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Griffin

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[54] **TABLE ALIGNING AND LOCKING DEVICE**

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[51] **Int. Cl.** **A47b**

[58] **Field of Search** 108/89, 83, 86, 90, 64, 108/65, 88; 292/251

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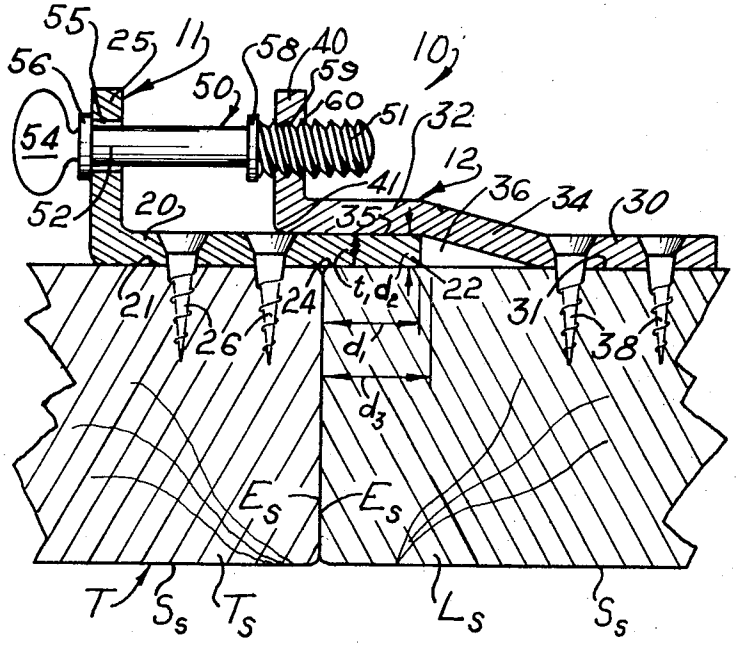
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[57] **ABSTRACT**

An alignment and locking device for a table having separable sections including a male member attached to one of the opposed sections adjacent its abutting edge and a female member attached to the other of the opposed sections adjacent its abutting edge in alignment with the male member so that as the sections are moved toward each other the male and female members interact to align the table sections. A locking member interconnects the male and female members to force them together and force the edges into abutting engagement.

