(57) **Abrégé/Abstract:**
A container having a body convertible from a fully collapsed configuration to a fully expanded configuration, the body comprising a substantially rigid rim extending about at least a most of the upper edges of front, back and side walls, a substantially rigid bottom member and a flexible middle section extending around of the front, back and side walls between the substantially rigid rim and the substantially rigid bottom member, said flexible middle section including two or more living hinges, wherein when the body is in its fully open configuration the side walls at the front wall have a height less than the side walls at the back wall and the living hinges diverge as they extend from the front wall to the back wall.
ABSTRACT

A container having a body convertible from a fully collapsed configuration to a fully expanded configuration, the body comprising a substantially rigid rim extending about at least a most of the upper edges of front, back and side walls, a substantially rigid bottom member and a flexible middle section extending around of the front, back and side walls between the substantially rigid rim and the substantially rigid bottom member, said flexible middle section including two or more living hinges, wherein when the body is in its fully open configuration the side walls at the front wall have a height less than the side walls at the back wall and the living hinges diverge as they extend from the front wall to the back wall.
ANGLED COLLAPSIBLE CONTAINER

FIELD OF THE INVENTION

The present invention relates to kitchen accessories, and more particularly to a collapsible container which, when in an open configuration, has a front wall that is of a lower height than a back wall.

BACKGROUND OF THE INVENTION

Some types of containers may be suited for a configuration where the front wall is lower than the back wall. For example, bins for storage of multiple small items on shelves may have a lower front to permit the user to see into and remove the items contained therein without removing the bin from the shelf. Additionally, items such as dust pans or scoops are configured with a lower front wall than back wall, even if the front wall is nothing more than the height of the thinnest material making up the bottom of the item.

The use of containers with a lower front wall than back wall may also be expanded into items that are not commonly known to have a lower front wall than back wall. For example, most dish racks have front, back and side walls that are of the same height, with a notable exception being found in U.S. Patent No. 2,954,875, which includes a side wall having an inwardly and downwardly shaped side wall only in the area immediately adjacent the front wall.

With particular respect to dish racks, when washing dishes alone, i.e., when there is not one person washing and a second person drying, it is usually impractical to dry a dish or utensil after it is washed and before washing the next. Therefore, dish racks have been widely used to stack
washed dishes and utensils prior to drying, allowing the wet dishes and utensils to drip while the person washing the dishes and utensils complete all of the items to be washed prior to drying.

For ease of reference, dishes and utensils, as well as bowls, cups, pots and pans and/or other related items generally washed by hand in a kitchen environment, will be hereinafter referred to as items. In some instances the terms “dishes” will be used to refer generally to dishes, bowls, cups, pots, pans, and the like and “utensils” will be used to refer generally to knives, spoons, forks, serving spoons, ladles, spatulas, scissors and the like.

However, dish racks, like other containers that may be manufactured to have lower front and higher back walls, are well known in the art to usually be bulky items that are difficult to store when not in use. For this reason, many people leave a dish rack on the counter next to the sink rather than find a place to store it. Of course, this may be considered visually unappealing when entertaining guests or even when the owner seeks to maintain an uncluttered kitchen.

Because of this, dish racks have been designed that can be folded or disassembled into smaller items. Examples of folding dish racks can be found in U.S. Patent No. 4,221,299 and U.S. Patent Application Publication No. 2008/0283480. In these types of devices, the dish racks are made of a plurality of components, at least some of which are pivotally connected, so that pivoting the component parts changes the device from a stored configuration to an open configuration capable of accepting wet items to drip.

Other attempts to provide a dish rack that can be adapted into a closed configuration are seen in U.S. Design Patent Nos. D586,061 and D599,069. These devices, however, generally have an even height about the top edge of the front, back and side walls and either fit over a sink, making
it difficult to wash dishes in a smaller area, or sit on a counter, where the items need to be lifted over
the walls of the device to place them into or remove them from the dish rack.

Notwithstanding the above, there is a need for a better container having a lower front wall
than back wall, which can be stored in smaller spaces and can allow the user to easily place items
into and remove items from the container.

