Aug. 11, 1964 C. MANTELL, JR 3,144,014

HIKING AND SURVIVAL BACK PACK

Filed Feb. 20, 1962 3 Sheets-Sheet 1

Fig. 1.

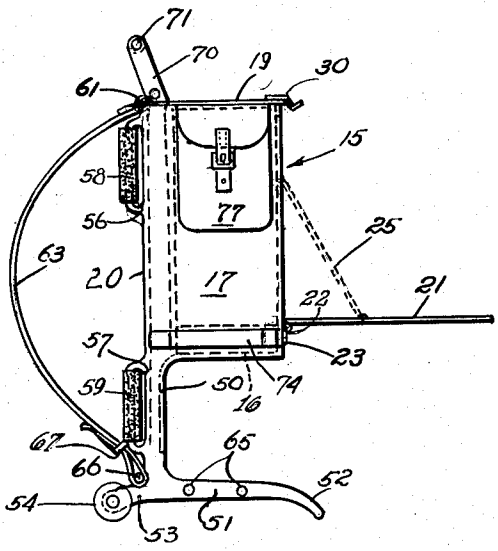


Fig 2.

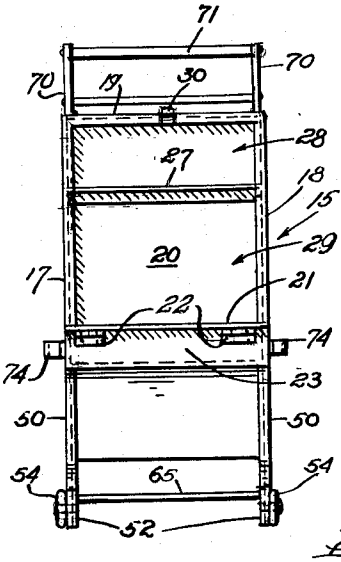


Fig. 5.

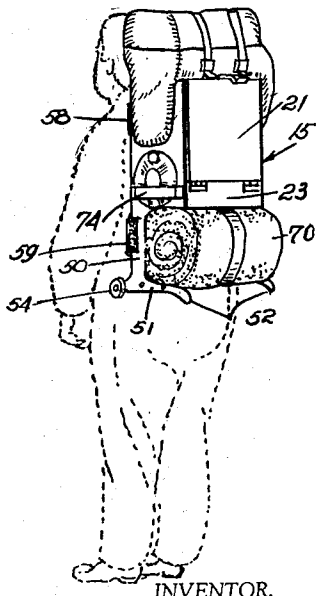


Fig. 3.

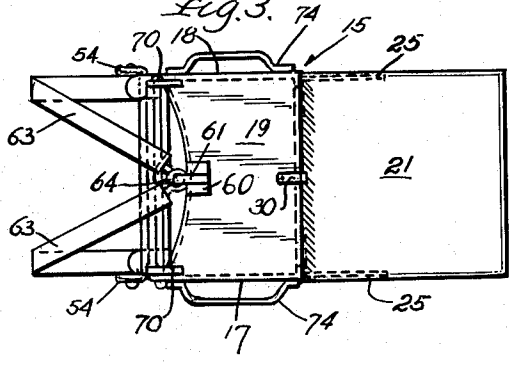
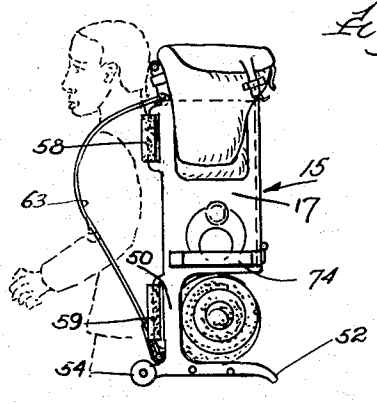


Fig 4.



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Fig. 6.

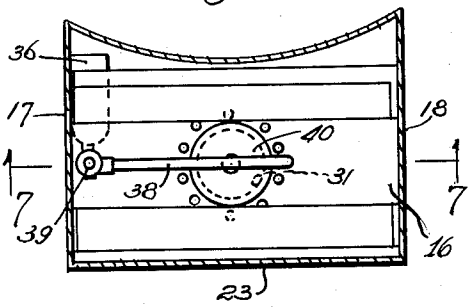


Fig. 9.

