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### **BACKCOUNTRY BACKPACK WITH TOOL STORAGE APPARATUS**

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#### **Abstract**

An ultralight backcountry backpack may include at least one shoulder strap connected to a pack body. The pack body may include a back wall configured to interface with a user's back when the backpack is worn, a front wall distal to the back wall, and a perimeter wall connecting the back and front walls. The back, front, and perimeter walls may define an interior storage compartment. The perimeter wall may include an upper region and a basal region. The basal region may comprise a probe zipper, a shovel blade zipper, and a shovel rod zipper. The backpack may include a tool storage apparatus comprising a probe sleeve, a shovel blade sleeve, and a shovel rod sleeve. Each sleeve may be configured to be accessible at the basal region by opening and closing the corresponding zipper.

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## Background/Summary

### TECHNICAL FIELD

[0001] The present disclosure relates generally to outdoor gear for mountaineering, skiing, and snowboarding, specifically, a versatile backcountry backpack having a tool storage apparatus.

### BACKGROUND

[0002] The backcountry, a remote undeveloped wilderness beyond your typical ski resort boundaries, can be treacherous for mountaineers, skiers, snowboarders, and adventurers alike. Whether scaling vast New Zealand peaks, setting uphill skin tracks in undisturbed Canadian mountain passes, or snowboarding down backcountry slopes near a popular Colorado ski resort, navigating the varied and ever-changing environmental conditions of raw wilderness requires trustworthy gear.

[0003] For every adventurer, few pieces are more important than the backcountry backpack. The backpack is a critical backcountry staple, necessary for accomplishing one's objectives in the backcountry, be it securing skis and snowboards or storing emergency tools of many kinds. Avalanches are an acute danger in the backcountry and adventurers prepare for avalanches by carrying avalanche rescue tools in their backpacks. Regrettably, today's backpacks lack the versatility needed to fulfill many backcountry objectives and fall short in meeting the moment when disaster strikes. Critically, many packs fail to make tools easily accessible.

[0004] Current backcountry backpacks are often too heavy, made of materials inadequate for withstanding regular use and environmental stressors, are improperly compartmentalized, and give users poor access to the tools they require on a moment's notice. Backpack storage systems should improve safety and maximize tool accessibility when exploring the great outdoors.

### SUMMARY

[0005] A backcountry backpack and a tool storage system is disclosed herein, in accordance with various embodiments.

[0006] In some aspects, an ultralight backcountry backpack is disclosed herein. The ultralight backcountry backpack may include at least one shoulder strap connected to a pack body. The pack body may include a back wall. The back wall may interface with a user's back when the backpack is worn. The back wall may include a wall zipper.

[0007] The pack body may also include a front wall that is distal to the back wall and a perimeter wall connecting the back and front walls. Together, the back, front, and perimeter walls may define an interior storage compartment. The perimeter wall may include an upper region and a basal region. The basal region may include a probe zipper, a shovel blade zipper, and a shovel rod zipper. Each of the probe zipper, shovel blade zipper, and shovel rod zipper may allow a user to access the tool storage apparatus without the need for taking off the ultralight backcountry backpack.

[0008] The backpack may further include a tool storage apparatus within the interior storage compartment. The tool storage apparatus may include a probe sleeve, a shovel blade sleeve, and a shovel rod sleeve. Each of the probe, shovel blade, and shovel rod sleeves may be accessible at the basal region by opening and closing the corresponding probe, shovel blade, and shovel rod zippers.

[0009] A backpack is also disclosed herein, in accordance with various embodiments. The backpack may include at least one shoulder strap connected to a pack body. The pack body may include a first wall, which may interface with a user's back when the backpack is worn. The first wall may include a wall zipper.

[0010] The pack body may further include a second wall that is distal to the first wall, and a third wall connecting the first and second walls. The third wall may include an upper region, a basal region, a first lateral region, and a second lateral region ("first lateral wall" and "second lateral wall" may be used interchangeably to describe the first lateral region and second lateral region,

respectively).

[0011] The pack body may further comprise a first lateral region zipper located proximately between the basal region and first lateral region, and a base zipper located proximately between the second wall and the basal region of the third wall. The pack body may define an interior volume. In various embodiments, interior surfaces of the first, second, and third walls may define a storage apparatus within the interior volume. Each of the first lateral region zipper and the base zipper may allow a user to access the storage apparatus without taking off the backpack.

[0012] A backpack is disclosed herein, in accordance with various embodiments. The backpack may include at least one shoulder strap connected to a pack body. The pack body may include a first wall. The first wall may interface with a user's back when the backpack is worn. The first wall may include a wall zipper.

[0013] The pack body may further include a second wall that is distal to the first wall, and a third wall connecting the first and second walls. Together, the first, second, and third walls may define an interior volume. The third wall may include an upper region and a basal region. The basal region may include a first basal zipper, a second basal zipper, and third basal zipper.

[0014] The backpack may further include a storage apparatus within the interior volume. The storage apparatus may include a first sleeve, a second sleeve, and a third sleeve. Each of the first, second, and third sleeves may be accessible at the basal region by opening and closing the corresponding first, second, and third zippers. Each of the first, second, and third zippers may allow a user to access the storage apparatus without taking off the backpack.

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## Description

### BRIEF DESCRIPTION OF THE DRAWINGS

[0015] A more complete understanding of the subject matter may be derived by referring to the detailed description and claims when considered in conjunction with the following figures, wherein like reference numbers refer to similar elements throughout the figures.

[0016] FIG. 1 illustrates a perspective view of a backpack, in accordance with various embodiments;

[0017] FIG. 2 illustrates a perspective view of the backpack, in accordance with various embodiments;

[0018] FIG. 3 illustrates a perspective view of the backpack, in accordance with various embodiments;

[0019] FIG. 4 illustrates a perspective view of the backpack, in accordance with various embodiments;

[0020] FIG. 5A illustrates a perspective view of the backpack when open, in accordance with various embodiments;

[0021] FIG. 5B illustrates a perspective view of a portion of the backpack, in accordance with various embodiments;

[0022] FIG. 5C illustrates a perspective view of a portion of the backpack, in accordance with various embodiments;

[0023] FIG. 5D illustrates a side view of a portion of the backpack, in accordance with various embodiments;

[0024] FIG. 5E illustrates a perspective view of the backpack, in accordance with various embodiments;

[0025] FIG. 5F illustrates a perspective view of the backpack when open, in accordance with various embodiments;

[0026] FIG. 6A illustrates a perspective view of a basal region of the backpack, in accordance with various embodiments;

[0027] FIG. 6B illustrates a top-down view of a portion of an interior volume of the backpack, in accordance with various embodiments;

[0028] FIG. 6C illustrates a perspective view of a portion of the backpack's interior volume, in accordance with various embodiments;

[0029] FIG. 6D illustrates a perspective view of a portion of the backpack's interior volume, in accordance with various embodiments;

[0030] FIG. 7 illustrates a perspective view of a portion of a backpack, in accordance with various embodiments;

[0031] FIG. 8 illustrates a perspective view of a portion of a backpack, in accordance with various embodiments;

[0032] FIG. 9 illustrates a perspective view of an ultralight backcountry backpack, in accordance with various embodiments;

[0033] FIG. 10 illustrates a perspective view of the ultralight backcountry backpack, in accordance with various embodiments;

[0034] FIG. 11a illustrates a perspective view of the ultralight backcountry backpack, in accordance with various embodiments;

[0035] FIG. 11b illustrates a perspective view of the ultralight backcountry backpack, in accordance with various embodiments;

[0036] FIG. 11c illustrates a perspective view of a diagonal ski carry system on the ultralight backcountry backpack, as worn by a wearer, in accordance with various embodiments;

[0037] FIG. 12A illustrates a perspective view of the ultralight backcountry backpack when open, in accordance with various embodiments;

[0038] FIG. 12B illustrates a perspective view of a portion of the ultralight backcountry backpack, in accordance with various embodiments;

[0039] FIG. 12C illustrates a perspective view of a portion of the ultralight backcountry backpack, in accordance with various embodiments;

[0040] FIG. 12D illustrates a side view of a portion of the ultralight backcountry backpack, in accordance with various embodiments;

[0041] FIG. 12E illustrates a perspective view of the ultralight backcountry backpack, in accordance with various embodiments;

[0042] FIG. 12F illustrates a perspective view of the ultralight backcountry backpack when open, in accordance with various embodiments;

[0043] FIG. 13A illustrates a perspective view of a basal region of the ultralight backcountry backpack, in accordance with various embodiments;

[0044] FIG. 13B illustrates a top-down view of a portion of an interior storage compartment of the ultralight backcountry backpack's, in accordance with various embodiments;

[0045] FIG. 13C illustrates a perspective view of a portion of the ultralight backcountry backpack's interior storage compartment, in accordance with various embodiments;

[0046] FIG. 13D illustrates a perspective view of a portion of the ultralight backcountry backpack's interior storage compartment, in accordance with various embodiments;

[0047] FIG. 14 illustrates a perspective view of an ultralight backcountry backpack, in accordance with various embodiments;

[0048] FIG. 15 illustrates a perspective view of an ultralight backcountry backpack, in accordance with various embodiments;

[0049] FIG. 16 illustrates a perspective view of an ultralight backcountry backpack, in accordance with various embodiments;

[0050] FIG. 17 illustrates a perspective view of an ultralight backcountry backpack, in accordance with various embodiments;

[0051] FIG. 18 illustrates a perspective view of the ultralight backcountry backpack of FIGS. 9-13D, in accordance with various embodiments;

[0052] FIG. **19** illustrates a perspective view of a portion of the ultralight backcountry backpack of FIGS. **9-13D** with at least one adjustable hip pad, in accordance with various embodiments; [0053] FIG. **20a** illustrates a perspective view of a portion of the at least one adjustable hip pad of FIG. **19**, in accordance with various embodiments; and [0054] FIG. **20b** illustrates a perspective view of a portion of the at least one adjustable hip pad of FIGS. **19-20a**, in accordance with various embodiments.

