

US Patent & Trademark Office

Patent Public Search | Text View

United States Patent	12392069
Kind Code	B2
Date of Patent	August 19, 2025
Inventor(s)	Choi; Kyoungmin et al.

Laundry treating apparatus

Abstract

A laundry treating apparatus includes a cabinet with an outlet, a drawer drawn out from the outlet, and a tub inside the drawer, providing a space for storing water and having an inlet on its upper surface. A drum rotatably mounted inside the tub includes an inlet on an upper surface for receiving laundry inside of the drum. A cabinet includes a first frame made at least in part from metal and including a first outlet, a second frame made at least in part from metal, spaced apart from the first frame along a moving direction of the drawer, and including a second outlet, a base panel made of a nonmetal lighter than metal, fixed to the first and second frames, and forming a bottom surface of the cabinet, and a metal cover fixed to the first and second frames and forming an upper surface and both sides of the cabinet.

Inventors: Choi; Kyoungmin (Seoul, KR), Lee; Jihong (Seoul, KR), Jeong; Kwanwoong (Seoul, KR)

Applicant: LG ELECTRONICS INC. (Seoul, KR)

Family ID: 1000008765176

Assignee: LG ELECTRONICS INC. (Seoul, KR)

Appl. No.: 18/676143

Filed: May 28, 2024

Prior Publication Data

Document Identifier	Publication Date
US 20240309572 A1	Sep. 19, 2024

Foreign Application Priority Data

KR	10-2018-0127574	Oct. 24, 2018
----	-----------------	---------------

Related U.S. Application Data

continuation parent-doc US 17287348 US 12018420 WO PCT/KR2019/014034 20191024 child-doc US 18676143

Publication Classification

Int. Cl.: **D06F31/00** (20060101); **D06F23/02** (20060101); **D06F23/04** (20060101); **D06F39/12** (20060101)

U.S. Cl.:

CPC **D06F31/00** (20130101); **D06F23/025** (20130101); **D06F23/04** (20130101); **D06F39/12** (20130101);

Field of Classification Search

CPC: D06F (31/00); D06F (23/025); D06F (23/04); D06F (39/12); D06F (29/00); D06F (37/26)

USPC: 68/27

References Cited

U.S. PATENT DOCUMENTS

Patent No.	Issued Date	Patentee Name	U.S. Cl.	CPC
8341981	12/2012	Kim	68/3R	D06F 39/125
12018420	12/2023	Choi	N/A	D06F 23/04
2005/0275325	12/2004	Yang	312/330.1	D06F 29/005
2007/0151120	12/2006	Tomasi	38/14	D06F 58/10
2009/0007602	12/2008	Woo	68/208	D06F 39/10
2010/0005681	12/2009	Jo	34/215	D06F 39/125
2010/0089099	12/2009	Han	68/13R	D06F 39/12
2011/0265524	12/2010	Kim	68/13R	D06F 39/08
2011/0298338	12/2010	Kim	312/109	D06F 29/00
2014/0053612	12/2013	Son	68/28	D06F 29/00
2015/0345071	12/2014	Lee	68/27	D06F 29/00
2017/0088998	12/2016	Lee	N/A	D06F 37/12

FOREIGN PATENT DOCUMENTS

Patent No.	Application Date	Country	CPC
TO20 110 380	12/2011	IT	N/A
20100108899	12/2009	KR	N/A

OTHER PUBLICATIONS

International Search Report for International Application No. PCT/KR2019/014034 dated Feb. 13, 2020. (10 pages). cited by applicant
Yang, "Box for washing machine", Oct. 2010, KR-20100108899-A—machine translation (Year: 2010). cited by applicant

Primary Examiner: Barr; Michael E

Assistant Examiner: Bucci; Thomas

Attorney, Agent or Firm: Birch, Stewart, Kolasch & Birch, LLP

Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS (1) This application is a Continuation of U.S. application Ser. No. 17/287,348, filed on Apr. 21, 2021, which is a U.S. National Stage Application under 35 U.S.C. § 371 of International Patent Application No. PCT/KR2019/014034, filed Oct. 24, 2019, which claims the benefit of priority of Korean Patent Application No. 10-2018-0127574, filed Oct. 24, 2018; all of which are incorporated herein in their entireties by reference.

TECHNICAL FIELD

(1) The present disclosure relates to a laundry treating apparatus.

BACKGROUND ART

(2) Generally, a laundry treating apparatus includes an apparatus for washing laundry, an apparatus for drying laundry, and an apparatus for selectively performing washing and drying laundry.

(3) In case of a front loading type laundry treating apparatus (drum washing machine) in which laundry is loaded at the front, since an inlet provided to load laundry into the laundry treating apparatus is formed at a position lower than a waist of a user, an inconvenience exists in that the user should bend his/her back to load laundry into the laundry treating apparatus when inserting or drawing out laundry into or from the laundry treating apparatus. In order to solve this inconvenience, a drawer type support is added below the front loading type laundry treating apparatus of the related art to enhance a height of the inlet.

(4) Moreover, in the laundry treating apparatus of the related art, the drawer type support could perform washing or drying of laundry as well as serve as a means for supporting a bottom surface of the front loading type laundry treating apparatus. The drawer type laundry treating apparatus is provided to include a cabinet, a drawer drawn out from the cabinet, a tub provided inside the drawer, storing water therein, and a drum rotatably provided inside the tub, storing laundry therein. In the drawer type laundry treating apparatus having the aforementioned structure, since the cabinet includes a frame made of a metal material and a metal plate fixed to the frame, problems occur in that the laundry treating apparatus has a heavy weight, needs much manufacturing cost, and needs much time for coupling between components made of metal.

SUMMARY

Technical Problem

(5) An object of the present disclosure is to provide a drawer type laundry treating apparatus capable of performing washing or drying of laundry.

(6) Another object of the present disclosure is to provide a drawer type laundry treating apparatus capable of minimizing a weight and a manufacturing cost of a cabinet.

(7) Another object of the present disclosure is to provide a drawer type laundry treating apparatus capable of reducing an assembly time.

