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[54] **COLLAPSIBLE SUPPORTING STAND**

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[52] **U.S. Cl.** **248/125**, 248/170, 287/14

[51] **Int. Cl.** **A47b 97/00**, A45d 21/00

[58] **Field of Search** ..... 248/125, 170, 171, 124, 248/286, 292, 408, 409, 299; 287/58 CT, 14

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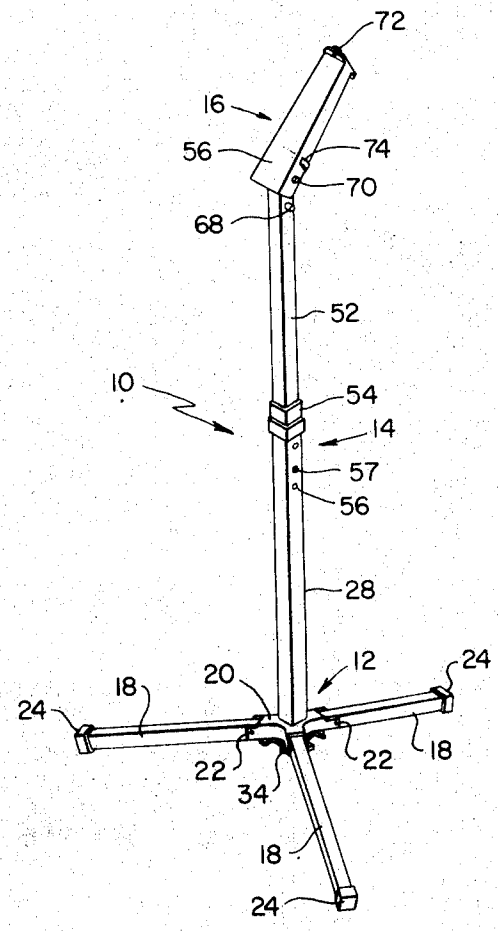
Primary Examiner—Marion Parsons, Jr.

Attorney, Agent, or Firm—John G. Schenk

[57] **ABSTRACT**

A collapsible supporting stand is disclosed. The tripodal base has legs pivotally mounted at the bottom of a base shaft. The supporting arm is pivotally mounted to a vertical shaft which is slidably mounted in the base shaft. Adjusting means are provided for the supporting arm and the vertical shafts.

