US 20040263032A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2004/0263032 A1

Cho (43) Pub. Date: Dec. 30, 2004

(54) STAND FOR HOME APPLIANCE

(76) Inventor: Han Ki Cho, Changwon-si (KR)

Correspondence Address:
MCKENNA LONG & ALDRIDGE LLP
Song K. Jung
1900 K Street, N.W.
Washington, DC 20006 (US)

(21) Appl. No.: 10/875,313

(22) Filed: Jun. 25, 2004

(30) Foreign Application Priority Data

Jun. 28, 2003 (KR) ..... P 2003-42956
Jul. 8, 2003 (KR) ..... P 2003-46032

Publication Classification

(51) Int. Cl.[7] A47B 88/00

(52) U.S. Cl. 312/330.1

(57) ABSTRACT

Stand including a stand body of a predetermined height having an opening in one side, a drawer for pushing in or pulling out through the opening in the stand body to open/close the opening, a guide device for smooth pushing in/pulling out of the drawer, and a self locking device for automatic locking of the drawer when the drawer is inserted in the stand more than a certain depth, and preventing slipping out of the drawer even if the stand is tilted.

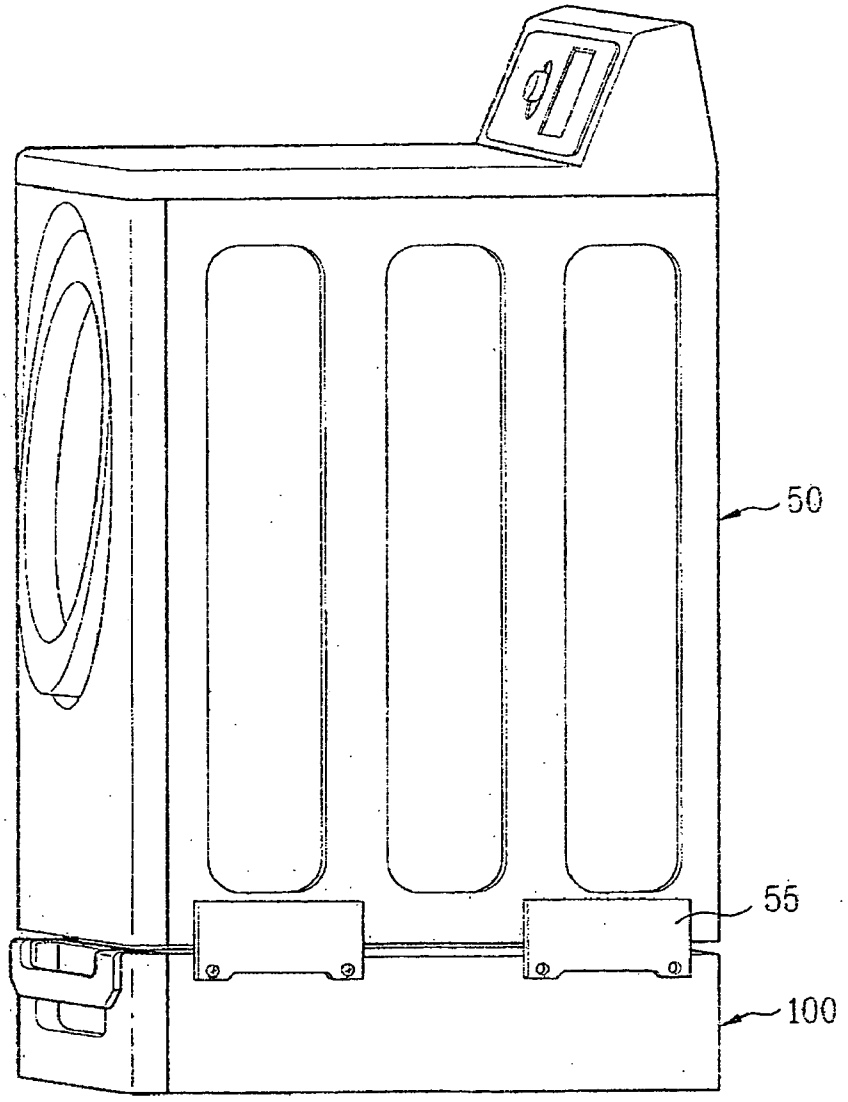


FIG. 1
Related Art

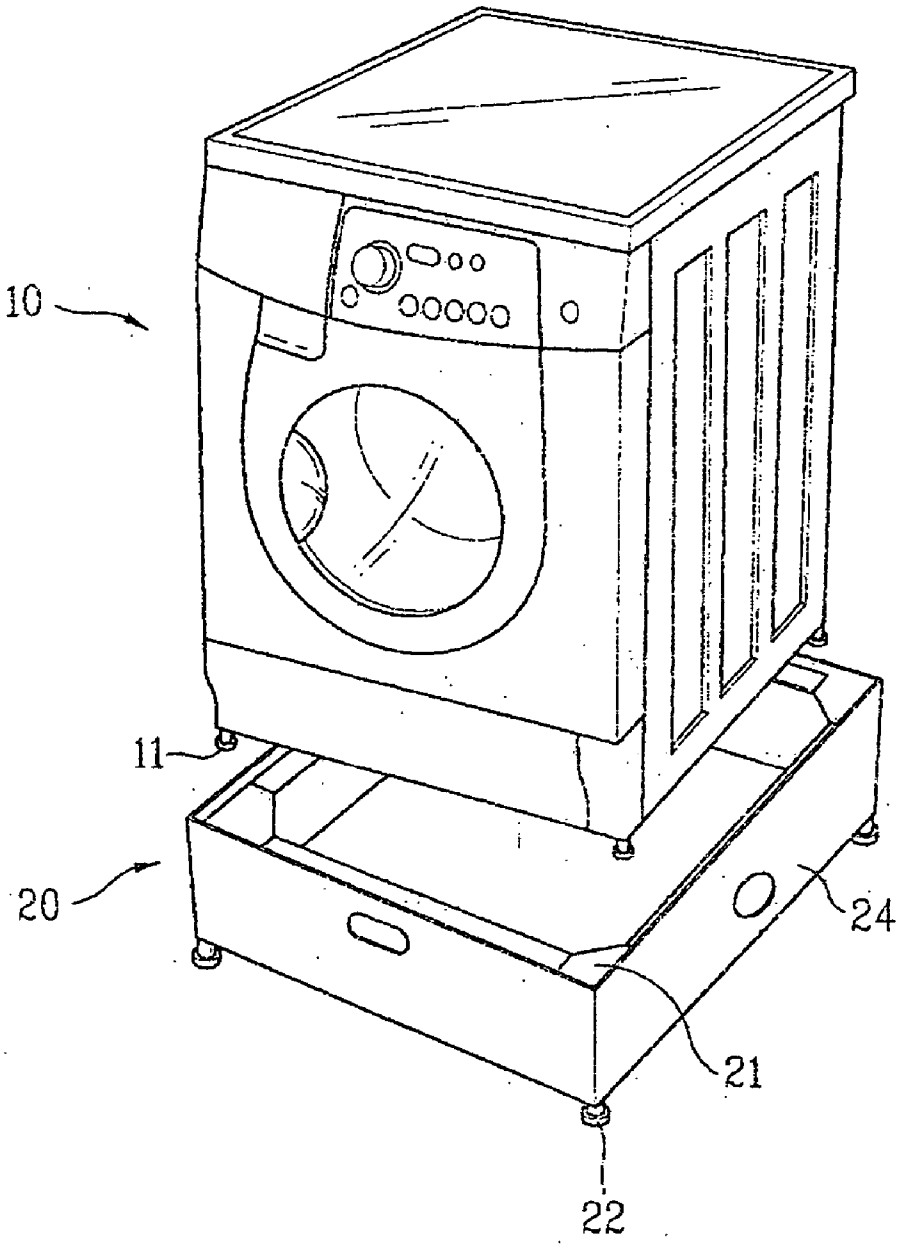


FIG. 2