Technical Solution

(8) To achieve the above objects of the present disclosure, a laundry treating apparatus according to the present disclosure comprises a cabinet provided with an outlet; a drawer drawn out from the cabinet through the outlet; a tub provided inside the drawer to provide a space in which water is stored, having an inlet on its upper surface; a drawer provided on the upper surface of the drawer or an upper surface of the tub, opening or closing the inlet; a drum rotatably provided inside the tub,

storing laundry therein; and a drum inlet provided on an upper surface of the drum, allowing laundry supplied to the inlet to enter the inside of the drum, wherein the cabinet includes a first frame provided with a first outlet communication hole communicated with the outlet, at least a part of the first frame being made of a metal material; a second frame provided to be spaced apart from the first frame along a moving direction of the drawer, having a second outlet communication hole communicated with the outlet, at least a part of the second frame being made of a metal material; a base panel fixed to the first frame and the second frame, forming a bottom surface of the cabinet, and made of a nonmetal material lighter than metal; and a cover fixed to the first frame and the second frame, forming an upper surface and both sides of the cabinet, and made of a metal material.

(9) The base panel may be made of a plastic material.

(10) The laundry treating apparatus may further comprise a first support and a second support in the base panel along a direction where the drawer is drawn out and spaced apart from each other at an interval longer than a width of the drawer; a first fixed body fixed to the first support; a first detachable body having one end fixed to the drawer and the other end detachably coupled to the first fixed body; a second fixed body fixed to the second support; and a second detachable body having one end fixed to the drawer and the other end detachably coupled to the second fixed body.

(11) The base panel, the first support and the second support may be provided in one body through injection molding.

(12) The laundry treating apparatus may further comprises a stator provided on a bottom surface of the tub, generating a rotating field; a rotor rotated by the rotating field; a rotary shaft provided to pass through the bottom surface of the tub, connecting the rotor with a bottom surface of the drum; and a panel through hole provided to pass through the base panel, allowing the air to the inside of the cabinet.

(13) The first frame may include a first frame body of a bar shape provided to form a bottom surface of the first frame, supporting a lower surface of the base panel, and made of a metal material; a first frame first side body of a metal material extended from one end of the first frame body along a height direction of the drawer; a first frame second side body of a metal material extended from the other end of the first frame body along the height direction of the drawer; and a first frame upper body provided to connect the first frame first side body with the first frame second side body, forming an upper surface of the first frame, and made of a nonmetal material lighter than metal, and the second frame may include a second frame body of a bar shape provided to form a bottom surface of the second frame, supporting the lower surface of the base panel, and made of a metal material; a second frame second side body of a metal material extended from one end of the second frame body along the height direction of the drawer; a second frame second side body of a metal material extended from the other end of the second frame body along the height direction of the drawer; and a second frame upper body provided to connect the second frame first side body with the second frame second side body, forming an upper surface of the second frame, and made of a nonmetal material.

(14) The first frame upper body and the second frame upper body may be made of a plastic material.

(15) The first frame body, the first frame first side body and the first frame second side body may be provided such that one metal is bent in a U shape through press molding, and the second frame body, the second frame first side body and the second frame second side body may be provided such that one metal is bent in a U shape through press molding.

(16) The laundry treating apparatus may further comprise a first bracket having one end fixed to the first frame body and the other end fixed to the first frame first side body; a second bracket having one end fixed to the first frame body and the other end fixed to the first frame second side body; a third bracket having one end fixed to the second frame body and the other end fixed to the second frame first side body; and a fourth bracket having one end fixed to the second frame body and the

other end fixed to the second frame second side body.

(17) The laundry treating apparatus may further comprise a second cabinet located on the cabinet; a second drum rotatably provided inside the second cabinet, providing a space in which laundry is stored; a first front leg and a second front leg provided to correspond to the first frame upper body in a space provided by a bottom surface of the second cabinet; a first rear leg and a second rear leg provided to correspond to the second frame upper body in the space provided by the bottom surface of the second cabinet; a first front leg accommodating unit provided in the first frame upper body to pass through the upper surface of the cabinet, providing a space in which the first front leg is accommodated; a second front leg accommodating unit provided in the first frame upper body to pass through the upper surface of the cabinet, providing a space in which the second front leg is accommodated; a first rear leg accommodating unit provided in the second frame upper body to pass through the upper surface of the cabinet, providing a space in which the first rear leg is accommodated; and a second rear leg accommodating unit provided in the second frame upper body to pass through the upper surface of the cabinet, providing a space in which the second rear leg is accommodated.

(18) The laundry treating apparatus may further comprise a first front extension body extended from the first frame first side body toward the first frame second side body; a second front extension body extended from the first frame second side body toward the first frame first side body; a first rear extension body extended from the second frame first side body toward the second frame second side body; a second rear extension body extended from the second frame second side body toward the second frame first side body; a first front connection plate provided in the first front extension body and provided to pass through the first frame upper body and the upper surface of the first cabinet; a second front connection plate provided in the second front extension body and provided to pass through the first frame upper body and the upper surface of the first cabinet; a first rear connection plate provided in the first rear extension body and provided to pass through the second frame upper body and the upper surface of the first cabinet; a first front joint plate provided on the bottom surface of the second cabinet and jointed to the first front connection plate; a second front joint plate provided on the bottom surface of the second cabinet and jointed to the second front connection plate; a first rear joint plate provided on the bottom surface of the second cabinet and jointed to the first rear connection plate; and a second rear joint plate provided on the bottom surface of the second cabinet and jointed to the second rear connection plate.

(19) The first frame body, the first frame first side body, the first frame second side body, the first front extension body, and the second front extension body may be provided such that one metal is bent in a U shape through press molding, and the second frame body, the second frame first side body, the second frame second side body, the first rear extension body, and the second rear extension body may be provided such that one metal is bent in a U shape through press molding.

