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(54) **ELECTRICAL SAFETY BACKPACK**

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(57) **ABSTRACT**

An electrical safety backpack contains all of the products needed for working near or on energized circuits in a single transportable container which can be carried from various vantage points and which provides easy, immediate access to insulated tools, electrical test equipment and personal protective equipment (PPE) and clothing. This collection of disparate tools puts all the necessary items that are needed to work on energized equipment in one portable container.

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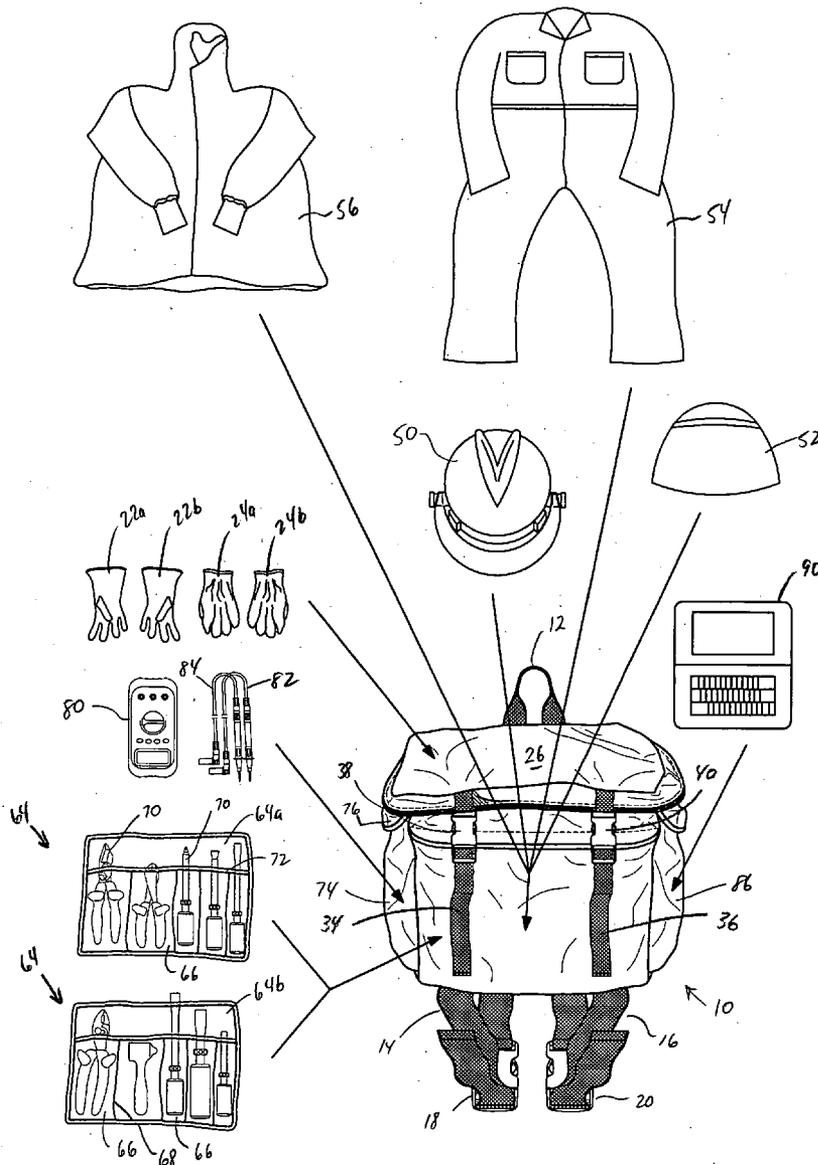