#### DETAILED DESCRIPTION

[0055] The following detailed description is merely illustrative in nature and is not intended to limit the embodiments of the subject matter of the application and uses of such embodiments. As used herein, the words “exemplary” and “example” mean “serving as an example, instance, or illustration.” Any implementation or embodiment described herein as exemplary, or an example is not necessarily to be construed as preferred or advantageous over other implementations. Furthermore, there is no intention to be bound by any expressed or implied theory presented in the preceding technical field, background, or the following detailed description.

[0056] An ultralight backcountry backpack is disclosed herein, in accordance with various embodiments. The ultralight backcountry backpack may include at least one shoulder strap connected to a pack body. In various embodiments, the pack body may include a back wall that may interface with a user's back when the backpack is worn. The back wall may include a back wall zipper. The pack body may also include a front wall that is distal to the back wall and a perimeter wall connecting the back and front walls. Together, the back, front, and perimeter walls may define an interior storage compartment. The perimeter wall may include an upper region and a basal region. The basal region may include a probe zipper, a shovel blade zipper, and a shovel rod zipper.

[0057] The ultralight backcountry backpack may further include a tool storage apparatus within the interior storage compartment. The tool storage apparatus may include a probe sleeve, a shovel blade sleeve, and a shovel rod sleeve. Each of the probe, shovel blade, and shovel rod sleeves may be accessible at the basal region by opening and closing the corresponding probe, shovel blade, and shovel rod zippers.

[0058] A backpack is also disclosed herein, in accordance with various embodiments. The backpack may include at least one shoulder strap connected to a pack body. The pack body may include a first wall. The first wall may interface with a user's back when the backpack is worn, and may include a first wall zipper. The pack body may further include a second wall that is distal to the first wall, and a third wall connecting the first and second walls. Together, the first, second, and third walls may define an interior volume. The third wall may include an upper region and a basal region. The basal region may include a first basal zipper, a second basal zipper, and third basal zipper.

[0059] The backpack may further include a storage apparatus within the interior volume. The storage apparatus may include a first sleeve, a second sleeve, and a third sleeve. Each of the first, second, and third sleeves may be accessible at the basal region by opening and closing the corresponding first, second, and third basal zippers.

[0060] FIGS. **1** through **5** illustrate perspective views of a backpack, in accordance with various embodiments.

[0061] As shown in FIGS. **1** and **2**, the backpack **100** may include at least one shoulder strap **102** connected to a pack body **104**. In some aspects, the pack body **104** may include a first wall **106**. In various embodiments, the first wall **106** may include a wall zipper **107** that enables user access to contents (e.g., gear) stowed in the pack body **104**. In various embodiments, the first wall **106** of the pack body **104** may interface with a user's back when the backpack is worn. Moreover, as shown in FIGS. **1** and **2**, the shoulder strap **102** may be connected to the pack body **104** at the first wall **106**. In some aspects, the shoulder strap **102** may include at least one adjustable load lifter strap **122** proximal an upper region **112a** of the pack body **104**. In various embodiments, the adjustable load

lifter strap **122** may further connect the shoulder strap **102** to the first wall **106**, stabilizing the backpack **100** when used. In various embodiments, the adjustable load lifter strap **122** may shift and/or disperse the load (e.g., weight) from the user's shoulder by lifting part of the load off the user's shoulder when the backpack **100** is worn, increasing comfort to the user, decreasing user fatigue, and improving stability.

[0062] In various embodiments, the pack body **104** may include at least one hip pad **105**. The hip pad **105** may further increase stability to the user when carrying the backpack **100** by transferring the weight of the backpack **100**, shifting part of the load from the user's shoulder to the user's hips. In doing so, the hip pad **105** may allow a user's legs (which are generally stronger than a user's shoulders) to bear much of the backpack's weight. In various embodiments, the hip pad **105** may be padded. In other embodiments, the hip pad **105** may be webbed.

[0063] In various embodiments, the pack body **104** may allow a user to store gear and other items. In one exemplary embodiment, the pack body **104** may be large enough to accommodate multiple pieces of gear at once, such as for example, long probe(s), shovel(s), snow glove(s), radio(s), rope(s), snack(s), a helmet, a hydration bladder, an air supply apparatus, and the like.

[0064] Moreover, referring to FIGS. **1-4**, the pack body **104** may further include a second wall **108** that is distal to the first wall **106**. In various embodiments, the pack body **104** may further include a third wall **110** connecting the first wall **106** and second wall **108**. As shown in FIG. **2**, the third wall **110** may include an upper region **112a** and a basal region **112b**. In various embodiments, when the backpack **100** is being worn by a user, the upper region **112a** of the third wall **110** may be proximal the user's upper back, neck, and head region.

[0065] Likewise, when the backpack **100** is being worn by the user, the basal region **112b** of the third wall **110** may be proximal the user's lower back, tailbone, and leg region. In various embodiments, the third wall **110** may further include at least one lateral region. For example, as shown in FIG. **3**, the third wall **110** may include a first lateral region **140** and a second lateral region **144**. In various embodiments, the first lateral region **140** may be distal the second lateral region **144**. Accordingly, in various embodiments, the third wall **110** connecting the first wall **106** and second wall **108** may include upper **112a**, basal **112b**, first lateral **140**, and second lateral **144** regions.

[0066] In various embodiments, as shown in FIG. **4**, the upper region **112a** of the third wall **110** may define an expandable opening **136**. In various embodiments, the expandable opening **136** may be an expandable cinch opening, drawstring opening, roll top opening, and/or the like. In various embodiments, expandability of the upper region **112a** of the third wall **110** may be advantageous, allowing for storage of items for any kind of outdoor objective, and for any purpose. In various embodiments, expandability of the upper region **112a** of the third wall **110** may be advantageous, allowing for storage of bulky gear items, such as helmets, beverages, sleeping bags, and the like. In various embodiments, the third wall **110** defining the expandable opening **136** may enable access to contents stored within the pack body **104**.

[0067] As shown in FIGS. **2** and **3**, in various embodiments, the pack body **104** may further include a vertical snowboard carry system **130**. As shown, the vertical snowboard carry system **130** may include a first strap **132** attached at the second wall **108** proximal the basal region **112b** of the third wall **110**. In various embodiments, the first strap **132** may further include a fastening means for removably coupling to a corresponding member at the second wall **108** proximal the basal region **112b** of the third wall **110**. In various embodiments, the corresponding member may be at the second wall **108** proximal the basal region **112b** of the third wall **110** and horizontally distal the first strap **132**. In various embodiments, the fastening means and corresponding member may be a clasp, buckle, clip, catch, hook, tie, pin lock, and the like.

[0068] In various embodiments, the vertical snowboard carry system **130** may further include a and a second strap **134** diagonally distal the first strap **132** and attached at the upper region **112a** of the third wall **110**. In various embodiments, the second strap **134** may be removably coupled to a band

**135** attached at the first wall **106** proximal the upper region **112a** of the third wall **110**. Together, the first strap **132** and second strap **134** may be wrapped around a snowboard and removable coupled to the corresponding member and the band **135**, respectively.

[0069] Accordingly, in various embodiments, the vertical snowboard carry system may allow a snowboard to be removably secured to the backpack **100**. Therefore, in some aspects, the second wall **108** of the pack body **104** may interface with a snowboard. In various embodiments, the snowboard carry system disclosed herein may secure a snowboard to the backpack **100** in any desirable orientation, be it vertical, diagonal, or horizontal.

[0070] Referring to FIG. 5A and in continued reference to FIGS. 1-4, as shown, the first wall **106**, second wall **108**, and third wall **110** may define an interior volume **111** (illustrated in FIG. 5A). As shown in FIG. 5A, the interior volume **111** may allow a user to store gear, and other items. In various embodiments, the interior volume **111** may be large enough to accommodate multiple pieces of gear at once, such as for example, long probe(s), shovel(s), snow glove(s), radio(s), rope(s), snack(s), a helmet, a hydration bladder, an air supply apparatus, and the like.

[0071] In various embodiments, the interior volume **111** may be revealed or accessed by opening the first wall zipper **107** of the first wall **106**. FIG. 5A shows part of the first wall **106** in an “open” position, in accordance with various embodiments. As shown, the first wall **106** may include an interior surface **124** defining a first wall pocket **126**. In various embodiments, the first wall pocket **126** may include a fastening means, such as a zipper fastener, hook and loop fastener, and the like. In various embodiments, the first wall pocket **126** may be accessed by opening and closing the fastening means. In various embodiments, the first wall pocket **126** may be an open pocket.

