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F. J. WALSH ETAL

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TRAY TABLES

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Fig. 1.

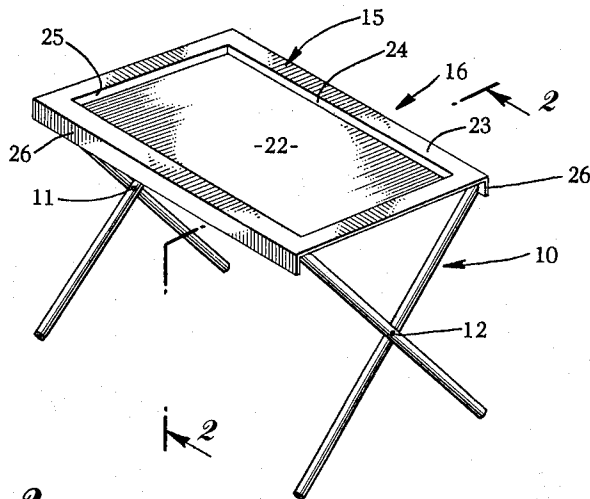


Fig. 2.

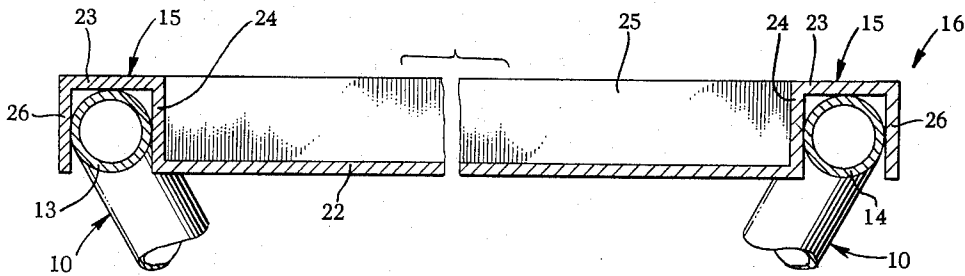


Fig. 3.

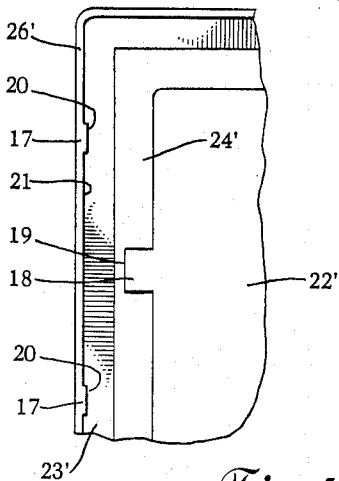
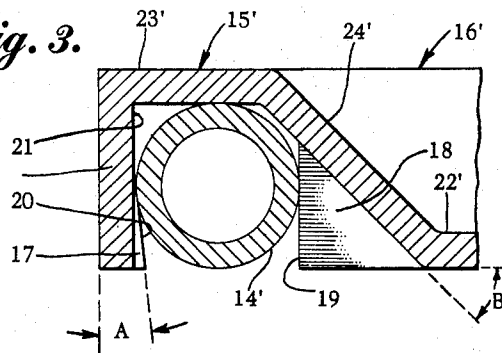


Fig. 4.

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TRAY TABLES

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This invention relates to collapsible tables and more particularly to a device called a tray table including a tray and a set of collapsible legs to support the tray.

In the past, the tray of a tray table has been fixed detachably to a set of collapsible legs by the use of spring clips. The use of these clips or their manufacture and assembly has required the expenditure of substantial time and effort. Still further, the cost of the material for them and their appearance both have detracted from the desirability for their use.

The device of the present invention overcomes the above described and other disadvantages of the prior art by providing a tray table including a pair of inverted U-shaped scissors legs having horizontal bite portions at their upper ends, a tray having an inverted U-shaped channel extending along each of two opposite sides fitted over corresponding bite portions of the scissors legs.

Thus, the embodiment of the U-shaped channels obviates the necessity for the spring clip required by the prior art. In this event, substantial time may be saved in the assembly and use of the device of the invention. In addition, the elimination of the spring clip altogether has much improved the appearance of tray tables made in accordance with the present invention.