FIG. 1

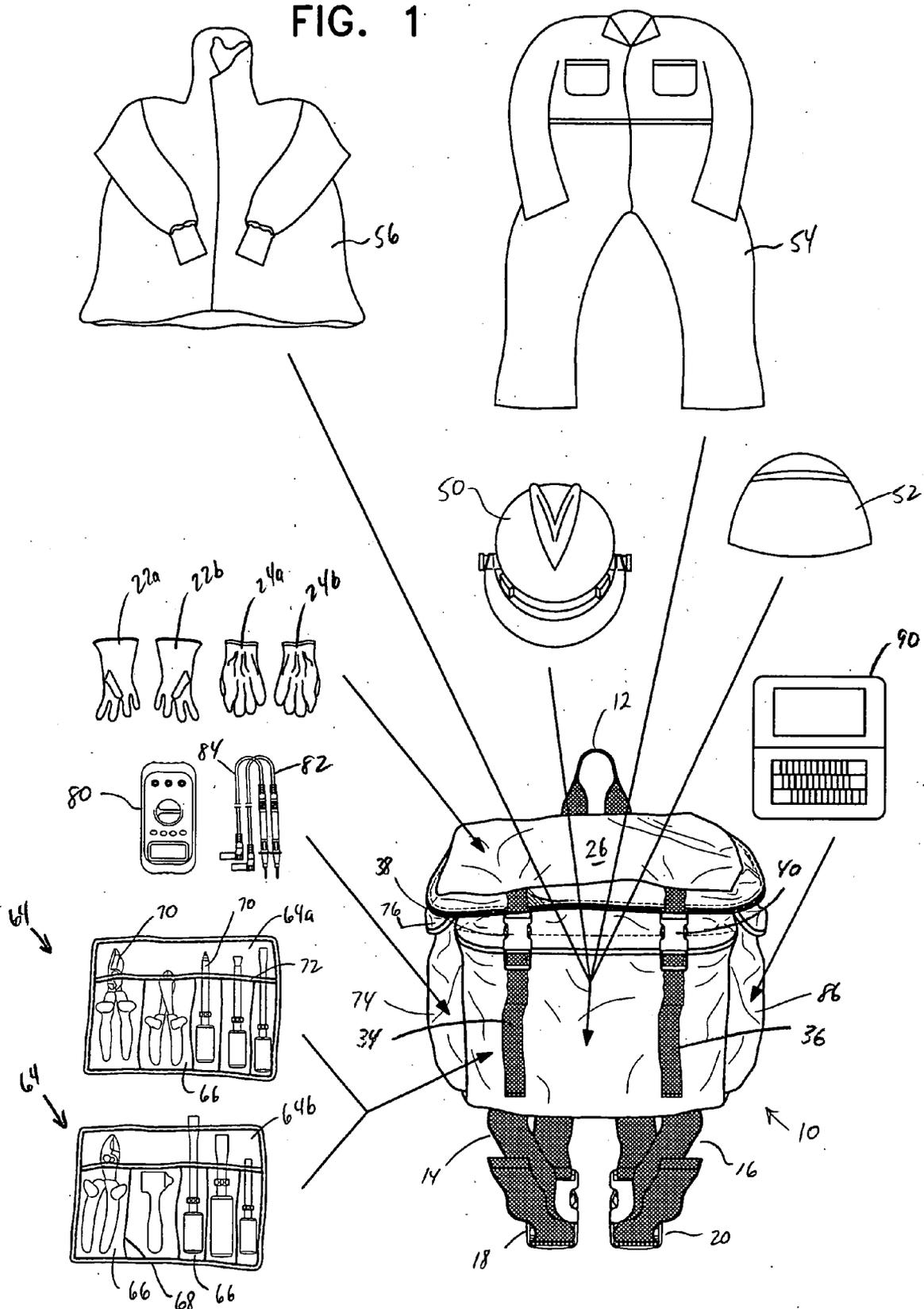