[0072] In some aspects, the first wall pocket **126** may receive and store a removable first panel sheet. When not in use, the first panel sheet may be removed from the pack body **104** to reduce the weight of the backpack **100**. In various embodiments, the first panel sheet may be removed from the pack body **104** to be used as a cushioning means, such as, for example, a knee pad, a seat, and the like. In various embodiments, the first panel sheet may be removed from the pack body **104** to be used for first aid, such as, for example, splinting a patient, separating a patient from the snow while awaiting rescue, and the like.

[0073] In various embodiments, the first panel sheet may be, for example, a polyethylene foam sheet. In various embodiments, the first panel sheet may be made of any material having a dimensional stability and recovery characteristic that provides cushioning and stability on impact.

[0074] As further shown in FIG. 5A, the first wall **106** may define at least one port **128** proximal the upper region **112a** of the third wall **110** of the pack body **104**. In various embodiments, the port **128** may allow access to a piece of equipment or gear, allowing such piece of equipment or gear to pass therethrough. For example, the port **128** may allow access to at least one of an air-supply mouthpiece and a hydration tube mouthpiece. Access to an air-supply mouthpiece may be beneficial in the event of an avalanche or snow collapse in which the user is buried under the snow. Without taking the backpack **100** off, the user may be able to access the air-supply mouthpiece at the port **128**. Likewise, access to a hydration tube at the port **128** may reduce the inconvenience of doffing and donning the backpack **100**, giving the user near immediate access to water (or other liquids) when needed.

[0075] In some aspects, providing further support and structure to the pack body **104**, the pack body **104** may include a removable frame within the interior volume **111**. In various embodiments, the removable frame may assist in distributing weight evenly across a user's back and hips. In some aspects, the removable frame may extend along the third wall **110** (e.g., a circumference of the interior volume **111**), thereby following the pack body's shape and structure. In various embodiments, the removable frame may assist the user in carrying heavier loads for greater periods of time. In some aspects, a user may determine that the frame is not needed, and may elect to remove the frame, thereby further reducing the overall weight of the backpack **100**.

[0076] In some aspects, interior surfaces of the first wall **106**, second wall **108**, and third wall **110**

may further define a storage apparatus within the interior volume **111**. The storage apparatus, which will be described in further detail in reference to the backpack **100** embodiment shown in FIGS. **6A-D**, may comprise at least one sleeve capable of storing items, such as gear. In various embodiments, the storage apparatus may store items that a user may need on short notice in the backcountry, such as an avalanche probe and/or shovel. The storage apparatus may cordon off the gear stored therein from the rest of the contents stored within other parts of the interior volume **111**. This may be desirable if the contents stored in the sleeves, such as gear, gets wet when being used. Accordingly, storing such contents in the storage apparatus may help reduce the likelihood of the other backpack contents getting wet.

[0077] Moreover, a user may want to reach their gear on a moment's notice whether for convenience or emergency purposes, or the environment may prevent the user from taking off the backpack **100** to reach stored items. Indeed, it may be advantageous for the user to reach items stored in the storage apparatus without having to take off the backpack **100** or open the first wall zipper **107**.

[0078] Referring to FIGS. **5B-F**, a storage apparatus may be accessible by one or more zippers located on the pack body **104**. Each zipper may allow access to a corresponding sleeve within the interior volume **111**. In various embodiments, the zippers may allow a user to reach contents stored in a storage apparatus within the interior volume **111** either when the backpack **100** is being worn, or when the user slings the backpack **100** over an arm and rotates the backpack **100** to reach the zippers.

[0079] For example, FIGS. **5B-D** illustrate perspective and side views of an exemplary embodiment of the backpack **100** of the present disclosure and FIGS. **5E-F** illustrate perspective views of an alternative exemplary embodiment of the backpack **100** of the present disclosure.

[0080] As shown, the backpack **100** of FIGS. **5B-D** may include a first lateral region zipper **10** and a base zipper **12**. The first lateral region zipper **10** may be located proximately between the basal region **112b** and the first lateral region **140** of the third wall **110** and may extend perpendicularly between the first wall **106** and second wall **108**. The base zipper may be located proximately between the second wall **108** and the basal region **112b** of the third wall **110** and may extend perpendicularly between the first lateral region **140** and the second lateral region **144**.

[0081] In the alternative embodiment of FIGS. **5E-F**, the backpack **100** may include the first lateral region zipper **10** and a perimeter wall zipper **14**. As shown, the perimeter wall zipper **14** may trace a portion of a perimeter of the second wall **108**. The perimeter wall zipper **14** may be located proximately between the second wall **108** and the basal region **112b** of the third wall **110** and between the second wall **108** and the second lateral region **144** of the third wall **110**. Accordingly, the perimeter wall zipper **14** may be an L-shaped zipper, matching the curved outline of the pack body **104** of the backpack **100**. FIG. **5F** illustrates the perimeter wall zipper **14** in an 'open' position, revealing the contents stored within the interior volume **111** of the pack body **104**.

[0082] In either of the embodiments shown in FIGS. **5B-F**, a user wearing the backpack **100** may reach behind and/or to their side to manipulate the first lateral region zipper **10**, the base zipper **12**, and/or the perimeter wall zipper **14**, opening and closing the zippers **10-14** to remove or stow items, such as gear. The zippers **10-14** may be of the same or different lengths and widths, accommodating a variety of items. As shown and in accordance with various embodiments, the first lateral region zipper **10** may be smaller in length than either of the base zipper **12** or perimeter wall zipper **14**. The perimeter wall zipper **14** may be larger in length than either of the base zipper **12** or first lateral region zipper **10**.

[0083] In various embodiments, for example, the first lateral region zipper **10** may allow user access to an avalanche probe and/or a shovel rod (a shovel rod may include a shovel handle). In various embodiments, the base zipper **12** or perimeter wall zipper **14** may allow user access to a shovel blade. In various embodiments, the zippers **10-14** may enable user access directly into the interior volume **111** and/or directly into a storage apparatus defined by the first wall **106**, second



wall **108**, and third wall **110**.

[0084] FIGS. **6A-D** illustrate another alternative exemplary embodiment of the backpack **100** of the present disclosure. As shown, the backpack **100** may include a storage apparatus **120** within the interior volume **111**. Moreover, FIGS. **6A-D** illustrate perspective and top-down views of the storage apparatus **120** and interior volume **111** of the backpack **100**, in accordance with various embodiments.

[0085] As shown in FIG. **6A**, the basal region **112b** may include a first basal zipper **114**, a second basal zipper **116**, and a third basal zipper **118**. These zippers **114-118** at the basal region **112b** may allow the user to access the interior volume **111** of the pack body **104**. In various embodiments, this accessibility (e.g., reaching down to the basal region **112b**) may allow a user the ability to access contents stored within the interior volume **111** without the need for doffing and donning the backpack, or otherwise rearranging the contents stored within the interior volume **111**.

[0086] Each of the basal zippers **114-118** may be arranged in any desirable orientation at the basal region **112b** and may be of the same or different lengths and widths. As shown and in accordance with various embodiments, of the three zippers, the first basal zipper **114** may be most proximal the first lateral region **140** at where the first lateral region **140** of the third wall **110** is connected to the first wall **106**. Moreover, as shown and in accordance with various embodiments, of the three zippers, the second basal zipper **116** may be most proximal the second wall **108**. Moreover, as shown and in accordance with various embodiments, of the three zippers, the third basal zipper **118** may be most proximal the second lateral region **144**, extending from a point where the second lateral region **144** of the third wall **110** is connected to the first wall **106** to a point where the second lateral region **144** of the third wall is connected to the second wall **108**.

[0087] In various embodiments, the first basal zipper **114** may be substantially parallel to the first wall **106**. In other embodiments, the first basal zipper **114** may be substantially perpendicular to the first wall **106**. In various embodiments, the second basal zipper **116** may be substantially parallel to the second wall **108**. In other embodiments, the second basal zipper **116** may be substantially perpendicular to the second wall **108**. In various embodiments, the third basal zipper **118** may be substantially perpendicular to the first wall **106** and second wall **108**. In various embodiments, the third basal zipper **118** may be substantially parallel to the first wall **106** and the second wall **108**. In other embodiments, the first basal zipper **114** may be substantially perpendicular to the first wall **106**.

[0088] In various embodiments, the first, second, and third basal zippers **114-118** may allow a user access to the storage apparatus **120** within the interior volume **111**. As shown in FIGS. **6B-D**, the storage apparatus **120** may include a first sleeve **120a**, a second sleeve **120b**, and a third sleeve **120c**. The inventor has contemplated that the sleeves described herein may be applicable to any of the embodiments of the backpack of the present disclosure.

[0089] Each of the first sleeve **120a**, second sleeve **120b**, and third sleeve **120c** may be accessible at the basal region **112b** by opening and closing the corresponding first zipper **114**, second zipper **116**, and third zipper **118**.

[0090] FIGS. **6B-6D** illustrate the storage apparatus **120** and interior volume **111** of the backpack **100**, in accordance with various embodiments. As shown in FIGS. **6B** and **6D**, in various embodiments, the first sleeve **120a** may be defined by an interior surface **138** of the first lateral region **140** of the third wall **110** and an interior surface **141** of the basal region **112b**. In various embodiments, the first basal zipper **114** may interface with the interior surface **141** of the basal region **112b**, giving a user access to the first sleeve **120a** (FIGS. **6B** and **6D**) at the basal region **112b**.

