MULTIPURPOSE SLEEPING BAG

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ABSTRACT

A multipurpose sleeping bag has a shell and liner covering a synthetic-fiber insulator. A head opening located in the center of the multipurpose sleeping bag is provided with a hook-and-loop fastener, which is used to draw the edges of the head opening around one’s neck in an over garment mode of operation. A drawstring when used in the sleeping bag or quilt modes can close the head opening. A foot draft tube extends along the bottom edge to each side. A draw cord extends along the bottom outer end to compress the foot portion and the foot draft tube into a knot-like configuration for the sleeping bag mode. For operations other than the sleeping bag mode, the draw cord is left in place to form a skirt-like configuration. Two separate multipurpose sleeping bags can be joined to give the user a lower temperature sleeping range.
MULTIPURPOSE SLEEPING BAG

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to a multipurpose sleeping bag, and more particularly to a sleeping bag that can be converted into an anorak (short coat), cagoule (long coat), poncho, quilt, or vehicle blanket, or be joined to another multipurpose sleeping bag so as to provide a higher degree of warmth.

2. Description of the Related Art

Present-day sleeping bags currently available on the market are not designed to be used as an anorak, cagoule, poncho, quilt, or vehicle blanket, or to be joined to another sleeping bag. Currently, people who want the above combination of items must carry them as separate items. The disadvantages of carrying separate items of equipment, such as those stated above, are additional cost and increased weight and bulk.

SUMMARY OF THE INVENTION

Addressing a recognized need, this invention reduces the number of items, as well as the weight and bulk, which must be carried by campers and mountaineers.

Another object of the present invention is to provide a multipurpose sleeping bag that can be converted into various forms, as stated above, and each of which is well designed to perform its intended function.

The present invention provides a multipurpose sleeping bag which can be adapted to provide protection from cold weather while walking, riding, sitting, or reclining. The invention provides a single piece of equipment which is lightweight and which can quickly and easily be converted from one use to another. Specifically, the invention can be configured as a single sleeping bag, long coat, short coat, poncho, quilt, or vehicle blanket, or readily joined with a second multipurpose sleeping bag to make a pair of single sleeping bags.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view illustrating the use of the invention as a sleeping bag.

FIG. 2 is a perspective view with the head and foot ends open, exposing the inside of the multipurpose sleeping bag.

FIG. 3 is a perspective view of the front side (outside) of the multipurpose sleeping bag.

FIG. 4 is a perspective view of the bottom side of the multipurpose sleeping bag, showing the collar head opening.

FIG. 5 is an enhanced fragmentary cross-sectional view illustrating the fastened zippers, the zipper guard and zipper draft tube attachments, the collar hood opening, and the insulation material of a preferred embodiment.

FIG. 6 is an enlarged fragmentary sectional view taken of the head opening.

FIG. 7 is an enlarged sectional view taken of the foot end as shown in FIG. 1.

FIGS. 8, 9, and 10 are perspective views illustrating the manner in which the multipurpose sleeping bag shown in FIG. 1 may be worn as a long coat, short coat, or poncho, respectively.

FIG. 11 is a perspective view with the head and foot ends of the inner multipurpose sleeping bag open, illustrating the placement of the second zipper.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings in more detail and particularly to FIGS. 1 through 6, it will be seen that the invention, as illustrated in currently preferred embodiments, is a trapezoidal-shaped multipurpose sleeping bag of unitary construction, indicated generally at 10. Preferably, the multipurpose sleeping bag comprises three flexible layers: an external shell 11, an internal lining 12, and insulation material 13, positioned between the external shell 11 and the internal lining 12 (see FIG. 5). The external shell 11 and the internal lining 12 are preferably made of 70-denier nylon, commonly known as single-ply taffeta. The 70-denier refers to the thickness of the yarn. The actual weave is 86 yarns in one direction and 104 yarns in the other, per square yard. The thickness of the yarn should be chosen to absorb body heat and quickly warm to body temperature, because the faster this warming occurs, the slower will be the rate of conductive heat loss from the body. Further the spaces between yarns in this construction allow the moisture produced by the body to easily escape. Even in a dry climate, the body gives off moisture. Therefore, it is important to allow this moisture easy exit. Indeed, water is extremely efficient at absorbing heat, so one always wants to stay as dry as possible.

