July 24, 1962 F. H. ARNIT 3,045,389

LEVELING DEVICE FOR STANDARDS

Filed March 2, 1960

Fig. 1

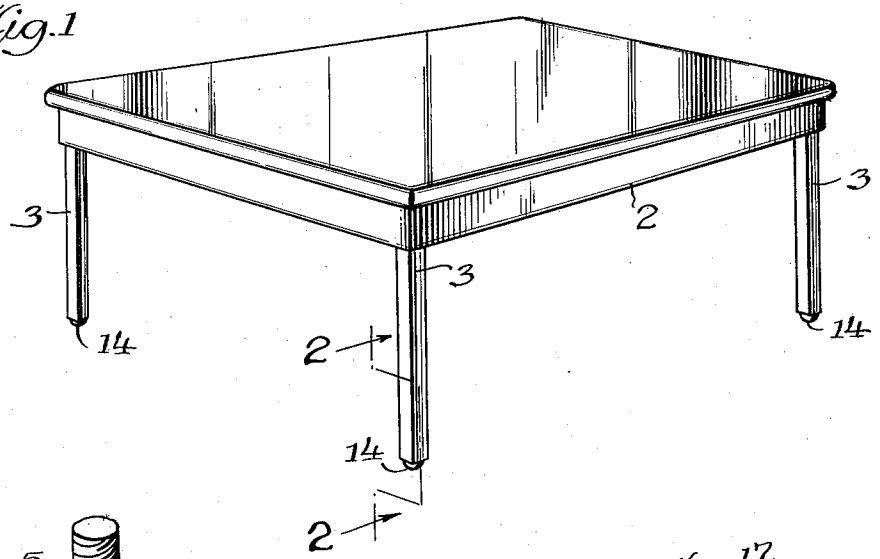


Fig. 5

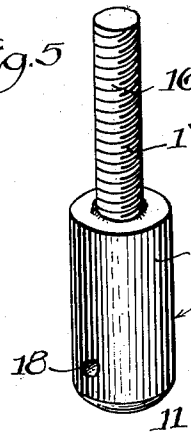


Fig. 6

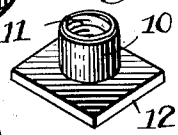


Fig. 7

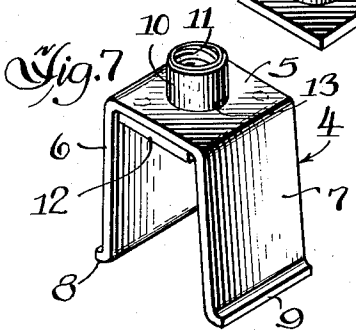


Fig. 2

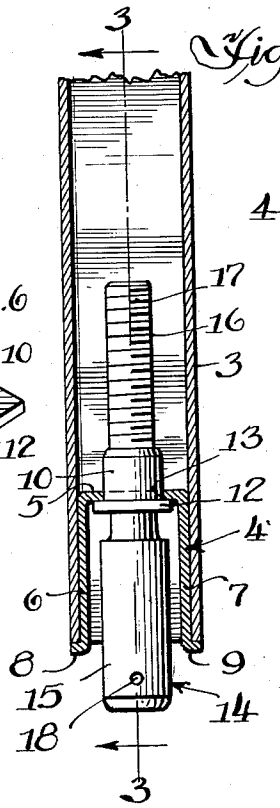


Fig. 3

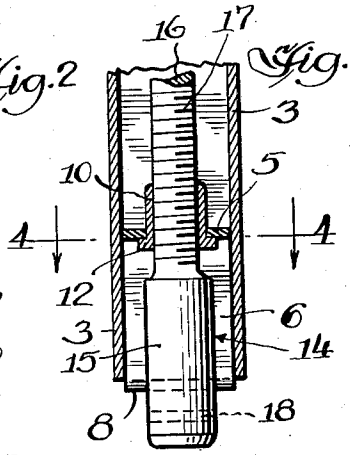
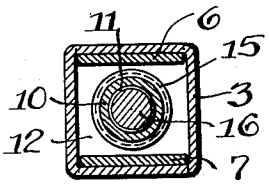


Fig. 4



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3,045,389

LEVELING DEVICE FOR STANDARDS

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This invention relates to a leveling device for standards, and is particularly concerned with means for adjusting the height of a plurality of standards adapted to support any article of furniture to compensate for irregularities in a floor or other surface on which the article of furniture is to be supported.

The leveling device of the present invention is specifically adapted for use with tubular standards having a rectangular cross section, but may be used with tubular standards of other cross sectional configurations.

Leveling devices comprising an adjusting screw threaded into the bottom of the standards supporting an article of furniture are not new, but such leveling devices heretofore known are expensive to assemble with the article of furniture. An additional disadvantage of such structures is the fact that the threads of the adjusting screws are exposed between the bottom of the article of furniture and the floor on which it is supported. The exposure of the thread makes the supporting structure look cheap, and therefore detracts from the appearance of the article of furniture supported by such supporting members.