4 Claims, 7 Drawing Figures



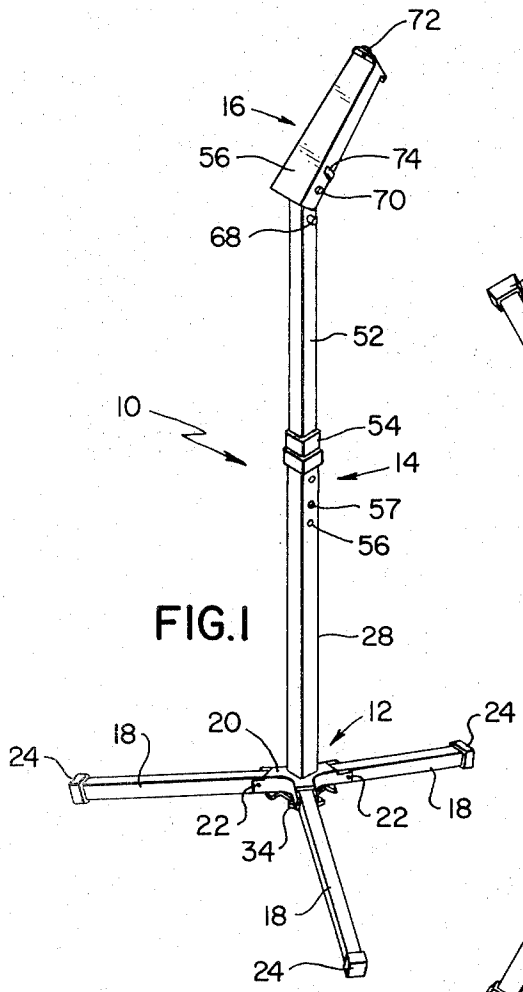


FIG.1

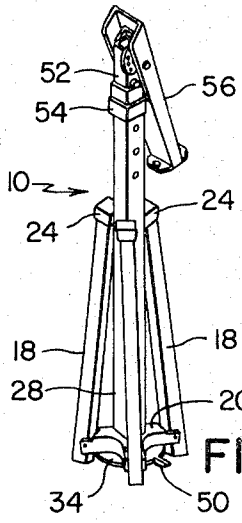


FIG.2

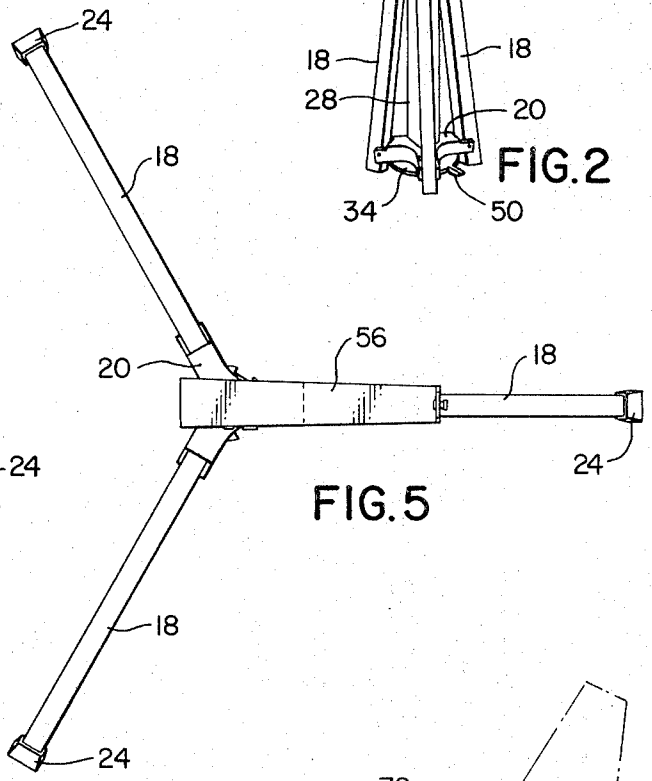


FIG.5

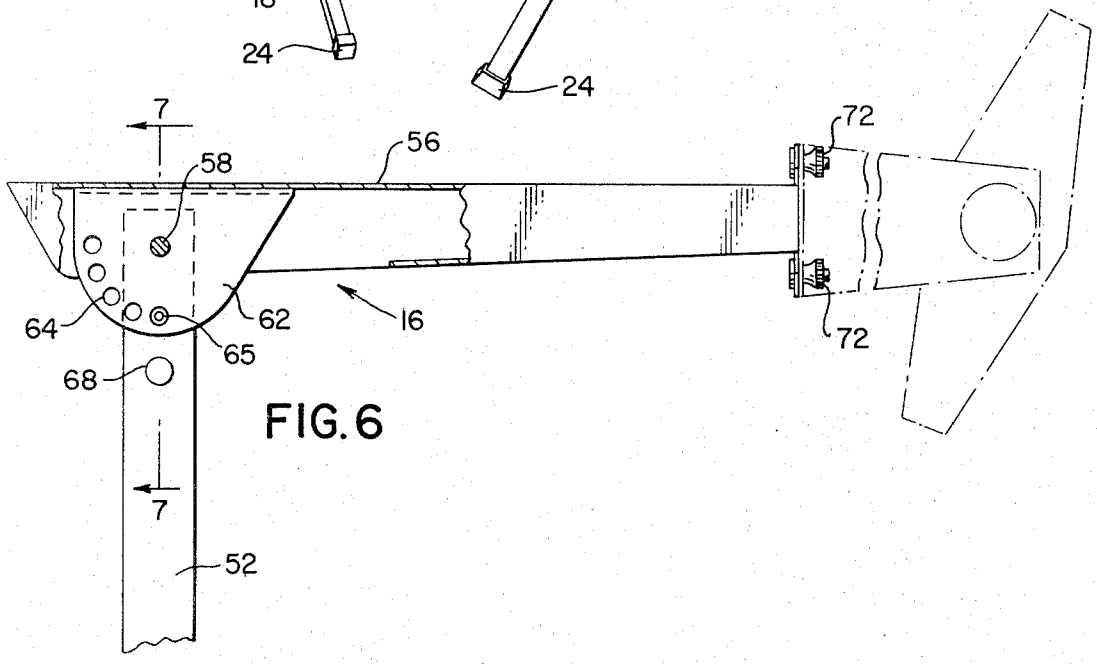


FIG.6

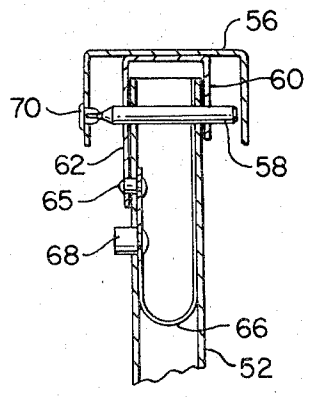


FIG. 7

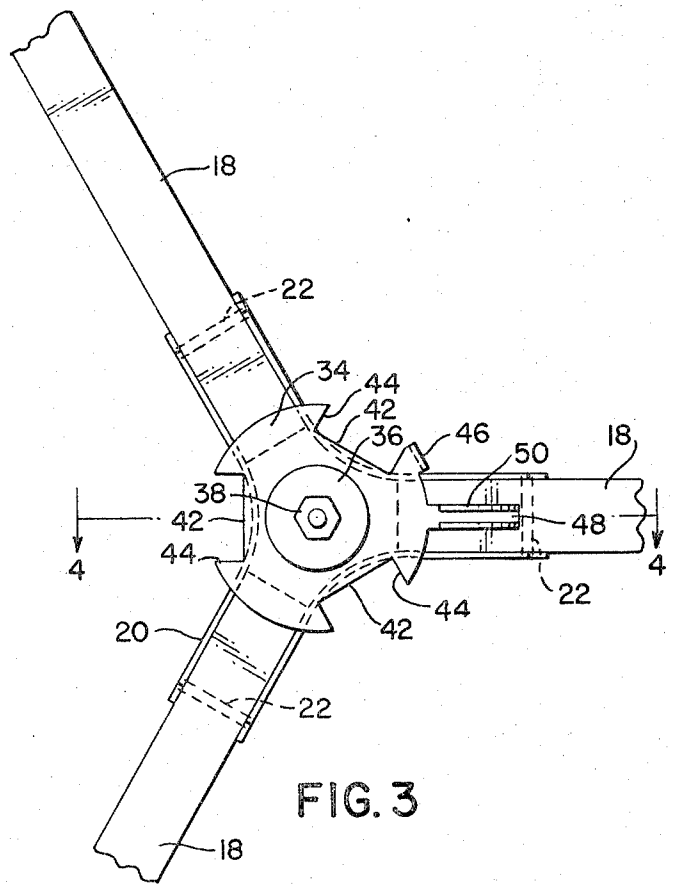


FIG. 3

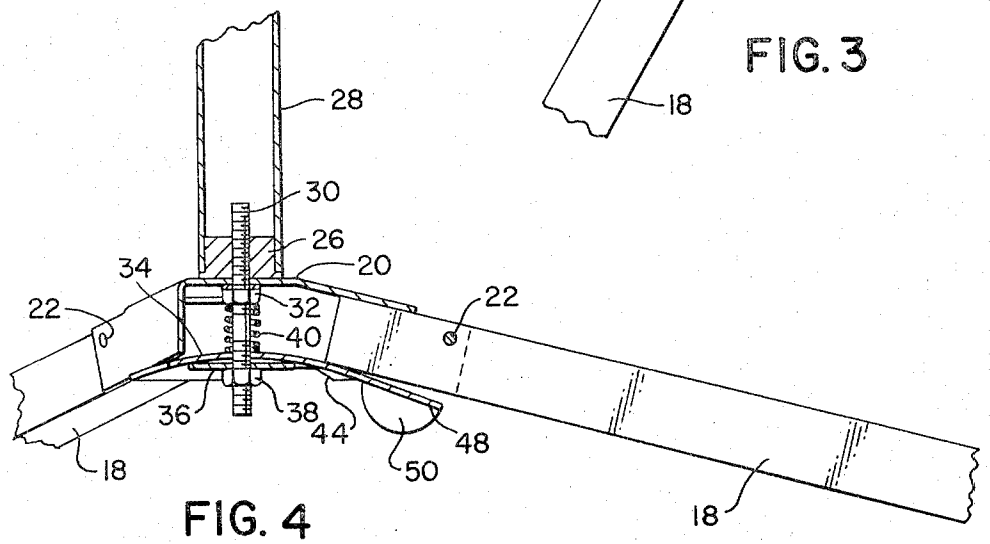


FIG. 4

COLLAPSIBLE SUPPORTING STAND

BACKGROUND OF THE INVENTION

This invention relates to supporting stands and more particularly to a collapsible supporting stand.

Many people utilize therapeutic lamps and the like to treat themselves or others. Professional users of such lamps and the like, such as physicians, etc., often have elaborate supporting stands to insure that the lamp or the like is directed to the proper location on the person receiving the treatment. These stands are sometimes quite bulky and unless the physician has a substantial number of patients receiving the same treatment, the stand occupies needed space during periods of non-use.

The most common example of non-professional use of therapeutic lamps or the like is the widespread usage of the sunlamp. The stands available for these sunlamps are very frequently poorly constructed and not sturdy. In addition, the stands very seldom are adjustable so as to permit needed adjustments to provide ultimate versatility and use of the lamp.