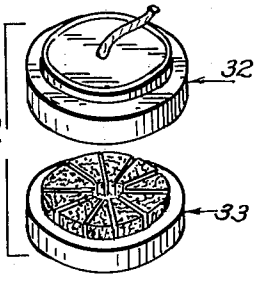
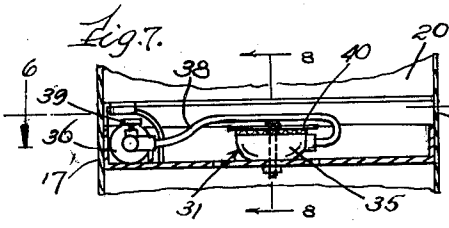


Fig. 7.



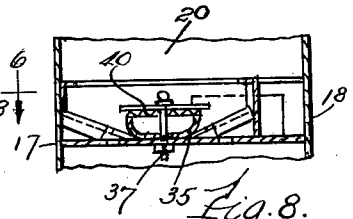
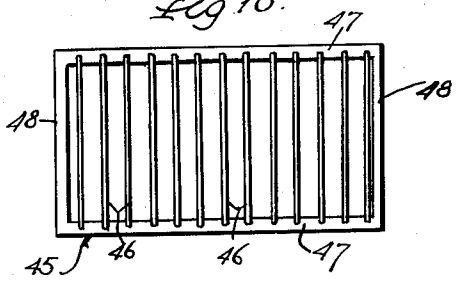


Fig. 8.

Fig. 10.



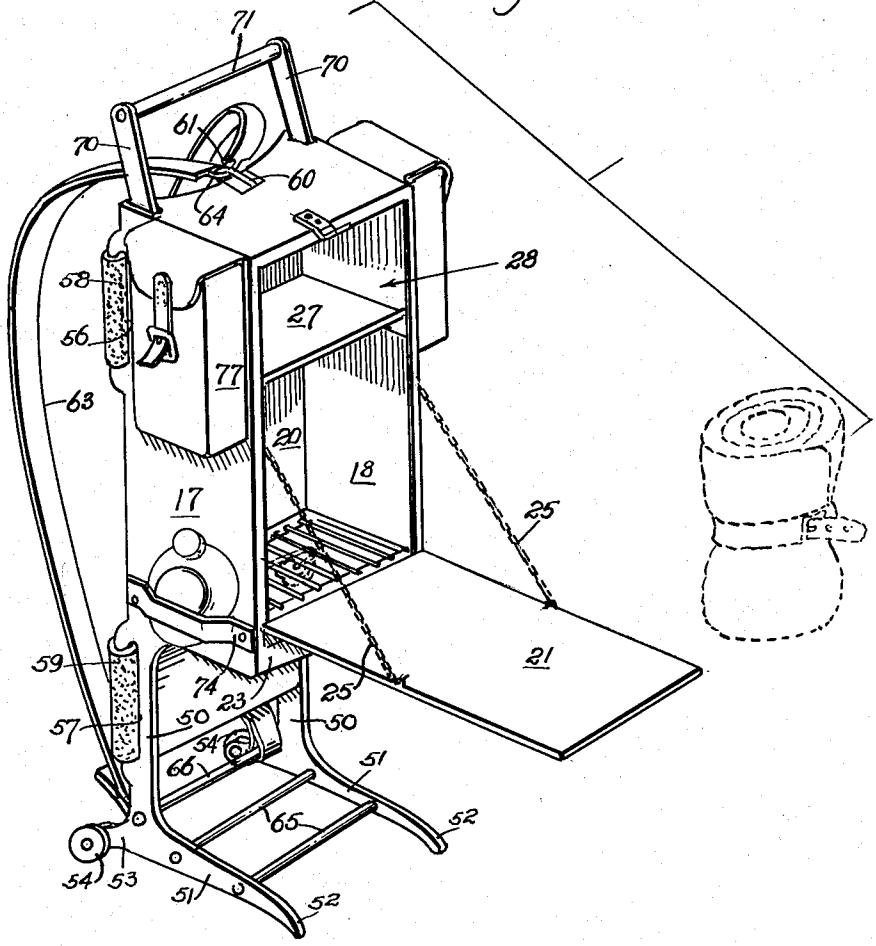
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HIKING AND SURVIVAL BACK PACK

Filed Feb. 20, 1962 3 Sheets-Sheet 3

Fig. 11.



