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(54) STORAGE DEVICE FOLDABLE BETWEEN **CARRYING AND HANGING CONDITIONS**

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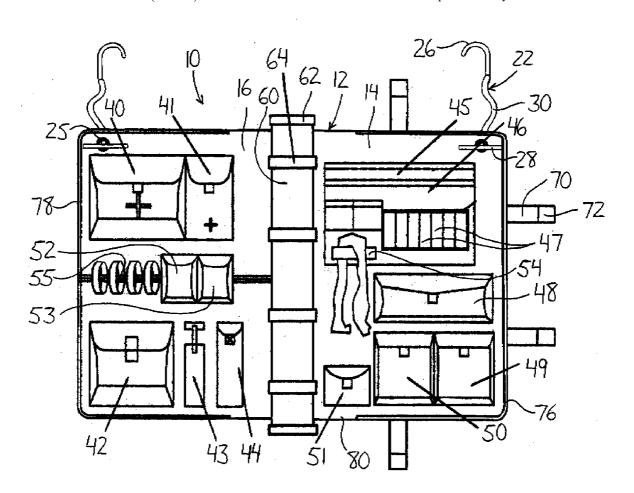
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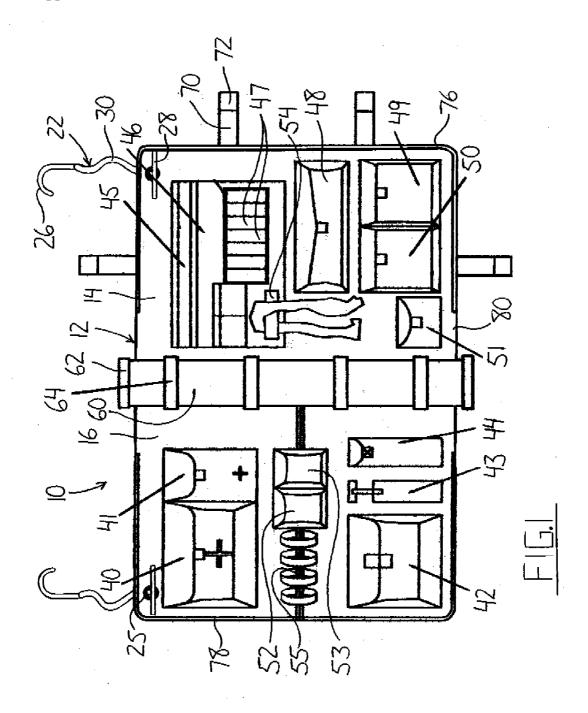
Feb. 8, 2006 (CA) 2,537,167

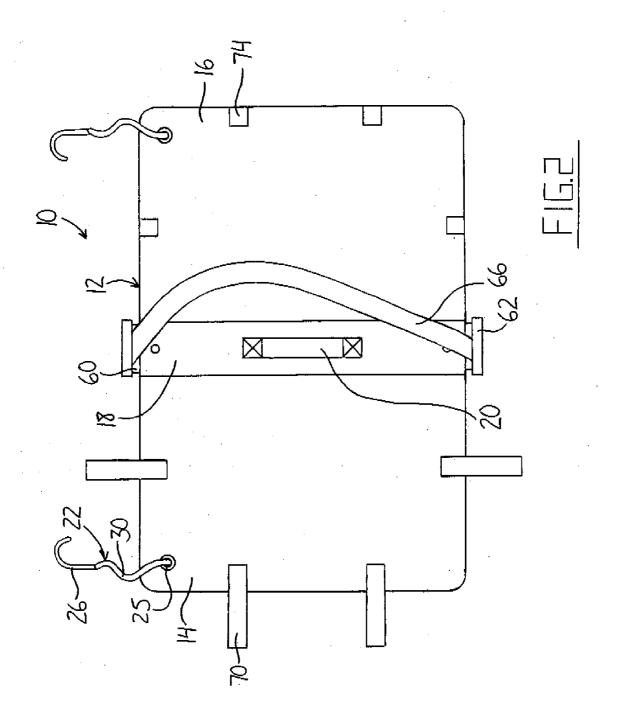
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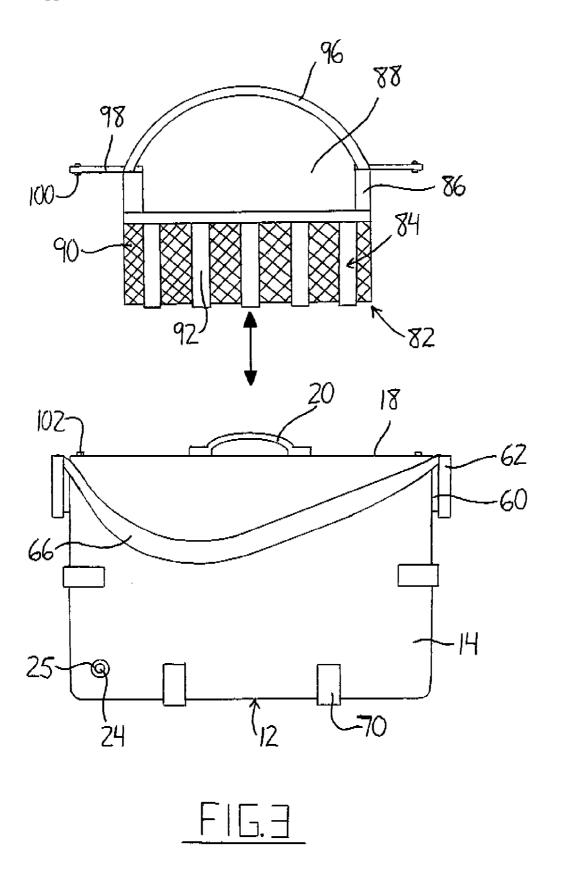
(51) Int. Cl. B65D 25/28 (2006.01) (57)ABSTRACT

