May 28, 1957 A. MOOSER 2,793,468

LEVELING DEVICE

Filed June 22, 1954

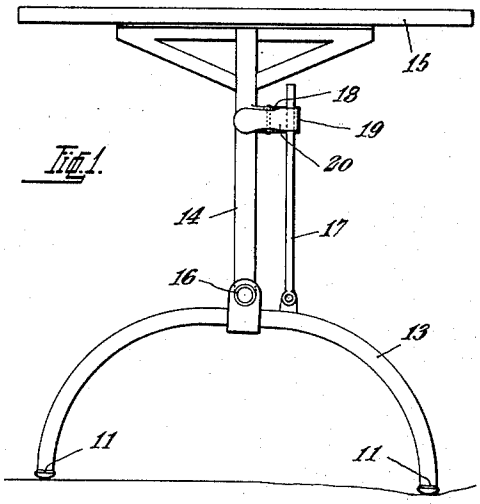


Fig. 1.

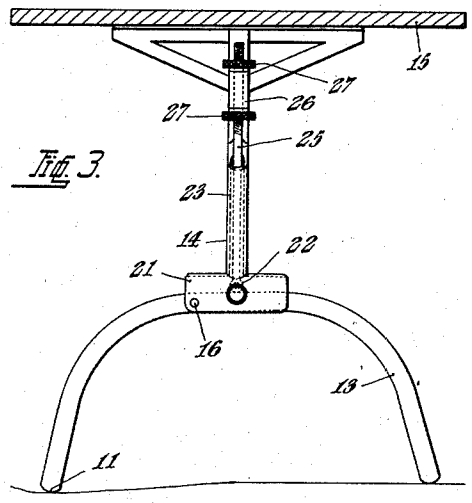
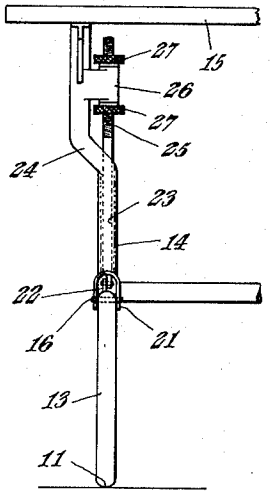
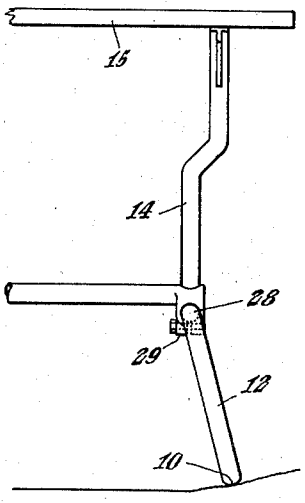


Fig. 3.

Fig. 2.





Alfred Mooser
Inventor
by C. G. Stratton
Attorney

United States Patent Office 2,793,468 Patented May 28, 1957

2,793,468

LEVELING DEVICE

Alfred Mooser, Bern, Switzerland

Application June 22, 1954, Serial No. 438,581

5 Claims. (Cl. 45—139)

The present invention relates to a leveling device that may be used on a piece of furniture, for instance a table, a chair, a stand, a garden shade and the like, with four supports, each of which establishing a bearing spot and of which supports two are rigidly fixed, whereas the other two supports, rigidly interconnected and slewable on a substantially horizontal axis, are thus linked to the remainder portion of the body of furniture, whereby the piece of furniture is adapted to bear automatically with all of its four supports on the ground, even if the latter is uneven.

It is an object of the invention to provide a leveling device which is linked to a slewable pair of supports and is movably in respect to a projection on said body of furniture, and further to provide detachable fixing means for stepless fixation of said linked member with said projection, which fixing means, when slackened, allow automatic adjustment of said pair of supports and, when tightened, retain said pair of supports in the attained position.

The accompanying drawing illustrates two embodiments of the invention.

Fig. 1 is an elevation view onto the narrow side of a table, in accordance with a first embodiment.

Fig. 2 is an elevation view onto one of the long sides of a table in accordance with a second embodiment, and

Fig. 3 is a vertical section with a side view onto the left pair of supports in Fig. 2.

In both embodiments of the four-footed table the feet **10** and **11**, respectively, are rigidly interconnected, two by two, by a pair of supports **12** and **13**, respectively. The pairs of supports **12** and **13**, respectively, are each fixed by twos on an upright **14** of the rigid frame which supports the table board **15**, the supporting pair **12** being rigidly connected and the supporting pair **13** being slewably mounted on a substantially horizontal axle **16** arranged at the lower end of the corresponding upright **14**, so that the table may automatically bear on the supporting surface of the ground with all of its four feet **10** and **11**, respectively, even if the ground is not level.

