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(54) SHEET PRODUCT DISPENSER

(75) Inventor: **Robert W. Cornell**, Rothschild, WI (US)

Correspondence Address:
Georgia-Pacific LLC
133 Peachtree Street NE - GA030-41
ATLANTA, GA 30303 (US)

(73) Assignee: **GEORGIA-PACIFIC CONSUMER PRODUCTS LP**, Atlanta, GA (US)

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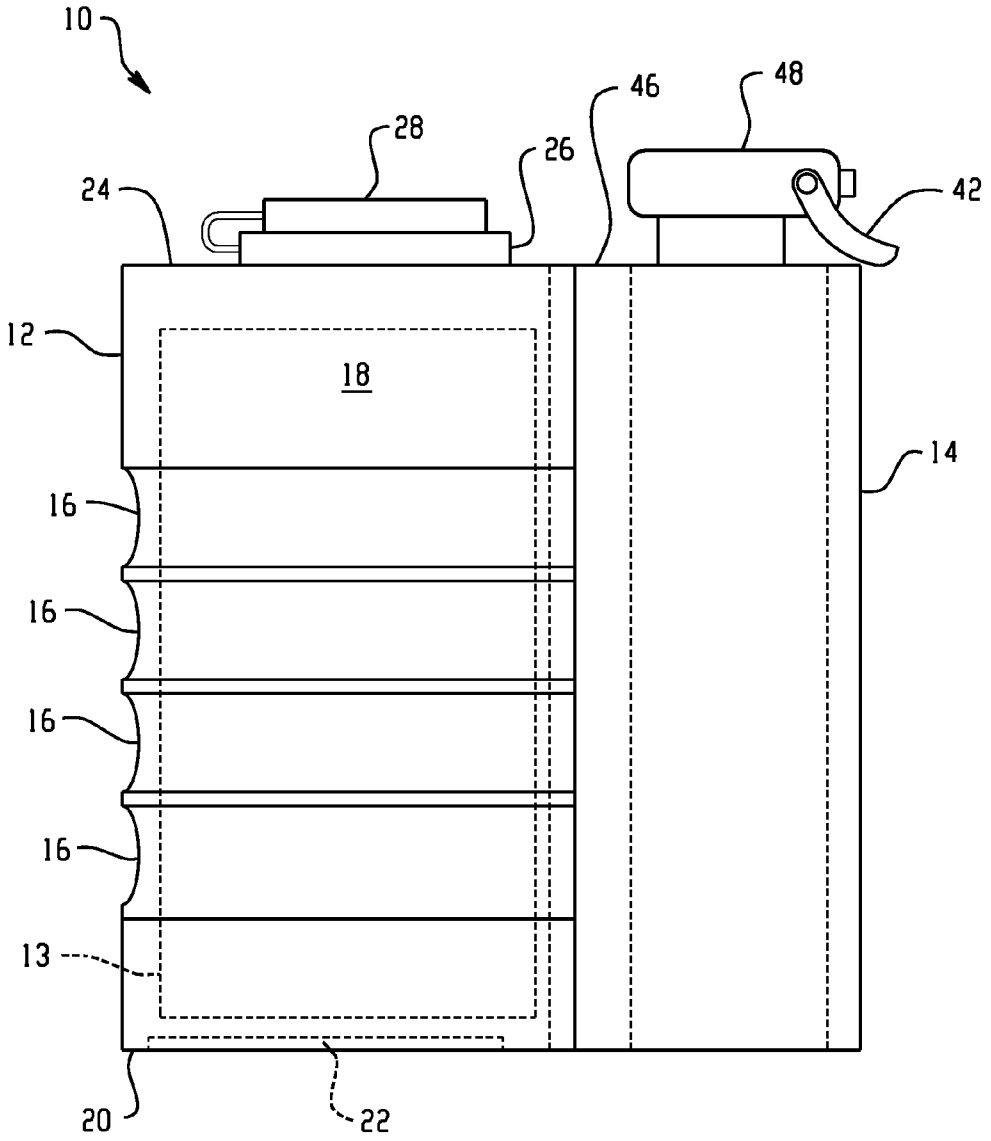
(57) **ABSTRACT**

A combined liquid and sheet product dispenser is provided. The dispenser includes an enclosure for holding sheet products. A container is also provided for holding liquid solutions. The enclosure and containers each include retaining features that cooperate to allow the enclosure and container to be removably interlocked. A set of dispensers is also provided that may be stored or packaged in an interlocked manner to minimize storage space.



