United States Patent [19]

Skoog

[11] **3,716,067**

[45] **Feb. 13, 1973**

[54] **INVALID SUPPORT**

[76] Inventor: **Folke E. Skoog,** 1722 West Chestnut Street, Glenview, Ill. 60025

[22] Filed: **April 20, 1971**

[21] Appl. No.: **135,582**

[52] **U.S. Cl.** ..... **135/45 A,** 297/6

[51] **Int. Cl.** **A45b 1/00**

[58] **Field of Search** ..... 135/45 A; 297/5, 6; 160/135, 160/229, 350, 351

[56] **References Cited**

UNITED STATES PATENTS

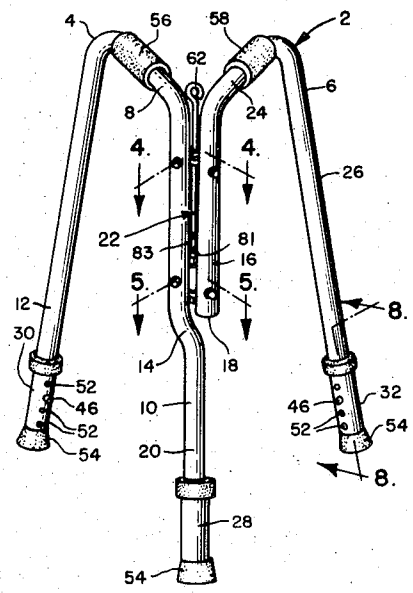
127,948	6/1872	Bassett	160/229 R
820,769	5/1906	Dejonge, Jr.	160/135
3,463,218	8/1969	Cannon et al.	160/135
303,908	8/1884	Ashley	160/229 R
2,159,301	5/1939	Upton	135/45 A
2,594,051	4/1952	McFarland et al.	135/45 A
2,518,763	9/1950	Du Bois	135/45 A
3,350,095	10/1967	Clasen	297/6

Primary Examiner—Peter M. Caun
Attorney—John J. Kowalik

[57] **ABSTRACT**

A foldable three-legged invalid support having a pair of U-shaped side frames, the forward legs of the side frames being pivotally interconnected to form a V and the connection having a yieldable frictional resistance which permits controlled adjustment of the spacing of the frames to the comfort of the user and stabilizes the structure.