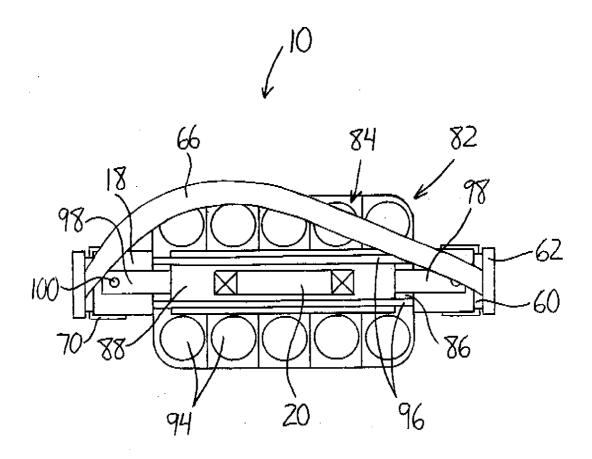
A foldable storage device for carrying by a handle in a closed condition and hanging by a hanging mechanism in an open condition folds along a spine on which the handle is mounted. The folding portions of the device extend downward from the spine when carried by the handle such that they tend toward the closed condition to prevent unintentional opening and minimize loading on closing fasteners. Relatively large storage devices can be made without reducing carrying comfort or increasing hanging width. Supporting elements on the folding portions are protected and hidden in the closed position and fully displayed in the open condition to facilitate quick and easy access.