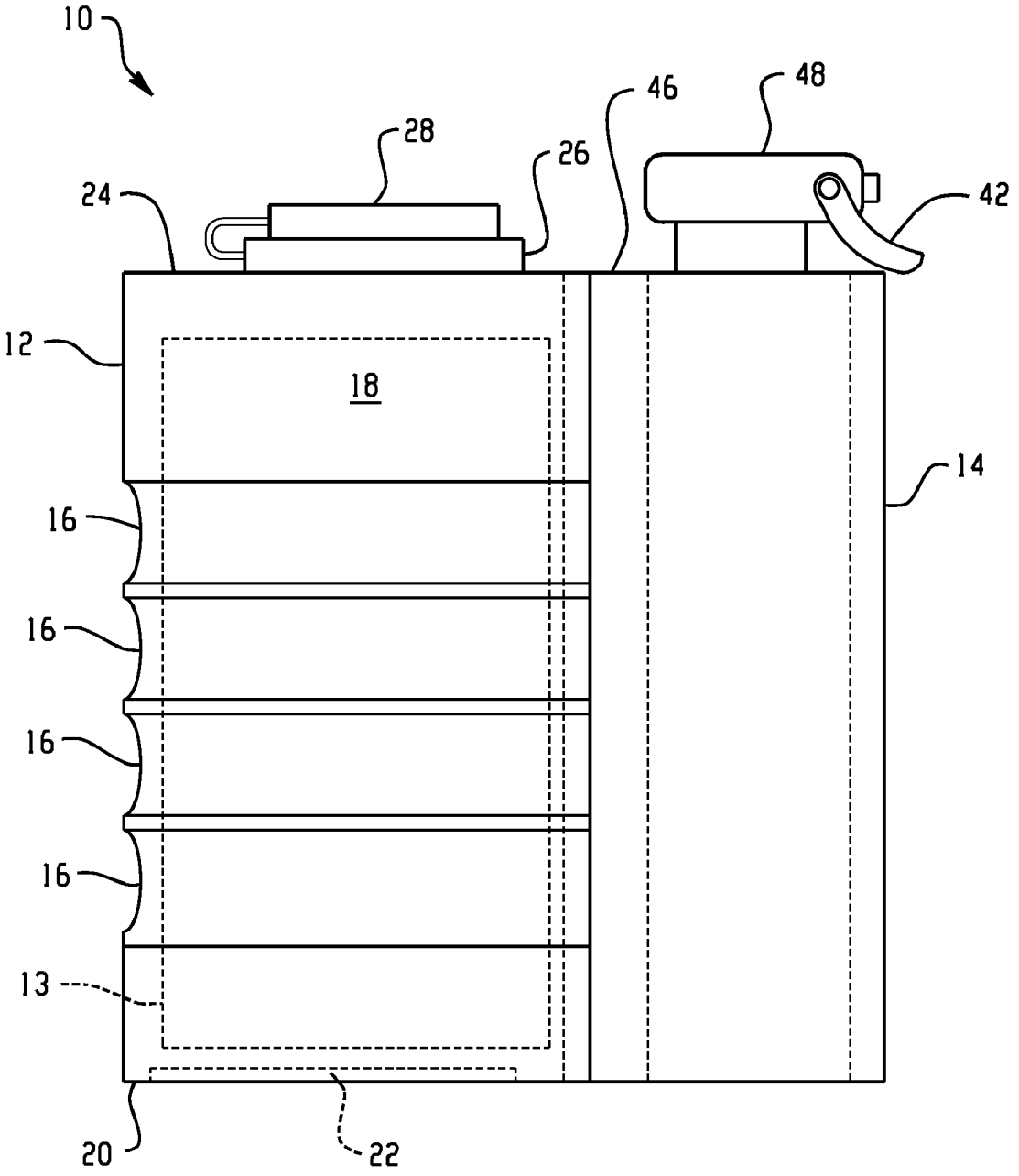


Fig. 1

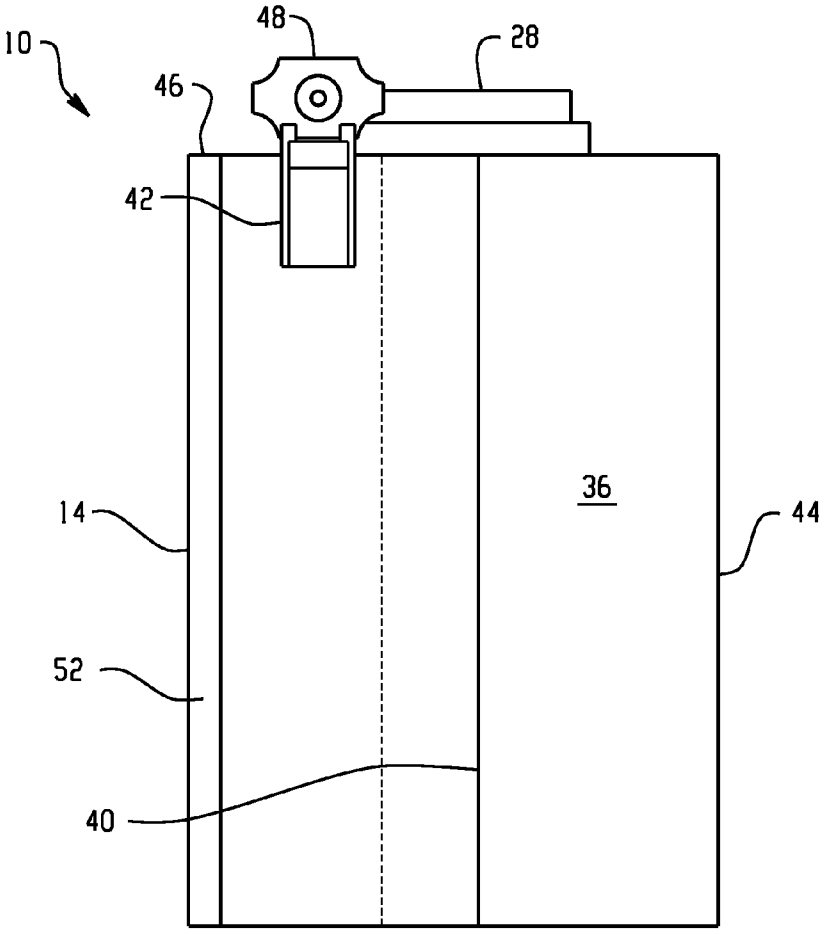


