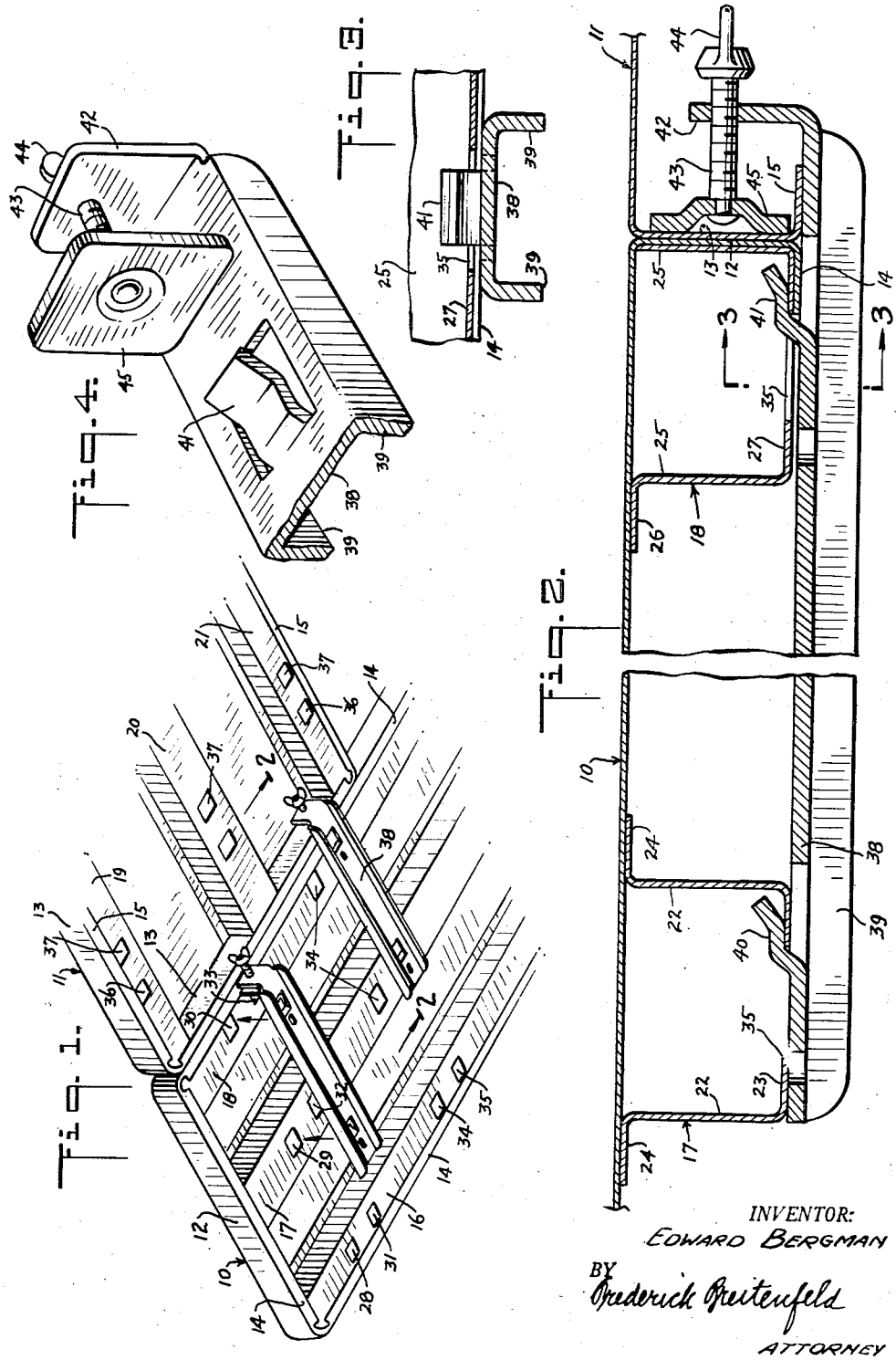
July 30, 1957 E. BERGMAN 2,801,141

COMPOSITE TABLE STRUCTURE AND CONNECTING CLAMP THEREFOR

Filed June 8, 1956 2 Sheets-Sheet 1

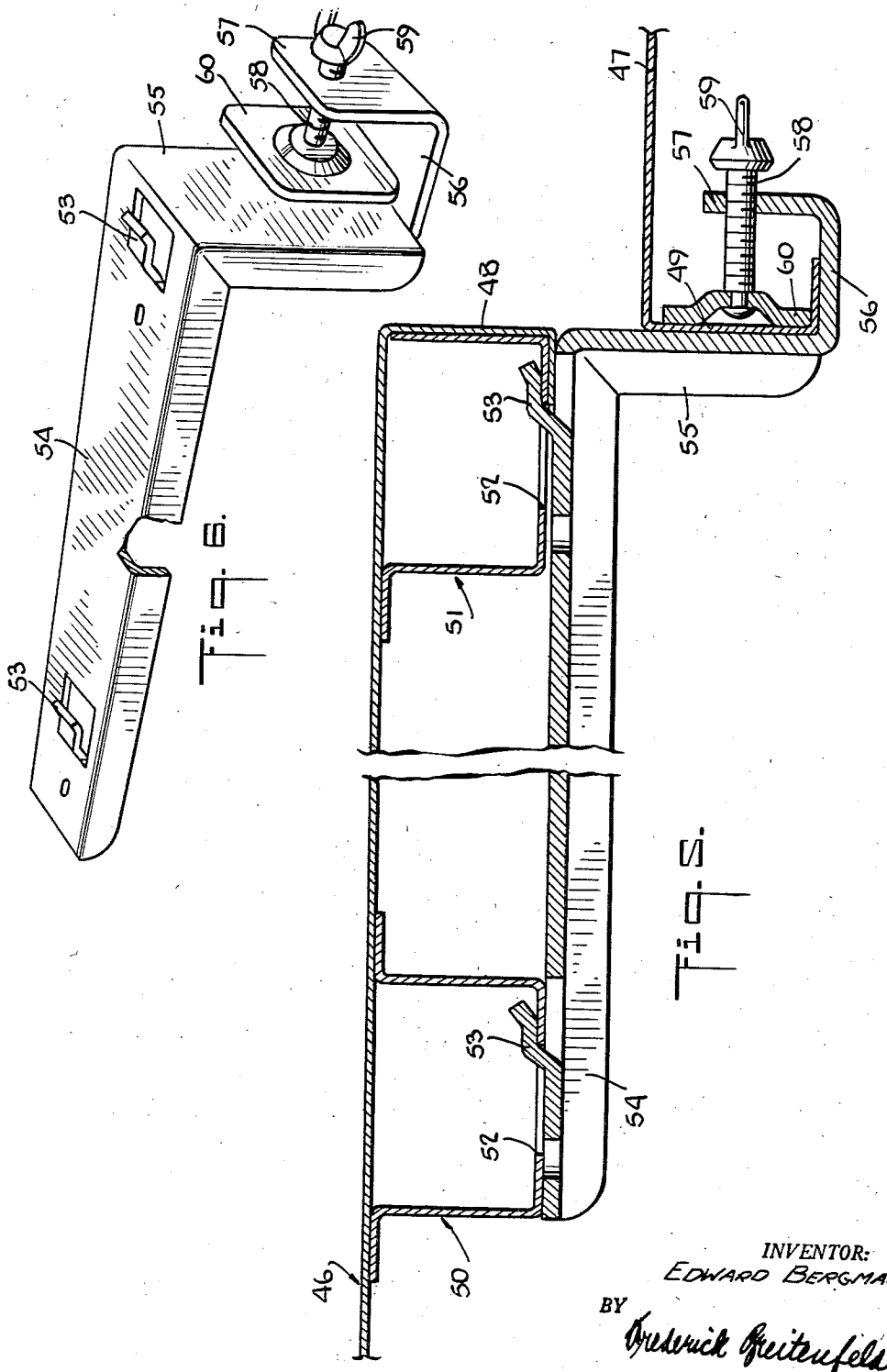


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COMPOSITE TABLE STRUCTURE AND CONNECTING CLAMP THEREFOR

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COMPOSITE TABLE STRUCTURE AND CONNECTING CLAMP THEREFOR

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This invention relates generally to furniture, and has particular reference to composite table structures, and to a connecting clamp for securing a pair of table tops in adjacent relationship.

The kinds of table tops to which the features of my invention are primarily directed are those commonly employed in metal furniture which is coming more and more into use in offices, show-rooms, and other commercial establishments. To meet a large variety of special requirements as to arrangement of tables, desks, etc., it is common practice to bring separate items of such furniture into adjacent relation, and to secure them together by connecting means of various kinds. It is a general object of the present invention to achieve this result by means of an improved construction of unusual simplicity, involving a special connecting clamp of inexpensive character and easy to use, and making it possible quickly and simply to establish a staunch yet separable clamped-together relationship between two or more table tops. By the term "table" as used herein, and in the appended claims, I intend to refer to the flat top surface of any article of furniture such as a desk or table.