6 Claims, 6 Drawing Figures



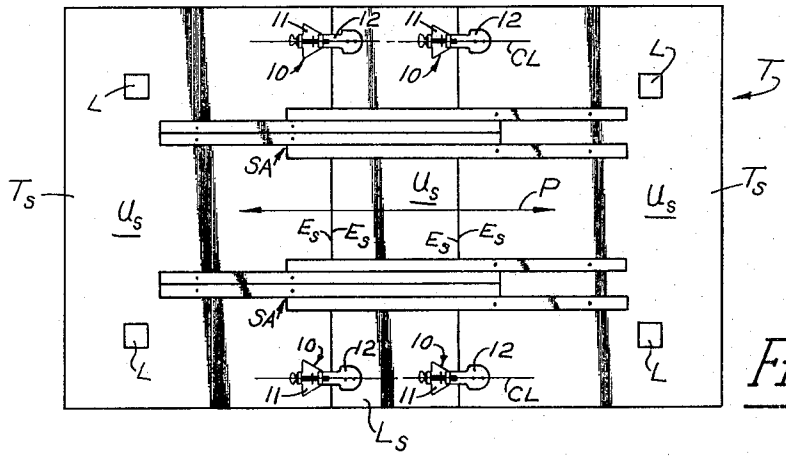


Fig 1

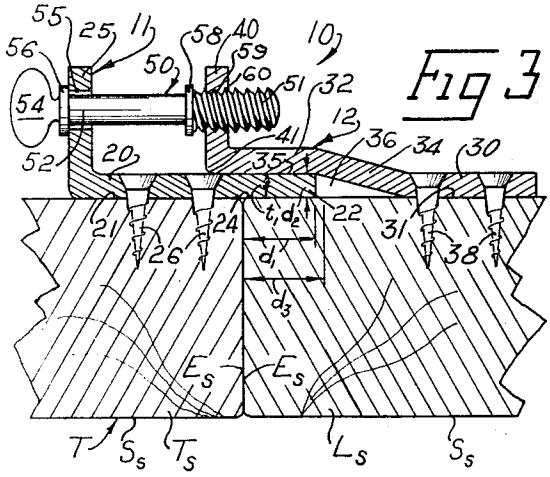


Fig 3

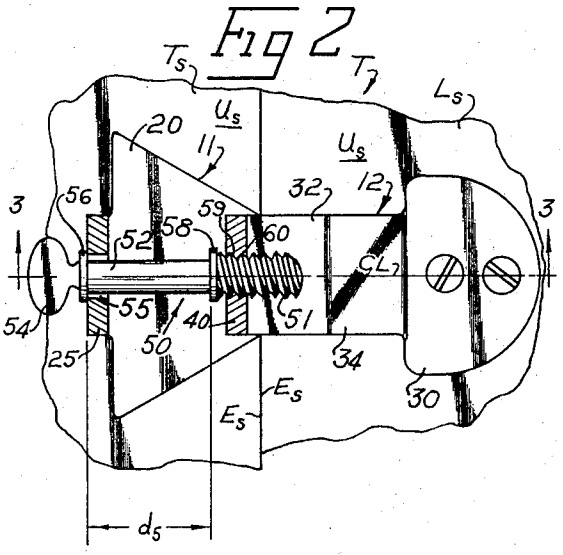


Fig 2

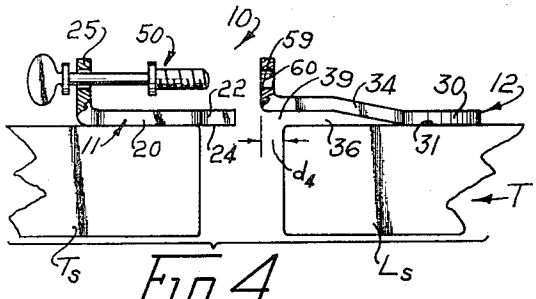


Fig 4

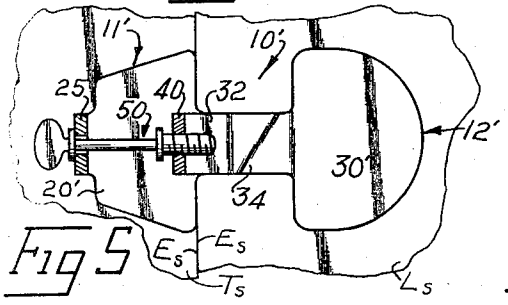


Fig 5

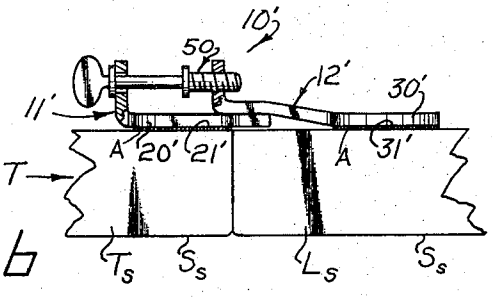


Fig 6

TABLE ALIGNING AND LOCKING DEVICE

BACKGROUND OF THE INVENTION

Various devices are available on the market today for securing the sections of a separable table top together. Most of thse devices use a locking device to secure the sections and a separate alignment device to maintain the abutting edges of the table sections in alignment. Not only does this increase the total cost of maufacture of the necessary hardware to operate the table, but also causes the hardware to be difficult to install and cumbersome to use. Also, the point at which the sections of the table are clamped together is usually laterally displaced from the alignment devices thereby making uniform clamping of the sections together difficult to achieve. This causes a crack to be frequently left between the abutting edges to allow material to collect therein or liquids to pass therethrough. Moreover, most of these prior art locking devices become inoperable once the main sections of the table are separated in order for additional leafs to be installed. This has reduced the stability of the table in its extended position.

SUMMARY OF THE INVENTION

These and other problems and disadvantages associated with the prior art are overcome by the invention disclosed herein by providing a combination locking and aligning device which is simple in construction, easily installed, and easily operated. Moreover, the invention is capable of locking the table together in both its extended and retracted positions to maintain stability. Further, the clamping forces are applied at the points of alignment so that the abutting edges of the table can be tightly clamped together to eliminate any cracks therebetween as is common with the prior art.

The invention includes generally complementary male and female members which are attached to the table across abutting edges thereof. The male member fits within the female member to align the abutting edges. A locking member is provided which interconnects the male and female members to force them together while at the same time clamping the abutting edges of the table together.

These and other features and advantages of the invention disclosed herein will become more apparent upon consideration of the following specification and accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views and in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a view of the underside of a table using the invention;

FIG. **2** is an enlarged plan view of the invention taken from the bottom of a table;

FIG. **3** is a cross-sectional view taken along line **3—3** in FIG. **2** showing the table upside down;

FIG. **4** is a view similar to FIG. **3** showing the invention in an open position and reduced in size;

FIG. **5** is a plan view of a second embodiment of the invention taken from the underside of a table; and

FIG. **6** is a side view of the invention of FIG. **5** showing the table upside down.