Fig. 2

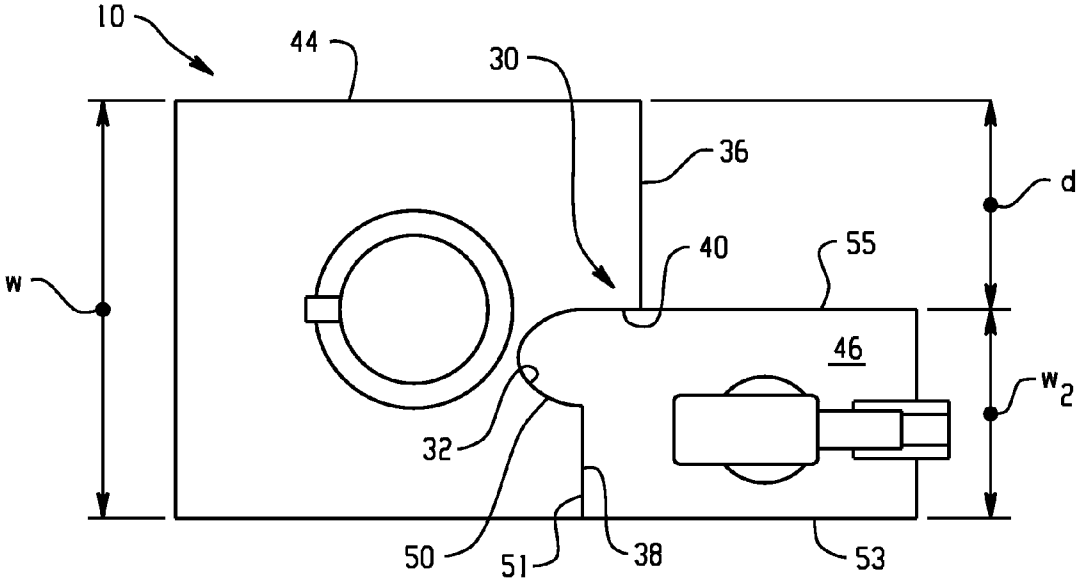


Fig. 3

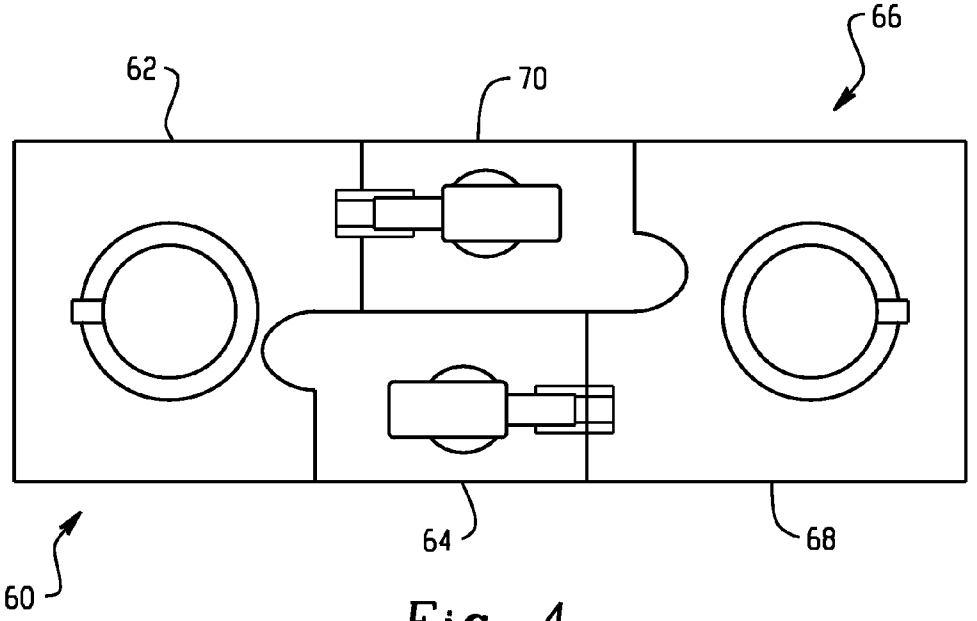