FIG. 2

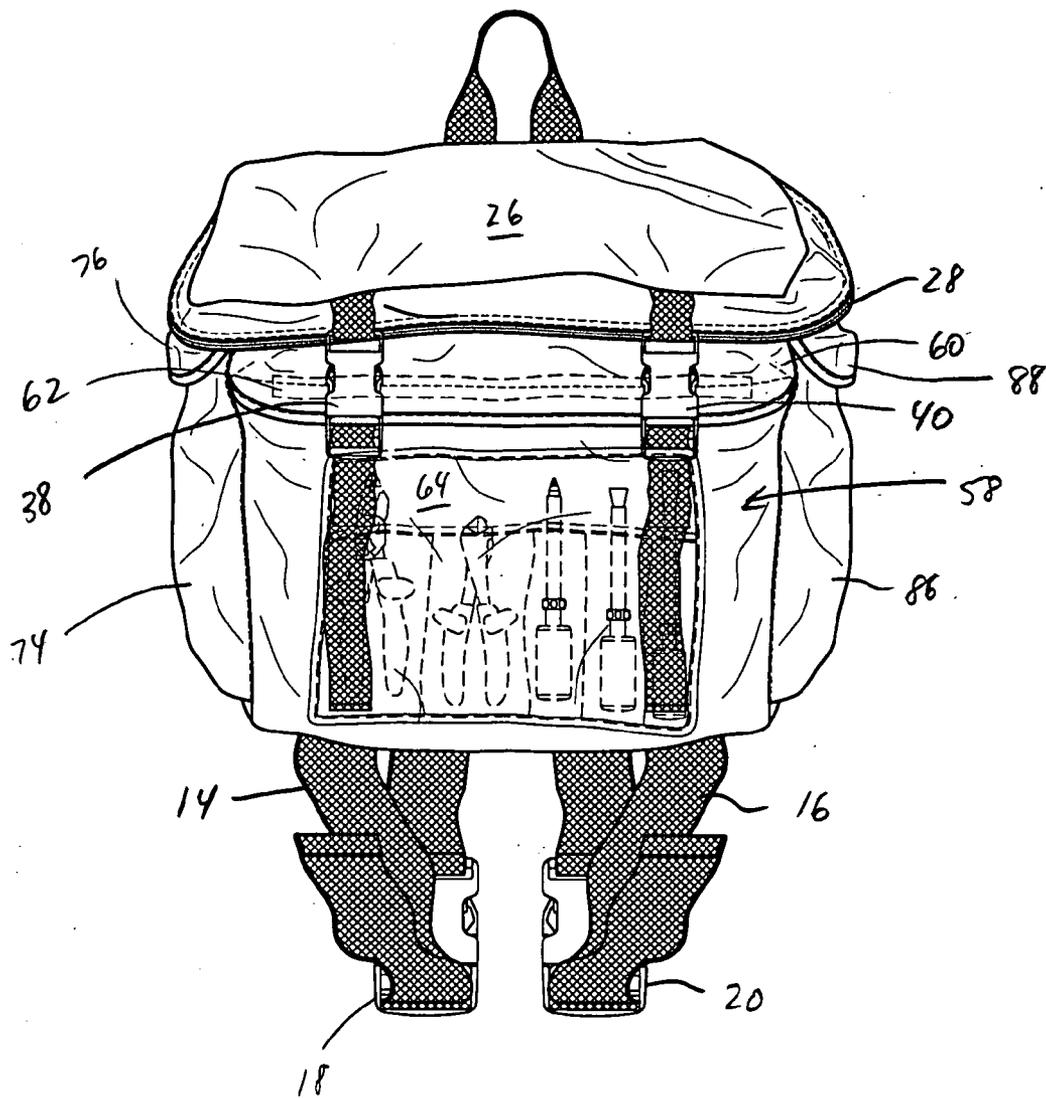