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3,144,014

HIKING AND SURVIVAL BACK PACK

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Filed Feb. 20, 1962, Ser. No. 174,577
8 Claims. (Cl. 126—38)

This invention relates to certain new and useful improvements in hiking and survival back packs. More especially my invention relates to a portable hiking pack embodying a camp stove and provided with straps whereby it may be hung over the hiker's shoulders, and also provided with a body engaging canvas bands so that the pack may be carried upon the back of the hiker in comfort.

There are several advantages to the use of a pack embodying a stove for burning liquified petroleum gases, sometimes referred to as L.P. gases. The resulting flame is clean and odorless. Ordinarily, the fuel is easily portable in relatively small containers which withstand the high pressures to which the gas is subjected in storage. These gases, particularly propane, will volatilize at the normal ambient temperatures one encounters in most parts of the country and, therefore, make a suitable fuel for use in practically all localities. Especially is a stove desirable in arid areas where grass and forest fires are an ever present danger, where open fires cannot be tolerated with even a slight wind. Wood burning stoves requires one to locate firewood and this is not always easy and convenient when one is hiking and especially above the timber line; this increases the normal cooking time and requires extra clean-up time. The present structure presents a new and improved pack with a stove arranged therewith which overcomes the difficulties enumerated above.

It is, therefore, the primary object of this invention to provide a new and improved portable pack with a gas stove arranged therewith.

Another object of the invention is to provide a pack embodying a stove for burning L.P. gas and at the same time provide a maximum heating in the shortest interval of time from starting.

Another object of the invention is to provide a pack embodying a stove easily and quickly convertible from a storage condition to one of use, maintaining at all times an even and uniform flame of consistent characteristics preventing the blackening of pots and pans while in use.

Another object of the invention is to provide a portable pack having supporting means and a rectangular shaped aluminum cabinet combined therewith and having an insulated shelf arranged between the upper and lower cabinet walls thereof providing a cooking compartment and a storage compartment for the foods to be cooked.

Another object of the invention is to provide ventilation across the back of the user and thereby contribute to his comfort and well being.

Another object of the invention is to provide a pack cabinet and lower supporting means which will support suitable side pockets, will support a storage bag on top of the cabinet, will support a sleeping bag below the cabinet and will support canteens below the side pockets for supplying water for drinking, cooking and cleaning purposes.

Another object of the invention is to provide the cabinet with a hinged vertical front wall enclosing the cooking and food storage compartments so that this wall hinged at its base portion will serve as a table top when the cabinet is open, while retaining the contents within their compartments and providing a protection of the contents from damage when the cabinet is closed.

Another object of the invention is to provide means for the removal of the gas stove and fuel container, and support units of either impregnated wood or canned fuel should an emergency arise.

Another object of the invention is to provide a pack with a cabinet and supporting means assembled therewith, pack supporting wheels mounted on the lower portions of the supporting means, and a handle secured to the upper portions of the cabinet for lifting and carrying the entire pack over uneven surfaces, up and down steps, and which can be used efficiently on surfaces other than concrete pavements, walks, or the like, when not carried upon the back of the user.

These objects and the several novel features of the invention are hereinafter more fully described and claimed, and the preferred form of construction by which these objects are attained is shown in the accompanying drawings in which:

FIGURE 1 is a side elevational view of the pack embodying the present invention and showing the insulated hinged front wall in a lowered position for use as a table;

FIGURE 2 is a front elevational view of the pack shown in FIG. 1;

FIGURE 3 is a top plan view of the pack shown in FIGURES 1 and 2;

FIGURE 4 is a side view of the pack of the present invention in use;

FIGURE 5 is a perspective front view of the pack of the present invention in use;

FIGURE 6 is a fragmentary sectional view taken on line 6—6 of FIG. 7 through the metal cabinet of the present invention showing the arrangement of the fuel container and fuel burner therein.

FIGURE 7 is a fragmentary sectional view taken on line 7—7 of FIG. 6;

FIGURE 8 is a fragmentary sectional view taken on line 8—8 of FIG. 7;

FIGURE 9 is a perspective view showing two substitute heating means to replace the preferred gas heating means;

FIGURE 10 is a top plan view of the grid used in the invention; and

FIGURE 11 is an enlarged perspective view of the hiking pack embodying this invention and showing the hinged front wall in a lowered position for use as a table; a rolled sleep bag is shown by dotted lines and forming a part of the pack.