The insulation material or fiberfill 13, positioned between the external shell 11 and the internal lining 12, preferably comprises an unbounded, silicone-coated continuous-filament fiber. The silicone coating gives the fiber two very desirable properties. The first is an antistatic property, which allows the fibers to perpetually repel each other; regardless of how tightly the fibers are packed against each other (such as when the invention is compacted in a stuff sack). This property also contributes to the loft always returning after the multipurpose sleeping bag 10 is removed from the stuff sack. The second beneficial property of the silicone treatment is in making the fiber hydrophobic. Water simply does not attach itself to the fiberfill 13. It is extremely important that the moisture leaving the body be able to pass through the spaces between the yarns of the external shell 11 and the internal lining 12, and to easily move through the insulation material 13. Also, it is imperative that the moisture not be able to condense in the insulation material 13. If this occurs when temperatures are below freezing, frost buildup can severely reduce the thickness of the insulation material 13, or the moisture may simply freeze as in any other sleeping bag, and thus add weight.

Even though insulation material 13 is described as a synthetic unbounded, silicone-coated continuous filament fiber, the multipurpose sleeping bag 10 can be made from any other suitable insulation filling.
[0020] By eliminating quilting with laminating the insulation material 13 to the internal lining 12, the insulation material is prevented from drifting around haphazardly inside the sleeping bag and creating uneven insulation, resulting in cold spots. This laminating procedure also permits less insulation material to be used, which in turn permits a lighter-weight multipurpose sleeping bag.

[0021] In addition, quilting produces a fiberfill that is so densely packed that a wall is created. While this wall of synthetic fiber insulation does not absorb moisture, it inhibits the flow of moisture, which condenses in the sleeping bag.

[0022] The fibers that are touching each other also cause conductive heat loss. When fibers chill, the moist vapor is cooled rapidly, changing it to liquid and then ice, further endangering bodies which dehydrate much more rapidly in extreme cold climates than in hot climates. The insulation material 13, on the other hand, is quite different with respect to water. Because the fibers are antistatic and repel each other, and are not compacted from a quilting process, the moisture moves more easily through the insulation material 13. This movement of moisture is further enhanced by the silicone treatment of the fiber. Silicone acts like a lubricant, which allows the moisture to move approximately 16 times more rapidly through the insulation material 13. In extreme cold conditions, the more rapidly one’s own moisture dissipates, the better off you are.

[0023] The insulation material 13 also allows the body’s thermostat to function more easily. The body’s heating mechanism is constantly turning off and on to compensate for heat loss or heat build up. Thus, the body is continuously generating moisture, which is emitted through the pores of the skin. If the flow of this moisture is blocked or absorbed by the insulation, then that moisture becomes the enemy. If the air temperature is below the freezing point, the moisture trapped in the insulation may freeze. This is especially a problem in extreme cold conditions such as are found in the arctic. Evaluation of many sleeping bags shows an approximate weight gain of five or ten pounds of ice per week. Consequently, body heat is conducted away by the ice forming in the prior art bag. Significantly, one can live a lifetime in a climate with an ambient air temperature of 45 degrees F., but only an hour or so in water that is 45 degrees F. The insulation material 13 of the present invention is a less-restrictive insulation with respect to the flow of moist air.

[0024] All three layers 11, 12, and 13 extend the length and width of the multipurpose sleeping bag and have their entire edge portions joined to each other along their lengths by, e.g., zippers and/or stitching, or other suitable means, as discussed more fully below.