Fig. 4

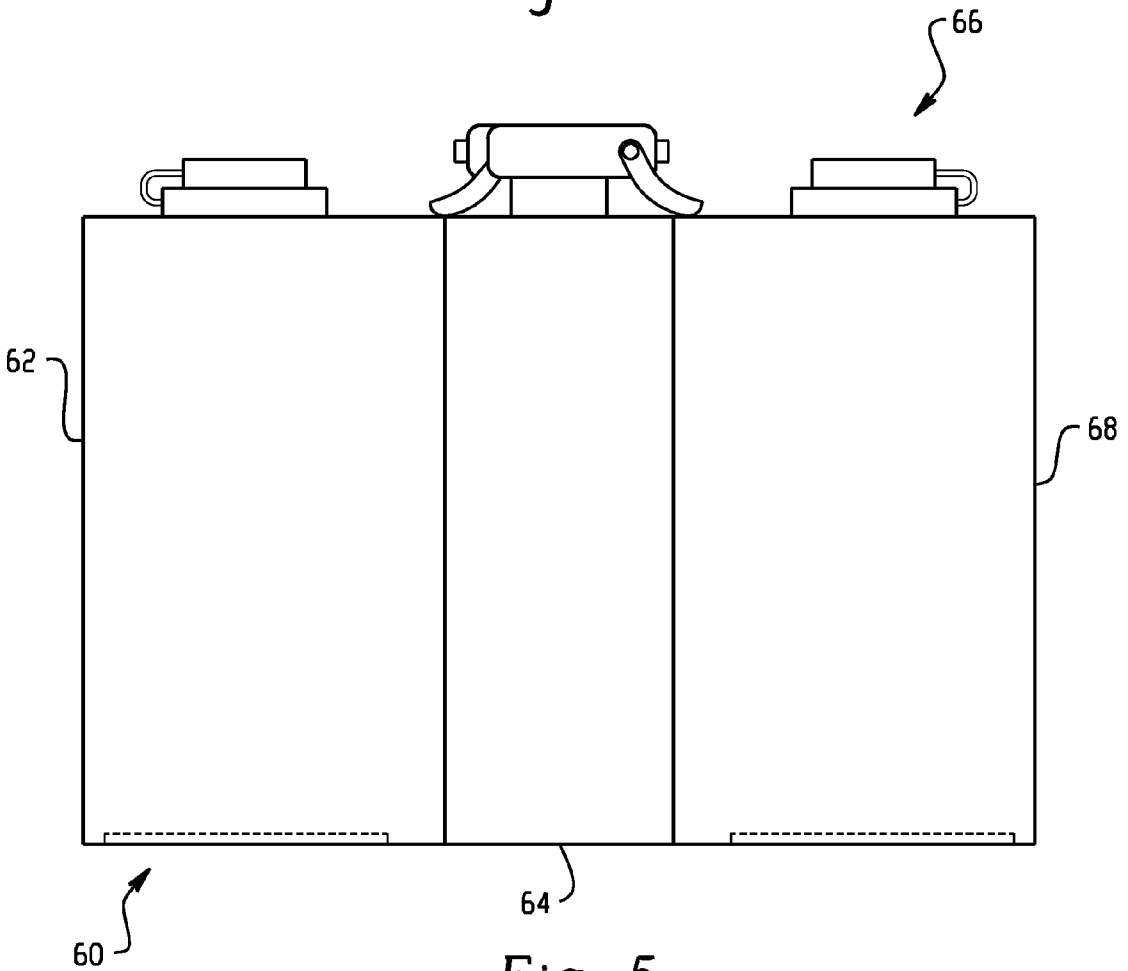
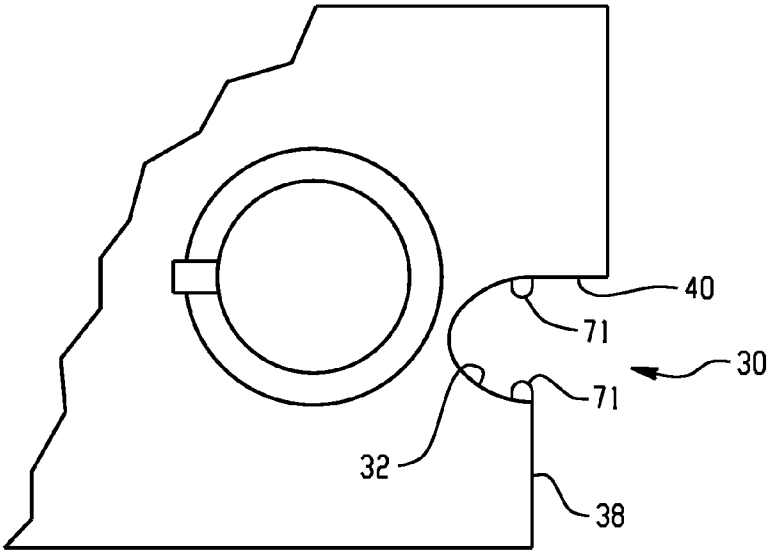


