Feb. 24, 1953 C. WHALLON 2,629,642

EXTENSION TABLE STABILIZER

Filed July 13, 1951

FIG. 1.

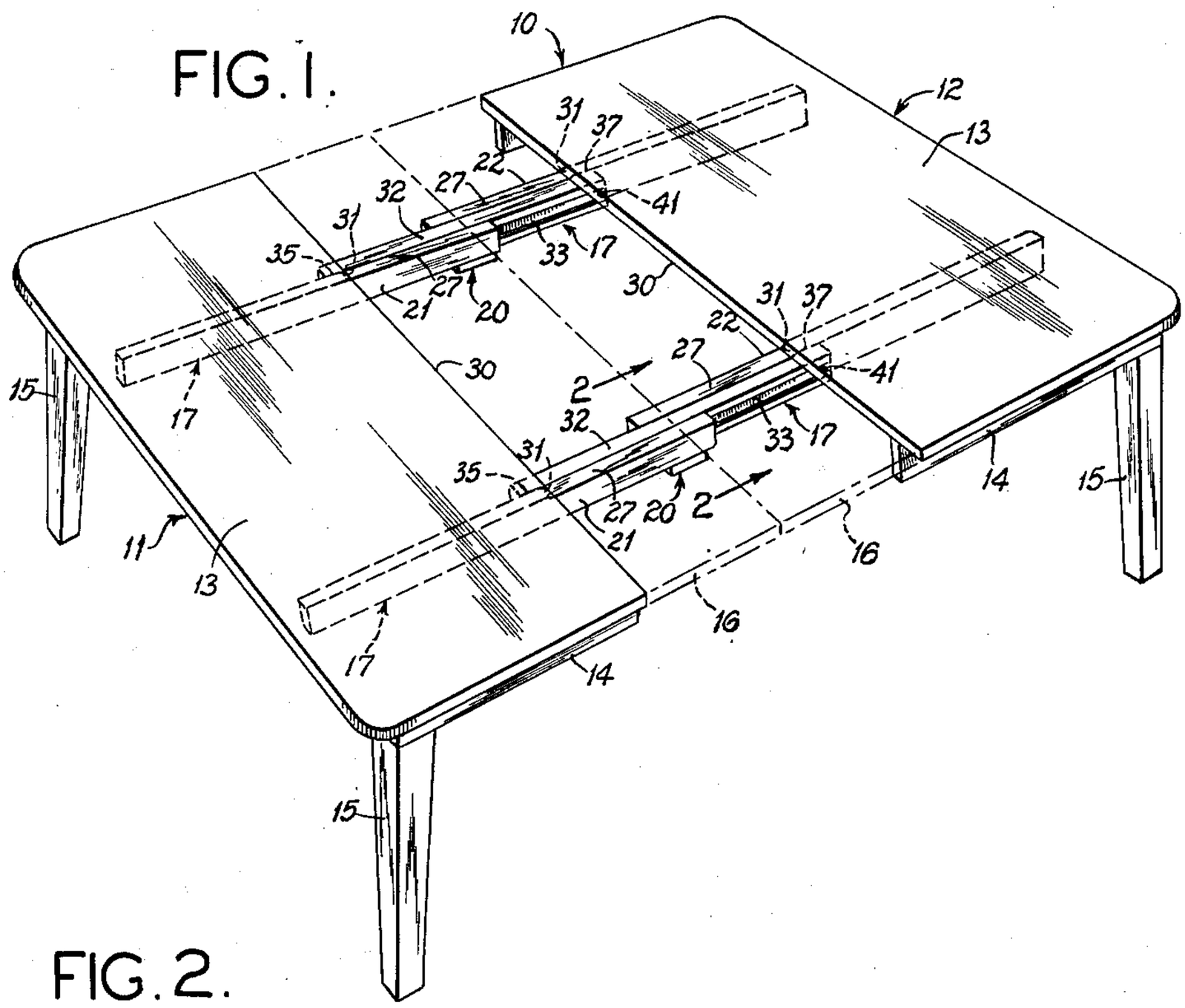


FIG. 2.