(20) The laundry treating apparatus may further comprise a first upper bracket having one end fixed to the first frame first side body and the other end fixed to the first front extension body; a second upper bracket having one end fixed to the first frame second side body and the other end fixed to the second front extension body; a third upper bracket having one end fixed to the second frame first side body and the other end fixed to the first rear extension body; and a fourth upper bracket having one end fixed to the second frame second side body and the other end fixed to the second rear extension body.

(21) The laundry treating apparatus may further comprise a third front extension body extended from the first frame first side body toward the second frame first side body; a fourth front extension body extended from the first frame second side body toward the second frame second side body; a third rear extension body extended from the second frame first side body toward the first frame first side body; a fourth rear extension body extended from the second frame second side body toward the first frame second side body; a first left connection plate provided in the third front extension body and provided to pass through the first frame upper body and the upper surface of the cabinet;

a first right connection plate provided in the fourth front extension body and provided to pass through the first frame upper body and the upper surface of the cabinet; a second left connection plate provided in the third rear extension body and provided to pass through the second frame upper body and the upper surface of the cabinet; a second right connection plate provided in the fourth rear extension body and provided to pass through the second frame upper body and the upper surface of the cabinet; a first left joint plate provided on the bottom surface of the second cabinet and jointed to the first left connection plate; a first right joint plate provided on the bottom surface of the second cabinet and jointed to the first right connection plate; a second left joint plate provided on the bottom surface of the second cabinet and jointed to the second left connection plate; and a second right joint plate provided on the bottom surface of the second cabinet and jointed to the second right connection plate.

Advantageous Effects

(22) According to the present disclosure, a drawer type laundry treating apparatus capable of performing washing or drying of laundry may be provided.

(23) Also, according to the present disclosure, a drawer type laundry treating apparatus capable of minimizing a weight and a manufacturing cost of a cabinet may be provided.

(24) Also, according to the present disclosure, a drawer type laundry treating apparatus capable of reducing an assembly time may be provided.

Description

BRIEF DESCRIPTION OF DRAWINGS

(1) FIGS. 1 and 2 illustrate examples of a laundry treating apparatus.

(2) FIGS. 3 and 4 illustrate examples of a first cabinet provided in a laundry treating apparatus.

(3) FIG. 5 illustrates an example of a first frame and a second frame.

(4) FIG. 6 illustrates an example of a first frame upper body.

(5) FIG. 7 illustrates an example of a second frame upper body.

DETAILED DESCRIPTION

(6) Hereinafter, preferred embodiments of the present disclosure will be described in detail with reference to the accompanying drawings.

(7) A laundry treating apparatus may be provided with only a first treating apparatus L that is a drawer type laundry treating apparatus, or may be provided with the first treating apparatus L and a second treating apparatus T arranged on the first treating apparatus. FIG. 1 illustrates that the laundry treating apparatus 100 is provided with both a first treating apparatus L and a second treating apparatus T as an example.

(8) The first treating apparatus L is provided to include a cabinet 6 (first cabinet), a drawer drawn out from the first cabinet, a tub 8 (first tub) provided in the drawer, providing a space where water is stored, and a drum 9 (first drum) provided inside the first tub 8, storing laundry therein.

(9) As shown in FIG. 2, an outlet 699 is provided on a front surface 698 of the first cabinet 6, and the drawer 7 includes a drawer body 71 drawn out from the first cabinet 6 through the outlet 699, and a drawer panel 73 fixed to the drawer body, opening or closing the outlet 699.

(10) The drawer body 71 may be provided in a hexahedral shape, and a first drawer through hole 71a and a second drawer through hole 71b for communicating the inside of the drawer body 71 with the outside of the drawer body 71 may be provided on an upper surface of the drawer body 71. The first drawer through hole 71a is a means for supplying laundry to the first drum 9, and the second drawer through hole 71b is a means for supplying water to the first tub 8, and a detailed description of the first drawer through hole 71a and the second drawer through hole 71b will be described later.

(11) The drawer panel 73 is fixed to a front surface of the drawer body 71 and located outside the

first cabinet **6**, and may be provided in a shape capable of opening or closing the outlet **699**.

(12) The case that the drawer panel **73** opens the outlet **699** means that the drawer panel **73** moves along a direction (+Z axis direction) far away from the front surface **698** of the first cabinet and therefore the outlet **699** is externally exposed. The case that the drawer panel **73** closes the outlet **699** means that the outlet **699** is covered with the drawer panel **73** and therefore is not externally exposed.

(13) The drawer panel **73** may include a control panel **75** (first control panel). The first control panel **75** may be provided with an input unit for receiving a control command from a user, and a display unit for providing the user with information related to an operation of the first treating apparatus.

(14) The first tub **8** may be provided in a hollow cylindrical shape and fixed into the drawer body **71** through a first tub support **84**. An inlet **81** (first inlet) and a supply hole **82** are provided on an upper surface of the first tub **8**. The first inlet **81** is preferably located below the first drawer through hole **71a**, and the supply hole **82** may be located below the second drawer through hole **71b**.

(15) The first inlet **81** is opened or closed by a door **83** (first door), and the first door **83** may rotatably be fixed to the upper surface of the first tub **8** or may rotatably be fixed to the upper surface of the drawer body **71**. FIG. 2 illustrates that the first door **83** is coupled to the upper surface of the first tub through a hinge as an example. In this case, the first door **83** should be provided in a shape that can be rotated toward a direction far away from the upper surface of the first tub **8** through the first through hole **71a**.

(16) The first tub **8** is supplied with water through a water supply (first water supply), and the water stored in the first tub **8** is discharged from the first tub through a drainage unit (first drainage unit).

(17) The first water supply is provided to include a first water supply pipe **85** inserted into the second drawer through hole **71b**, connecting a water supply source (not shown) with the supply hole **82**, and a first valve **86** for opening or closing the first water supply pipe **85** by means of a first controller (not shown). The first drainage unit is provided to include a first drainage pipe **88** guiding the water in the first tub **8** to the outside of the first cabinet **6**, and a first pump **87** allowing the water to move along the first drainage pipe **88**.

(18) Since the drawer body **71** is provided to move along a length direction (Z axis direction) of the first cabinet **6**, the first water supply pipe **85** and the first drainage pipe **88** may be provided as pipes, each of which has an elastic length.