These figures and the following detailed description disclose specific embodiments of the invention, however, it is to be understood that the inventive concept is not limited thereto since it may be embodied in other forms.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

Referring to FIGS. **1–4**, it will be seen that the invention is used in connection with a conventional table T having separable main sections T_s connected by an appropriate slide assembly SA on the underside U_s thereof for allowing sections T_s to be opened and closed along path P, and supported on legs L. A leaf section L_s may be inserted between the separable sections T_s as shown in FIG. **1.**

A plurality of alignment locks **10** separably connect the sections T_s and leaf section L_s at each pair of abutting edge E_s. While a spaced pair of locks **10** are provided across each pair of abutting edges, it is to be understood that as many locks **10** as desired may be used.

The locks **10** are all identical in construction and therefore only one will be described in detail with like numbers applied to the others. Each alignment lock **10** includes a male unit **11** and a female unit **12.** The male unit **11** is attached to the separable section T_s or leaf section L_s at one abutting edge E_s while the female unit **12** is attached to section T_s or leaf L_s at the other abutting edge E_s in alignment with male unit **11.**

The male unit **11** is an elongate strip having a main body **20** defining a mounting surface **21** on the back thereof for placement against the underside U_s of the appropriate section T_s or L_s. A tongue **22** is provided on one end of body **20** in alignment therewith so that its back surface **24** lies in the plane of surface **21.** An outwardly turned locking bracket **25** is provided on the opposite end of body **20** and projects below the underside U_s of table T substantially normal to the underside U_s. The unit **11** is attached to the section T_s or L_s so that its longitudinal centerline CL is parallel to the path P along which the table opens and closes. Fasteners **26** attach the body **20** to the section T_s or L_s so that the tongue **22** extends over the associated abutting edge E_s a prescribed distance d_1 and with the back surface **24** of tongue **22** lying in the plane of the underside U_s of section T_s or L_s.

The female unit **12** is also an elongate strip having a body **30** defining a mounting surface **31** on the back thereof for placement against the underside U_s of that section T_s or L_s abutting the section carrying the male unit **11.** The unit **12** also includes an aligning member **32** connected to the main body **30** through a bend **34** so that the back surface **35** of member **32** is parallel to the underside U_s of section T_s or L_s and spaced therefrom a prescribed distance d_2 when the mounting surface of body **30** rests on the underside U_s. The prescribed distance d_2 is substantially equal to the thickness t_1 of the tongue **22** so that a tongue receiving pocket **36** is defined between back surface **35** and the underside U_s. Fasteners **38** attach body **30** to the underside U_s of section T_s or L_s at its abutting edge E_s directly opposite male unit **11** so that the open end **39** of pocket **36** faces tongue **22** and the centerline CL of unit **12** is in alignment with the centerline CL of unit **11.** The depth d_3 of pocket **36** is greater than distance d_1 so that the edges E_s abut before the tongue **22** bottoms in pocket **36.**

That end of aligning member **32** opposite bend **34** projects beyond the edge E_s a prescribed distance d_4 and is provided with an outwardly turned locking bracket **40** that projects below the underside U_s of table T. A curved guide surface **41** is provided at the projecting end of member **32** to assist in directing the tongue **22** into pocket **36** as the abutting edges E_s are forced toward each other.

A locking member **50** selectively connects the locking bracket **25** on male unit **11** with locking bracket **40** on female unit **12** so as to selectively force the male and female members **11** and **12** toward each other until the edges E_s abut. The pocket **36** receives the tongue **22** so as to align the top surfaces S_s of the sections T_s or L_s.

The locking member **50** is a threaded fastener having threads **51** at one end of shank **52** and a driving member **54** at the other end of shank **52.** The shank **52** between the threads **51** and driving member **54** is rotatably received through an aperture **55** through bracket **25.** The aperture **55** is larger in diameter than the diameter of the shank **52** so that a loose fit is achieved. An abuttment **56** may be provided on shank **52** between driving member **54** and bracket **25** as will be apparent and a retainer **58** may be provided on shank **52** at threads **51** to keep member **50** in place. The locking bracket **40** is provided with an aperture **59** axially aligned with the aperture **55** in bracket **25** and is internally threaded at **60.** As the threaded end of the member **50** is moved toward the threaded aperture **59,** the member **50** can be screwed into the threads **60** to clamp the edges E_s together. The loose fit between member **50** and aperture **55** allows slight misalignment between units **11** and **12** to be compensated for especially when coarse threading is used for threads **51** and **60.** The length d_5 of the shank **52** of member **50** is sufficiently long to prevent the member **50** from binding against bracket **40** as the sections T_s or L_s are moved together and before the member **50** is screwed into threads **60.**