8 Claims, 8 Drawing Figures



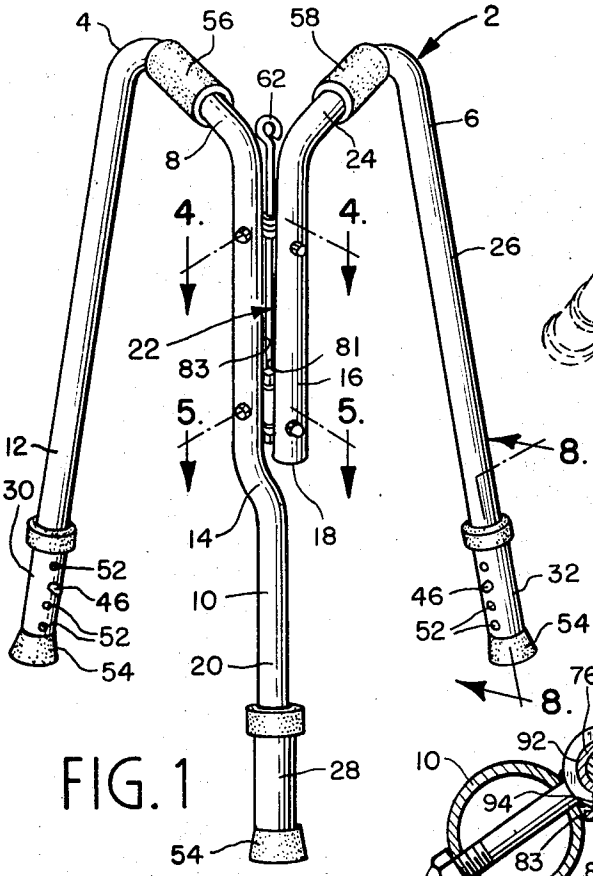


FIG. 1

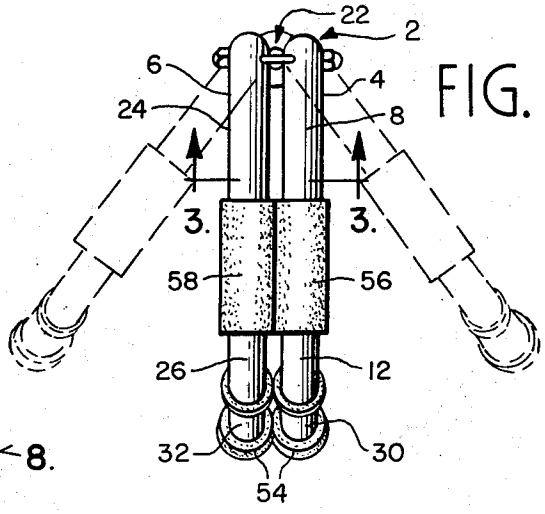


FIG. 2

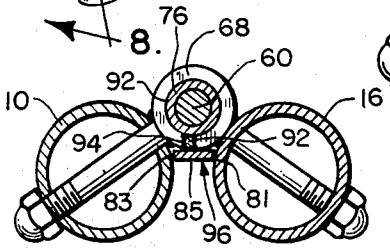


FIG. 5

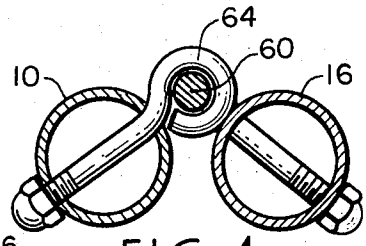


FIG. 4

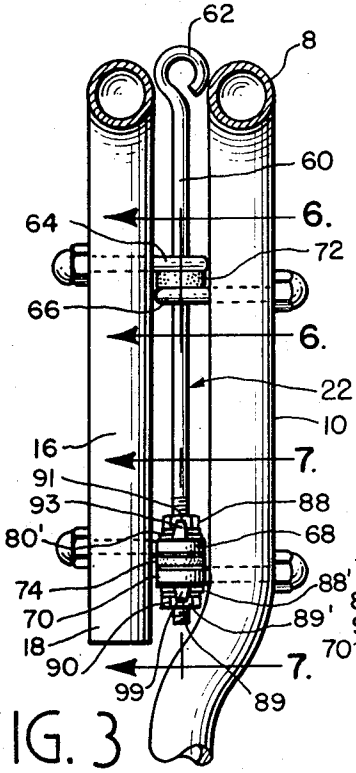


FIG. 3

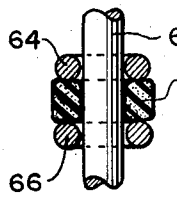


FIG. 6

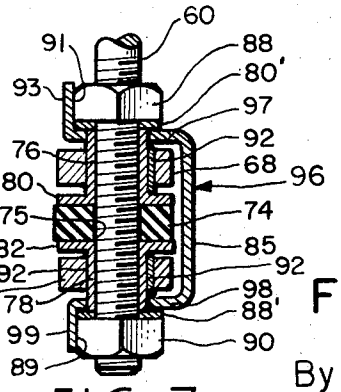


FIG. 7

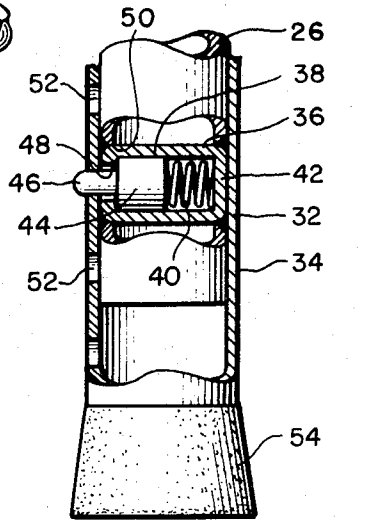


FIG. 8

Inventor
Folke E. Skoog
By John J. Donnelly
Attorney

INVALID SUPPORT

DISCUSSION OF THE PRIOR ART

Various supports of the type under consideration have been provided heretofore, even the foldable types. The most popular support appears to be the four-legged rigid type in which a pair of laterally spaced side frames are interconnected at their forward ends by a transverse bar to form an accommodation space for the user. This type of support has the distinct disadvantage in that it is bulky and restricts the use in areas having large doorways or passages since the structure cannot be collapsed or folded. Furthermore, the four legs must simultaneously rest upon a level floor surface; otherwise the device is unstable, which cannot be managed by the infirm person.

SUMMARY OF THE INVENTION

This invention is directed to an invalid supporting device which is self-leveling and relatively stable on uneven surfaces.

A general object of the invention is to provide a novel three-legged invalid support which is simple to manufacture, but is durable and facile to use.