SUMMARY OF THE INVENTION

The present invention is directed to a container having a body convertible from a fully
closed or collapsed configuration to a fully open or expanded configuration, said body comprising a
front wall, a back wall, a first side wall, a second side wall and an internal floor, each of the front,
back and side walls having an upper edge and a lower edge, wherein when the container is in its
fully open configuration the front wall has a height less than a height of the back wall, said body
having a substantially rigid upper rim extending about at least a majority of the sum of the upper
edges of the front, back and side walls, a substantially rigid bottom member and a flexible middle
section extending around a majority of the sum of the front, back and side walls between the
substantially rigid rim and substantially rigid bottom member, said flexible middle section including
two or more living hinges which diverge as they extend from the front wall to the back wall.

More particularly, and to ensure that the height of the front wall and the height of the back
wall are properly described even if not uniform across the entire front and back walls, it is
understood that the description includes a container wherein, when the body is in its fully expanded
configuration, the side walls at the front wall have a height less than the side walls at the back wall
and the living hinges diverge as they extend from the front wall to the back wall.
In summarizing the invention, it should be understood that the reference to a wall can refer to an element that has a height no greater than the thickness of the floor or bottom of the container. This is especially important when the container is in the form of a dust pan or scoop, where the front wall having as shallow a dimension as possible may be preferred. Notwithstanding, the present invention contemplates that the height of the front wall at the side walls is less than the height of the back wall at the side walls, and preferably that the entire front wall has a height which is less than the average height of the back wall, and most preferably that the height of the entire front wall is less than the height of any portion of the back wall.

Moreover, the front, back and side walls may themselves form a foundation at the lower edge related to the bottom member on which the container can rest. Optionally, a base, feet or legs may be included on the underside of the bottom member of the container. Therefore, instead of merely resting the bottom member of the container on a surface, the container can rest on feet or a base when placed on a horizontal surface such as a counter, shelf, floor or the like.

Moreover, the walls need not be vertical to fall within the spirit of the invention, with at least the back and side walls preferably extending farther outward, away from the interior of the container, as they extend upward from the bottom member when in a fully open configuration. Of course, the front wall may be formed to angle inward as it extends upward, especially when used as a dust pan, scoop or the like, to more easily accept contents being moved into the container across the front wall, or the wall may have a feature formed thereon or connected thereto with such and inward angle.

The container may have an outwardly extending portion on the rim for the user to be able to lift, support or move the container, for ease of handling the container in either an open or closed
configuration. Alternatively, the container may include a handle, preferably incorporated into the rim, for lifting, supporting or moving the container in an open or closed configuration.

In a particular version of the angled collapsible container, the present invention is directed to a dish rack having a body convertible from a fully closed or collapsed configuration to a fully open or expanded configuration, said body comprising a front wall, a back wall, a first side wall, a second side wall and a floor, each of the front, back, first side wall and second side wall having an upper edge and a lower edge, wherein when the dish rack is in its fully open configuration, the front wall has a height less than a height of the back wall, said body having a substantially rigid upper rim extending about at least a majority of the sum of the upper edges of the front, back and side walls, a substantially rigid bottom member and a flexible middle section extending about at least a majority of the sum of the front, back and side walls between the substantially rigid rim and substantially rigid bottom member, said flexible middle section including two or more living hinges which diverge as they extend from the front wall toward the back wall.

In the preferred embodiment, the living hinges on the flexible middle section are provided on at least a portion of the side walls but not on the front wall. This embodiment permits the side and rear walls to collapse according the respective heights, leaving the collapsed container substantially flat from front to back. Most preferably, the side and rear walls permit the container to collapse with the respective heights of the side and rear walls to be lower than the height of the rigid rim when viewed from a side elevation.

The rim of the dish rack preferably includes an outwardly extending portion at the upper edge for the user to be able to lift, support or move the container, for ease of handling the container in either an open or closed configuration.
The dish rack preferably includes a removable tray, with raised retention features and drain holes, and/or a removable utensil holder to hold and separate items placed in the dish rack. The tray and/or utensil holder are preferably removable from the body to ease the cleaning of the dish rack, including the ability to place the body, tray and utensil holder in a dishwasher for cleaning.

The tray preferably fits over the entire floor of the body. Raised detents, preferably formed either on the bottom surface of the tray or on the top surface of the floor of the body, are contemplated to allow water dripping from the wet items placed in the dish rack and through the drain holes to rest on the floor of the dish rack without touching the items drying. The utensil holder preferably includes holder retention members that engage cooperating body retention members to retain the utensil holder, preferably near the top of the dish rack, when installed.