(19) The first drum **9** is provided in a hollow cylindrical shape, and includes a first drum inlet **91** and a communication hole **93** on its upper surface, wherein the first drum inlet **91** is communicated with the first inlet **81**, and the communication hole **93** is provided to pass through a circumferential surface and a bottom surface of the first drum. The first drum inlet **91** is located below the first inlet **81**. Therefore, the user may supply laundry to the first drum **9** through the first drawer through hole **71a**, the first inlet **81**, and the first drum inlet **91**.

(20) The communication hole **93** is a means for communicating the inside of the first drum **9** with the first tub **8**. Therefore, the water supplied to the first tub **8** is supplied to the laundry inside the first drum through the communication hole **93**, and the water and particles remaining in laundry are discharged to the first tub **8** through the communication hole **93**.

(21) The first drum **9** is rotated through a first driver, and the first driver may be provided with a first stator **95**, a first rotor **97**, and a first rotary shaft **99**. The first stator **95** is a means fixed to the bottom surface of the first tub **8**, forming a rotating electric field, the first rotor **97** is a means rotated by the rotating electric field, and the first rotary shaft **99** is a means provided to pass through the bottom surface of the first tub, connecting the first drum **9** with the first rotor **97**.

(22) The second treating apparatus T includes a second cabinet **1** fixed to an upper surface of the first cabinet **6**, a second inlet **113** provided on a front surface **11** of the second cabinet, a second door **12** opening or closing the second inlet, a second tub **3** provided inside the second cabinet to

provide a space where the water is stored and communicated with the second inlet, and a second drum **4** rotatably provided inside the second tub to provide a space where laundry supplied through the second inlet is stored. If the second treating apparatus T is located on the first treating apparatus L, vibration and noise generated in the first treating apparatus L during rotation of the first drum **9** may be attenuated, and the height of the second inlet **113** may become high, whereby the user may conveniently insert or draw out laundry into or from the second treating apparatus T.

(23) As shown in FIG. **1**, the front surface **11** of the second cabinet means a surface toward the same direction as the front surface **698** of the first cabinet in the space provided by the second cabinet, and a second controller **111** may be provided on the front surface **11** of the second cabinet **1**. The second controller **111** may include a second input unit for receiving a control command from a user, and a second display unit for displaying information related to an operation of the second treating apparatus.

(24) The second treating apparatus T is fixed to the upper surface of the first cabinet **6** through a plurality of legs provided on a bottom surface **14** of the second cabinet. That is, the legs are means for supporting the second treating apparatus T, and may be provided at each corner of the bottom surface **14**. FIG. **1** illustrates that the legs are provided as a first front leg **15**, a second front leg **16**, a first rear leg **17** (see FIG. **2**), and a second rear leg **18**, as an example.

(25) The second tub **3** may be provided in a hollow cylindrical shape, and a second tub inlet **31** may be provided on a front surface of the second tub **3**. The second tub inlet **31** may be connected to the second inlet **113** through a corrugated type gasket.

(26) The second tub **3** is fixed into the second cabinet **1** through a second tub support **33**, and the second tub support **33** may be provided with a damper for fixing a lower area of the second tub to the bottom surface **14** of the second cabinet, and a spring for fixing an upper area of the second tub to the second cabinet.

(27) The second tub is supplied with water through the second water supply, and discharges the water stored in the second tub to the outside of the second cabinet. The second water supply may be provided to include a second water supply pipe **35** connecting the water supply source with the second tub **3**, and a second valve **37** for opening or closing the second water supply pipe **35** in accordance with a control signal of a second controller (not shown). The second drainage unit may be provided to include a second drainage pipe **39** guiding the water in the second tub **3** to the outside of the second cabinet **1**, and a second pump **38** allowing the water to move along the second drainage pipe **39**.

(28) The second drum **4** may be provided in a hollow cylindrical shape, and may include a second drum inlet **41** on its front surface, wherein the second drum inlet **41** is communicated with the second tub inlet **31**. A plurality of communication holes **43** may be provided on a front surface, a circumferential surface and a rear surface of the second drum **4**.

(29) The second drum **4** is rotated through a second driver, and the second driver may be provided to include a second stator **45** fixed to a rear surface of the second tub **3**, forming a rotating field, a second rotor **46** rotated by the rotating field, and a second rotary shaft **47** provided to pass through the rear surface of the second tub **3**, connecting the second drum **4** with the second rotor **46**.

(30) The second treating apparatus T may further include a joint unit for fixing the second cabinet **1** to the first treating apparatus L. FIG. **3** illustrates that the joint unit includes a first front joint plate **51**, a second front joint plate **53**, a first rear joint plate (not shown), a second rear joint plate **55**, a first left joint plate **52**, a first right joint plate **54**, a second left joint plate (not shown), and a second right joint plate **56**, as an example.

(31) The first front joint plate **51** and the second front joint plate **53** may be provided to be protruded from the bottom surface **14** of the second cabinet to be parallel with the front surface **11** of the second cabinet, and the first rear joint plate and the second rear joint plate **55** may be provided to be protruded from the bottom surface **14** of the second cabinet to be parallel with the rear surface of the second cabinet.