Accordingly, an object of this invention is to provide a supporting stand having great versatility, yet being efficient and safe to use.

Another object of this invention is to provide a supporting stand which may be collapsed for storage.

Yet another object of this invention is to provide a supporting stand having a supporting arm which is adjustable.

SUMMARY OF THE INVENTION

This invention provides an improved collapsible supporting stand which has great versatility. The supporting stand is of simple and economical construction, is easy to operate and adjust, and provides the safety needed in such stands. The supporting stand comprises tripodal legs pivotally mounted to a vertical shaft, an adjustable supporting arm pivotally mounted to a second vertical shaft which is slidably mounted in said first vertical shaft. Means are provided to lock the tripodal legs in either open or closed position. Other details, uses, and advantages of this invention will become apparent as the following description of the exemplary embodiment hereof presented in the accompanying drawings proceeds.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings show a present exemplary embodiment of this invention in which:

FIG. 1 is a perspective view illustrating one exemplary embodiment of this invention showing the supporting stand in the open position;

FIG. 2 is a perspective view illustrating the support stand in the closed or collapsed position;

FIG. 3 is a bottom view of the tripodal legs showing the means for locking the legs;

FIG. 4 is a cross-sectional view taken along line 4—4 of FIG. 3;

FIG. 5 is a top view of the support stand in the open position;

FIG. 6 is a fragmentary cross-sectional view showing the support arm adjustment means; and

FIG. 7 is a cross-sectional view taken along line 7—7 of FIG. 6.

DESCRIPTION OF ILLUSTRATED EMBODIMENT

Reference is now made to FIGS. 1 and 2 of the drawings which illustrate one exemplary embodiment of the support stand of this invention, designated generally by the reference numeral **10**. The support stand is shown in the open or operational position in FIG. 1 and in the closed or collapsed position for storage in FIG. 2. The support stand is comprised of a base **12**, a vertical upright or standard **14** and a cross support **16**.

The base **12** of the support stand is a tripod consisting of three legs **18** which are pivotally coupled at their upper ends with a housing **20**. Suitable pivot pins **22** provide the pivotal connection between the legs **18** and the housing **20**. Each leg **18** is fitted with a cap **24** at its outer end.

Referring now to FIG. **4**, it is seen that the housing **20** includes a threaded plug **26** about which the base shaft **28** is suitably mounted. A threaded shaft **30** extends through the plug **26**, an aperture in the top of housing **20**, and is securedly positioned thereto by a nut **32**. A locking plate **34** is mounted at the opposite end of the threaded shaft **30** by suitable means such as a washer **36** and nut **38**. The locking plate **34** is formed of a dish-like or concave shape so as to conform with the complementary shape of the housing **20**. A spring **40** acts between nut **32** and locking plate **34** and tends to urge the plate **34** outward. In this way, by loosening or tightening the nut **38**, the ease for rotational movement of plate **34** to provide locking and unlocking of the legs **18** may be adjusted.

In FIG. **3**, it is seen that the locking plate **34** is formed with three grooves **42** circumferentially spaced about the plate **34** to correspond with the circumferentially spacing of the legs **18**. The grooves **42** have a width greater than the width of the corresponding legs **18**. One edge **44** of each groove **42** is slightly beveled to provide a slight camming surface to facilitate ease in urging the plate **34** over each leg **18**. An upturned tab **46** for engaging the housing **20** provides a means for positioning the plate **34** in the fully locked and unlocked positions. A projecting finger-like member **48** has a grasping surface **50** which is used to rotate the plate **34**.

The locking plate **34** is shown in the locked position with the legs **18** extended for operational use in FIG. **3**. In this position, the tab **46** abuts against one surface of housing **20** to prevent further clockwise rotation (as shown in FIG. 3). In order to permit the pivotal movement of legs **18** to the closed or collapsed position of FIG. **2**, the surface **50** is grasped and the plate **34** is urged in the counterclockwise position (FIG. 3) until tab **46** engages a second surface of housing **20**. At this position, the grooves **42** will be aligned with the legs **18** and the legs may then be pivoted about pivot pins **22**. When the legs **18** have been dropped into the standing position, the plate **34** is once again rotated in the clockwise position. The upturned edge **44** of each groove **42** permits the smooth engagement of the locking plate **34** with each leg **18**.