It is also preferred that the front wall of the body have a convertible front lip which can be adapted from a drain position, where the front lip is lower than the floor of the body so as to permit the water to drain out of the body into an adjacent sink, to a dam position, where the front lip is higher than the floor of the body to retain water that has dripped from the wet items in the body.

Of course, the container of the present invention formed as a bin would be substantially the same as the dish rack, however, the tray and/or utensil holders would likely not be needed. Notwithstanding, internal elements may be incorporated in the bin, such as dividers, shelves or the like that are commonly used with bins.

Although the substantially rigid rim can be formed of a plastic material with a smooth finish, it is preferred that the lower edge or surface of the substantially rigid bottom member, or any base formed below the substantially rigid bottom, include a lower edge, surface or feet coated with an elastomeric material, such as a thermoplastic elastomeric material as would be used for the middle
section. Such an elastomeric coating on the lower edge, surface or feet of the bottom or base is intended to keep the container from slipping on a surface, such as a countertop, on which the container may be used.

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BRIEF DESCRIPTION OF THE DRAWINGS

The attached drawings are intended to better illustrate a preferred embodiment of the present invention without limiting the invention in any manner whatsoever.

Fig. 1 is a perspective view of the container of the present invention in the embodiment of a dish rack in its fully open configuration.

Fig. 2 is a side view of the container of the present invention in the embodiment of a dish rack in its fully open configuration.

Fig. 3 is a perspective view of the container of the present invention in the embodiment of a dish rack in its fully open configuration with its tray and utensil holder removed.

Fig. 4 is a perspective view of the tray of the container of the present invention in the embodiment of a dish rack.

Fig. 5 is a perspective view of the utensil holder of the container of the present invention in the embodiment of a dish rack.

Fig. 6 is a side view of the container of the present invention in the embodiment of a dish rack in its fully closed configuration.

Fig. 7 is a side view of the container of the present invention in the embodiment of a scoop in its open configuration.
Fig. 8 is a perspective view of the container of the present invention in the embodiment of a scoop as shown in Fig. 7.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following description of preferred embodiment is presented to describe the present invention and is not to be construed to limit the scope of the invention in any manner whatsoever.

As best shown in the drawings, and particularly Figs. 1, 2, 3 and 6, the preferred embodiment of the present invention is directed to a container 2 having a body 4 convertible from a fully collapsed configuration to a fully expanded configuration. The body 4 comprises a front wall 6, a back wall 8, a first side wall 10, a second side wall 12 and a floor 14, each of the front 6, back 8 and side walls 10, 12 having an upper edge 16 and a lower edge 18, wherein when the container 2 is in its fully open configuration, the front wall 6 has a height from the lower edge 18 to the upper edge 16 that is less than a height from the lower edge 18 to the upper edge 16 at the back wall 8.

The body 4 also has a substantially rigid upper rim 20 extending about at least a majority of the sum of the upper edges 16 of the front 6, back 8 and side walls 10, 12, a substantially rigid bottom member 22 and a flexible middle section 24 extending about a majority of the sum of the front 6, back 8 and side walls 10, 12 between the substantially rigid rim 20 and substantially rigid bottom member 22. The flexible middle section 24 is preferably formed of a thermoplastic elastomeric material and includes two or more living hinges 26 which diverge as they extend from the front wall 6 to the back wall 8.
The rim 20 of the body 4 is shown to include an outwardly extending portion 28 (see Fig. 2 or 6) about at least a portion of the rim 20 for the user to be able to lift, support or move the container 2, for ease of handling the container 2 in either an open or closed configuration. Alternatively, the container 2 may include a handle 50, preferably incorporated into or with the rim, for lifting, supporting or moving the container 2 when in either an open or closed configuration.

The preferred embodiment shown in Figs. 1-6, which can be any container such as dish rack or bin that is intended to rest on a flat surface, also includes a base 30 on the bottom member 22 for resting the container 2 on a horizontal surface. Of course, such a container 2 that is intended to rest on a flat surface does not require a base 30 but can rest on the bottom member 22, with or without an elastomeric material covering, or have other stand members as a matter of design choice. In this regard, it is understood that stand members other than a base 30 can include feet, legs, bumpers or the like (not shown) which can be incorporated on the container 2 and preferably on or into the bottom member 22.