In accordance with the present invention, an interiorly threaded collar having a laterally extending flange at one end is welded to the web of a short U-shaped member. The adjusting screw is then threaded into the collar, and one of the U-shaped members is then drive fitted into the open end of each tubular leg with flanges extending outwardly from the outer edges of side walls engaging the lower edges of the standards. The length of the threaded portion of the adjusting is such that when the U-shaped member is positioned in the tubular standard as above described the threads of the adjusting screw are completely concealed within said standard.

The lower end portion of the adjusting screw that projects below the bottom of the standard has the appearance of a solid cylindrical post of sufficient diameter to provide adequate support for any article of furniture having tubular standards for supporting the furniture. The height of the leveling screw is adjusted as closely as possible before the screw is assembled with the standard. After the leveling structure is driven into place into one of the standards, the adjusting screw may be turned to make any desirable final adjustment.

The structure by means of which the above and other advantages of the invention are attained will be described in the following specification, taken in conjunction with the accompanying drawings, showing a preferred illustrative embodiment of the invention, in which:

FIGURE 1 is a perspective view of a table comprising a top supported by four standards embodying the invention;

FIG. 2 is a fragmentary vertical sectional view, taken substantially along line 2—2 of FIG. 1;

FIG. 3 is a fragmentary vertical sectional view, taken along the line 3—3 of FIG. 2;

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

FIG. 5 is a detail perspective view of the adjusting screw;

FIG. 6 is a detail perspective view of the flanged collar into which the adjusting screw is adapted to be threaded; and

FIG. 7 is a detail perspective view of the U-shaped member with the flanged collar welded thereto.

In the drawings, a table top 2 is supported by a tubular

standard 3 at each corner thereof. Although a table top is shown, it will be obvious that any article of furniture may be supported by the tubular standards. It is also obvious that the invention is not limited to standards having a square cross section such as that shown in FIG. 4. The standard may be of any desired cross section having two walls that are parallel to each other, without requiring modification of the leveling device. It is also possible to utilize the invention in connection with solid standards having a recess of suitable shape extending upwardly from the bottom of each standard.

The bottom of the standard is open to receive a U-shaped member 4 comprising a web 5 and two side walls 6 and 7 depending from opposite ends of said web and adapted to fit tightly within the lower end of the standard. Preferably side walls 6 and 7 are so dimensioned that the U-shaped member must be driven into the standard. Flanges 8 and 9 extend outwardly from the outer ends of side walls 6 and 7, respectively, to engage the lower end of standard 3. The engagement of flanges 8 and 9 with the lower end of the standard prevents the U-shaped member from being driven too far into the standard, and also prevents the weight of the table and articles placed thereon from forcing the lower ends of the standards down into engagement with the floor. The leveling device would be inoperative if the lower ends of the standard engaged the floor.

The U-shaped members are made of heavy stock to enable them to support the weight of the table and any material that may be placed thereon. The engagement of flanges 8 and 9 with the lower end of the standard insures that the weight of the table or other article of furniture will be supported by the leveling devices, and that such leveling devices will be effective to regulate the height of the table.

A collar 10 threaded interiorly, as indicated at 11, is provided with a laterally extending integral flange 12 at one end. Flange 12 is preferably welded to web 5 with collar 10 in alignment with a hole 13 provided in web 5. Although flange 12 may be welded to either surface of web 5, it is preferred to weld it to the underside thereof, with collar 10 projecting upwardly through hole 13 to provide a maximum space between said walls 6 and 7 for the vertical movement of an adjusting screw 14 that is threaded into collar 10 from the lower end thereof.

If desired, flange 12 may be welded to the upper surface of web 5 with collar 10 extending upwardly above web 5. Even though collar 10 does not project through aperture 13 in this embodiment, it is still necessary to provide aperture 13 because the adjusting screw must project through it to engage collar 10. Adjusting screw 14 comprises a base portion 15 having a maximum transverse dimension slightly less than the distance between the inner surfaces of side walls 6 and 7, and a stem 16 projecting upwardly from the upper end of base portion 15. Base portion 15 is preferably cylindrical, but may have any desired cross sectional configuration. The peripheral surface of stem 16 is threaded, as indicated at 17, to enable it to be interengaged with threads 11 of collar 10. Stem 16 may be interengaged with threads 11 whether collar 10 projects upwardly or downwardly from web 5, but if the collar projects downwardly the range through which adjusting screw 14 may be moved is limited by the engagement of the upper end of base portion 15 with the lower end of collar 10.