FIG. 3

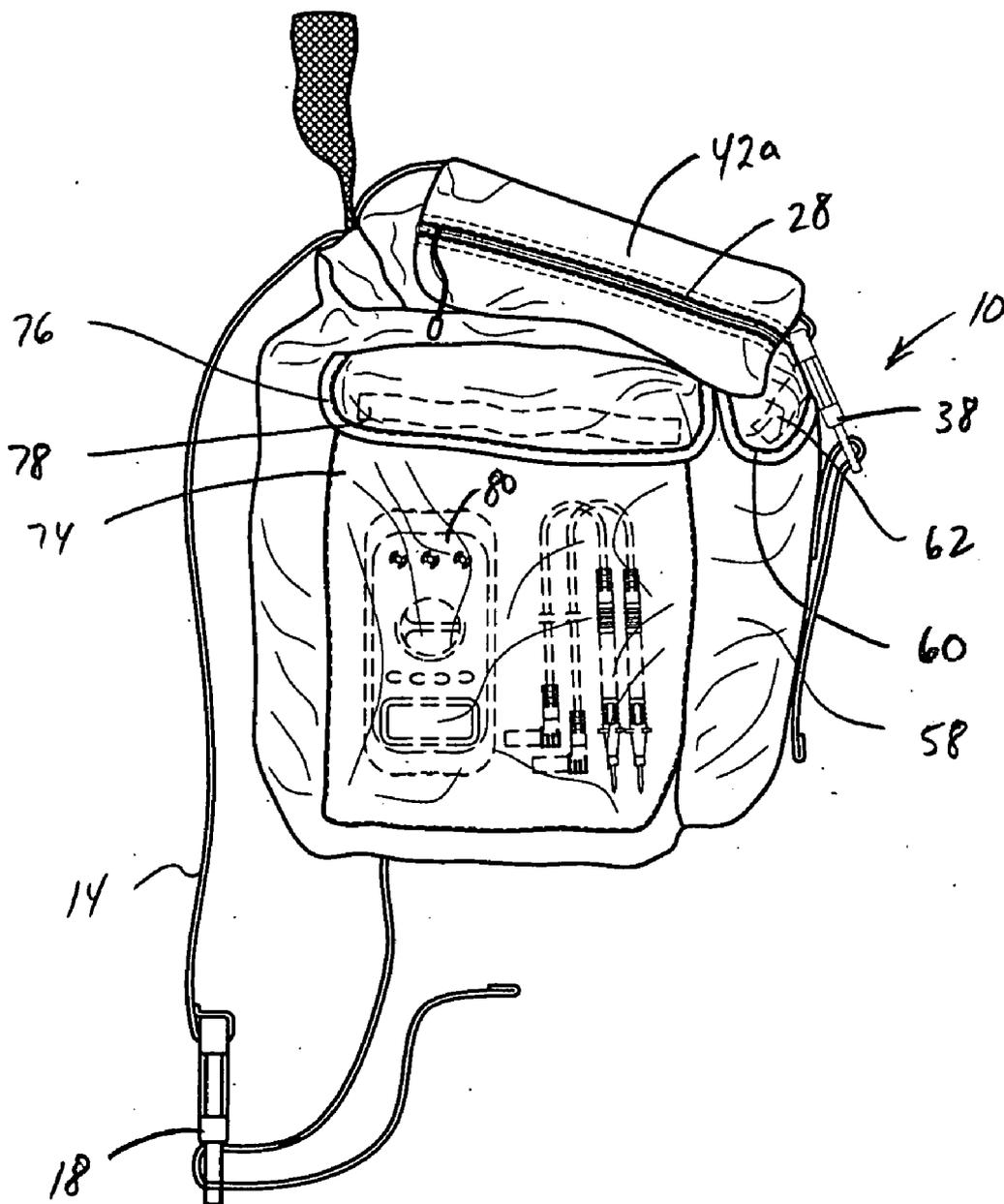
