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(54) **COMPARTMENTALIZED STORAGE AND CARRYING BAG**

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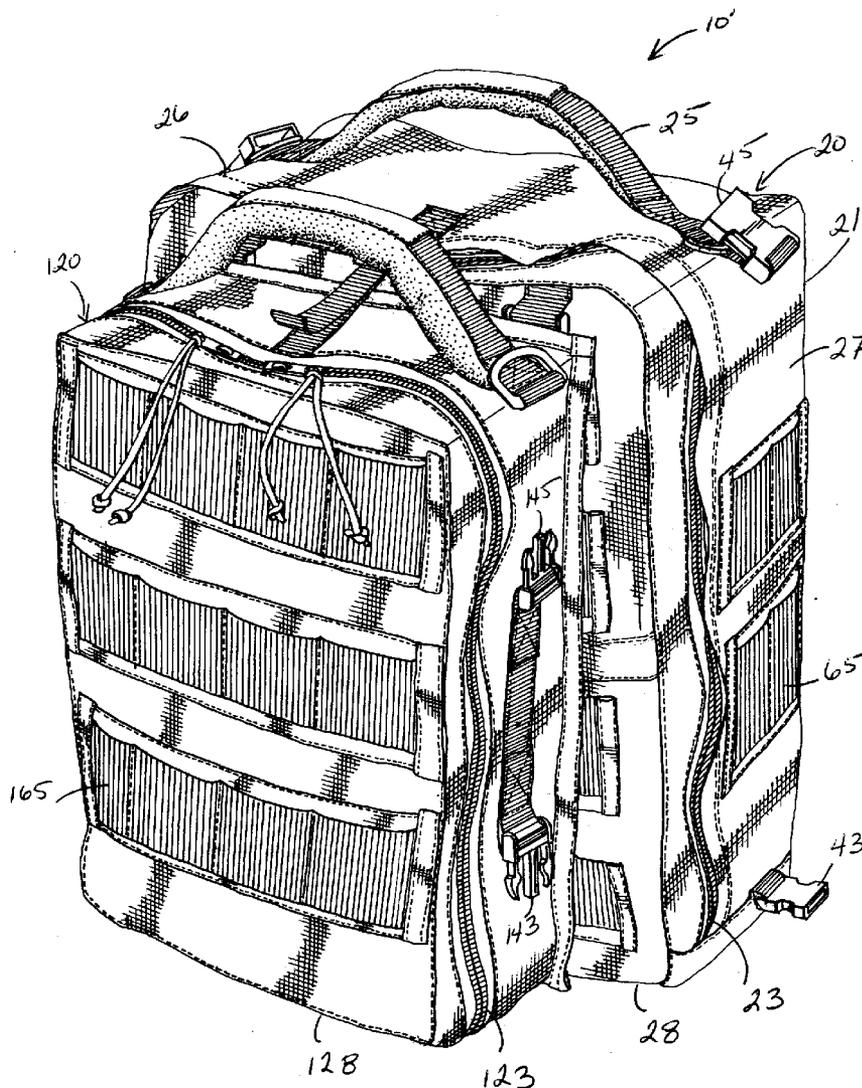
(57) **ABSTRACT**

A carrying system that has a backpack having a plurality of compartments for receiving and holding articles. Positioned between the compartments are pages, which are removable and replaceable from the interior of the backpack. The pages include receiver elements to secure articles to the pages. The receiver elements can be specifically configured, e.g., size and shape, to retain specific items. The backpack of the present invention can be combined with a second pack, which would form a larger carrying system. Additionally or alternatively, the backpack can be combined with auxiliary bags or packs, which may be configured for storing and carrying a specific item.

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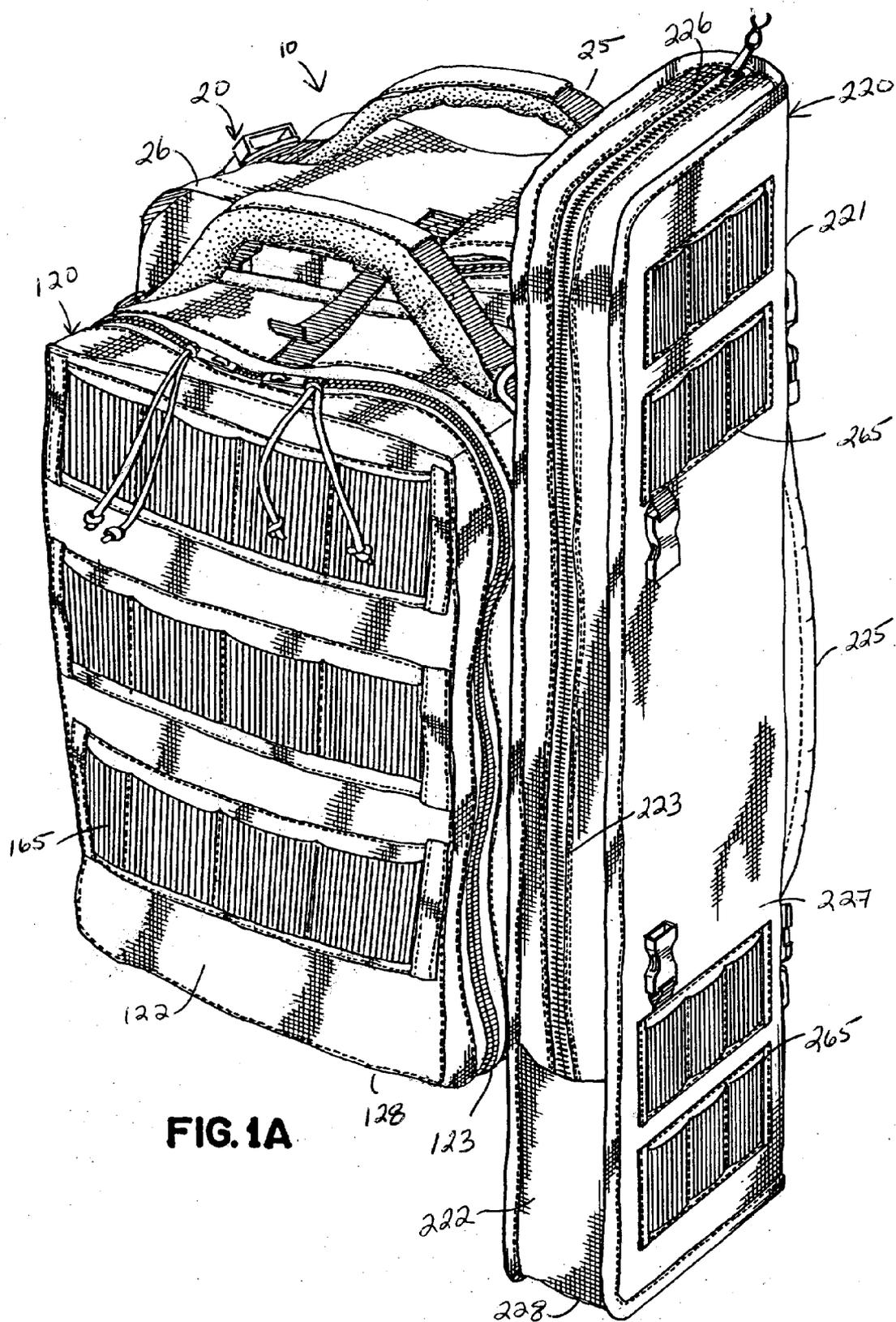


