March 20, 1951 H. F. HILD 2,546,097

SELF-LEVELING SUPPORT FOR IRONING TABLES

Filed March 6, 1950

FIG. 1.

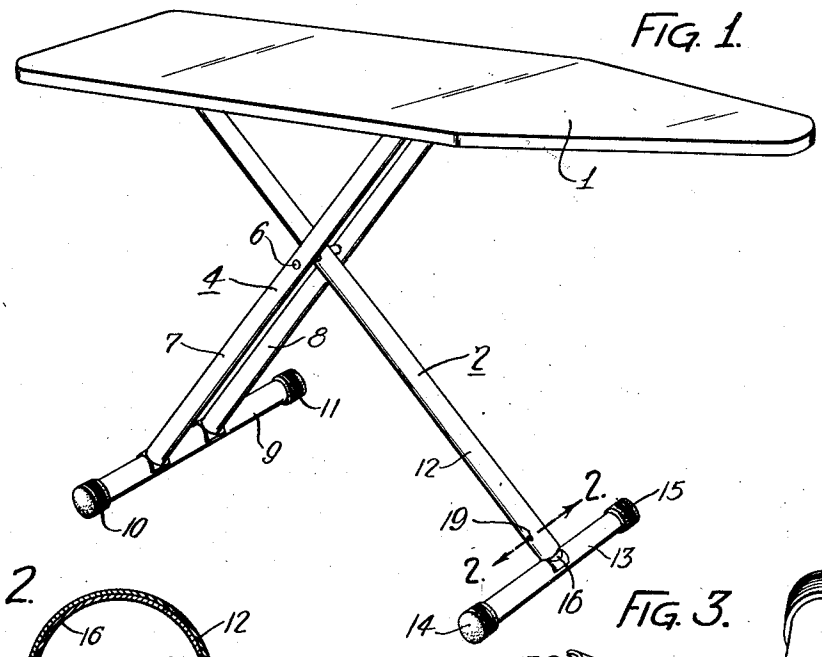


FIG. 2.

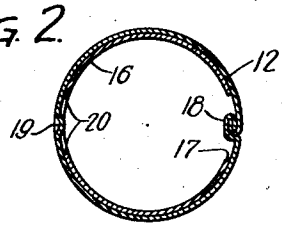


FIG. 3.

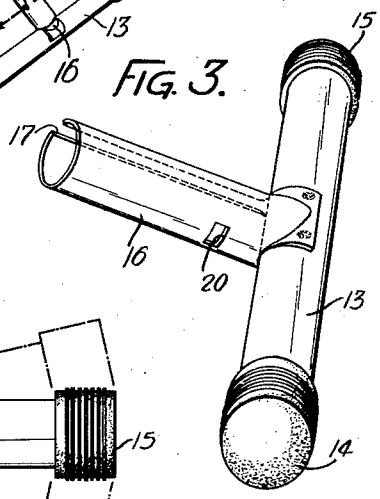


FIG. 4.

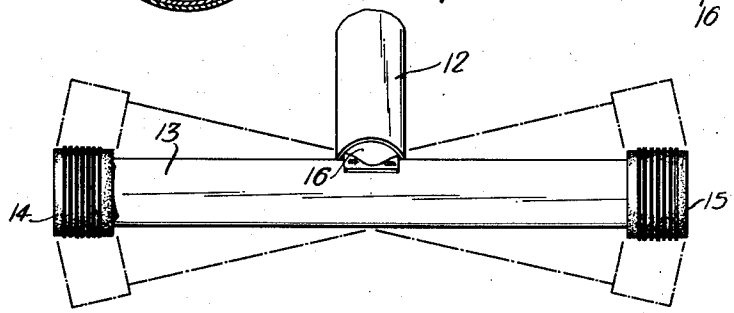
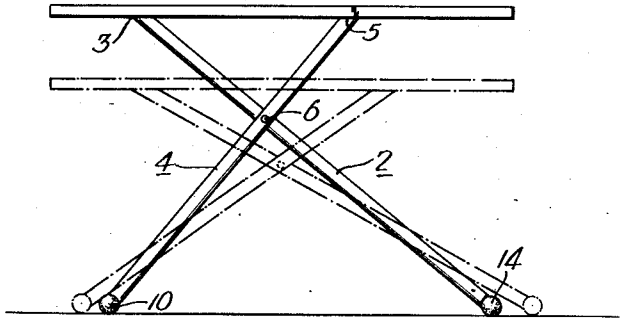


FIG. 5.