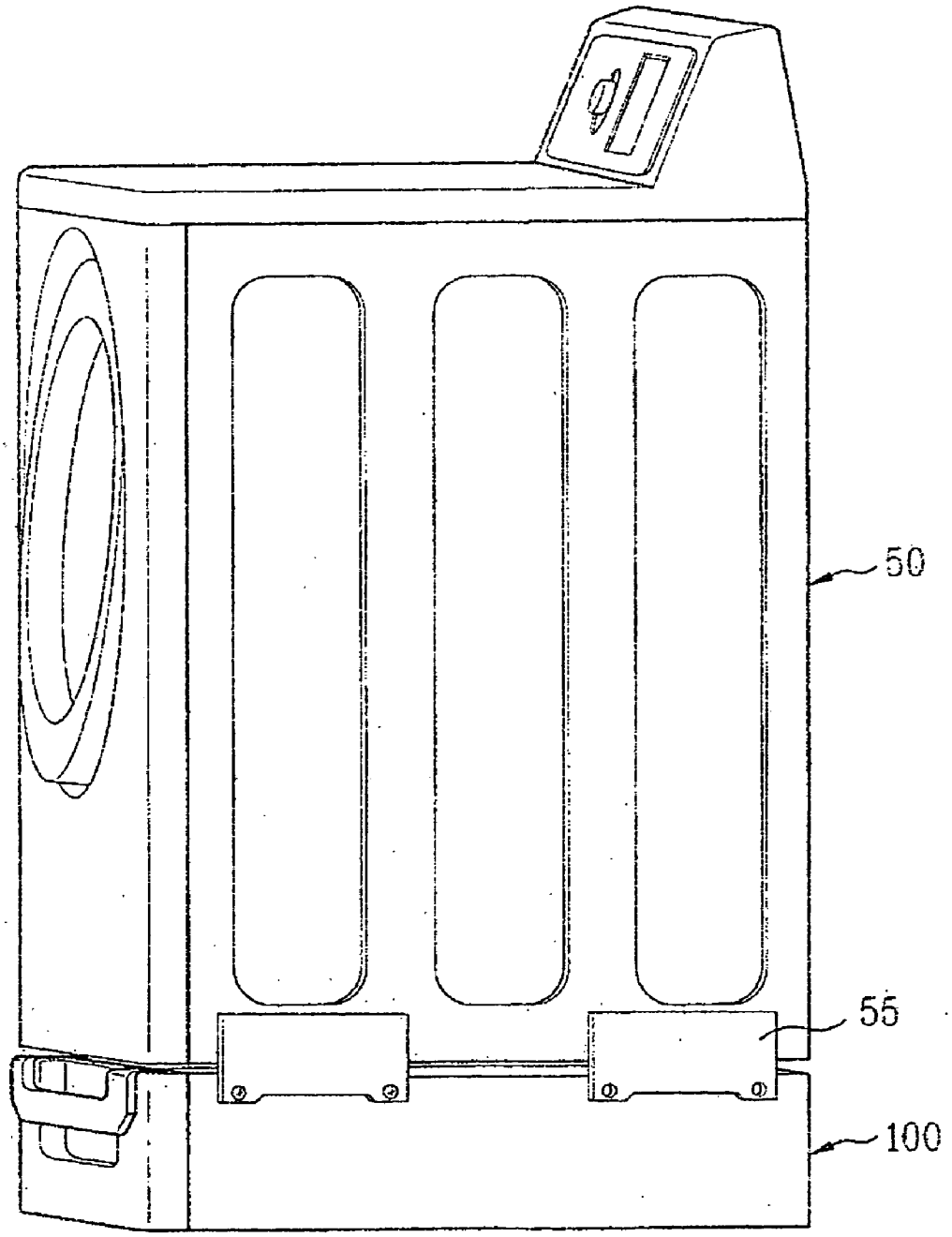


FIG. 3

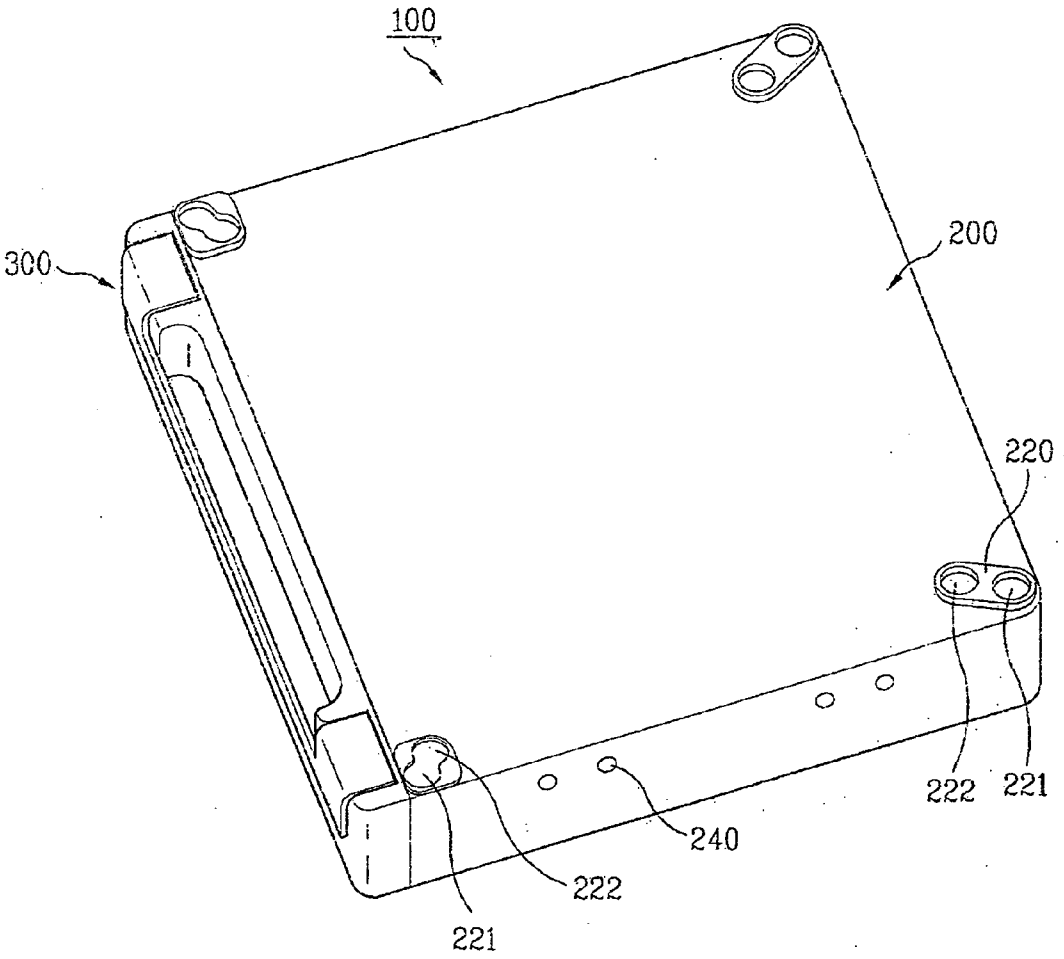


FIG. 4

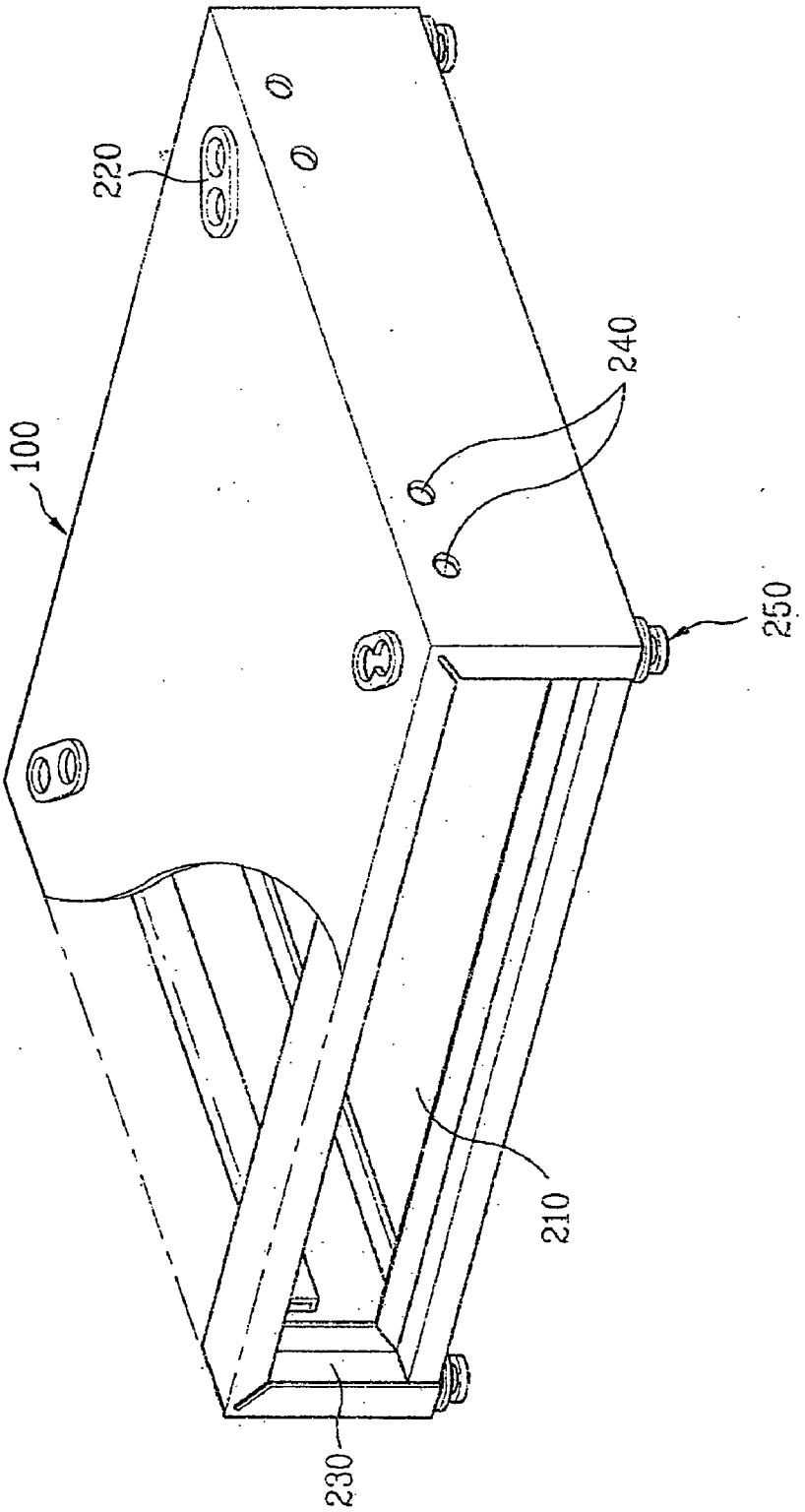


FIG. 5

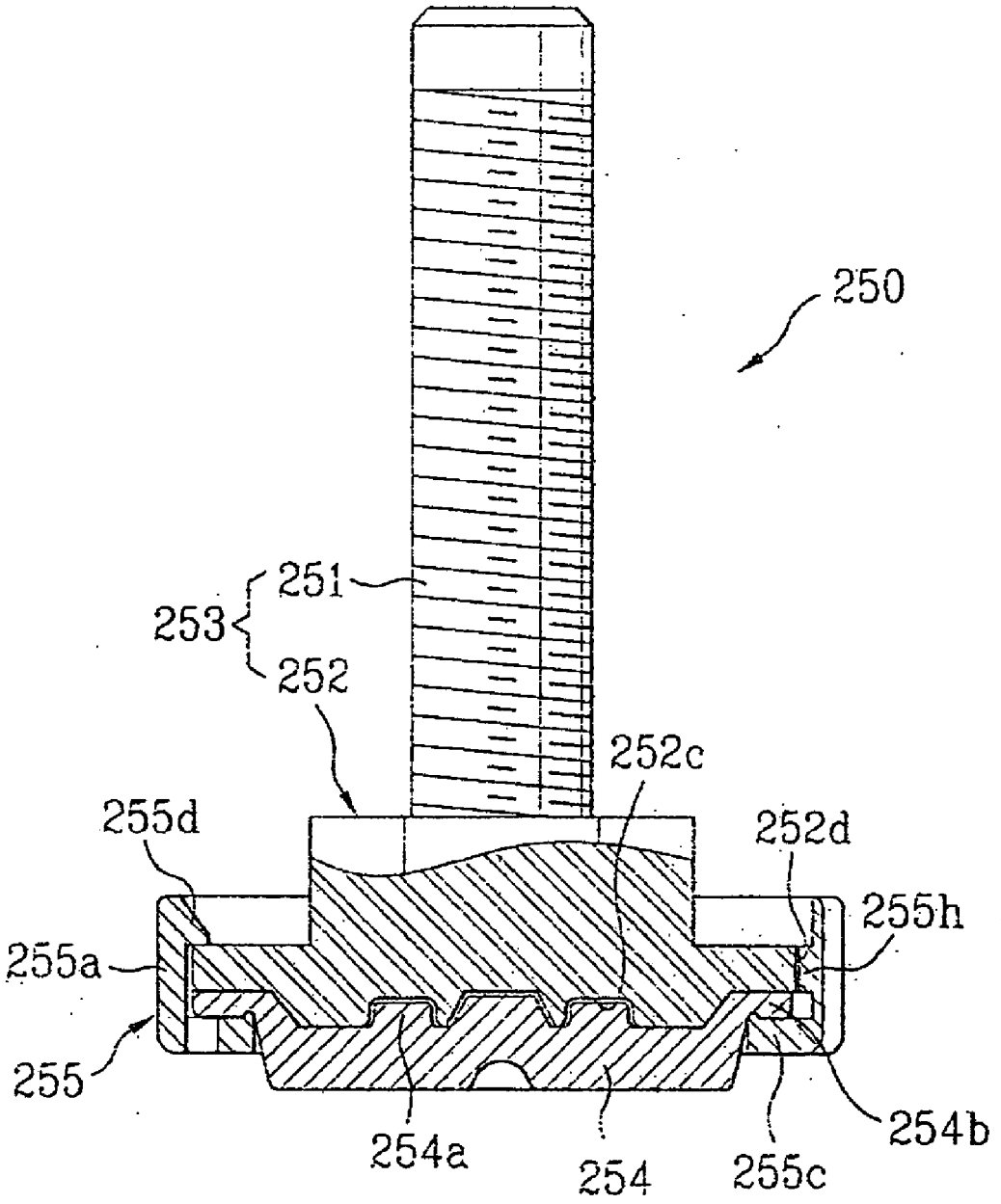

250
251
253
252
252c
255d
252d
255h
255a
255
254a
254
255c
254b

FIG. 6

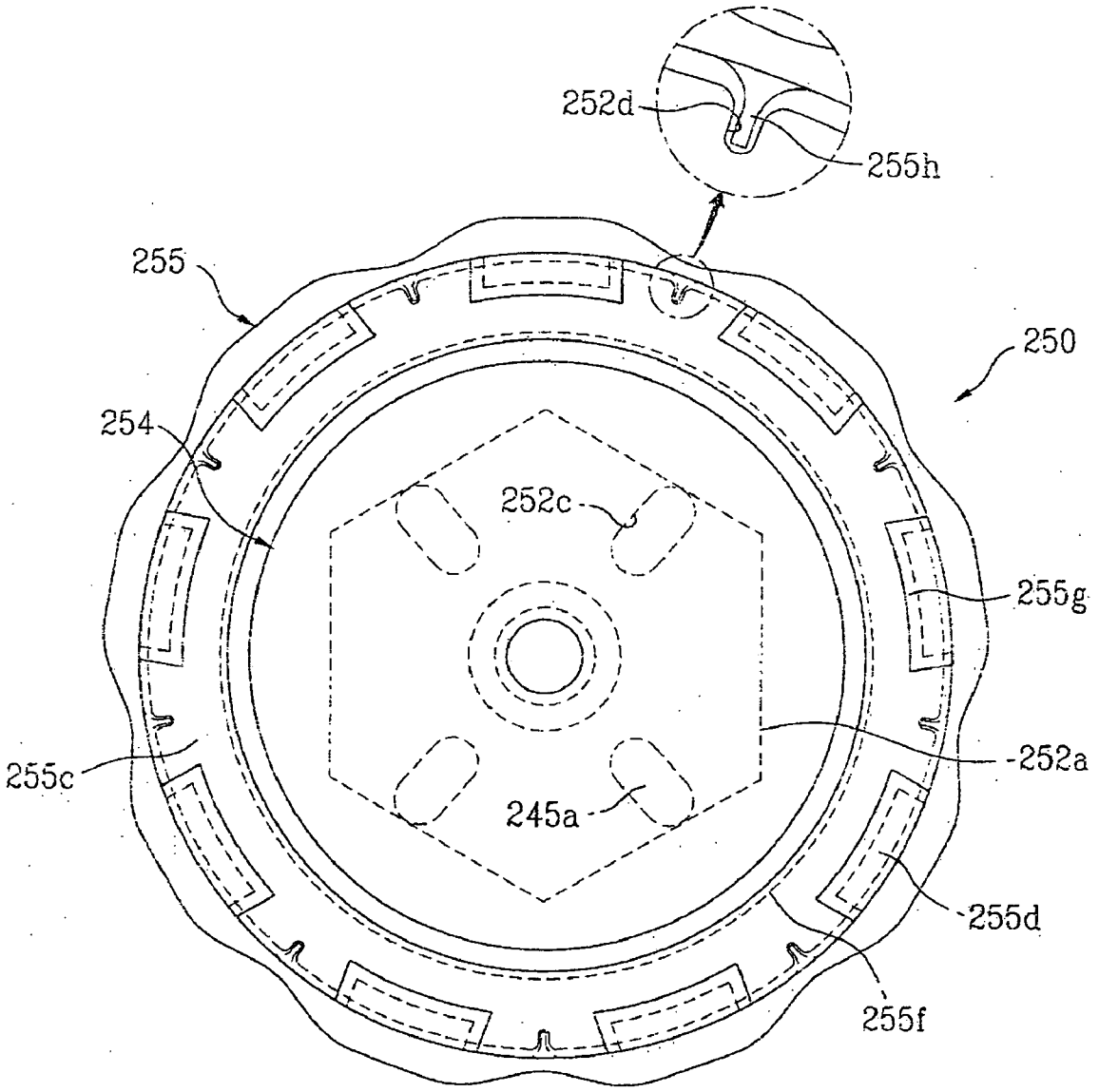


FIG. 7

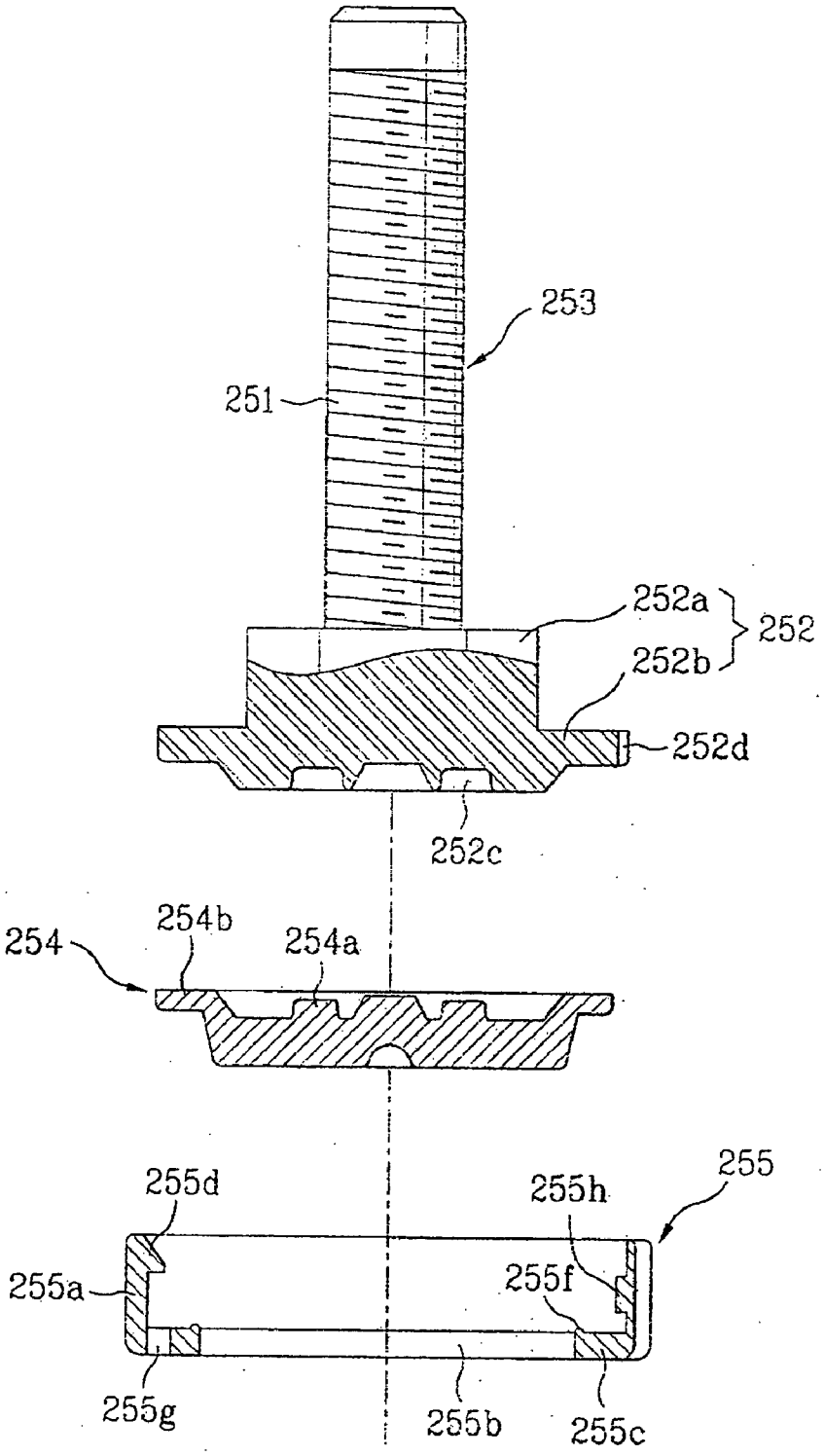

253
251
252a
252
252b
252d
252c
254
254b
254a
255
255d
255h
255a
255f
255g
255b
255c

FIG. 8

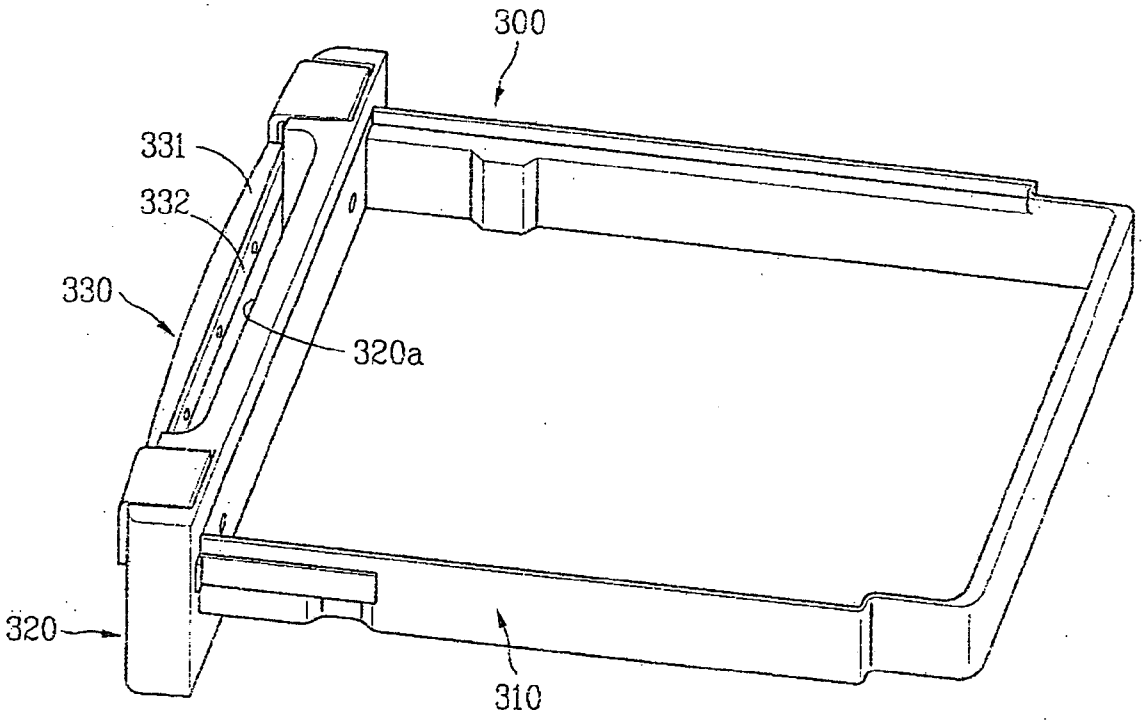


FIG. 9

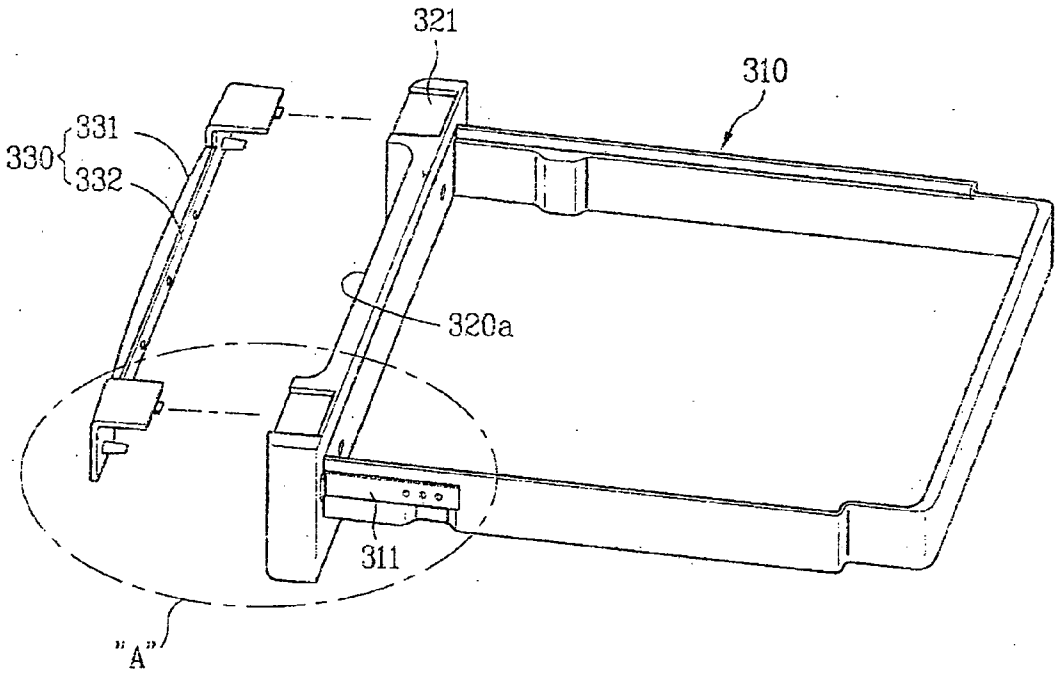

321
310
331
330
332
320a
311
"A"