FIG. 1A

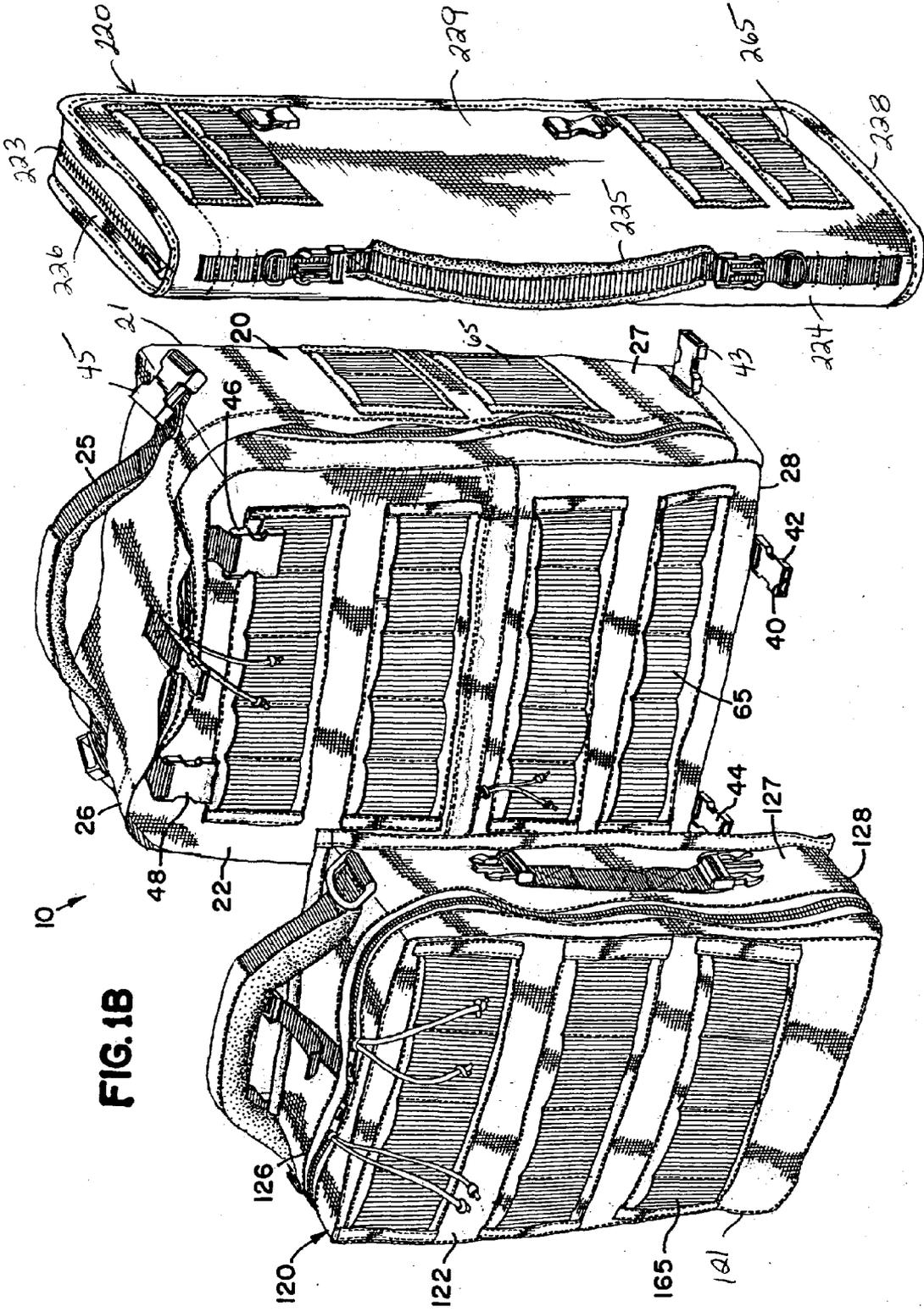
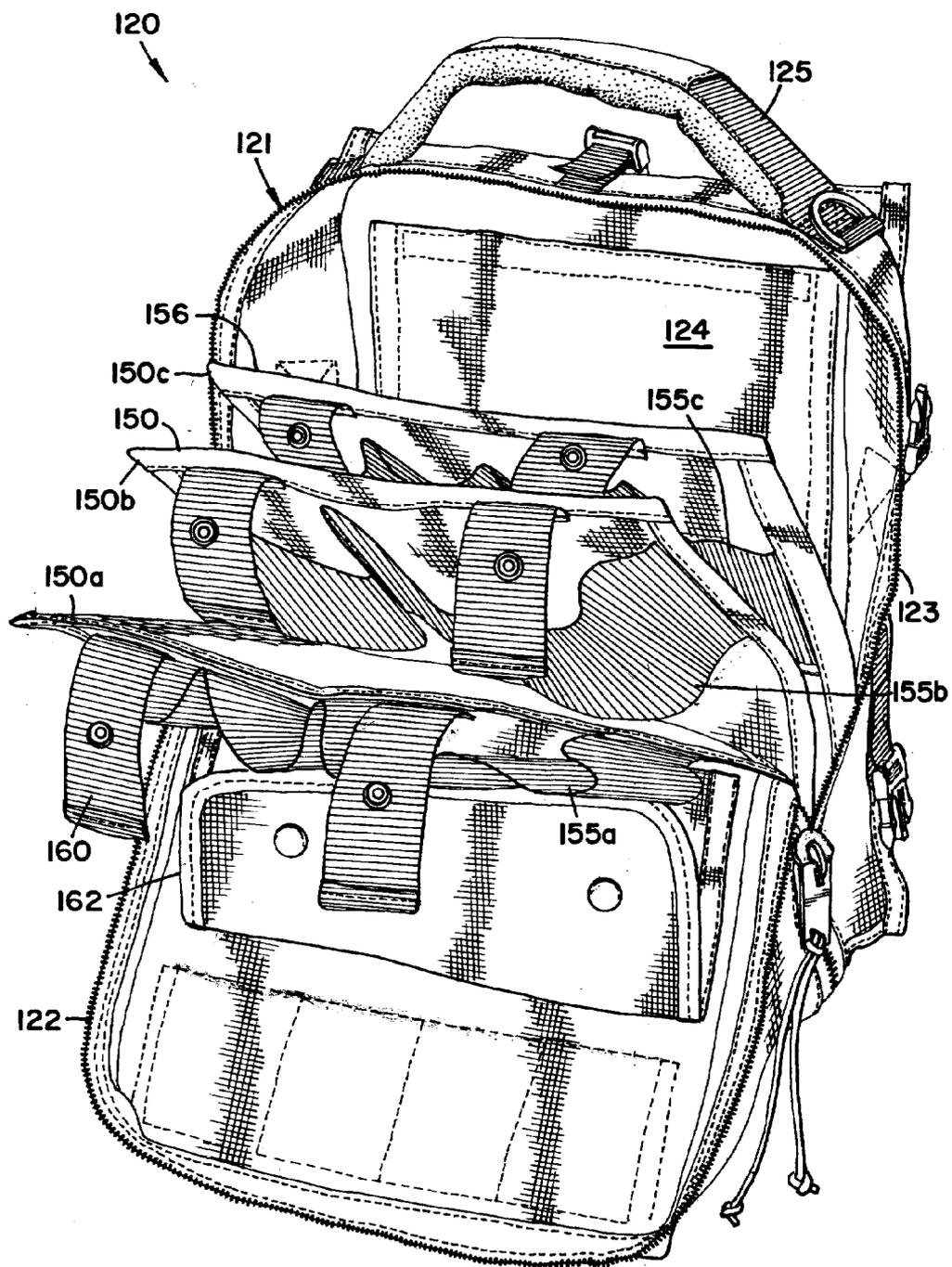


