

[72] Inventor **James F. Hills**
Atlanta, Ga.
 [21] Appl. No. **779,458**
 [22] Filed **Nov. 27, 1968**
 [45] Patented **Sept. 7, 1971**
 [73] Assignee **Applied Technical Services, Inc.**
Smyrna, Ga.

[56] **References Cited**

UNITED STATES PATENTS

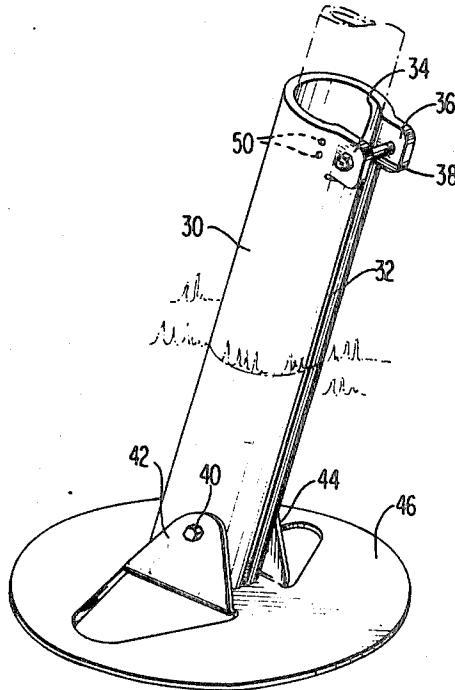
605,752	6/1898	Shepard	287/54 E
2,341,542	2/1944	Grime	248/188.2
2,371,460	3/1945	Needham	248/188.2
2,899,225	8/1959	Birr	287/20
740,960	10/1903	Whitmore	287/23
887,663	5/1908	Lee	182/111
1,563,700	12/1925	Frankenstein	248/188.9
1,764,226	6/1930	Rennack	287/23
3,145,013	8/1964	Grudoski	248/378

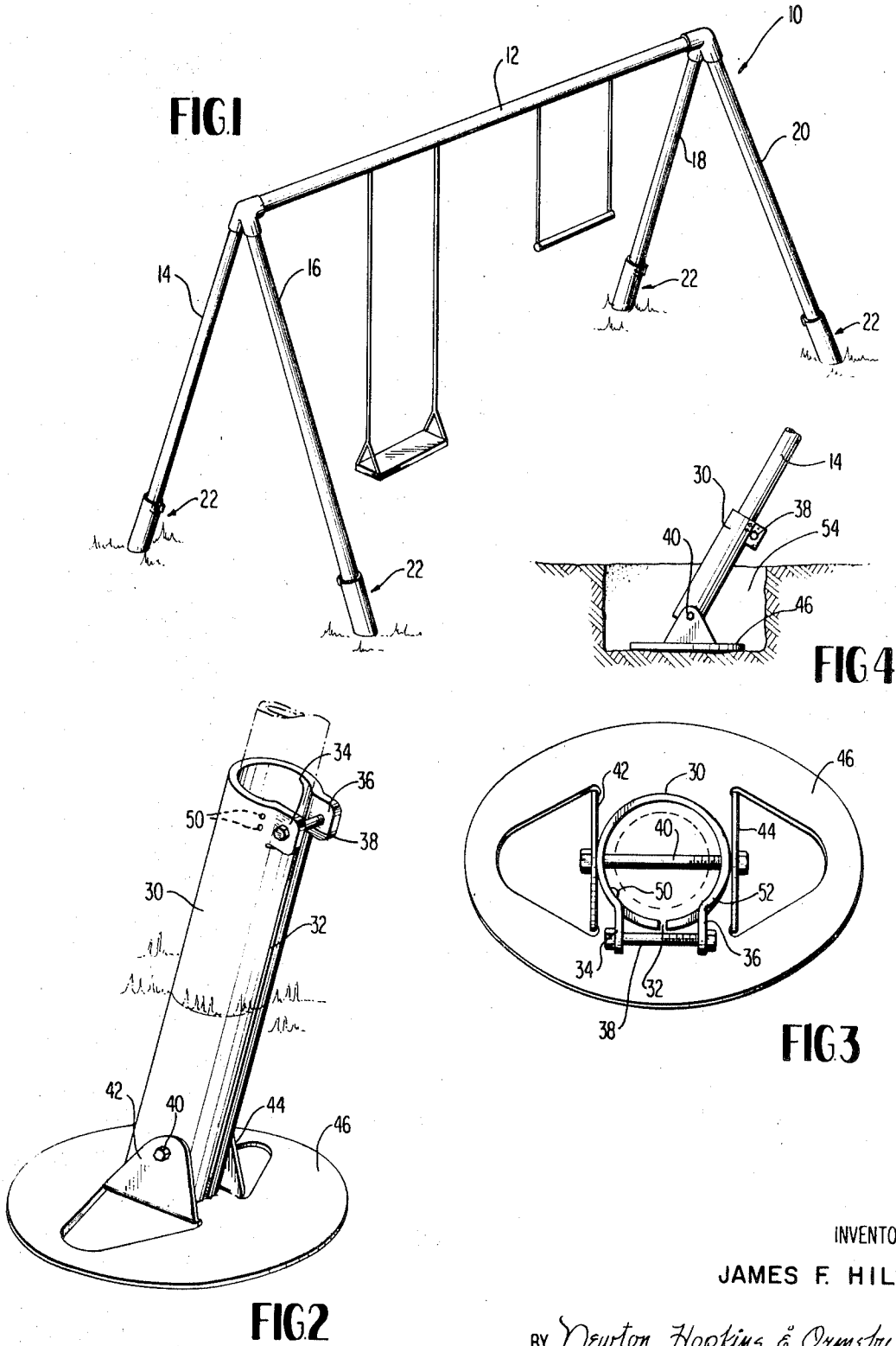
Primary Examiner—Edward C. Allen
Attorney—Newton, Hopkins & Ormsby