The base shaft **28** is preferably hollow, and a support shaft **52** is slidably mounted within the base shaft **28** and adapted to extend thereabove. A close-fitted collar **54** maintains the support shaft **52** properly aligned with the base shaft **28**. The base shaft **28** is formed with a plurality of apertures **56** at the upper end thereof. The

support shaft **52** is formed with a suitable detent **57** and biasing means at the lower end thereof to cooperatively engage one of the apertures **56** to position the shaft **52** relative to shaft **28.** A spring biased detent **57,** similar to that shown in FIG. **7** and described herebelow, has been conveniently utilized.

Referring now to FIGS. **6** and **7,** the cross support **16** is seen to comprise a top supporting arm **56** which is pivotally mounted to the support shaft **52** by suitable means such as a pivot shaft **58.** The supporting arm **56** is formed with a U-shaped bracket **60** through which the pivot shaft **58** extends. One side **62** of the bracket **60** is greatly enlarged, the side being substantially semicircular in shape. Side **62** is formed with a plurality of apertures **64** spaced along the outer circumferential edge. A detent **65,** secured to a U-shaped leafspring **66** is mounted in shaft **52.** The detent **65** protrudes through an aperture in the shaft **52** to cooperatively engage apertures **64** in the semicircular portion **62.** A button release **68** is connected with the spring **55** and protrudes through an aperture in the shaft **52.** To change the angle between the supporting arm **56** and the shaft **52,** the button release **68** is urged inward until the detent **65** clears one of the apertures **64.** The arm **56** may then be adjusted and the detent **65** will then engage the corresponding aperture **64** to lock the arm **56** in the desired position. A split snap **70** extends through an aperture in the arm **56** to cooperatively engage one end of the pivot shaft **58** to permit removal of the shaft.

The lamp or the like is mounted on the end of the support arm **56** by suitable means such as the knurled nuts **72.** A clip **74** (FIG. **1**) is attached to the support arm **56** and is used to hold the electric power cord.

The legs **18** extend out at such an angle that the support stand provides for a very low center of gravity. As seen in FIG. **5,** the support arm **56** is vertically above one of the legs **18.** This feature plus the extremely low center of gravity provide for a very stable supporting stand even when the lamp or the like is mounted on the end of the support arm **56.**

Thus, it can be seen that this invention provides a supporting stand which is of simple and economical construction, is easy to operate, and has great versatility. The support stand may be collapsed to a compact structure for storage. Accordingly, it is seen that this invention accomplishes the objectives hereinbefore set forth.

While a present exemplary embodiment of this invention has been illustrated and described, it will be recognized that this invention may be otherwise variously embodied and practiced by those skilled in the art.

What is claimed is:

1. A support stand comprising a base housing having three leg receiving extensions spaced equidistant thereabout, a leg pivotally mounted in each of said extensions, a first hollow shaft secured to the upper side of said housing and extending vertically upward therefrom, said legs having a first open position wherein the legs are extended outwardly to support said first shaft upright and a second position in which said legs are pivotally rotated relative to said housing to substantially lay adjacent said first shaft, a second shaft slidably movable within said first shaft and adapted to extend vertically therefrom, a support arm pivotally mounted at the upper end of said second shaft, said support arm extending outwardly from said second shaft in a plane vertically above one leg, a locking plate rotatably mounted to said housing on the side opposite said first shaft for locking said legs in said first and second positions, said plate being formed wth circumferentially spaced grooves corresponding to the circumferential spacing of said legs, said plate being rotatable to a first position in which the plate area between the grooves engages each of said legs wherein said legs are prevented from pivotal movement, said plate having a second position in which said grooves are aligned with said legs wherein said legs may be pivotally moved relative to said housing, tab means on said plate for abuttingly engaging said housing in each of said positions, and means for adjustably tightening said plate relative to said housing.

2. The stand according to claim **1** in which one edge of each of said grooves provides a camming surface to engage each of said legs when moving from the second position to the first position, and further comprising means for adjustably positioning in a vertical direction said second shaft relative to said first shaft, and means for locking said support arm in one of a plurality of perdetermined angular positions in a vertical plane above said one leg.

3. The stand according to claim **2** in which said support arm includes a U-shaped bracket adapted to cooperatively engage the upper end of said second shaft, a pivot shaft extending through said bracket and said shaft providing the pivotal connection thereto, one side of said bracket being semicircular in shape and formed with a plurality of apertures spaced along the outer circumferential edge, and in which said means for locking said support arm comprises a detent mounted in said second shaft and adapted to engage one of said plurality of apertures in said semicircular side of said bracket.

4. The stand according to claim **1** in which said locking plate further comprises a finger-like extension protruding outwardly from the peripheral edge providing a grasping surface for imparting rotational movement to said plate, said plate having a dish-like shape complementary with a corresponding shape of said housing.

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