cover for opening/closing the hole should be provided to a cabinet of the washing machine.

[0011] However, the cover should block the opening tightly as well as be detachable with ease. Besides, the cover provided at an outside of the cabinet should not spoil the exterior beauty of the washing machine.

SUMMARY OF THE INVENTION

[0012] Accordingly, the present invention is directed to a filter assembly of a washing machine that substantially obviates one or more of the problems due to limitations and disadvantages of the related art.

[0013] An object of the present invention, which has been devised to solve the foregoing problem, lies in providing a filter assembly of a washing machine, by which a hole provided on an outside of a cabinet is securely covered.

[0014] It is another object of the present invention to provide a filter assembly of a washing machine, which provides an improved structure to be open with ease.

[0015] It is another object of the present invention to provide a filter assembly of a washing machine, by which the exterior beauty of a cabinet is preserved.

[0016] Additional features and advantages of the invention will be set forth in the description which follows, and in part will be apparent to those having ordinary skill in the art upon examination of the following or may be learned from a practice of the invention. The objectives and other advantages of the invention will be realized and attained by the subject matter particularly pointed out in the specification and claims hereof as well as in the appended drawings.

[0017] To achieve these objects and other advantages in accordance with the present invention, as embodied and broadly described herein, there is provided a filter cover assembly of a washing machine including a cover fitted to a filter hole provided at a cabinet of the washing machine for loading/unloading a filter, three protrusions extending downward from lo left, right, and central sides of a lower end of the cover to be inserted in holes at left, right, and central portions of a lower side of a filter case provided in the cabinet, respectively to communicate with the filter hole, and three hooks protruding from left, right, and central sides of an upper end of the cover toward the filter case to be inserted in hook holes at left, right, and central portions of an upper side of the filter case, respectively.

[0018] In this case, at least one of the protrusions may include at least one slit provided along a length direction of the corresponding protrusion to elastically deform both lateral sides of the corresponding protrusion inward and outward and a barb protruding outward from lower ends of both of the lateral sides of the corresponding protrusion to prevent the corresponding protrusion having inserted in the hole from being separated from the hole.

[0019] And, each of the hooks may include an extension part protruding from an upper end of the cover toward the filter case, an elastic part bent from an end of the extension part toward the cover to have elasticity upward and downward, and a barb protruding from an upper surface of the elastic part to be inserted in the corresponding hook hole. In this case, each of the hooks may further include a push piece extending from the elastic part to facilitate a user to push.

[0020] It is to be understood that both the foregoing explanation and the following detailed description of the present invention are exemplary and illustrative and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] 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:

[0022] **FIG. 1** is a perspective view of a washing machine according to a first embodiment of the present invention;

[0023] **FIG. 2** is a perspective view of the washing machine in **FIG. 1**, in which an interior of the washing machine is partially shown;

[0024] **FIG. 3** is a perspective view of the washing machine in **FIG. 1**, in which cover and filter disassembled from the washing machine is shown;

[0025] **FIG. 4** is a perspective view of a washing machine according to a second embodiment of the present invention;

[0026] **FIG. 5** is a perspective view of the washing machine in **FIG. 4**, in which an interior of the washing machine is partially shown;

[0027] **FIG. 6** is a perspective view of the washing machine in **FIG. 4**, in which cover and filter disassembled from the washing machine is shown;

[0028] **FIG. 7** is a perspective view of the washing machine in **FIG. 4**, in which a cover is opened; and

[0029] **FIG. 8** is a perspective view of a cover of the washing machine in **FIG. 4**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

[0030] Reference will now be made in detail to the preferred embodiment(s) of the present invention, examples of which are illustrated in the accompanying drawings. Throughout the drawings, like elements are indicated using the same or similar reference designations where possible.

[0031] FIGS. **1** to **3** illustrate a washing machine according to a first embodiment of the present invention. A structure of a washing machine according to a first embodiment of the present invention is explained by referring to FIGS. **1** to **3** as follows.