- (32) The first left joint plate **52** and the second left joint plate may be provided to be protruded from the bottom surface **14** of the second cabinet to be parallel with the left side of the second cabinet, and the first right joint plate **54** and the second right joint plate **56** may be provided to be protruded from the bottom surface **14** of the second cabinet to be parallel with the right side of the second cabinet.
- (33) As shown in FIG. 3, the joint unit may be provided to include only the first front joint plate **51**, the second front joint plate **53**, the first rear joint plate (not shown), and the second rear joint plate **55**, or may be provided to include only the first left joint plate **52**, the first right joint plate **54**, the second left joint plate (not shown), and the second right joint plate **56**.
- (34) As shown in FIG. 4, the first cabinet **6** provided in the first treating apparatus includes first and second frames **61** and **62** spaced apart from each other along a moving direction (Z axis direction) of the drawer **7**, a base panel **68** fixed to the first and second frames, forming the bottom surface of the first cabinet **6**, and a cover **69** fixed to the first and second frames, forming the upper surface of the first cabinet **6** and both sides of the first cabinet **6**.
- (35) The base panel **68** may be made of a material lighter than the frames **61** and **62** or a material lighter than the cover **69**. That is, if the frames **61** and **62** and the cover **69** are made of a metal material, the base panel **68** may be made of plastic. This is to minimize a weight of the first cabinet **6** and reduce the manufacturing cost.
- (36) The base panel **68** includes a first slide **77** providing a moving path of the drawer **7**, and first and second supports **683** and **685** to which first and second slides **77** and **79** are respectively fixed.
- (37) The first support **683** and the second support **685** are provided in the base panel **68** along a direction where the drawer body **71** is drawn out, and an interval between the first support **683** and the second support **685** should be set to be longer than a width (X axis direction length of the drawer body) of the drawer body **71**. Considering minimization of the manufacturing cost and easiness of assembly, the base panel **68**, the first support **683** and the second support **685** may be provided in one body. The case that the base panel **68**, the first support **683** and the second support **685** are provided in one body means that the first support **683** and the second support **685** are fixed to the base panel **68** through a manufacturing method such as injection molding without a joint member.
- (38) The first slide **77** may include a first fixed body **771** fixed to the first support **683**, and a first detachable body **773** having one end fixed to the drawer body **71** and the other end detachably coupled to the first fixed body **771**. Likewise, the second slide **79** may include a second fixed body **791** fixed to the second support **685**, and a second detachable body **793** having one end fixed to the drawer body **71** and the other end detachably coupled to the second fixed body **791**. The first fixed body **771** and the second fixed body **791** may respectively be fixed to the first support **683** and the second support **685** by a joint means such as a bolt.
- (39) Meanwhile, a panel through hole **681** may be provided in the base panel **68**, and may be a means for allowing the external air for cooling of the first driver to enter the inside of the first cabinet **6**.
- (40) The cover **69** includes an upper panel **691** forming the upper surface of the first cabinet **6**, a first side panel **696** forming the left side of the first cabinet, and a second side panel **697** forming the right side of the first cabinet. The upper panel **691**, the first side panel **696** and the second side panel **697** may be provided in such a manner that both ends of one metal plate are downwardly bent. In this case, the outlet **699** formed on the front surface **698** of the first cabinet **6** is formed by the cover **69** and the base panel **68**.
- (41) Although not shown, the laundry treating apparatus may further include a rear panel forming the rear surface of the first cabinet **6**. Preferably, the rear panel is detachably coupled to the rear of the cover **69** or the second frame **62**. Since the first water supply, the first drainage are located in a rear area of the first cabinet **6**, if the rear panel is detachably provided at the rear of the second frame **62** or the cover **69**, it will be easy to check and repair the first water supply or the first

drainage.

(42) The first frame **61** and the second frame **62** are means for supporting the cover **69** and the base panel **68**.

(43) As shown in FIG. 5, the first frame **61** may include a first frame body **611** of a bar shape provided to form the bottom surface of the first frame **61** to allow the bottom surface of the base panel **68** to be fixed thereto, a first frame first side body **612** extended from one end of the first frame body **611** along a height direction (Y axis direction) of the drawer, a first frame second side body **615** extended from the other end of the first frame body **611** along a height direction of the drawer, and a first frame upper body **618** (see FIG. 4) connecting the first frame first side body **612** with the first frame second side body **615**.

(44) The first frame body **611**, the first frame first side body **612**, and the first frame second side body **615** may be provided in such a manner that one metal is bent in a U shape through press molding.

(45) As shown in FIG. 4, the first frame upper body **618** is provided to form the upper surface of the first frame **61**, and provides a space where the upper panel **691** is fixed. Also, an interval between a free end of the first frame first side body **612** and a free end of the first frame second side body **615** is maintained (strength of the first frame is reinforced). The first frame upper body **618** may be made of a material lighter than the first frame body **611**, for example, plastic. If the first frame upper body **618** is made of a material lighter than metal, a weight and manufacturing cost of the first cabinet **6** may be minimized.

(46) A first outlet communication hole communicated with the outlet **699** should be provided in the first frame **61** such that the drawer body **71** may pass through the first frame **61**. The first outlet communication hole is formed by the first frame body **611**, the first frame first side body **612**, the first frame second side body **615**, and the first frame upper body **618**.

(47) A first front leg accommodating unit **618a** providing a space in which the first front leg **15** provided in the second treating apparatus is accommodated and a second front leg accommodating unit **618b** providing a space in which the second front leg **16** provided in the second treating apparatus is accommodated are provided in the first frame upper body **618**.

(48) The first front leg accommodating unit **618a** is protruded from the first frame upper body **618** to form a space in which the first front leg **15** is accommodated, and the second front leg accommodating unit **618b** is protruded from the first frame upper body **618** to form a space in which the second front leg **16** is accommodated.

(49) The first front leg accommodating unit **618a** is exposed to the upper surface of the first cabinet **6** through a first upper through hole **692** provided to pass through the upper panel **691**, and the second front leg accommodating unit **618b** is exposed to the outside of the first cabinet **6** through a second upper through hole **693** provided to pass through the upper panel **691**.

(50) As shown in FIG. 5, the second frame **62** includes a second frame body **621** of a bar shape provided to form the bottom surface of the second frame **62**, supporting the bottom surface of the base panel **68**, a second frame first side body **622** extended from one end of the second frame body **621** along a height direction (Y axis direction) of the drawer, a second frame second side body **625** extended from the other end of the second frame body **621** along a height direction of the drawer, and a second frame upper body **628** forming the upper surface of the second frame **62**.

(51) The second frame body **621**, the second frame first side body **622**, and the second frame second side body **625** may be provided in such a manner that one metal is bent in a U shape through press molding. The second frame upper body **628** may be made of a plastic material.