FIG. 10

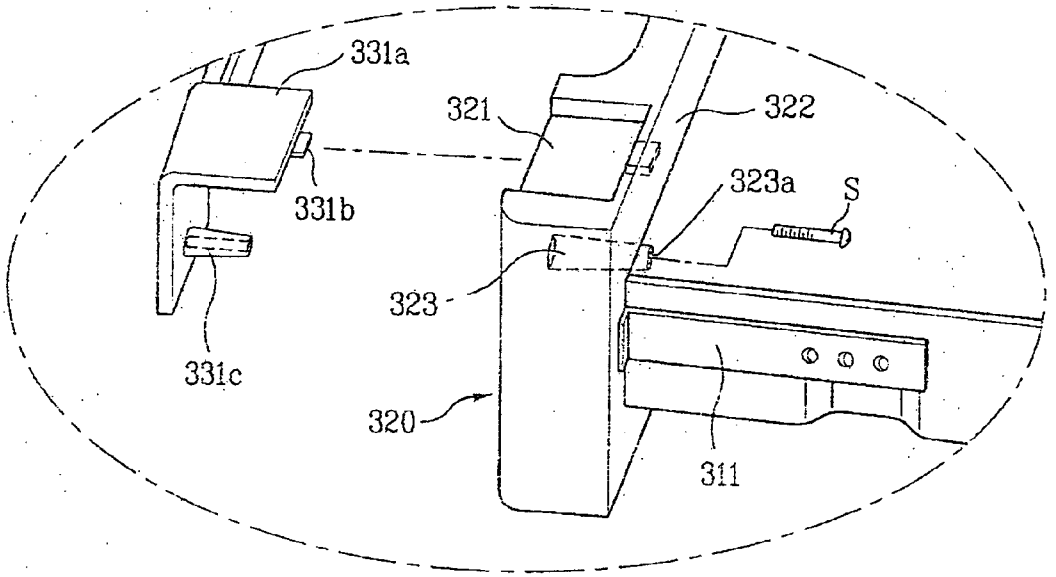

331a
321
322
323a
S
331b
323
331c
320
311

FIG. 11

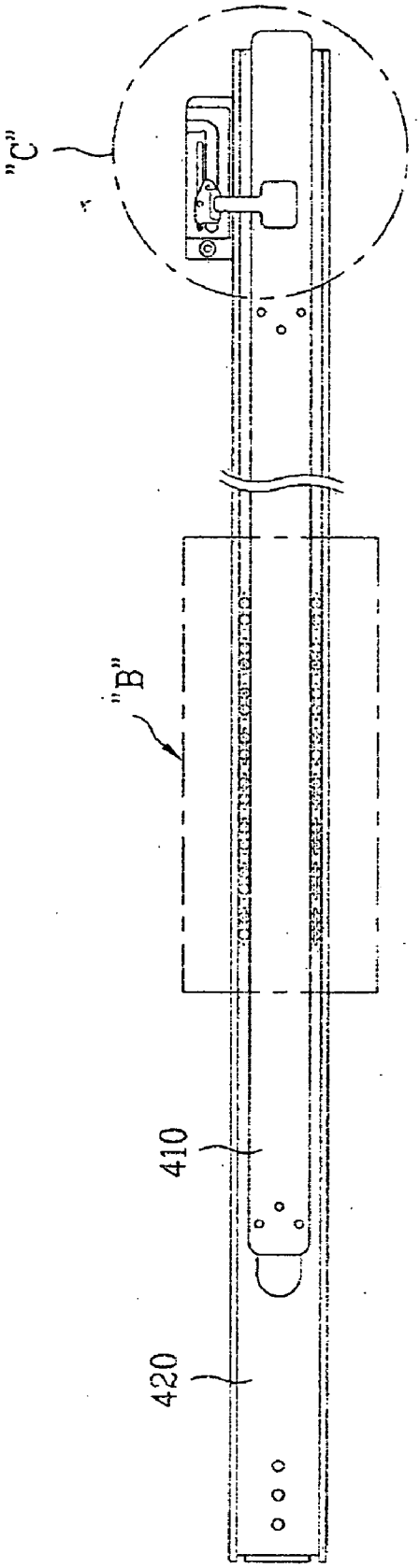


FIG. 12

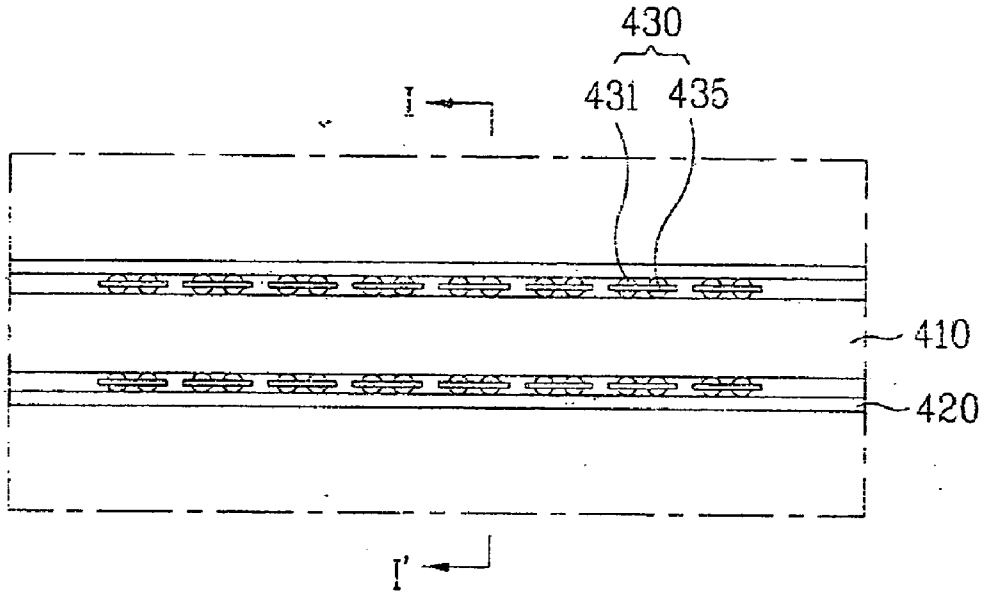


FIG. 13

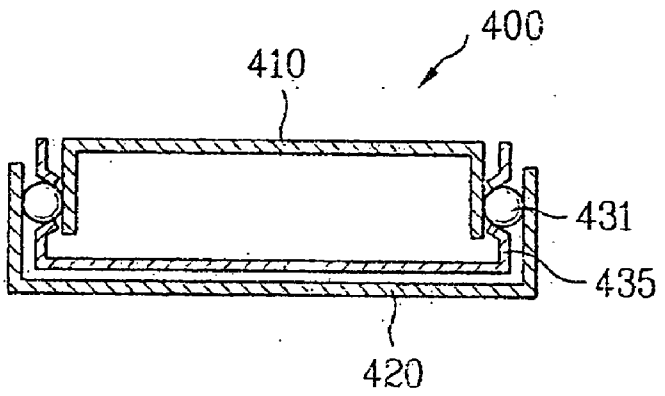


FIG. 14A

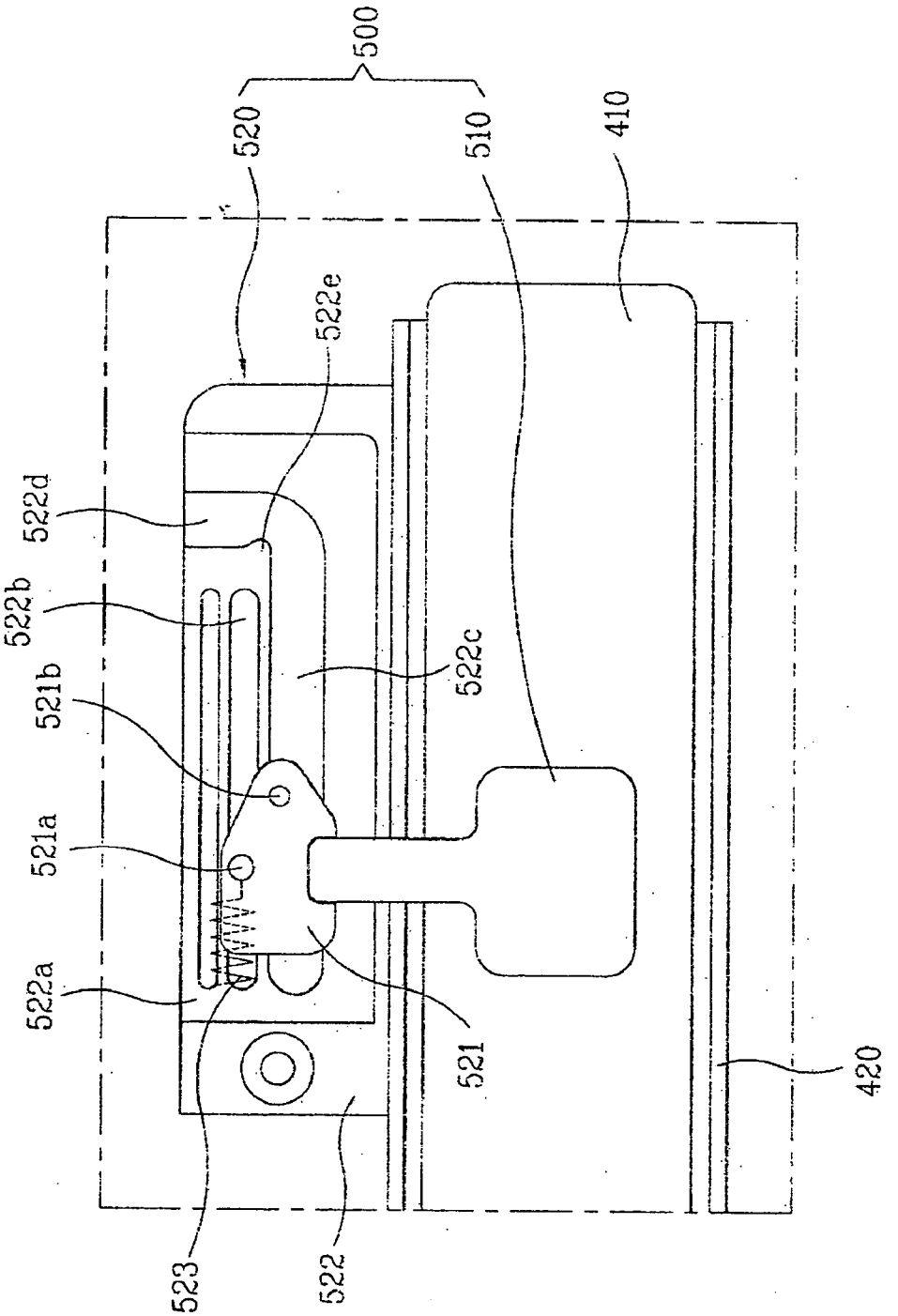

500
520
510
410
522e
522d
522b
522c
521b
521a
522a
521
420
523
522

FIG. 14B

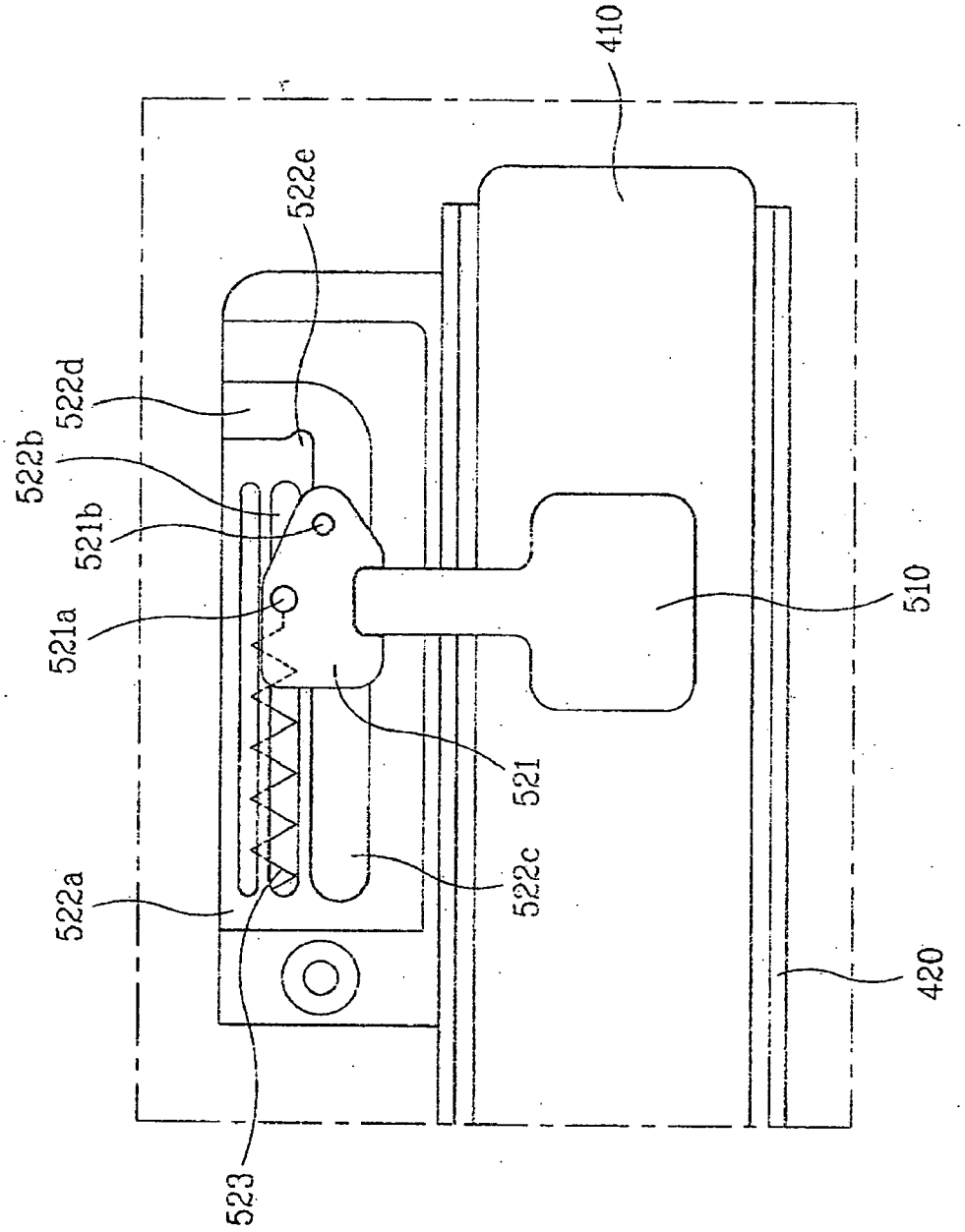
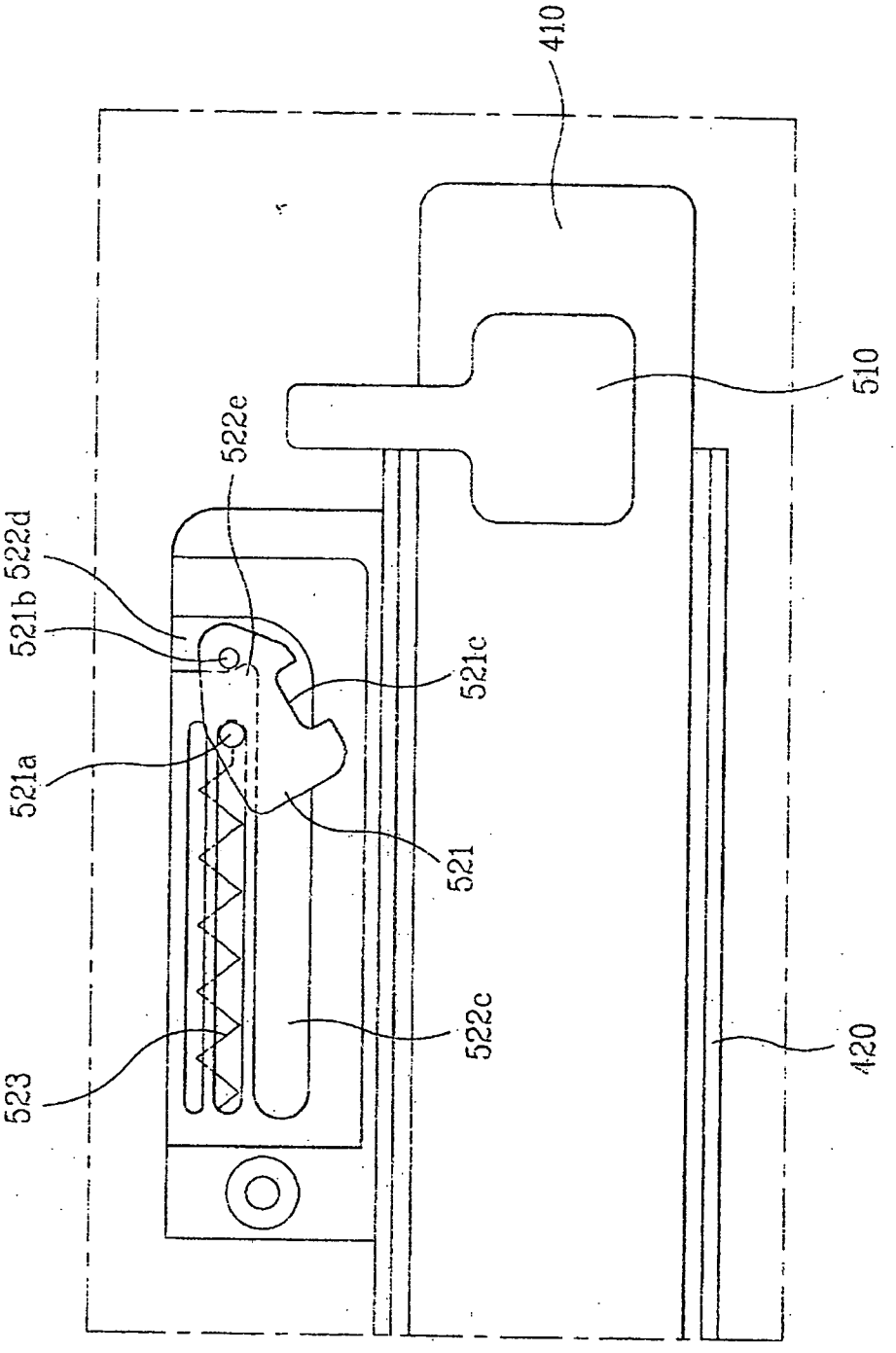


FIG. 14C



STAND FOR HOME APPLIANCE

[0001] This application claims the benefit of the Korean Application Nos. P2003-0042956 filed on Jun. 28, 2003, and P2003-0046032 filed on Jul. 8, 2003, which are hereby incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to stands for supporting objects at a required height, and more particularly, to a stand for a home appliance in which things can be kept.

[0004] 2. Background of the Related Art

[0005] In general, a drum type washing machine washes laundry by using friction between a drum rotated by a motor and the laundry, and chemical action of detergent in a state the detergent, washing water, and the laundry are introduced into the drum, shows no entangling of the laundry, and has a washing effect of pounding and rubbing the laundry.

[0006] The drum type washing machine is provided with a cabinet having an opening in a front for introduction/taking out the laundry. The cabinet, substantially hexahedral, forms an exterior of the drum type washing machine, and has a control panel, and a door for opening/closing the opening for introduction/taking out the laundry therethrough on the front.

[0007] Meanwhile, since opening for introduction/taking out the laundry of the drum washing machine is positioned low, the user is required to bend for introduction or taking out the laundry of the drum type washing machine. For eliminating the inconvenience of bending, a stand for the washing machine is developed for supporting the drum type washing machine at a predetermined height.

[0008] **FIG. 1** illustrates a perspective view of a related art drum type washing machine, and a related art washing machine stand under the drum type washing machine for supporting the drum type washing machine at a predetermined height, schematically.

[0009] Referring to **FIG. 1**, the related art washing machine stand **20** is provided with a front panel, side panels connected to opposite edges of the front panel at right angles, and a rear panel having opposite edges connected to rear edges of the side panels, respectively.

[0010] A horizontal area of the washing machine stand is similar to a bottom area of the drum type washing machine, and has a supporting plate **21** at a top of each corner where adjacent panels are connected to each other, for placing a leg **11** of the drum type washing machine. There is a stand leg **22** on an underside of the stand **20**, in more detail, on a bottom of each corner where adjacent panels are connected to each other, having a height adjustable bolt structure.

[0011] However, the related art washing machine stand has the following problems.

[0012] First, the related art washing machine stand simply supports the underside of the drum type washing machine at a predetermined height, but fails to use an inside space thereof.

[0013] Second, for supporting a drum type washing machine or a laundry dryer having different positions of legs, the related art washing machine stand is required to have different positions of the supporting plates for seating the legs.

[0014] Third, since the supporting plate of the related art washing machine just seats, but not holds the leg of the drum type washing machine, the leg of the drum type washing machine is liable to come off the supporting plate from vibration occurred during operation of the drum type washing machine.

SUMMARY OF THE INVENTION

[0015] Accordingly, the present invention is directed to a stand for a home appliance that substantially obviates one or more of the problems due to limitations and disadvantages of the related art.

[0016] An object of the present invention is to provide a stand for supporting an object at a height, and having a drawer for using an inside space.

[0017] Other object of the present invention is to provide a stand which can be used in supporting one of objects with different leg positions, such as a drum type washing machine, or a laundry dryer.

