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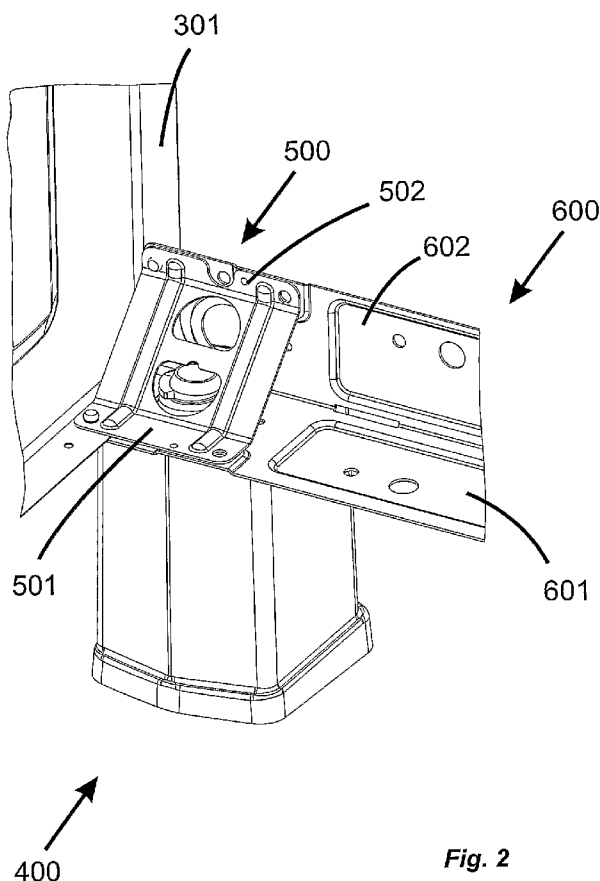


Fig. 2

(57) Abstract: Device supporting mechanism comprising
at least a supporting foot (400) which can be propped on a
surface (800), said supporting foot (400) having at least an
upper interface (401) and a lower interface (402). The de-
vice has at least a base (301). The mechanism further com-
prises at least a rail (600) capable of connecting the base
(301) to the upper interface (401) of the supporting foot
(400); and further comprises a reinforcement (500) con-
nected to the rail (600) and to the base (301). The lower in-
terface (402) of the supporting foot (400) has at least a con-
tact portion (404) extending to a distancing portion (405),
wherein the contact portion (404) can be propped on the
surface (800), and the distancing portion (405) is suspended
relative to the surface (800), forming a substantially acute
angle with the plane of the surface (800).



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Title: **“SUPPORTING MECHANISM, SUPPORTING FOOT, DEVICE AND STOVE”.**

The present invention relates to a supporting mechanism and means for devices in general. More particularly, the invention relates to a
5 mechanism and means capable of providing stable support for a device such as, for example, a household appliance or a piece of furniture, so as to prevent it from accidentally tumbling and/or falling, providing greater safety to the user.

The present invention further relates to a device comprising the
10 aforementioned supporting mechanism or means.

The present invention further relates to an oven comprising the aforementioned supporting mechanism or means.

Description of the Prior Art

Devices such as household appliances and furniture in general
15 are susceptible to tumbling and falling due to the external mechanical stresses applied thereto, whether accidentally or intentionally. Said tumbles and falls are quite dangerous to users, especially children, who can be seriously injured.

Particularly, a household stove is an appliance which poses a
20 considerable risk of accidents, since its front door (oven door) can be opened so as to be positioned parallel to the surface, and in this situation an unwary user, in many cases a child, may lean on said door and apply a stress (momentum) which could cause the stove to tumble.

This problem is well known to stove manufacturers. There are
25 even standard requirements, such as NBR 13723, which determine that a stove must not tumble when a certain load is applied to its open door, parallel to the plane of the surface. Additionally, there is a consumer demand for stoves having high supporting feet, since said characteristic makes the process of cleaning the surface below the stove easier. However, the higher
30 the supporting feet the more susceptible the stove is to tumbling, and therefore reconciling the matters of safety and stability with this consumer demand becomes a great challenge for stove manufacturers, mainly with

respect to the low cost line.

A possible solution would be to implement a dead weight at the back part of the stove, which would act as an "anchor" capable of preventing an undesirable tumble. However, said solution would increase the total weight of the stove, which is undesirable both for manufacturers and users.

In theory, in order to decrease this dead weight the front supporting feet of the stove could be moved outwardly, that is, further away from the center of the stove and closer to the user, and thus the pivoting point of the stove would be in a more favorable position in terms of stability. This embodiment would enable the moment of reaction to be increased, and thus the dead weight could be decreased. However, this theory cannot be applied in this situation, since the stove cannot be considered as a completely rigid body. Therefore, the position of the pivoting point of the stove tends to move inwardly, compromising its stability and balance.

Another usual solution is to implement supports that fasten the stove to the wall and/or to the floor. In this regard, document US5076525 describes an L-shaped support which mounts to the wall behind the stove. Said support is connected to a hook, which in turn is fastened to the back part of the stove. Document US4754948, in turn, describes a U-shaped support mounted to the surface of the wall and to the floor. One of the arms of the U is fastened to the back part of the stove. This kind of solution has the inconvenience of having to be installed by the user or by a technician, in addition to the need to adapt the original structure of the stove and/or of the wall/floor. Additionally, the mobility of the stove, which is quite useful in the cleaning and maintenance processes, is lost.

Although the analysis above was based on a household stove, it also applies to many other appliances, pieces of furniture or any other device supported on a surface.

Objects of the Invention

A first object of the present invention is to provide a low cost mechanism and means capable of providing stable mechanical support for devices in general, such as, for example, household appliances or furniture,

without the need for any adjustment to be made to the place of installation (surface of the wall and/or of the floor). Said support should prevent accidental tumbles and falls of said devices, so as to meet the normative requirements and provide safety to the users.

5 A second object of the present invention is to provide a device comprising the aforementioned mechanism or means.

A third object of the present invention is to provide a stove comprising the aforementioned mechanism or means.

Brief Description of the Invention

10 A first means to achieve the first object of the present invention is by providing a device supporting mechanism comprising at least a supporting foot which can be propped on a surface, said supporting foot having at least an upper interface and a lower interface, said device having at least a base, said mechanism characterized by comprising at least a rail capable of
15 connecting the base to the upper interface of the supporting foot; and a reinforcement connected to the rail and to the base, the lower interface of the supporting foot having at least a contact portion extending to a distancing portion, wherein the contact portion can be propped on the surface, and the distancing portion is suspended relative to the surface, forming a
20 substantially acute angle with the plane of the surface.