[0091] Moreover, as shown in FIGS. **6B** and **6C**, in various embodiments, the second sleeve **120b** may be defined by an interior surface **146** of the second wall **108** and the interior surface **141** of the basal region **112b**. In various embodiments, the second basal zipper **116** may interface with the interior surface **141** of the basal region **112b**, giving a user access to the second sleeve **120b** (FIGS.

6B and 6C) at the basal region **112b**.

[0092] Moreover, as shown in FIG. **6B**, in various embodiments, the third sleeve **120c** may be defined by an interior surface **142** of the second lateral region **144** and the interior surface **141** of the basal region **112b**. In various embodiments, the third basal zipper **118** may interface with the interior surface **141** of the basal region **112b**, giving a user access to the third sleeve **120c** (FIG. **6B**) at the basal region **112b**.

[0093] In various embodiments, the first sleeve **120a**, second sleeve **120b**, and third sleeve **120c** of the storage apparatus **120** may cordon off contents stored in the sleeves from the rest of the contents within the interior volume **111**. This may be desirable if the contents stored in the sleeves, such as gear, gets wet when being used. Accordingly, storing such contents in the sleeves **120a-120c** may help reduce the likelihood of the other backpack contents getting wet.

[0094] In addition, the structure of the sleeves **120a-c** (each defined from the interior surface **141** of the basal region **112b**), may allow the user direct access to the contents of the sleeves **114-118** by opening and closing the corresponding basal zippers **114-118**, thereby leaving the rest of backpack contents largely undisturbed when opening and closing the basal zippers **114-118**.

[0095] The storage apparatus **120** of the backpack **100** may enable quick, efficient, neat, and convenient access to whatever contents may be stored in the storage apparatus **120**, without the need to doff and don the backpack **100** or otherwise disturb the rest of the backpack's contents. Indeed, many users of the backpack **100**, especially those who venture into the great outdoors, may want to maximize the space allowed for storing items in the interior volume (as well as other areas of the backpack **100**) and may therefore spend considerable time initially packing items in the backpack **100**. Repeatedly donning and doffing the backpack to open the backpack to remove (and re-store) items may disrupt a user's meticulous and organized arrangement of items within the backpack **100**.

[0096] Accordingly, the storage apparatus **120** may be beneficial to users who may need (or may conveniently want) stored contents and/or their most important contents at a moment's notice. In various embodiments, the storage apparatus **120** may be beneficial to users who do not want to get the backpack **100** (or its other contents) wet and/or dirty unnecessarily, and who want to avoid the arduous task of repeatedly rearranging the contents within the backpack **100**, saving time, energy, and in some cases where damage from the elements is prevented, money.

[0097] FIG. **7** illustrates a perspective view of a portion of a backpack **700**, in accordance with various embodiments. As shown, the backpack **700** may include a pack body **704** and a hip pad **705**. As shown, the backpack **700** may include just one basal region zipper **714** on the pack body **704**. The basal region zipper **714** may allow a user access to contents within the pack body **704** at a basal region of the pack body, allowing the user the ability to withdraw and store items within the pack body **704** without the need to doff and don the backpack **700**.

[0098] FIG. **8** illustrates a perspective view of a portion of a backpack **800**, in accordance with various embodiments. As shown, the backpack **800** may include a pack body **804** and a hip pad **805**. As shown, the backpack **800** may include a zipper **814** extending from a basal region of the pack body **804** to a lateral region of the pack body **804**. In various embodiments, the backpack **800** may include just one lateral region zipper on the pack body **804**. As shown, the zipper **814** may allow a user access to contents within the pack body **804** at both the basal and lateral regions of the pack body **804**, allowing the user the ability to withdraw and store items within the pack body **804** without the need to doff and don the backpack **800**. In various embodiments, the pack body **804** may include just one lateral region zipper that allows allow a user access to contents within the pack body **804** at the lateral region of the pack body **804**, allowing the user the ability to withdraw and store items within the pack body **804** without the need to doff and don the backpack **800**.

[0099] In some respects, the shoulder strap(s) **102**, pack body **104**, first wall **106**, second wall **108**, third wall **110**, first sleeve **120a**, second sleeve **120b**, and third sleeve **120c** may be made of the same or different materials. In various embodiments, the backpack **100** may be made of woven

nylon. In various embodiments, the backpack **100** may be made of fabric. In various embodiments, the backpack **100** (and elements thereof) may be made of, for example, a waterproof fabric. In various embodiments, the backpack **100** (and elements thereof) may be made of, for example, a laminated fabric comprising a polyethylene (PE) fabric, a polyester plain woven face, and a polyethylene terephthalate (PET) film coating. In various embodiments, the backpack **100** (and elements thereof) may be made of, for example, a laminated fabric comprising a polyethylene (PE) fabric, a polyester plain woven face, a crossply, and a polyethylene terephthalate (PET) film coating. In various embodiments, the backpack **100** (and elements thereof) may be made of, for example, a laminated fabric comprising an ultra-high molecular weight polyethylene (UHMWPE) fabric, a polyester plain woven face, a crossply, and a polyethylene terephthalate (PET) film coating. In various embodiments, the backpack **100** (and elements thereof) may further include polyvinyl fluoride (PVF) material. In various embodiments, the backpack **100** (and elements thereof) may further include nylon, woven nylon, elastane, UHMWPE crossply, UHMWPE ripstop, UHMWPE woven, and the like.

[0100] In various embodiments, the removable frame may be comprised of, for example, a metal, such as aluminum, steel, brass, nickel, copper and the like. In various embodiments, the removable frame may be an aluminum tubing ranging in diameter between 1 millimeter (mm)-3 mm, 3-5 mm, 5-7 mm, 7-9 mm, 9-15 mm, and 15-20 mm. In various embodiments, the removable frame may be an aluminum tubing having a diameter of 7 mm.

[0101] In various embodiments, the backpack **100** may comprise an interior volume **111** of between 20 liters (L)-30 L, 30 L-40 L, 40 L-50 L, 50 L-60, and 60 L-70 L. In various embodiments, the backpack **100** may comprise an interior volume **111** of, for example, 40 L. In various embodiments, the backpack **100** may comprise an interior volume **11** of, for example 40 L, expandable to 50 L.

[0102] In various embodiments, the first wall **106** of the pack body **104**, as measured between the basal region **112b** to the upper region **112a** of the third wall **110** may range in length between 10 inches (in)-14 in, 14 in-18 in, 18 in-22 in, 22-26 in, 26 in-30 in, and 30 in-34 in. In various embodiments, the second wall **108** and each of the lateral walls **140/144** of the third wall **110** may have the same length as the first wall **106**.

[0103] In various embodiments, the upper region **112a** and the basal region **112b**, as measured between the first lateral wall **140** and second lateral wall **144** of the third wall **110** may range in width between 8 inches (in)-9.5 in, 9.5 in-11 in, 11 in-12.5 in, 12.5 in-14.5 in, 14.5 in-16.5 in, and 16.5 in-18.5 in. In various embodiments, the upper region **112a** and basal region **112b** may each be 12.5 in wide. In various embodiments, the upper region **112a** and basal region **112b** may have the same widths. In other embodiments, the upper region **112a** and basal region **112b** may have different widths. The various zippers of the backpack **100** may be configured into any size relative to the length and/or width of the walls of the pack body **104** (e.g., the first wall **106**, second wall **108**, and the walls and regions of the third wall **110**: the upper region **112a**, basal region **112b**, first lateral wall **140**, second lateral wall **144**). For instance, the size of the zippers may be ratios of length and/or width relative to the length and/or width of the walls of the pack body **104**, ranging from 1-20 percent (%), 20-40%, 40-60%, 60-80%, and/or 80-100% of the length and/or width of the walls of the pack body **104**.

[0104] An ultralight backcountry backpack is also disclosed herein, in accordance with various embodiments. FIGS. **9-12** illustrate perspective views of the ultralight backcountry backpack in accordance with various embodiments.

[0105] As shown in FIGS. **9** and **10**, the ultralight backcountry backpack **200** may include at least one shoulder strap **202** connected to a pack body **204**. In some aspects, the pack body **204** may include a back wall **206**. In various embodiments, the back wall **206** may include a back wall zipper **207** that enables user access to contents (e.g., gear) stowed in the pack body **204**. In various embodiments, the back wall **206** of the pack body **204** may interface with a user's back when the backpack is worn.

[0106] Moreover, as shown in FIGS. 9 and 10, the shoulder strap 202 may be connected to the pack body 204 at the back wall 206. In some aspects, the shoulder strap 202 may include at least one adjustable load lifter strap 222 proximal an upper region 212a of the pack body 204. In various embodiments, the adjustable load lifter strap 222 may further connect the shoulder strap 202 to the back wall 206, stabilizing the ultralight backcountry backpack 200 when used. In various embodiments, the adjustable load lifter strap 222 may shift and/or disperse the load (e.g., weight) from the user's shoulder by lifting part of the load off the user's shoulder when the backpack 200 is worn, increasing comfort to the user, decreasing user fatigue, and improving stability.