Fig. 5

Fig. 6



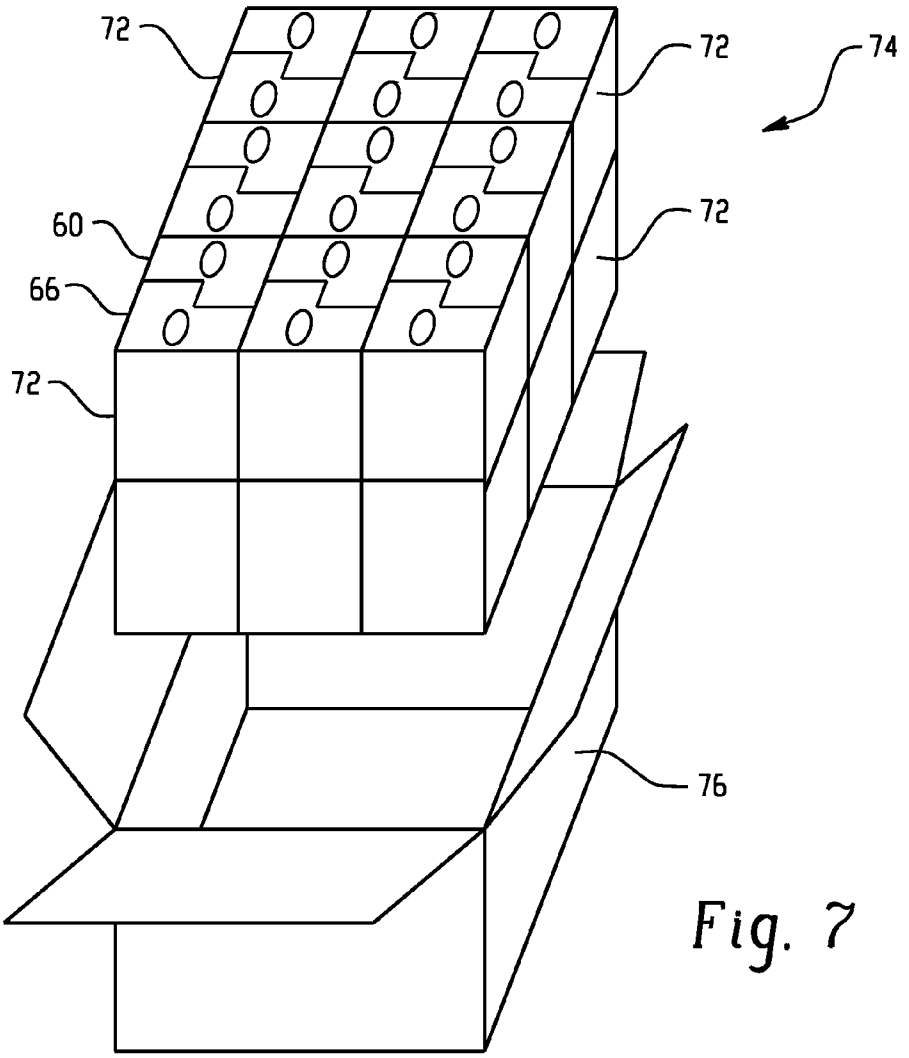


Fig. 7

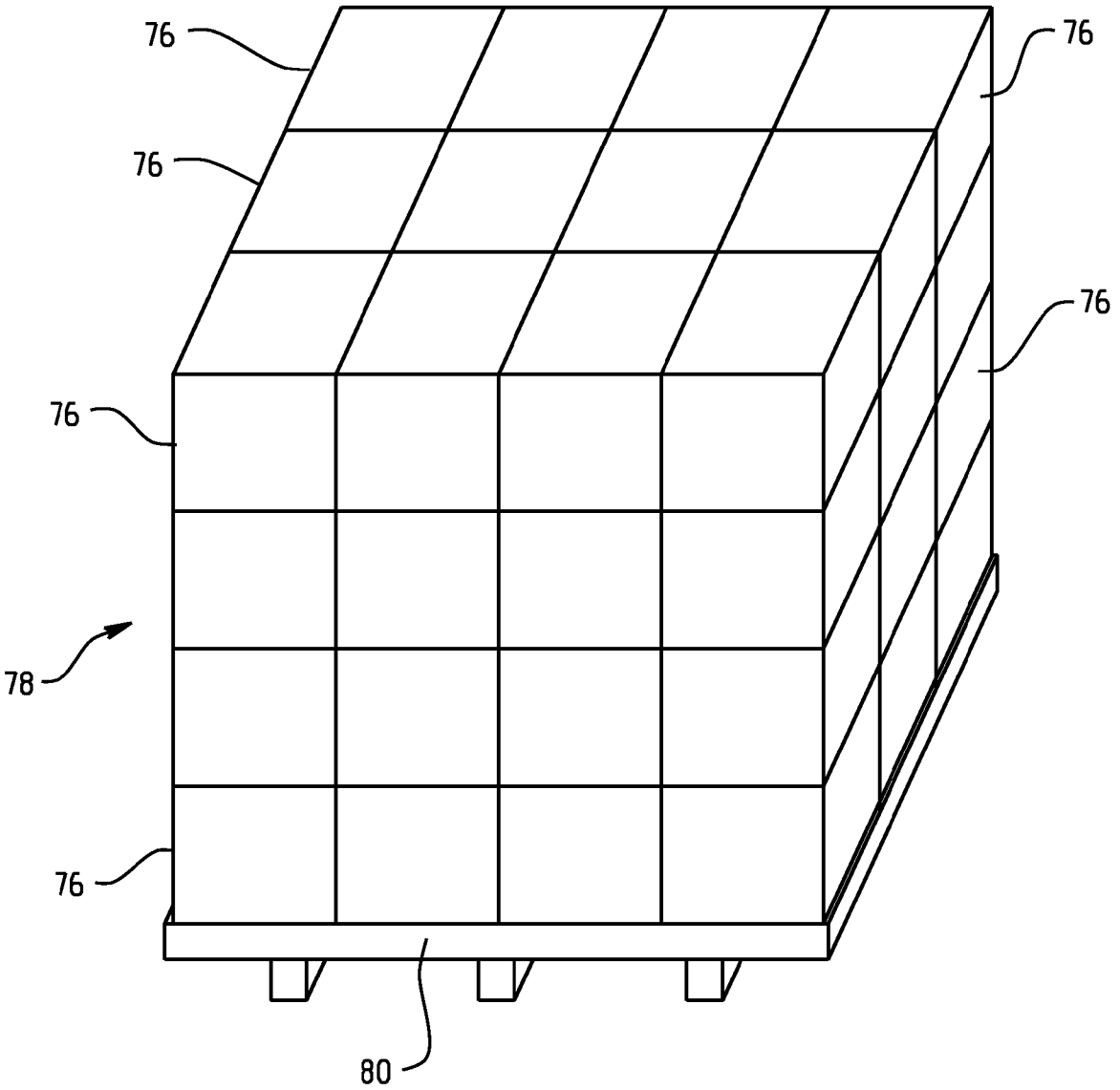


Fig. 8

SHEET PRODUCT DISPENSER

BACKGROUND OF THE INVENTION

[0001] The present invention relates generally to a device for holding and carrying articles and more specifically, to a device having an interlocking sheet product dispenser and a liquid dispenser.

[0002] Carriers are often used where a number of different articles are used together in the performing of a task or activity, such as cleaning for example. A number of supplies are commonly used in the cleaning of cars, trucks, windows and other areas. These items typically include one or more cleaning solutions and a paper product, such as paper towel for example. The cleaning solutions, often contained in a spray bottle, are applied to the surface to be cleaned that is then dried with the paper towels which removes the dirt or other contaminant as well as any excess cleaning solution.

[0003] Where multiple articles are needed for a task, they are often carried in a piece-meal fashion from a storage area, to the location where the activity will take place. The carrying of the articles is awkward and may involve several trips and create an inconvenience to the user. Personnel will sometimes fashion carrying devices, such as from a bucket. However, where a task must be performed in a highly visible location, a corporate office complex for example, such makeshift carrying devices may be aesthetically unpleasing. Even in other locations, the use of buckets or other similar carriers not designed for this task may not be desired since the bucket will need to be used for its intended purpose and thus not available when the personnel need it. The inefficient and ineffective use of buckets or other carriers for this task may result in a time-consuming and cumbersome task of locating an alternative carrying device or resorting to carrying the supplies piece by piece.

[0004] Such articles also often consume a large amount of storage space since the containers are often not conducive to efficient arrangement. Further, since multiple articles are required, it is easy for the articles to become separated, causing delays in completing the task. In an attempt to resolve this issue, at least with regard to cleaning supplies, pre-moistened sheet product was introduced. While this resolved the issue of needing multiple articles, further issues arose. The pre-moistened sheet product limited the type and amount of cleaning solution available to the user. Further, these pre-moistened sheet products are prone to drying out if the user fails to properly close the container.

[0005] While existing devices for carrying sheet product and cleaning solutions are suitable for their intended purposes, there still remains a need for improvements particularly regarding carrying and storing of supplies in a compact, attractive, and integrated device.

SUMMARY OF THE INVENTION

[0006] A dispenser is provided herein having a sheet product enclosure. The sheet product enclosure has a first width and a first coupling feature along the first width. A fluid container is also provided having a second width and a second coupling feature along the second width. The second coupling feature is sized and shaped to removably couple to the first coupling feature.

