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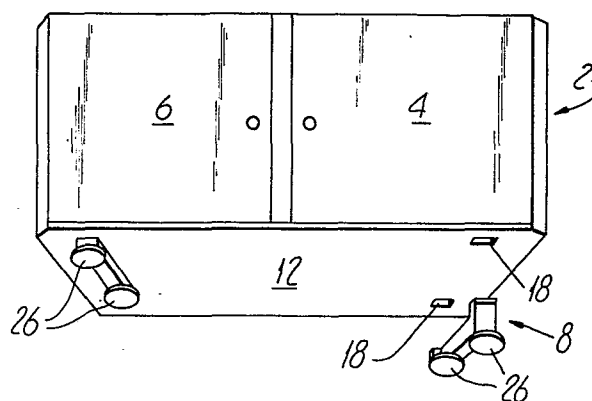
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⑤④ **Bathroom cabinet.**

⑤⑦ The invention provides a cabinet, especially for storing and dispensing sanitary commodities. The cabinet is provided with at least one compartment and at least one door (4, 6) and is further provided with attachment means (10 et al) depending from a bottom surface of the cabinet for attachment of the cabinet atop a cover of a W.C. flush tank to form a single unit with the said cover (46). The cabinet and cover are readily removable as a unit to allow access to a flushing mechanism within the tank. The bottom surfaces (26) of the attachment means are adjustable relative to planes parallel with the bottom (12) of the cabinet, rendering the cabinet compatibly attachable to tank covers of various sizes, configurations and curvatures. The invention also provides a kit for attaching such a cabinet to a cover of a flush tank. A method and apparatus for alignably attaching such a cabinet to a flush tank cover is also described.



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"Bathroom Cabinet"

THE PRESENT INVENTION relates to bathroom cabinets. More particularly, the present invention relates to bathroom cabinets adapted for storing and dispensing sanitary commodities, especially in bathrooms of limited space. The term "bathroom" is used in this specification to
5 encompass rooms containing only a W.C.

The problem of providing an appropriate place to store sanitary commodities in a place which on the one hand, is not readily accessible to children or readily visible to visitors (to avoid embarrassment) and, on the
10 other hand, is readily accessible to the women of the household when close to the bathroom toilet, where used sanitary commodities such as sanitary napkins, pads, tampons, and the like are often disposed of, has not yet been satisfactorily solved.

The problem is even more acute in homes constructed, as in many countries, where one bathroom is provided with a sink and a bath and/or shower and a second very small room is provided containing only a toilet. In the latter type of room the toilet is very often situated under a window or vent and there is simply no place provided in the room where a cabinet can
15 be affixed to a wall, since in such a room the only space not needed for headroom is that space above and behind the toilet, which space, as indicated, is unavailable for use because of the provision of an air-vent or window.
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It is, therefore, an object of the present invention at least to
25 mitigate this long outstanding problem.

For reasons of lack of space, particularly where the bathroom is relatively small, it has been customary for users thereof to resort to the use
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of the flush tank cover or lid as a temporary storage spot or support surface for accessories and utilities such as comb and brush, whisk broom, scissors, containers of lotions and cosmetics and so on. It is likewise common practice to assist flush tank cover users by providing various forms of shelves and retaining guards such as are quite popular and are in widespread use. Plastics, rubber and equivalent trays, appropriate fence-like racks and so on are exemplary of the state of the art in use to prevent miscellaneous articles from being displaced from the top surface of the cover and falling into the uncovered bowl of the W.C.

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An improved version of such a tray is described in Patent publication US-A-3,181,176 which relates to an article-retaining band for flush tanks and which claims in combination a toilet flush tank open at its top and provided with a readily applicable and removable lid, a band having a portion thereof snugly encircling a depending marginal edge portion of said lid, means for detachably applying and retaining said band in position on the lid, said band having a portion cooperating with an upper surface of the lid and transforming the same into an article-confining and retaining tray.