[0107] In various embodiments, the pack body 204 may include at least one hip pad 205. The hip pad 205 may further increase stability to the user when carrying the backpack 200 by transferring the weight of the backpack 200, shifting part of the load from the user's shoulder to the user's hips. In doing so, the hip pad 205 may allow a user's legs (which are generally stronger than a user's shoulders) to bear much of the backpack's weight. In various embodiments, the hip pad 205 may be padded. In other embodiments, the hip pad 205 may be webbed. In various embodiments, and as will be discussed further below the hip pad 205 may be removable, slideable, and otherwise capable of being manipulated by the user.

[0108] In various embodiments, the pack body 204 may allow a user to store gear and other items. In one exemplary embodiment, the pack body 204 may be large enough to accommodate multiple pieces of gear at once, such as for example, long probe(s), shovel(s), snow glove(s), radio(s), rope(s), snack(s), a helmet, a hydration bladder, an air supply apparatus, and the like.

[0109] Moreover, referring to FIGS. 9-11b, the pack body 204 may further include a front wall 208 that is distal to the back wall 206. In various embodiments, the pack body 204 may further include a perimeter wall 210 connecting the back wall 206 and front wall 208. As shown in FIG. 10, the perimeter wall 210 may include an upper region 212a and a basal region 212b. In various embodiments, when the backpack 200 is being worn by a user, the upper region 212a of the perimeter wall 210 may be proximal the user's upper back, neck, and head region.

[0110] Likewise, when the backpack 200 is being worn by the user, the basal region 212b of the perimeter wall 210 may be proximal the user's lower back, tailbone, and leg region. In various embodiments, the perimeter wall 210 may further include at least one lateral region. For example, as shown in FIG. 11a, the perimeter wall 210 may include a first lateral region 240 and a second lateral region 244. In various embodiments, the first lateral region 240 may be distal the second lateral region 244. Accordingly, in various embodiments, the perimeter wall 210 connecting the back wall 206 and front wall 208 may include upper 212a, basal 212b, first lateral 240, and second lateral 244 regions.

[0111] Moreover, as shown in FIG. 11a, the front wall 208 of the pack body 204 may define at least one pocket 238. In various embodiments, the pocket 238 may be an ice tool pocket. In various embodiments, the ice tool pocket may receive an avalanche tool, such as, for example, an ice tool pick. In various embodiments, the front wall 208 may further include at least one buckle 239 that secures an ice tool pick when stowed in the pocket 238. Stowing an item such as an ice tool pick in the pocket 238 of the front wall 208 may allow a user to quickly access the pick, and more easily retrieve and re-stow the pick than if the pick were stored within the pack body 204.

[0112] In various embodiments, as shown in FIG. 11b, the upper region 212a of the perimeter wall 210 may define an expandable opening 236. In various embodiments, the expandable opening 236 may be an expandable cinch opening, drawstring opening, roll top opening, and/or the like. In various embodiments, expandability of the upper region 212a of the perimeter wall 210 may be advantageous, allowing for storage of items for any kind of outdoor objective, and for any purpose. In various embodiments, expandability of the upper region 212a of the perimeter wall 210 may be advantageous, allowing for storage of bulky gear items, such as helmets, beverages, sleeping bags, and the like. In various embodiments, the perimeter wall 210 defining the expandable opening 236 may enable access to contents stored within the pack body 204.

[0113] As further shown in FIGS. **11a-c**, in various embodiments, the ultralight backcountry backpack **200** may further include a diagonal ski carry system **230**. For example, FIG. **11c** illustrates a perspective view of the diagonal ski carry system **230** on the ultralight backcountry backpack **200**, as worn by a wearer, in accordance with various embodiments.

[0114] As shown in FIGS. **11a-c**, the diagonal ski carry system **230** may include a loop **232** attached at the front wall **208** proximal the basal region **212b** of the perimeter wall **210**, and a strap **234** diagonally distal the loop **232** and attached to the upper region **212a** of the perimeter wall **210**.

[0115] In various embodiments, the strap **234** may further include a fastening means for removably coupling to a corresponding member **237** at the back wall **206** proximal the upper region **212a** of the perimeter wall **210**. The fastening means may be a hoop, clasp, buckle, clip, catch, hook, tie, pin lock, and the like. In various embodiments, the corresponding member **237** may be a hoop, clasp, buckle, clip, catch, hook, tie, pin lock, and the like. In one exemplary embodiment, the strap **234** may be removably coupled to the corresponding member **237** at the back wall **206** proximal the upper region **212a**. In various embodiments, a user may pass ski(s) through the loop **232**, wrapping the loop **232** around the skis. The user may pull the strap **234**, wrapping the strap **234** around the ski(s) and coupling the strap **234** to the corresponding member **237**. Together, the loop **232** and strap **234** strap may be wrapped around a ski(s), securing the ski(s).

[0116] Accordingly, in various embodiments, the diagonal ski carry system **230** may allow a ski(s) to be removably secured to the backcountry backpack **200**. Therefore, in some aspects, the front wall **208** of the pack body **204** may interface with a ski(s). In various embodiments, the diagonal ski carry system disclosed herein may secure a ski(s) to the backcountry backpack **200** in any desirable orientation, be it vertical, diagonal, or horizontal.

[0117] Referring to FIG. **12A**, and in continued reference to FIGS. **9-11c**, as shown, the back wall **206**, front wall **208**, and perimeter wall **210** may define an interior storage compartment **211** (illustrated in FIG. **12A**). As shown in FIG. **12A**, the interior storage compartment **211** may allow a user to store gear, and other items. In various embodiments, the interior storage compartment **211** may be large enough to accommodate multiple pieces of gear at once, such as for example, long probe(s), shovel(s), snow glove(s), radio(s), rope(s), snack(s), a helmet, a hydration bladder, an air supply apparatus, and the like.

[0118] In various embodiments, the interior storage compartment **211** may be revealed or accessed by opening the back wall zipper **207** of the back wall **206**. FIG. **12A** shows part of the back wall **206** in an “open” position, in accordance with various embodiments. As shown, the back wall **206** may include an interior surface **224** defining a back panel pocket **226**. In various embodiments, the back panel pocket **226** may include a fastening means, such as a zipper fastener, hook and loop fastener, and the like. In various embodiments, the back panel pocket **226** may be accessed by opening and closing the fastening means. In various embodiments, the back panel pocket **226** may be an open pocket.

[0119] In some aspects, the back panel pocket **226** may receive and store a removable back panel sheet. When not in use, the back panel sheet may be removed from the pack body **204** to reduce the weight of the backcountry backpack **200**. In various embodiments, the back panel sheet may be removed from the pack body **204** to be used as a cushioning means, such as, for example, a knee pad, a seat, and the like. In various embodiments, the back panel sheet may be removed from the pack body **204** to be used for first aid, such as, for example, splinting a patient, separating a patient from the snow while awaiting rescue, and the like.

[0120] In various embodiments, the back panel sheet may be, for example, a polyethylene foam sheet. In various embodiments, the back panel sheet may be made of any padded or blown thermoplastic material having a dimensional stability and recovery characteristic that provides cushioning, shock-absorption, and stability on impact.

[0121] As further shown in FIG. **12A**, the back wall **206** may define at least one port **228** proximal the upper region **212a** of the perimeter wall **210** of the pack body **204**. In various embodiments, the

port **228** may allow access to a piece of equipment or gear, allowing such piece of equipment or gear to pass therethrough. For example, the port **228** may allow access to at least one of an air-supply mouthpiece and a hydration tube mouthpiece. Access to an air-supply mouthpiece may be beneficial in the event of an avalanche or snow collapse in which the user is buried under the snow. Without taking the backpack **200** off, the user may be able to access the air-supply mouthpiece at the port **228**. Likewise, access to a hydration tube at the port **228** may reduce the inconvenience of doffing and donning the backcountry backpack **200**, giving the user near immediate access to water (or other liquids) when needed.

[0122] In some aspects, providing further support and structure to the pack body **204**, the pack body **204** may include a removable frame within the interior storage compartment **211**. In various embodiments, the removable frame may assist in distributing weight evenly across a user's back and hips. In some aspects, the removable frame may extend along the perimeter wall **210** (e.g., a circumference of the interior storage compartment **211**), thereby following the pack body's shape and structure. In various embodiments, the removable frame may assist the user in carrying heavier loads for greater periods of time. In some aspects, a user may determine that the frame is not needed, and may elect to remove the frame, thereby further reducing the overall weight of the backcountry backpack **200**.

[0123] In some aspects, interior surfaces of the back wall **206**, front wall **208**, and perimeter wall **210** may further define a tool storage apparatus within the interior storage compartment **211**. The tool storage apparatus, which will be described in further detail in reference to the backcountry backpack **200** embodiment shown in FIGS. **13A-D**, may comprise at least one sleeve capable of storing items, such as gear. In various embodiments, the tool storage apparatus may store items that a user may need on short notice in the backcountry, such as an avalanche probe and/or shovel. The tool storage apparatus may cordon off the gear stored therein from the rest of the contents stored within other parts of the interior storage compartment **211**. This may be desirable if the contents stored in the sleeves, such as gear, gets wet when being used. Accordingly, storing such contents in the tool storage apparatus may help reduce the likelihood of the other backcountry backpack contents getting wet.