A second means to achieve the first object of the present invention is by providing a device supporting mechanism comprising at least a supporting foot which can be propped on a surface, said supporting foot having at least an upper interface and a lower interface, said device having at
25 least a base, said mechanism characterized by comprising at least a rail capable of connecting the base to the upper interface of the supporting foot, the lower interface of the supporting foot having at least a contact portion extending to a distancing portion, wherein the contact portion can be propped on the surface, and the distancing portion is suspended relative to the
30 surface, forming a substantially acute angle with the plane of the surface.

A third means to achieve the first object of the present invention is by providing a device supporting mechanism comprising at least a

supporting foot which can be propped on a surface, said supporting foot having at least an upper interface and a lower interface, said device having at least a base, said mechanism characterized by comprising at least a rail capable of connecting the base to the upper interface of the supporting foot;
5 and a reinforcement connected to the rail and to the base.

A fourth means to achieve the first object of the present invention is by providing a device stabilization supporting foot, which foot can be propped on a surface, said supporting foot having at least an upper interface and a lower interface, said device having at least a base, said supporting foot
10 characterized in that the lower interface of the supporting foot has at least a contact portion extending to a distancing portion, wherein the contact portion can be propped on the surface, and the distancing portion is suspended relative to the surface, forming a substantially acute angle with the plane of the surface.

15 The second object of the present invention is achieved by providing a device comprising at least a supporting mechanism or a supporting foot according to one of the aforementioned means.

The third object of the present invention is achieved by providing a stove having at least a cooktop and an oven, said stove comprising at least
20 a supporting mechanism or a supporting foot according to one of the aforementioned means.

Brief Description of the Drawings

The present invention will be described in more detail below, with reference to the attached drawings, in which:

25 figure 1 – represents a view in perspective of a stove, a subject matter of the present invention;

figure 2 – represents a view in perspective of a first preferred embodiment of a supporting mechanism, a subject matter of the present invention;

30 figure 3 – represents a top view in perspective of a supporting foot, a subject matter of the present invention;

figure 4 – represents a bottom view in perspective of the

supporting foot illustrated in figure 3;

figure 5 – represents a side view of the supporting foot illustrated in figure 3;

figure 6 – represents a side view of the supporting mechanism
5 illustrated in figure 2; and

figure 7 – represents a side view of a second embodiment of the supporting mechanism.

Detailed Description of the Drawings

The device supporting mechanism, a subject matter of the
10 present invention, is illustrated in figure 2. The device may be represented by a household appliance such as, for example, a stove, a refrigerator, a freezer, an oven, a washing machine, etc. The device may further be represented by a piece of furniture such as, for example, a cupboard or a rack. Preferably, the device is a kitchen stove 100 having at least a cooktop
15 200 and an oven 300, as shown in figure 1.

Preferably, this supporting mechanism comprises at least a supporting foot 400, also a subject matter of the present invention, which can be propped on a surface 800, such as a kitchen floor. The device has at least a base 301, which is capable of connecting to the supporting mechanism or
20 at least to a supporting means. The base 301 preferably has a rectangular or square shape, and therefore comprises four edges, parallel two by two. Evidently, the base 301 may have other shapes, such as, for example, a circular shape.

The supporting foot 400 is a supporting means having an upper
25 interface 401 (interface connectable to the base 301) and a lower interface 402 (interface partially connected to the surface 800), as can be seen from figures 3 and 5. In conventional supporting feet, the upper interface is substantially parallel to the lower interface, and the whole area of the lower interface is in contact with the surface 800. However, the present invention
30 describes a new embodiment, which will be described in detail below.

The lower interface 402 of the supporting foot 400 has a contact portion 404 which is able to supportedly connect to the surface 800. The

contact portion 404 comprises a smaller area than the total area comprised by the lower interface 402. Said portion may be a point, a line or a region which, when put in contact with the surface 800, enables the pivoting point of the device (appliance or furniture) to shift to an optimal position, thus providing greater stability to the device and safety to the user.

The contact portion 404 extends to a distancing portion 405 which is suspended relative to the surface 800, forming a substantially acute angle with the plane of the surface 800. This angle formed between the distancing portion 405 and the plane of the surface 800 points towards a portion covered by the base 301, that is, towards the "inner" portion of the stove, so that the user standing in front of the stove does not see this angle. Thus, in a side view (figures 5 and 7), it can be said that the lower interface 402 has a ramp-like shape, and the contact portion 404 represents the part which is propped on the surface 800 and the distancing portion 405 represents the rest of the ramp, which is elevated relative to the surface 800.

Figure 5 shows a first preferred embodiment for the supporting foot 400. In this case, the upper interface 401 is substantially parallel to the plane of the surface 800, and the lower interface 402 is substantially oblique to the plane of the surface 800. Thus the upper interface 401 and the lower interface 402 are oblique to each other.

Figure 7 shows a second preferred embodiment for the supporting foot 400. In this case, the upper interface 401 is substantially parallel to the plane of the surface 800 and also to the lower interface 402. For the desired embodiment to be obtained the supporting foot 400 is fastened to the device so as to be obliquely positioned relative to the plane of the surface 800, that is, the central axis of the supporting foot 400 is inclined. This fastening can be made by several well known and widely used basic mechanisms, such as, for instance, a leveler 700, as shown in figure 7.

With regard to the height of the supporting foot 400, it is preferably greater than 70 mm, so as to enable the user to clean the region under the device (portion covered by the base 301) without needing to move it from its original position. Evidently, other heights can be adopted, as long

as the stability of the device and the safety of the user are not compromised.

Also preferably, the supporting foot 400 is made of plastic, since this material does not degrade as a result of the action of cleaning products and does not corrode. Another kind of material could be used, as long as its strength and durability are suitable for this use.

The supporting mechanism further comprises at least a rail 600 capable of connecting the base 301 to the upper interface 401 of the supporting foot 400. Preferably, the rail 600 is a straightedge extending along an edge of the base 301. Thus, in the preferred case in which the base 301 has a rectangular or square shape, there are four rails 600 in total, each rail 600 connected to one of the four edges.