FIG. 1B



**FIG. 3**



**FIG. 4**

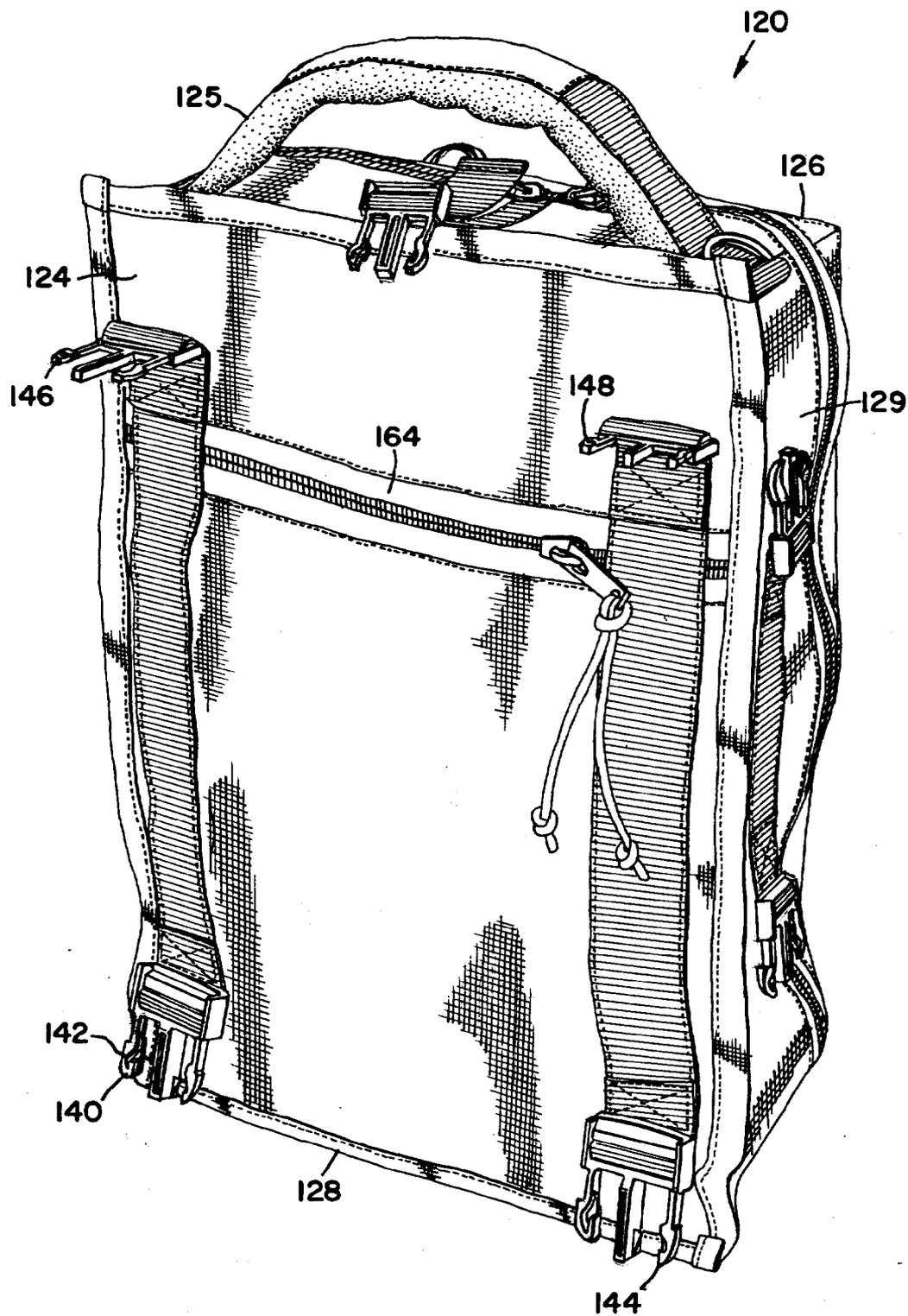
