

Dec. 29, 1970

H. R. STRAND

3,550,997

BACKPACK TRUNDLING ASSEMBLY

Filed Oct. 1, 1968

Fig. 1.



Fig. 2.

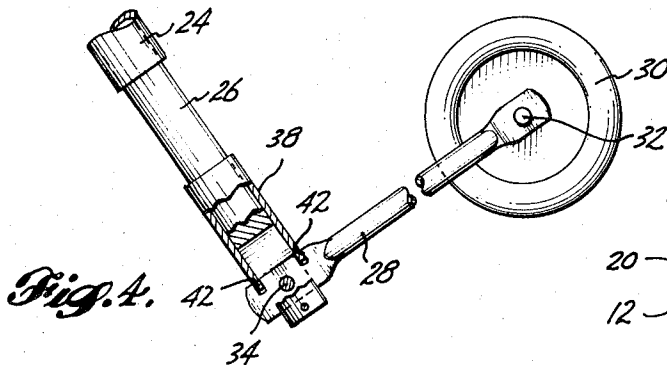
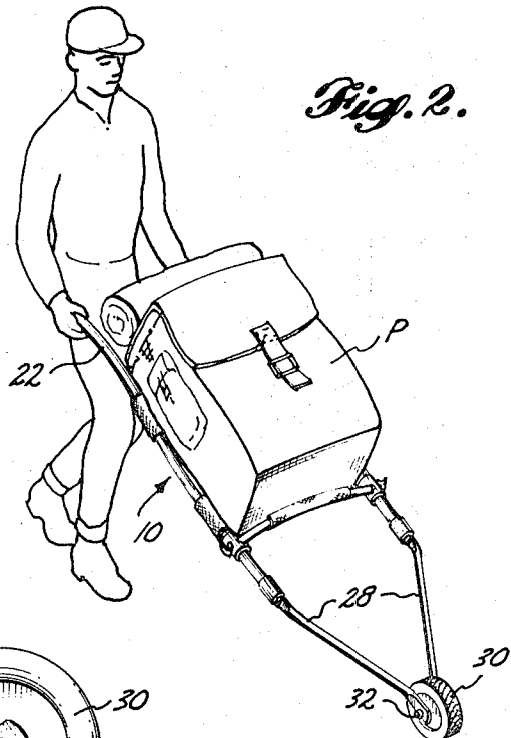


Fig. 3.

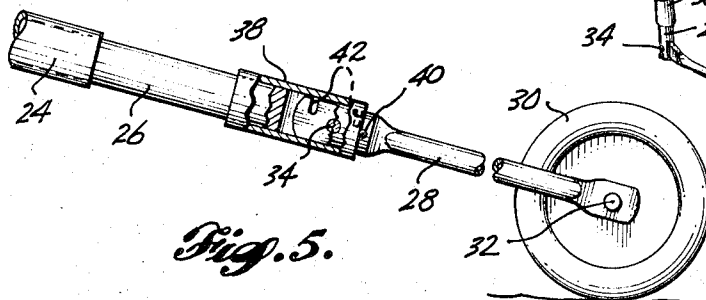
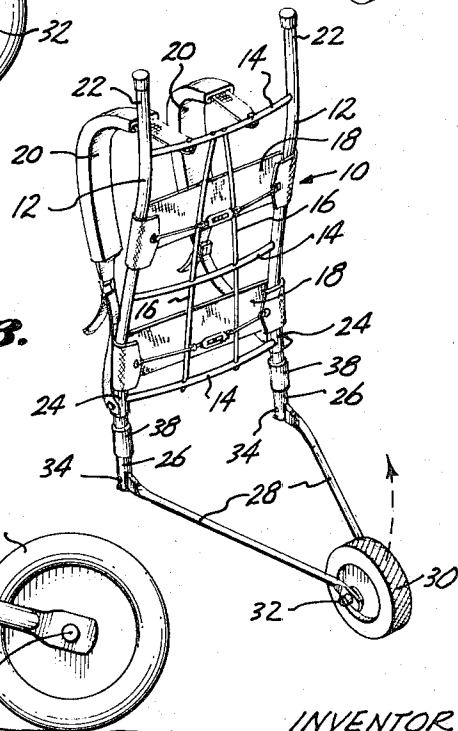


Fig. 5.