[54] **STABILIZING AND LEVELING DEVICE**
 1 Claim, 4 Drawing Figs.

[52] U.S. Cl. 248/188.2
 [51] Int. Cl. F16m 7/00
 [50] Field of Search 248/188.8,
 188.9, 188.1, 357, 370, 188.2, 168, 170, 166;
 287/23, 54 E, 20; 272/85

ABSTRACT: Apparatus and method for stabilizing and maintaining in a level plane on an uneven surface any object supported by legs comprising adjustable support tubes pivotally attached to a base plate.





INVENTOR

JAMES F. HILLS

BY *Newton, Hopkins & Ormsby*

ATTORNEYS

STABILIZING AND LEVELING DEVICE

BACKGROUND OF THE INVENTION

A number of devices have been used in the past to stabilize outdoor swing or gym sets, among which there is involved the attachment of a chain to the legs of the swing set which is then anchored at its other end to a stake driven into the ground. Such a device is clumsy, unsightly and actually does not perform its desired function satisfactorily in loose or sandy soil due to the ease with which the anchors are loosened. Additionally, while the chain and anchor stake arrangement may give the set some degree of stability, it does not provide a leveling means for the set if it is placed on a piece of ground which slopes. Another method employed is to bury the legs of a swing set in the ground, but again this does not give complete stability nor any leveling effect unless precisely aligned and subsequently firmly affixed by concrete placed in the hole. This is a costly and time consuming process. Further, installation in the soil causes damage and corrosive attack to the legs. In addition, installation in concrete provides a permanent installation which cannot be disassembled readily when one wishes to move the swing set. Normal usage of these sets will quickly cause the legs to become detached from the soil around them and the set is no longer stable. In addition, embedding the legs in the ground does not afford means for maintaining the swing set in a level plane.

It is therefore the primary object of this invention to provide an apparatus which will give stability to a swing set when in operation and also maintain it on a level plane.

BRIEF SUMMARY OF THE INVENTION

The present invention involves a base plate and socket assembly, each such socket being adapted to receive a leg of the swing set or the like. Each socket is longitudinally slotted and provided with clamping means to receive a leg to a desired fixed depth therewithin. Each socket is pivoted to its base plate so that the proper angle between socket and base plate is achieved automatically. The base and socket assembly may be encased in concrete within the ground without permanently securing the swing set at that site, since the socket clamps may simply be loosened to allow the set to be disengaged from the supports.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

FIG. 1 is a perspective view of a recreational device employing the leg supporting mechanism according to the present invention;

FIG. 2 is a perspective view of one of the leg supporting devices;

FIG. 3 is a plan view of the assembly shown in FIG. 2; an

FIG. 4 is an elevational view of the assemblies shown in FIGS. 2 and 3.