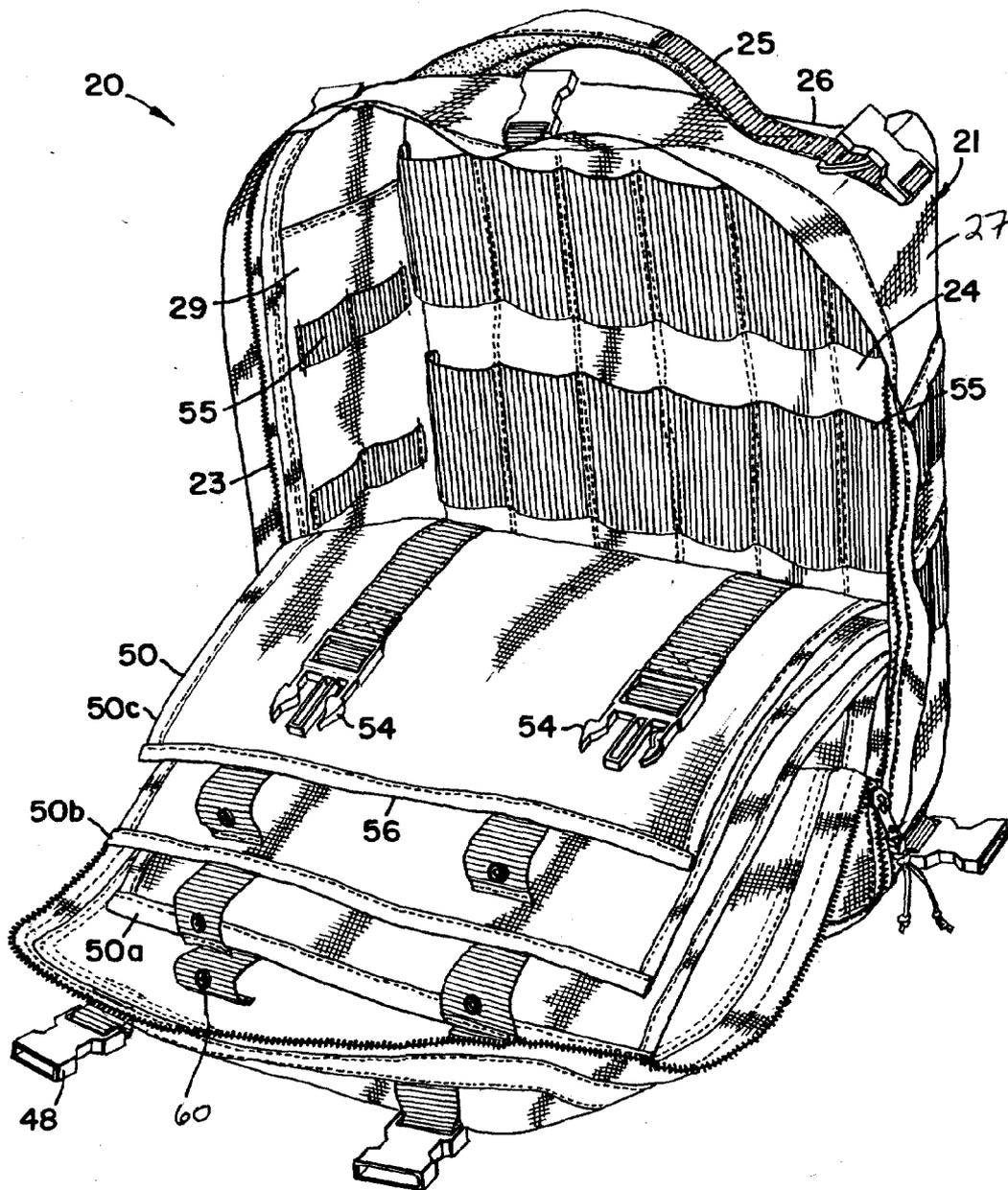
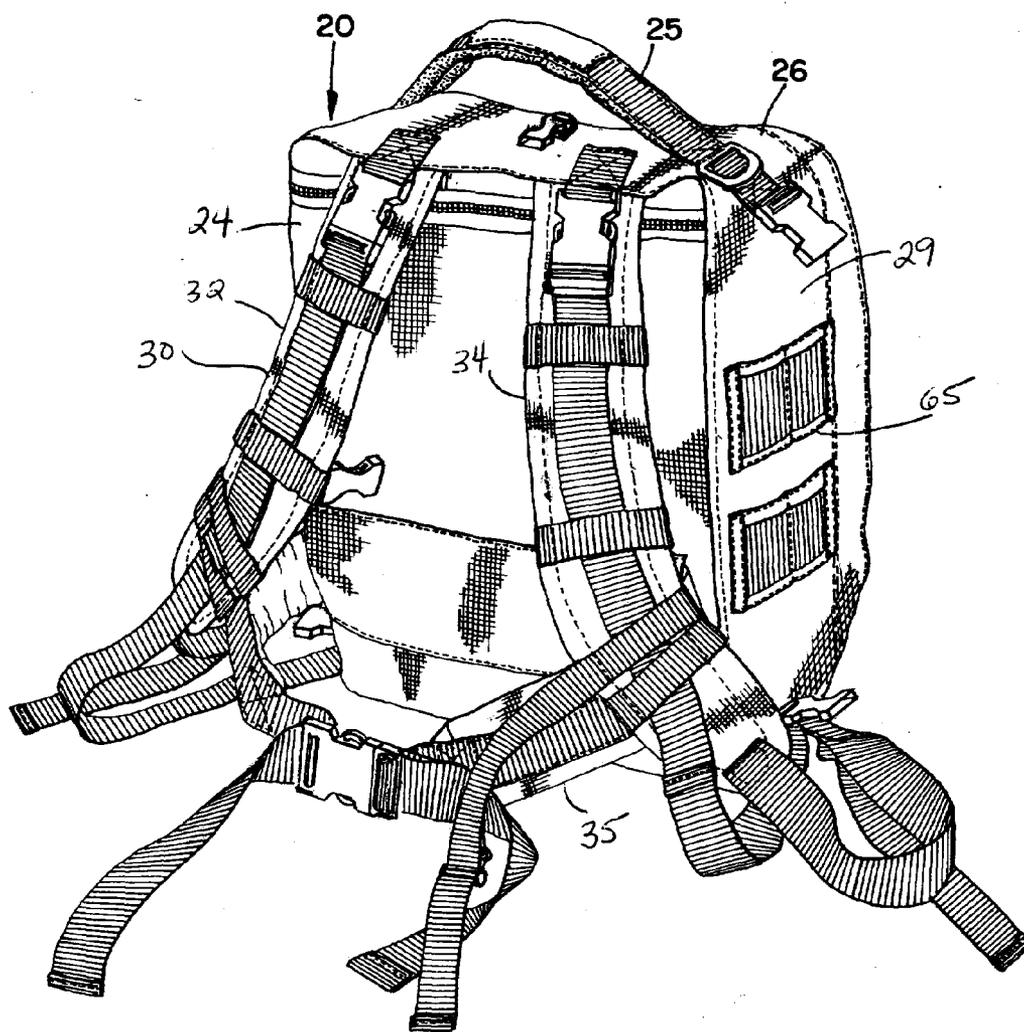