INVENTOR
HELEN R. STRAND
By *Graybeal, Cole & Barnard*
ATTORNEYS

1

3,550,997

BACKPACK TRUNDLING ASSEMBLY

Helen R. Strand, 1600 43rd Ave. E.,
Seattle, Wash. 98102

Filed Oct. 1, 1968, Ser. No. 764,265

Int. Cl. B62b 1/20

U.S. Cl. 280—30

11 Claims

ABSTRACT OF THE DISCLOSURE

An axle extends laterally between the lower end portions of a pair of wheel frame members. A single wheel is supported for free rotation on the axle. The wheel frame members diverge apart as they extend upwardly. The upper ends of such frame members are pivotally attached to lower ends of connector members. The upper ends of the connector members are secured to lower end portions of backpack frame side members. A sliding lock sleeve surrounds each connector member. The wheel frame is pivotally movable between a trundling position in which its two frame members are substantially colinear with the backpack frame side members, and a retracted position in which its two frame members are dihedrally related to, and project rearwardly from, the backpack frame side members. The lock sleeves are adapted to lock the wheel frame in each of these two positions.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates to a hiker's aid, and more particularly to mechanism attachable to a backpack and usable for transporting the backpack in wheelbarrow fashion.

Description of the prior art

U.S. Pat. No. 493,348, issued Mar. 14, 1893 to Michael H. Barry and Daniel M. Cahill discloses a mechanism attachable to a luggage trunk, a suitcase, or the like, which mechanism includes both a trundling wheel and a harness. This enables the item of baggage to be either wheeled about or placed on the back of a person for carrying in that fashion.

German Pat. No. 298,322 discloses an upright pole equipped with a wheel at its lower end and means for tying it to a backpack. The pole is adjustable in length so that it can be extended downwardly to contact the ground and carry a portion of the weight of the pack during periods while the user is carrying the pack on his back.

It is also known to provide articles such as golf club bags, which are normally equipped with a sling or harness so that they may be carried, with a wheeled attachment so that they may also be trundled. An example of such an attachment is shown by U.S. Pat. No. 3,096,992, issued July 9, 1963 to Wallace J. Fritsch.

SUMMARY OF THE INVENTION

The trundling assembly of the present invention may either be formed as an integral part of, or an attachment for, a backpack of the type which includes a frame. An upper portion of the trundling assembly is rigidly securable to the backpack frame. A wheel carrying lower portion of the assembly is pivotally attached to such upper portion for pivotal movement about a transverse axis between a retracted position wherein it is up against the lower portion of the pack and an extended trundling position in which it is substantially colinear with the backpack frame. Lock mechanism is provided for locking the wheel carrying frame in both its retracted and trundling positions.

2

Certain important constructional aspects of the invention are to be found in the preferred embodiment of the invention which is described below in conjunction with the drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side view of a hiker carrying a backpack on his back which is equipped with a trundling wheel attachment typifying the present invention, shown in its retracted position;

FIG. 2 is a view of the hiker in the process of trundling his pack before him;

FIG. 3 is a view of a packboard type backpack minus its load and showing the trundling wheel assembly in the process of being moved upwardly from its trundling position towards its retracted position;

FIG. 4 is a fragmented side elevational view taken in the vicinity of where the wheel assembly frame is pivotally connected to the backpack frame and showing the wheel assembly locked into its retracted position; and

FIG. 5 is a view similar to FIG. 4, but showing the wheel assembly frame extended and locked into its trundling position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawing, and to FIG. 3 in particular, the backpack shown is of the packboard type and is generally designated 10. It comprises a pair of generally upright side members or stiles 12 interconnected by a plurality of cross brace members 14 which are centrally reinforced by a pair of vertical members 16. Upper and lower bands of webbing 18 are secured to the frame and during use are against the back of the user. The packboard 10 also includes the usual harness straps 20.

Importantly to the present invention, the upright side frame members 12 have upstanding upper end portions 22 and slightly depending lower end portions 24. As best shown by FIGS. 4 and 5 the trundling wheel attachment comprises a pair of connector members 26 and a wheel frame which includes a pair of side frame members 28 which are pivotally connected near their upper ends to lower end portions of the connector members 26.