The upper interface 401 has an offset portion 403 connected to the rail 600. Said offset portion 403 has a substantially semicircular shape, and its height enables a uniform pressure to be applied along the semicircular sector comprised by the offset portion 403. Said configuration provides a larger contact area between the upper interface 401 and the rail 600, so as to improve the reinforcement provided by the supporting mechanism, due to the increase of the moment of reaction. Evidently, the semicircular shape is not mandatory, and any other compatible shape suitable for the purpose may be used. However, the semicircular or circular configuration enables the bending moment to be constant in all directions, thus achieving an optimal situation.

The rail 600 comprises at least a first plate 601, substantially parallel to the plane of the surface 800, and a second plate 602 transversely connected to the first plate 601. Thus, the first plate 601 and the second plate 602 form a rail 600 having a substantially L-shaped profile.

The upper interface 401 of the supporting foot 400 further has a thread 406 connectable to the rail 600 by a bore on the first plate 601.

Preferably, the supporting mechanism further comprises a reinforcement 500 connected to the rail 600 and to the base 301. The function of the reinforcement 500 is to provide a mechanical resistance capable of supporting the bending moment applied to the upper interface 401

of the supporting foot 400 due to the application of an external stress (force) to the device (for instance, to the open door of a stove, or if the user props the stove or any other device on only one foot). The higher the supporting foot 400 the greater the bending moment on the upper interface 401.

5 The reinforcement 500 comprises at least a first end 501 and a second end 502, wherein the first end 501 is connected to the first plate 601 of the rail 600 and the second end 501 is connected to the second plate 602 of the rail 600. Said connection may be made by any suitable method of mechanical fastening, such as, for example, by bolts and screws or by
10 welding. Thus, the rail 600 and the reinforcement 500 form a set with a substantially triangular-shaped profile.

 Therefore, the supporting mechanism was designed so as to increase the resistance of the device (ex: stove) to an external mechanical stress (bending moment), such as, for example, a stress applied to the open
15 door of the stove. Said increased resistance prevents tumbles and accidental falls.

 This invention was based on the theory of finite elements to identify the factors which influence and directly contribute to the reinforcement of the supporting mechanism, and based on that, to develop a
20 supporting mechanism capable of providing stability and safety to meet the standard requirements and user needs. The finite element technique can be used to calculate approximately the behavior of deformable solids when subject to different types of stresses. This tool was used because the structural system of devices such as the stove is complex and they cannot be
25 considered as rigid bodies for the purpose of calculating the resistance to tumbling.

 Preferably, the supporting mechanism comprises all three elements: the reinforcement 500, the rail 600 and the supporting foot 400, since the combination thereof maximizes the efficiency of the mechanism,
30 providing an optimal level of stabilization of the device and safety to the user.

 However, optionally, a mechanism comprising a combination of two or three elements could be used, which in spite of having lower

efficiency, would involve a lower production cost.

A first alternative embodiment is provided by a supporting mechanism which comprises only the rail 600 and the supporting foot 400 described in this invention, without the presence of the reinforcement 500.

5 A second alternative embodiment is provided by a supporting mechanism which comprises only the rail 600 and the reinforcement 500 described in this invention, wherein the supporting foot would be a conventional foot, without the innovations proposed in this invention.

10 The device, preferably but not mandatorily a stove 100, which comprises at least a supporting mechanism as described above, is also a subject matter of the present invention.

Similarly, the device, preferably but not mandatorily a stove 100, which comprises at least a supporting foot 400 (supporting means) as described above, is also a subject matter of the present invention. It should
15 be noted that, in this case, the device does not comprise the rail 600 or the reinforcement 500 of the present invention. Therefore, the supporting foot 400 can be connected to the base 301 of the device by another mechanical configuration suitable for this purpose.

Thus, the present invention meets the normative requirements
20 and user needs by means of a low cost solution, namely a mechanical support which provides stability to the device (ex: stove 100) and safety to users, avoiding accidental tumbles and falls of said device.

The examples described above represent preferred
25 embodiments; however, it should be understood that the scope of the present invention encompasses other possible variations, and is limited only by the content of the appended claims, which include all possible equivalents.

CLAIMS

1. A device supporting mechanism comprising at least a supporting foot (400) which can be propped on a surface (800), said supporting foot (400) having at least an upper interface (401) and a lower interface (402), said device having at least a base (301), said mechanism
5 characterized by comprising at least:

- a rail (600) capable of connecting the base (301) to the upper interface (401) of the supporting foot (400); and

- a reinforcement (500) connected to the rail (600) and to the
10 base (301),

in which the lower interface (402) of the supporting foot (400) has at least a contact portion (404) extending to a distancing portion (405), wherein the contact portion (404) can be propped on the surface (800), and the distancing portion (405) is suspended relative to the surface (800),
15 forming a substantially acute angle with the plane of the surface (800).

2. The supporting mechanism according to claim 1, characterized in that the angle formed between the distancing portion (405) and the plane of the surface (800) points towards a portion covered by the base (301).

3. The supporting mechanism according to claim 1, characterized
20 in that the upper interface (401) of the supporting foot (400) is substantially parallel to the plane of the surface (800), and the lower interface (402) of the supporting foot (400) is substantially oblique to the plane of the surface (800).

4. The supporting mechanism according to claim 1, characterized
25 in that the upper interface (401) of the supporting foot (400) is substantially parallel to the plane of the surface (800) and to the lower interface (402) of the supporting foot (400), wherein the supporting foot (400) is fastened to the device in a substantially oblique manner relative to the plane of the surface (800).

5. The supporting mechanism as defined in claim 1,
30 characterized in that the upper interface (401) of the supporting foot (400) has an offset portion (403) in contact with the rail (600).

6. The supporting mechanism according to claim 5, characterized

in that the offset portion (403) has a semicircular shape.

7. The supporting mechanism according to claim 1, characterized in that the upper interface (401) of the supporting foot (400) has a thread (406) connected to at least a bore in the rail (600).

5 8. The supporting mechanism according to claim 1, characterized in that the rail (600) comprises at least a first plate (601) substantially parallel to the plane of the surface (800).

 9. The supporting mechanism according to claim 8, characterized in that the rail (600) comprises at least a second plate (602) transversely
10 connected to the first plate (601), wherein the first plate (601) and the second plate (602) form a rail (600) having a substantially L-shaped profile.