FIG. 5



**FIG. 6**



**COMPARTMENTALIZED STORAGE AND CARRYING BAG**

**TECHNICAL FIELD**

[0001] The present disclosure relates to a carrier or carrying bag and, more particularly relates to a backpack carrier with multiple internal compartments and article receptacles.

**BACKGROUND**

[0002] Backpacks are widely used and accepted for carrying loads of articles, such as everything from student's books to military equipment and supplies. Backpacks have evolved over the years from a simple bag with two shoulder straps to more sophisticated systems for better article organization. In many designs, the backpacks have multiple compartments or chambers for receiving articles, which can be sorted by one article type per compartment.

[0003] Backpacks and other cargo carrying bags are used by the military and other peace keeping forces (e.g., police) to organize, store and carry various articles. The articles within a pack can be sorted and organized depending on the intended situation of use for the pack. For example, for a rescue operation, the pack could have ropes, cables, jacks, and a first aid kit. For a stake-out, the pack could have night vision equipment such as goggles and electronic surveillance equipment. For a riot, the pack could have a riot baton, mace, and/or body armor.

[0004] There is always a desire for improved backpack designs.

**SUMMARY OF THE DISCLOSURE**

[0005] The present invention provides a carrying system that has a backpack having a plurality of compartments for receiving and holding articles. Positioned between the compartments are pages, which are removable and replaceable from the interior of the backpack. The pages include receiver elements to secure articles to the pages. The receiver elements can be specifically configured, e.g., size and shape, to retain specific items. The backpack of the present invention can be combined with a second pack, a third pack, or more, which would form a larger carrying system. Additionally or alternatively, the backpack can be combined with auxiliary bags or packs, which may be configured for storing and carrying other specific item.

[0006] In one particular aspect, the inventive pack system includes a base pack having a body having an inside surface and an outer surface, the inside surface defining an interior volume, and at least one page having a top and a bottom, the page removably connected to the inside surface at its top and its bottom, the page having at least one receiver element thereon configured for retaining an item to the page. The pack may have at least two pages having a top and a bottom, the pages removably connected to the inside surface at their top and their bottom, and the pages having at least one receiver element thereon. The receiver elements may be elastic. The base pack may include a back-mounting support system, a handle, or both.

[0007] The system could include a second pack attached to the first pack. The second pack could have a body having an inside surface and an outer surface, the inside surface defining an interior volume, and at least one page having a

top and a bottom, the page removably connected to the inside surface at its top and its bottom, with the page having at least one receiver element thereon configured for retaining an item to the page. The second pack could have at least two pages having a top and a bottom, the pages removably connected to the inside surface at their top and their bottom, and the pages having at least one receiver element thereon.