[0032] Referring to **FIG. 1, a** tub (not shown in the drawing) is provided in a cabinet **10**, and a drum **20** is rotatably provided in the tub. And, a spring (not shown in the drawing) and a damper (not shown in the drawing) are provided between the cabinet **10** and the tub to support the tub elastically. The provided spring and damper play a role in suspending the tub in the cabinet **10** as well as attenuating vibrations applied to the tub while a washing machine operates. Moreover, a motor is provided in rear of the tub so that the drum **20** is connected to the motor to rotates.

[0033] A multitude of perforated holes **21** perforate an outer circumference of the drum **20**, and a plurality of tumbling ribs **25** are provided on an inner circumference of the drum **20**. Hence, water supplied to the tub enables to communicate between the drum **20** and the tub via the perforated holes **21**. A laundry having been put in the drum **20** is lifted up by the tumbling ribs **25** to fall down when the drum **20** rotates, whereby a sufficient amount of frictional and shock energy is provided for washing.

[0034] An entrance **11**, as shown in **FIG. 1**, is provided on a front side of the cabinet **10** so that a user puts or pull the laundry in/out of the drum **20** and, a door **14** is provided to open/close the entrance **11**. Moreover, a control panel **15** for controlling the washing machine is provided on the cabinet **10**. A non-explained numeral '13' indicates a detergent box assembly for storing a detergent.

[0035] Referring to **FIG. 2** and **FIG. 3, a** filter assembly for filtering particles in water is provided in a lower inside of the cabinet **10**. The filter assembly includes a filter case **31**, a filter **35**, and a filter cover assembly **40**. The filter cover assembly **40** is explained in detail by referring to **FIG. 2** and **FIG. 3** as follows.

[0036] First of all, the filter case **31**, as shown in **FIG. 2**, is provided on an internal bottom of the cabinet **10**. A bellows **51** connected to a drain (not shown in the drawing) of the tub is connected to the filter case **31**, whereby water in the tub flows in the filter case **31**.

[0037] A circulation pump **52** and a drain pump **54** are connected to the filter case **31**. A circulation hose **53** having one end connected to an upper side of the tub is connected to the circulation pump **52**, and a drain hose **55** having one end communicating with an outside of the cabinet **10** is connected to the drain pump **54**.

[0038] Hence, when the circulation pump **52** pumps the water in the tub during washing, the pumped water moves to the upper side of the tub via the circulation hose **53** and then falls down into the drum **20**. Energy generated from such a falling improves a washing power. When the drain pump **54** pumps the water after completion of washing, the pumped water is discharged outside the cabinet **10** via the drain hose **55**.

[0039] The filter **35**, as shown in **FIG. 2** and **FIG. 3**, is detachably loaded in the filter **35**. A multitude of apertures **35***a* are provided in the filter **35**, and plays a role in filtering the particles involved in the water flowing in the filter case **31** by being pumped by the circulation or drain pump **52** or **54**. Meanwhile, meshes for removing the particles can be formed in the filter **35** instead of the apertures **35***a*.

[0040] Since the particles are gathered/attached in/to the filter **35** in using the washing machine, the filter **35** should be periodically cleaned or replaced. In order to load the filter in or out of an insertion hole **31***c* of the filter case **31**, a filter hole **17** is provided on one side of the cabinet **10**. And, a filter cover assembly **40**, as shown in **FIG. 1** and **FIG. 3**, is provided to open/close the filter hole **17**.

[0041] Referring to **FIG. 3**, the filter cover assembly **40** includes a cover **41**, a plurality of protrusions **43** at a lower end of the cover **41**, and a hook **45** at an upper portion of the cover **41**.

[0042] The cover **41**, as shown in **FIG. 1**, is fitted to the filter hole **17** to cover. A plurality of the protrusions **43** extend from the lower end of the cover **41** downward. The provided protrusions **43** are inserted in a plurality of corresponding holes **31***a* provided in a lower front side of the filter case **31**, respectively. And, the hook **45** protrudes from a center of the upper portion of the cover **41** toward the filter case **31**. The provided hook **45** is inserted in a hook hole **31** b provided at the upper front side of the filter case **31**.

[0043] The above-constructed washing machine according to the first embodiment of the present invention operates as follows.