Threaded stem 16 is slightly shorter than the vertical length of side walls 6 and 7. Accordingly, whenever the adjusting screw is positioned in operative position relative to standard 3, with threaded stem 16 engaging collar 10, the upper portion of base portion 15 is positioned between side walls 6 and 7, and the threaded stem is com-

pletely concealed within the lower portion of the standard. The base portion **15** is preferably as thick as possible, consistent with the necessity of its fitting in between walls **6** and **7**, to provide a sturdy support for the table or other article of furniture supported thereby.

The adjusting screw is preferably plated to provide an attractive finish for the exposed portion of the screw. In order to protect the finish of the adjusting screw **14** and to facilitate rotation thereof, a recess **18** is provided near the lower end of base portion **15**. Any suitable instrument can be inserted into recess **18** to provide a handle for rotating screw **14** in either direction. Preferably each adjusting screw is adjusted as closely as possible to the exact setting desired before the leveling device is inserted into one of the standards. The leveling device is then pushed or driven into a standard **3** until flanges **8** and **9** engage the lower end of the standard. A force fit between side walls **6** and **7** and oppositely disposed interior surfaces of the tubular standard is desirable so that if the table or other article of furniture supported by the standards is lifted, the leveling device will not fall out of the standards.

When the table or other article of furniture stands upright, the weight thereof is supported on the adjusting screws. Any irregularity in the surface of the floor may be compensated for by rotating one or more of the screws in either direction, until table top **2** is level throughout its area.

Although I have described a preferred embodiment of the invention in considerable detail, it will be understood that the description thereof is intended to be illustrative, rather than restrictive, as many details of the structure may be modified or changed, without departing from the spirit or scope of the invention.

I claim:

1. A leveling device for tubular standards comprising a U-shaped member having a web and two side walls depending from said web, said side walls being adapted to fit tightly against oppositely disposed interior surfaces of a tubular standard, a flange extending laterally from the outer end of each of said side walls to engage the lower end of said standard to limit the extent of insertion of said U-shaped member in said standard, a threaded collar projecting upwardly above said web, said web having a hole aligned with said threaded collar, and an adjusting screw comprising a base portion and a threaded stem projecting upwardly from the upper end of said base portion and engageable with said threaded collar, said threaded stem having a length slightly less than the length of said side walls, whereby it is completely concealed within the standard when it is engaged with said threaded collar, and a portion of said base portion is exposed below the bottom of said standard when the leveling device is secured in operative position relative to said standard.

2. A leveling device for tubular standards comprising a U-shaped member having a web and two side walls depending from said web, said side walls being adapted to fit tightly against oppositely disposed interior surfaces of a tubular standard, a flange extending laterally from the outer end of each of said side walls to engage the lower end of said standard to limit the extent of insertion of said U-shaped member in said standard, said web having a hole therein, a threaded collar projecting through said hole, and an adjusting screw comprising a base portion and a threaded stem extending into said

threaded collar, said threaded stem having a length less than the length of said side walls and being completely concealed within the standard when it extends into said threaded collar, and a portion of the base portion of said adjusting screw being exposed below the bottom of said standard when the leveling device is secured in operative position in said standard.

3. A leveling device for tubular standards of rectangular cross section, said leveling device comprising a U-shaped member having a web and two parallel side walls depending from said web, said side walls being adapted to fit tightly against oppositely disposed interior surfaces of said tubular standard, a flange extending laterally from the outer end of each of said side walls to engage the lower end of said standard, said web having a hole therein, a threaded collar having an integral lateral flange at one end, said flange being welded to said web with said threaded collar projecting upwardly through said hole, and an adjusting screw comprising a base portion and a threaded stem projecting upwardly from the upper end of said base portion in engagement with said threaded collar, said base portion having a maximum transverse dimension less than the distance between said side walls and said threaded stem having a length slightly less than the length of said side walls, whereby the upper portion of said base portion is positioned between said side walls when the leveling device is secured in operative position in said standard.

4. In combination with a tubular standard, a leveling device comprising a U-shaped member having a web and two side walls depending from said web, said side walls being force fitted against oppositely disposed interior surfaces of said tubular standard, flanges integral with said side walls engaging the lower end of said standard, said web having a hole therein, a threaded collar projecting through said hole, a lateral flange integral with said collar welded to said web, and an adjusting screw comprising a base portion and a threaded stem projecting upwardly from the upper end of said base portion in engagement with said threaded collar, said threaded stem being completely concealed within the standard, and a portion of said base portion being exposed below the bottom of said standard.

5. In combination with a tubular standard, a leveling device comprising a U-shaped member having a web and two side walls depending from said web, said side walls being force fitted against oppositely disposed interior surfaces of said tubular standard, flanges integral with said side walls engaging the lower end of said standard, said web having a hole therein, a threaded collar projecting through said hole, a lateral flange integral with said collar welded to said web, and an adjusting screw comprising a base portion having its upper end positioned between said side walls and a threaded stem projecting upwardly from the upper end of said base portion in engagement with said threaded collar.

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