Oct. 21, 1969 Z. C. NEWMAN 3,473,771

ARTICLE SUPPORTING STAND

Filed Feb. 23, 1967

FIG. 1

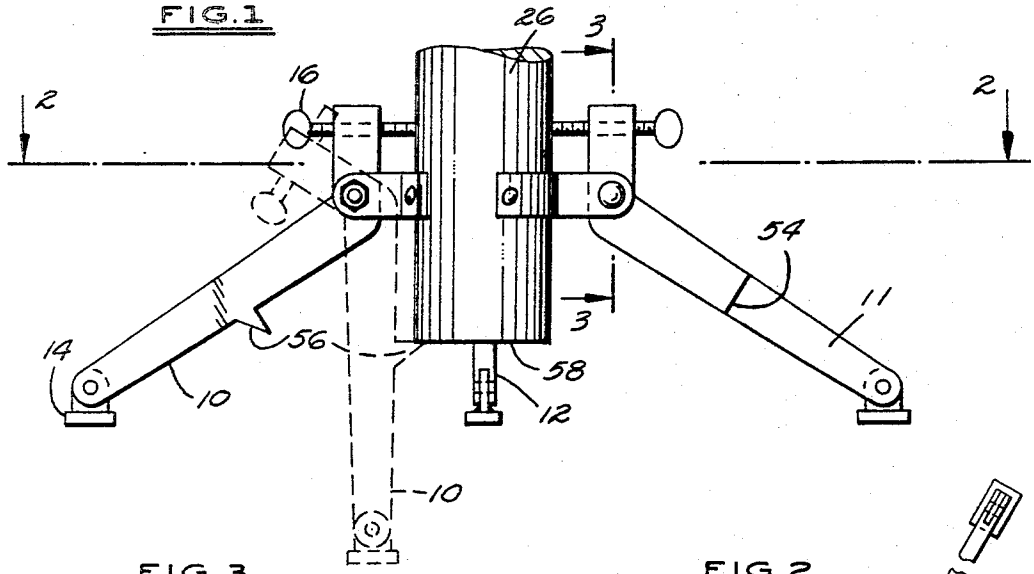


FIG. 3

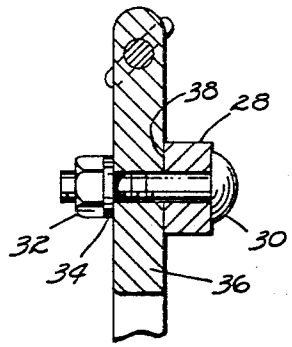


FIG. 2

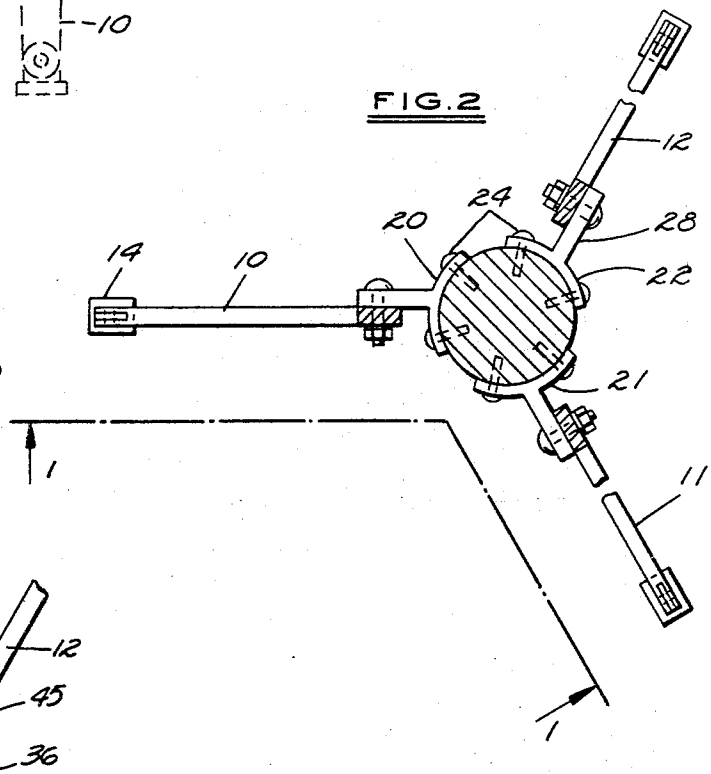
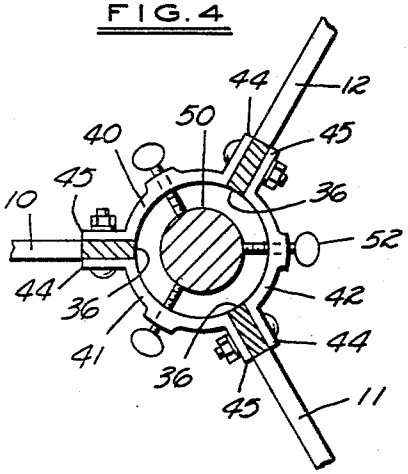