In accordance with an outstanding feature of the invention, the tray and channels are molded in one integral piece of plastic, such as fiber glass. The outer leg of each of the channels is then molded with a draft such that it extends downwardly toward the inner leg to fit snugly around the bite portions of a pair of scissors legs.

According to another feature of the present invention, the snug fit of the channels on the scissors legs is controlled in production by molding a plurality of lugs onto at least one of the facing surfaces of the legs in each channel. In other words, the lugs make the tightness of the fit of the channels on the bite portions of the scissors legs substantially insensitive to small changes in the degree of draft in the outer leg of each of the channels. On the other hand, such sensitivity would otherwise exist. Control of such sensitivity in production is generally practically impossible.

The above described and other advantages of the present invention will be better understood when considered from the following description when considered in connection with the accompanying drawings. In the drawings which are to be regarded as merely illustrative:

FIG. 1 is a perspective view of a tray table made in accordance with the present invention;

FIG. 2 is a sectional view of the table taken on the line 2-2 shown in FIG. 1;

FIG. 3 is a sectional view of a channel for a tray employed in still another embodiment of the present invention; and

FIG. 4 is a broken away bottom plan view of the tray shown in FIG. 3.

The present invention involves the use of a pair of conventional tubular scissors legs 10, shown in FIG. 1, for a collapsible tray table or TV table. Legs 10 are of an inverted U-shape, of equal lengths and of the type illustrated in U.S. Patent No. 2,676,709, issued April 27, 1954, to Francis J. Walsh. They are pivoted at 11 and 12 with respect to each other. Scissors legs 10 are provided with bite portions at 13 and 14 as indicated in FIG. 2, around which longitudinal troughs or inverted chan-

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nels 15 of a glass fiber tray 16 are wrapped. Channels 15 fit snugly on bite portions 13 and 14 of scissors legs 10 for stability.

Channel 15' of a glass fiber tray 16' is shown in FIG. 3. The snug fit of channel 15' on a bite portion of a pair of scissors legs is provided by plastic lugs at 17 and 18. A plurality of lugs 17 and 18 may be employed along the length of the channel 15'. Lugs 17 may be 1/2-inch in length and spaced from each other on 3-inch centers. Lugs 18 may have a like dimension and be spaced the same distances apart. In the tray 16' lugs 17 and 18 are not disposed opposite each other, but lugs 18 are disposed along channel 15' of tray 16' midway between lugs 17. Both lugs 17 and 18 are wedged shaped. Lugs 18 have surfaces 19 which are substantially vertical. Lugs 17 have surfaces 20 which are disposed at a small angle A relative to the vertical.

It will be noted that lugs 18 are necessary due to the angular disposition of a portion of the tray represented by the angle B. The necessity of lugs 17 is due to the fact that it is not possible to control the angle A with considerable accuracy and that it is undesirable to have a surface of channel 15' indicated at 21 disposed at such an angle to contact a bite portion of a pair of scissors legs along its entire length. In other words, without the use of spaced lugs 17, it is impossible to control with good accuracy the snugness of the fit of channel 15' on a bite portion of a pair of scissors legs.

For purposes of definition herein, a still more specific description of the embodiments of the invention illustrated in the drawing is made hereinafter. In particular, note will be taken that trays 16 and 16' are provided with substantially flat bottom portions 22 and 22' respectively connected to top portions 23 and 23' respectively by side panels 24 and 24'. Bottom panel 22 is also connected to the top panel 23 by end panels 25, no corresponding end panel being shown in the tray 16'.

Another way to describe the shape of trays 16 and 16' is that each includes a rectangular tray having an approximately rectangular depression therein, the bottom of the depression being the upper surface of bottom panels 22 and 22'.

Note will be taken that it is a feature of the invention that the sides 24 and 24' of the corresponding trays not only serve as a leg retaining construction, but also as upwardly inclined side, which upward inclination is normally desirable in a tray in the event a liquid is spilled thereon. Still another way trays 16 and 16' may be described is that the entire structure shown in FIGS. 2 and 3, with the exception of bite portion 14 and 14' of scissors legs 10, includes the tray with the exception of a flange at 26 which is the outer of the two legs of each of the panels.

Although, as explained previously, a surface 20 of lugs 17 may be inclined at the angle A with respect to the vertical, flange 26' of tray 16' may also be likewise inclined.