 10. The supporting mechanism according to claim 9, characterized in that the reinforcement (500) comprises at least a first end (501) and a second end (502), said first end (502) being connected to the
15 first plate (601) of the rail (600) and said second end (502) being connected to the second plate of the rail (600), wherein the rail (600) and the reinforcement (500) form a set having a substantially triangular-shaped profile.

 11. A device characterized by comprising at least a supporting
20 mechanism as defined in claims 1 to 10.

 12. A stove (100) having at least a cooktop (200) and an oven (300), said stove (100) characterized by comprising at least a supporting mechanism as defined in claims 1 to 10.

 13. A device supporting mechanism comprising at least a
25 supporting foot (400) which can be propped on a surface (800), said supporting foot (400) having at least an upper interface (401) and a lower interface (402), said device having at least a base (301), said mechanism characterized by comprising at least:

 - a rail (600) capable of connecting the base (301) to the upper
30 interface (401) of the supporting foot (400),

 in which the lower interface (402) of the supporting foot (400) has at least a contact portion (404) extending to a distancing portion (405),

wherein the contact portion (404) can be propped on the surface (800), and the distancing portion (405) is suspended relative to the surface (800), forming a substantially acute angle with the plane of the surface (800).

14. The supporting mechanism according to claim 13,
5 characterized in that the angle formed between the distancing portion (405) and the plane of the surface (800) points towards a portion covered by the base (301).

15. The supporting mechanism according to claim 13,
characterized in that the upper interface (401) of the supporting foot (400) is
10 substantially parallel to the plane of the surface (800) and the lower interface (402) of the supporting foot (400) is substantially oblique to the plane of the surface (800).

16. The supporting mechanism according to claim 13,
characterized in that the upper interface (401) of the supporting foot (400) is
15 substantially parallel to the plane of the surface (800) and to the lower interface (402) of the supporting foot (400), wherein the supporting foot (400) is fastened to the device in a substantially oblique manner relative to the plane of the surface (800).

17. The supporting mechanism according to claim 13,
20 characterized in that the upper interface (401) of the supporting foot (400) has an offset portion (403) in contact with the rail (600).

18. The supporting mechanism according to claim 17,
characterized in that the offset portion (403) has a semicircular shape.

19. The supporting mechanism according to claim 13,
25 characterized in that the upper interface (401) of the supporting foot (400) has a thread (406) connected to at least a bore in the rail (600).

20. The supporting mechanism according to claim 13,
characterized in that the rail (600) comprises at least a first plate (601)
substantially parallel to the plane of the surface (800).

30 21. The supporting mechanism according to claim 20,
characterized in that the rail (600) comprises at least a second plate (602) transversely connected to the first plate (601), wherein the first plate (601)

and the second plate (602) form a rail (600) having a substantially L-shaped profile.

22. A device characterized by comprising at least a supporting mechanism as defined in claims 13 to 21.

5 23. A stove (100) having at least a cooktop (200) and an oven (300), said stove (100) characterized by comprising at least a supporting mechanism as defined in claims 13 to 21.

24. A device supporting mechanism comprising at least a supporting foot (400) which can be propped on a surface (800), said
10 supporting foot (400) having at least an upper interface (401) and a lower interface (402), said device having at least a base (301), said mechanism characterized by comprising at least:

- a rail (600) capable of connecting the base (301) to the upper interface (401) of the supporting foot (400); and

15 - a reinforcement (500) connected to the rail (600) and to the base (301),

25. The supporting mechanism according to claim 24, characterized in that the rail (600) comprises at least a first plate (601) substantially parallel to the plane of the surface (800).

20 26. The supporting mechanism according to claim 25, characterized in that the rail (600) comprises at least a second plate (602) transversely connected to the first plate (601), wherein the first plate (601) and the second plate (602) form a rail (600) having a substantially L-shaped profile.

25 27. The supporting mechanism according to claim 26, characterized in that the reinforcement (500) comprises at least a first end (501) and a second end (502), said first end (501) being connected to the first plate (601) of the rail (600) and said second end (502) being connected to the second plate (602) of the rail (600), wherein the rail (600) and the
30 reinforcement (500) form a set having a substantially triangular-shaped profile.

28. A device characterized by comprising at least a supporting

mechanism as defined in claims 24 to 27.

29. A stove (100) having at least a cooktop (200) and an oven (300), said stove (100) characterized by comprising at least a supporting mechanism as defined in claims 24 to 27.

5 30. A supporting foot (400) for stabilizing devices, which supporting foot (400) can be propped on a surface (800), said supporting foot (400) having at least an upper interface (401) and a lower interface (402), said device having at least a base (301), said supporting foot (400) characterized in that the lower interface (402) of the supporting foot (400) has
10 at least a contact portion (404) extending to a distancing portion (405), wherein the contact portion (404) can be propped on the surface (800), and the distancing portion (405) is suspended relative to the surface (800), forming a substantially acute angle with the plane of the surface (800).

 31. The supporting foot according to claim 30, characterized in
15 that the angle formed between the distancing portion (405) and the plane of the surface (800) points towards a portion covered by the base (301).

 32. The supporting foot according to claim 30, characterized in that the upper interface (401) is substantially parallel to the plane of the surface (800), and the lower interface (402) is substantially oblique to the
20 plane of the surface (800).

 33. The supporting foot according to claim 30, characterized in that the upper interface (401) is substantially parallel to the plane of the surface (800) and to the lower interface (402), wherein the supporting foot (400) is fastened to the device in a substantially oblique manner relative to
25 the plane of the surface (800).

 34. The supporting foot according to claim 30, characterized in that the upper interface (401) of the supporting foot (400) has an offset portion (403) in contact with the base (301) of the device.

 35. The supporting foot according to claim 34, characterized in
30 that the offset portion (403) has a semicircular shape.

 36. The supporting foot according to claim 30, characterized in that the upper interface (401) of the supporting foot (400) has a thread (406)

connected to the base (301) of the device.

37. A device characterized by comprising at least a supporting foot (400) according to claims 30 to 36.

38. A stove (100) having at least a cooktop (200) and an oven
5 (300), said stove (100) characterized by comprising at least a supporting foot (400) as defined in claims 30 to 36.