[0025] FIG. 1 shows that the multipurpose sleeping bag 10 includes four sides (right or “east” side 16, left or “west” side 17, top or “north” side 18, and bottom or “south” side 19) in the sleeping bag mode of operation. As FIG. 1 shows, sides 16 and 17 are provided with separable fastener halves 23 and 23a (illustratively forming a zipper, in a preferred embodiment). These fasteners preferably form a two-way zipper, with a double slider 23b, 23c opening the zipper from the top “north” side 18 and bottom “south” side 19, respectively. By reference to FIGS. 1 and 2, it will be seen that fastener halves 23 and 23a extend substantially the length of the multipurpose sleeping bag 10. Hereinafter, fastener halves 23 and 23a will be termed “zippers” or “zipper halves”, but the person of ordinary skill will understand that these terms are representative only and not limiting of the invention.

[0026] External shell 11 preferably extends over the top and around the bag, and is sewn together as at 15 along the bottom center portions of the multipurpose sleeping bag 10. Further, layers 11, 12, and 13 are joined to each other along the length of zipper 23 and by assembly stitching 14 around the radius of the head portion at top or “north” side 18 and the foot portion at bottom or “south” side 19, and at the head opening slit 40 of the multipurpose sleeping bag 10. Layers 11, 12, and 13 are also preferably stitched to right or “east” side 16 along with a 1/2-inch strip of black webbing, for example, to act as a zipper guard 20. The zipper guard 20 keeps zipper 23 from getting caught in the internal layer 12. Zipper guard 20 is inserted on the inside of zipper 23 and layers 11, 12, and 13, and held by stitching 21.

[0027] Directly behind zipper 23 (for example, 1/2 inches to the left) is placed a zipper draft tube 22. The zipper draft tube 22 keeps the heat within the sleeping bag 10 from escaping through the zipper 23, and is stitched to layers 12 and 13. Layers 11, 12, and 13 are further stitched to “west” side 17 along with zipper 23a.

[0028] Sewn to the foot portion 27 and to the bottom foot edge 28 is a preferably continuous-filament fiber insulation foot draft tube 29. The foot draft tube 29 keeps the heat within the sleeping bag 10 from escaping through the bottom “south” side 19.

[0029] Again with reference to FIG. 1 and FIG. 2, when the sleeping bag portions 11, 12, and 13 are sewn together, the sleeping bag hood portion 24 is sewn and forms the hood edge 25. A hood draft cord sleeve 26 is sewn to hood edge 25, through which runs a hood cord 26a to selectively draw the hood around the head of the wearer when used in the sleeping bag mode. A slide 26b is provided to engage each end portion of hood cord 26a to retain the hood opening in the desired position.

[0030] Another important feature of the invention is the provision of an open foot portion. Again, when layers 11, 12, and 13 are sewn together, the sleeping bag foot portion 27 and the foot draft tube 29 forms the bottom foot edge 28. A foot draft cord sleeve 30 is sewn to edge 28 and foot draft tube 29. The foot draft cord sleeve 30 has a foot draft cord 30a, similar to 26a discussed above. When the multipurpose sleeping bag 10 is zipped into the sleeping bag mode of operation, the foot draft cord 30a provides the capability of drawing the bottom portions of layers 11, 12, and 13 together and wrapping the foot draft cord 30a around layers 11, 12, 13 and edge 28 (and foot draft tube 29), thereby closing off the open foot portion. This act increases the amount of insulation around the feet of the user and keeps the heat within the bottom “south” side 19 from escaping. Again, a slide 30b is provided to engage each end portion of foot draft cord 30a to retain the bottom opening to the correct tightness as the user demands in the sleeping bag mode of operation.