[0044] First of all, a laundry is put in the drum **20**, the door **14** is closed, and the washing machine is actuated to supply

water and detergent to the tub. The detergent and water supplied to the tub flow in the drum **20** via the perforated holes **21**.

[**0045**] Once the drum **20** rotates, the laundry is lifted up by the tumbling ribs **25** to fall down for washing. In this case, the circulation pump **52** pumps the water flowing in the filter case **31** via the bellows **51** to the circulation hose **53**. The water then moves to an upper part of the tub via the circulation hose **53** and then falls down into the drum **20** to increase washing power. Meanwhile, the filter **35** filters particles included in the water flowing in the filter case **31** during such a washing step.

[**0046**] After completion of washing, the drain pump **54** is actuated so that the water flowing in the filter case **31** via the bellows **51** is discharged outside via the drain hose **55**. Meanwhile, during the draining step, the filter **35** filters the particles included in the water flowing in the filter case **31**.

[**0047**] After completion of draining, water is supplied to the tub and the drum **20** and the drum **20** is then rotated to rinse the laundry. After rinsing the laundry, the drain pump **54** is actuated to discharge the water in the tub outside. After such a rinsing step is repeated several times, the drum **20** is rotated at high speed to dewater the laundry.

[**0048**] Meanwhile, after long time use of the washing machine, massive particles are attached to the filter **35** so that it is unable to circulate or discharge the water smoothly. Hence, the filter **35** is unloaded from the filter case **31** so as to be cleaned or replaced. Such a procedure is explained as follows.

[**0049**] First of all, an upper side of the cover **41** is pulled to separate the hook **45** from the hook hole **31***b*. The cover **41** is then turned centering on the protrusions **43** inserted in the hole **31***a* as a central axis, whereby the filter hole **17** is wide open.

[**0050**] Once the filter hole **17** is opened, the filter **35** is grabbed to be unloaded from the filter case **31**. The filter **35** is cleaned or replaced by a new one so as to be inserted in the insertion hole **31***c* of the filter case **31**.

[**0051**] Once the cleaned or replaced filter **35** is loaded, the cover **41** is turned by taking the protrusions **43** inserted in the holes **31***c* as a central axis and the hook **45** is then fitted to the hook hole **31***b* to be fixed thereto. As the hook **45** is fixed to the hook hole **31***b* and the protrusions **43** are inserted in the corresponding holes **31***a*, the cover **41** is completely installed.

[**0052**] The washing machine equipped with the above-constructed filter cover assembly **40** according to the first embodiment of the present invention facilitates to open the cover **41** for user's convenience.

[**0053**] Yet, only one hook **45** for fixing the upper side of the cover **41** is provided at the upper center of the cover **41**. Hence, upper right and left sides of the cover **41**, as shown in **FIG. 1**, are unable to be completely fixed but protrude out of a front side of the cabinet **10**, whereby a step and a gap lie between the cover **41** and the front side of the cabinet **10** to spoil the exterior beauty.

[**0054**] Moreover, only one hook **45** fixes the cover **41** to exert a weak fixing power thereon. And, if the cover **41** is numerously separated, the hook **45** is broken.

[**0055**] Therefore, a second embodiment of the present invention is provided to overcome such problems. A second embodiment of the present invention provides a modified filter cover assembly enabling to overcome all the problems of the filter cover assembly according to the first embodiment of the present invention. A washing machine according to a second embodiment of the present invention is explained in detail by referring to **FIG. 4** to **FIG. 8**.

[**0056**] In describing a washing machine according to a second embodiment of the present invention compared to that according to the first embodiment of the present invention in **FIG. 1** to **FIG. 3**, like elements are indicated using the same or similar reference designations where possible throughout the drawings. Moreover, elements or structures different those of the first embodiment of the present invention are explained in the following to avoid repetition of description.

[**0057**] Referring to **FIG. 6** and **FIG. 8, a** filter cover assembly **100** of a washing machine according to a second embodiment of the present invention includes a cover **110**, protrusions **120**, and hooks **130**. In the second embodiment of the present invention, the protrusions **120** and the hooks **130** are provided plurally at upper and lower sides of the cover **110**. Specifically, there are provided three protrusions **120** and three hooks **130**.