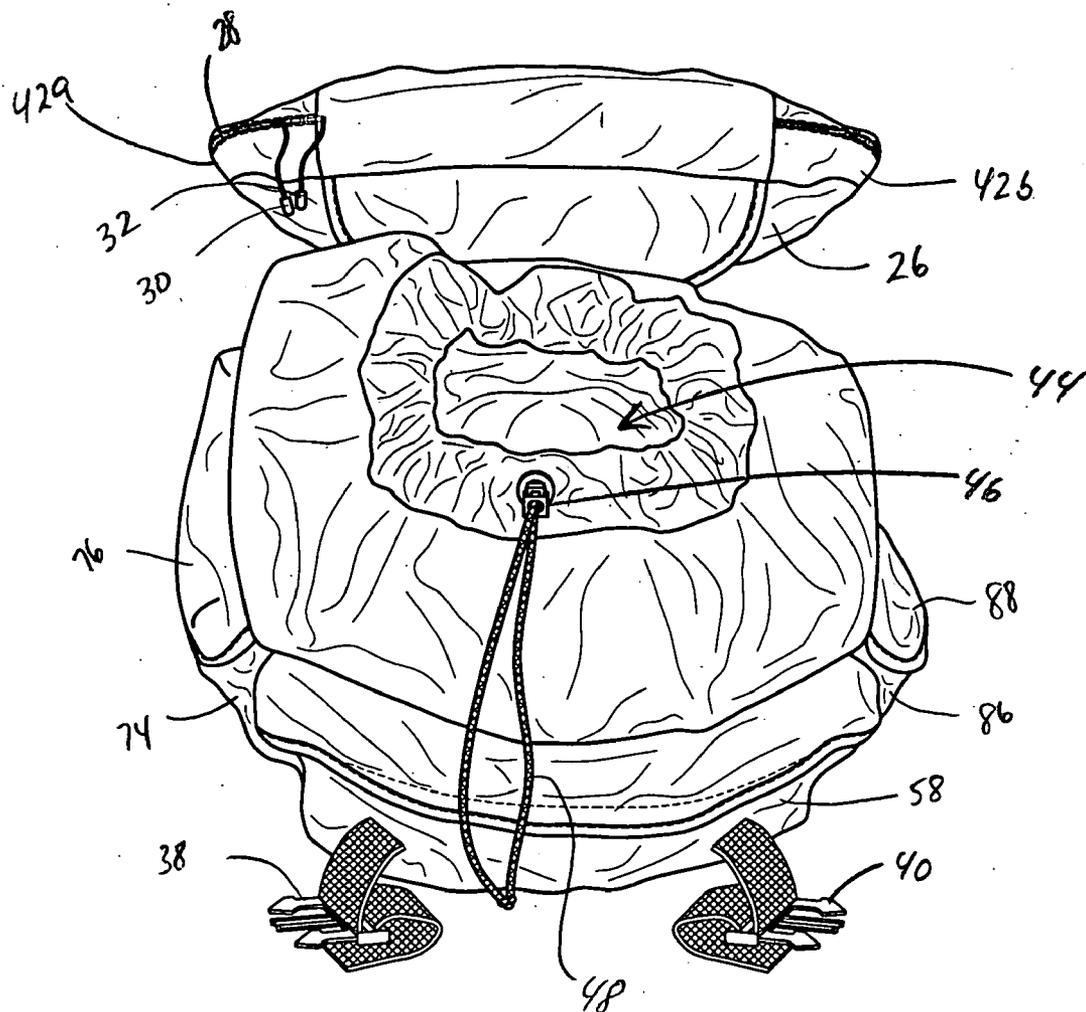