[0018] Another object of the present invention is to provide a stand which automatically locks a drawer if the drawer is inserted more than a depth into an inside of the stand, and prevents slipping out of the drawer even if the stand is tilted.

[0019] 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 practice of the invention. The objectives and other advantages of the invention will be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

[0020] To achieve these objects and other advantages and in accordance with the purpose of the present invention, as embodied and broadly described herein, the stand includes a stand body of a predetermined height having an opening in one side, and a drawer for pushing in or pulling out through the opening in the stand body to open/close the opening.

[0021] The drawer includes a drawer body having a receiving space formed therein, a front cover that is a front of the drawer body for covering the opening of the stand body when the drawer body is pushed in, and a handle provided to the front cover.

[0022] The front cover has a recess form in rear of the handle at a predetermined depth.

[0023] The handle includes a front part that is a front of the handle, and a rear part in rear of the front part.

[0024] The handle is fastened to the front cover with fastening projections each having an axial direction hole with a thread formed therein projected from a rear surface of the handle to backward, and pass through hole passed through a front and a rear surfaces of the front cover to insert the fastening projections therein, and fasten.

[0025] The handle includes one pair of seating parts projected backward from opposite sides of an upper surface

thereof, and the front cover includes one pair of seating recesses in opposite sides of an upper surface of the front cover for seating the one pair of seating parts.

[0026] The handle includes a fixing projection of a predetermined size projected backward from each of the seating parts, and the front cover includes a fixing hole in a rear wall of each of the seating recesses of the front cover for inserting the fixing projection.

[0027] The stand further includes a guide device for guiding the drawer to push in or pull out the drawer smoothly.

[0028] The guide device includes a supporting guide mounted on opposite inside surfaces of the stand body in a pulling out/pushing in direction of the drawer, a pulling out/pushing in guide mounted on opposite outside walls of the drawer body in the pulling out/pushing in direction of the drawer, and rolling means for minimizing friction between the supporting guide and the pulling out/pushing guide, to make the pulling out/pushing of the drawer smooth.

[0029] The supporting guide has a bar form, and the pulling out/pushing in guide has a groove for inserting the supporting guide.

[0030] The pulling out/pushing in guide has a bar form, and the supporting guide has a groove for inserting pulling out/pushing in guide.

[0031] The rolling means includes rolling members between the supporting guide and the pulling out/pushing in guide, and a rolling member supporting part for rotatably supporting the rolling members. The rolling member includes a ball or a roller.

[0032] The rolling member supporting part is fixed to the pulling out/pushing in guide.

[0033] The stand further includes a self locking device for automatic closure and holding the drawer if the drawer is pushed in the stand body more than a certain depth, and maintaining a holding state of the drawer unless an external force higher a certain level is not applied thereto.

[0034] The self locking device includes a holding member fitted to the supporting guide, and a hook assembly fitted to the pulling out/pushing in guide for engagement with the holding member if the drawer is pushed in the stand body more than a certain depth, to close the drawer automatically, and disengagement from the holding member to open the drawer smoothly if the drawer is pulled out with an external force higher than a certain level applied for pulling out the drawer.

[0035] The holding member is fitted to a rear portion of the supporting guide, and the hook assembly is fitted to a rear portion of the pulling out/pushing in guide to align with the holding member when the drawer is closed fully.