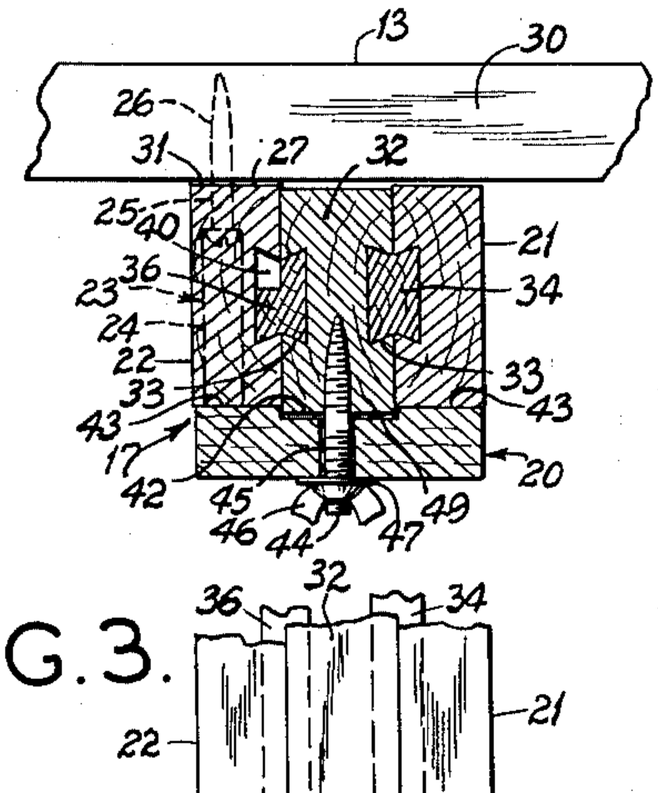


FIG. 3.

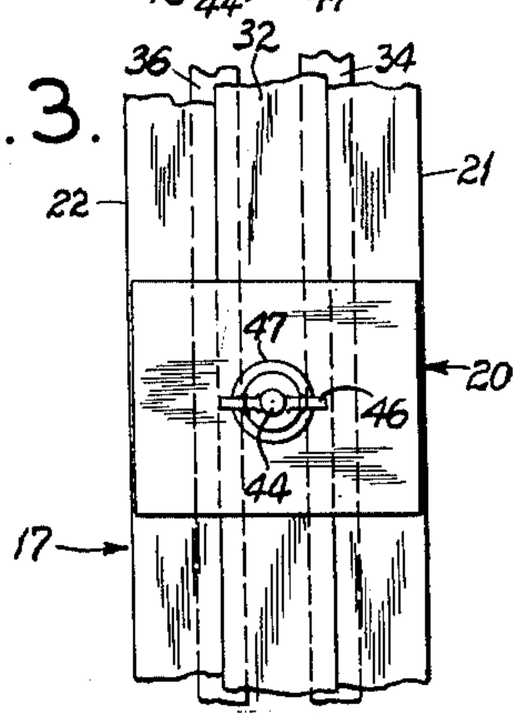


FIG. 4.