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Patented Mar. 20, 1951 2,546,097

UNITED STATES PATENT OFFICE

2,546,097

SELF-LEVELING SUPPORT FOR IRONING TABLES

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Application March 6, 1950, Serial No. 147,992

8 Claims. (Cl. 38—114)

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The present invention relates to ironing tables and the like, and more particularly to a novel support arrangement therefor.

The majority of ironing tables as now and heretofore include a three-point support. Because of the inherent ability of this type of support to align itself on an uneven surface, this arrangement permits the ironing table to be used on an uneven floor without the shakiness that would otherwise be present when used under such conditions. Ironing tables utilizing a three-point support, however, have a disadvantage in that they lack stability, for they can be easily tilted or upset if loaded outside of the area delineated by lines connecting the three points of support. While greater stability can be provided by utilizing a four-point support that delineates an area substantially covering the projected area of the ironing table top, such a support does not lend itself to use on an uneven floor without the attendant shakiness.

It is an object of this invention to provide a novel support arrangement having support members which delineate an area covered by a four-point support, and adapted for use on an uneven floor without the usual shakiness that results therefrom.

A further object of the present invention is to provide a novel support arrangement which is self-compensating for unevenness in the floor on which the support members rest.

Still another object is to provide a self-leveling support arrangement for an ironing table which is characterized by simplicity in design, ease of manufacture, and low cost.

Other objects and features of the invention will be apparent from the following detailed description of a preferred embodiment illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of an ironing table embodying the invention;

Figure 2 is a cross-sectional view taken along line 2—2 of Figure 1;

Figure 3 is a perspective view of the self-adjustable foot unit;

Figure 4 is a fragmentary perspective view showing the manner of self-adjustment of said foot unit; and

Figure 5 is a side elevational view, illustrating the adjustment of the ironing table to give different heights thereof.

The present invention is shown as embodied in an ironing table of the character disclosed and claimed in the H. E. Hortman copending application, Serial No. 155,435, filed April 12, 1950,

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and assigned to the assignee of this application. Briefly, the table includes a top 1 and a four-point support arrangement comprising a front support 2 with the self-leveling means incorporated therein, said support being hinged to the table top at 3, and a rear support 4 slidably mounted on the table top at 5 and pivotally connected to the front support at 6. Latch means (not visible) is provided for adjustment of the ironing table top to any desired height or for retracting the supports 2 and 4 so that the table can be stored. The table construction and the height adjustment do not form part of the present invention. If desired, reference may be made to the above-mentioned application for the details thereof.

The rear support 4 comprises two parallel tubular members 7 and 8 made preferably of steel tubing of the lock seam type, joined at the bottom to a tubular cross-member 9. Cylindrical foot members 10 and 11 made of rubber or other non-skid, non-marking material are placed over the ends of said cross-member, constituting two of the four points of support for the table.

The front support 2 comprises a single tubular member or leg 12 also of the tubular lock seam type, and a tubular cross-member 13 swivelly connected to the lower end of said leg. Rubber foot members 14 and 15 are disposed over the ends of the cross-member 13 to constitute the remaining two of the four points of support for the table. The swivel joint is shown in Figs. 2 to 4 to comprise a sleeve 16 fixed midway along the length of the cross member 13 and arranged for disposition inside of the tubular member 12. A slot 17 is provided in the sleeve 16 for cooperation with the seam 18 of tubular member 12 for limiting the angular motion of cross-member 13. The slot 17 also permits the sleeve to be made with an outer diameter greater than the inner diameter of tubular member 12 thus providing a controllable amount of frictional interference with said member when assembled therein. A lanced portion 19 is provided in tubular member 12 for cooperation with an aperture 20 in sleeve 16 to prevent removal of cross-member 13 after assembly with the tubular member 12.