[0036] The hook assembly includes a hook part for engagement with the holding member when the drawer is pushed in the stand body more than a certain depth, and disengagement from the holding member when an external force higher than a certain level is applied thereto for pulling out the drawer, a hook guide part for guiding movement of the hook part in a state the hook part is engaged with the holding member, and guiding the hook part to disengage from the holding member when the drawer is pulled out more than a certain distance, and an elastic part connected between the hook part and the hook guide part, for applying a restoring force to the hook part to close the drawer automatically if the hook part is engaged with the holding member following pushing in of the drawer in the stand body to make the hook part to engage with the holding member.

[0037] The hook guide part includes a first guide slot extended in the pulling out/pushing in direction of the drawer, a second guide slot parallel to the first guide slot, having a rear end extended more than a predetermined length longer than the rear end of the first guide slot, and a third guide slot vertically extended from the rear end of the second guide slot toward the first guide slot, and the hook part includes a first pin movable along the first guide slot, and a second pin movable along the second guide slot or the third guide slot.

[0038] The hook guide part further includes a projection from an inside corner where the second guide slot and the third guide slot meet, for engagement of the hook part therewith when the drawer is pulled out more than a certain distance to disengage the hook part from the holding member.

[0039] The elastic part is a spring having one end connected to a first pin of the hook part, and the other end connected to a front end of the first guide slot.

[0040] The stand body includes leg seating members at respective corners of an upper surface thereof for seating legs of an object to be supported by the stand body.

[0041] The stand body is applicable to other object with legs having distances of legs shorter than the object.

[0042] The leg seating member includes a first seating hole for seating a leg of a washing machine, and a second seating hole for seating a leg of a laundry dryer having legs with distances shorter than distances of the legs of the washing machine.

[0043] The second seating hole is overlapped with a part of the first seating hole or spaced a distance apart therefrom.

[0044] The stand body includes height adjustable leg assemblies each is provided to an underside surface of the stand body.

[0045] The leg assembly includes a leg bolt having a screw part with a thread on an outside circumferential surface for fastening to a lower part of the stand body, and a bolt head at a lower end of the screw part, a damping member of a soft material having an upper surface in close contact with the bolt head and a lower surface in contact with a floor where the stand stands thereon, and a holder for holding the damping member and the bolt head together.

[0046] The bolt head includes a polygonal upper head part formed as one unit with, and at a lower end of, the screw part, and a circular lower head part formed as one unit with, and under, the upper head part.

[0047] The damping member is fastened to the lower head part for preventing relative rotation with respect to the leg bolt.

[0048] The holder is substantially annular with passed through top and bottom, for pressing an upper surface of an

edge of the lower head part and an underside surface of an edge of the damping member from an upper side and a lower side respectively, and holding the lower head part and the damping member together, when the lower part of the damping member is projected downward through the passed through lower part.

[0049] The holder includes an annular holder body with passed through top and bottom for holding outside circumferences of the lower head part and the damping member, a lower holding part having an outside circumferential surface connected to an inside circumferential surface of a bottom end of the holder body, to support an underside surface of the damping member, and an opening in a central part for pass through of the lower part of the damping member, and an upper holding part projected from an upper inside circumferential surface of the holder body toward a center, for holding an upper surface of an edge of the lower head part, having a distance from an upper surface of the lower holding part to an underside surface smaller than a sum of a thickness of the edge of the damping member and a thickness of the edge of the lower head part.

[0050] The upper holding part includes a plurality of hooks at regular intervals in a circumferential direction.

[0051] The lower holding part includes a plurality of cut away openings under the hooks respectively.

[0052] The holder and the leg bolt are formed not to make relative rotation.

[0053] The holder includes holder rotation prevention projections in an inside surface thereof, and the bolt head includes holder rotation prevention grooves on an outside surface thereof for inserting the holder rotation prevention projections therein.

[0054] The holder is formed of non-soft material, and has a polygonal outside circumferential surface.

[0055] The stand body includes reinforcing members at opposite sides of the opening for supporting a load of the object supported by the stand body.

[0056] It is to be understood that both the foregoing description and the following detailed description of the present invention are exemplary and explanatory and are intended to provide further explanation of the invention claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0057] 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.

[0058] In the drawings;

[0059] **FIG. 1** illustrates a perspective view of a related art drum type washing machine, and a related art washing machine stand;

[0060] **FIG. 2** illustrates a perspective view of a related art drum type washing machine, and a washing machine stand in accordance with a preferred embodiment of the present invention;

[0061] **FIG. 3** illustrates a perspective view of an upper part of a washing machine stand in accordance with a preferred embodiment of the present invention;

[0062] **FIG. 4** illustrates a perspective view of a stand body of a washing machine stand in accordance with a preferred embodiment of the present invention, with a partial cut away view;

[0063] **FIG. 5** illustrates a front view of a leg assembly of a washing machine stand in accordance with a preferred embodiment of the present invention, with a partial cut away view;

[0064] **FIG. 6** illustrates a bottom view of a leg assembly of a washing machine stand in accordance with a preferred embodiment of the present invention;

[0065] **FIG. 7** illustrates a front disassembled view of a leg assembly of a washing machine stand in accordance with a preferred embodiment of the present invention, with a partial cut away view;

[0066] **FIG. 8** illustrates a perspective view of a drawer of a washing machine stand in accordance with a preferred embodiment of the present invention;

[0067] **FIG. 9** illustrates a disassembled perspective view of the drawer in **FIG. 8**;

[0068] **FIG. 10** illustrates a partial enlarged perspective view of "A" part in **FIG. 9**;

[0069] **FIG. 11** illustrates a diagram of a guide device and a self locking device for pulling out/pushing in a drawer of a washing machine stand in accordance with a preferred embodiment of the present invention;

[0070] **FIG. 12** illustrates an enlarged view of "B" part in **FIG. 11**;

[0071] **FIG. 13** illustrates a section across a line I-I in **FIG. 12**;

[0072] **FIG. 14A** illustrates an enlarged view of "C" part in **FIG. 11** showing a self locking device in a state a drawer is pushed in fully;

[0073] **FIG. 14B** illustrates an enlarged view of "C" part in **FIG. 11** showing a self locking device in a state a drawer starts to be pulled out;

[0074] **FIG. 14C** illustrates an enlarged view of "C" part in **FIG. 11** showing a self locking device in a state locking of a drawer is released.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0075] Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings. In describing the embodiments, identical parts will be given the same names and reference symbols, and repetitive description of which will be omitted.

[0076] As one example of stand of the present invention, a washing machine stand will be described among stands for supporting home appliances, such as a drum type washing machine.

[0077] Referring to FIGS. **2~4**, the washing machine stand **100** includes a hexahedral stand body **200** having an opening **210** in a front, and a drawer **300** for pulling/pushing out/in the stand body **200** through the opening **210**.

[0078] There is a leg seating member **220** on a top of each corner of the stand body **100** having a first seating hole **221** for seating one of legs (not shown) of a drum type washing machine **50** thereon.

[0079] However, the washing machine stand **100** has a system for seating, not only the drum type washing machine, but also a laundry dryer (not shown) thereon. For this, the leg seating member **220** has a second seating hole **222** at a position corresponding to a leg position of the laundry dryer. The second seating hole **222** may overlap with the first seating hole **221** partly, or spaced away therefrom. In general, since a distance between legs of the laundry dryer is smaller than a distance between legs of the drum type washing machine, the second seating holes **222** are formed on inner sides of the first seating holes **221** in a diagonal direction of the top of the stand body.

[0080] For seating the drum type washing machine or the laundry dryer, seating recesses (not shown) may be formed in the top of the stand body **200** at positions in correspondence to the positions of the legs as one unit with the stand body **200** without using the leg seating members.

[0081] In addition to this, it is preferable that reinforcing members **230** are fitted to opposite sides of the opening **210** of the stand body **200** for sustaining a load of the drum type washing machine **50** or the laundry dryer to be seated on the stand body **200**.

[0082] There are fastening holes **240** in opposite sides of the stand body **200** for fastening binding members **51** thereto respectively, for fastening the drum type washing machine or the laundry dryer to the stand body **200**.

[0083] In the meantime, there is a height adjustable leg assembly **250** at each of underside corners of the stand body **200**, for supporting the stand body **200**.

[0084] Referring to FIGS. **5** to **7**, the leg assembly **250** includes a leg bolt **253** having a screw part **251** with a thread on an outside circumferential surface for fastening to a lower part of the stand body, and a bolt head **252** at a lower end of the screw part **251**, a damping member **254** of a soft material having an upper surface in close contact with the bolt head **252** and a lower surface in contact with a floor where the stand stands thereon, and a holder **255** for holding the damping member **254** and the bolt head **252** together.

[0085] The bolt head **252** includes a polygonal upper head part **252***a* formed as one unit with the screw part **251** at a lower end thereof, and a circular lower head part **252***b* formed as one unit with, and under, the upper head part having a rotation prevention grooves **252***c* in an underside surface.

[0086] The upper head part **252***a* is polygonal for turning with a tool, such as spanner or wrench, or hand, and the lower head part **252***b* has a large diameter compared to the upper head part **252***a*.

[0087] The damping member **254**, in close contact with an underside surface of the lower head part **252***b* of the bolt head **252**, for damping vibration or impact transmitted through the leg assembly **250**, includes an underside surface to be in contact with a floor where the washing machine stand is to be placed, a top surface having rotation prevention projections **254***a* for insertion in the rotation prevention grooves **252***c* respectively for prevention of relative rotation of the damping member with respect to the leg bolt **253**, and a circular flange **254***b* at an upper circumference in close contact with an underside periphery of the lower head part **252***b*, and held by the holder.

[0088] The rotation prevention grooves **252** are in a number the same with the rotation prevention projections **254***a*. It is favorable that around four rotation prevention grooves are formed for prevention of rotation. The rotation prevention groove **252***c* in the lower head part may have a variety of forms, such as slots, or circular grooves. It is effective that the rotation prevention groove **252** is formed at a predetermined radial distance from an underside center of the lower head part **252***b* in view of rotation prevention of the damping member. Of course, it is evident from above description that the rotation prevention grooves are formed in the upper surface of the damping member, and the rotation prevention projection is formed on the underside surface of the lower heat part **252***b*.

[0089] Next, the holder **255** is substantially annular with passed through top and bottom, for pressing an upper surface of an edge of the lower head part **252***b* and an edge of the damping member **254**, i.e., the underside surface of the flange from an upper side and a lower side respectively, and holding the lower head part **252***b* and the damping member **254**, together, when the damping member **254** is fastened to the underside of the lower head part **252***b* by the holder **225**, and the lower part of the damping member **254** is projected downward through the circular opening **210** formed in a lower part of the holder **255**.

[0090] In more detail, the holder **255** includes an annular holder body **255***a* with passed through top and bottom for holding outside circumferences of the lower head part **252***b* and the damping member **254**, a lower holding part **255***c* having an outside circumferential surface connected to an inside circumferential surface of a bottom end of the holder body, to support an underside surface of the flange **254***b* of the damping member, and an opening **255***b* in a central part for pass through of the lower part of the damping member, and an upper holding part **252***b* projected from an upper inside circumferential surface of the holder body toward a center, for holding an upper surface of an edge of the lower head part **252***b*.

[0091] The upper holding part includes a plurality of hooks **255***d* formed at regular intervals in a circumferential direction, for easy assembly of the leg assembly. It is preferable that a distance from an upper surface of the lower holding part **255***c* of the holder **255** to an underside surface of the hooks **255***d* has a dimension smaller than a sum of a thickness of the flange of the damping member **254** and a thickness of the edge of the lower head part **252***b*.

[0092] It is also preferable that the holder **255** has an annular projection **255***f* from a top end of opening of the lower holding part **255***c* for pressing an inner side of the edge of the underside of the flange of the damping member **254** and fastening the damping member more firmly. The projection may be a plurality of projections at regular intervals in a circumferential direction.