The table tops to which my improved clamping arrangement is applicable are commonly formed with a depending marginal flange, sometimes called a "wrapper" flange, extending around the entire periphery of the table. Such table tops are also usually provided with hollow reinforcing stiffeners arranged in parallel relation on the under side of the table top and welded or otherwise firmly secured thereto.

In the practice of my invention, in connection with table tops of the same height, a pair of such table tops can be brought together with their marginal flanges in abutting contact, and the improved connecting clamp is secured to the under side of one of the table tops, in a disposition in which it extends across the plane along which the flanges of the table tops are in abutting relation, and then clamped to the flange of the other table top. The features of my invention reside in the structural nature of the connecting clamp, and the manner in which it may be secured to one table top and clamped to the other.

The invention is equally applicable to a pair of table tops in which one is at a lower level than the other, e. g., where a typewriter table is to be secured to a desk. In such a case, the connecting clamp is modified to the extent of providing a downturned medial part whereby the body of the clamp can be secured to the higher table top and an angled end projecting from the downturned part carries a clamping means adapted to engage the flange of the lower table top and clamp it against said downturned part.

I achieve the foregoing general objects and advantages, and such other advantages as may hereinafter be pointed out, in the manner illustratively exemplified in the accompanying drawings, in which:

Figure 1 is a perspective view, from underneath, of a pair of table tops brought into abutting relation, and held in this relationship by an improved connecting clamp constructed in accordance with this invention;

Figure 2 is an enlarged cross sectional view substantially along the line 2—2 of Figure 1;

Figure 3 is a fragmentary cross sectional view substantially along the line 3—3 of Figure 2;

Figure 4 is a perspective view of the clamping end of the connecting clamp, shown by itself, the body of the device having been broken off for the sake of compactness of illustration.

Figure 5 is a view similar to Figure 2, showing how a modified connecting clamp serves to hold two table tops together where one is higher than the other; and

Figure 6 is a perspective view of the connecting device of Figure 5, shown by itself.

In Figures 1–4 I have shown an illustrative table top 10 in abutting relation to an adjacent table top 11. For the sake of simplicity of illustration, I have omitted any showing of legs or other supporting means, but it will be understood that each of the depicted table tops is provided at the corners or other strategic points or regions with legs or uprights by means of which the table tops are supported in a horizontal plane in well known fashion. The table top 10 is provided with a marginal depending flange 12, and a similar flange 13 is formed on the table top 11. In conventional manner, each of the flanges has its lower edge turned in to form a part that lies horizontal, the lower part of the flange 12 being indicated at 14, and the corresponding part of the flange 13 being designated 15.

The table tops 10 and 11 are at the same height, hence the flanges 12 and 13 can be brought into direct abutment, with the outer surface of the flange 12 lying in the same common plane as the outer surface of the flange 13.

Secured to the under side of the table top 10 are a series of parallel reinforcing stiffeners, each being a generally U-shaped metallic element. I have illustratively shown three such stiffeners 16, 17 and 18 in association with the table top 10, and three similar stiffeners 19, 20 and 21 associated with the table top 11. The tables have been shown in an abutting relation in which the stiffeners of one table top extend at right angles to the stiffeners of the other, but this relationship of table tops is not essential to permit the improved connecting clamp to be employed in the contemplated manner.

Upon reference to Figure 2 it will be noted that the stiffener 17 has parallel side walls 22, a lower wall 23, and out-turned attachment flanges 24, the latter being welded or otherwise secured to the under side of the table top 10. All the stiffeners are essentially of this general character, except that in the case of the stiffeners lying alongside the marginal flange (such as the stiffeners 16, 18 of table top 10 and stiffeners 19 and 21 of table top 11), one of the attachment flanges 24 is unnecessary and is therefore omitted. This is best indicated in Figure 2 in connection with stiffener 18, wherein it will be observed that one of the side walls 25 is provided with an attachment flange 26, whereas the opposite side wall 25 is devoid of such a flange.

The lower walls of the stiffeners, such as the wall 23 of the stiffener 17 and the corresponding wall 27 of the stiffener 18, constitute plate elements lying parallel to the table top and spaced therefrom by a distance approximately equal to the width of the marginal flange 12. In accordance with my invention, as represented in the preferred construction illustrated in the drawings, these plate elements are provided with sets of openings arranged in spaced relation along a line perpendicular to the common plane along which the marginal flanges 11 and 12 are in abutment. One set of such openings is shown at

28, 29 and 30, these openings being formed in the stiffeners 16, 17 and 18, respectively, and lying along a direction at right angles to said common plane. A second set of openings, adjacent to and parallel to the first set, is shown at 31, 32 and 33. Another pair of sets of openings, arranged parallel to each other but at a distance from the first pair of sets, is represented by the reference numerals 34 (defining one set) and 35 (defining the other set). Similar sets of spaced openings may be provided, as may be desired, at selected intervals. In connection with the table top 11, one such set is represented at 36, an adjacent set at 37.