Preferably, the two wheel frame members 28 are constructed from tubular stock material, such as a lightweight aluminum alloy or some other lightweight structural material, such as structural plastic, for example. The lower end portions of the members 28 may be flattened and set in parallelism so that the trundling wheel 30 may be disposed between them. An axle 32 is interconnected between the lower end portions of members 28 and the wheel 30 is supported for free rotation about the axle 32. Preferably the wheel is also lightweight in character. It may be of one piece hollow plastic construction. The side members 28 of the wheel frame diverge apart as they extend from the wheel 30 towards their opposite ends. At their opposite ends the members 28 are again flattened and set to be substantially parallel. In the illustrated embodiment the lower end portions of the connector members 28 are slotted and the flattened upper end portions of the members 28 are received in the slots. A transverse pivot pin 34 extends through and pivotally interconnects the members 26 and 28. The two pivot pins 34 are coaxially aligned so that pivotal movement of the wheel assembly relative to the backpack is along a single transverse axis. As clearly shown by FIG. 5, the depth dimension of the flattened upper portion of members 28 is approximately equal to the diameter of the connector members 26. A slidable lock sleeve 38 surroundingly engages and is movable longitudinally of each connector member 26. A stop element, shown in the form of a transverse pin 40, is provided on each wheel frame mem-

3

ber 28 longitudinally below the pivot pin 34. A pair of slots 42 are formed in the flattened upper end portion of each member 28 on opposite sides of the pivot pin 34 and in the edge parts of said end portions which are directed upwardly. The slots 42 are spaced apart, center to center, a distance equal to the mean diameter of the lock sleeve 38. Slots 42 are of a width just slightly larger than the thickness of the lock sleeve 38.

In FIG. 3 the lock sleeves 38 are shown in positions above the vicinity of the pivot joints between members 26 and members 28. With the sleeves in such an out of the way position the wheel frame is either moved upwardly to place the trundling assembly in its retracted position (FIG. 4) or downwardly into its trundling position (FIG. 5). When the wheel assembly is in its trundling position the members 28 are substantially colinear with the members 26 and the side members 12 of the backpack. By the expression "substantially colinear" it is meant that each of members 26, 28 are substantially continuations of the other, i.e. they each make no sharp angular deviation from the other where they join.

The wheel assembly is locked into its retracted position by the user merely moving the lock sleeve 38 downwardly until the lower lip portion thereof is engaged in the slots 42. It can be seen by an inspection of FIG. 4 that when the various parts are arranged in this fashion relative rotation between the wheel assembly and the backpack about pins 34 is prevented. A force tending to cause rotation merely causes the lower lip portions of the lock sleeves 38 to bind in the slots 42.

The wheel assembly may be locked in its trundling position by the user merely moving the lock sleeves 38 downwardly until further movement is arrested by the stop elements 40. As clearly shown by FIG. 5, when the sleeves 38 are so positioned they partially surround the lower parts of the connector members 26 and partially surround the upper parts of the frame members 28, and in a sense rigidly "splice" such parts together. Preferably, in the vicinity of the pivot pin 34 the lock sleeves 38 relatively snugly engage the parts 26, 28, so that they are to some extent frictionally retained against inadvertent and unwanted upward movement.

Connector members 26 and sleeves 38 may also be made of a lightweight structural aluminum material, some other lightweight metal alloy, or a relatively lightweight structural plastic.

The backpack which is illustrated is of conventional design. Accordingly, the trundling wheel assembly may be made in the form of an attachment for sale to a user aside from the backpack, giving him freedom to select a backpack of his own choosing and merely attach the trundling assembly to it. The attachment can easily be done, such as by telescopically inserting the upper end portions of the connector members 26 into the hollow lower end portions 24 of the backpack frame. Cross rivets, cross bolts, etc. may be used for rigidly securing the members 24, 26, together. Some commercial packboards come equipped with a tubular U-shaped lower frame member having upwardly directed end portions which are inserted into the lower tubular ends of the upright members 12. The trundling wheel assembly of this invention may be easily attached to backpacks of this type following removal of such lower frame member. When it is in its retracted position the trundling assembly performs some lateral bracing and to some extent substitutes for the removed lower cross frame member.

In the illustrated embodiment the length of the trundling assembly is such that the entire mechanism is at a steep enough angle during trundling that a substantial portion of the weight of the pack is transmitted to the ground through the wheel 30. Upstanding end portions 22 of the backpack frame are conveniently spaced and conveniently available to serve as handles during trundling. The wheel 30 is centrally located between the handles 22 so that the weight of the pack P is substantially balanced on the

4

wheel 30. When in its retracted position the trundling assembly is dihedrally related to the backpack frame and projects rearwardly from and closely perpendicular to the backpack frame. In the situation shown by FIG. 1 in which a rather full pack P is secured to the backpack frame, the wheel assembly frame 28 is shown to be in juxtaposition with the bottom of the pack P.