A more specific object is to provide a novel support which has a pair of side members pivotally interconnected at their forward ends on a vertical axis so that the frames are adjustable to accommodate persons of various physical dimensions.

A still further object is to devise a novel connection between these side frames with an adjustable frictional resistance to releasably hold the frames in selected adjusted positions and which permits ready folding and opening of the frames for storage and use, respectively.

Another object is to provide in combination with such frictional resistance a yieldable support for the two side frames so that they are accommodated slight relative vertical displacement and thus are self-leveling on uneven terrain.

A still further object is to device a novel three-legged support wherein the lengths of the legs are adjustable and by adjusting the legs, the slope of the handhold portions of the side frames are adjusted.

Another object is to device a cushioned support having a pair of side frames by providing metal side frames of inverted U-shape in which the legs of each frame can spread apart slightly as the load is applied against the upper handhold interconnecting the legs.

These and other objects and advantages inherent in and encompassed by the invention will become more apparent from the specifications and the drawings wherein.

FIG. 1 is a front perspective view of my novel invalid support device shown in open position;

FIG. 2 is a top view thereof in folded position showing the open position in dotted lines;

FIG. 3 is an enlarged sectional view taken substantially on line 3—3 of FIG. 2;

FIG. 4 is an enlarged transverse view taken generally on line 4—4 of FIG. 1;

FIG. 5 is an enlarged transverse view taken substantially on line 5—5 of FIG. 1;

FIG. 6 is an enlarged vertical sectional view taken essentially on line 6—6 of FIG. 3;

FIG. 7 is an enlarged vertical sectional view taken generally on line 7—7 of FIG. 3; and

FIG. 8 is a fragmentary enlarged sectional view taken substantially on line 8—8 of FIG. 1.

DESCRIPTION OF THE INVENTION

The invalid supporting device generally designated 2 comprises a pair of inverted U-shaped metalic side frame 4 and 6. Frame 4 comprises a generally horizontal top hand-hold bar 8 at opposite ends of which are the front and rear downwardly diverging legs 10 and 12. The front leg 10 is offset laterally as at 14 intermediate its ends to accommodate the short front leg 16 of the side frame 6. The leg 16 has its lower end 18 terminating above the offset 14 and is partially tucked in over the lower portion 20 of the leg 10 so that the portion 20 is generally in vertical alignment with the pivot connection or assembly generally designated 22 between the front legs 10 and 16 of the side frames as best seen in FIGS. 1 and 3.

The side frame 6 in addition to leg 16 comprises an upper generally horizontal hand-hold bar 24 substantially level with hand-hold bar 8. The rear end of bar 24 is connected to a downwardly extending rear leg 26 which diverges downwardly with respect to the front leg 16 in the same manner as the legs of the side frame 4.

The legs 10, 12 and 26 have identical lower end adjustable extensions 28, 30 and 32. Each extension comprises a sleeve 34 (FIG. 8) telescoped over the lower end of the respective leg and adjustable axially thereof. The lower end of each leg has a spring-biased latch 36 which comprises a housing 38 suitably secured within the interior of the lower end portion of the respective leg. The housing encloses a compression spring 40 which extends transversely of the leg between a base 42 of the housing and the inner end of a latching bolt 44 which is slidable within the housing and has a reduced outer end portion 46 projecting through an aperture 48 in the housing, which housing extends through an aperture 50 in a side wall of the associated leg.

The reduced end portion of the bolt projects through a selected one of a vertically spaced series of apertures 52 in the wall of the sleeve 34 so that the extension may be adjusted and secured in any of a plurality of selected positions by depressing the bolt manually into the housing and then releasing it into the selected aperture.

The lower end of each extension comprises a foot 54 of resilient material such as rubber of a high coefficient of friction.

It will be noted that the hand-hold bars have rubber or Elastomer grips 56, 58 sleeved thereon and secured by bonding thereto for grasping by the user to obtain a firm hold.

A feature of the present invention is the novel yieldable friction pivot assembly 22 which comprises a vertical rod 60 having an eye 62 at its upper end for hanging the device upon a wall hook for storage. The rod 60 or pintle extends through the eyes of an upper pair of superposed hinge elements 64, 66 and through the eyes of a lower pair of vertically displaced hinge elements 68, 70. The upper hinge elements 64, 68 are connected to the leg 16 and the lower elements 66, 70 are connected to leg 10.