[0031] The individual elements for forming the hood collar 40 are illustrated in FIG. 6. The hood collar is illustratively formed from two rectangular sheets 41 and 42.
which are made from layers 11, 12, and 13 and sewn together. The locking device to secure sheet 41 to sheet 42, when using the multipurpose sleeping bag 10 in the sleeping bag mode of operation, is formed by sewing a 1-inch-by-10-inch strip of hook-type fastener 45 to the center position of the external side 11 of 41, and by sewing a 1-inch-by-10-inch strip of loop-type fastener 46 to the center position of the internal side 12 of 42. The rectangular sheets 41 and 42 are joined together at 43 and 44, and are then joined to multipurpose sleeping bag 10 by stitches around the radius of the head opening slit, forming the hood collar 40. This gives the user the capability of closing the hood collar 40 when using multipurpose sleeping bag 10 in the sleeping bag mode of operation. It is also an important feature that the edges of hood collar 40 may be brought to fit about the wearer's neck when using the multipurpose sleeping bag 10 in the over garment mode of operation as shown in FIGS. 8, 9, and 10. [0032] To form the cagoule or long coat as seen in FIG. 8, one begins with the multipurpose sleeping bag 10 as formed in FIG. 1. The foot draw cord 30a is unwrapped around the bottom "south" side 19 and spread out, as seen in FIG. 3. Then, zipper 23 is unzipped to below the hood collar 40, and sides 16 and 17 raised to approximately waist level. By stepping into the bottom "south" side 19 and holding the multipurpose sleeping bag 10 in front with zippers 23 and 23a facing the wearer, sheets 41 and 42 are grasped and pulled apart, permitting the wearer to insert his head into the hood collar opening 40. Then, sides 16 and 17 can be tossed over the head to configure the long coat. If desired, hood draw cord 26a can be drawn from one end of hood draw cord sleeve 26 while holding the outer end, and tied off into a belt at the waist. Further, excess fabric from layers 11, 12, and 13 can be pushed to the back of the waist for best fit and a neater appearance. [0033] To form the anorak or short coat as seen in FIG. 9, from the long coat mode, the wearer reaches down and under the multipurpose sleeping bag 10, grabs the ends of bottom or "south" portion 19, and raises up the ends approximately to waist level. By pulling the ends of foot draw cord 30a at the back of the waist, crossing them, and bringing them outside and around to the front of the waist, the ends of foot draw cord 30a can be tied off into a belt. Again, excess fabric of layers 11, 12, and 13 can be smoothed out to the back of the waist for best fit. [0034] To form the poncho as seen in FIG. 10, the wearer begins with the multipurpose sleeping bag 10 as formed in FIG. 3. The zipper 23 is completely unzipped from zipper 23a of multipurpose sleeping bag 10 and laid flat with outside fabric of layer 11 facing the ground. The multipurpose sleeping bag 10 is raised by grasping the sides 16 and 17 from the foot end (bottom or "south" end), and the wearer puts his head through the head opening 40 and flips the hood end (top or "north" end) 18 over the shoulders. [0035] A compressing stuff sack is preferably provided to compress and carry multipurpose sleeping bag 10. [0036] FIG. 11 shows an embodiment in which a second multipurpose sleeping bag is added as an over bag 10a to the multipurpose sleeping bag 10 described above, thereby creating a combination system 9 having increased thermal capacity. The over bag 10a has elements identical to those of bag 10, which are indicated by like reference numerals appended by the letter "a". However, the over bag 10a can provide even greater versatility for the wearer using insulation material of different weights. For example, the insulation material 13a of 10a may be around 2.5 to 3 pounds for a temperature rating of +35 degrees F. and up, while insulation material 13 of 10 may have an insulation filling of 4.5 pounds for a temperature rating of +20 degrees F. Thus, when the weather is fairly mild and not expected to be below +35 degrees F., the user who does not wish to carry the complete system formed of the dual multipurpose sleeping bags 10, 10a simply unzips the multipurpose sleeping bags and takes only bag 10a. If the temperature is to drop to between +35 degrees F. and +20 degrees F., only sleeping bag 10 is used, but if the temperature is to be colder than +20 degrees F., multipurpose sleeping bag 10 is zipped to multipurpose sleeping bag 10a, and the system 9 of the two bags 10, 10a protects down to about −25 degrees F. [0038] Referring to FIG. 11, the system 9 is assembled by placing bag 10 over bag 10a so that the external shell 12a of bag 10a is facing the ground, while the external shell 12 of bag 10 is facing the internal lining 12a of 10a. The zippers 23d and 23e of bag 10a are added to bag 10a along both sides 16a and 17a and next to zippers 23 and 23a, so that bag 10 can be joined to bag 10a, thereby forming the combination operational sleep system 9. [0039] From the foregoing, it can be seen that the foot end and the hood collar of the present invention, by reason of both their shape and dimensional relationship to the individual user, provides a multipurpose capability for the user not heretofore present in a single sleeping bag. It is also to be understood that the foregoing disclosure describes only the preferred embodiments of the present invention, and that numerous alterations and modifications can be utilized to practice the present invention without departing from the scope and spirit of the invention as defined in the appended claims.