Referring more particularly to the disclosure in the drawings, the numeral **15** designates generally the main cabinet of my individual carrying pack. The cabinet **15** comprises a bottom wall **16**, two side walls **17** and **18**, a top wall **19**, a concave rear wall **20** and a front closure panel **21**, all of formed sheet metal. The closure panel **21** is hingedly secured to the front portion of the cabinet by a pair of hinges **22** rigidly secured to a lateral panel **23** adjacent the bottom wall **16** and extending between the side walls thereof; the lower half of the hinge being mounted upon said panel **23** and the co-operating upper half of the hinge being mounted with said closure panel **21**.

A pair of chains **25** are employed to support said closure panel **21** in its horizontal position to provide a shelf or table. The upper ends of the chains are secured to the forward edge portions of the cabinet at substantially midway between the top and bottom walls, the lower ends of the chains **25** being secured to the edge portions of said panel **21** substantially mid-way between the upper and lower edge portions thereof. A solid shelf **27** is arranged in said cabinet parallel with and between said top and bottom walls, said shelf dividing the cabinet **15** into two compartments one above the other, the upper compartment **28** being completely sealed off from the lower compartment **29** forming a food storage compartment;

the shelf **27** being of heat insulating material prevents any heat in the lower compartment from entering the upper compartment when the front panel **21** is in its closed, vertical position and arranged in tight engagement with the cabinet by spring latch **30**, secured to the top shelf of the cabinet and extending forwardly therefrom to engage the top edge portion of the panel **21**. In the lower compartment **29** I desirably provide a fireproof cooking compartment since the walls and shelf **27** are formed of fireproof material.

As seen best in FIGURES 6, 7 and 8, I prefer to locate a heating element, such as a gas burner **31**, or a canned fuel burner **32**, or an impregnated wood type element **33**. I prefer to use the gas burner type heating element **31** which includes five major parts as far as the operator is concerned. These parts include a bowl type burner structure **35**; a removable container **36** for liquified petroleum gases, often referred to as L.P. Gases, as a fuel in portable stoves, or other types of liquified gases; securing means such as a bolt and nut type means **37** for securing the gas burner **35** to the bottom wall **16**; a gas supply line **38**, and a needle valve **39** equipped with a thumb screw for control and regulation of the flow of gas from the container **36**. Tre position occupied by the stove **35** is important, as well as th elocation of the container **36**. The stove **35** is secured substantially centrally upon the lower wall **16**, or at leas mid-way between the front and rear elements of the cabinet. The container **36**, as shown by FIGURES 6 and 7, is arranged along one side wall of the cabinet and clamped upon the floor thereof, so that it is accessible for replacement through the front opening of the lower compartment **29**. The needle valve **39** is assembled upon the container **36** and is connected to the gas supply line **38**. The supply line **38** is bent angularly and upwardly and then horizontally and arranged to pass over the top of the burner, then passes downwardly and connects with the side of the burner **35**. The passage of the supply line **38** over the burner allows the supply line to become heated by the flame from the burner and effecting proper generation of gas from the liquified fuel carried by container **36**. Should the occasion arise that all the gas is consumed, and the user is on a hiking trip, he can remove the stove **35** by removal of the locking nut on the bolt **37** and substitute either the canned fuel element **32** or impregnated wood element **33** which are carried elsewhere upon the exterior of the cabinet by suitable means.

The burner itself, secured to the bottom of the cabinet, is of simple structure and need not be described in detail. It has a corrugated top plate member **40** whereby a suitable flame is produced by mixture of air with the generated fuel. The stove is caused to produce a uniform and even heat by insuring that only fuel in the gaseous state is conducted to the burner once the burner is ignited.

A grill, or grid **45**, substantially rectangular in shape, as shown by FIG. 10, is formed of a plurality of parallel wires or rods **46** joined at their ends by transverse members **47** and **48** joined at their ends. The grid is removably mounted above the burner **31** and parallel with the bottom wall **16** of the cabinet.