A disk 72 of flexible Elastomeric material is disposed between the hinge elements 64 and 66 to accommodate slight vertical shifting of the frame 4 with respect to

frame 6 which provides resilient stability to the structure. Also, since the hinge element 64 compresses the disk against the element 66 pivoting movements when the frames are loaded are greatly inhibited so that they will not spread apart when in use such as could cause the device to fold or open and tip. At the same time, when the frames are intended to be folded and no load is applied to the hand-hold bars, the resistance is reduced and the frames may be relatively easily folded.

The lower hinge elements 68, 70 are interposed by a friction disk 74 such as leather or brake lining material which has a central aperture 75 receiving the rod 60 therethrough which also passes through sleeves 76, 78 of upper and lower opposed friction washers or disks 80 and 82 which are connected to respective sleeves and embrace the disk 74. The sleeves 76, 78 pass through eyes of the lower hinge elements 68, 70 and the upper edge of sleeve 80 abuts through washer 86 the underside of nut 88 threaded on rod 60 and the lower edge of sleeve 82 abuts through washer 88 the lower nut 90. The nuts 88, 90 are threaded on the rod 60 toward each other to compress the friction element between the sleeves. Each sleeve 80, 82 is provided with a rib 92 which fits into the juncture 94 of the related eye to prevent rotation but accommodating axial movement with the rod 60 attendant to deflection of the elastomer disk 72. A U-shaped retainer 96 has upper and lower apertured portions 97, 98 which sleeve over the rod 60 and the sleeves 76, 78. The upper flange 97 has an upwardly extending tab 93 which engages one of the flats 91 of the upper nut. The lower flange 95 has a depending tab 99 bent against the flat 89 of the lower nut.

It will be noted that the friction disks 80, 82 are spaced vertically from the underside and top side of hinge elements 68, 70 to accommodate during use relative vertical movements of the side frames while deflecting the disk 72. Any slight variations in the terrain upon which the legs may be positioned are thus accommodated by relative displacement of the side frames.

The frictional resistance as determined by the clamping effect of the nuts 88, 90 prevents the frames from uncontrollably winging toward or away from each other as when the user should place the legs on uneven surfaces such as stones or the like. However, the frictional resistance will not preclude desired folding or extension. It will be realized that opening of the frames is limited by abutment with the opposite edges of the limit stop 85 of the retainer 99 by the opposed sides 83, 81 of the legs 10 and 16.

The invention is not to be limited to the exact arrangement of parts shown in the accompanying drawings or described in the specification as various changes in the details of construction may be resorted to without departing from the spirit of the invention and the scope of the claims appended hereto.

I claim:

1. An invalid supporting device comprising a pair of side frames having front and rear end, means hingedly interconnecting the front ends of said frames for pivotal movement between a closed storage position and an open invalid-accommodating V-shaped position, and said interconnecting means comprising means frictionally resisting pivotal movement of the frames and means yieldably accommodating shifting of said frames and serving to resist pivotal movement between the frames during use.

2. The invention according to claim 1 and said frames having front and rear legs and the front leg of one of the frames having a short leg and said frames providing three ground engaging legs.

3. The invention according to claim 1 and said interconnecting means comprising a pair of vertically displaced hinge elements and said yieldable means comprising a yieldable body of elastomer material interposed between said hinge elements and adapted to be compressed therebetween attendant to relative vertical displacement of the side frames, and said material disposed in shear to resist said pivotal movement.

4. The invention according to claim 3 and one of the frames comprising a single ground-engaging leg and the other frame comprising a pair of ground-engaging legs and said frame with the said single leg having a cantilever support on the other frame via said interconnecting means whereby upon load being applied to said one frame said body of elastomer material is deflected through the hinge element connected to the one frame and overlying said body.

5. The invention according to claim 4 and each side frame is of inverted U-shaped and having an upper hand-hold and said frames providing adjustable ground-engaging legs.

6. The invention according to claim 3 and said interconnecting means comprising friction means formed and arranged to resist pivotal movement of said side frames.

7. The invention according to claim 1 and said interconnecting means comprising a pair of hinge elements and said yieldable means comprising an intervening body of elastomer material adapted to be compressed therebetween attendant to relative shifting of the frames.

8. The invention according to claim 7 and said interconnecting means comprising a second pair of hinge elements, and said friction means comprising friction members constrained to rotate with respective of said second pair of elements and axially slidable relative thereto to accommodate compression of the elastomer body, a body of friction material between said friction members, and means biasing said friction members against said friction body.

* * * * *