[**0058**] Referring to **FIG. 5, a** plurality of holes **31***a*, and more specifically, three holes **31***a* are provided at a lower front side of the filter case **31** so that the protrusions **120** are inserted to be coupled. Specifically, three holes **31***a* penetrate into central, right, and left lower front sides of the filter case **31**, respectively. Moreover, a plurality of hook holes **31***b*, and more specifically, three hook holes **31***b* are provided at an upper front side of the filter case **31**. Specifically, three hook holes **31***b* penetrate into central, right, and left upper front sides of the filter case **31**, respectively.

[**0059**] Meanwhile, the cover **110**, as shown in **FIG. 4**, is fitted to the filter hole **17** provided at the cabinet **10** to cover the filter hole **17**. And, the protrusions **120**, as shown in **FIG. 6** and **FIG. 8**, extend from the central, right, and left lower sides of the cover **110**, respectively. In the second embodiment of the present invention, at least one of the protrusions **120** has a structure unable to be detached from the corresponding hole **31***a* after insertion, which is explained in the following.

[**0060**] Referring to **FIG. 6** and **FIG. 8**, at least one of the protrusions **120**, e.g., first and third protrusions **121** and **123** at both sides, includes a slit **121***a* or **123***a* and a barb **121***b* or **123***b*.

[**0061**] At least one of the slits **121***a* and **123***a* is provided at the corresponding first or third protrusions **121** or **123** in a length direction of the protrusions **120**, i.e., vertically. If the slits **121***a* and **123***a* are provided to the first and third protrusions **121** and **123**, respectively, both sides of the first and third protrusions **121** and **123** enable to be elastically deformed inward and outward. The barbs **121***a* and **123***b*, as shown in **FIG. 6** and **FIG. 8**, protrude outside from lower ends of both sides of the protrusions **120**. Meanwhile, a second protrusion **122** at the central lower side of the cover **110** fails to be provided with the slit and barb. Yet, the slit and bard can be provided to the second protrusion **122** as well.

[0062] The above-constructed protrusions **120** are fitted to the holes **31***a* of the filter case **31** to be fixed, respectively. In this case, both lateral sides of the first and third protrusions **121** and **133** are elastically deformed inward to be inserted in the corresponding holes **31***a* and then elastically restored outward. Thus, once the protrusions **120** are completely fitted to the corresponding holes **31***a*, the barbs **121***b* and **123***b* prevents the protrusions **120** from being separated from the holes **31***a*. Hence, a user makes use of the protrusions **120** inserted in the holes **31***a* as a kind of hinge-shaft, as shown in **FIG. 7**, to turn the cover **110** for closing or opening the filter hole **17**.

[0063] Meanwhile, the hooks **130** protrude from central, right, and left upper sides of the cover **110** toward the filter case **31**, respectively. Such each of the hooks **130** includes an extension part **131**, an elastic part **132**, and a barb **133**.

[0064] The extension part **131**, as shown in **FIG. 8**, protrudes from the upper side of the cover **110** toward the filter case **31**. And, the elastic part **132** is bent from an end of the extension part **131** toward the cover **110**. The elastic part **132** lies over the extension part **131**, and a predetermined gap is provided between the elastic and extension parts **132** and **131**. Hence, the elastic part **132** can be elastically deformed upward and downward. Meanwhile, the barb **133** of the hook **130**, as shown in **FIG. 8**, protrudes from a top of the elastic part **132**. The protruding barb **133** is inserted in the corresponding hook hole **31***b* when the filter hole **17** is covered with the cover **110**.

[0065] Each of the hooks **130** may further include a push piece **134** facilitating a user to push. The push piece **134**, as shown in **FIG. 8**, extends from an end of the elastic part **132**. Hence, if a user pushes the push piece **134** while the barb **133** is inserted in the hook hole **31***b*, the barb **133** is released from the hook hole **31***b* so as to facilitate the user to open the cover **110**.