The mode of operation of the self-leveling arrangement will be apparent from consideration of the possible movement of cross-member 13 when placed on an uneven floor, as shown in Fig. 4. If the cross-member 13 were rigidly fixed to tubular member 12 placement of the table upon an uneven floor would produce an unstable condition. With the device of the present invention the weight of the ironing table will usually be

sufficient to force the cross-member 13 to rotate about the axis of the tubular member 12 until the rubber feet 14 and 15 solidly engage the floor. If the table does not come down squarely at once on all four points of support, a slight rocking force applied to the top thereof will cause the cross-member 13 to align itself with the contour of the floor.

It has been found to be of importance to control the resistance of cross-member 13 to rotation about the axis of tubular member 12, for on the one hand it is desirable to have the ironing table compensate for unevenness in the floor with minimum effort on the part of the user, while on the other hand it is desirable that cross-member 13 should coact with the tubular member 12 so that in effect they act as a unit to give a rigid four-point support for the table. It has already been mentioned that some controlled resistance is introduced by the spring action of sleeve 16 inside of tubular member 12. As opposed to this type of resistance, which is present regardless of the disposition of the ironing table, there is a resistance to rotation which comes into effect when the board is actually being used, namely, that offered by the snubbing action of the rubber feet 14 and 15 at the ends of cross-member 13 and by the friction effected by the angular disposition, with respect to the floor, of the sleeve 16 and the portion of the tubular member 12 in which it is disposed. The angular position for obtaining the optimum value of this latter frictional force was found to lie somewhere between a horizontal position, where the cross-member rotated too freely, and an almost vertical position where the resistance to angular motion became so excessive that the self-leveling action could no longer be effected by mere motion of the table top. In the present application of this invention to an adjustable height ironing table, the angle between the sleeve 16 and the floor in the lowest position is approximately 29 degrees while in the highest position this angle is approximately 43 degrees.

It will be apparent that the projected area of the cross-members 9 and 13 decreases as the table height increases thereby resulting in a corresponding decrease in the stability of the table. This is in part offset by the fact that the resistance to rotation of the sleeve 16 within the tubular member 12 increases with an increase of angle between the sleeve and the floor. The choice of the particular angles mentioned above with the proper amount of friction provided thereby permits a straight tube to be used for member 12 of the front support, thus providing a substantially flat assembly of the support members 2 and 4 when the table is in its retracted position.

While a preferred form of the invention has been illustrated and described, it will be apparent that various modifications thereof are possible without departing from the scope of the invention.

I claim:

1. An ironing table comprising a table top, a first support connected to said top and constructed to provide two points of support rigidly interconnected and maintained parallel to the plane of the table top when the latter is in its operative position, a second support connected to said table top and having its lower end portion disposed at an acute angle to a supporting surface when the table is in its operative position, a foot member providing two points of support rigidly interconnected transversely of said second support, and means connecting said foot member to said lower end portion of said second support for swivel movement of said foot member about an axis extending lengthwise of the lower end portion of said second support, whereby said foot member upon engaging the supporting surface can adjust itself to any unevenness therein by movement of its points of support out of parallel relation with respect to the plane of the table top.

2. An ironing table comprising a table top, a first support connected to said top and constructed to provide two points of support rigidly interconnected and maintained parallel to the plane of the table top when the latter is in its operative position, a second support connected to said table top and having its lower end portion disposed at an acute angle to a supporting surface when the table is in its operative position, a foot member providing two points of support rigidly interconnected transversely of said second support, and connecting means on said foot member telescopically engaged with the lower end portion of said support member to enable swivel movement of said foot member about an axis extending lengthwise of the lower end portion of said second support, whereby said foot member upon engaging the supporting surface can adjust itself to any unevenness therein by movement of its points of support out of parallel relation with respect to the plane of the table top.

3. An ironing table comprising a table top, a first support connected to said top and constructed to provide two points of support rigidly interconnected and maintained parallel to the plane of the table top when the latter is in its operative position, a second support connected to said table top and comprising an elongate tubular member disposed at an acute angle to a supporting surface when the table is in its operative position, and a T-shaped foot member providing two points of support rigidly interconnected transversely of said tubular member, said T-shaped foot member being swivelly mounted at the lower end of said tubular member for swivel movement about the longitudinal axis of said tubular member, whereby said foot member upon engaging the support surface can adjust itself to any unevenness therein by movement of its points of support out of parallel relation with respect to the plane of the table top.