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As will be realized, however, this publication and similar ones relating to open trays or fence-like arrangements for the flush tank cover, do not solve the aforementioned problem of the storage of sanitary commodities and do not suggest or teach the presently proposed solution afforded by a cabinet in accordance with the present invention.

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In the past, attempts have been made to design a cabinet to utilize the space above a toilet's flush tank for storage of general bathroom commodities. However, these previous attempts have suffered from one or more disadvantages. In some cases the previous constructions prevented or greatly hindered access to the flushing mechanism within the flush tank. Also, certain of the previous cabinets were designed for use with only one particular form of flush tank and were useless with other forms.

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In recognition of these problems, patent publication US-A-3,093,832 discloses a cabinet which is self-supporting, by means of a plurality of legs, above the flush tank and is provided with a pivotal access panel to enable access to the space between the cabinet and the flush tank and thereby to

the interior of the tank and to the flushing mechanism therein in case of need.

5 As will be realized, such a solution, involving a complicated and expensive assembly of cabinet, legs, swinging panels, and so on, while possibly useful for general storage purposes in bathrooms large enough to accommodate such an assembly, does not satisfy the need for a simple, lightweight and inexpensive means for storing sanitary commodities in bathrooms of limited space.

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Furthermore, as will be realized, cabinets which are self-supported by legs and/or which are adapted for attachment to a wall above the flush tank inherently face their purchaser with the equally disadvantageous choice of either positioning the cabinet at a comfortable accessible height which often will block easy access to the inside of the flush tank, or positioning it high enough to give free access to the flush tank but which high positioning is often too high for comfortable frequent use.

Patent publications US-A-2,170,776, US-A-1,861,802 and US-A-2,099,932, describe and claim trays and cabinets having bottom surfaces adapted to be attached to the top of an open flush tank to form the cover thereof. However, the devices of these publications do not solve the problem of providing a cabinet which can be attached to existing flush tank covers of various sizes, configurations and curvatures, as are found in a majority of homes today and these prior devices involve the manufacture of specifically sized devices to fit specifically sized tanks and/or the wasteful removal of the cover already provided by the manufacturer and paid for by the consumer.

30 Patent publication IL-A-54823 describes and claims a cabinet, especially for storing and dispensing sanitary commodities, characterized in that said cabinet is provided with at least one compartment and at least one latchable door, wherein said latchable door is provided with a shelf attached to the inner side thereof which shelf is provided with a guard wall to form an outwardly openable compartment in the area defined by the inner side of said door, said shelf and said guard wall, for retaining various sized items placed within said compartment and said cabinet is further provided with

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means for attachment of said cabinet atop a bathroom flush tank as an integral unit with the cover thereof, whereby said cabinet and cover are readily removable as a unit to allow access to a flushing mechanism within the flush tank in case of malfunction.

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In this prior publication, however, the attachment means is described as being depending latches and/or flanges usually adapted to grip the flush tank cover to which they are to be attached. Some of the latches are of fixed position and, therefore, limit the attachment of a cabinet provided therewith to a flush tank cover of specific corresponding dimensions. Other preferred variably extendable depending gripping flanges described therein, while useful, add an appreciable manufacturing cost to the cabinets.

Patent publication IL-A-57429 describes and claims a cabinet, especially for storing and dispensing sanitary commodities, said cabinet being provided with at least one compartment and at least one latchable door and being further provided with means for attachment of said cabinet atop a bathroom flush tank as an integral unit with the cover thereof, whereby said cabinet and cover are readily removable as a unit to allow access to a flushing mechanism within the flush tank in case of malfunction, wherein said means for attachment comprise a cushion of yieldably pliable material attachable to the bottom of said cabinet and glueable to the top of said flush tank cover. Thus this prior publication discloses a cabinet for storing and dispensing sanitary commodities, the cabinet being provided with at least one compartment; at least one access door giving access to the compartment; and an attachment means depending from a bottom surface of the cabinet for attachment of the cabinet atop a cover of a W.C. flush tank, to form a single unit with said cover; the cabinet and the cover being readily removable as a unit to allow access to a flushing mechanism within the flush tank.