At the table according to Fig. 1 a rod **17** is linked to the slewable pair of uprights **13** excentrically of the slewing axis of the latter, which rod extends to a side projection **18** of the upright **14** and projects beyond the latter. In the neighborhood of the rod **17** the projection **18** has the shape of a gripping jaw **19** with which another gripping jaw **20** linked to the said projection **18** and arranged on the opposite side of the rod **17**, cooperates under the action of a nut illustrated locking spring, in order to fix the rod **17** steplessly in any position. By opening the movable gripping jaw **20** by hand, the pair of supports **13** is allowed to automatically adjust itself according to the unevenness of the supporting ground, whereas when the rod **17** is gripped by the jaws **19, 20** it will arrest the pair of supports **13** in the momentary position. The surface of the rod **17** and the gripping surface of the jaws are such that the friction

between these contacting surfaces is as effective as possible. The jaws could, for instance, be lined with rubber and the contacting surface of the rod be roughed.

At the table according to Figs. 2 and 3 the slewing axle **16** of the pair of supports **13** is arranged, laterally of the upright **14**, inside an U-shaped piece **21** of sheet metal which is downwardly bent, whereas just below the upright **14** a rod **23** is linked to an eye **22** of the pair of supports **13** which rod extends upwardly inside the tubular upright **14** and projects at a throat **24** of the latter. The projecting threaded end **25** of the rod **23** crosses a lateral projection **26** of the upright **14** and is provided with a right-handed and a left-handed thread so that corresponding nuts **27** may approach the projection **26** from above and from below, respectively, or may be withdrawn from the same. With the lock-nuts **27** slackened, the pair of supports **13** is free to adjust itself to unevennesses of the bearing ground, whereas by tightening both lock-nuts in the same direction of rotation until bearing on the projection **26**, the pair of supports **13** may be steplessly fixed in its adjusted position. In order to allow the lock-nuts to be rotated conjointly by the palm of the hand they are provided with a cylindric knurled surface.

The other pair of supports **12** has a substantially horizontal axle **28** arranged at right angles to the slewing axle **16** of the pair of supports **13** and therewith slewably and fixably mounted in a gripping bearing **29** arranged at the lower end of the corresponding upright **14** with the purpose to adjust the board **15** of the table, even when the table stands on a slanting ground, to a horizontal position by slewing the pair of supports **12** into an inclined position, as shown in Fig. 2.

The threaded end **25** of the rod could just as well have a right-hand or a left-hand thread only, in which case, however, the direction of rotation of one of the two nuts would be opposite to the direction of the rotation of its mate, be it for tightening, be it for slackening. A further embodiment may consist of an arrangement in which the threaded portion is integral with the projection and tubular and has a longitudinal slot through which a nose of a rod being axially displaceable inside the threaded portion, projects in order to get fixed by the lock-nuts or released by the same.

It is a matter of course that the table according to Fig. 1 could just as well be fitted with a threaded rod and lock-nuts instead of the gripping device and that in the table of Fig. 2 a gripping device could substitute for the threaded rod and lock-nuts. Further could a gripping device, other than that described, be used, such as, for instance, jamming excenters, tipping rings and the like. Further could the rod linked to the slewable pair of supports, the projection and the members of the fixing device be lodged inside the upright and only operating means could be arranged on the external surface of the upright.

While the preferred embodiment of the invention has been shown and herein described, it will be understood that the same is capable of further modifications without departure from the general scope and spirit of the invention as defined in the claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A leveling device comprising two pair of supports, one pair of supports being rigidly fixed and the other pair of supports being slewable, a pair of upright rods, each rod mounting one pair of supports at one end, and said pair of rods mounting a member to be supported at their other ends, a second rod adjacent and substantially parallel to one of said upright rods, said second rod being pivotally connected to said slewable support,

and a gripping means adapted to engage said second rod and carried by said adjacent upright rod.

2. A leveling device comprising two pair of supports, ports, one pair of supports being rigidly fixed and the other pair of supports being slewable, a pair of upright rods, each rod mounting one pair of supports at one end, and said pair of rods mounting a member to be supported at their other ends, one of said rods being hollow and mounting said slewable support, a second rod within said hollow rod pivotally connected to said slewable support, and gripping means on said hollow rod adapted to engage said second rod.

3. A leveling device comprising two pair of supports, one pair of supports being rigidly fixed and the other pair of supports being slewable, a pair of upright rods, each rod mounting one pair of supports at one end, and said pair of rods mounting a member to be supported at their other ends, one of said rods being hollow and having an off-set portion, a U-shaped member carried by said hollow rod and pivotally interconnecting said rod and said slewable support, a second rod within said hollow rod and also pivotally connected to said slewable support, and gripping means attached to said off-set portion adapted to engage said second rod.

4. A leveling device according to claim 3, said second rod extending from within said hollow rod at said off-set portion, and said gripping means engaging said extended portion of said second rod.

5. A leveling device according to claim 3, said second rod extending from within said hollow rod at said off-set portion and provided with right-handed and left-handed threads, and a pair of lock nuts for said threads adapted to engage with said gripping means.

References Cited in the file of this patent

UNITED STATES PATENTS

274,162	Wilson	Mar. 20, 1883
520,432	Humphreys	May 29, 1894
1,901,947	Bescherer	Mar. 21, 1933

FOREIGN PATENTS

210,074	Great Britain	Mar. 27, 1924
390,598	Great Britain	Apr. 13, 1933