BRIEF DESCRIPTION OF THE INVENTION

With reference now more particularly to FIG. 1, a recreational device indicated generally by the reference character 10 includes a horizontal support means 12 provided at its opposite ends with diverging legs 14, 16 and 18, 20, as is conventional and it being understood that this particular construction of the recreational device by itself forms no part of the present invention. As is also shown in FIG. 1, the lower ends of the legs 14, 16, 18 and 20 are received in support assemblies indicated generally by the reference character 22 which, according to this invention, allow the horizontal support 12 to be positioned in a horizontal plane in a plane symmetrical with respect to the divergent legs 14, 16 and 18, 20.

This is accomplished by the construction shown in FIG. 2 wherein it will be seen that each of the assemblies identified by the reference character 22 in FIG. 1 consists of an elongated tubular socket member 30 which is provided with a longitudinal slot 32 and with outwardly struck ears 34 and 36 on either side of this slot at the upper end of the socket, substantially as is shown. These ears 34 and 36 are adapted to receive a bolt assembly 38 to draw the slot 32 together after a leg has been inserted into the socket and thus rigidly and fixedly secure the leg to the socket in a desired positional depth therewithin which will allow the aforementioned accurate positioning of the horizontal support means 12.

The lower end of each socket 30 is provided with aligned openings receiving a pivot pin or bolt member 40 which also projects through suitable openings in the upwardly struck flange portions 42 and 44 of the base plate 46.

As may be seen in FIG. 3, the inner side of the socket 30 adjacent the ear 34 is provided with protrusions 50 which are adapted to embed and grip the associated leg and it will also be noted from FIG. 3 that the portion 52 of the upper end of the socket adjacent the ear 36 is inwardly deformed or offset further to achieve the good gripping action on the leg when the bolt 38 is tightened.

As may be appreciated from FIG. 4, the base plates and socket assemblies are aligned such that the pivot pins 40 thereof are generally parallel to the support means 12 and, as will be obvious, the various legs are adjusted to the proper depths within the sockets 30 so as to position the support means 12 in the disposition heretofore mentioned. The base plates 46 when embedded in the ground and shown in FIG. 4 not only provide a firm base but also present a large surface area tending to prevent withdrawal of the base plate and socket assemblies from the ground, it being appreciated that the hole 54 shown in FIG. 4 is of course filled in with dirt or it may alternatively be filled in with concrete if desired. If the latter expedient is utilized, it will be appreciated that the recreational device 10 is not thereby permanently affixed at the site initially selected since the bolts 38 may be loosened and the entire device 10 removed to another site if so desired.

The present invention, therefore, is well adapted to carry out the objects and attain the ends and advantages mentioned as well as others inherent therein. While the presently illustrative embodiment of the invention is given for the purpose of disclosure, numerous changes in the details of construction and arrangement of parts may be made which will readily suggest themselves to those skilled in the art and which are encompassed within the spirit of the invention and the scope of the appended claims.

1. In a recreational device having horizontal support means an divergent legs rigidly secured to each end thereof, an adjustable supporting assembly secured to each leg, each assembly comprising a horizontal plate having a pair of spaced vertical ears located centrally thereof formed by striking up portions of said plate, the ears having registering openings adapted to receive a horizontal bolt assembly, a tubular sleeve having openings in its lower portion adapted to receive the bolt of said bolt assembly for pivotally mounting the sleeve between the ears, the sleeve having a longitudinal slot extending throughout its length and being provided with a pair of ears straddling the slot at its upper end, the said ears having openings to receive a bolt assembly, and the sleeve being adapted to slidably receive one of the divergent legs and be secured thereto, whereby each leg may be mounted for longitudinal and pivotal adjustment with respect to the corresponding horizontal plate, and clamped in the desired adjusted position, said sleeve including inwardly offset portions adjacent its ears to achieve a good gripping action on the leg when the bolt assembly is tightened.