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After further research and development, it has now been found that the very thickness of the cushion of yieldably pliable material necessary to allow the attachment of the cabinet to flush tank covers of various curvatures has serious disadvantages for long term use. More specifically, it has been found that the strains imposed on the cushion from repeated opening and closing of the cabinet eventually result in the shearing and

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tearing of the cushion. Furthermore, such a cushion tends to gather dust and once the cushion is attached to both the cover and the cabinet there is no ready way of non-destructively separating them. The positioning of such an adhesive cushion on a cover presents further problems described herein-
5 after.

In contradistinction to the prior art cabinets described above and the problems inherent therein, as will be described more fully hereinafter, one aspect of the present invention provides a cabinet for storing and dispensing
10 sanitary commodities, the cabinet being provided with at least one compartment; at least one access door giving access to the compartment; and an attachment means depending from a bottom surface of the cabinet for attachment of the cabinet atop a cover of a W.C. flush tank, to form a single unit with said cover; the cabinet and the cover being readily
15 removable as a unit to allow access to a flushing mechanism within the flush tank; wherein the attachment means comprises a plurality of leg means, the or each leg means having a respective substantially planar surface which is adjustable relative to a plane parallel with the bottom of the cabinet, the cabinet thus being compatibly attachable to W.C. flush tank covers of
20 various sizes, configurations and curvatures.

Preferably the said surface of each attachment means is provided with an adhesive layer.

25 Conveniently each leg means is detachably attachable to the bottom of the cabinet; and a respective cushion of pliable material is attached to the bottom surface of the leg means and is adhesively attachable to the top of the flush tank cover.

30 Suitably each leg means is jointed to facilitate the said adjustability and advantageously the joint comprises a ball and socket joint.

Preferably each attachment means comprises a member detachably attachable to the bottom surface of the cabinet, the member being provided
35 with at least one protruding element extending downwardly therefrom when the member is attached to the bottom of the cabinet, the member and the element being provided with an interconnecting means enabling adjustment

of the distance of protrusion of the element from the member.

Conveniently each ball and socket joint is provided on the element of the respective leg means.

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Suitably the cabinet is substantially parallelepipedal.

Advantageously the said door is a swinging door having a shelf attached to the inner side thereof, which shelf is provided with a guard wall to form an outwardly swingable compartment in the area defined by the inner side of the door, the shelf and the guard wall.

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Preferably the cabinet will be made of lightweight plastic to further augment the ease of removal of the cabinet and the tank cover to which it is attached when necessary and will be of such a size that its chosen depth will not substantially exceed the width of a flush tank cover.

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While arrangements using adhesive attachment of structures to carrier surfaces are known and have been found satisfactory as far as concerns the eventual strength of the adhesive joint and, thus, the immobility of the structure relative to the carrier surface, the very quality of today's adhesives (in the form, for example, of self adhesive pads) has given rise to a new problem: once the adhesive bottom surfaces of the structure have made contact with the carrier surface, the position of the structure on the carrier surface is determined and almost impossible to re-adjust, for instance relative to another adjacent object such as a wall. It was therefore necessary to orientate, position and align these structures with respect to such adjacent objects and/or with respect to the edges of such carrier surfaces before the adhesive leg-bottom surfaces were permitted to make contact with the carrier surface, in other words while the structure was manually held closely above, yet without touching, the carrier surface, an operation which the average user found difficult if not altogether impossible.

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It is therefore a further object of the present invention at least to mitigate the above difficulties and to provide a kit for the attachment of cabinets.

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Thus, the present invention further provides such a kit comprising: a cabinet in accordance with the first aspect of the invention and an aligning and supporting means for facilitating the attachment of the cabinet to the flush tank cover; the aligning and supporting means comprising a first
5 portion at least temporarily attachable to the cabinet and at least one second portion adapted to extend, when the aligning and supporting means is attached as said to the tank cover, beyond the furthest extent of the or each leg means, the aligning and supporting means being sufficiently rigid to support the cabinet above the tank cover surface without the or each leg
10 means contacting the tank cover surface; at least parts of the said second portion of the aligning and supporting means being elastically deformable so that, upon application of pressure on the said deformable parts, the or each leg means of the attachment is allowed to make contact with the tank cover surface.