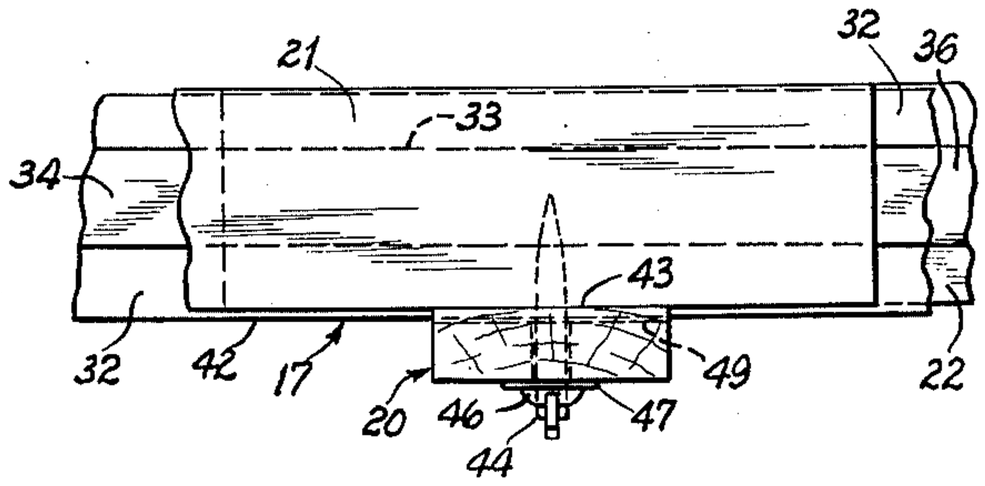
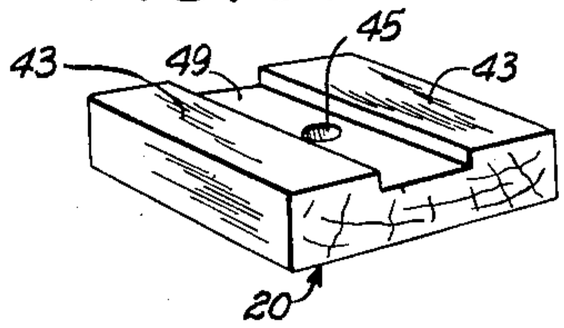


FIG. 5.



INVENTOR,
CURTIS WHALLON
BY Terry & Cohn
ATTORNEYS.

UNITED STATES PATENT OFFICE

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EXTENSION TABLE STABILIZER

Curtis Whallon, Richmond Heights, Mo., assignor to Meier and Pohlmann Furniture Company, St. Louis, Mo., a corporation of Missouri

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2 Claims. (Cl. 311—70)

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This invention relates to improvements in extension table stabilizers, and more particularly to improvements in a device of this character which enable the extension slide elements to be clamped in rigid relation at any desired point in the extension range, with the elimination of all undesirable instability between adjacent slidable working parts.

In the operation of slidable guiding provisions, particularly those adapted for use in extension type tables including separable table ends, there has been accepted as inevitable, certain undesirable irregularities due to extreme yet necessary clearances between adjacent slidable parts, specifically a definite rocking and shifting effect caused by the looseness of fit between the slidably connected components. The fact that wood is the material customarily used and is demanded by the trade in the construction of dining tables and the like in the interests of ease and economy of manufacture, is the factor more importantly contributing to this operational difficulty. The use of wood necessitates sufficient spacing of the slidably coacting parts to facilitate quick and easy longitudinal extension thereof, under all conditions. Hence it is apparent, that when an aligning device of this character is utilized to interconnect the end assemblies of an extension table, there will usually of necessity be permitted a slight shifting and wobbling of the respective end assemblies, which if only existent to a small extent, will destroy the alignment of the extension table halves incident to insertion of one or more intervening table leaves. Of course, if the table were of a type providing a hinged drop leaf, the objectionable effect and disadvantages of endwise displacement becomes even more pronounced.

These difficulties are overcome by the subject stabilizing device which is adapted for use on extension tables, and particularly those of a type having the end portions thereof guidedly movable toward and from each other, incident to selective insertion and removal of a table leaf or leaves. The assembly which accomplishes this important objective consists of a pair of drop rails arranged in parallel horizontally spaced, normally overlapping relation, each such rail being carried respectively by one of the extension table halves, and a floating rail carried between

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and slidably engaged by the drop rails, together with a screw-actuated clamp plate so located as to be movable into clamping engagement with the drop rails, thus selectively locking the adjacent rails rigidly together as a unit, in any desired extended or retracted position of the table ends or halves.

Another important objective is realized by the inclusion of a floating rail that is guidedly movable and carried between the drop rails, and which is provided with a lower portion vertically spaced from the adjacent lower surfaces of the coacting drop rails, and a screw-actuated clamping plate provided with staggered planar surfaces, the medial longitudinal face portion of the clamp plate being vertically spaced with respect to the adjacent lateral faces. The staggered planar formation of the clamp plate operatively coacts with the conforming drop and floating rail upon actuation of the tightening screw, to secure the rail members as a rigid unit, hence eliminating any tendencies to unwanted separation or approach of the table ends, serving at the same time to relate the adjacent slidable parts to each other so that they become, functionally, a single, unitary sill supporting the table top.