[0093] It is preferable that the holder **255** has a plurality of cut away openings **255***g* in parts of the lower holding part under the hooks for easy fitting of the holder **255**, additionally. The cut away openings **255***g* enables easy fitting of the holder **255** because it is easy to wide open between parts where the hooks **255***d* are formed.

[0094] In addition to above, the lower head part **252***b* of the bolt head has at least one holder rotation prevention slot along a circumferential direction of an outside circumferential surface of the lower head part **252***b*, and the holder body **255***a* has a holder rotation prevention projection **255***h* from an inside circumferential surface of the holder body **255***a* for inserting in the holder rotation prevention slot **252***d*. It is preferable that the holder rotation prevention projections **255***h* are formed between the hooks **255***d* alternately when seen from above.

[0095] It is preferable that the holder **255** is a non-soft member, and the holder body has an outside circumferential surface chamfered into polygon, for easy holding, and turning of the holder **255** with a tool, such as spanner, or wrench, or with a hand.

[0096] Above structure enables that the stand **100** can be used for the drum type washing machine or the laundry dryer as required, because the stand **100** has the leg seating members **220** on an upper surface of each of corners of the stand body **200**, with seating holes formed at different positions to correspond to leg positions of the drum type washing machine or the laundry dryer.

[0097] Moreover, the height adjustable leg assembly on the underside of the stand body **200** enables easy height adjustment to suit to a height of the user, as well as easy leveling. Moreover, since the holder **255** has a polygonal structure of a non-soft material, the leg assembly **250** prevents slipping when the leg assembly **250** is turned with a hand, and particularly, fitting or removal of the leg assembly is easy, and workability for height adjustment is improved because a tool, such as a spanner or a wrench, can be used.

[0098] Next, referring to FIGS. **8~10**, the drawer **300** includes a drawer body **310** having a receiving space, a front cover **320**, a front of the drawer body **310**, for covering the opening of the stand body when pushed in, and a handle **330** on the front cover **320**.

[0099] The front cover **320** covers the front of the stand body **200** where the opening **210** is formed entirely.

[0100] The handle **330** enables easy pulling out/pushing in of the drawer, and includes a front part **331** of the front of the handle, and a rear part **332** fastened to a rear of the front part **331** with screws.

[0101] The handle **330** has opposite ends projected to rear when seen from above to form a "ㄷ", substantially. In more detail, the handle **330** has one pair of seating parts **331***a* at opposite sides of an upper surface of the front part **331** projected to a rear direction for being seated on opposite sides of the upper surface of the front cover **320**, a fixing projection **331***b* projected backward from a rear end of each of the seating part **331***a*, and one pair of fastening projections **331***c* under the one pair of the seating part **331***a*, each having a thread in an inside circumference for fastening to the front cover. In correspondence to this, the front cover **320** has one pair of seating recesses **321** in an upper surface of opposite sides of the front cover **320** for seating the seating part **331***a*, a fixing hole **322** in a rear inside wall of each of the seating recesses **321** for inserting the fixing projection **331***b*, and pass through holes **323** in a front of the front cover **320** passed through a front surface and a rear surface of the front cover for inserting the fastening projections **331***c* and fastening with screws 'S'.

[0102] It is preferable that the rear part **332** is formed of a material having a strength higher than a predetermined value for reinforcing entire strength of the handle **330**.

[0103] For easy holding of the handle **330**, there is a recess **320***a* of a predetermined depth in rear of the handle **330** in the front surface of the front cover **320**.

[0104] In more detail, since the handle **330** forms a front exterior of the front cover **320**, and a middle part of the front cover **320** positioned in rear of the handle **330** is recessed backward for easy holding, preventing the handle **330** from projecting toward front of the front cover **320** significantly, the washing machine stand **100** can have a secure and neat exterior while an overall volume of the stand **100** is not made large.

[0105] That is, if the recess is not formed in the middle part of the front cover **2***b*, it is required to for the handle **330** to project forward of the front cover **320** for forming a gap for holding the handle, to make an entire volume of the drawer **300**, and to bump against other thing, a foot or a leg of the user, thereby causing damage to the handle or injury of the user.

[0106] Above structure enables rigid fastening of the handle **330** and the front cover **320** to each other. That is, by fastening the screws 'S' from rear of the front cover **320** in a state the seating parts **331***a* of the handle **330** are seated on the seating recessed **321** of the front cover with the fixing projections **331***b* inserted in the fixing holes **332** respectively, and the fastening projections **331***c* of the handle is inserted in the pass through holes in the front cover **320**, the handle **330** is mounted to the front cover **320**.

[0107] It is preferable that rear ends of the pass through holes **323**, i.e., circumferences of entrances **323***a* where the screws 'S' are to be inserted are recessed forward, so as not to project the screws 'S' from the rear surface of the front cover.

[0108] Different from above structure, the handle **330** may be fastened to the front cover **320** with screws in a state the seating parts **331***a* of the handle are seated in the seating recesses **321**, or the handle may be fastened to the front cover by forming hooks at required parts of the handle and by forming hook recesses in required parts of the front cover.

[0109] In the meantime, the stand body **200**, and the drawer body **310** are provided with a guide device **400** for pushing in, or pulling out the drawer **300**.

[0110] Referring to FIGS. **11~13**, the guide device **400** includes a supporting guide **410** of a bar or channel form mounted on opposite inside surfaces of the stand body **200** in a pulling out/pushing in direction of the drawer, a pulling out/pushing in guide **420** of a channel form with a "ㄷ" form of groove for inserting the supporting guide therein mounted on opposite outside walls of the drawer body **310**

in the pulling out/pushing in direction of the drawer, and rolling means **430** for minimizing friction between the supporting guide **410** and the pulling out/pushing guide **420**, to make the pulling out/pushing of the drawer smooth. Of course, forms of the supporting guide **410** and the pulling out/pushing in guide **420** may be opposite. That is, the supporting guide may have a channel form, while the pulling out/pushing in guide has a bar form.

[**0111**] The pulling out/pushing in guide **420** may be fastened to a drawer bracket **311** at a front end of opposite sides of the drawer body **310** with screws, or to the opposite sides of the drawer body directly.

[**0112**] The rolling means **430** includes rolling members **431** between the supporting guide **410** and the pulling out/pushing in guide **420**, and a rolling member supporting part **435** for rotatably supporting the rolling members **431**. The rolling member **431** may be a ball or a roller, and it is favorable that grease or lubricant is applied to the rolling member **431** for reducing friction during pulling out/pushing in of the drawer. The rolling member supporting part **435** may be fastened to the pulling out/pushing guide, or the supporting guide depending on a design condition.

[**0113**] In addition to above, the washing machine stand **100** includes a self-locking device **500** for automatic closing, and holding the drawer **300** if the drawer **300** is pushed in more than a certain depth of the stand body **200**, and maintaining a state the drawer **300** is held unless an external force higher than a certain level is applied thereto.

[**0114**] Referring to **FIGS. 14A** to **14**C, the self-locking device **500** includes a holding member **510** fitted to the supporting guide **410**, and a hook assembly **520** fitted to the pulling out/pushing in guide for engagement with the holding member **510** if the drawer **300** is pushed in the stand body **200** more than a certain depth, to close the drawer **300** automatically, and disengagement from the holding member **510** to open the drawer if the drawer **300** is pulled with an external force higher than a certain level applied for pulling out the drawer.

[**0115**] Though the holding member **510** is fitted to a rear portion of the supporting guide, such as a rear end of the supporting guide **410** or a position spaced a predetermined distance from the rear end of the supporting guide **410** in a front direction, the fitted position of the holding member **510** is not limited to this. The holding member **510** has a projection projected in a direction perpendicular to a direction of movement of the pulling out/pushing in guide **420** for engagement with the hook assembly **520**.

[**0116**] Though the hook assembly **520** is fitted to a rear portion of the pulling out/pushing guide, such as a rear end of the pulling out/pushing in guide **420** or a position spaced a predetermined distance from the rear end of the pulling out/pushing in guide **420** in a front direction, the fitted position of the hook assembly **520** is not limited to this.

[**0117**] The hook assembly **520** includes a hook part **521** for engagement with the projection on the holding member **510** when the drawer **300** is pushed in the stand body **200** more than a certain depth, and disengagement from the holding member **510** when an external force higher than a certain level is applied thereto for pulling out the drawer **300**, a hook guide part **522** for guiding movement of the hook part **521** in a state the hook part **521** is engaged with the holding member **510**, and guiding the hook part **521** to disengage from the holding member **510** when the drawer **300** is pulled out more than a certain distance, and an elastic part connected between the hook part **521** and the hook guide part **522**, for applying a restoring force to the hook part **521** to close the drawer **300** automatically if the hook part **521** is engaged with the holding member **510** following pushing in of the drawer **300** in the stand body **200** to make the hook part **521** to engage with the holding member **510**.

[**0118**] The hook guide part **522** includes a guide body **522***a* fixed to the pulling out/pushing in guide **420**, and guide slots **522***b*, **522***c*, and **522***d* in the guide body **522***a* for guiding movement of the hook part.

[**0119**] The guide slots includes a first guide slot **522***b* extended in the pulling out/pushing in direction of the drawer, a second guide slot **522***c* under the first guide slot **522***b* parallel to the first guide slot, and a third guide slot **522***d* vertically extended from a rear end of the second guide slot **602** toward the first guide slot **601**. The rear end of the second guide slot **522***c* is extended more than a predetermined length longer than the rear end of the first guide slot **522***b* so that the third guide slot **522***d* and the first guide slot **522***b* do not cross each other.

[**0120**] The hook part **521** has a holding recess **521***c* or a hook. That is, the holding recess **521***c* of the hook part **521** has a "ㄷ" form in conformity with a form of the holding member **510**, the form of the holding recess **521***c* is not limited to this.

[**0121**] The hook part **521** has a side surface fixed to a first pin **521***a* movable along the first guide slot **522***b*, and a second pin **521***b* movable along the second guide slot **522***c* or the third guide slot **522***d*, so that the hook part **521** rotates in a clockwise or anti-clockwise direction around the first pin **521***a* at the rear end of the first guide slot **522***b* when the hook part **521** is engaged with, or disengaged from, the holding member **510**, respectively. The first pin **521***a* and the second pin **521***b* may be pins or has a rotatable structure, such as roller.

[**0122**] In addition to above, there is a projection from an inside corner where the second guide slot **522***c* and the third guide slot **522***d* meet, such that an entrance to the third guide slot has a form of a bottle neck. According to this, the hook part **521** rotates around the first pin **521***a* in a clockwise direction, or anti-clockwise direction, leading the second pin **521***b* to engage with or disengage from the projection **522***e* of the third guide slot, thereby self locking, or releasing the self locking of the drawer.

[**0123**] It is required that a radius of curvature of the projection **522***e* is designed to have an appropriate size, for preventing the engagement of the hook part **521** with the projection **522***e* from being disengaged easily by an external impact or the like which is not related to closure of the drawer from an opened state of the drawer **300**, and for preventing to require an excessive force when the drawer **2** is closed.

[**0124**] In the meantime, it is preferable that the elastic part is a spring **523**. If the spring **523** is a tension spring, the spring **523** has one end connected to the hook part, particularly, at a side of the first pin **521***a*, and the other end connected to the guide body, particularly, to a front end of

the first guide slot **522***b*. Though not shown, if the spring is a compression spring, opposite to the case of the tension spring, the spring **523** has one end connected to a side of the first pin **521***a*, and the other end connected to a rear end of the first guide slot **522***b*.

[**0125**] Positions of the holding member **510** and the hook assembly **520** may be exchanged. That is, the hook assembly **520** may be fitted to the supporting guide **410**, and the holding member **510** may be fitted to the pulling out/pushing in guide **420**. The hook assembly and the holding member may be mounted on one side of the drawer, and on inside walls of the stand body so as not to interfere with the guide device.

[**0126**] A process for pulling out/pushing in the drawer with the self locking device will be described.