[0066] Meanwhile, it is preferable that there is no step difference between the upper side of the hook **130** and the upper end of the cover **110** to improve the exterior beauty. Hence, the hook **130**, as shown in **FIG. 8**, preferably extends from a groove **111** provided on the upper end of the cover **110**. In other words, the upper end of the cover **110** in the vicinity of a portion where the hook **130** is provided protrudes as high as the upper side of the hook **130**. With such a structure, the cover **110** enables to entirely cover the filter hole **17**, thereby improving the exterior beauty more.

[0067] In using the above-structured filter cover assembly **100**, the protrusions **120** are firstly inserted in the holes **31***a* of the filter case **31**. Once the protrusions **120** are completely inserted, the barbs **121***b* and **123***b* prevents the protrusions **120** from being separated from the holes **31***a*.

[0068] If the upper side of the cover **110** is pushed toward the filter case **31** while such a state is maintained, the cover **110** is turned by taking the protrusions **120** inserted in the holes **31***a* as a rotational axis. As the cover **110** is turned, the hooks **130** are inserted in the filter hole **17**. If the barbs **133** of the hooks **130** are finally inserted in the hook holes **31***b* of the filter case **31**, the filter cover assembly **100** is completely loaded.

[0069] Once the filter cover assembly **100** is completely loaded, the three hooks **130** and the three protrusions **120** are instead in the hook holes **31***b* and the holes **31***a*, respectively to be fixed. Hence, the outer surface of the cover **110** lies in the same plane of the outer surface of the cabinet **10**. Hence, there is no step difference to improve the exterior beauty. Besides, as the three hooks **130** are fixed, the filter cover assembly **100** is securely loaded.

[0070] Meanwhile, in order to clean or replace the filter **31** after long time use, the push piece **134** of the hook **130** is pushed. The barb **133** is then released from the corresponding hook hole **31***b*. If the user pulls the upper side of the cover **110**, the cover **110** is turned by taking the protrusions **120** inserted in the holes **31***a* as a hinge shaft. Once the cover **110** is fully turned, the cover **110** is not completely separated from the cabinet **10** since the protrusions **120** maintain to be inserted in the holes **31***a*, respectively.

[0071] While the cover **110**, as shown in **FIG. 7**, is open, the user draws out the filter **31** from the filter case **31** and then cleans the filter **31** or replaces it by a new one. Then the cleaned or new filter is inserted in the filter case **31** to be loaded. Once the filter **31** is loaded, the user **110** turns the cover **110**. When the cover **110** is fully turned, the barbs **133** of the hooks **130** are inserted in the hook holes **31***b*, respectively so that the cover **110** is completely fixed.

[0072] As mentioned in the foregoing description, the user cleans or replaces the filter **31** after opening the cover **110** with ease and then reloads it with ease.

[0073] Accordingly, the washing machine according to the second embodiment of the present invention has the following advantages or effects.

[0074] First of all, since three protrusions and hooks fix the lower and upper ends of the cover, the filter cover assembly can be securely loaded in the filter hole of the cabinet.

[0075] Secondly, since three protrusions and hooks fix the lower and upper ends of the cover, there is no step difference between the outer surfaces of the cover and cabinet. Therefore, the exterior beauty of the washing machine is improved.

[0076] Thirdly, as the push pieces are provided on the hooks, the user opens the cover conveniently and easily to clean or replace the filter.

[0077] It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention without departing from the spirit or scope of the invention. Thus, it is intended that the present invention cover such modifications and variations, provided they come within the scope of the appended claims and their equivalents.

What is claimed is:

1. A filter cover assembly of a washing machine, comprising:

a cover fitted to a filter hole provided at a cabinet of the washing machine for loading/unloading a filter;

three protrusions extending downward from left, right, and central sides of a lower end of the cover to be inserted in holes at left, right, and central portions of a lower side of a filter case provided in the cabinet, respectively to communicate with the filter hole; and

three hooks protruding from left, right, and central sides of an upper end of the cover toward the filter case to be inserted in hook holes at left, right, and central portions of an upper side of the filter case, respectively.