[0124] Moreover, a user may want to reach their gear on a moment's notice whether for convenience or emergency purposes, or the environment may prevent the user from taking off the backpack **200** to reach stored items. Indeed, it may be advantageous for the user to reach items stored in the tool storage apparatus without having to take off the backpack **200** or open the back wall zipper **207**.

[0125] Referring to FIGS. **12B-F**, a tool storage apparatus may be accessible by one or more zippers located on the pack body **204**. Each zipper may allow access to a corresponding sleeve within the interior storage compartment **211**. In various embodiments, the zippers may allow a user to reach contents stored in a tool storage apparatus within the interior storage compartment **211** either when the backcountry backpack **200** is being worn, or when the user slings the backpack **200** over an arm and rotates the backpack **200** to reach the zippers.

[0126] For example, FIGS. **12B-D** illustrate perspective and side views of an exemplary embodiment of the backcountry backpack **200** of the present disclosure and FIGS. **12E-F** illustrate perspective views of an alternative exemplary embodiment of the backcountry backpack **200** of the present disclosure.

[0127] As shown, the backcountry backpack **200** of FIGS. **12B-D** may include a first lateral region zipper **20** and a base zipper **22**. The first lateral region zipper **20** may be located proximately between the basal region **212b** and the first lateral region **240** of the perimeter wall **210** and may extend perpendicularly between the back wall **206** and front wall **208**. The base zipper **22** may be located proximately between the front wall **208** and the basal region **212b** of the perimeter wall **210** and may extend perpendicularly between the first lateral region **240** and the second lateral region **244**.

[0128] In the alternative embodiment of FIGS. 12E-F, the backcountry backpack **200** may include the first lateral region zipper **20** and a perimeter wall zipper **24**. As shown, the perimeter wall zipper **24** may trace a portion of a perimeter of the front wall **208**. The perimeter wall zipper **24** may be located proximately between the front wall **208** and the basal region **212b** of the perimeter wall **210** and between the front wall **208** and the second lateral region **244** of the perimeter wall **210**. Accordingly, the perimeter wall zipper **24** may be an L-shaped zipper, matching the curved outline of the pack body **204**. FIG. 12F illustrates the perimeter wall zipper **24** in an 'open' position, revealing the contents stored within the interior storage compartment **211** of the pack body **204** of the backpack **200**.

[0129] In either of the embodiments shown in FIGS. 12B-F, a user wearing the ultralight backcountry backpack **200** may reach behind and/or to their side to manipulate the first lateral region zipper **20**, the base zipper **22**, and/or the perimeter wall zipper **24**, opening and closing the zippers **20-24** to remove or stow items, such as gear. The zippers **20-24** may be of the same or different lengths and widths, accommodating a variety of items. As shown and in accordance with various embodiments, the first lateral region zipper **20** may be smaller in length than either of the base zipper **22** or perimeter wall zipper **24**. The perimeter wall zipper **24** may be larger in length than either of the base zipper **22** or first lateral region zipper **20**.

[0130] In various embodiments, for example, the first lateral region zipper **20** may allow user access to an avalanche probe and/or a shovel rod (a shovel rod may include a shovel handle). In various embodiments, the base zipper **22** or perimeter wall zipper **24** may allow user access to a shovel blade. In various embodiments, the zippers **20-24** may enable user access directly into the interior storage compartment **211** and/or directly into a tool storage apparatus defined by the back wall **206**, front wall **208**, and perimeter wall **210**.

[0131] FIGS. 13A-D illustrate another alternative exemplary embodiment of the backcountry backpack **200** of the present disclosure. As shown, the backcountry backpack **200** may include a tool storage apparatus **220** within the interior storage compartment **211**. Moreover, FIGS. 13A-D illustrate perspective and top-down views of the tool storage apparatus **220** and interior storage compartment **211** of the backcountry backpack **200**, in accordance with various embodiments.

[0132] As shown in FIG. 13A, the basal region **212b** may include a probe zipper **214**, a shovel blade zipper **216**, and a shovel rod zipper **218**. These zippers **214-218** at the basal region **212b** may allow the user to access the interior storage compartment **211** of the pack body **204**. In various embodiments, this accessibility (e.g., reaching down to the basal region **212b**) may allow a user the ability to access contents stored within the interior storage compartment **211** without the need for doffing and donning the backpack, or otherwise rearranging the contents stored within the interior storage compartment **211**. In various embodiments, the probe zipper **214**, shovel blade zipper **216**, and shovel rod zipper **218** may each allow a user the ability to quickly access tools critical to managing and surviving the backcountry, avalanche tools, without the need for doffing and donning the backpack, or otherwise rearranging the contents stored within the interior storage compartment **211**. Specifically, the zippers **214-218** may allow a user quick access to a long probe and shovel components (blade and rod).

[0133] Each of the zippers **214-218** may be arranged in any desirable orientation at the basal region **212b** and may be of the same or different lengths and widths. As shown and in accordance with various embodiments, of the three zippers, the probe zipper **214** may be most proximal the first lateral region **240** at where the first lateral region **240** of the perimeter wall **210** is connected to the back wall **206**. Moreover, as shown and in accordance with various embodiments, of the three zippers, the shovel blade zipper **216** may be most proximal the front wall **208**. Moreover, as shown and in accordance with various embodiments, of the three zippers, the shovel rod zipper **218** may be most proximal the second lateral region **244**, extending from a point where the second lateral region **244** of the perimeter wall **210** is connected to the back wall **206** to a point where the second lateral region **244** of the perimeter wall **210** is connected to the front wall **208**.

[0134] In various embodiments, the probe zipper **214** may be substantially parallel to the back wall **206**. In other embodiments, the probe zipper **214** may be substantially perpendicular to the back wall **206**. In various embodiments, the shovel blade zipper **216** may be substantially parallel to the front wall **208**. In other embodiments, the shovel blade zipper **216** may be substantially perpendicular to the front wall **208**. In various embodiments, the shovel rod zipper **218** may be substantially perpendicular to the back wall **206** and front wall **208**. In various embodiments, the shovel rod zipper **218** may be substantially parallel to the back wall **206** and the front wall **208**. In other embodiments, the probe zipper **214** may be substantially perpendicular to the back wall **206**. [0135] In various embodiments, the probe zipper **214**, shovel blade zipper **216**, and shovel rod zipper **218** may allow a user access to the tool storage apparatus **220** within the interior storage compartment **211**. As shown in FIGS. **13B-D**, the tool storage apparatus **220** may include a probe sleeve **220a**, a shovel blade sleeve **220b**, and a shovel rod sleeve **220c**. The inventor has contemplated that the sleeves described herein may be applicable to any of the embodiments of the ultralight backcountry backpack of the present disclosure.

[0136] Each of the probe sleeve **220a**, shovel blade sleeve **220b**, and shovel rod sleeve **220c** may be accessible at the basal region **212b** by opening and closing corresponding probe zipper **214**, shovel blade zipper **216**, and shovel rod zipper **218**.

[0137] FIGS. **13B-13D** illustrate the tool storage apparatus **220** and interior storage compartment **211** of the backpack **200**, in accordance with various embodiments. As shown in FIGS. **13B** and **13D**, in various embodiments, the probe sleeve **220a** may be defined by an interior surface **243** of the first lateral region **240** of the perimeter wall **210** and an interior surface **241** of the basal region **212b**. In various embodiments, the probe zipper **214** may interface with the interior surface **241** of the basal region **212b**, giving a user access to the probe sleeve **220a** (shown in FIGS. **13B** and **13D**) at the basal region **212b**.

[0138] Moreover, as shown in FIGS. **13B** and **13C**, in various embodiments, the shovel blade sleeve **220b** may be defined by an interior surface **246** of the front wall **208** and the interior surface **241** of the basal region **212b**. In various embodiments, the shovel blade zipper **216** may interface with the interior surface **241** of the basal region **212b**, giving a user access to the shovel blade sleeve **220b** (FIGS. **12B** and **12C**) at the basal region **212b**.

[0139] Moreover, as shown in FIG. **13B**, in various embodiments, the shovel rod sleeve **220c** may be defined by an interior surface **242** of the second lateral region **244** of the perimeter wall **210** and the interior surface **241** of the basal region **212b**. In various embodiments, shovel rod zipper **218** may interface with the interior surface **241** of the basal region **212b**, giving a user access to the shovel rod sleeve **220c** (FIG. **13B**) at the basal region **212b**.

[0140] In various embodiments, the probe sleeve **220a**, shovel blade sleeve **220b**, and shovel rod sleeve **220c** of the tool storage apparatus **220** may cordon off the avalanche tools (long probe and shovel) off from the rest of the contents of the interior storage compartment **211**. This may be desirable if the avalanche tools get wet when being used. Accordingly, storing such contents in the sleeves **220a-220c** may help reduce the likelihood of the other backpack contents getting wet.

[0141] In addition, the structure of the sleeves **220a-c** (each defined from the interior surface **241** of the basal region **212b**), may allow the user direct access to the tools stored in the sleeves **220a-220c** by opening and closing the corresponding zippers **214-218**, thereby leaving the rest of backpack contents largely undisturbed when opening and closing the zippers **214-218**.