(52) As shown in FIG. 4, the second frame upper body **628** is provided to connect the second frame first side body **622** with the second frame second side body **625** and provides a space where the upper panel **691** is fixed.

(53) A second outlet communication hole communicated with the outlet **699** should be provided in the second frame **62**. The second outlet communication hole is formed by the second frame body

621, the second frame first side body **622**, the second frame second side body **625**, and the second frame upper body **628**.

(54) A first rear leg accommodating unit **628** providing a space in which the first rear leg **17** provided in the second treating apparatus is accommodated and a second rear leg accommodating unit **628b** providing a space in which the second rear leg **18** provided in the second treating apparatus is accommodated are provided in the second frame upper body **628**.

(55) The first rear leg accommodating unit **628a** is protruded from the second frame upper body **628** to form a space in which the first rear leg **17** is accommodated, and the second rear leg accommodating unit **628b** is protruded from the second frame upper body **628** to form a space in which the second rear leg **18** is accommodated.

(56) The first rear leg accommodating unit **628a** is exposed to the upper surface of the first cabinet **6** through a third upper through hole **694** provided to pass through the upper panel **691**, and the second rear leg accommodating unit **628b** is exposed to the outside of the first cabinet **6** through a fourth upper through hole **695** provided to pass through the upper panel **691**.

(57) Since the first front leg accommodating unit **618a** and the second front leg accommodating unit **618b** are provided in the first frame upper body **618** and the first rear leg accommodating unit **628a** and the second rear leg accommodating unit **628b** are provided in the second frame upper body **628**, the laundry treating apparatus needs to assemble separate leg accommodating units in the upper panel **691** after fixing the cover **60** to the frames **61** and **62**.

(58) It is assumed that the first front leg accommodating unit **618a** and the second front leg accommodating unit **618b** are provided to detached from the first frame upper body **618** and the first rear leg accommodating unit **628a** and the second rear leg accommodating unit **628b** are provided to be detached from the second frame upper body **628**. In this case, a worker should assemble the first front leg accommodating unit **618a**, the second front leg accommodating unit **618b**, the first rear leg accommodating unit **628a** and the second rear leg accommodating unit **628b** in each corner of the upper panel **691** by using a bolt, etc. after assembling the cover **69** in the two frames **61** and **62**. This causes problems in increasing a working time and components. Therefore, it is advantageous that the structures of the first frame upper body **618** and the second frame upper body **628** reduce the working time and minimize the number of components.

(59) As shown in FIG. 5, in order to enhance strength of the cabinet **6**, the laundry treating apparatus **100** may further include a first bracket **641** having one end fixed to the first frame body **611** and the other end fixed to the first frame first side body **612**, a second bracket **642** having one end fixed to the first frame body **611** and the other end fixed to the first frame second side body **615**, a third bracket **643** having one end fixed to the second frame body **621** and the other end fixed to the second frame first side body **622**, and a fourth bracket **644** having one end fixed to the second frame body **621** and the other end fixed to the second frame second side body **625**.

(60) Moreover, in order to enhance strength of the first cabinet **6** by stably supporting the first frame upper body **618** and the second frame upper body **628**, the first frame **61** may further include a first front extension body **612a**, a second front extension body **615a**, a first rear extension body **622a**, and a second rear extension body **625a**.

(61) The first front extension body **612a** may be made of a metal plate extended from the first frame first side body **612** to the first frame second side body **615**, and the second front extension body **615a** may be made of a metal plate extended from the first frame second side body **615** to the first frame first side body **612**.

(62) Likewise, the first rear extension body **622a** may be made of a metal plate extended from the second frame first side body **622** to the second frame second side body **625**, and the second rear extension body **625a** may be made of a metal plate extended from the second frame second side body **625** to the second frame first side body **622**.

(63) The first frame body **611**, the first frame first side body **612**, the first frame second side body **615**, the first front extension body **612a**, and the second front extension body **615a** may be

provided in such a manner that one metal is bent in a U shape through press molding. In this case, the first frame first side body **612** may be connected with the first front extension body **612a** through a first upper bracket **645**, and the first frame second side body **615** may be connected with the second front extension body **615a** through a second upper bracket **646**.

(64) One end of the first upper bracket **645** may be fixed to the first frame first side body **612** through a joint means such as a bolt, and the other end of the first upper bracket **645** may be fixed to the first front extension body **612a** through a joint means such as a bolt. Likewise, one end of the second upper bracket **646** may be fixed to the first frame second side body **615** through a joint means such as a bolt, and the other end of the second upper bracket **646** may be fixed to the second front extension body **615a** through a joint means such as a bolt.

(65) The second frame body **621**, the second frame first side body **622**, the second frame second side body **625**, the first rear extension body **622a**, and the second rear extension body **625a** may be provided in such a manner that one metal is bent in a U shape through press molding. In this case, the second frame first side body **622** may be connected with the first rear extension body **622a** through a third upper bracket **647**, and the second frame second side body **625** may be connected with the second rear extension body **625a** through a fourth upper bracket **648**. The first upper bracket **645**, the second upper bracket **646**, the third upper bracket **647** and the fourth upper bracket **648** may be made of a metal material.

(66) The first front extension body **612a** may be provided with a first front connection plate **613** to which a first front joint plate **51** of the second treating apparatus T is fixed through the upper panel **691** of the first cabinet and the first frame upper body **618**, and the second front extension body **615a** may be provided with a second front connection plate **616** to which a second front joint plate **53** of the second treating apparatus T is fixed through the upper panel **691** of the first cabinet and the first frame upper body **618**.

(67) The first front connection plate **613** may be made of a metal plate projected from the first front extension body **612a** toward the upper panel **691** of the first cabinet (projected toward a height direction of the first cabinet). Preferably, the first front extension body **612a** and the first front connection plate **613** are provided in one body.

(68) Likewise, the second front connection plate **616** may be made of a metal plate projected from the second front extension body **615a** toward the upper panel **691** of the first cabinet. Preferably, the second front extension body **615a** and the second front connection plate **616** are provided in one body.