2. The filter cover assembly as claimed in claim 1, wherein at least one of the protrusions comprises:

at least one slit provided along a length direction of the corresponding protrusion to elastically deform both lateral sides of the corresponding protrusion inward and outward; and

a barb protruding outward from lower ends of both of the lateral sides of the corresponding protrusion to prevent the corresponding protrusion having inserted in the hole from being separated from the hole.

3. The filter cover assembly as claimed in claim 1, wherein each of the hooks comprises:

an extension part protruding from an upper end of the cover toward the filter case;

an elastic part bent from an end of the extension part toward the cover to have elasticity upward and downward; and

a barb protruding from an upper surface of the elastic part to be inserted in the corresponding hook hole.

4. The filter cover assembly as claimed in claim 3, wherein each of the hooks further comprises a push piece extending from the elastic part to facilitate a user to push.

5. A filter assembly of a washing machine, comprising:

a filter hole at one side of a cabinet of the washing machine;

a filter case in the cabinet to have a front side communicate with the filter hole and to communicate with a tub and a drain hose of the washing machine;

a filter loaded in the filter case to filter particles in water flowing in the filter case; and

a filter cover assembly comprising:

a cover fitted to a filter hole provided at a cabinet of the washing machine for loading/unloading a filter;

three protrusions extending downward from left, right, and central sides of a lower end of the cover to be inserted in holes at left, right, and central portions of a lower side of a filter case provided in the cabinet, respectively to communicate with the filter hole; and

three hooks protruding from left, right, and central sides of an upper end of the cover toward the filter case to be inserted in hook holes at left, right, and central portions of an upper side of the filter case, respectively.

6. The filter assembly as claimed in claim 5, wherein at least one of the protrusions comprises:

at least one slit provided along a length direction of the corresponding protrusion to elastically deform both lateral sides of the corresponding protrusion inward and outward; and

a barb protruding outward from lower ends of both of the lateral sides of the corresponding protrusion to prevent the corresponding protrusion having inserted in the hole from being separated from the hole.

7. The filter assembly as claimed in claim 5, wherein each of the hooks comprises:

an extension part protruding from an upper end of the cover toward the filter case;

an elastic part bent from an end of the extension part toward the cover to have elasticity upward and downward; and

a barb protruding from an upper surface of the elastic part to be inserted in the corresponding hook hole.

8. The filter assembly as claimed in claim 7, wherein each of the hooks further comprises a push piece extending from the elastic part to facilitate a user to push.

9. A washing machine comprising:

a cabinet having a filter hole at one side;

a tub in the cabinet;

a drum rotatably provided in the tub;

a filter case in the cabinet to have a front side communicate with the filter hole and to communicate with a tub and a drain hose of the washing machine;

a filter loaded in the filter case to filter particles in water flowing in the filter case; and

a filter cover assembly comprising:

a cover fitted to a filter hole provided at a cabinet of the washing machine for loading/unloading a filter;

three protrusions extending downward from left, right, and central sides of a lower end of the cover to be inserted in holes at left, right, and central portions of a lower side of a filter case provided in the cabinet, respectively to communicate with the filter hole; and

three hooks protruding from left, right, and central sides of an upper end of the cover toward the filter case to be inserted in hook holes at left, right, and central portions of an upper side of the filter case, respectively.

10. The washing machine as claimed in claim 9, wherein at least one of the protrusions comprises:

at least one slit provided along a length direction of the corresponding protrusion to elastically deform both lateral sides of the corresponding protrusion inward and outward; and

a barb protruding outward from lower ends of both of the lateral sides of the corresponding protrusion to prevent the corresponding protrusion having inserted in the hole from being separated from the hole.

11. The washing machine as claimed in claim 9, wherein each of the hooks comprises:

an extension part protruding from an upper end of the cover toward the filter case;

an elastic part bent from an end of the extension part toward the cover to have elasticity upward and downward; and

a barb protruding from an upper surface of the elastic part to be inserted in the corresponding hook hole.

12. The washing machine as claimed in claim 11, wherein each of the hooks further comprises a push piece extending from the elastic part to facilitate a user to push.

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