[0008] In another particular aspect, the inventive pack system has a base pack and a second pack removably connected to the base pack. The base pack has a body having an inside surface and an outer surface, the inside surface defining an interior volume, and at least one page having a top and a bottom, the page removably connected to the inside surface at its top and its bottom, with the page having at least one receiver element thereon configured for retaining an item to the page. The second pack has a body having an inside surface and an outer surface, the inside surface defining an interior volume, and at least one page having a top and a bottom, the page removably connected to the inside surface at its top and its bottom, with the page having at least one receiver element thereon configured for retaining an item to the page. The pack system could additionally include a third pack removably connected to one or both of the base pack and the second pack.

[0009] These and various other features which characterize the system and backpacks of this disclosure are pointed out with particularity in the attached claims. For a better understanding of the packs of the disclosure, their advantages, their use and objectives obtained by their use, reference should be made to the drawings and to the accompanying description, in which there is illustrated and described preferred embodiments of the invention of this disclosure.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0010] FIG. 1A is a front perspective view of a carrying system according to the present disclosure illustrating three packs, a first base pack, a second annex pack and a third annex pack;

[0011] FIG. 1B is a front perspective view of the carrying system of FIG. 1 showing the three packs released from each other;

[0012] FIG. 2 is a front perspective view of an alternate carrying system according to the present disclosure illustrating two packs, the first base pack and the second annex pack;

[0013] FIG. 3 is a front perspective view of the second annex pack being at least partially open, showing the interior of the second pack;

[0014] FIG. 4 is a back perspective view of the second annex pack;

[0015] FIG. 5 is a front perspective view of the base pack being at least partially open, showing the interior of the base pack; and

[0016] FIG. 6 is a back perspective view of the base pack.

**DETAILED DESCRIPTION**

[0017] The present invention is directed to a carrying system that has a backpack having a plurality of compartments for receiving and holding articles. Positioned between

the compartments are pages, which are removable and replaceable from the interior of the backpack. The pages include receiver elements to secure articles to the pages. The receiver elements can be specifically configured, e.g., size and shape, to retain specific items.

[0018] The backpack of the present invention can be combined with a second pack, which would form a larger carrying system. Additionally or alternatively, the backpack can be combined with further auxiliary bags or packs, which may be configured for storing and carrying a specific item.

[0019] Briefly, the present invention provides a pack or backpack which, in the normal use position, is carried or supported on the back of the wearer. The term "pack" or "backpack," as used herein, is intended to refer to a bag, receptacle, frame or pack of any shape of a size configured for use by a human.

[0020] Referring now to the figures, where like reference numerals throughout represent like elements, a carrying system 10 is illustrated. Carrying system 10, in this embodiment, has a base pack 20, an annex pack 120, and an equipment pack 220. In FIG. 1B, annex pack 120 and equipment pack 220 are illustrated removed from base pack 20. System 10 includes at least base pack 20 and any number of additional packs, such as annex pack 120, equipment pack 220, and/or other bags, packs, or accessories.

[0021] Carrying system 10 facilitates storage, organization, and moving, e.g., carrying, of articles. Referring to FIGS. 1A, 1B, 2, 5 and 6, base pack 20 includes a handle 25 to facilitate carrying base pack 20, typically in a generally upright position. Pack 20 also includes a back-mounting support system 30 (see FIG. 6) for facilitating carrying base pack 20, such as on the back of a user. Support system 30 can have one or two shoulder straps that are attached to the top of the pack near the upper end and at the lower ends to the side of the pack. In a preferred design, support system 30 includes a first shoulder strap 32 and a second shoulder strap 34. A waist strap or cummerbund 35 can be included to stabilize and provide additional support to base pack 20 and any other pack or equipment attached thereto. Additionally or alternatively, a chest strap can be included to further stabilize and provide additional support.

[0022] System 10 includes various pouches, pockets receptacles and other retaining features for receipt, organization, and containment of items. System 10 may be specifically designed for items such as cameras and related accessories, electronic equipment, or military equipment. In one particular embodiment, system 10 is specifically designed to organize, transport and store munitions, such as practice/inert rounds, live rounds, or chemical munitions, such as tear gas (or, such as OC, SC, CN and SM type products). System 10 can also organize, transport and store related equipment, such as firearms and/or gas masks.

[0023] Base pack 20 and annex pack 120 include many of the same features; equipment pack 220 also includes some of the features of packs 20, 120. It is to be understood that features discussed in respect to one of base pack 20, annex pack 120, or equipment pack 220 can be present on each or any of the others. To facilitate understanding, elements of annex pack 120 that are similar to elements of base pack 20 are numbered as "100" higher than the corresponding element in base pack 20, and elements of equipment pack 220

that are similar to elements of base pack 20 are numbered as "200" higher than the corresponding element in base pack 20.

[0024] Referring in particular to FIGS. 1A and 1B, system 10 has base pack 20 and annex pack 120 attachable and removable from base pack 20. Annex pack 120 increases the storage volume of system 10, which increases the amount of items that can be carried and stored in system 10. System 10 also includes equipment pack 220 attachable and removable from base pack 20 and/or annex pack 120. Equipment pack 220 also increases the storage volume of system 10, which increases the amount of items that can be carried and stored in system 10. FIG. 2 illustrates system 10', which is similar to system 10 except that only two packs are present in system 10'; that is, system 10' has base pack 20 and annex pack 120. It is to be understood that both two bag systems (e.g., system 10') and three bag systems (e.g., system 10), are within the scope of this invention. It should be also understood that a single bag or pack (e.g., base pack 20), is within the scope of this invention.

[0025] Each of base pack 20, annex pack 120, and equipment pack 220 is defined by a body 21, 121, 221, respectively, which forms the overall shape and size of packs 20, 120, 220. Body 21, 121, 221 can be made of any suitable material, including fabric and plastic. Preferably, body 21, 121, 221 is flexible and not overly rigid. A preferred material for body 21, 121, 221, though not required, is that known as Ballistic Nylon, which is a heavy-duty, tear-resistant material that is also water resistant. Duck canvas is a similar material that is suitable. Other materials could alternately be used, materials such as nylon, cotton, polyester, and carbon fiber and other flexible composite or ceramic materials. Body 21, 121, 221 can be a combination of multiple materials. A coating or treatment can be added to the material of body 21, 121, 221 to, for example, increase water repellency.