In the preferred embodiment, rim 20 and bottom 22 are formed of a substantially rigid plastic, and preferably an acrylonitrile butadiene styrene (ABS), and the middle portion 24 is formed of a flexible elastomeric material, preferably a thermoplastic elastomeric material. Although the rim 20 and bottom member 22 can be formed of a plastic material with a smooth finish, it is preferred that the bottom surface of the bottom member 22, or any base 30, feet, legs or bumpers formed below the bottom member 22, have an elastomeric coating, preferably of a thermoplastic elastomeric material as used for the flexible middle section 24, to keep the container 2 from slipping on a surface, such as a countertop, when in use.
The living hinges 26 on the flexible middle section 24 are provided on at least a portion of the side walls 10, 12 but preferably not on the front wall 6, or at least not on the entire front wall 6, diverging as the living hinges 26 extend from at or near the front wall 6 toward the back wall 8. This embodiment permits the side walls 10, 12 and rear wall 8 to collapse according the respective heights, leaving the collapsed container 2 substantially flat from the front wall 6 to the back wall 8 (see Fig. 6). Especially preferred is where the respective heights of the side walls 10, 12 and rear wall 8 are less than the height of the upper edge 16 of the rim 20 when in its collapsed configuration, as shown in Fig. 6.

The container 2 can include any additional elements that may be desired for particular uses. As shown here, the container 2 can be used as a dish rack, which preferably includes a removable tray 32, with raised retention features 34 and drain holes 36, and/or a removable utensil holder 38 to hold and separate items placed in the dish rack. The tray 32 and/or utensil holder 38 are preferably removable from the body 4 to ease the cleaning of the dish rack and its component parts, including the ability to place the body 4, tray 32 and utensil holder 38 into a dishwasher for cleaning.

The tray 32, best seen in Figs. 1 and 4, preferably fits over the entire floor 14 of the body 4. Raised detents 40, preferably formed either on the bottom surface of the tray 32 (not shown) or on the top surface of the floor 14 of the body 4 (shown in Fig. 3), are contemplated to allow water dripping from the wet items placed on the tray 32 and through the drain holes 36 to rest on the floor 14 of the dish rack without touching the items drying.

The preferred removable utensil holder 38 (shown in Fig. 5), includes one or more dividers 42 to help maintain taller items in a substantially vertical orientation. The preferred
utensil holder 38 includes holder retention members 44 that engage cooperating body retention members 46 on the body 4 to retain the utensil holder 38 on the body 4. The body retention members 46, as shown in Fig. 3, are preferably placed on the rim 20 near the top of the dish rack, so that the distance from the tray 32 to the utensil holder 38 is maximized when installed.

It is also preferred that the container 2, when used as a dish rack, have a convertible front lip 48 on at least a portion of the front wall 8 of the body 4 that can be adapted from a drain position, where the front lip 48 is lower than the floor 14 of the body 4 so as to permit the water to drain out of the body 4 into an adjacent sink, to a dam position, where the front lip 48 is higher than the floor 14 of the body 4 to retain water that has dripped from the wet items onto the floor 14 of the body 4.

As shown in Figs. 7 and 8, the container 2 can be used with a handle 50 when in the form of a scoop, dustpan or the like. In these embodiments, there may be a reduced need for the rim 20 to diverge outwardly for lifting the container 2, since the handle 50 may be used to lift and manipulate the container 2. Moreover, there may be a reduced need for the use of a base 30, feet or bumpers on the rigid bottom member 22, since it is not anticipated that there will be a need to stand these items on the rigid bottom 22. Instead, the handle 50 would preferably include a hang hole 52 to hang the scoop or dust pan when collapsed and not in use. Notwithstanding, the container 2 side walls 10, 12 and rear wall 8 are less than the height of the upper edge 16 of the rim 20 when in its collapsed configuration, as described above.

Variations, modifications and alterations to the above detailed description will be apparent to those skilled in the art. All such variations, modifications and/or alternatives are
intended to fall within the scope of the present invention, limited only by any allowed claims.