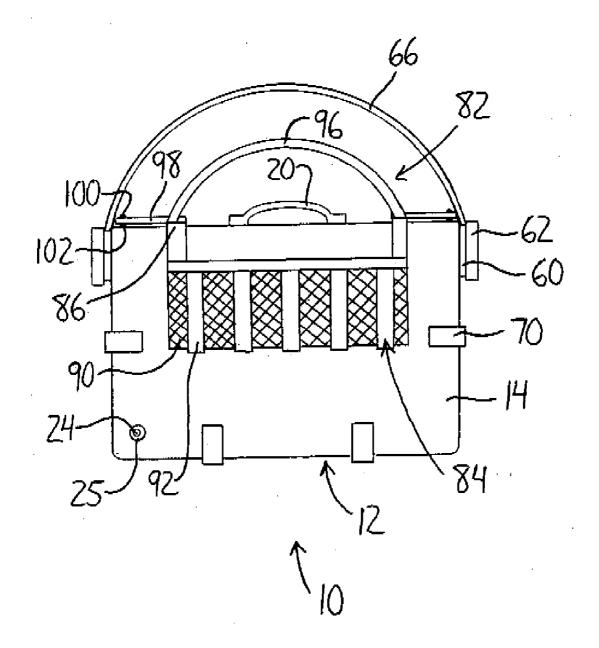




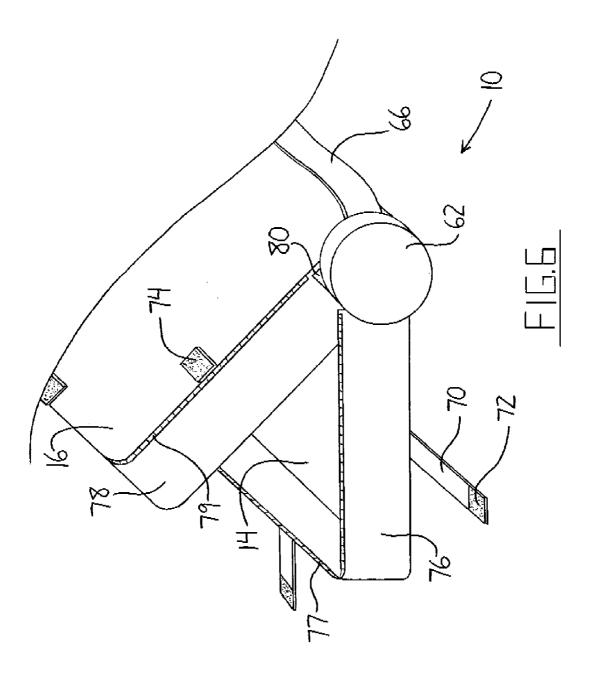




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F15.5



STORAGE DEVICE FOLDABLE BETWEEN CARRYING AND HANGING CONDITIONS

[0001] This application claims foreign priority benefits from Canadian Patent Application No. 2,537,167, filed Feb. 8, 2006.

FIELD OF THE INVENTION

[0002] This invention relates to storage devices and more particularly to a storage device that can be selectively adjusted from a carrying condition in which its contents are substantially hidden and protected and a hanging condition in which its contents are easily accessible.

BACKGROUND OF THE INVENTION

[0003] Often it is necessary to use a storage device, such as a bag or other piece of luggage, to facilitate the transport of items between locations. Conventional storage devices tend to have a main compartment that defines the majority of the storage space provided by the device. While this relatively large compartment increases the size of items that may be transported in the device, it also leads to the occurrence of clutter when storing a plurality of relatively small items as the contents of the compartment move about relative to one another. In order to reduce clutter by facilitating a higher level of organization, storage devices with a number of smaller, separate compartments have been made readily available. However, fast and easy access to such compartments is not always possible, as they are often disposed either within the larger main compartment or outside the main compartment but on different sides of the device. As a result, access to the device's contents may require the time and effort of digging through the main compartment or relative movement between the device and a user to gain access to different compartments.

[0004] This lack of easy access to contents of a conventional storage device may lead to frustration, especially in situations where repeated deposit and withdrawal to and from the device is warranted. As an example, a hockey coach would likely require a device for transporting coaching supplies and equipment to and from practices as well as for storing personal items during practice. Coaching supplies such as pucks, a whistle, tape, a clipboard, writing utensils, a stopwatch, laces, tools, water bottles, spare parts, a first aid kit and a towel may be require use multiple times in a single practice. Also, it would be desirable to safely store personal items such as a watch, wallet, keys and cellular phone during time on the ice.

[0005] U.S. Pat. No. 4,164,968 discloses a portable tennis locker organizer having a foldable bag-like member which exposes its interior surface when unfolded for easy access to compartments mounted thereon. A carrying strap of the organizer is provided at an outside edge of the bag such that the fold is disposed horizontally at the bottom of the bag when carried. This arrangement means that gravity tends to open the bag to the unfolded position which puts loading on any fastener(s) used to hold the bag in the folded position. This increases the possibility of fastener failure if the bag is overfilled or unintentional opening of the bag if a fastener is not properly fastened.

[0006] U.S. Pat. No. 4,738,547 discloses a carrying bag having panels that fold over one another to be fastened

together into a compact arrangement for carrying. Unfolded, the bag is adapted to be hung to display a number of pockets. When carried by a handle, the folds occur along vertical axes so that unlike the tennis organizer, gravity does not act toward unfolding the bag. However, having the handle mounted on an edge perpendicular to the folds means that increasing the length of the panels would correspondingly increase the height of the bag when carried. This increases the handle height, making the bag awkward to carry. Making the panels wider would allow increase in panel size without the height problem, but would make the bag excessively long when unfolded, thereby limiting where the bag can be readily hung.