It will also be noted that the centerlines CL of all of the locks **10** on each side of table T are axially aligned and the male and female units **11** and **12** of each lock **10** are ordered in the same way so that when the leaf section L_s is removed, the male and female units **11** and **12** on the separable main sections T_s align to clamp the abutting edges E_s together. Also when the leaf section L_s is inserted between the main sections T_s, the male and female units **11** and **12** on section L_s align with the complementary male and female units **11** and **12** on the main sections T_s. In this manner, not only can the main sections T_s without the leaf section L_s be firmly clamped together, but the leaf section L_s can also be clamped firmly to the main sections T_2 in the extended position of the table.

By using at least two locks **10** spaced along each set of abutting edges E_s, improved clamp up of the edges is obtained. It is anticipated that a pattern will be supplied with each lock **10** so that the homeowner can easily install same. Also, it will be noted that the main body **20** of the male unit **11** of each lock **10** has a different shape than the main body **30** of the female unit **12** to facilitate the order of placement of the locks. This will insure that the abutting edges E_s can be clamped together whether the leaf section L_s is used or not. Also, it will be noted that the shape of the main bodies **20** and **30** is assymmetrical so that neither unit **11** or **12** will be reversed during installation.

Referring now to FIGS. **5** and **6,** an alternate embodiment of the lock is illustrated and designated **10'**. Most of the components of lock **10'** are common with lock **10** and are designated by the same reference numbers. Those that are modified are designated by primes of the reference numbers applied to the corresponding parts of the lock **10.** The lock **10'** is designed to be applied to a table T with an appropriate adhesive such as contact cement. The contact area of the main body **20'** of male unit **11'** and the body **30'** of the female unit **12'** as defined by their respective back surfaces **21'** and **31'** is sufficiently large to allow the adhesive A to affix the lock **10'** to the underside U_s of the table. The operation of lock **10'** is the same as that for lock **10.**

While specific embodiments of the invention have been disclosed herein, it is to be understood that full use may be made of modifications, substitutions, and equivalents without departing from the scope of the inventive concept.

I claim:

1. An alignment and locking system for interconnecting the separable sections of a table together across their abutting edges including a mechanism comprising:

a male member attached to the underside of one of the separable sections at one of the abutting edges, and including a tongue projecting out from the one of the abutting edges under the opposite abutting edge parallel to the plane of the separable section and a first locking bracket projecting below the separable section;

a female member attached to the underside of the other of the separable sections at the opposite abutting edge and including a receptable portion spaced from the underside of the separable section to define an alignment space opening toward said tongue and in alignment therewith and a second locking bracket projecting below the other separable section in substantial alignment with said first locking bracket; and,

tensioning means interconnecting said first and second locking brackets to force the abutting edges together and said tongue into said abutting edges in horizontal alignment.

2. The system of claim **1** wherein said receptable portion of said female member projects over the abutting edge associated therewith a prescribed distance.

3. The system of claim **1** wherein said male member includes a first main body attached to the one of the separable sections and having a first general shape and wherein said female member includes a second main body attached to the other of the separable sections and having a second general shape different from said first general shape.

4. The system of claim **1** including a plurality of said mechanisms attached to the table at spaced points along the abutting edges of the separable sections.

5. The system of claim **4** wherein the separable sections include a pair of main sections connected by a slide assembly for movement toward and away from each other along a prescribed path so that their opposed edges can abut, and at least one leaf section removably positioned between the opposed edges of the main section and having opposite edges to abut the opposed edges and wherein said plurality of mechanisms

operatively connect the main sections to the leaf section, each of said mechanisms connecting one of the main sections with the leaf section aligned with one of said mechanisms connecting the other of said main sections with the leaf section along a secondary path substantially parallel to said prescribed path, said aligned mechanisms ordered in arrangement so that when the leaf section is removed and the opposed edges of the main sections abut, said male and female members on the main sections operatively interconnect so that said tensioning means can be used to clamp the opposed edges together.

6. The system of claim **5** wherein said tensioning means is a threaded member rotatably carried by said male member and threadedly engaging said female member to force said male member toward said female member.

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