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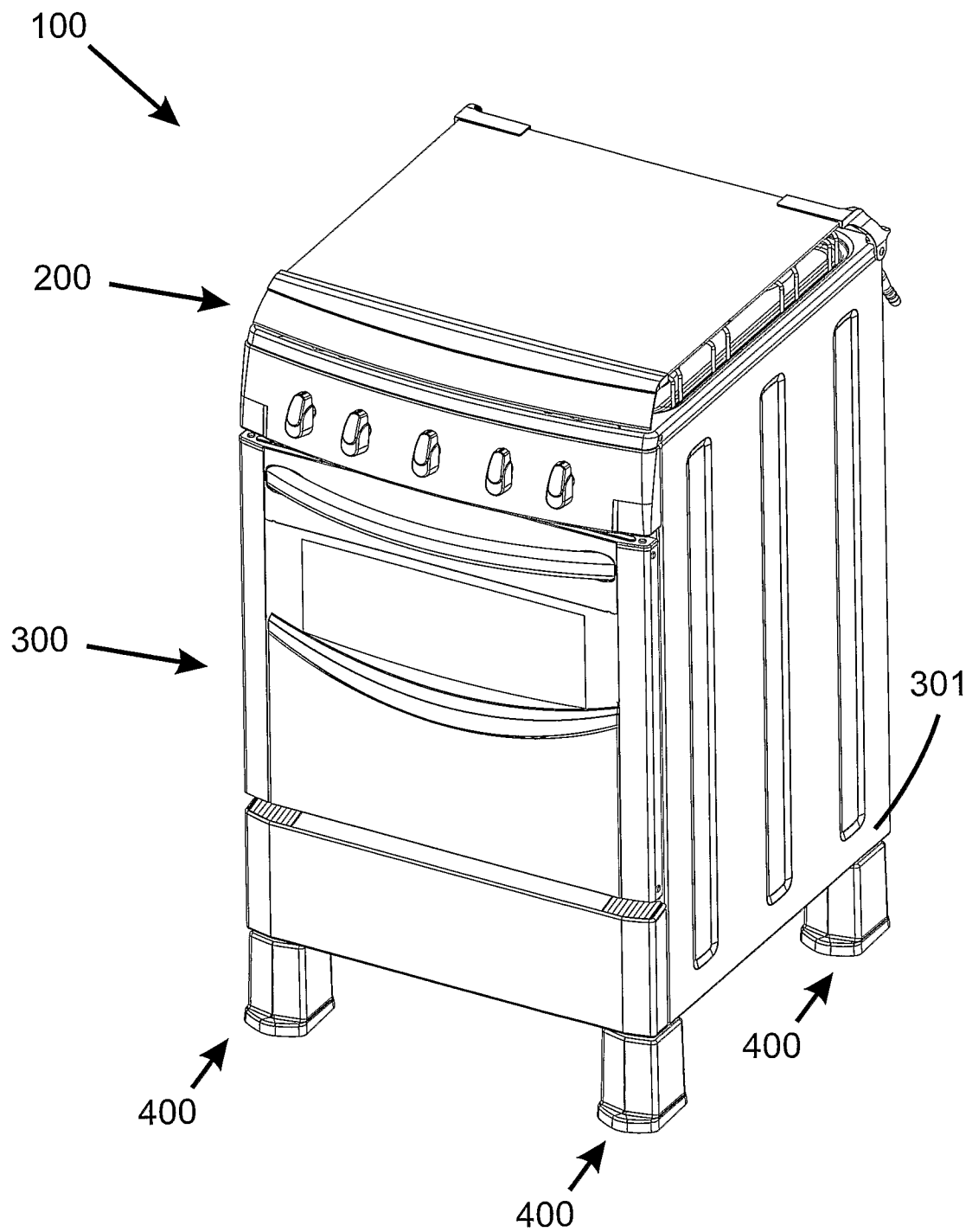


Fig. 1

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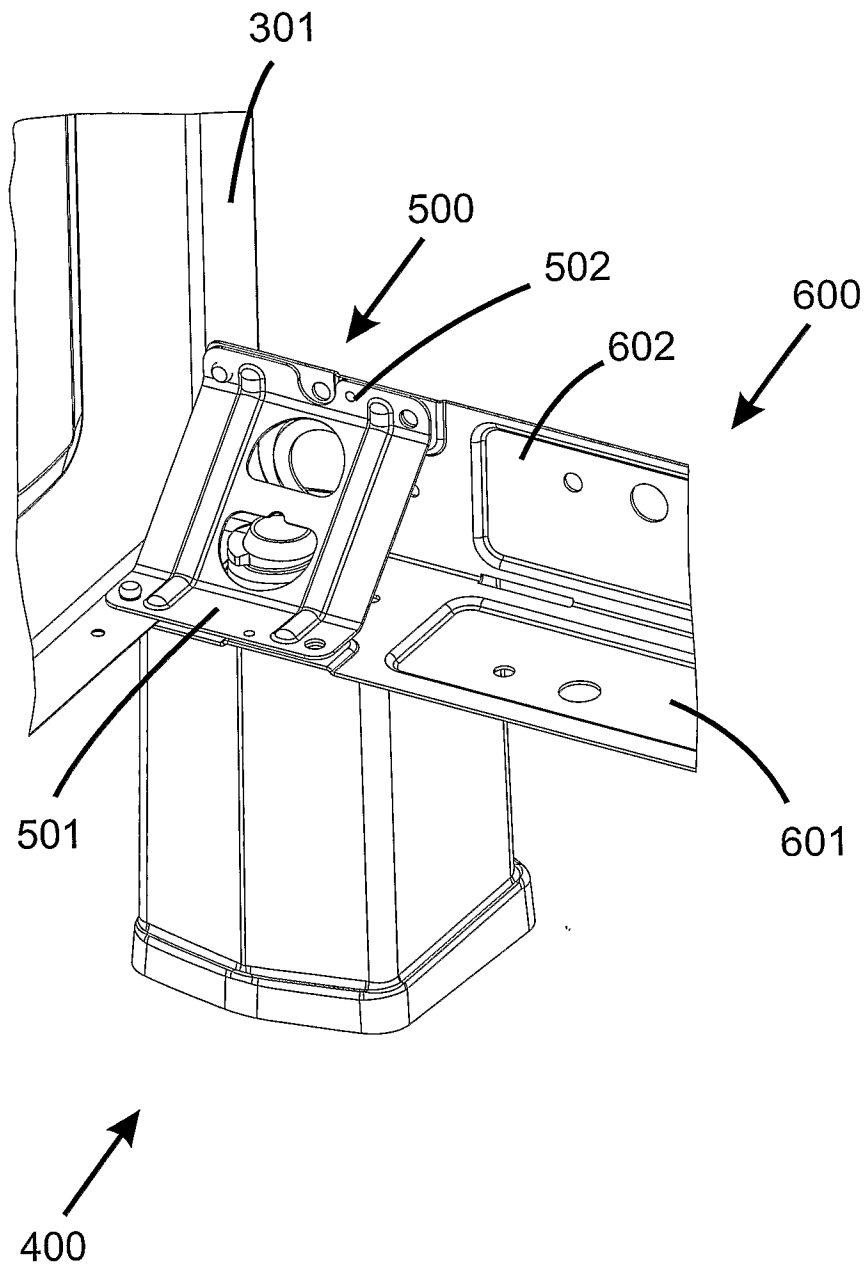