[0007] As a result, it is desirable to provide a storage device that facilitates easy access to its contents when necessary while preventing unintentional opening and providing adequate storage without excessive height in a carrying position.

SUMMARY OF THE INVENTION

[0008] According to a first aspect of the invention there is provided a storage device comprising:

[0009] an outer shell comprising two portions separated by a spine, the shell being foldable along the spine from an open condition in which the two portions are substantially coplanar and extend away from the spine in opposite directions to a closed condition in which the two portions extend away from the spine in a common direction;

[0010] supporting elements mounted on a common side of the shell with said body in the open position so as to be disposed between the two portions with said shell in the closed condition;

[0011] a handle mounted on the spine on a side of the shell opposite the supporting elements for carrying the device with the shell in the closed condition and the two portions thereof extending from the spine in a direction opposite the handle; and

[0012] a hanging mechanism for suspending both portions therefrom with the shell in the open condition and the spine oriented generally vertically.

[0013] Hanging of the device in the open condition displays the supporting elements in a common vertical plane such that any items supported on the shell for storage by the device are readily accessible. When it is necessary to use the storage device for transport of items, it can simply be unhung, folded into the closed condition and carried by means of the handle. In the closed condition, the shell protects the items from damage while the supporting elements ensure the items remain stored on the shell to prevent loss. Locating the handle on the spine means that when the device is carried, the portions of the shell are pulled toward the closed condition by gravity. The handle location also means that increasing the size of the shell portions in a direction along the spine will not increase the height of the device when carried. This allows a larger storage device to be produced without making use of the handle overly awkward and increasing the width of hanging space.

[0014] Preferably there is provided a tubular container supported on the shell between the two portions with the shell in the closed condition.

[0015] Preferably the tubular container is removably supported on the shell.

[0016] Preferably the tubular container is supported on the shell adjacent and substantially parallel to the spine thereof such that the shell folds about the tubular container into the closed condition.

[0017] Preferably the tubular container comprises a strap extending between opposite ends thereof the strap extending along the spine on the side of the shell on which the handle is mounted to facilitate carrying of the device by said strap.

[0018] Preferably there are provided walls extending generally perpendicularly from the common side of the shell in the open condition along the perimeter thereof such that each wall of one portion overlaps with a respective wall of the other portion with said shell in the closed condition.

[0019] Preferably at least a portion of the hanging mechanism can be selectively engaged and disengaged from the shell for hanging and carrying of the device respectively.

[0020] Preferably the hanging mechanism comprises at least one hanger member removably supported on each portion of the shell.

[0021] Preferably each hanger member comprises a hook and a stop piece disposed at opposite ends, said hook being passable through a respective opening in one of the portions of the shell such that the stop piece extends across said opening on a side of the shell opposite said hook to support said portion on said hook.

[0022] Preferably there is provided a zipper disposed on the portions of the shell to facilitate releasable fastening thereof in the closed condition.

[0023] Preferably there are provided straps for releasable connection between the portions of the shell in the closed condition.

[0024] Preferably there is provided a bottle carrier supported on the shell.

[0025] Preferably the bottle carrier comprises two bottle receptacle portions separated by a central portion, the central portion supported atop the shell with the shell in the closed condition, the central portion extending across the spine and supporting the bottle receptacle portions on opposite sides thereof without substantially blocking access to the handle.

[0026] According to a second aspect of the invention there is provided a storage device comprising:

[0027] an outer shell;

[0028] a handle mounted on the outer shell for carrying the device; and

[0029] a bottle carrier comprising two bottle receptacle portions separated by a central portion, the central portion supported atop the shell so as to extend thereacross and support the bottle receptacle portions on opposite sides of the shell without substantially blocking access to the handle;

[0030] the bottle carrier being selectively removable from the shell.

[0031] Preferably the bottle carrier is substantially flexible.

[0032] Preferably the bottle carrier is detachably connected to the shell by at least one strap.

[0033] Preferably the strap is connectable between the bottle carrier and shell under tension to resist sagging of the bottle carrier.