[0007] A dispenser is also provided having a sheet product dispenser. The sheet product dispenser includes a sheet product enclosure having a first surface and a second and a first width. The sheet product enclosure also has a dispensing opening in the enclosure. A retaining feature is arranged in the enclosure between the first surface and the second surface. The dispenser also includes a fluid dispenser having a fluid container. The fluid container has a third surface and a fourth surface and a second width. An engaging feature extends from said third surface and said fourth surface. The retaining feature is sized and shaped to fit within and removably couple to the retaining feature, wherein the third surface is adjacent the first surface and the fourth surface is adjacent the second surface when the locking feature is positioned within the retaining feature.

[0008] A product is also provided having a shipping box containing a plurality of dispenser sets. The dispenser sets are arranged in an interrelated manner to form a substantially parallelepiped shape. Each of the dispenser sets includes a first and second dispenser. The first dispenser has a first sheet product enclosure and a first fluid container. The first enclosure and the first container are arranged in a first removably interlocked arrangement with the first container extending from one side of the first enclosure. The second dispenser has a second sheet product enclosure and a second fluid container. The second enclosure and said first container are arranged in a second removably interlocked arrangement with the second container extending from one side of the second enclosure. The first dispenser and the second dispenser are arranged in a removably interlocked arrangement with a first surface of the first container contacting a second surface of the second enclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] Referring now to the drawings, which are meant to be exemplary and not limiting, and wherein like elements are numbered alike:

[0010] FIG. **1** is a side plan view of a combined liquid and sheet product dispenser in accordance with an exemplary embodiment;

[0011] FIG. **2** is a front plan view illustration of the combined liquid and sheet product dispenser of FIG. **1**;

[0012] FIG. **3** is a top plan view illustration of the combined liquid and sheet product dispenser of FIG. **1**;

[0013] FIG. **4** is a top plan view illustration of a set of combined liquid and sheet product dispensers in accordance with an alternate embodiment;

[0014] FIG. **5** is a side plan view illustration of the alternate embodiment of the combined liquid and sheet product dispenser of FIG. **4**;

[0015] FIG. **6** is a partial top plan view of an alternate embodiment of the retaining feature;

[0016] FIG. **7** is a perspective view illustration of multiple sets of dispensers arranged in a packaging configuration in a shipping box; and,

[0017] FIG. **8** is a perspective view illustration of multiple dispenser shipping boxes arranged into a pallet volume.

DETAILED DESCRIPTION

[0018] FIG. **1**-FIG. **3** illustrate an exemplary embodiment of a combined liquid and sheet dispenser **10**. The dispenser **10** includes a generally hollow enclosure **12** that is arranged to hold and dispense sheet product **13** and a liquid dispenser container **14**. The term "sheet products" as used herein is inclusive of natural and/or synthetic cloth or paper sheets. Sheet products may include both woven and non-woven

articles. There are a wide variety of nonwoven processes and they can be either wetlaid or drylaid. Some examples include hydroentagled (sometimes called spunlace), DRC (double re-creped), airlaid, spunbond, carded, paper towel, and melt-blown sheet products. Further, sheet products may contain fibrous cellulosic materials that may be derived from natural sources, such as wood pulp fibers, as well as other fibrous material characterized by having hydroxyl groups attached to the polymer backbone. These include glass fibers and synthetic fibers modified with hydroxyl groups. Examples of sheet products include, but are not limited to, wipers, napkins, tissues, rolls, towels or other fibrous, film, polymer, or filamentary products.

[0019] In general, sheet products are thin in comparison to their length and breadth and exhibit a relatively flat planar configuration and are flexible to permit folding, rolling, stacking, and the like. The sheet product may have perforations extending in lines across its width to separate individual sheets and facilitate separation or tearing of individual sheets from the roll at discrete intervals. Individual sheets may be sized as desired to accommodate the many uses of the sheet products.

[0020] In the exemplary embodiment, the enclosure **12** is formed from a rigid material that provides the durability needed for being carried during use. Suitable materials may include, but are not limited to plastics, such as polypropylene, polycarbonate and polyethylene. Such plastics may be formed using well known processes such as blow molding or injection molding for example. Alternatively, materials such as cardboard, wood or metal may be used. A set of indentations **16** are formed in side **18** of the enclosure **12** to aid in the rigidity and provide a convenient means for the user to hold the enclosure **12** during use.

[0021] The enclosure **12** includes a bottom surface **20**. A removable cover **22** is positioned in the bottom surface **20**. The cover **22** may be formed of the same material as the enclosure **12** and may be attached by any convenient means including but not limited to a snap-fit or a hinge joint for example. The cover **22** protects the sheet product **13** within the enclosure **12** from dirt and moisture. The enclosure **12** further includes a top surface **24** having an opening formed therein. A dispensing cap **26** having a removable cover **28** is fitted to the opening. The dispensing cap **26** provides a means for the user to remove sheet product **13** from the interior of the enclosure **12**. The dispensing cap **26** may be closed when the dispenser **10** is not in use to protect the sheet product **13** from dirt and moisture. In one embodiment, the sheet product **13** formed as a center-pull type packaging, allowing sheet product **13** to be conveniently and efficiently removed from the dispenser **10**.

[0022] As will be described in more detail below, the enclosure **12** further includes features that allow the interlocking with both the container **14** and other dispensers **10**. The enclosure **12** includes a retaining feature **30** having a cylindrical channel **32** and a surface **40**. The cylindrical channel **32** is a recessed concave cylindrical surface that extends the length of side **36** and is offset from the side **18**. A surface **38** connects the channel **32** to the side **18** while surface **40** connects the channel **32** to the side **36**. It should be appreciated that while the exemplary embodiment illustrates the channel **32** as having a cylindrical shape, other shapes may be used, such as a square or a dovetail for example, without deviating from the scope of the claimed invention.

[0023] In the exemplary embodiment, the surface **40** is a distance "d" from side **44** of enclosure **12**. Further, in the exemplary embodiment, the distance "d" is equal to or greater than w/2, where "w" is the width of the enclosure **12**.