Fig. 2

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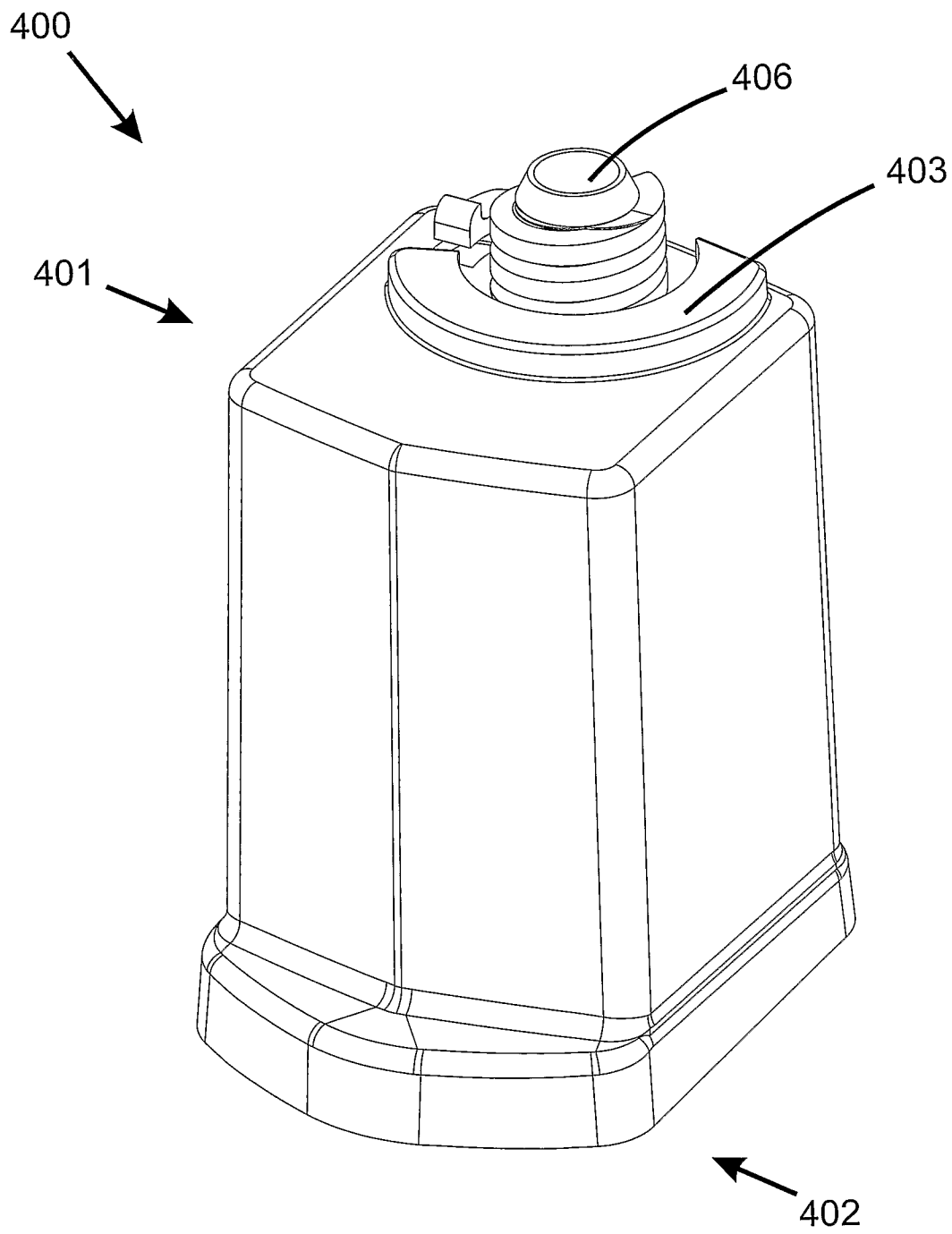