[0034] Preferably each bottle receptacle of the bottle carrier comprises a plurality of separate bottle compartments.

[0035] Preferably the plurality of bottle compartments of each receiving portion of the bottle carrier are arranged in rows extending along the spine.

BRIEF DESCRIPTION OF THE DRAWINGS

[0036] In the accompanying drawings, which illustrate an exemplary embodiment of the present invention:

[0037] FIG. 1 is an inside view of the storage device with the shell thereof in the open condition.

[0038] FIG. 2 is an outside view of the storage device with the bottle carrier removed and the shell in the open condition.

[0039] FIG. 3 is an outside view of the storage device with the bottle carrier removed and the shell in the closed condition.

[0040] FIG. 4 is an overhead view of the storage device looking down on the spine of the shell, which is in the closed condition, with the bottle carrier supported on the spine.

[0041] FIG. 5 is an outside view similar to that of FIG. 3, except with the bottle carrier supported on the spine of the shell.

[0042] FIG. 6 is a partial isometric view of the storage device with the shell in between the open and closed conditions to illustrate opening and closing of the device.

DETAILED DESCRIPTION

[0043] The storage device 10 according to the present invention features a shell 12 having two portions 14, 16 separated by a spine 18. Opposite sides of the shell 12, as shown in FIGS. 1 and 2, are hereinafter referred to as the inside and outside, respectively. A handle 20 is mounted to the outside of the shell 12 along the spine 18 to facilitate carrying of the device 10 by a user. In FIGS. 1 and 2 the shell 12 is shown in an open condition in which the two portions 14, 16 are substantially coplanar and extend away from the spine 18 in opposite directions. FIGS. 3 and 5 show the shell 12 in a closed condition in which the two portions 14, 16 extend from the spine in a common direction such that the inside of the portions are brought together into a generally parallel and closely spaced state. Movement of the shells between the open and closed conditions is achieved by folding along the spine 18.

[0044] A hanging mechanism allows the device to be hung with the shell 12 in the open condition and the spine 18 extending vertically. This arrangement orients the entire shell in a vertical plane such that the inside of each portion 14, 16 is completely visible and easily accessible. A hook member 22 and a respective opening 24 is provided for each of the shell portions 14,16 to define the hanging mechanism for supporting the device 10. A grommet 25 is provided about each opening for reinforcement to prevent damage to

the shell 12. Each hanger member 22 is made up of a hook 26 and a stop piece 28 disposed on opposite ends of a connecting member 30, such as nylon rope. The hook 26 is sized to be passable through the opening 24 in order to dispose the hook 26 and stop piece 28 on opposite sides of the shell 12, while the stop piece is dimensioned to extend across the opening to prevent passage therethrough. When the hook 26 is hung from an external support structure, the rope is pulled taught and the shell 12 is supported on the stop piece 28. In the exemplary use of the device by a sports coach, the device is easily hung on the boards/glass of a hockey rink or the backstop of a baseball field.

[0045] When it comes times to transport the device 10, the hooks 26 are disengaged from the external support structure and then passed back through the openings 24 for removal of the hanger members 22 from the shell 12. The shell is then folded into the closed position to allow carrying of the device by the handle 20. Removal of the hanger member 22 ensures that the hooks 26 do not dangle from the shell 12 during transport, as they may catch on something and cause damage or personal injury.

[0046] A number of supporting elements 40-55 are disposed on the inside of each of the shell portions 14, 16 for storing the contents of the device for protection and support during transport and hanging respectively. Supported on the inside of the shell 12, the supporting elements are disposed between the portions 14, 16 with the shell in the closed condition of FIG. 3 to 5 and are thereby hidden from sight and protected from damage. In the open condition of FIGS. 1 and 2 however, the supporting elements are visible and easily accessible in a common plane. More specifically, hanging of the device 10 by the hanger members 22 allows display of the supporting elements in a vertical plane, possibly near eye-level depending on the height of a suitable structure from which the device is hung. Items can therefore be quickly found and removed their respective support element and just as easily be redeposited when not in use, to prevent loss or misplacement. When the item is not being hung by hanger members 22, they can be removed from the openings 24 and stored on the device by at least one of the supporting elements.