FIG. 6



ELECTRICAL SAFETY BACKPACK

FIELD OF THE INVENTION

[0001] The present invention relates to collecting all of the materials necessary in a convenient, easily accessible storage container, such as a backpack, to safely inspect and perform electrical installations.

BACKGROUND OF THE INVENTION

[0002] In the 2004 edition of the "Standard For Electrical Safety In The Workplace", the National Fire Protection Association (NFPA) has outlined several, deficiencies found in most workplaces. The NFPA has identified a need for the average employer to protect its employees in the installation and maintenance of high voltage electrical circuits and during all aspects of design, installation, modification and construction of an electrical installation or system.

[0003] There has been a long felt need to meet the requirements for safety-related electrical work practices and maintenance of an electrical system. These requirements are considered critical to the safety of the workforce handling high voltage systems.

[0004] In an effort to address these needs, the NFPA has set forth guidelines to address these issues. One of the paramount features stressed by the NFPA is to emphasize safe work practices.

[0005] One important goal identified is the protection of employees from electrical hazards. The hazards are identified by the NFPA as including live electrical parts operating at 50 volts or more and the efforts to protect employees who might be exposed to the electrical hazards involved. These work practices were intended to protect each employee from arc flash and from contact with live parts operating at 50 volts or more and the potential direct contact with any part of the body or indirectly through some other conductive object.

[0006] The hazards involved in addressing a critical electrical installation are extreme. These needs have previously been addressed by the use of metal tool boxes and employees dressed in synthetic material street clothing. Following these practices have exposed employees to serious risk of severe injury or death.

SUMMARY OF THE INVENTION

[0007] Accordingly, it is an object of the present invention to collect all of the products needed for working near or on energized circuits in a single transportable container which can be carried from various vantage points and provide easy, immediate access to insulated tools, electrical test equipment and personal protective equipment (PPE) and clothing. This collection of disparate tools puts all the necessary items that are needed to work on energized equipment in one location.

[0008] This object is accomplished by use of a light weight, waterproof backpack having a plurality of compartments or pouches segregated to carry different items in different locations based upon priorities of access.

[0009] For example, a top pouch stores insulating gloves which may be the first items required to service an active installation. The top pouch includes a double zipper design

for fast removal of electrician's high voltage rubber gloves from either end of the top pouch.

[0010] A center, side pouch stores hand tools in a tool sleeve. The hand tools include composite screw drivers, composite knives, composite nut drivers and other composite tools. These tools are made according to the advantageous design of U.S. Pat. No. 5,359,911, hereby incorporated in its entirety by reference.

[0011] As described in this patent, a limited amount of metal is used at only one of the tool. The remainder of the tool is made of a composite, non-conductive material which is strong and light in weight. Accordingly, these disparate tools are easily accessed from the center, side pouch by release of a hook and loop fastener, with the tool sleeve being removable to access all of the tools located on both sides of the tool sleeve.

[0012] A central main compartment includes an arc flash face shield and helmet and hazard risk (category 2), fire rated clothing such as coveralls, parka, lab coat, etc.

[0013] The two side pouches are used to store voltage test gear and/or a small or "mini" laptop computer. A hook and loop fastener closure provides easy and quick access to each of the two side pouches.

[0014] The backpack includes a central lift loop for easy grasping by one hand. The backpack also includes two shoulder straps for carrying by an electrician. Each shoulder strap includes a quick release buckle if, for example, the backpack needs to be secured to a ladder at an elevated position.

[0015] The backpack is made of rugged CORDURA fabric using 1000 denier material. The fabric includes a waterproof treatment and is also static resistant. The static resistance is created by application of an antistatic spray such as is available from Camie-Campbell of St. Louis, Mo.

[0016] Accordingly, it is another object of the present invention to provide a container in a backpack form having a plurality of compartments for easy immediate access to disparate tools collected for safely addressing an electrical installation.

[0017] It is another object of the present invention to provide a container in a backpack form having a plurality of compartments for easy immediate access to disparate tools collected for safely addressing an electrical installation with an elevated uppermost compartment containing electrician's high voltage rubber gloves so as to accommodate immediate insulated access to the most basic of electrical protection equipment.

[0018] It is another object of the present invention to provide a container in a backpack form having a plurality of compartments for easy immediate access to disparate tools collected for safely addressing an electrical installation having a central storage compartment for an arc face shield and helmet and fire rated clothing.

[0019] It is still yet another object of the present invention to provide a container in a backpack form having a plurality of compartments for easy immediate access to disparate tools collected for safely addressing an electrical installation having a central storage compartment for an arc face shield and helmet and fire rated clothing with a center, side

compartment having a removable tool sleeve holding a plurality of composite material, electrically insulated tools.

[0020] It is still yet another object of the present invention to provide a container in a backpack form having a plurality of compartments for easy immediate access to disparate tools collected for safely addressing an electrical installation having a central storage compartment for an arc face shield and helmet and fire rated clothing with a center, side compartment having a removable tool sleeve holding a plurality of composite material, electrically insulated tools with side pouches for providing immediate access to auxiliary electrical testing equipment.