[0142] The tool storage apparatus **220** of the ultralight backcountry backpack **200** may enable quick, efficient, neat, and convenient access to all manner of tools stored in the tool storage apparatus **220**, without the need to doff and don the backpack **200** or otherwise disturb the rest of the backpack's contents. Indeed, many users of the backpack **200**, especially those who venture into the great outdoors, may want to maximize the space allowed for storing items in the interior storage compartment **211** (as well as other areas of the backpack **200**) and may therefore spend considerable time initially packing items in the backpack **200**. Repeatedly donning and doffing the



backpack to open the backpack to remove (and re-store) items may disrupt a user's meticulous and organized arrangement of items within the backpack **200** and may lead to gear loss as gear is repeatedly removed and strewn across the landscape. Worse, poor accessibility and repeated donning and doffing may compromise user safety in the event the user needs to reach a tool quickly and does not have time to remove the backpack. This is especially problematic when the user risks losing the backpack itself, along with the user's hydration and air-supply sources, due to repeated doffing.

[0143] Accordingly, the tool storage apparatus **220** may be beneficial to users who may need (or may conveniently want) stored contents and/or their most important contents at a moment's notice. In various embodiments, the storage apparatus **220** may be beneficial to users who do not want to get the ultralight backcountry backpack **200** (or its other contents) wet and/or dirty unnecessarily, and who want to avoid the arduous task of repeatedly rearranging the contents within the backpack **200**, saving time, energy, and in some cases where damage from the elements is prevented, money.

[0144] FIG. **14** illustrates a perspective view of a portion of an ultralight backcountry backpack **400**, in accordance with various embodiments. As shown, the backpack **400** may include a pack body **404** and a hip pad **405**. As shown, the backpack **400** may include just one shovel blade zipper **416** on the pack body **404**. The shovel blade zipper **416** may allow a user access to a shovel blade stored within the pack body **404** at a basal region of the pack body **404**, allowing the user the ability to withdraw and store the shovel blade within the pack body **404** without the need to doff and don the backpack **400**.

[0145] FIG. **15** illustrates a perspective view of a portion of an ultralight backcountry backpack **500**, in accordance with various embodiments. As shown, the backpack **500** may include a pack body **504** and a hip pad **505**. As shown, the backpack **500** may include just one shovel rod zipper **518** on the pack body **504**. The shovel rod zipper **518** may allow a user access to a shovel rod stored within the pack body **504** at a basal region of the pack body **504**, allowing the user the ability to withdraw and store the shovel rod within the pack body **504** without the need to doff and don the backpack **500**.

[0146] FIG. **16** illustrates a perspective view of a portion of an ultralight backcountry backpack **600**, in accordance with various embodiments. As shown, the backpack **600** may include a pack body **604** and a hip pad **605**. As shown, the backpack **600** may include just one probe zipper **614** on the pack body **604**. The probe zipper **614** may allow a user access to a probe stored within the pack body **604** at a basal region of the pack body **604**, allowing the user the ability to withdraw and store the probe within the pack body **604** without the need to doff and don the backpack **600**.

[0147] FIG. **17** illustrates a perspective view of a portion of an ultralight backcountry backpack **900**, in accordance with various embodiments. As shown, the backpack **900** may include a pack body **904** and a hip pad **905**. As shown, the backpack **900** may include a zipper **914** extending from a basal region of the pack body **904** to a lateral region of the pack body **904**. In various embodiments, the backpack **900** may include just one lateral region zipper **914** on the pack body **904**. As shown, the zipper **914** may allow a user access to contents within the pack body **904** at both the basal and lateral regions of the pack body **904**, allowing the user the ability to withdraw and store items within the pack body **904** without the need to doff and don the backpack **900**. In various embodiments, the pack body **904** may include just one lateral region zipper that allows allow a user access to contents within the pack body **904** at the lateral region of the pack body **904**, allowing the user the ability to withdraw and store items within the pack body **904** without the need to doff and don the backpack **900**.

[0148] FIG. **18** illustrates a perspective view of the ultralight backcountry backpack of FIGS. **9-13D**, in accordance with various embodiments. As shown, the back wall **206** may define at least one port **328**. As shown and in accordance with various embodiments, the port **328** may be a cutaway port of the back wall **206**. The port **328** may be proximal the upper region **212a** of the perimeter wall **210** of the pack body **204**. In various embodiments, the port **328** may allow access

to a piece of equipment or gear, allowing such piece of equipment or gear to pass therethrough. For example, the port **328** may allow access to at least one of an air-supply mouthpiece, an air-supply tube, a hydration tube, and/or a hydration tube mouthpiece. Access to an air-supply mouthpiece may be beneficial in the event of an avalanche or snow collapse in which the user is buried under the snow. Without taking the backpack **200** off, the user may be able to access the air-supply mouthpiece at the port **328**. Likewise, access to a hydration tube at the port **328** may reduce the inconvenience of doffing and donning the backcountry backpack **200**, giving the user near immediate access to water (or other liquids) when needed.

[0149] FIG. **19** illustrates a perspective view of a portion of the ultralight backcountry backpack of FIGS. **9-13D** with at least one adjustable hip pad **305**, in accordance with various embodiments. In various embodiments, the adjustable hip pad **305** may be a removable slide-on hip pad. FIG. **20a** illustrates a perspective view of a portion of the hip pad of FIG. **19**. As shown, the adjustable hip pad **305** includes an ice clipper receptacle **307**. The receptacle **307** may define a slot for receiving ice clipper tools therethrough, allowing a user quick and easy access to ice clippers. For example, FIG. **20b** illustrates a perspective view of a portion of the hip pad **305** of FIGS. **19-20a** having ice clipper tools clipped into place in the ice clipper receptacle **307**.

[0150] Each of the hip pads disclosed herein, in reference to FIGS. **1-20b** may comprise ice clipper receptacles, may define hip pad pockets for storing items, such as phones, and may otherwise be used for storing items to be within reach of the user.

[0151] In some respects, the shoulder strap(s) **202**, pack body **204**, back wall **206**, front wall **208**, perimeter wall **210**, probe sleeve **220a**, shovel blade sleeve **220b**, and shovel rod sleeve **220c** may be made of the same or different materials. In various embodiments, the ultralight backcountry backpack **200** may be made of woven nylon. In various embodiments, the ultralight backcountry backpack **200** may be made of fabric. In various embodiments, the back wall **206** may include a polyethylene (PE) foam layer. In various embodiments, the backpack **200** (and elements thereof) may be made of, for example, a waterproof fabric. In various embodiments, the backpack **200** (and elements thereof) may be made of, for example, a laminated fabric comprising a polyethylene (PE) fabric, a polyester plain woven face, and a polyethylene terephthalate (PET) film coating. In various embodiments, the backpack **200** (and elements thereof) may be made of, for example, a laminated fabric comprising a polyethylene (PE) fabric, a polyester plain woven face, a crossply, and a polyethylene terephthalate (PET) film coating. In various embodiments, the backpack **200** (and elements thereof) may be made of, for example, a laminated fabric comprising an ultra-high molecular weight polyethylene (UHMWPE) fabric, a polyester plain woven face, a crossply, and a polyethylene terephthalate (PET) film coating. In various embodiments, the backpack **200** (and elements thereof) may further include polyvinyl fluoride (PVF) material. In various embodiments, the backpack **200** (and elements thereof) may further include nylon, woven nylon, elastane, UHMWPE crossply, UHMWPE ripstop, UHMWPE woven, and the like.

[0152] In various embodiments, the removable frame may be comprised of, for example, a metal, such as aluminum, steel, brass, nickel, copper and the like. In various embodiments, the removable frame may be an aluminum tubing ranging in diameter between 1 millimeter (mm)-3 mm, 3-5 mm, 5-7 mm, 7-9 mm, 9-15 mm, and 15-20 mm. In various embodiments, the removable frame may be an aluminum tubing having a diameter of 7 mm.

[0153] In various embodiments, the backpack **200** may comprise an interior storage compartment **211** volume of between 20 liters (L)-30 L, 30 L-40 L, 40 L-50 L, 50 L-60, and 60 L-70 L. In various embodiments, the backpack **100** may comprise an interior storage compartment **211** volume of, for example, 40 L. In various embodiments, the backpack **100** may comprise an interior storage compartment **211** volume of, for example 40 L, expandable to 50 L.

[0154] In various embodiments, the back wall **206** of the pack body **204**, as measured between the basal region **212b** to the upper region **212a** of the perimeter wall **210** may range in length between 10 inches (in)-14 in, 14 in-18 in, 18 in-22 in, 22-26 in, 26 in-30 in, and 30 in-34 in. In various

embodiments, the front wall **208** and each of the lateral walls **240/244** of the perimeter wall **210** may have the same or substantially equivalent length as the back wall **206**. In various embodiments, the upper region **212a** and the basal region **212b**, as measured between the first lateral wall **240** and second lateral wall **244** of the perimeter wall **210** may range in width between 8 inches (in)-9.5 in, 9.5 in-11 in, 11 in-12.5 in, 12.5 in-14.5 in, 14.5 in-16.5 in, and 16.5 in-18.5 in. In various embodiments, the upper region **212a** and basal region **212b** may each be 12.5 in wide. In various embodiments, the upper region **212a** and basal region **212b** may have the same widths. In other embodiments, the upper region **212a** and basal region **212b** may have different widths. The various zippers of the backpack **200** may be configured into any size relative to the length and/or width of the walls of the pack body **204** (e.g., the back wall **206**, front wall **208**, and the walls and regions of the perimeter wall **210**: the upper region **212a**, basal region **212b**, first lateral wall **240**, second lateral wall **244**). For instance, the size of the zippers may be ratios of length and/or width relative to the length and/or width of the walls of the pack body, ranging from 1-20 percent (%), 20-40%, 40-60%, 60-80%, and/or 80-100% of the length and/or width of the walls of the pack body **204**.