(69) As shown in FIG. 6, the first frame upper body **618** should be provided with a first front connection plate through hole **618c** and a second front connection plate through hole **618d** through which the first front connection plate **613** and the second front connection plate **616** pass, and the upper panel **691** should be provided with a first front connection plate cabinet through hole (not shown) and a second front connection plate cabinet through hole (not shown).

(70) As shown in FIG. 5, the first rear extension body **622a** may be provided with a first rear connection plate **623** to which the first rear joint plate of the second treating apparatus is fixed through the upper panel **691** of the first cabinet and the second frame upper body **628**, and the second rear extension body **625a** may be provided with a second rear connection plate **626** to which the second rear joint plate **55** of the second treating apparatus T is fixed through the upper panel **691** and the second frame upper body **628**.

(71) As shown in FIG. 7, the second frame upper body **628** should be provided with a first rear connection plate through hole **628c** and a second rear connection plate through hole **628d** through which the first rear connection plate **623** and the second rear connection plate **626** pass, and the upper panel **691** should be provided with a first rear connection plate cabinet through hole (not shown) and a second rear connection plate cabinet through hole (not shown).

(72) In order to enhance strength of the first cabinet **6** along a length direction (Z axis direction), the first frame **61** may further include a third front extension body **612b**, a fourth front extension

body **643**, a third rear extension body **622b**, and a fourth rear extension body **625b**.

(73) The third front extension body **612b** may be made of a metal plate extended from the first frame first side body **612** to the second frame first side body **622**, and the fourth front extension body **615b** may be made of a metal plate extended from the first frame second side body **615** to the second frame second side body **625**. The third front extension body **612b** may be fixed to the first frame first side body **612** through a bolt, and the fourth front extension body **615b** may be fixed to the first frame second side body **615** through a bolt.

(74) The third rear extension body **622b** may be made of a metal plate extended from the second frame first side body **622** to the first frame first side body **612**, and the fourth rear extension body **625b** may be made of a metal plate extended from the second frame second side body **625** to the first frame second side body **615**. The third rear extension body **622b** may be fixed to the second frame first side body **622** through a bolt, and the fourth rear extension body **625b** may be fixed to the second frame second side body **625** through a bolt.

(75) The third front extension body **612b** is provided with a first left connection plate **614** to which the first left joint plate **52** of the second treating apparatus T is fixed through the upper panel **691** of the first cabinet and the first frame upper body **618**, and the fourth front extension body **615b** is provided with a first right connection plate **617** to which the first right joint plate **54** of the second treating apparatus T is fixed through the upper panel **691** and the first frame upper body **618**.

(76) As shown in FIG. **6**, the first frame upper body **618** should be provided with a first left connection plate through hole **618e** and a first right connection plate through hole **618f** through which the first left connection plate **614** and the first right connection plate **617** pass, and the upper panel **691** should be provided with a first left connection plate cabinet through hole (not shown) and a second right connection plate cabinet through hole (not shown).

(77) Meanwhile, the third rear extension body **622b** is provided with a second left connection plate **624** to which the second left joint plate (not shown) of the second treating apparatus T is fixed through the upper panel **691** and the second frame upper body **628**, and the fourth rear extension body **625b** is provided with a second right connection plate **627** to which the second right joint plate **54** of the second treating apparatus T is fixed through the upper panel **691** and the second frame upper body **628**.

(78) As shown in FIG. **7**, the second frame upper body **628** should be provided with a second left connection plate through hole **628e** and a second right connection plate through hole **628f** through which the second left connection plate **624** and the second right connection plate **627** pass, and the upper panel **691** should be provided with a second left connection plate cabinet through hole (not shown) and a second right connection plate cabinet through hole (not shown).

(79) The first frame upper body **618** and the second frame upper body **628** may be provided in the same structure. In this case, the first frame upper body **618** may be the second frame upper body if rotated at 180°.

(80) It will be apparent to those skilled in the art that the present disclosure may be embodied in other specific forms without departing from the spirit and essential characteristics of the disclosure. Thus, the above embodiments are to be considered in all respects as illustrative and not restrictive. The scope of the disclosure should be determined by reasonable interpretation of the appended claims and all change which comes within the equivalent scope of the disclosure are included in the scope of the disclosure.

Claims

1. A laundry treating apparatus comprising: a cabinet provided with an outlet; a drawer configured to be drawn out from the cabinet through the outlet; a tub provided inside the drawer to provide a space in which water is stored, the tub having an inlet on an upper surface of the tub; a door provided on an upper surface of the drawer or the upper surface of the tub, for opening or closing

the inlet; a drum rotatably provided inside the tub, for storing laundry therein; and a drum inlet provided on an upper surface of the drum, allowing laundry supplied to the inlet to enter the inside of the drum, wherein the cabinet comprises: a first frame; a second frame spaced apart from the first frame along a moving direction of the drawer; a base panel fixed to the first frame and the second frame, forming a bottom surface of the cabinet; and a cover fixed to the first frame and the second frame, forming an upper surface and two lateral sides of the cabinet, wherein the first frame comprises a first frame first side body extended from a front one end of the base panel along a height direction of the drawer, a first frame second side body extended from another front end of the base panel along the height direction of the drawer and a first frame upper body provided to connect the first frame first side body with the first frame second side body, forming an upper surface of the first frame, and wherein the second frame comprises a second frame first side body extended from a rear one end of the base panel along the height direction of the drawer, a second frame second side body extended from another rear end of the base panel along the height direction of the drawer and a second frame upper body provided to connect the second frame first side body with the second frame second side body, forming an upper surface of the second frame.

2. The laundry treating apparatus of claim 1, wherein the cabinet further comprises: a first front extension body extended from the first frame first side body toward the first frame second side body; a second front extension body extended from the first frame second side body toward the first frame first side body; a first rear extension body extended from the second frame first side body toward the second frame second side body; and a second rear extension body extended from the second frame second side body toward the second frame first side body.

3. The laundry treating apparatus of claim 1, wherein the cabinet further comprises: a third front extension body extended from the first frame first side body toward the second frame first side body; a fourth front extension body extended from the first frame second side body toward the second frame second side body; a third rear extension body extended from the second frame first side body toward the first frame first side body; and a fourth rear extension body extended from the second frame second side body toward the first frame second side body.