[**0127**] **FIG. 14A** illustrates a diagram of a self locking device in a state the drawer is closed fully, when the hook part **650** is engaged with the holding member, to be positioned at a front end side of the first guide slot **522***b* and the second guide slot **522***c*. That is, since the spring applies force to the hook part **521** having the holding member engaged therewith in a direction opposite to a direction of pulling out of the drawer, the drawer **300** is not slipped out of the stand body **200** even if the washing machine stand **100** is tilted, or the drawer is pulled forward with force lower than the restoring force of the spring. In other words, if it is intended to open the drawer in a state the drawer **2** is closed fully, it is required to pull the handle of the drawer with a force higher than a certain level.

[**0128**] **FIG. 14B** illustrates a diagram of a self locking device in an initial state when the drawer starts to open. When the user pulls the handle **330** of the drawer forward, the pulling out/pushing in guide **420** moves, to move the guide body **522***a* of the hook guide part forward, and the hook part **521**, engaged with the holding member **510**, makes relative movement to rear of the guide body **522***a* guided by the first guide slot **522***b* and the second guide slot **522***c*. In this instance, since the hook part **521** has a restoring force kept applied thereto from the spring, if the user releases the handle **330**, the drawer **300** is closed fully by the spring, again.

[**0129**] If the user keeps pulling the handle **330** of the drawer forward in a state of **FIG. 14B**, the first pin **521***a* of the hook part **521** is engaged with the rear end of the first guide slot **522***b*, such that the hook part **521** can not make linear movement anymore, but can make rotating movement around the first pin **521***a* in an anti-clockwise direction. According to the rotating movement of the hook part **521**, the second pin **521***b* of the hook part **521** passes a rear end of the second guide slot **522***c*, and moves into the third guide slot, and engages with the projection **522***e* at the entrance to the third guide slot **522***d*. In this state, the hook part **521** is held in a state the second pin **521***b* is engaged with the projection **522***e* by the force applied from the spring, and a reaction force of the projection **522***e*, while the holding member **510** and the hook part **521** are disengaged, such that the drawer **300** is pulled out in a front direction by the guide device **400**, smoothly.

[**0130**] **FIG. 14C** illustrates a diagram of a state engagement by the self locking device **500** is disengaged.

[**0131**] Opposite to this, if the drawer **300** is pushed in for closing the drawer **300**, the hook part **521** engaged with the projection at the third guide slot engages with the holding member **510** fitted to the supporting guide **410**, rotates in a direction opposite to a direction when the drawer **300** is pulled out, i.e., in a clockwise direction, around the first pin **521***a*, such that the second pin moves to the rear end of the second guide hole **522***c*.

[**0132**] Starting from this time, the drawer is closed automatically by the restoring force of the spring, and held at a fixed force, even if the user applies no force.

[**0133**] Though the drum type washing machine and the laundry dryer are mostly illustrated as an object that can be supported by the stand, the object is not limited to above, it is evident that the object is not limited to above, but the object may be any general home appliance.

[**0134**] As has been described, the stand for a home appliance of the present invention has the following advantages.

[**0135**] First, the drawer which can be pull out/push in permits effective use of an inside space.

[**0136**] Second, the guide device permits smooth pull out/push in of the drawer.

[**0137**] Third, the self locking device permits automatic closure, and locking of the drawer when the drawer is pushed in the stand body more than a certain depth, and the locking is not released unless an external force higher than a certain level is applied thereto.

[**0138**] Fourth, the recess part for holding the handle and preventing projection of the handle to forward of the drawer permits to prevent increase of an overall volume of the washing machine stand, and bumping of the handle against an external thing, to damage the thing or give injury to the user.

[**0139**] Fifth, the leg seating members on the upper surface of the stand for enabling seating of the laundry dryer other than the washing machine permits the stand to use for the washing machine or the laundry dryer regardless of the leg positions.

[**0140**] Sixth, the height adjustable leg assemblies on an underside surface of the stand body permits adjustment of the washing machine stand suitable to a height of user, or leveling of the washing machine stand.

[**0141**] 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 the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.

What is claimed is:

1. A stand comprising:

a stand body of a predetermined height having an opening in one side; and

a drawer for pushing in or pulling out through the opening in the stand body to open/close the opening.

2. The stand as claimed in claim 1, wherein the drawer includes;

a drawer body having a receiving space formed therein,

a front cover that is a front of the drawer body for covering the opening of the stand body when the drawer body is pushed in, and

a handle provided to the front cover.

3. The stand as claimed in claim 2, wherein the front cover has a recess form in rear of the handle at a predetermined depth.

4. The stand as claimed in claim 2, wherein the handle includes;

a front part that is a front of the handle, and

a rear part in rear of the front part.

5. The stand as claimed in claim 2, wherein the handle is fastened to the front cover with fastening projections each having an axial direction hole with a thread formed therein projected from a rear surface of the handle to backward, and pass through hole passed through a front and a rear surfaces of the front cover to insert the fastening projections therein, and fasten.

6. The stand as claimed in claim 5, wherein the handle includes one pair of seating parts projected backward from opposite sides of an upper surface thereof, and

the front cover includes one pair of seating recesses in opposite sides of an upper surface of the front cover for seating the one pair of seating parts.

7. The stand as claimed in claim 6, wherein the handle includes a fixing projection of a predetermined size projected backward from each of the seating parts, and

the front cover includes a fixing hole in a rear wall of each of the seating recesses of the front cover for inserting the fixing projection.

8. The stand as claimed in claim 1, further comprising a guide device for guiding the drawer to push in or pull out the drawer smoothly.

9. The stand as claimed in claim 8, wherein the guide device includes;

a supporting guide mounted on opposite inside surfaces of the stand body in a pulling out/pushing in direction of the drawer,

a pulling out/pushing in guide mounted on opposite outside walls of the drawer body in the pulling out/pushing in direction of the drawer, and

rolling means for minimizing friction between the supporting guide and the pulling out/pushing in guide, to make the pulling out/pushing of the drawer smooth.

10. The stand as claimed in claim 9, wherein the supporting guide has a bar form, and the pulling out/pushing in guide has a groove for inserting the supporting guide.

11. The stand as claimed in claim 9, wherein the pulling out/pushing in guide has a bar form, and the supporting guide has a groove for inserting pulling out/pushing in guide.

12. The stand as claimed in claim 9, wherein the rolling means includes;

rolling members between the supporting guide and the pulling out/pushing in guide, and

a rolling member supporting part for rotatably supporting the rolling members.

13. The stand as claimed in claim 12, wherein the rolling member includes a ball or a roller.

14. The stand as claimed in claim 12, wherein the rolling member supporting part is fixed to the pulling out/pushing in guide.

15. The stand as claimed in claim 1, further comprising:

a self locking device for automatic closure and holding the drawer if the drawer is pushed in the stand body more than a certain depth, and maintaining a holding state of the drawer unless an external force higher a certain level is not applied thereto.

16. The stand as claimed in claim 9, further comprising:

a self locking device for automatic closure and holding the drawer if the drawer is pushed in the stand body more than a certain depth, and maintaining a holding state of the drawer unless an external force higher a certain level is not applied thereto.

17. The stand as claimed in claim 16, wherein the self locking device includes;

a holding member fitted to the supporting guide, and

a hook assembly fitted to the pulling out/pushing in guide for engagement with the holding member if the drawer is pushed in the stand body more than a certain depth, to close the drawer automatically, and disengagement from the holding member to open the drawer smoothly if the drawer is pulled out with an external force higher than a certain level applied for pulling out the drawer.

18. The stand as claimed in claim 17, wherein the holding member is fitted to a rear portion of the supporting guide, and the hook assembly is fitted to a rear portion of the pulling out/pushing in guide to align with the holding member when the drawer is closed fully.

19. The stand as claimed in claim 17, wherein the hook assembly includes;

a hook part for engagement with the holding member when the drawer is pushed in the stand body more than a certain depth, and disengagement from the holding member when an external force higher than a certain level is applied thereto for pulling out the drawer,

a hook guide part for guiding movement of the hook part in a state the hook part is engaged with the holding member, and guiding the hook part to disengage from the holding member when the drawer is pulled out more than a certain distance, and

an elastic part connected between the hook part and the hook guide part, for applying a restoring force to the hook part to close the drawer automatically if the hook part is engaged with the holding member following pushing in of the drawer in the stand body to make the hook part to engage with the holding member.

20. The stand as claimed in claim 19, wherein the hook guide part includes;

a first guide slot extended in the pulling out/pushing in direction of the drawer,

a second guide slot parallel to the first guide slot, having a rear end extended more than a predetermined length longer than the rear end of the first guide slot, and

a third guide slot vertically extended from the rear end of the second guide slot toward the first guide slot, and

the hook part includes;

a first pin movable along the first guide slot, and

a second pin movable along the second guide slot or the third guide slot.

21. The stand as claimed in claim 20, wherein the hook guide part further includes a projection from an inside corner where the second guide slot and the third guide slot meet, for engagement of the hook part therewith when the drawer is pulled out more than a certain distance to disengage the hook part from the holding member.

22. The stand as claimed in claim 20, wherein the elastic part is a spring having one end connected to a first pin of the hook part, and the other end connected to a front end of the first guide slot.

23. The stand as claimed in claim 1, wherein the stand body includes leg seating members at respective corners of an upper surface thereof for seating legs of an object to be supported by the stand body.

24. The stand as claimed in claim 23, wherein the stand body is applicable to other object with legs having distances of legs shorter than the object.

25. The stand as claimed in claim 24, wherein the leg seating member includes;

a first seating hole for seating a leg of a washing machine, and

a second seating hole for seating a leg of a laundry dryer having legs with distances shorter than distances of the legs of the washing machine.

26. The stand as claimed in claim 24, wherein the second seating hole is overlapped with a part of the first seating hole or spaced a distance apart therefrom.

27. The stand as claimed in claim 1, wherein the stand body includes height adjustable leg assemblies each is provided to an underside surface of the stand body.

28. The stand as claimed in claim 27, wherein the leg assembly includes;

a leg bolt having a screw part with a thread on an outside circumferential surface for fastening to a lower part of the stand body, and a bolt head at a lower end of the screw part,

a damping member of a soft material having an upper surface in close contact with the bolt head and a lower surface in contact with a floor where the stand stands thereon, and

a holder for holding the damping member and the bolt head together.

29. The stand as claimed in claim 28, wherein the bolt head includes;

a polygonal upper head part formed as one unit with, and at a lower end of, the screw part, and

a circular lower head part formed as one unit with, and under, the upper head part.

30. The stand as claimed in claim 29, wherein the damping member is fastened to the lower head part for preventing relative rotation with respect to the leg bolt.

31. The stand as claimed in claim 28, wherein the holder is substantially annular with passed through top and bottom, for pressing an upper surface of an edge of the lower head part and an underside surface of an edge of the damping member from an upper side and a lower side respectively, and holding the lower head part and the damping member together, when the lower part of the damping member is projected downward through the passed through lower part.

32. The stand as claimed in claim 28, wherein the holder includes;

an annular holder body with passed through top and bottom for holding outside circumferences of the lower head part and the damping member,

a lower holding part having an outside circumferential surface connected to an inside circumferential surface of a bottom end of the holder body, to support an underside surface of the damping member, and an opening in a central part for pass through of the lower part of the damping member, and

an upper holding part projected from an upper inside circumferential surface of the holder body toward a center, for holding an upper surface of an edge of the lower head part, having a distance from an upper surface of the lower holding part to an underside surface smaller than a sum of a thickness of the edge of the damping member and a thickness of the edge of the lower head part.

33. The stand as claimed in claim 32, wherein the upper holding part includes a plurality of hooks at regular intervals in a circumferential direction.

34. The stand as claimed in claim 28, wherein the lower holding part includes a plurality of cut away openings under the hooks respectively.

35. The stand as claimed in claim 28, wherein the holder and the leg bolt are formed not to make relative rotation.

36. The stand as claimed in claim 35, wherein the holder includes holder rotation prevention projections in an inside surface thereof, and the bolt head includes holder rotation prevention grooves on an outside surface thereof for inserting the holder rotation prevention projections therein.

37. The stand as claimed in claim 35, wherein the holder is formed of non-soft material, and has a polygonal outside circumferential surface.

38. The stand as claimed in claim 1, wherein the stand body includes reinforcing members at opposite sides of the opening for supporting a load of the object supported by the stand body.

* * * * *