15 The present invention also provides a method of alignably attaching a cabinet having at least two legs to a W.C. flush tank cover surface wherein each of the said legs has a respective adhesive bottom surface, the method comprising the steps of: providing at least one elastically deformable
20 supporting means to extend between the cabinet and the tank cover surface, which supporting means, in a non-deformed state, extends beyond the adhesive surfaces of the legs; aligning the cabinet on the tank cover surface while the cabinet is temporarily supported by the deformable supporting means; and applying pressure to the cabinet to deform the supporting means
25 to allow the adhesive bottom surfaces of the legs to make contact with the tank cover surface in order to adhere thereto.

30 So that the invention may be more readily understood and so that further features may be appreciated, various cabinets in accordance with the invention will now be described by way of example and with reference to the accompanying drawings, in which:

FIGURE 1 is a perspective view from the front and below of a cabinet in accordance with the present invention;

35 FIGURE 2 is an enlarged partly exploded view of the attachment means shown in Figure 1;

FIGURE 3 is a perspective view towards one bottom corner of a part of the cabinet shown in Figure 1 having four tiltable adjustable legs, each two mounted in a rail-like attachment means;

5 FIGURE 4 is a perspective view of an aligning and supporting means for use in conjunction with the preferred attachment means shown in Figure 2;

10 FIGURE 5 is a front view of a part of the cabinet shown in Figure 3 resting on the alignment means shown in Figure 4, without the legs of the cabinet touching the flush tank cover surface, shown shaded;

15 FIGURE 6 is a view, similar to Figure 5, showing the cabinet after the application of a force which has collapsed the aligning means and has attached the cabinet to the tank cover surface; and

20 FIGURES 7 and 8 are perspective views of other aligning and supporting means forming part of a cabinet in accordance with the invention.

25 It is to be noted that no attempt has been made in the drawings to show structural details of the bathroom cabinet and kit and their constituent parts in more detail than is necessary for a fundamental understanding of the invention, the description taken with the drawings making apparent to those skilled in the art how the several forms of the invention may be embodied in practice.

30 Figures 1 and 2 show a substantially parallelepipedal cabinet 2 having two doors 4, 6 and provided with an attachment means 8 shown in greater detail in Figure 2.

35 The attachment means 8 comprises two rail members 10, each detachably attachable to the bottom surface 12 of the cabinet 2 by insertion of a fixed arm 14 and a springy arm 16 into respective apertures 18 in the bottom 12 of the cabinet 2. Each rail member 10 is provided with two protruding elements 20, extending downwardly from the rail member 10 when attached to the bottom 12 of the cabinet, each element being provided

with a respective interlocking ball 22 and a socket 24 forming a ball joint. The ball joint on each element facilitates the displacement of a respective foot 26 provided on the element relative to planes parallel with the bottom of the cabinet.

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The bottom surface of each foot 26 is provided with an adhesive layer to attach the cabinet to the cover of a W.C. tank, and the adhesive is sufficiently strong to ensure that the cabinet and the cover are readily removable as a single unit to allow access to a flushing mechanism within the flush tank, for example in case of malfunction.

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In preferred embodiments, each protruding element 20 is provided with a respective interconnecting means such as the screw arrangement 28 shown in Figure 2, enabling adjustment of the distance of the foot 26 from the rail member 10.

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To clean the cover of the W.C. tank on which the cabinet is placed, the attachment means may be disengaged by flexing the springy arm 16 of each rail member 10 out of the associated aperture 18, or alternatively the ball and socket of each ball and socket joint may be separated.