Fig. 3

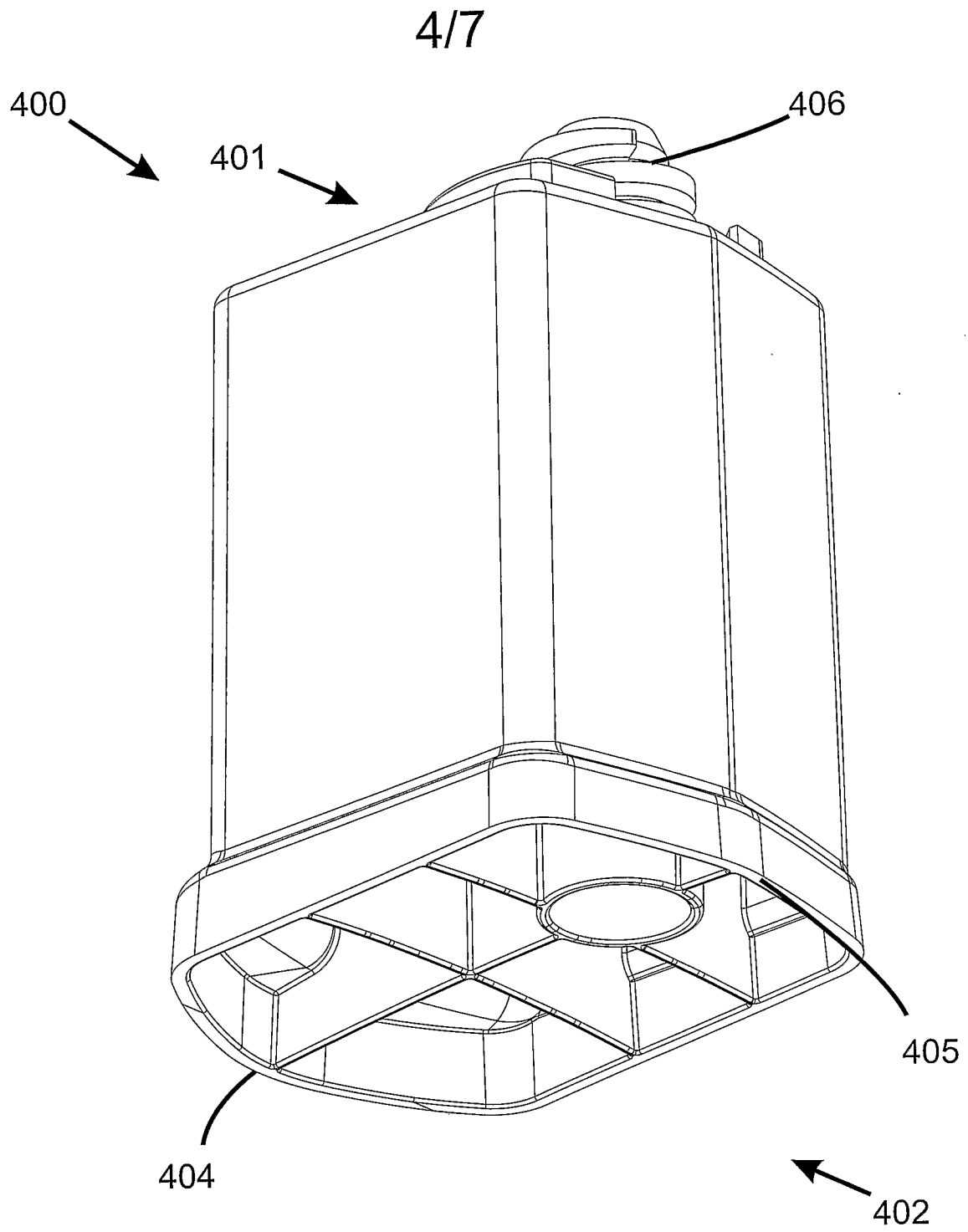
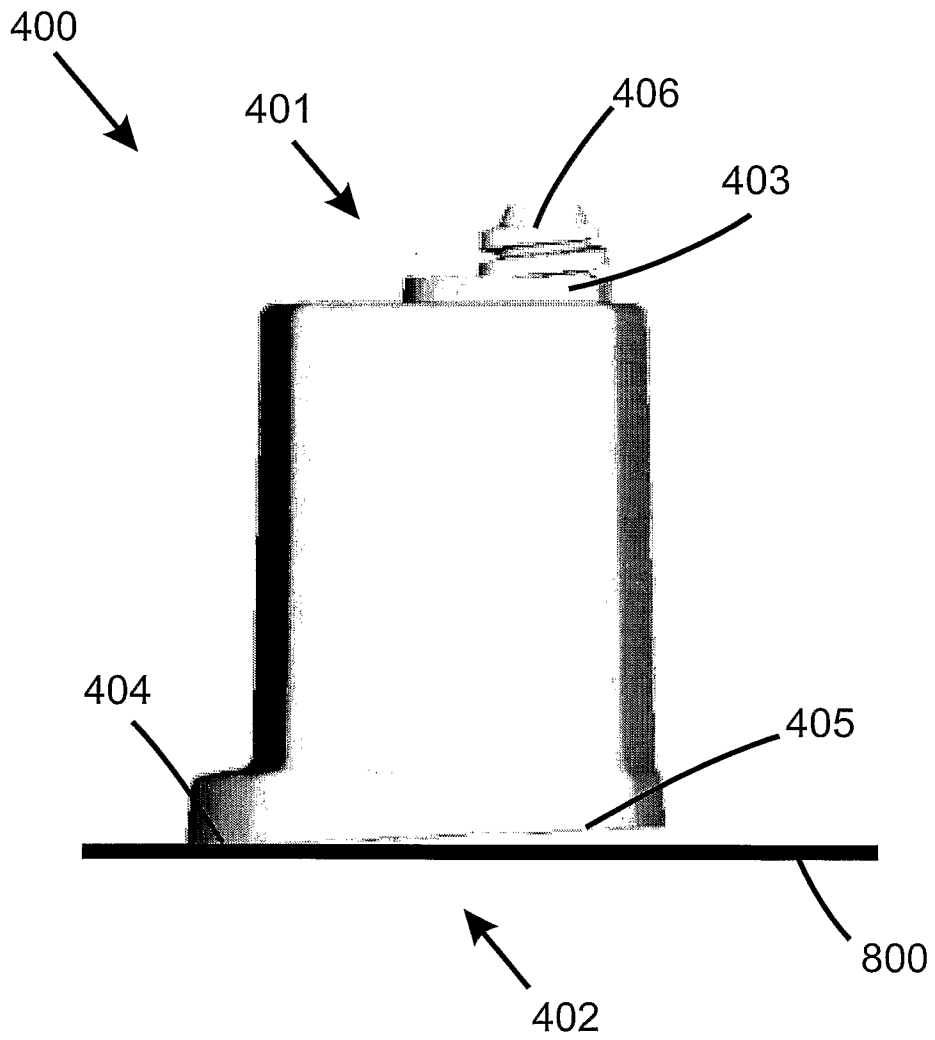