[0021] These and other objects of the invention, as well as many of the intended advantages thereof, will become more readily apparent when reference is made to the following description taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] FIG. 1 is an exploded view illustrating the electrical safety backpack of the present invention and including illustrations of the various equipment which is loaded in the backpack and which is quickly accessible for immediate use.

[0023] FIG. 2 is a rear view of the backpack illustrating the location of the tool sleeve in a center, side compartment.

[0024] FIG. 3 is a side view illustrating the placement of electrical testing equipment in a side compartment of the backpack.

[0025] FIG. 4 illustrates a top view and the uppermost compartment containing electrician's high voltage rubber gloves which are easily and immediately accessible.

[0026] FIG. 5 is a bottom view illustrating the containment of an arc face shield and helmet and fire rated clothing contained in a large central compartment of the backpack.

[0027] FIG. 6 is a top view showing the cinch closing of the large central compartment with which the arc face shield, helmet and fire rated clothing are stored.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0028] In describing a preferred embodiment of the invention illustrated in the drawings, specific terminology will be resorted to for the sake of clarity. However, the invention is not intended to be limited to the specific terms so selected, and it is to be understood that each specific term includes all technical equivalents which operate in a similar manner to accomplish a similar purpose.

[0029] With reference to the drawings, in general, and to FIG. 1, in particular, a container for collecting disparate items for electrical installation protection are collected in a backpack 10 embodying the teachings of the subject invention. With reference to its orientation in FIG. 1, the backpack has overall dimensions of a height of approximately 14 inches, a width of approximately 18 inches and a depth of approximately 10 inches.

[0030] The backpack is liftable by a single loop handle 12 extending from an upper edge of the backpack. In addition, two shoulder straps 14, 16 are secured to the backpack as best shown in FIG. 3 so that the entire backpack may be

secured to the back of an electrician for ease of portability. Each of the straps 14, 16 includes a releaseable buckle 18, 20, respectively, for release and reattachment if the backpack is to be secured at an elevated location. This also facilitates the anchoring of the backpack for access to its compartments by the electrician.

[0031] As shown in FIG. 1, various components contained in the backpack are shown removed from the backpack and illustrative arrows drawn to the backpack indicate a preferred positioning of the various components in the appropriate compartment of the backpack.

[0032] Two pairs of high voltage gloves 22a, 22b and 24a, 24b are stored in an upper compartment 26. Compartment 26 includes a zipper 28 extending about the circumference of the compartment 26 on three sides of the compartment 26. Two zipper pulls 30, 32 provide for a quick opening of the compartment 26 so as to quickly gain access to the interior of the compartment for ready access of the gloves pairs 22, 24 which are shown in dotted lines in FIG. 4. It is not necessary that connecting straps 34, 36 be released by their respective buckles 38, 40 to gain access to the interior compartment 26 and to the glove pairs 22, 24. The glove pairs lay flat along the longitudinal axis of compartment 26 so as to be quickly slid out from either end 42a, 42b of compartment 26.

[0033] After release of buckles 38, 40, access to interior center compartment 44 is gained by release of clasp 46 along drawstring 48. The fabric through which drawstring 48 slides is 200 denier material.

[0034] Housed in the interior compartment 44 is a helmet 50 and arc face shield 52 which fits on the helmet 50, fire rated coveralls 54 and fire rated hooded sweatshirt 56. This basic electrical shock protective equipment is easily accessed and donned for increased protection of the electrician.

[0035] Also, after release of buckles 38, 40, a center, side compartment 58 is accessed after lifting of flap 60 from the compartment 58 by separation of a hook and loop fastener 62. Inside compartment 58 is a tool sleeve 64. The opposite sides 64a and 64b of the single tool sleeve 64 are shown in FIG. 1.

[0036] Both sides of the tool sleeve 64 include pockets 66 which are separated by stitching 68. The material spanning the exterior of each pocket 66 is transparent so that the tools 70 housed in each of the pockets is viewable, not only by the portion of each tool which projects above upper edge 72, but by viewing of the tools through the transparent material forming the front face of each pocket 66.