[0024] Turning now to the liquid dispensing container **14**, the container **14** is generally hollow and formed from materials suitable and compatible with the liquids it is intended to hold, such as cleaning solutions for example. Suitable materials may include, but are not limited to plastics, such as polypropylene, polycarbonate and polyethylene. Such plastics may be formed using well-known processes such as blow molding or injection molding for example.

[0025] An opening in the top surface **46** allows a pump mechanism **48** to be removably attached, such as by a threaded cap for example. In the exemplary embodiment, the pump mechanism **48** may spray the liquid contained in the container **14**. The pump mechanism **48** includes a trigger or lever **42** that the user articulates to operate the pump mechanism **48** and dispense the liquid from the container **14**. In one embodiment, the lever **42** is also a handle that may be utilized by the user while carrying the dispenser **10**.

[0026] The container **14** includes a coupling feature that is sized and shaped to engage with the surface **38** of the enclosure **12**. In the exemplary embodiment, the coupling feature is a cylindrical channel **50** that projects along one corner of the container **14**. The cylindrical channel **50** is sized and shaped to mate and interlock with the concave cylindrical channel **32**. A side wall **51** extends from the cylindrical channel **50** to side **53**. A second side wall **55** extends from the opposite side of cylindrical channel **50**.

[0027] The container **14** further has a width "w_2". For reasons that will be made clearer below, the container **14** width "w_2" is equal to or less than the distance "d". Similar to the enclosure **12**, the container **14** may include indentations, recesses or scalloped portions that aid the user in the carrying and use of the container **14**.

[0028] The configuration of the enclosure **12** and the container **14** provide advantages in the storage and transportation of the dispenser **10**. During typical use, the user will need both sheet product and some type of liquid solution to perform their cleaning tasks. To accomplish this, the user inserts the cylindrical channel **50** into the channel **32** with the side wall **51** of the container **14** resting against surface **38** of the enclosure **12** and side wall **55** resting against surface **40**. In the exemplary embodiment, friction between the surfaces of the enclosure **12** and the container **14** provides sufficient resistance to prevent inadvertent separation. Thus, the dispenser **10** is arranged to allow the enclosure **12** and the container **14** to interlock in an easy and in a repeatable manner. Alternatively, there may be an interference fit between the surfaces where cylindrical channel **50** is slightly larger than the channel **32** such that the elasticity of the materials of enclosure **12** and container **14** is sufficient, with a small amount of force from the user, to allow the parts to be coupled. Another alternative, illustrated in FIG. **6**, uses a small rib **71** formed on the channel **32**. The rib **71** similarly provides a small interference fit with the cylindrical channel **50** to aid in interlocking the enclosure **12** and container **14**. The ability to interlock also provides advantages in storage by minimizing the risk that the liquid solution in the container **14** will become separated from the sheet product **13** in enclosure **12**.

[0029] Referring now to FIG. **4** and FIG. **5** (with reference to FIG. **3**), an embodiment set of dispensers that allow compact storage is illustrated. In this embodiment, a first dis-

penser **60** having an enclosure **62** and a container **64** is arranged in an interlocked manner as discussed above. A second dispenser **66** having an enclosure **68** and a container **70** is also arranged in an interlocked manner. As discussed above, the distance "d" between the surface **40** and the side **44** is equal to or greater than half of the enclosure **12** width "w". In other words, the distance "d" is equal to or greater than "w_2". Thus, sufficient space is allowed for the positioning of the containers **64**, **70** into the area formed by the side wall **55** and the side **36**.

[0030] By rotating the second dispenser **66** 180 degrees from the first dispenser **60**, the dispensers may be positioned for storage as illustrated in FIG. **4**. Thus, the dispensers may be placed in storage in a secure manner that is also compact and minimizes shelf space.

[0031] Referring to FIG. **7**, one possible shipping arrangement is illustrated for the sets of dispensers. The dispensers **60**, **66** are positioned in an interlocked arrangement as discussed above with reference to FIG. **4** and FIG. **5** to form a dispenser set **72**. The individual dispenser sets **72** may be bundled, by a band or shrink wrap for example, to form a package. The dispenser sets **72** are arranged to form a generally parallelepiped shape. For example, two dispenser sets **72** may be arranged side by side to form rows. Multiple rows may then be stacked one upon the other to form a multiple dispenser set bundle **74**. The dispenser set bundle **74** may be shrink-wrapped or banded to retain the individual dispenser sets **72**. Alternatively, a pressure sensitive adhesive may be located on portions of the dispenser sets **72** to form the multiple dispenser set bundle **74**. It should be appreciated that arrangement of two rows in the dispenser set bundle **74** is exemplary and the dispenser sets **72** may be arranged with any convenient or desired number of rows.

[0032] A shipping box **76** is arranged to have a height, width and depth sufficient to hold the dispenser set bundle **74**. To minimize shipping costs and packaging expenses, the shipping box **76** is sized to maximize the fill efficiency of the package, meaning that the dispenser set bundle **74** fills approximately 100% of the internal volume of the shipping box **76**. Due to other constraints, such as common box sizes, pallet sizes and requirements of shipping companies, the fill efficiency may be less than 100% and in some embodiments, the efficiency may be between 85% to 100%, or between 90% to 100%, or between 95% to 100%. Further, the shipping box **76** may be sized to receive multiple dispenser set bundles **74** that are stacked within the shipping box **76**.

[0033] Referring to FIG. **8**, the shipping box **76** may be further arranged with other shipping boxes **76** to form a standard pallet sized footprint or pallet volume **78**. In one embodiment, for the efficient loading onto an enclosed semi-trailer, the overall size of the stacked shipping boxes, including a pallet **80** is less than approximately 48 inches long, by 40 inches wide, by 107 inches tall. In some embodiments, the pallet **80** may be eliminated and the bundle loaded by use of a clamp truck instead of a forklift. Each pallet volume **78** has corresponding pallet efficiency where the pallet efficiency is the pallet volume **78** divided by the theoretical maximum pallet volume times **100**. In one embodiment, the pallet efficiency is between 85 percent to 100 percent, or between 90 percent to 100 percent, or between 95 percent to 100 percent.