[0155] The above is presented to describe specific attributes of this invention. The inventor has contemplated that the backpack and ultralight backcountry backpack of the present disclosure could be used for any purpose, be it day-to-day activity or any outdoor or backcountry activity. The inventor has also contemplated that the backpack and ultralight backcountry backpack of the present disclosure could be used by all kinds of users, be they day-to-day users, recreational snowboarders, daring explorers, and the like. This description is not meant to limit the scope of this disclosure.

[0156] The invention will be especially pertinent to those who benefit from backpacks with storage apparatus' that enable quick, efficient, neat, and convenient access to whatever contents may be stored in the backpack, without the need to doff and don the backpack or otherwise disturb the rest of the backpack's contents. The backpack and ultralight backcountry backpack of the present disclosure may be beneficial to users who may need (or may conveniently want) stored contents and/or their most important contents at a moment's notice. The backpack and ultralight backcountry backpack of the present disclosure may also be beneficial to users who do not want to get the backpack (or its other contents) wet and/or dirty unnecessarily, and who want to avoid the arduous task of repeatedly rearranging the contents within the backpack, saving time, energy, and in some cases where damage from the elements is prevented, money.

[0157] The preceding detailed description is merely illustrative in nature and is not intended to limit the embodiments of the subject matter or the application and uses of such embodiments.

[0158] As used herein, the words "various" and "exemplary" means "serving as an example, instance, or illustration." Any implementation described herein as various or exemplary is not necessarily to be construed as preferred or advantageous over other implementations. Furthermore, there is no intention to be bound by any expressed or implied theory presented in the preceding technical field, background, or detailed description.

[0159] The connecting lines shown in the various figures contained herein are intended to represent exemplary functional relationships and/or physical couplings between the various elements. It should be noted that many alternative or additional functional relationships or physical connections may be present in an embodiment of the subject matter. In addition, certain terminology may also be used herein for the purpose of reference only, and thus are not intended to be limiting, and the terms "first", "second" and other such numerical terms referring to structures do not imply a sequence or order unless clearly indicated by the context.

[0160] The foregoing description refers to elements or features being "connected" or "coupled" together. As used herein, "connected" and "coupled" are used interchangeably. As used herein, unless expressly stated otherwise, "connected" and "coupled" means that one element is directly or indirectly joined to (or directly or indirectly communicates with, electrically or otherwise) another

element, and not necessarily mechanically. Thus, although the backpacks shown in the figures depict exemplary arrangements of elements, additional intervening elements, devices, features, or components may be present in an embodiment of the depicted subject matter.

[0161] While at least one exemplary embodiment has been presented in the foregoing detailed description, it should be appreciated that a vast number of variations exist. It should also be appreciated that the exemplary embodiment or various embodiments described herein are not intended to limit the scope, applicability, or configuration of the claimed subject matter in any way. Rather, the foregoing detailed description will provide those skilled in the art with a convenient road map for implementing the described embodiment or embodiments. It should be understood that various changes can be made in the function and arrangement of elements without departing from the scope defined by the claims, which includes known equivalents and foreseeable equivalents at the time of filing this patent application.

## Claims

1. An ultralight backcountry backpack, comprising: at least one shoulder strap connected to a pack body, said pack body comprising: a back wall configured to interface with a user's back when the backpack is worn, said back wall including a back wall zipper; a front wall distal to the back wall; and a perimeter wall connecting the back and front walls, said perimeter wall including an upper region and a basal region, wherein the basal region comprises a probe zipper, a shovel blade zipper, and a shovel rod zipper, wherein the back, front, and perimeter walls define an interior storage compartment; and a tool storage apparatus within the interior storage compartment, the apparatus comprising: a probe sleeve; a shovel blade sleeve; and a shovel rod sleeve, wherein each of the probe, shovel blade, and shovel rod sleeves is configured to be accessible at the basal region by opening and closing corresponding probe, shovel blade, and shovel rod zippers, wherein each of the probe zipper, shovel blade zipper, and shovel rod zipper allows a user to access the tool storage apparatus without taking off the backpack.
2. The backpack of claim 1, wherein the at least one shoulder strap is connected to the pack body at the back wall.
3. The backpack of claim 2, wherein the at least one shoulder strap comprises at least one adjustable load lifter strap proximal the upper region of the pack body, wherein the at least one adjustable load lifter strap is configured to further connect the at least one shoulder strap to the back wall.
4. The backpack of claim 1, wherein the back wall comprises an interior surface defining a back panel pocket, wherein the back panel pocket is configured to receive a removable back panel sheet.
5. The backpack of claim 4, wherein the removable back panel sheet is a polyethylene foam sheet.
6. The backpack of claim 1, wherein the back wall defines at least one port proximal the upper region of the pack body, wherein the at least one port is configured to allow access to at least one of an air-supply mouthpiece and a hydration tube mouthpiece.
7. The backpack of claim 1, wherein the front wall defines at least one ice tool pocket configured to receive an ice tool pick, and wherein the front wall further comprises at least one buckle configured to secure an ice tool pick in the at least one ice tool pocket.
8. The backpack of claim 1, wherein the pack body further comprises a diagonal ski carry system, said system comprising: a loop attached at the front wall proximal the basal region; and a strap diagonally distal the loop and attached to the upper region of the perimeter wall, said strap being configured to removably couple to a hoop at the back wall proximal the upper region, wherein the diagonal ski carry system is configured to removably secure skis to the backpack.
9. The backpack of claim 1, wherein the pack body further comprises a removable frame within the interior storage compartment, wherein the removable frame extends along the perimeter wall.
10. The backpack of claim 1, wherein the pack body further comprises at least one hip pad, wherein

the at least one hip pad is a removable slide-on hip pad.

**11.** The backpack of claim 1, wherein the probe sleeve is defined by (i) an interior surface of a first lateral region of the perimeter wall and (ii) an interior surface of the basal region.

**12.** The backpack of claim 1, wherein the shovel rod sleeve is defined by (i) an interior surface of a second lateral region of the perimeter wall and (ii) the interior surface of the basal region.

**13.** The backpack of claim 1, wherein the shovel blade sleeve is defined by (i) an interior surface of the front wall and (ii) the interior surface of the basal region.

**14.** The backpack of claim 1, wherein the upper region of the perimeter wall defines an expandable cinch opening.

**15.** A backpack, comprising: at least one shoulder strap connected to a pack body, said pack body comprising: a first wall configured to interface with a user's back when the backpack is worn, said first wall including a wall zipper; a second wall distal to the first wall; and a third wall connecting the first and second walls, said third wall including: an upper region; a basal region; a first lateral region; and a second lateral region, a first lateral region zipper located proximately between the basal region and first lateral region; a base zipper located proximately between the second wall and the basal region of the third wall; wherein the pack body defines an interior volume and wherein interior surfaces of the first, second, and third walls define a storage apparatus within the interior volume, wherein each of the first lateral region zipper and base zipper allows a user to access the storage apparatus without taking off the backpack.

**16.** A backpack, comprising: at least one shoulder strap connected to a pack body, said pack body comprising: a first wall configured to interface with a user's back when the backpack is worn, said first wall including a wall zipper; a second wall distal to the first wall; and a third wall connecting the first and second walls, said third wall including an upper region and a basal region, wherein the basal region comprises a first zipper, a second zipper, and third zipper, wherein the first, second, and third walls define an interior volume; and a storage apparatus within the interior volume, the apparatus comprising: a first sleeve; a second sleeve; and a third sleeve, wherein each of the first, second, and third sleeves is configured to be accessible at the basal region by opening and closing corresponding first, second, and third zippers, wherein each of the first, second, and third zippers allows a user to access the storage apparatus without taking off the backpack.

**17.** The backpack of claim 16, wherein the at least one shoulder strap is connected to the pack body at the first wall.

**18.** The backpack of claim 16, wherein the pack body further comprises a vertical snowboard carry system, said system comprising: a first strap attached at the second wall proximal the basal region, the first strap further comprising a clasp configured to removably couple to a corresponding buckle attached at the second wall proximal the basal region; and a second strap diagonally distal the first strap and attached at the upper region of the third wall, the second strap being configured to removably couple to a band attached at the first wall proximal the upper region, wherein the vertical snowboard carry system is configured to removably secure a snowboard to the backpack.

**19.** The backpack of claim 16, wherein the pack body further comprises a removable frame within the interior volume, wherein the removable frame extends along the third wall.

**20.** The backpack of claim 16, wherein the first sleeve is defined by (i) an interior surface of a first lateral region of the third wall and (ii) an interior surface of the basal region, wherein the second sleeve is defined by an interior surface of the second wall and (ii) the interior surface of the basal region, and wherein the third sleeve is defined by (i) an interior surface of a second lateral region of the third wall and (ii) the interior surface of the basal region.

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