The side walls **17** and **18** of the cabinet are provided with integral depending extensions, or side members **50**, each provided with end extensions, or base members **51**. The side members being substantially identical constitute the lower supporting means for the cabinet. The base members **51** have forward end portions **52** which are formed angularly and downwardly forming ground engaging means, and they have rear end portions **53** with rollers, or wheels **54** rotatably mounted thereon forming mobile supports; the forged ends **52** being substantially in the same horizontal plane as passes beneath the rollers **54** and in contact therewith, thereby keeping the cabinet in vertical position when supported upon the ground. The rear edge portions of the side panels

17 and **18** are provided with a plurality of openings, or vertically longitudinal slots **56** and **57**, two slots in each side being shown therein. Cross-wise extending flexible support webbing members **58** and **59** are arranged in the slots **56** at the top and slots **57** in the depending portions **50**. The support webbing member **58** will extend between the shoulder blades of the user and the concave exterior surface of the back wall **20** forming a comfortable supporting means. The supporting webbing member **59** will extend between the cabinet and the small of the back adjacent the hips of the user.

A reinforcing plate **60** for attachment of shoulder straps is rigidly secured to the top wall **19** of the cabinet, adjacent the rear edge thereof and mid-ways between the side walls thereof. A metal loop **61** extends rearwardly from said plate **60**. A pair of shoulder embracing straps, clearly shown by FIGURES 3 and 11, designated **63**, are provided at their upper ends with ring members **64** which are assembled with the metal loop **61**. The base members **51** have cross-bar membzers **65** arranged transversely therebetween. The lower end portion of side members **50** have a cross-bar member **66** arranged transversely therebetween. The lower ends of the straps **63** are looped around the bar **66** and drawn up as tight as desired by the user, the adjustment being maintained through use of clamping rings **67**, shown clearly in FIGURE 1. The sleeping bag **70**, shown dotted in FIGURE 11, can be carried beneath the cabinet and strapped to the bars **65**, as shown in FIGURE 5.

The upper rear portion of said cabinet **15** is provided with a pair of handle supporting means **70** having a rod type handle **71** extending therebetween. The supporting means **70** extend upwardly and rearwardly from the cabinet.

While hiking over rough ground the pack is carried by the user by means of straps **63**. Where the ground is smooth, the hiking-pack can be removed from the shoullders of the user and positioned with the rollers upon the ground. The entire pack can be pulled, or pushed, about the ground, or pavement, with ease by the user controlling it by the handle **71**.

The side panels **17** and **18** are also provided with center brackets **74** for carrying water in a canteen **75**, as clearly shown by FIGURES 4, 5 and 11. The exterior surfaces of the upper end portions of the side walls **17** and **18** are provided with flexible side pockets **77** and **78** suitable for carrying odd shaped items such as fiishing gear, etc.

The unit consists of a novel pack with shoulder supporting straps and mobile ground supporting means. The lower compartment serves as a cooking unit and the wire grill above the stove is utilized to support cooking utensils, etc.

The insulated shelf **27** provides an upper food compartment, or storage space as needed by the camper. The hinged front cover of the cabinet when swung down to a horizontal position forms a table for the camper during meal times. The canteens are carried on the sides of the cabinet while the sleeping bag is located under the cabinet and secured to the cross-base of the supports.

The gas burner is efficient, even at high altitudes above the timber line, and provides quick heating by safe means. The box is so constructed that should it be tipped over accidentally, it would not start a fire. By placing a heat reflecting foil, or metal surface beneath the burner, and with the cover in open position, the sun will reflect therein and upwardly and serves as a good heat reflector for hunters in emergencies, etc.

The assembled and completed pack will always provide the essentials for survival; food, water, extra clothing, heat and shelter, all in a light weight compartment unit.

It is believed that the operation of the pack is readily apparent and while I have shown and described the preferred embodiment of the present invention, I do not wish to confine myself to the exact details of construction shown, as various forms, modifications and arrangement

of parts as shown may be had without departing from the spirit and scope of the invention as claimed.