[0034] The embodiments described herein provide a combined liquid and sheet product dispenser that provides an improved solution for the storage and portability of articles. The combined liquid and sheet product dispenser provides a single holder that contains the sheet product and a separate container for cleaning solutions. Further, the combined liquid and sheet product dispenser provides additional advantages. The sheet product is protected from contamination and kept clean and dry during use, for example. The dispenser may be carried or transported as a single unit, and then easily separated for the respective tasks. Further, the embodiments allow for compact storage, which provides advantages in the packaging of dispensers for sale or during transportation by the manufacturer. This also allows for more compact storage by the end user. Other possible embodiments may include different tasks. Such tasks and activities include, but not limited to, the carrying of cleaning supplies, or in a restaurant for holding condiments and napkins. In a restaurant setting, the dispenser **10** may also form part of a modular system that allows the restaurant to easily replace depleted portions while maintaining a sturdy and robust display for its patrons.

[0035] Further, it should be appreciated that while the exemplary embodiment illustrates the female retaining feature (e.g. channel **32**) as being incorporated in the enclosure **12**, and the male retaining feature (e.g. cylindrical channel **50**) as being incorporated in container **14**, these retaining features may be reversed without deviating from the scope of the claimed invention.

[0036] This written description uses examples to disclose the invention, including the best mode, and also to enable any person skilled in the art to practice the invention, including making and using any devices or systems and performing any incorporated methods. The patentable scope of the invention is defined by the claims, and may include other examples that occur to those skilled in the art. Such other examples are intended to be within the scope of the claims if they have structural elements that do not differ from the literal language of the claims, or if they include equivalent structural elements with insubstantial differences from the literal languages of the claims. Also, in the drawings and the description, there have been disclosed exemplary embodiments of the invention and, although specific terms may have been employed, they are unless otherwise stated used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention therefore not being so limited. Moreover, the use of the terms first, second, front, rear, top, bottom etc. do not denote any orientation, order or importance, but rather the terms first, second, etc. are used to distinguish one element from another. Furthermore, the use of the terms a, an, etc. do not denote a limitation of quantity, but rather denote the presence of at least one of the referenced item.

What is claimed is:

1. A dispenser comprising:

a sheet product enclosure having a first width and a first coupling feature along said first width;

a fluid container having a second coupling feature along a second width, said second coupling feature sized and shaped to removably couple to said first coupling feature.

2. The dispenser of claim **1** wherein said first coupling feature includes a recessed area formed in said enclosure, and said second coupling feature is a first projection formed on said container.

3. The dispenser of claim **2** wherein said recessed area includes a cylindrical channel.

4. The dispenser of claim **3** wherein said coupling feature includes a cylindrical surface sized and shaped to fit within said channel.

5. The dispenser of claim **4** wherein said second width is less than half of said first width.

6. The dispenser of claim **2** wherein said recess area includes an interference feature positioned along an edge said recess area and extending parallel to said recess area.

7. The dispenser of claim **6** wherein said interference feature is a rib.

8. A dispenser comprising:

a sheet product dispenser having:

a sheet product enclosure having a first width, said enclosure having a first surface and a second surface;

a dispensing opening in said enclosure; and,

a retaining feature in said enclosure between said first surface and said second surface;

a fluid dispenser having:

a fluid container having a second width, said fluid container having a third surface and a fourth surface; and,

an engaging feature extending from said third surface and said fourth surface, said retaining feature being sized and shaped to fit within and removably couple to said retaining feature, wherein said third surface is adjacent said first surface and said fourth surface is adjacent said second surface when said locking feature is positioned within said retaining feature.

9. The dispenser of claim **8** wherein said second width is equal to or less than half of said first width.

10. The dispenser of claim **9** wherein said retaining feature is a channel and said engaging feature includes a sixth surface sized and shaped to fit within said channel.

11. The dispenser of claim **10** wherein said channel and said sixth surface are cylindrical.

12. The dispenser of claim **10** further comprising an interference feature positioned along one edge of said channel.

13. The dispenser of claim **12** wherein said interference feature is a rib.

14. The dispenser of claim **13** wherein said fluid dispenser further comprises a pump removably coupled to said fluid container, wherein said pump includes a first portion within said fluid container and a second portion having a user activated mechanism for dispensing fluid from said container.

15. A product comprising:

a shipping box containing a plurality of dispenser sets, wherein the dispenser sets are arranged in an interrelated manner to form a substantially parallelepiped shape;

wherein each of said dispenser sets comprises:

a first dispenser having a first sheet product enclosure and a first fluid container, said first enclosure and said first container arranged in a first removably interlocked arrangement with said first container extending from one side of said first enclosure; and,

a second dispenser having a second sheet product enclosure and a second fluid container, said second enclosure and said first container arranged in a second removably interlocked arrangement with said second container extending from one side of said second enclosure;

wherein said first dispenser and said second dispenser are arranged in a removably interlocked arrangement with a first surface of said first container contacting a second surface of said second enclosure.

16. The product of claim **15** wherein said first dispenser and said second dispenser interlocked arrangement includes a third surface on said second container contacting a fourth surface of said first enclosure adjacent said first container.

17. The product of claim **16** wherein said first removably interlocked arrangement includes a first channel in said first enclosure and a third projection in said first container, wherein said third projection is sized and shaped to fit within said first channel.

18. The product of claim **15** wherein said shipping box is sized to fit multiple pluralities of dispenser sets, wherein said multiple pluralities of dispenser sets are arranged in an interrelated manner to form a substantially parallelepiped shape.

19. The product of claim **15** wherein said shipping box comprises a fill efficiency and said fill efficiency is between 85 percent to 100 percent.

20. The product of claim **15** wherein a plurality of shipping boxes are arranged into a pallet volume having a pallet efficiency, wherein said pallet efficiency is between 85 percent to 100 percent.

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