Fig. 4

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*Fig. 5*

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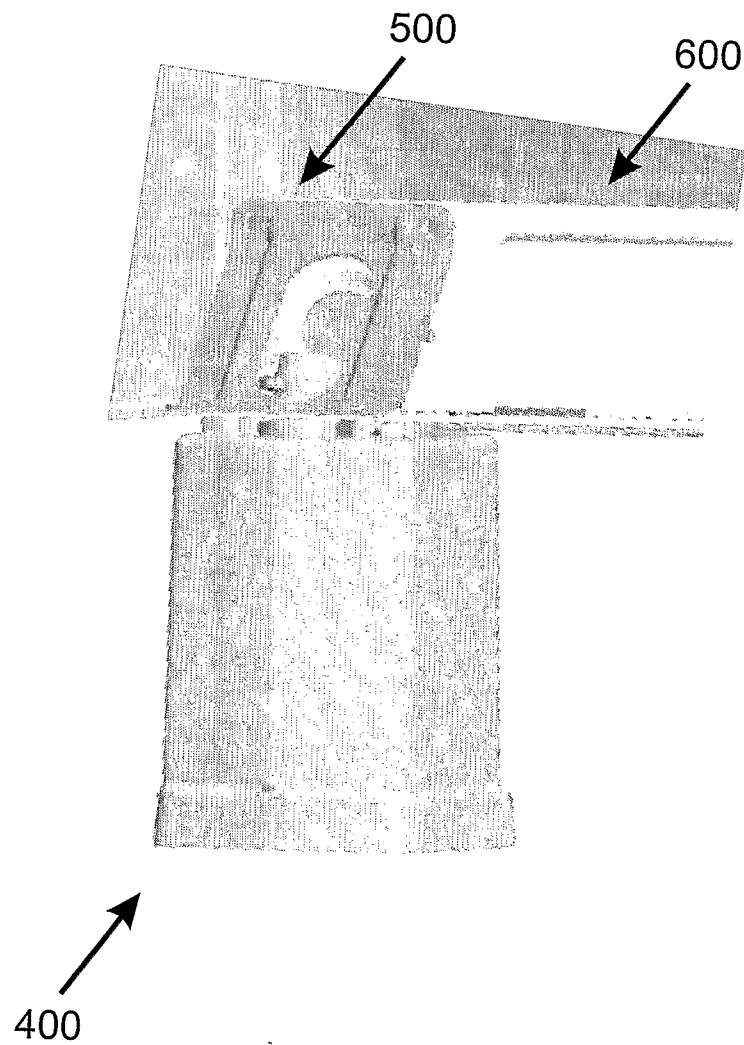


Fig. 6

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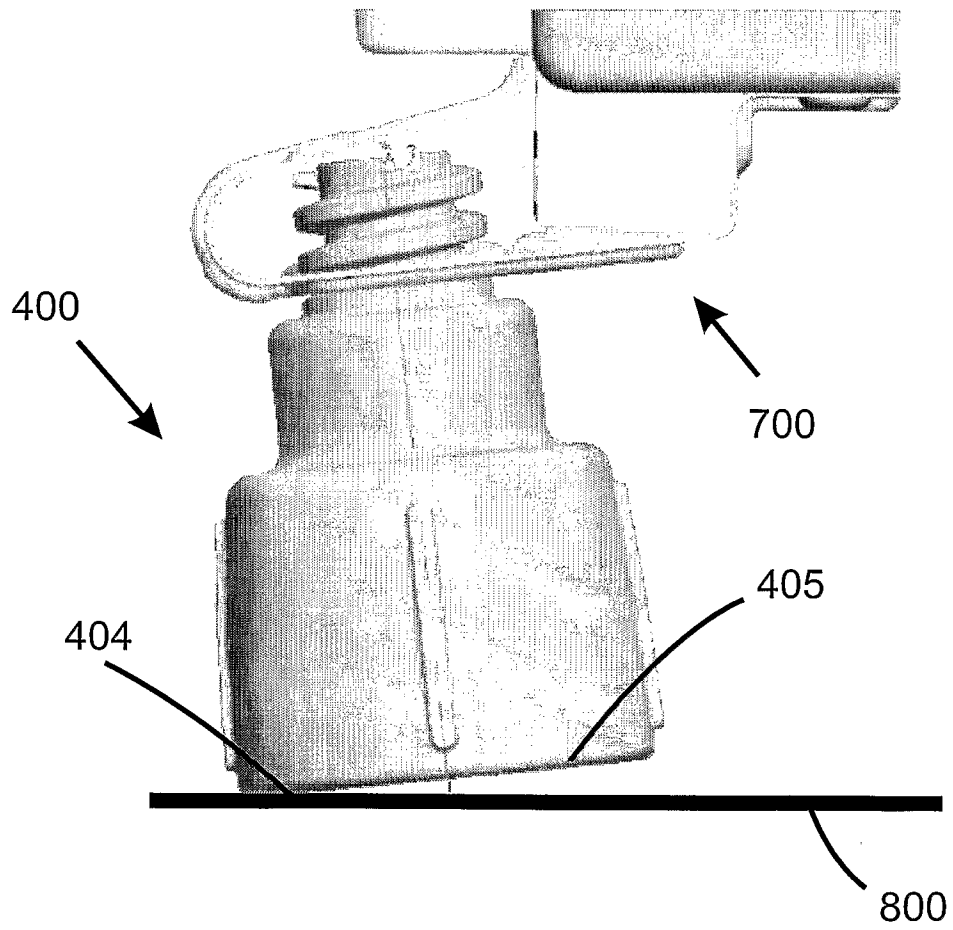


Fig. 7

INTERNATIONAL SEARCH REPORT

International application No

PCT/BR2008/000296

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47B91/00 F24C15/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A47B F24C D06F A47L F25D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 678 257 A (MERKT KONRAD GMBH) 25 October 1995 (1995-10-25)	1-3, 8-11, 13-15, 20-22, 24-28, 30-32, 36, 37
Y	column 1, line 1 - line 16; figures 1,2 column 3, line 3 - column 4, line 45 column 5, line 20 - line 34 -----	5-7, 12, 17-19, 23
X	US 4 826 118 A (SWINDERMAN) 2 May 1989 (1989-05-02)	30, 32, 34-38
Y	column 1, line 14 - line 16; figures 1,2 column 2, line 12 - line 52 ----- -/--	5-7, 12, 17-19, 23

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Z document member of the same patent family

Date of the actual completion of the international search

17 December 2008

Date of mailing of the international search report

29/12/2008

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INTERNATIONAL SEARCH REPORT

International application No
PCT/BR2008/000296

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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A	paragraphs [0001], [0002], [0716], [0017]; claims 1,2,20; figures 2,6 -----	1-3,5, 11,24,28
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X	US 4 197 685 A (GOULISH ET AL) 15 April 1980 (1980-04-15) column 3, line 19 - column 4, line 67; figures 1,3 -----	1-3,7, 11, 13-15, 19,22, 24,28, 30-32, 36,37

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/BR2008/000296

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