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Cabinets in accordance with the present invention can be provided with different storage and dispensing possibilities. Thus, the doors 4 and 6 can be swinging doors having a respective outwardly swinging shelf (not shown) attached thereto and adapted to accommodate a plurality of sanitary tampons with their longitudinal axes in horizontal or vertical array, or one of the doors can be a simple door providing access to a compartment which can accommodate a plurality of aligned sanitary napkins.

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As will be realized, the attachment means shown and equivalents thereof render the cabinet described above compatibly attachable to W.C. flush tank covers of various sizes, configurations and curvatures.

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The adhesive material on the feet 26 can be protected until attachment by means which are known per se, but the adhesive means can result in difficulties in properly aligning and positioning the cabinets before attaching it to the flush tank cover. These difficulties may be overcome as follows.

Figure 3 shows a longitudinal recess in the top surface of the rail member 10 which recess, in conjunction with the bottom surface 12, forms a slot 52, the function of which will be evident from the description hereinafter.

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Figure 4 shows a preferred aligning and supporting means 54 to be used for the adhesive mounting of the cabinet 2, comprising a first portion 56 which, up to an abutment 58, fits the slot 52. The second portion is in the form of a two-pronged fork with diverging prongs 60. These prongs lie in a plane which, as is best seen in Figure 5, forms an angle larger than 90° with the plane of the first portion 56.

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The first stage of attaching the cabinet 2 to a W.C. flush tank cover surface 46 is illustrated in Figure 5. Two aligning and supporting means 54 are used, one for each attachment means 8, and are slipped into their respective slots 52 up to the abutment 58. The cabinet 2 with the alignment means 54 thus attached is now put onto the tank cover surface 46 and is temporarily supported by the aligning means 54 above, yet quite near to, this surface 46. The cabinet is thus now easily aligned and positioned.

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Alignment having thus been accomplished, the next step, that is final adhesive attachment to the surface 46, is shown in Figure 6. Pressure applied in direction of arrow C will flex, that is to say elastically deform, the prongs 60 of the aligning means thereby allowing the adhesive surfaces of the feet 26 to make contact with the tank surface 46 and to adhere thereto.

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The cabinet 2 being now securely attached to the surface 46, the aligning and supporting means 54 can be removed from their slots 52.

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It will be realized that other auxiliary aligning and supporting means can also be used in the present invention such as those illustrated in Figures 7 and 8.

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Figure 7 shows a modified aligning and supporting means 39, having a first portion 40 provided with a tang 42 which fits the slot 52 and, when introduced into the slot, keeps the entire means 39 in position relative to

the rail member 10 and the bottom 12 of the cabinet. A second portion is in the form of two flat-spring-like wings 44, one on each side of the first portion 40 and integrally attached thereto. These wings 44, which are elastically deformable, the entire aligning means 39 being preferably made from a plastics material, slant outwards and downwards.

As with the aligning means 54 shown in Figure 4, the wings 44 of the modified aligning means 39 are of such dimensions as to extend beyond the adhesive bottom of the feet 26 and, therefore, prevent the latter from making contact with the flush tank cover surface 46. Obviously, the two aligning means 39 must be rigid enough to support the weight of the entire structure and to maintain a sufficient distance between the adhesive surface of the foot 26 and the tank cover surface 46. Being thus safely supported above, yet quite near to, the tank cover surface 46, the cabinet is now easily aligned and positioned, for example relative to a wall and/or to one or more edges of the tank cover surface 46 itself.

Alignment having been accomplished, the next step is final attachment to the tank cover 46, in a manner analogous to that described with reference to Figure 6.

Another even simpler aligning means is shown in Figure 8 and comprises a flat spring 62 bent to form a sinuous "C" shape. A first end 64 of the spring 62 is introduced into a slot or catch similar to the slot 52 shown in Figure 3, and the second end 66 of the spring 62 fixed to a base plate 68 for greater stability. Alternatively the first end 64 may be fitted with another base plate (not shown), making it possible to use the aligning and supporting means without the need to provide a complementary slot such as slot 52. Other means for temporarily attaching the aligning and supporting means of the present invention to a bathroom cabinet to be supported, for example a magnetic means, could alternatively be utilized.