From the foregoing, it will be appreciated that the embodiment of the inverted U-shaped channels 15 and 15' obviate the necessity for any spring clips required in accordance with prior art tray tables. In this respect, substantial time and effort may be saved in the assembly and use of a tray table constructed in accordance with the present invention. Still further, not only is the expense of spring clips avoided, but the trays 16 and 16' may be used independently of scissors legs, their appearance not otherwise being affected by the means for attachment thereof to scissors legs 10.

Still further, the use of the spaced lugs 17 or 19 makes the tightness of the fit of channel 15' on bite portions 13 and 14 of scissors legs 10 substantially insensitive to small changes in the degree of draft of the outer legs or flanges 26', the same such sensitivity otherwise existing. The lugs 17 or 19 thus obviate a high reject rate which other-

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wise would accompany such sensitivity because such sensitivity is extremely high and quality control of degree of draft is physically impossible except over a relatively large range of angles.

Only two specific embodiments of the invention have been shown and described. Many changes and modifications of the invention will of course suggest themselves to those skilled in the art; however, the embodiments of the invention illustrated for disclosure herein are not to be construed as defining the limits of the invention since such selection has been merely for the purpose of illustration, the true scope of the invention being defined only in the appended claims.

What is claimed is:

1. A tray table comprising: a pair of inverted U-shaped scissors legs having horizontal bite portions at their upper ends; an approximately rectangular tray having an approximately rectangular depression therein, said tray thus having a bottom panel and a top panel integrally connected with opposite pairs of side and end panels; a flange extending downwardly from each top panel in spaced relation to a corresponding side panel, bite portions of said scissors legs being disposed in the space between said flanges and said side panel, each of said side panels being inclined downwardly away from each corresponding flange; and a plurality of longitudinally spaced lugs having approximately vertical surfaces, said lugs being fixed to the underside of said side panels in a position such that said vertical surfaces bear against the bite portions of said scissors legs.

2. A tray table comprising: a pair of inverted U-shaped scissors legs having horizontal bite portions at their upper ends; an approximately rectangular tray having an approximately rectangular depression therein, said tray thus having a bottom panel and a top panel integrally connected with opposite pairs of side and end panels; a flange extending downwardly from each top panel in spaced relation to a corresponding side panel, bite portions of said scissors legs being disposed in the space between said flanges and said side panel, each of said side panels being inclined downwardly away from each corresponding flange; a plurality of longitudinally spaced lugs fixed to the inside surface of each of said flanges; and a plurality of longitudinally spaced lugs having approximately vertical surfaces, said lugs being fixed to the underside of said side panels in a position such that said vertical surfaces bear against the bite portions of said scissors legs.

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3. A tray table comprising: a pair of inverted U-shaped scissors legs having horizontal bite portions at their upper ends; an approximately rectangular tray having an approximately rectangular depression therein, said tray thus having a bottom panel and a top panel integrally connected with opposite pair of side and end panels; a flange extending downwardly from each top panel in spaced relation to a corresponding side panel, bite portions of said scissors legs being disposed in the space between said flanges and said side panel, each of said side panels being inclined downwardly away from each corresponding flange; a plurality of longitudinally spaced flange lugs fixed to the inside surface of each of said flanges; and a plurality of longitudinally spaced side panel lugs having approximately vertical surfaces, said side panel lugs being fixed to the underside of said side panels in a position such that said vertical surfaces bear against the bite portions of said scissors legs, said side panel lugs being disposed between said flange lugs along the length of the tray.

4. A tray table comprising: a pair of inverted U-shaped scissors legs having horizontal bite portions at their upper ends; an approximately rectangular tray having an approximately rectangular depression therein, said tray thus having a bottom panel and a top panel integrally connected with opposite pairs of side and end panels; a flange extending downwardly from each top panel in spaced relation to a corresponding side panel, bite portions of said scissors legs being disposed in the space between said flanges and said side panel, each of said side panels being inclined downwardly away from each corresponding flange; and a plurality of longitudinally spaced lugs fixed to the inside surface of each of said flanges, each of said flanges being inclined downwardly toward each corresponding side panel to fit snugly around the bite portions of said scissors legs, all of the component parts of said tray being made of a plastic material and molded in one piece, all of said lugs being made of plastic and molded integrally with said tray.

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