All cited patents and publications are hereby incorporated by reference.
WE CLAIM:

1. A dish rack comprising a body convertible from a fully collapsed configuration to a fully expanded configuration, said body comprising a front wall, a back wall, a first side wall, a second side wall, a substantially rigid rim extending about at least a majority of a sum of upper edges of the front, back and side walls, a substantially rigid bottom member and a flexible middle section extending around a majority of a sum of the front, back and side walls between the substantially rigid rim and the substantially rigid bottom member, said flexible middle section including two or more living hinges on the side walls, wherein when the body is in its fully expanded configuration the side walls at the front wall have a height less than the side walls at the back wall and the living hinges diverge as they extend from the front wall to the back wall.

2. The dish rack of Claim 1 further comprising a removable tray comprising drain holes.

3. The dish rack of Claim 2 wherein the removable tray further comprises one or more retention members for holding items on the removable tray.

4. The dish rack of Claim 2 wherein the body further comprises an internal floor and the tray covers the entire internal floor of the body.

5. The dish rack of Claim 2 further comprising one or more detents between an internal floor of the body and the bottom surface of the tray to raise a bottom surface of the tray above a top surface of the floor.

6. The dish rack of Claim 1 further comprising a utensil holder.

7. The dish rack of Claim 1 wherein the body further comprises an internal floor and the front wall comprises a front lip, wherein the lowest point of the front lip is lower than the internal floor to permit water to drain from the internal floor.
8. The dish rack of Claim 7 wherein the front lip is convertible from a drain position, where the front lip is lower than the internal floor of the bottom member, to a dam position, where the front lip is higher than the internal floor of the bottom member.

9. The dish rack of Claim 1 wherein the rigid rim extends outwardly as it extends upwardly.

10. The dish rack of Claim 1 further comprising stand members on which the body rests, said stand members taken from the group consisting of a base, one or more feet, one or more legs and one or more bumpers.

11. The dish rack of Claim 10 wherein the stand members are formed at least in part of an elastomeric material.

12. The dish rack of Claim 1 wherein the side walls and rear wall have respective heights that are less than the height of the upper edges of the side walls and rear wall when the body is in its fully collapsed configuration.

13. A bin comprising a body convertible from a fully collapsed configuration to a fully expanded configuration, said body comprising a front wall, a back wall, a first side wall, a second side wall, a substantially rigid rim extending about at least a majority of a sum of upper edges of the front, back and side walls, a substantially rigid bottom member and a flexible middle section extending around a majority of a sum of the front, back and side walls between the substantially rigid rim and the substantially rigid bottom member, said flexible middle section including two or more living hinges on the side walls, wherein when the body is in its fully expanded configuration the side walls at the front wall have a height less than the side walls at the back wall and the living hinges diverge as they extend from the front wall to the back wall.
14. The bin of Claim 13 further comprising dividers within the bin.

15. The bin of Claim 13 wherein the rigid rim extends outwardly as it extends upwardly.

16. The bin of Claim 13 further comprising stand members on which the body rests, said stand members taken from the group consisting of a base, one or more feet, one or more legs and one or more bumpers.

17. The bin of Claim 16 wherein the stand members are formed at least in part of an elastomeric material.

18. The bin of Claim 13 wherein the side walls and rear wall have respective heights that are less than the height of the upper edges of the side walls and rear wall when the body is in its fully collapsed configuration.

19. A container comprising a body convertible from a fully collapsed configuration to a fully expanded configuration and a handle, said body comprising a front wall, a back wall, a first side wall, a second side wall, a substantially rigid rim extending about at least a majority of a sum of upper edges of the front, back and side walls, a substantially rigid bottom member and a flexible middle section extending around a majority of a sum of the front, back and side walls between the substantially rigid rim and the substantially rigid bottom member, said flexible middle section including two or more living hinges on the side walls, wherein when the body is in its fully expanded configuration the side walls at the front wall have a height less than the side walls at the back wall and the living hinges diverge as they extend from the front wall to the back wall and further wherein the handle extends from the rigid rim in the area of the back wall.
20. The container of Claim 19 wherein the side walls and rear wall have respective heights that are less than the height of the upper edges of the side walls and rear wall when the body is in its fully collapsed configuration.