Preferably at least one of the doors 4, 6 is a swinging door having a shelf attached to the inner side thereof, which shelf is provided with a guard wall to form an outwardly swingable compartment in the area defined by the inner side of the door, the shelf and the guard wall for retaining items of various sizes placed within the outwardly swingable compartment.

The doors of the cabinet have been described as swinging doors with or without attached compartment, but it will be realized that the doors can also form part of a slidable door if desired.

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CLAIMS

1. A cabinet for storing and dispensing sanitary commodities, the cabinet being provided with at least one compartment; at least one access
5 door giving access to the compartment; and an attachment means depending from a bottom surface of the cabinet for attachment of the cabinet atop a cover of a W.C. flush tank, to form a single unit with said cover; the cabinet and the cover being readily removable as a unit to allow access to a flushing mechanism within the flush tank; wherein the attachment means
10 comprises a plurality of leg means, the or each leg means having a respective substantially planar surface which is adjustable relative to a plane parallel with the bottom of the cabinet, the cabinet thus being compatibly attachable to W.C. flush tank covers of various sizes, configurations and curvatures.
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2. A cabinet as claimed in claim 1 wherein the said surface of each attachment means is provided with an adhesive layer.
3. A cabinet as claimed in claim 1 or 2 wherein each leg means is
20 detachably attachable to the bottom of the cabinet; and a respective cushion of pliable material is attached to the bottom surface of the leg means and is adhesively attachable to the top of the flush tank cover.
4. A cabinet as claimed in any one of the preceding claims wherein each
25 leg means is jointed to facilitate the said adjustability.
5. A cabinet as claimed in claim 4 wherein the joint comprises a ball and socket joint.
- 30 6. A cabinet as claimed in any one of the preceding claims wherein each attachment means comprises a member detachably attachable to the bottom surface of the cabinet, the member being provided with at least one protruding element extending downwardly therefrom when the member is attached to the bottom of the cabinet, the member and the element being
35 provided with an interconnecting means enabling adjustment of the distance of protrusion of the element from the member.

7. A cabinet as claimed in claim 6 when dependent on claim 5, wherein each ball and socket joint is provided on the element of the respective leg means.

5 8. A cabinet according to any one of the preceding claims wherein the cabinet is substantially parallelepipedal.

9. A cabinet according to any one of the preceding claims wherein the said door is a swinging door having a shelf attached to the inner side
10 thereof, which shelf is provided with a guard wall to form an outwardly swingable compartment in the area defined by the inner side of the door, the shelf and the guard wall.

10. A kit comprising: a cabinet according to any one of the preceding
15 claims and an aligning and supporting means for facilitating the attachment of the cabinet to the flush tank cover; the aligning and supporting means comprising a first portion at least temporarily attachable to the cabinet and at least one second portion adapted to extend, when the aligning and supporting means is attached as said to the tank cover, beyond the furthest
20 extent of the or each leg means, the aligning and supporting means being sufficiently rigid to support the cabinet above the tank cover surface without the or each leg means contacting the tank cover surface; at least parts of the said second portion of the aligning and supporting means being elastically deformable so that, upon application of pressure on the said
25 deformable parts, the or each leg means of the attachment is allowed to make contact with the tank cover surface.

11. A kit as claimed in claim 10 wherein the said first portion of the aligning and supporting means is attachable to the cabinet by being at least
30 partly introduced into a recess in a bar-like member of the attachment means of the cabinet.

12. A kit as claimed in claim 10 or 11 wherein the said second portion of the aligning and supporting means is in the form of two flat-spring-like
35 wings, a respective one on each side of the said first portion and integrally attached thereto, the wings slantingly diverging from the first portion and extending to points beyond the leg means of the attachment means.

13. A kit as claimed in claim 10 or 11 wherein the said first portion of the aligning and supporting means is substantially planar and the said second portion is in the form of a fork having two diverging prongs, which prongs lie in a plane which forms, with the plane of the first portion, an angle larger than 90°.