A still further and important object of the present invention, is realized by a novel channeled formation provided on the clamping plate bearing face, in which the vertical position of the central longitudinally arranged face portion is other than that of the adjacent rail face. Actuation of the locking means operatively interconnecting the floating rail with the subjacent clamp plate, effectively urges the lateral clamp faces upwardly into friction-gripping contact with the drop rails. In addition to the effect of securely locking the aligning elements in the desired extended position, and obviating any wobble, cocking or sliding movement of the rail members, the effect of the clamp plate in urging the drop rails upwardly, tends to eliminate vertical sag, thus maintaining the rails in substantially true horizontal alignment.

The foregoing and numerous other objects of the invention will more clearly appear from the following detailed description of a preferred embodiment, particularly when considered in con-

nection with the accompanying drawing, in which:

Fig. 1 is a perspective view of a pair of the novel stabilizing devices assembled for use with an extension-type table;

Fig. 2 is an enlarged sectional view of one assembly of aligning rails and the stabilizer therefor, as taken along line 2—2 of Fig. 1;

Fig. 3 is a fragmentary bottom plan view of the clamp plate and coacting adjacent parts;

Fig. 4 is a side elevational view of the stabilizing device and coacting slide rails as shown in Fig. 3, and

Fig. 5 is a perspective view of the clamping plate.

Referring now by characters of reference to the drawing, the table generally indicated at 10 and shown in Fig. 1, is or may be of the usual extension type except for present improvements, consisting of extension table halves or ends 11 and 12, arranged to be guidedly movable while kept in approximate alignment, toward and from one another, each half portion being comprised of a planar table top 13, depending elements such as aprons 14 carried by the top portion and arranged in spaced relation inwardly of the outer margin thereof, and leg elements 15 secured to the corner portions of the extension halves. Fig. 1 shows the table 10 in its fully extended position with the intervening gap being such as to receive and retain two table leaves or extension panels indicated at 16 by the dotted lines.

The table 10 is equipped with a pair of aligning and stabilizing devices, generally designated at 17 and fully described subsequently, these being dependingly carried by the table top 13 and disposed in parallel, horizontally spaced relation. Of course, it is obvious that a plurality of these stabilizers may be assembled for use with any particular table structure, in accordance with the degree of rigidity and supporting strength required. However, without intending to limit the number of stabilizers used in any particular assembly, for most all practical purposes, two of the devices will be sufficient, as shown in Fig. 1. It is also of distinct advantage that these units be constructed in such manner, as later described, as to limit the range of extension, and to guide and direct the movable table halves incident to insertion or removal of the table leaves 16.

Due to the simplicity of construction and resulting ease and economy of manufacture, it is a preference and usual practice in the furniture trade to manufacture the units 17 of wood. However, many inherent difficulties arise when wood is used for the construction, because the necessarily relatively large clearance between the slidably connected component parts will inevitably result in a shifting and wobbling effect, more noticeable as the table is increasingly extended. The presently described stabilizing device eliminates these undesirable tendencies, which adversely affect the unitary rigidity of the table in all operative positions of use, due to added facilities that securely lock the slidable parts in all respects upon actuation of a screw-operated clamp plate, indicated generally at 20, and later referred to.

Although two of the novel units 17 are shown assembled in Fig. 1, a detailed description of one of these devices will be sufficient for completeness and clarity, since both units are or may be identical in construction and function. Each consists of a pair of elongate drop rails 21 and 22 of substantially rectangular cross-section as

shown in Fig. 2, disposed in parallel horizontally spaced, normally endwise overlapping relation, one drop rail such as 21, being carried by one table end 13, and the other rail 22 held captive by the opposite table end. The outer end portion of each drop rail is provided with a plurality of regularly spaced bores 23 extending depthwise through the rails, each bore being formed for the greater portion 24 of its length, from the rail's lower face, of a uniform, relatively large diameter. The remaining bore length 25 is of smaller diameter, and emerges through the upper drop rail surface. A screw 26 is inserted in each such bore, the screw being provided with a head which substantially conforms to the diametral dimension of the larger chamber 24, and a threaded screw shank which conforms to the smaller bore portion 25 and projects therefrom for threaded reception by the table top.