[0047] Many different elements for supporting objects on or in a storage device are known to those of skill in the art and can be readily applied to the present invention. In the exemplary context of use of the device by a hockey coach, the supporting elements may include a first aid kit pocket 40, a medical records pocket 41, a valuable belongings pocket 42, a key pocket 43, an anti fog spray pocket 44, a clipboard compartment 45, a game sheet compartment 46, writing utensil pockets 47, contact lens/glasses pocket 48, tool/parts pocket 49, neck/mouth guard pocket 50, whistle/stopwatch pocket 51, stick wax pocket 52 and deodorant compartment 53. Such pockets may or may not be closable, for example by folding and fastenable covers. A strap 54, at each end thereof to the shell, may also be provided to fold a towel about the strap for hanging support therefrom. A strap 55, at least detachable from the shell at one end thereof, may be passed through hollow objects, such as rolls of tape, to provide hanging support thereof. The above examples illustrate how a plurality of supporting elements can provide a high degree or organization in order to facilitate quick and easy retrieval of specific contents of the device. Pockets or compartments may include substantially transparent material to allow a user to see the contents, thereby further decreasing the need to search through the device to locate a specific item.

[0048] A tubular container 60 having at least one removable end cap 62 provides a longitudinal storage area adjacent to and extending along the spine 18 on the inside of the shell 12. Straps 64 are each connected to the shell 12 at opposite ends thereof and wrapped about the container 60 between these ends. Each strap 64 is detachably fastened at one or both of its ends by a fabric hook and loop fastener to allow selective mounting or removal of the container 60 on the shell 12. The position of the container 60 results in the folding of the shell 12 occurring about the container. A carrying strap 66 extends between and is detachably connected at opposite ends of the container. When the container is removed from the shell 12, the container 60 can be carried alone by the strap. When the container 60 is supported on the shell 12 by the straps 64, the container can be oriented such that the carrying strap 66 extends on the outside of the shell 12 such that the entire device can be carried thereby. This provides the choice of carrying the device 10 in hand by the handle 20 or over the shoulder by the carrying strap 66. When use of the carrying strap 66 is not desirable, it can be removed from the container 60 and stored on the device by one of the supporting elements, or the container 60 can be oriented such that the strap mounted thereon extends on the inside of the shell 12. In the example of use by a hockey coach, the tubular container can be cylindrical and sized to receive a plurality of stacked hockey pucks. Water bottles, balls and rolled papers or other materials are other examples of other objects for which the tubular container could be well suited to carry.

[0049] Fastening straps 70 are fixed on the first portion 14 of the shell 12 and extend outward from the edges of the portion other than that mating with the spine 18. Disposed at distal end of each fastening strap 70 opposite the first portion 14 is a first mating element 72 of a respective fabric hook and loop fastener. A second mating element 74 of the fastener is disposed on the second portion 16 of the shell 12 symmetric about the spine 18 to where the strap having the first mating element attaches to the first portion. When the shell 12 is folded into the closed condition, the mating elements of each fastener are engaged to secure the two portions 14, 16 together by means of the fastening straps 70.

[0050] As best shown in FIG. 6, walls 76, 78 extend perpendicularly from the inside of the shell 12 along a substantial portion of the shell's perimeter. It should be appreciated from the figure that the walls 76 of the first portion 14 overlap with the walls 78 of the second portion 16 as the shell 12 is folded into the closed condition, thereby closing the space between the portions where the supporting elements, and any objects they support/contain, are disposed. Mating elements 77 and 79 of a zipper are provided extending along the walls 76 and 78 respectively for releasable fastening of the walls with the shell 12 in the closed position. This provides a seal between the two portions 14 and 16 to ensure that contents of the device 10 are not lost during transport. As seen in FIG. 1, the walls 76, 78 extend nearly fully about the shell's perimeter except for across the spine 18 and a space 80 left on each shell portion at each end of the spine. The lack of wall across the spine allows folding of the shell 12 and the spaces 80 provide room for the tubular container 60 extending past the shell boundaries at either end of the spine 18.