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14. A method of alignably attaching a cabinet as claimed in claim 1 having at least two legs to a W.C. flush tank cover surface wherein each of the said legs has a respective adhesive bottom surface, the method comprising the steps of: providing at least one elastically deformable supporting means to extend between the cabinet and the tank cover surface, which supporting means, in a non-deformed state, extends beyond the adhesive surfaces of the legs; aligning the cabinet on the tank cover surface while the cabinet is temporarily supported by the deformable supporting means; and applying pressure to the cabinet to deform the supporting means to allow the adhesive bottom surfaces of the legs to make contact with the tank cover surface in order to adhere thereto.

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Fig. 1.

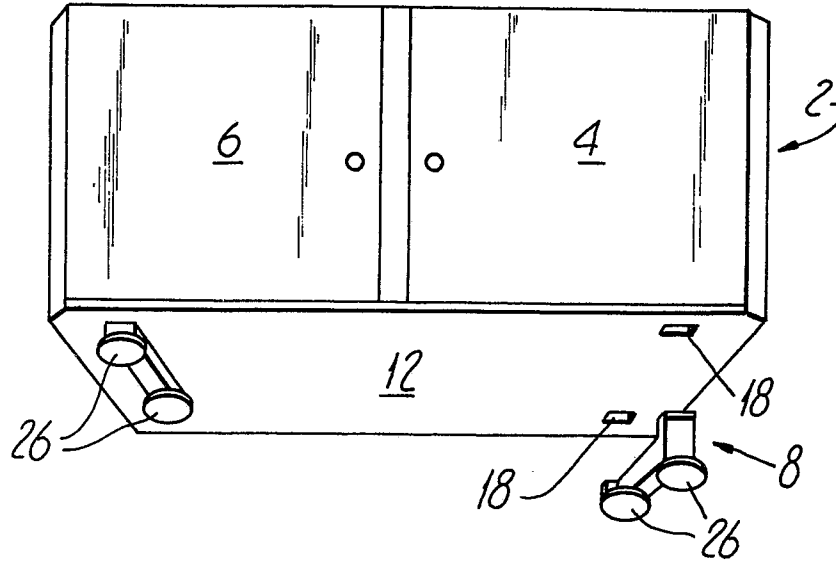


Fig. 2.

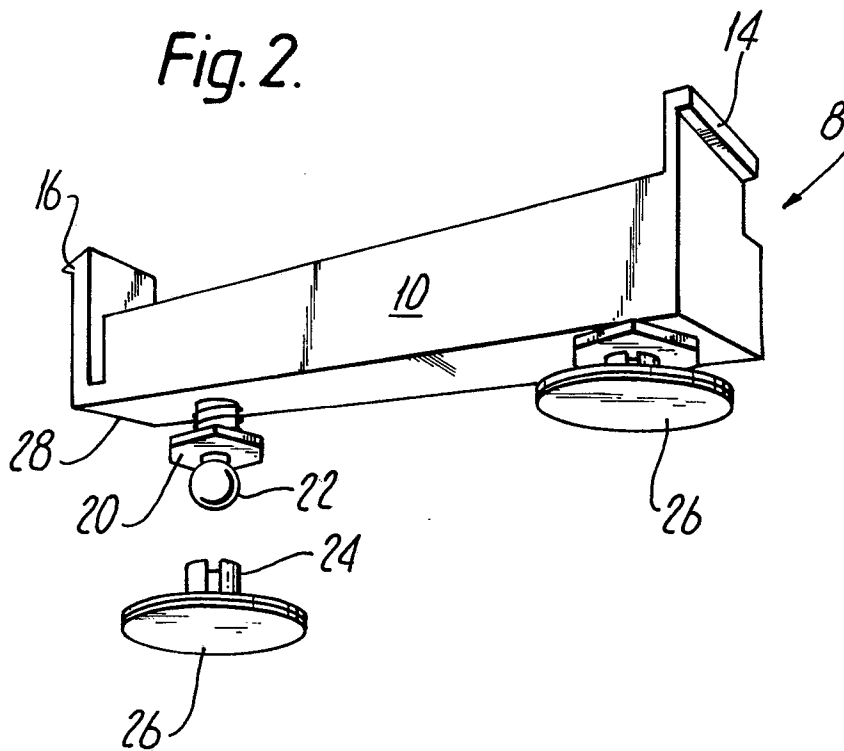


Fig. 3.