FIG. 4



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ARTICLE SUPPORTING STAND

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ABSTRACT OF THE DISCLOSURE

An article supporting or tree stand of the type having a plurality of lever-action legs engageable with the article and with a supporting surface in which a plurality of leg mounting members are provided and each leg is pivoted to at least one of the mounting members by a connection providing adjustable frictional engagement of the leg.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates to an improved construction for a stand for supporting articles such as Christmas trees having legs which engage a supporting surface and the article with a lever action obtained from the weight of the article.

Description of the prior art

Prior art supporting stands of the general type, such as disclosed in U.S. Patent 1,028,787 and in U.S. Design Patent 198,634, have been constructed so that each of the legs is secured to one of a number of fulcrum points on a unitary retaining member and is freely pivotal about such fulcrum point. While this construction insures lever action of the legs, it makes the stand relatively difficult to assemble to the article, the article and stand difficult to place in an upright position and difficult to move from one location to another, all because of the fact that the relative position of the legs to the article is only established when the weight of the article is being carried by the legs.

SUMMARY OF THE INVENTION

In the improved article supporting stand having a plurality of lever-action leg members engageable with the article and with a supporting surface, a mounting member is provided for each leg member, article engaging means are carried by the mounting members, and a pivotal connection secures each leg member to at least one of the mounting members, such pivotal connection including a surface adapted to be frictionally engaged by a portion of the leg member and an adjustable element for regulating the frictional engagement to inhibit free pivotal movement of a leg member under its own weight while permitting pivotal movement of such leg member by the weight of the article supported by the stand.

This improved construction results in a considerable saving in the cost of manufacture. It also enables the stand to be properly and easily handled for assembly to the article and while the article is being placed on a supporting surface. Each leg may be moved to any position desired during the steps of assembling the stand to the article and placing the article on the surface; and, the legs will be retained in any such desired position. At the same time, the level-action of the legs will take place once they are subjected to the weight of the article.

The improved construction of the invention also includes the provision of a guage element or stop on one or more of the legs to accurately establish a proper relative position between the bottom surface of the article being supported and the legs of the stand so that when the article and stand are placed on a supporting surface, the weight

of the article will be borne entirely by the legs and the bottom of the article will not contact the supporting surface.

Other features and advantages of the invention will appear in the following description of the representative embodiments disclosed in the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

The drawing comprises the following views:

FIG. 1 is an elevation taken as indicated by the line 1—1 of FIG. 2 showing one form of improved stand construction secured to the base of an article;

FIG. 2 is a sectional plan view taken as indicated by the line 2—2 of FIG. 1;

FIG. 3 is an enlarged sectional detail taken as indicated by the line 3—3 of FIG. 1; and

FIG. 4 is a sectional plan view similar to FIG. 2 but of an alternate construction.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. 1–3. the article stand construction illustrated includes three lever-action leg members **10**, **11** and **12**. Each leg member has a foot **14** for engaging a supporting surface and is provided with an article engaging and levelling screw **16** at the opposite end.

Mounting members **20**, **21** and **22** are provided, one for each of the leg members, and each mounting member carries article engaging means such as the screws **24** for securing the mounting members to the base portion of an article **26** as illustrated in FIG. 1. Each mounting member includes an arm **28** and a pivotal connection which secures each of the leg members to the arm of one of the mounting members.

This pivotal connection, as thus shown in FIG. 3, may be formed by a bolt **30**, nut **32** and spring washer **34** extending through the arm **28** of a mounting member and a portion **36** of a leg member, thereby providing at least one surface **38** on the arm **28** which is frictionally engaged by the portion **36** of the leg member. The bolt **30** or nut **32** forms an adjustable element for regulating the frictional engagement between the leg portion and mounting member surface **38**. This adjustable element is preferably set to inhibit free pivotal movement of a leg member under its own weight so that a leg member may be moved manually to any desired position and will not readily move out of such position. At the same time, the extent of frictional engagement is not great enough to prevent pivotal movement of a leg member by the weight of the article supported by the stand. This setting is maintained by the spring washer.