In lieu of the pivotal connections 34 it is contemplated that the wheel assembly may be made in a manner so that it is entirely detachable from the backpack frame and is attachable thereto in either of two positions—a first or retracted position and a second trundling position.

The accompanying drawing and the foregoing description show and describe a typical and therefore nonlimitative embodiment of the invention. The claims which follow define the scope of the invention.

What is claimed is:

1. A trundling mechanism and a backpack of a type including a backpack frame and strap means for securing the backpack onto the back of a person, said trundling mechanism comprising:

a wheel frame having upper and lower portions;
trundling wheel means;

axle means at the lower portion of said wheel frame supporting said trundling wheel means for free rotation;

means connecting the upper portion of said wheel frame to the backpack frame; and

means for selectively affixing said wheel frame in either a trundling position wherein said wheel frame is generally colinear with said back frame, or in a retracted packing position wherein said wheel frame is dihedrally related with said backpack frame and is located rearwardly of said backpack frame.

2. The combination of claim 1, wherein said means connecting the upper portion of said wheel frame to the backpack frame includes at least one transverse pin pivotally connecting said frames together for pivotal movement between said trundling and retracted positions.

3. The combination of claim 1, wherein said backpack frame comprises a pair of opposite side placed stiles, each having a depending lower end portion, said wheel frame comprises a pair of laterally spaced side members having closely spaced lower end portions between which the axle extends and the trundling wheel means is disposed, said side members diverging apart as they extend from the axle towards their opposite ends, with said opposite ends together constituting the said upper portion of the wheel frame, and said means connecting the upper portion of said wheel frame to the backpack frame comprising a connector means at each side of the mechanism for connecting the upper end portion of the wheel frame side member at such side with the lower end portion of the upright backpack frame stile at such side.

4. The combination of claim 3, wherein each said connector means comprises a transverse pivot pin extending through both the lower end portion of its upright frame member and the upper portion of its wheel frame stile, each said pivot pin being substantially coaxial with the other pivot pin means.

5. The combination of claim 4, wherein said means for selectively affixing the wheel frame in either a trundling position or in a retracted position comprises a lock sleeve loosely surrounding the upper end portion of at least one of the wheel frame side members, said lock sleeve being movable lengthwise of said upper end portion, including into a position wherein it surrounds both a part of said upper end portion and an upper part of the lower portion of the wheel frame side member, to function as a splice to prevent relative rotation between the two portions about the pivot pin.

6. The combination of claim 5, wherein an upper part of the wheel frame side member includes slot means in the side thereof which is directed upwardly when the

5

wheel frame is in its retracted position and in position to receive a lower portion of the lock sleeve when the wheel frame is in its retracted position.

7. The combination of claim 1, wherein said backpack frame includes a pair of opposite side placed stiles, each having an upwardly extending end portion usable as handles during trundling of the mechanism.

8. The combination of claim 7, wherein said trundling wheel means is substantially centrally spaced between said upper end portions of the backpack stiles.

9. The combination of claim 8, wherein the stiles of the backpack frame have lower end portions and said means for connecting the upper portion of said wheel frame to the backpack frame includes a connector member at each side of the wheel frame which is connectible to the lower end portion of the stile at such side.

10. The combination of claim 9, wherein said mechanism for connecting the upper portion of said wheel frame to the backpack frame includes a transverse pivot pin at each side of the mechanism pivotally connecting the connector members to portions of the wheel frame below such connector members.

11. A trundling mechanism and a backpack of a type including a backpack frame having side stiles and strap means for securing the backpack onto the back of a hiker, said trundling mechanism comprising:

6

a trundling element frame having upper and lower portions;

a ground engaging trundling element at the lower end of said trundling element frame during trundling use; and

means connecting the upper portion of said trundling element frame to the backpack frame stiles, and for selectively affixing said trundling element frame in either a trundling position wherein it is generally colinear with said stiles, or in a packing position wherein it is dihedrally related with said stiles, rearwardly of said backpack frame.

References Cited

UNITED STATES PATENTS

2,893,748 7/1959 Coe 280—47.3

FOREIGN PATENTS

1,325,377 6/1962 France 280—47.18
120,005 Germany 224—8.1

BENJAMIN HERSH, Primary Examiner

R. R. SONG, Assistant Examiner

U.S. Cl. X.R.

224—8; 280—47.18