[0051] With the handle 20 mounted on the spine, the shell portions 14, 16 on either side thereof extend downward when the device is carried. As a result, gravity acting on the shell portions and items supported thereon will tend to fold them down into the closed condition. So even if the device is overfilled such that the zipper cannot properly seal the space between the two portions, the device can still be carried as long as all items being carried by the device are fully supported by the supporting elements. In other words, gravity does not add to loading on the fastener used to close the device. Looking at FIGS. 1 and 2, it should be appreciated that the size of the portions 14, 16 can be increased along the spine 18 to allow more, or longer, items to be supported by the device without increase its width when hung by hanger members 22. Looking at FIG. 3, it should also be appreciated that such an increase would not place the handle 20 any higher off the ground, but would rather only increase the length of the device when carried. It is less awkward for a user to carry a device by a handle disposed at an elevation less than that that of their hand when hanging naturally at their side than by a handle disposed at a greater elevation.

[0052] The device further includes a bottle carrier 82 for removable support on the shell 12. The carrier 82 includes two spaced apart bottle receptacle portions 84 connected by a central portion 86. When the carrier 82 is mounted on the shell 12 in the closed condition, the receptacle portions 84 are suspended on opposite sides of the spine 18 with the central portion extending thereacross. In other words the central portion 86 sits atop the spine 18 for supporting the receptacle portions to hang down along the two portions 14, 16 of the shell 12. An opening 88 is provided in the central portion 86 through which the handle 20 on the spine 18 can protrude upwardly to allow carrying of the device with the shell 12 in the closed condition and the bottle carrier mounted thereon. In the figures, the opening 88 is formed by the space between straps that extend across the spine 18 to define the central portion 86.

[0053] The bottle receptacle portions 84 are each constructed with a stretchable web material 90 reinforced with strips 92 of a less stretchable material. The stretchable nature of the web material 90 allows the receptacle portions to accommodate bottles of varying sizes while the strips provide the strength needed to adequately support such bottles. As best seen in FIG. 5, the web material is arranged in each receptacle portion 84 to define separate bottle compartments 94, each shaped to receive and support an individual water bottle. The figure shows the compartments 94 of each receptacle portion 84 arranged in a single row extending along the spine 18 of the shell 12. It should be appreciated however, that the number of compartments and the arrangement thereof may be modified. For example, the bottle carrier may be modified to carry a large number of bottles by having two rows of compartments on each side of the spine or may be modified to carry fewer bottles by having only a single compartment forming each receptacle portion.

[0054] Carrying straps, or handles, 96 are provided on the bottle carrier 82 to facilitate carrying thereof when removed from the shell 12. As shown in FIG. 5, these straps are

provided as a pair on opposite sides of the handle 20 on the spine 18 of the shell 12, so as not to interfere with the use of the handle 20 for carrying the entire device 10 when the carrier is installed. The resting of the central portion 86 of the carrier 82 is unlikely to provide the stability needed to properly support bottles received in the compartments 94 on the spine 18. Fastening straps 98 extend from the central portion 86 in opposite directions along the spine 18 for releasable connection thereto. Opposite elements 100, 102 of a snap fastener are disposed between each strap 98 and the spine 18 to facilitate releasable fastening of the bottle carrier and shell. Aside from helping support the carrier 82 on the shell 12, these straps also serve to stretch out the receptacle portions 84 of the carrier to resist sagging thereof when loaded with bottles. It should be appreciated that the loading of bottles into the compartments 94 will pull the straps 98 away from the snap fasteners disposed near opposite ends of the spine 18. The resistance of the straps 98 to the tension induced therein by this loading helps support the bottles and prevent excessive sagging of the receptacle portions 84. In order to improve the stability of the carrier on the shell, more of these fastener straps 98 may be provided extending between other areas of the carrier and respective areas of the shell.

[0055] It should be appreciated that a number of fastener types, including but not limited to buttons, mating hook and loop elements, zippers, snaps, latches and buckles, are known to those of skill in the art and may be readily applied to the present invention. While the stop piece 28 of each hanger member 22 is shown in the figures as a longitudinal member that may fit through the openings 24 when oriented a certain way, it should be appreciated that the intention to have at least one end of the member passable through the opening and at least one end impassible therethrough, at least when oriented in a certain position for hanging of the device. Obviously this result can be obtained through alternate constructions of the hanger member 22.

