

[54] ADJUSTABLE LEVELING DEVICE

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[58] Field of Search.....248/405, 406, 354 S, 188.4; 52/126; 254/98, 100, 102

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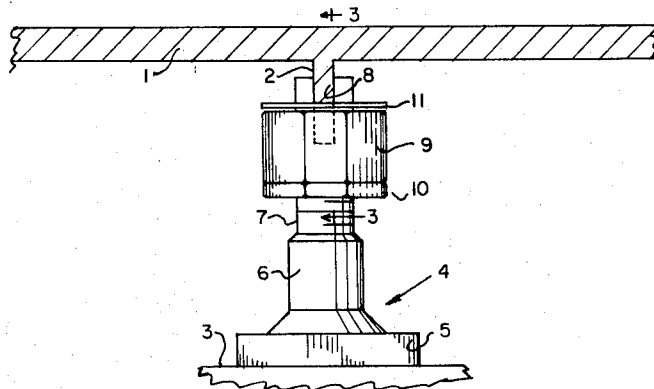
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[57] ABSTRACT

An adjustable device for leveling floors, bases and other structures and having a cylindrical, elongate, threaded body supported at one end in an upright position and having at least one diametral slot in its other end of such width as to accommodate a flange formed on the structure to be leveled. An adjustable nut is threaded on the body between the ends of the latter and is adjustable toward and away from the slotted end of the body so as to vary the effective depth of the slot. Bearings preferably are supported in a retainer atop the adjusting nut to eliminate friction between the nut and the flange.

7 Claims, 4 Drawing Figures



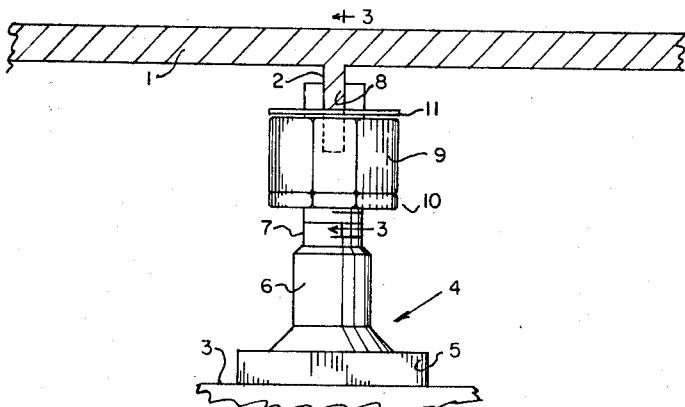


FIG. 1

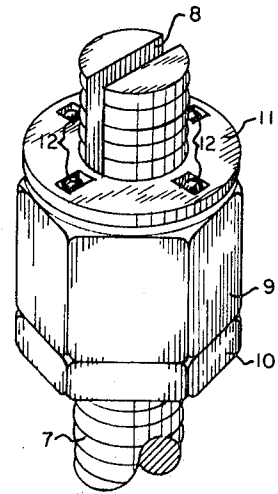


FIG. 2

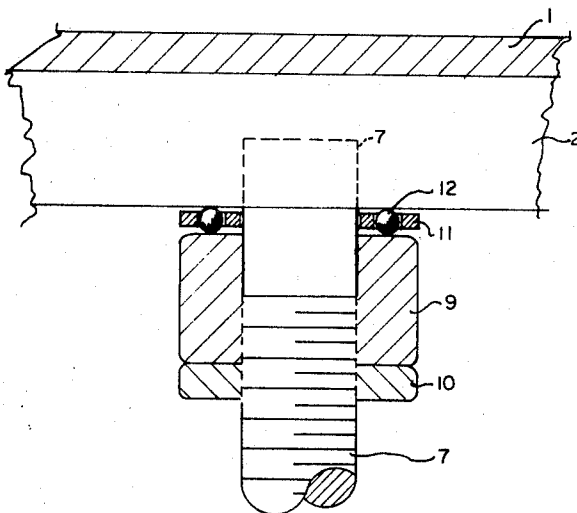


FIG. 3

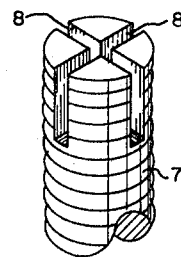


FIG. 4

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ADJUSTABLE LEVELING DEVICE

This invention relates to an adjustable leveling device and more particularly to an adjustable support adapted to be placed beneath a member to be supported and support the member in a level condition regardless of irregularities in the surface above which the member is located.

There are many instances in which a member must be supported in spaced relation to a lower surface and in such manner as to be level, regardless of the condition of the lower surface. For example, the bottom of a fluid container, such as a swimming pool and the like, should be level so as to avoid undue concentration of forces at one side or the other of the pool due to undesirable sloping of the bottom wall. Moreover, it is common practice to support flooring of some buildings above the level of the base so as to provide space between the flooring and the base for wiring, plumbing, and other materials. It frequently occurs that the base or lower surface is irregular, thereby necessitating the utilization of some kind of adjustable pedestal or support by means of which the structure to be supported above the base may be made level. Many different kinds of adjustable supports have been proposed heretofore, but not all of them have been altogether satisfactory for a number of reasons. For example, some of the prior supporting devices are composed of a substantial number of parts, thereby rendering them costly. Others of the known devices utilize sleeves or collars which are interposed between the base and the member to be supported and which are required to rotate relatively to the supported member. In such a construction the supported member offers considerable resistance to movement of the collar. Still others of the known devices are intricate in manufacture and in operation, thereby resulting in high cost of manufacture and difficulty in use.