[0026] Each of base pack 20, annex pack 120, equipment pack 220 includes a back side 22, 122, 222, which is the side of the pack 20, 120, 220 seen when system 10 (or system 10') is being carried on the back of a user by shoulder straps 32, 34; see FIGS. 1A and 1B. Each of base pack 20, annex pack 120, and equipment pack 220 includes a front side 24, 124, 224 which is the side opposite of back side 22, 122, 222 and which is facing the back of the user when being carried on the back of the user; see FIG. 6 for front side 24, FIG. 4 for front side 124, and FIG. 1B for front side 224. It is noted that in FIG. 1B, equipment pack 220 has been rotated from its position in FIG. 1A, in order to facilitate illustration and understanding of pack 220.

[0027] Packs 20, 120, 220 also include a top 26, 126, 226, a bottom 28, 128, 228, first side 27, 127, 227 and opposite second side 29, 129, 229. For packs 20, 120, top 26, 126 includes handle 25, 125 for easy carrying of pack 20, 120. For pack 220, front side 224 includes handle 225. Access to the interior of pack 20, 120, 220 is provided by a closure mechanism 23, 123, 223, such as a zipper.

[0028] Annex pack 120 can be removably connected to base pack 20 by any suitable means. In the illustrated embodiment, base pack 20 includes first attachment system 40 and annex pack 120 includes second attachment system 140 which is configured to releaseably engage, or attach and detach, from first attachment system 40. In the embodiment of FIG. 1B, first attachment system 40 comprises receptacles

42, 44, 46, 48, which are configured to respectively receive second attachment system 140, which comprises clips 142, 144, 146, 148 (FIG. 4). First attachment system 40 and second attachment system 140 could be any suitable attachment system sufficiently sturdy to attach and retain annex pack 120 to base pack 20. The particular attachment system 40, 140 illustrated is often referred to as a "quick release", however other suitable attachment systems include snaps, other male/female type connectors, hook and loop, and other mechanical fasteners.

[0029] Referring to FIG. 3, the interior of annex pack 120 is illustrated. This interior is accessed by opening closure mechanism 123. Inside, pack 120 includes a plurality of pages 150, each of which is adapted to retain at least one item, as will be described below. Pack 120 includes three pages 150, specifically pages 150A, 150B, 150C, each of which has a top edge 156 and an opposite bottom edge (not seen). Although three pages 150 are present in the illustrated embodiment, it is to be understood that more or less pages 150 may be present. The number of pages 150 present will depend on the interior volume of body 121, and the shape and size of items intended to be retained by pages 150.

[0030] Page 150 is removably connected to body 121 at its top edge 156 and preferably also at its bottom edge. When page 150 is released at its top edge 156, page 150 is pivotal in relation to its bottom edge. Each pivotal page 150 can be secured via connection mechanisms 160. In the illustrated embodiment, connection mechanism 160 includes a snap half on a flexible tab, which is configured to engage with a mating snap half, which would be located inside body 121 at top edge 126.

[0031] Having pages 150 pivotal provides access to any pages 150 positioned behind the one being pivoted. For example, pivoting page 150A outward, away from front side 124, provides access to page 150B, and then pivoting page 150B outward provides access to page 150C. Pivoting page 150C outward provides access to the volume between page 150C and front side 124.

[0032] Each page 150 is preferably adapted to retain at least one item, via receiver element 155. In the embodiment illustrated, page 150A has receiver element 155A configured with four pockets, page 150B has receiver element 155B configured with two pockets, and page 150C has receiver element 155C configured with four pockets. These pockets may be open or closed at their bottom end. Each pocket of receiver elements 155 can be shaped and sized to retain an item with a specific shape and size. That is, page 150 can be specifically designed for a certain use. For example, the four pockets of receiver element 155A on page 150A could be configured to retain tear gas or other chemical munitions rounds for shotguns, whereas the two pockets of receiver element 155B on page 150B could be configured to retain tear gas canisters for a variety of delivery systems. Although only one receiver element 155 is seen on each of pages 150A, 150B, 150C, it is understood that any page 150 could have multiple receiver elements 155 thereon.

[0033] Receiver element 155 is a structure for holding and retaining items to page 150. Receiver element 155 should be sufficiently flexible to allow placing and removing items from the pockets, and sufficiently strong to withstand tearing and breaking. Any material that meets these design constraints is suitable, and examples include nylon (includ-

ing Ballistic nylon), cotton, canvas, elastics, and other fabrics. Of course, combinations of materials can be used.

[0034] To further increase the storage and/or organizational capabilities of pack 120, pack 120 includes a pocket 162 located on the inside of back side 122. Pack 120 also includes a pocket 164 on the exterior of front side 124; FIG. 4. Pockets 162, 164 can be opened and closed via any suitable closure mechanism, such as snaps, zipper, or hook and loop, if present at all.

[0035] Base pack 20 has many features that are similar or the same as features of annex pack 120.

[0036] Referring to FIG. 5, the interior of base pack 20 is illustrated. Access is gained to this interior by opening closure mechanism 23. Pack 20 includes a plurality of pages 50, similar to pages 150. Pack 20 includes three pages 50, specifically pages 50A, 50B, 50C, each of which has a top edge 56 and an opposite bottom edge (not seen). Although three pages 50 are present in the illustrated embodiment, it is to be understood that more or less pages 50 may be present.

[0037] Page 50 is removably connected to body 21 at its top edge 56 and preferably at its bottom edge. When page 50 is released at its top edge 56, page 50 is pivotal in relation to its bottom edge. Each pivotal page 50 can be secured via connection mechanism 60, which is illustrated as a snap half, to engage with a mating snap half, which would be located inside body 21 at top edge 26. Pivotal pages 50 provide access to any pages 50 positioned behind the one being pivoted and to the front side 24 of pack 20.