[0056] Further possible modifications to the embodiment of the drawings include the addition of a second hollow object retaining strap disposed parallel to the first such strap 55 between the first aid pocket 40 and valuables pocket 42 to better make use of space therebetween. Furthermore, clasps may be added among the support elements to allow hanging of various items, for example keys, in a readily visible fashion. Feet may be provided on the bottom of the device in the closed position (i.e. opposite the spine 18 on walls 76) to prevent direct contact with a dirt depositing or damaging surface. There may also be provided reinforcement and resilient grip on the handles 20, 96 of the shell 12 and bottle carrier 82 to improve strength and carrying comfort. Such clasps, feet and handle grips are well known to those of skill in the art.

[0057] Since various modifications can be made in my invention as herein above described, and many apparently widely different embodiments of same made within the spirit and scope of the claims without department from such spirit and scope, it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limiting sense.

1. A storage device comprising:

an outer shell comprising two portions separated by a spine, the shell being foldable along the spine from an

open condition in which the two portions are substantially coplanar and extend away from the spine in opposite directions to a closed condition in which the two portions extend away from the spine in a common direction;

- supporting elements mounted on a common side of the shell with said body in the open position so as to be disposed between the two portions with said shell in the closed condition:
- a handle mounted on the spine on a side of the shell opposite the supporting elements for carrying the device with the shell in the closed condition and the two portions thereof extending from the spine in a direction opposite the handle; and
- a hanging mechanism for suspending both portions therefrom with the shell in the open condition and the spine oriented generally vertically.
- 2. The device according to claim 1 further comprising a tubular container supported on the shell between the two portions with the shell in the closed condition.
- 3. The device according to claim 2 wherein the tubular container is removably supported on the shell.
- **4**. The device according to claim 2 wherein the tubular container is supported on the shell adjacent and substantially parallel to the spine thereof such that the shell folds about the tubular container into the closed condition.
- 5. The device according to claim 4 wherein the tubular container comprises a strap extending between opposite ends thereof the strap extending along the spine on the side of the shell on which the handle is mounted to facilitate carrying of the device by said strap.
- **6**. The device according to claim 1 further comprising walls extending generally perpendicularly from the common side of the shell in the open condition along the perimeter thereof such that each wall of one portion overlaps with a respective wall of the other portion with said shell in the closed condition.
- 7. The device according to claim 1 wherein at least a portion of the hanging mechanism can be selectively engaged and disengaged from the shell for hanging and carrying of the device respectively.
- **8**. The device according to claim 1 wherein the hanging mechanism comprises at least one hanger member removably supported on each portion of the shell.
- 9. The device according to claim 8 wherein each hanger member comprises a hook and a stop piece disposed at opposite ends, the hook being passable through a respective opening in one of the portions of the shell such that the stop

piece extends across said opening on a side of the shell opposite said hook to support said portion on said hook.

- 10. The device according to claim 1 further comprising a zipper disposed on the portions of the shell to facilitate releasable fastening thereof in the closed condition.
- 11. The device according to claim 1 further comprising straps for releasable connection between the portions of the shell in the closed condition.
- 12. The device according to claim 1 further comprising a bottle carrier supported on the shell.
- 13. The device according to claim 12 wherein the bottle carrier comprises two bottle receptacle portions separated by a central portion, the central portion supported atop the shell with the shell in the closed condition, the central portion extending across the spine and supporting the bottle receptacle portions on opposite sides thereof without substantially blocking access to the handle.
 - 14. A storage device comprising:

an outer shell;

- a handle mounted on the outer shell for carrying the device; and
- a bottle carrier comprising two bottle receptacle portions separated by a central portion, the central portion supported atop the shell so as to extend thereacross and support the bottle receptacle portions on opposite sides of the shell without substantially blocking access to the handle:

the bottle carrier being selectively removable from the shell.

- 15. The device according to claim 14 wherein the bottle carrier is substantially flexible.
- 16. The device according to claim 14 wherein the bottle carrier is detachably connected to the shell by at least one strap
- 17. The device according to claim 14 wherein the bottle carrier is substantially flexible and detachably connected to the shell by at least one strap, the strap being connectable between the bottle carrier and shell under tension to resist sagging of the bottle carrier.
- **18**. The device according to claim 14 wherein each bottle receptacle of the bottle carrier comprises a plurality of separate bottle compartments.
- 19. The device according to claim 18 wherein the plurality of bottle compartments of the receiving portions of the bottle carrier are arranged in rows extending along the spine.

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