4. The laundry treating apparatus of claim 2, wherein the cabinet further comprises: a first upper bracket having one end fixed to the first frame first side body and another end fixed to the first front extension body; a second upper bracket having one end fixed to the first frame second side body and another end fixed to the second front extension body; a third upper bracket having one end fixed to the second frame first side body and another end fixed to the first rear extension body; and a fourth upper bracket having one end fixed to the second frame second side body and another end fixed to the second rear extension body.

5. The laundry treating apparatus of claim 4, wherein the cabinet further comprises: a first front connection plate provided in the first front extension body and provided to pass through the first frame upper body and the upper surface of the cabinet; a second front connection plate provided in the second front extension body and provided to pass through the first frame upper body and the upper surface of the cabinet; a first rear connection plate provided in the first rear extension body and provided to pass through the second frame upper body and the upper surface of the cabinet; and a second rear connection plate provided in the second rear extension body and provided to pass through the second frame upper body and the upper surface of the cabinet.

6. The laundry treating apparatus of claim 4, wherein the cabinet further comprises: a first left connection plate provided in the third front extension body and provided to pass through the first frame upper body and the upper surface of the cabinet; a first right connection plate provided in the fourth front extension body and provided to pass through the first frame upper body and the upper surface of the cabinet; a second left connection plate provided in the third rear extension body and provided to pass through the second frame upper body and the upper surface of the cabinet; and a second right connection plate provided in the fourth rear extension body and provided to pass through the second frame upper body and the upper surface of the cabinet.

7. The laundry treating apparatus of claim 1, wherein the cabinet further comprises: a first support and a second support in the base panel along a direction where the drawer is drawn out and spaced apart from each other at an interval longer than a width of the drawer; a first fixed body fixed to the first support; a first detachable body having one end fixed to the drawer and another end detachably coupled to the first fixed body; a second fixed body fixed to the second support; and a second detachable body having one end fixed to the drawer and another end detachably coupled to the second fixed body.

8. The laundry treating apparatus of claim 7, wherein the base panel, the first support and the second support are provided in one body through injection molding.

9. The laundry treating apparatus of claim 1, wherein the first frame first side body, the first frame second side body, the second frame first side body and the second frame second side body are made of a metal material, and wherein the first frame upper body and the second frame upper body are made of a plastic material.

10. The laundry treating apparatus of claim 9, wherein the base panel is made of a plastic material.

11. The laundry treating apparatus of claim 1, wherein the first frame further comprises a first frame body of a bar shape provided to form a bottom surface of the first frame, wherein the first frame first side body is extended from one end of the first frame body along a height direction of the drawer, and the first frame second side body is extended from another end of the first frame body along the height direction of the drawer, wherein the second frame further comprises a second frame body of a bar shape provided to form a bottom surface of the second frame, and wherein the second frame first side body is extended from one end of the second frame body along the height direction of the drawer, a second frame second side body is extended from another end of the second frame body along the height direction of the drawer.

12. The laundry treating apparatus of claim 11, wherein the first frame body, the first frame first side body and the first frame second side body are provided such that one metal is bent in a U shape through press molding, and the second frame body, the second frame first side body and the second frame second side body are provided such that one metal is bent in a U shape through press molding.

13. The laundry treating apparatus of claim 11, wherein the first frame body, the first frame first side body, the first frame second side body, the first front extension body, and the second front extension body are provided such that one metal is bent in a U shape through press molding, and the second frame body, the second frame first side body, the second frame second side body, the first rear extension body, and the second rear extension body are provided such that one metal is bent in a U shape through press molding.

14. The laundry treating apparatus of claim 11, wherein the cabinet further comprises: a first bracket having one end fixed to the first frame body and another end fixed to the first frame first side body; a second bracket having one end fixed to the first frame body and another end fixed to the first frame second side body; a third bracket having one end fixed to the second frame body and another end fixed to the second frame first side body; and a fourth bracket having one end fixed to the second frame body and another end fixed to the second frame second side body.

15. The laundry treating apparatus of claim 1, wherein the first frame upper body comprises a first front leg accommodating unit and a second front leg accommodating unit for providing spaces in which front legs of a second treating apparatus are accommodated, and wherein the second frame upper body comprises a first rear leg accommodating unit and a second rear leg accommodating unit for providing spaces in which rear legs of the second treating apparatus are accommodated.

16. The laundry treating apparatus of claim 15, wherein the first frame upper body further comprises a first front connection plate through hole and a second front connection plate through hole through which the first front connection plate and the second front connection plate pass and a first left connection plate through hole and a first right connection plate through hole through which the first left connection plate and the first right connection plate pass, and wherein the

second frame upper body further comprises a first rear connection plate through hole and a second rear connection plate through hole through which the first rear connection plate and the second rear connection plate pass and a second left connection plate through hole and a second right connection plate through hole through which the second left connection plate and the second right connection plate pass.

17. The laundry treating apparatus of claim 16, wherein the cabinet is a first cabinet, and wherein the laundry treating apparatus further comprises: a second cabinet located on the first cabinet; a second drum rotatably provided inside the second cabinet, providing a space in which laundry is stored; a first front leg and a second front leg accommodated in the spaces provided by the first front leg accommodating unit and the second front leg accommodating unit in a space provided by a bottom surface of the second cabinet; and a first rear leg and a second rear leg accommodated in the spaces provided by the first rear leg accommodating unit and the second rear leg accommodating unit in the space provided by the bottom surface of the second cabinet.

18. The laundry treating apparatus of claim 17, further comprising: a first front joint plate provided on the bottom surface of the second cabinet and jointed to the first front connection plate; a second front joint plate provided on the bottom surface of the second cabinet and jointed to the second front connection plate; a first rear joint plate provided on the bottom surface of the second cabinet and jointed to the first rear connection plate; and a second rear joint plate provided on the bottom surface of the second cabinet and jointed to the second rear connection plate.