It is also to be noted from Fig. 1, that the upper surface of each drop rail provides a planar face 27 on that portion of the rail that extends beyond the abutting marginal edge 30 of its respective extension table half, which face is slightly lower than that portion of the surface secured to the top panel 13. A rounded portion 31 connects these planar surfaces, and in assembly, is located approximately adjacent the top panel margin 30. The purpose of the slight undercut face portion 27 is to permit sliding actuation of the table ends without subjecting the horizontal top panel 13 to any disfigurement.

An elongate floating or middle rail 32, of substantially rectangular cross-section, is disposed between the drop rails 21 and 22 and slidably carried thereby, the lateral faces of the intervening floating rail being contiguous to and slidably engageable with the adjacent bearing faces of the drop rails. These bearing surfaces of the drop and floating rails are provided with straight dovetail or mortise channels 33, which normally lie in register and extend longitudinally of the rails. As viewed in Figs. 1 and 2, the floating rail 32 is provided with a double dovetailed guide rib or tenon, generally indicated at 34, secured to the outermost portion 35 of the mortise as with a cementitious substance, the rib slidably coacting in the conforming mortise of the left hand drop rail 21 (Fig. 1). A similar guide rib is cemented to the outermost or diagonally opposed portion 36 of the other dovetailed channel of the floating rail, and which is slidably positioned in the channel of the right hand drop rail 22 (Fig. 1). Similar lengths of guide ribs are secured to the inner end portion 37 of each drop rail, and slidably engage the channelled floating or middle rail. The configuration of the ribs or tenons 34 is best shown in the cross-sectional view of Fig. 2.

Disposed in adjacent channels and lying between the end lengths of guide rib 34 cemented to the rail members 21, 22 and 32, are stop elements (not shown) composed of short lengths of wood of substantially rectangular cross-section. These stop elements are slidably movable in each of their respective channelled portions, and coact in cooperation with the guide ribs to limit the relative extension movement of the rail assembly and maintain overlapping relation of the drop rails 21 and 22 at all times. In addition to these internal stops which determine the fully extended position, there are two pin stop members which limit the closing or other extreme position of the rails. As shown in Fig. 2, the end portion of each tenon 34 secured to the drop rails is provided with a small recessed region 40 that re-

ceives a pin member located at 41 (Fig. 1) horizontally disposed in the upper outermost end region of the floating rail mortise groove.

When the unit 17 as thus far described is assembled as shown in Fig. 1, the parts of the device will slidably operate with guiding and aligning effect when moving the extension table halves 11 and 12 to any adjusted position within the extension range, the range being dependent upon the relative longitudinal dimensions of the rails, guide tenons and internal stops. However, all of the previously stated difficulties and disadvantages will be present, even though the component parts are constructed with as close a tolerance as possible in wood working, and yet have complete ease of sliding action under all usual atmospheric conditions, even though the sliding parts may be greased or soaped for easier operation.

By reason of this exaggerated clearance between the rails, the clamp plate 20 is provided, which obviates all of these undesirable characteristics and attains completely satisfactory operation and perfect stability when the table is in use. The construction and configuration of the plate 20 is best shown in Figs. 2 and 5 as having a substantially rectangular cross-section, the width thereof being approximately and preferably equal to the combined width of the rails 21, 22 and 32 as viewed in Fig. 2. The upper face of the clamp plate 20 is provided with a medial right angular groove or channel 49, the width of the groove being sufficient to accommodate the lower projecting portion 42 of the floating or middle rail 32. It is apparent from Figs. 2 and 4 that the floating rail is located between the coacting drop rails 21 and 22, in such manner as to permit the lower longitudinal portion 42 (see Fig. 4) to extend beyond the adjoining lower surfaces of the drop rails. Thus the configuration of the top clamp surface is such as to provide two coplanar lateral faces 43 which normally abut the lower planar faces of the drop rails, while the vertically spaced intervening groove 49 embraces the floating rail. It is particularly important that the depth of the plate groove 41 be slightly greater than the vertical dimension of the projecting portion 42 of the middle rail. In other words, it is a preference that the rail 32 and plate 20 afford a spacing between the center or floating rail and the lower face of groove 41 at all times.