[0037] The plurality of tools contained in the tool sleeve 64 are special electrician's tools having metal working components limited to a leading tip of each tool, the remainder of the tool is formed of electrically insulated material as described in U.S. Pat. No. 5,359,911. The entire sleeve 64 may be removed from compartment 58 for ease of use by the electrician.

[0038] To one side of compartment 58 is compartment 74 having closure flap 76 secured to the compartment 74 by hook and loop fasteners 78. In side compartment 74 may be housed a diagnostic meter 80 and connection cables 82, 84 for use in conducting electrical property measurements.

[0039] On the opposite side from compartment 74 is another side compartment 86 having flap 88 secured to compartment 86 by hook and loop fasteners. In compartment 86 may be contained a small or "mini" laptop computer 90 or other safety equipment.

[0040] In combination, the electrician's backpack of the present invention provides a lightweight, waterproof backpack carrying insulated tools, electrical test equipment and personal protective equipment and clothing. All products needed for working near or on energized circuits are carried in the backpack, hands free. The backpack holds all the products that are needed to comply with the NEC 2002 code, NFPA 2000 70E regulations as well as all OSHA standards.

[0041] The waterproof and static resistant material of the backpack easily conforms to small storage areas. The assembled kit meets or exceeds all requirements for dealing with a live electric installation. By this assembly, the problems encountered with makeshift attempts to deal with live electrical circuits have been overcome.

[0042] The foregoing description should be considered as illustrative only of the principles of the invention. Since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and, accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

We claim:

1. A portable container for providing electrician's tools and supplies at an electrical installation, said portable container comprising:

a backpack having a plurality of compartments, and one of the plurality of compartments including a pair of insulated, fire resistant electricians's gloves for working on an electrical installation, said pair of gloves being readily accessible for immediate initial use upon arrival at the electrical installation.

2. The portable container as claimed in claim 1, wherein said one compartment is located at a top of the backpack.

3. The portable container as claimed in claim 2, wherein said one compartment includes a zippered closure.

4. The portable container as claimed in claim 3, wherein said pair of gloves are located in said one compartment to extend parallel to a longitudinal axis of said one compartment.

5. The portable container as claimed in claim 1, wherein a second compartment of said plurality of compartments includes a set of electrically insulated tools.

6. The portable container as claimed in claim 5, wherein said second compartment is located at a side of the backpack.

7. The portable container as claimed in claim 5, wherein said set of electrically insulated tools is contained in a sleeve removably located in said second compartment.

8. The portable container as claimed in claim 1, wherein fabric of said backpack is static resistant.

9. The portable container as claimed in claim 1, wherein fabric of said backpack is waterproof.

10. The portable container as claimed in claim 1, wherein a central compartment of said plurality of compartments is located below said one compartment.

11. The portable container as claimed in claim 10, wherein said central compartment includes an arc flash shield and a helmet.

12. The portable container as claimed in claim 11, wherein said central compartment includes fire rated clothing.

13. The portable container as claimed in claim 5, wherein said second compartment located on the side of the backpack is located between two additional compartments located on the side of the backpack.

14. The portable container as claimed in claim 5, wherein the second compartment is secured by a hook and loop fastener.

15. A portable container for providing electrician's tools and supplies at an electrical installation, said portable container comprising:

a backpack having a plurality of compartments for containing tools and supplies necessary for working on an electrical installation, and

a pair of electrically insulated gloves contained in the backpack for working on the electrical installation, said pair of gloves being readily accessible for immediate initial use upon arrival at the electrical installation.

16. The portable container as claimed in claim 15, wherein fabric of said backpack is static resistant.

17. The portable container as claimed in claim 15, wherein fabric of said backpack is waterproof.

18. The portable container as claimed in claim 15, wherein a set of electrically insulated tools is mounted in a sleeve removably mounted in the backpack.

19. The portable container as claimed in claim 15, wherein said backpack includes an arc flash shield.

20. The portable container as claimed in claim 15, wherein said backpack includes fire rated clothing.

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