I claim:

1. A hiking pack provided with a walled cabinet, comprising a flat bottom wall, a flat horizontal top wall, two vertical side walls, a concave rear wall, a rigid lateral vertical front panel extending a short distance upwardly between the side walls and adjacent the front edge portion of the bottom wall thereby enclosing the lowermost portion of said cabinet, a flat solid shelf arranged horizontally between the said flat top and bottom wall dividing the cabinet into a pair of vertically arranged forwardly-facing open front compartments, a single front closure panel dimensioned and hingedly secured at its bottom edge portion to the upper edge portion of said rigid lateral front panel for closing and sealing both of said open-front compartments when arranged in a vertical position and in contact with the forward edges of said side walls, a pair of flexible chain means attached at the side walls and to said front closure panel for supporting said closure panel in a horizontal position extending forwardly and outwardly from said lateral front panel leaving said compartments in open condition, the lower of said compartments having heating means secured therein and a grill arranged above said heating means and parallel to the bottom wall of said cabinet, the flat solid shelf between said compartments being formed of material with suitable insulation preventing any heat within said lower compartment from being conducted into said upper compartment, said side walls formed with integral depending supporting members adapted to contact the ground to support the cabinet in an upright position when so positioned relative to the ground, a single strap fastener secured to said top wall midway between said side walls and adjacent said concave rear wall, a pair of shoulder straps, the upper ends of said straps attached to said single strap fastener, the lower ends of said straps attached by suitable means to the lowermost end portions of said integral depending supporting members of said side walls.

2. The hiking pack structure according to claim 1 characterized in that the side wall depending supporting members form a pair of laterally spaced members depending from the rear portion of said side walls and providing a pair of horizontal base portions with front and rear end portions, said horizontal base portions having supporting rollers mounted on the said rear end portions thereof.

3. The hiking pack structure according to claim 1 wherein the side wall depending supporting members are of inverted T-shape configuration providing a horizontal base portion therewith, and each base portion including supporting wheels mounted on the rear ends thereof.

4. The hiking pack as defined by claim 3, in which the supporting members are in the same vertical plane embodying its associated side wall, and the forward end portions of said base portions are formed angularly and downwardly whereby the forward ends thereof are in horizontal alignment with the ground contacting surface of said supporting wheels at the rear ends thereof.

5. The hiking pack as defined in claim 4, in which a plurality of rods interconnect said base portions and space them apart, said cabinet further embodying an upright handle support member secured to and projecting upwardly and rearwardly from each of the two side walls thereof, and a rod type handle connecting said handle supporting members together at their upper free ends.

6. A hiking pack, comprising a cabinet, said cabinet having a hinged drop door type front wall carried thereby, a concave vertical rear wall, two vertical side walls, a flat horizontal top wall, a flat horizontal bottom wall, a lateral vertical front wall panel extending between said side walls adjacent the forward edge portion of said bottom wall and extending a short distance upwardly therefrom, a horizontal shelf of non-heat conducting material arranged between said top and bottom walls forming a pair of vertically arranged, forward-facing compartments, said drop door type front wall being dimensioned and hinged at its bottom portion for closing the open-front compartments when arranged vertically and in contact with the forward edges of the side walls, said front wall hinged to the upper edge of said lateral front wall panel, a pair of chains attached at their upper ends to the upper portions of said side walls, the lower ends of said chains attached to said drop door type front wall thereby supporting it in horizontal plane leaving said compartments in open condition, said front wall when in lowered position extending forwardly and outwardly and in a plane parallel to the plane enclosing said cabinet bottom wall and spaced a short distance above the same, said lower compartment having a gas type burner means secured therein along with a gas container, a grill arranged above said gas burner means and parallel to the bottom wall of said cabinet, a tubular pipe means connecting said burner means with said gas container, a single strap fastener secured to the upper wall of said cabinet adjacent its rear wall, a pair of shoulder straps attached at their upper ends to said single strap fastener, and each of said straps attached at their lower ends to a common metal rod extending between integral side wall extensions depending from the rear edge portions of said side walls, said extensions being of inverted T-shape and forming ground contacting means for supporting said cabinet when arranged relative to the ground.

7. The hiking structure according to claim 6 wherein the side wall depending extensions form a pair of integral leg members of inverted T-shape and forming ground contacting means, each ground contacting means extending forwardly and rearwardly relative to said cabinet, and rear end portions of said ground contacting means each including supporting rollers mounted thereon providing a mobile structure.

8. The hiking pack structure according to claim 7 wherein the forward end portions of said grounding contacting means are formed angularly and downwardly, whereby the ends thereof are in horizontal alignment with the ground contacting surface of said supporting wheels.

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