[0038] Each page 50 is preferably adapted to retain at least one item, via receiver element 55, which is similar to receiver element 155. In the embodiment illustrated, due to the position of pages 50A, 50B, 50C, receiver elements 55 are not seen on pages 50A, 50B, 50C. Two receiver elements 55 are seen present on back side 24, and in a preferred embodiment a third element 55 is present. In the embodiment illustrated, each receiver element 55 on back side 24 has six pockets, each which can be specifically designed for a certain use. Also, second side 29 of body 21 includes two receiver elements 55, each having two pockets.

[0039] Present on the back of page 50C are clips 54, which can be used for connection to auxiliary items.

[0040] Equipment pack 220 can also be removably connected to either or both of base pack 20 and annex pack 120 by any suitable means. In the illustrated embodiment, base pack 20 also includes receptacles 43, 45 and annex pack 120 includes clips 143, 145, which are configured to releaseably engage or attach and detach, from corresponding clips and receptacles on equipment pack 220.

[0041] In this particular embodiment, equipment pack 220 does not include removable or pivotal pages within its interior. Rather, equipment pack 220 is configured to hold a large item, such as a firearm or chemical/inert munitions or other less-lethal delivery system.

[0042] Each of packs 20, 120, includes at least one item receiver element 65, 165 on back side 22, 122, respectively. As seen in FIG. 1B, pack 20 has four receiver elements 65 on back side 22, with each receiver element 65 having five pockets, and pack 120 has three receiver elements 165 on back side 122, with each receiver element 165 having four

pockets. Pack 20 also includes two receiver elements 65 on side 27. Pack 220 has four receiver elements 265 on each of sides 227 and 229, each receiver element 265 having three pockets. These receivers 65, 165, 265 increase the number of items that can be carried by system 10 or system 10'. When annex pack 120 is connected to base pack 20, receiver elements 65 on base pack 20 are generally inaccessible until annex pack 120 is removed. Also, when equipment pack 220 is connected to base pack 20 and annex pack 120, receiver elements 265 on side 229 are generally inaccessible.

[0043] In this illustrated embodiment, receiver elements 65, 165, 265 are configured to retain generally same sized items, although it is understood the varying sized items could be retained, and, varying sizes of pockets could be present.

[0044] Looking at the various figures, numerous details of system 10, 10' although not specifically discussed, can be readily seen. Any number of clips, receptacles, ties, straps, D-rings, receiver elements and the like can be present on the interior or exterior of either base pack 20, annex pack 120, or equipment pack 220. These clips, receptacles, ties, straps, D-rings and the like can be used to add on additional packs, such as pack 120, equipment pack 220, or other packs, to base pack 20.

[0045] It should be understood that the pack of the present invention could be modified and remain within the scope of the invention. For example, carrying systems according to the present invention could have any number of packs, bags, pouches and the like connected together. The various packs could be configured to fit together in only one manner, or the various elements of the packs, or the packs themselves, could be rearranged. For example, an equipment pack 220 could be positioned on each side 27, 29 of base pack 20. Also for example, any of pages 50, 150 could be removed from the interior of their pack 20, 120 and releaseably connected to an exterior of pack 20, 120 or to yet a separate bag or pack.

[0046] The above specification and examples are believed to provide a complete description of the manufacture and use of particular embodiments of the invention. Because many embodiments of the invention can be made without departing from the spirit and scope of the invention, the true scope and spirit of the invention reside in the broad meaning of the claims hereinafter.

What is claimed is:

- 1. A pack system comprising a base pack having:
  - a body having an inside surface and an outer surface, the inside surface defining an interior volume;
  - at least one page having a top and a bottom, the page removably connected to the inside surface at its top and its bottom, the page having at least one receiver element thereon configured for retaining an item to the page.
- 2. The pack system of claim 1, comprising at least two pages having a top and a bottom, the pages removably connected to the inside surface at their top and their bottom, the pages having at least one receiver element thereon.

3. The pack system of claim 2, wherein the receiver elements comprise elastic.

4. The pack system of claim 2, the base pack further comprising a back-mounting support system.

5. The pack system of claim 2 further comprising a second pack, the second pack comprising:

- a body having an inside surface and an outer surface, the inside surface defining an interior volume;

at least one page having a top and a bottom, the page removably connected to the inside surface at its top and its bottom, the page having at least one receiver element thereon configured for retaining an item to the page.

6. The pack system of claim 5, the second pack comprising at least two pages having a top and a bottom, the pages removably connected to the inside surface at their top and their bottom, the pages having at least one receiver element thereon.

7. The pack system of claim 5 further comprising a third pack removably connected to one or both of the base pack and the second pack.

- 8. A pack system comprising:
  - (a) a base pack comprising:
    - a body having an inside surface and an outer surface, the inside surface defining an interior volume; and
    - at least one page having a top and a bottom, the page removably connected to the inside surface at its top and its bottom, the page having at least one receiver element thereon configured for retaining an item to the page; and
  - (b) a second pack removably connected to the base pack, the second pack comprising:
    - a body having an inside surface and an outer surface, the inside surface defining an interior volume; and
    - at least one page having a top and a bottom, the page removably connected to the inside surface at its top and its bottom, the page having at least one receiver element thereon configured for retaining an item to the page.

9. The pack system of claim 8:

- (a) the base pack further comprising at least two pages having a top and a bottom, the pages removably connected to the inside surface at their top and their bottom, the pages having at least one receiver element thereon;
- (b) the second pack further comprising at least two pages having a top and a bottom, the pages removably connected to the inside surface at their top and their bottom, the pages having at least one receiver element thereon.

10. The pack system of claim 8 further comprising a third pack removably connected to one or both of the base pack and the second pack.

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