What is claimed is:

1. A multipurpose sleeping bag that can be selectively configured in sleeping bag, over garment (short coat or long coat), poncho or quilt modes of operation, comprising:

- a body including first, second, and third layers of flexible material, each of which extends substantially the length and width of the body, wherein the body includes first and second side edges each having a first fastener adapted to fasten a length of each side edge to a length of the other side edge to configure the multipurpose sleeping bag in the sleeping bag mode of operation or in an over garment mode of operation, said fasteners extending from a foot portion of the body to a top portion thereof;

- a hood collar formed at a head opening located substantially centrally in the body and substantially equidistant from the fasteners, the hood collar being adapted to permit a wearer’s head to project through the head opening such that the body rests on the wearer’s shoulders;

- a first locking device adapted to selectively close the head opening to configure the multipurpose sleeping bag in the sleeping bag mode of operation, and to selectively open the head opening to configure the multipurpose sleeping bag in an over garment mode of operation;
a second locking device adapted to selectively close and open the foot portion such that the wearer is able to step into the multipurpose sleeping bag through the open foot portion, put the wearer’s head through the head opening, and move an unfastened portion of the multipurpose sleeping bag over the shoulders to configure the multipurpose sleeping bag in an over garment mode of operation; and

a foot draft tube adapted to retain warmth at the foot portion when the foot portion is closed by the second locking device.

2. A multipurpose sleeping bag as claimed in claim 1, wherein the first layer is adapted to form an external shell, the second layer is adapted to form an insulation sheet positioned between the first and third layers, and the third layer is adapted to form an internal lining, and wherein edge portions of said first and third layers are joined together to form the body.

3. A multipurpose sleeping bag as claimed in claim 1, further comprising a hood element configured at the top portion of the body.

4. A multipurpose sleeping bag as claimed in claim 1, wherein when the first and second side edges are fastened together by the fasteners in the sleeping bag mode of operation, the hood collar is located opposite to the fastened first and second side edges.

5. A multipurpose sleeping bag as claimed in claim 1, wherein the first locking device is a hook-and-loop fastener.

6. A multipurpose sleeping bag as claimed in claim 1, wherein the second locking device comprises a foot draw cord sleeve and a foot draw cord located in the foot draw cord sleeve, such that when the multipurpose sleeping bag is fastened in the sleeping bag mode of operation, the foot draw cord is wrapped around the first and third layers to thereby close off the foot portion.

7. A multipurpose sleeping bag as claimed in claim 1, wherein the second layer comprises an unbounded, silicone-coated continuous-filament fiberfill.

8. A multipurpose sleeping bag as claimed in claim 1, wherein the fasteners of the first and second side edges constitute a zipper, and wherein the multipurpose sleeping bag further comprises a zipper draft tube adjacent the fastener of one of the first and second side edges.

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