4. An ironing table comprising a table top, a first support pivotally connected to said top and constructed to provide two points of support rigidly interconnected and maintained parallel to the plane of the table top when the latter is in its operative position, a second support pivotally connected to said table top and having its lower end portion disposed at an acute angle to a supporting surface when the table is in its operative position, said supports being pivotally interconnected intermediate their ends and being in crossed relation to each other when the table is in operative position, the pivotal connection between one support and said table top being adjustable to provide for adjustment of the height of the table when in use, a foot member providing two points of support rigidly interconnected transversely of said second support, and means connecting said foot member to said lower end portion of said second support for swivel movement of said foot member about an axis extending lengthwise of the lower end portion of said sec-

ond support, whereby said foot member upon engaging the supporting surface can adjust itself to any unevenness therein by movement of its points of support out of parallel relation with respect to the plane of the table top.

5. An ironing table comprising a table top, a first support connected to said top and constructed to provide two points of support rigidly interconnected and maintained parallel to the plane of the table top when the latter is in its operative position, a second support connected to said table top and having its lower end portion disposed at an acute angle to a supporting surface when the table is in its operative position, a foot member providing two points of support rigidly interconnected transversely of said second support, means connecting said foot member to said lower end portion of said second support for swivel movement of said foot member about an axis extending lengthwise of the lower end portion of said second support, whereby said foot member upon engaging the supporting surface can adjust itself to any unevenness therein by movement of its points of support out of parallel relation with respect to the plane of the table top, and friction means associated with said swivelly-mounted foot member to prevent free rotation thereof and to increase the stability of the table.

6. An ironing table comprising a table top, a first support connected to said top and constructed to provide two points of support rigidly interconnected and maintained parallel to the plane of the table top when the latter is in its operative position, a second support connected to said table top and having its lower end portion disposed at an acute angle to a supporting surface when the table is in its operative position, a foot member providing two points of support rigidly interconnected transversely of said second support, means connecting said foot member to said lower end portion of said second support for swivel movement of said foot member about an axis extending lengthwise of the lower end portion of said second support, whereby said foot member upon engaging the supporting surface can adjust itself to any unevenness therein by movement of its points of support out of parallel relation with respect to the plane of the table top, and rubber floor-engaging elements at the ends of said foot member preventing free rotation thereof and increasing the stability of the table.

7. An ironing table comprising a table top, a first support connected to said top and constructed to provide two points of support rigidly interconnected and maintained parallel to the plane of the table top when the latter is in its

operative position, a second support connected to said table top and having its lower end portion disposed at an acute angle to a supporting surface when the table is in its operative position, a foot member providing two points of support rigidly interconnected transversely of said second support, and connecting means on said foot member telescopically and frictionally engaged with the lower end portion of said support member to enable frictionally-restrained swivel movement of said foot member about an axis extending lengthwise of the lower end portion of said second support, whereby said foot member upon engaging the supporting surface can adjust itself to any unevenness therein by movement of its points of support out of parallel relation with respect to the plane of the table top.

8. An ironing table comprising a table top, a first support connected to said top and constructed to provide two points of support rigidly interconnected and maintained parallel to the plane of the table top when the latter is in its operative position, a second support connected to said table top and having its lower end portion disposed at an acute angle to a supporting surface when the table is in its operative position, the lower end portion of said second member being hollow, a foot member providing two points of support rigidly interconnected transversely of said second support, a sleeve extending from said foot member within the hollow lower end portion of said second member to enable swivel movement of said foot member about an axis extending lengthwise of said end portion, whereby said foot member upon engaging the supporting surface can adjust itself to any unevenness therein by movement of its points of support out of parallel relation with respect to the plane of the table top, said sleeve having a lengthwise slot therein and having a larger free diameter than the effective inner diameter of said hollow end portion, and means on said end portion coacting with said sleeve to prevent removal and to limit rotation thereof.

HENRY F. HILD.

REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
1,359,527	Reed	Nov. 23, 1920

FOREIGN PATENTS

Number	Country	Date
372,850	Great Britain	May 19, 1932