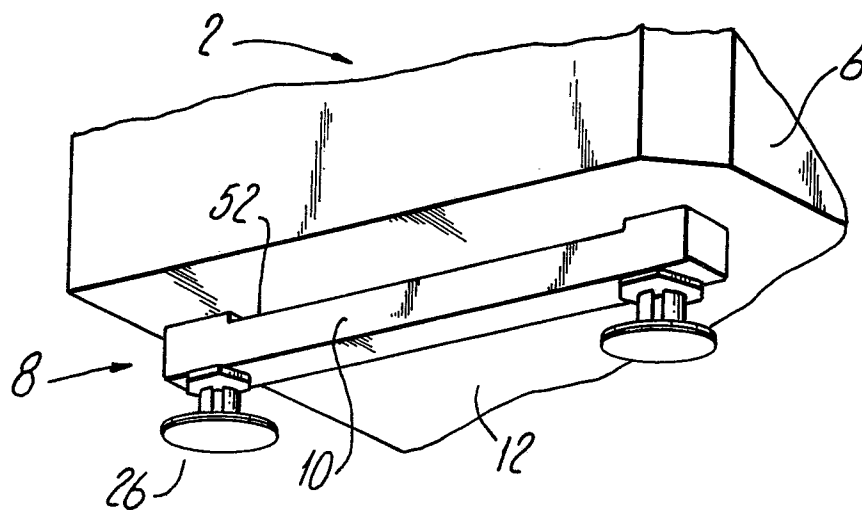


Fig. 4.

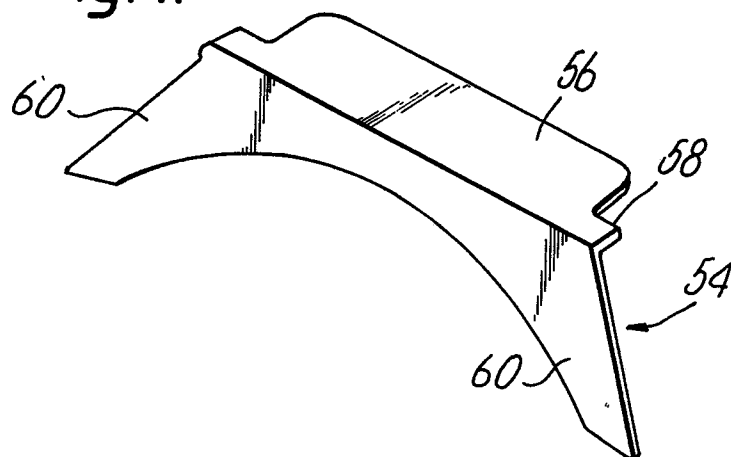
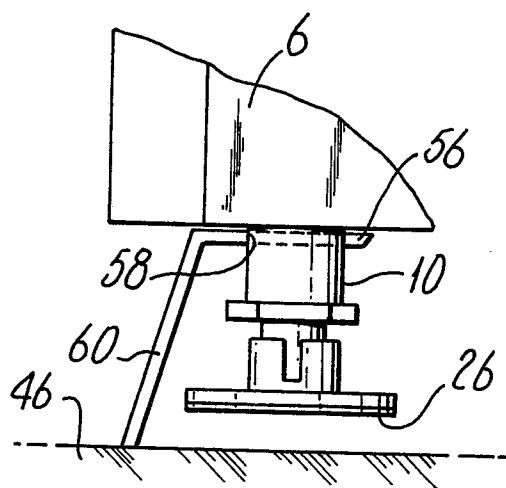


Fig. 5.



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