As will be seen from FIG. 1 each of the leg members has two lever arms extending from the pivotal connection of the leg member to the mounting member. One lever arm extends from the pivotal connection to the foot **14** of the leg and the other lever arm extends from the pivotal connection to the end of the article engaging and levelling screw **16**. The first of these lever arms has a length which is relatively great compared to the length of the second lever arm, for example, on the order of 10:1 ratio of the length of the first to the second lever arms. This makes it relatively easy to obtain the proper frictional setting of the pivotal connecting element, because the weight of the article when acting through the relatively long lever arm will produce a relatively great turning movement to produce pivotal movement of a leg into gripping engagement between the article and the article engaging and levelling screw at the end of the short lever arm.

The construction shown in FIGS. 1–3 is intended for relatively permanent attachment to an article and could

be used for example as a supporting base for an article such as a clothes rack or table.

An alternate construction is illustrated in FIG. 4 employing three legs similar to those previously described and indicated by the same reference numerals. Three mounting members **40**, **41** and **42** are each formed as an annular segment having a radially projecting lug **44** and **45** at each end thereof. The leg members and mounting members are all interconnected by the pivotal connections for the legs to form a ring-like structure of alternate mounting members and portions **36** of the leg members, this ring-like structure being adapted to receive the lower portion of an article **50** such as the base of a Christmas tree. Each of the mounting members **40**, **41**, **42** is provided with an article engaging screw **52**. Each pivotal connection between a mounting member and a leg member extends between a pair of lugs **45**, **44** at the adjacent ends of an adjacent pair of mounting members and through the portion **36** of a leg member which is positioned between such pair of lugs. The pivotal connecting element may consist of a bolt, nut and spring washer as described above to provide adjustable frictional engagement between the leg portion **36** and the pair of surfaces provided by the mounting member lugs. Alternately, the pivotal connection may be formed by a screw extending through one of the lugs and having threaded engagement with the other of the lugs of a pair.

In either form of construction illustrated, one or more of the legs is provided with a gauge element, either a gauge line **54** as shown on leg **11** of FIG. 1, or an abutment **56** as shown on leg **10** of FIG. 1. When the stand is being assembled to the article one or more of the legs can be moved to the phantom position of the leg **10** illustrated so that the gauge element **54** or **56** can be registered with the lower end **58** of the article. The leg will be retained in this position for the gauging operation by the frictional engagement provided at the pivotal connection between the leg and its supporting members. This gauging operation insures that when the article and stand are placed on a supporting surface the entire weight of the article will be borne by the legs of the stand and the desired lever-action of the legs will be obtained.

In both forms of construction illustrated, the stand consists of a set of identical leg members and a corresponding set of identical mounting members which can readily be properly assembled for use.

I claim:

1. An article supporting stand of the type having a plurality of lever-action leg members engageable with the article and with a supporting surface wherein the improvement comprises the provision of one mounting member for each leg member, article engaging means carried by the mounting members, a pivotal connection between each leg member and at least one of the mounting members, said pivotal connection including at least one surface adapted to be frictionally engaged by a portion of the leg member and an adjustable element for regulating

such frictional engagement to inhibit free pivotal movement of a leg member under its own weight while permitting pivotal movement of such leg member by the weight of the article supported by the stand, each leg member having two relatively fixed lever arms extending oppositely from said pivotal connection one of which lever arms has a relatively great length compared to the other and extends between the pivotal connection and the supporting surface, the other lever arm extending between the pivotal connection and the article and including adjustable levelling means mounted thereon in spaced relation to said pivotal connection for abutting engagement with the article, the setting of said levelling means determining the length of said other lever arm.

2. An article supporting stand as claimed in claim 1 wherein a gage element is provided on the longer lever arm of at least one of the leg members for registry with the lower end of the article during assembly of the stand thereto.

3. An article supporting stand as claimed in claim 1 wherein the mounting members and leg members are all interconnected by said pivotal connections to form a ring-like structure composed of alternate mounting members and portions of the leg members, said ring-like structure being adapted to receive the lower portion of the article and to be secured thereto by said article engaging means.

4. An article supporting stand as claimed in claim 3 wherein a gage element is provided on the longer lever arm of at least one of the leg members for registry with the lower end of the article to locate said ring-like structure relative thereto.

5. An article supporting stand as claimed in claim 3 wherein each of the mounting members is formed as an annular segment having a radially projecting lug at each end thereof, said pivotal connection between a leg member and a mounting member extending between a pair of lugs at the adjacent ends of an adjacent pair of mounting members and through a portion of a leg member positioned between said pair of lugs.

6. An article supporting stand as claimed in claim 3 wherein a resilient element is provided at said pivotal connection.

References Cited

UNITED STATES PATENTS

1,724,320	8/1929	Skultety	248—168
2,679,994	6/1954	Mellen	248—47
3,136,514	6/1964	Rzepela	248—47

FOREIGN PATENTS

876,163	5/1953	Germany.

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U.S. Cl. X.R.

248—47, 188.6