An object of this invention is to provide a leveling device which overcomes the disadvantages of known devices.

Another object of the invention is to provide a leveling device which is extremely simple in construction and operation and relatively inexpensive to produce.

A further object of the invention is to provide a device of the character described wherein adjustment of the leveling device relative to the supported member is facilitated and avoids marring of the supported member.

Other objects and advantages of the invention will be pointed out specifically or will become apparent from the following description when it is considered in conjunction with the appended claims and the accompanying drawings, in which:

FIG. 1 is a view partly in side elevation and partly in section of a leveling device constructed in accordance with one embodiment of the invention and in supporting relation to a member to be supported;

FIG. 2 is a fragmentary, isometric view of a portion of the leveling apparatus;

FIG. 3 is an enlarged, fragmentary, sectional view taken on the line 3—3 of FIG. 1; and

FIG. 4 is a view similar to FIG. 2, but illustrating a modified form of device.

Apparatus constructed in accordance with the invention is adapted for use in supporting a structural member 1 such as the bottom of a pool, a deck, a flooring section, or the like, having a depending flange 2. The member 1 is adapted to be supported at a predetermined distance above a lower surface 3.

Apparatus constructed in accordance with the embodiment of the invention shown in FIGS. 1, 2 and 3 comprises a pedestal 4 having a base 5 on which is fixed an upstanding collar 6. An externally threaded body or rod 7 may be threaded into or fixed to the collar 6 at one end, the other end of the body having a diametral slot 8 formed therein of such size as freely to accommodate the flange 2. The depth of the slot may vary, but it need be no deeper than the height of the flange 2.

The embodiment illustrated in FIG. 4 differs from the previously described embodiment only in the provision of a pair of

mutually normal slots 8 at the free end of the body 7.

In each embodiment of the invention an internally threaded adjusting nut 9 is threaded onto the body 7 so as to be adjustable longitudinally thereof. Preferably, a lock nut 10 also is threaded onto the member 7 so as to enable the nut 9 to be fixed in any selected position of adjustment longitudinally of the member 7. The assembly also preferably includes a retainer annulus 11 having a plurality of antifriction balls or rollers 12 trapped therein so as to provide an antifriction member atop the adjusting nut 9. The diameter of the balls 12 is greater than the thickness of the annulus 11.

When the apparatus is conditioned for use, the pedestal 4 will be mounted on the lower surface 3 in such manner that the free end of the member 7 is uppermost and the slot 8 is aligned with the flange 2 of the member 1. Should the flange 2 be of cruciform construction, the member 7 illustrated in FIG. 4 will be utilized. When the flange 2 is fitted into the slot 8, the lower edge of the flange 2 will rest upon the retainer 11. Rotation of the adjusting nut 9 in one direction will permit the flange 2 to move downwardly or more deeply into the slot 8, and rotation of the nut 9 in the opposite direction will cause the flange 2 to move upwardly and assume a more shallow position in the slot 8. Adjustment of the nut 9, therefore, varies the effective depth of the slot 8 and effects vertical adjustment of the member 1.

When the member 1 has been located at a desired level, the lock nut 10 may be turned tightly against the adjusting nut 9 so as to preclude any possibility of inadvertent adjustment of the nut 9.

During adjustment of the nut 9, the balls or rollers 12 may roll freely on the confronting surface of the nut 9, thereby preventing any defacing of the lower edge of the flange 2 and facilitating adjustment of the nut 9.

The disclosed embodiments are representative of presently preferred forms of the invention, but are intended to be illustrative rather than definitive thereof.

I claim:

1. An adjustable leveling device and a member supported thereby, said member having a depending flange, said device comprising a base; an elongate, upright body fixed at its lower end to said base, said body being exteriorly threaded from its upper end toward said lower end thereof, said body having at least one diametral slot extending from said upper end thereof toward said lower end and accommodating said flange therein, said slot having a depth corresponding substantially to the height of said flange; and an annular, interiorly threaded adjusting member threaded onto said body between the ends thereof and in engagement with said flange, said adjusting member being adjustable toward and away from said upper end of said body while said flange is in said slot for varying the effective depth of said slot and the extent to which said flange extends into said slot.

2. The construction set forth in claim 1 including lock means engageable with said adjusting means for locking the latter in a selected position of adjustment longitudinally of said body.

3. The construction set forth in claim 1 wherein said upper end of said body includes a pair of diametral slots substantially normal to one another.

4. The construction set forth in claim 1 including antifriction means carried by said adjusting member between the latter and said upper end of said body.

5. The construction set forth in claim 4 wherein said antifriction comprises rotatable bearings and bearing retainer means axially slideable on said body.

6. The construction set forth in claim 5 wherein said bearings engage said adjusting means.

7. The construction set forth in claim 5 wherein said retainer means comprises an annulus having circumferentially spaced openings therein, and wherein said bearings comprise balls having a diameter greater than the thickness of said annulus.

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