A hanger bolt 44 secures the clamp plate 20 subjacent to the rail assembly, the bolt being of well known type and provided with wood threads at one end thereof, and with machine screw threads at the opposite end. Through the wood screw end, the bolt 44 is threadedly secured in depending relation to the floating rail 32 at its approximate midpoint. The lower portion of the hanger bolt projects through a centrally located aperture 45 in the clamping plate, and is threadedly engaged by a wing nut 46 and plate-abutting washer 47. Actuation of the bolt and nut arrangement moves the clamp plate 20 into clamping engagement with the drop rails.

It is thought that the operation of the screw-actuated clamp plate 20 has now become fully apparent, but for completeness and further clarity, it should be noted that, subsequent to extension of the table and insertion of the desired number of table leaves, the wing nut 46 is tightened on the hanger bolt 44, hence urging the raised lateral plate faces 43 into effective clamping engagement with the drop rails 21 and 22.

Thus it is obvious that the drop rails are urged upwardly with respect to the floating rail 32 carried therebetween. This operation results in the dovetailed channels 33 and conforming guide ribs 34, 36, being forced into friction-gripping contact, locking the respective rail members securely in the extended position, and eliminating all looseness, shifting and wobbling effects. Of course, upon release of the wing nut, the clamping pressure exerted upon the drop rails by the plate 20, is alleviated, and hence frees the rail members for subsequent sliding operation.

Although the invention has been described by making detailed reference to a single preferred embodiment, such detail is to be understood in an instructive, rather than in any restrictive sense, many variants being possible within the scope of the claims hereunto appended.

I claim as my invention:

1. A stabilizing device for use in an extension table, said device comprised of a pair of spaced parallel drop rails, a floating rail carried between and slidably related to the drop rails, means providing a slidable tongue-and-groove type of operative connection between the floating rail and each of said drop rails, the floating rail having a lower depending portion which extends below the lower surfaces of the drop rails, a threaded element fixed to the floating rail, a clamp plate having an aperture through which said threaded element extends, and a second threaded element received by the first said threaded element exteriorly of the clamp plate, the clamp plate being provided with a substantially medial channel and adjacent lateral clamping faces that normally underlie the drop rails, said channel being of a width to accommodate the said depending portion of the floating rail, and being of a depth which exceeds the extent of downward projection of the depending portion of the floating rail below the said drop rails, whereby as the second said threaded element is threaded upon the first said threaded element to bring the lateral clamping faces of the clamp plate into clamping relation to the drop rails, the clamp plate is precluded from clamping abutment with the floating rail in any position of the clamp plate.

2. A stabilizer for an extension table comprising a pair of wood drop rails disposed in parallel horizontally spaced relation, and normally retained in an overlapping position, a floating wood rail carried between and slidably related to the drop rails, said floating and drop rails being of substantially rectangular cross section and having adjacent lateral faces, said adjacent lateral faces being provided with straight dovetailed channels which normally lie in register and extend longitudinally of the rails, a double dovetailed guide rib secured in the dovetailed channel of one said lateral face and slidably carried in the registering dovetailed channel of the adjacent lateral face, the floating rail having a lower depending portion which extends below the lower planar faces of the drop rails, a bolt fixed to a substantially intermediate portion of the floating rail, a clamp plate provided with a central aperture through which the bolt extends, and a nut threadedly engaging the projecting portion of the bolt, the clamp plate being formed to provide two co-planar lateral clamping faces which normally abut the lower planar faces of the drop rails, and to provide a vertically spaced intervening plate channel which normally embraces the floating rail, said plate channel being of a width suf-

ficient to accommodate the depending portion of the floating rail, and being of a depth greater than the vertical dimension of the depending portion of said floating rail, whereby as the nut is threaded upon the bolt to bring the lateral clamping faces of the plate into clamping relation with the drop rails, the clamp plate is precluded from clamping abutment with the floating rail in any position of the clamp plate, and the dovetailed channels and guide ribs are forced into friction-gripping contact.

CURTIS WHALLON.

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