The connecting clamp forming part of the improved construction consists of an elongated rigid bar 38 whose body is provided with downturned marginal flanges 39, thus imparting a substantially U-shaped cross section to the bar, as best indicated in Figures 3 and 4. At longitudinally spaced intervals along the body 38 the bar is provided with integral struck-up tongues 40 and 41, facing in the same direction, and shaped to cooperate with any selected set of the openings previously described. In the illustrated embodiment of the invention, the tongues 40 and 41 have been shown in cooperative engagement with two of the openings 35. The tongues project into these openings and by a longitudinal shifting of the bar 38 they are adapted to effect a frictional clamping engagement of the adjacent part of the corresponding plate element 23 or 27. Because of the presence of the flange 14 adjacent to the plate element 27 (right-hand end of Figure 2) the tongue 41 is struck up to a slightly greater extent than the tongue 40.

In Figure 1 I have shown two connecting clamps, but since in most cases only one is required to hold a pair of table tops in adjacent relation, the nearer one of the clamps shown in Figure 1 has been depicted merely to indicate the manner of removably securing it to the table top 10. The arrows indicate the direction in which the tongues are first introduced into the corresponding openings, after which, as previously described, the clamping bar is shifted longitudinally to engage the tongues with the plate elements as indicated in Figure 2.

The connector bar is of such a length that one end extends across the common plane along which the outer surfaces of the marginal flanges lie. In Figure 2 it is the right-hand end of the bar which extends across this plane. This end of the bar is turned at right angles to define a transverse end wall 42, this wall being turned in the same direction as the tongues 40 and 41, which is opposite to the direction in which the flanges 39 extend. It is to be observed that the tongues 40 and 41 have their free ends facing toward the transverse wall 42.

Carried by the wall 42 is an adjustable means adapted to be operatively interposed between the flange 13 of the table top 11 and the transverse wall 42. This adjustable means is preferably in the form of a screw member 43 in threaded engagement with a corresponding opening in the wall 42, the outer end of the member 43 terminating in a grasping head 44 (shown in the form of a manually engageable wing nut). The other end of the member 43 is connected to a swiveled bracing element 45. When the clamp is to be secured in position the element 45 braces itself against the inside face of the flange 13, and a turning force exerted upon the wing nut 44 will exert a compressive force between the flange 13 and the wall 42, thus drawing the flanges 12 and 13 into clamped abutting relation. This manipulation of the screw clamp serves at the same time to draw the tongues 40 and 41 into firmer frictional engagement with the walls of the openings in which they have been mounted.

An unscrewing of the member 43 will loosen the connecting clamp so that it may be removed when the table tops are to be separated, for purposes of re-arrangement or otherwise.

The reason for arranging the openings in sets arranged

in closely adjacent pairs is to permit one clamping bar to extend in one direction while another extends simultaneously in the opposite direction. For example, I have shown a connecting clamp mounted in two of the openings 35 and functioning to hold the table tops 10 and 11 in abutting relation. Another similar clamp might be arranged at the same time in two of the openings 34, with the clamping end extending in the opposite direction, so that a third table (not shown) might also be clamped to the table top 10 along the side opposite to that against which the table top 11 abuts. If desired, a connecting clamp mounted in two of the openings 36 (or 37) would be operative simultaneously to clamp a further table top against one side or the other (or both) of the table top 11.

In Figures 5 and 6 I have shown how the benefits of the invention are attainable in cases where one table top is at a lower level than the other. The table top 46 may be assumed to be that of a desk or table, to which a lower table top 47 (e. g., a typewriter table) is to be clamped. As before, the legs or equivalent supports for the tables, known per se, have been omitted for the sake of simplifying the drawings. The table top 46 has a marginal flange 48, and the table top 47 has a similar marginal flange 49. As in Figures 1–4, these table tops can be clamped together with the outer surfaces of the flanges lying in a common vertical plane, but in this case the flanges are not in direct abutment. The table tops have the usual stiffeners, as hereinbefore described (although none has been shown in connection with table 47), and in Figure 5 two such stiffeners 50 and 51 are shown welded or otherwise secured to the underside of table 46. The bottom walls of these stiffeners constitute plate elements lying parallel to and spaced below the table top, and they are provided with sets of openings as previously described. In Figure 5 two openings 52 of such a set are shown, lying along a direction at right angles to the common plane along which the tables are held in adjacence.

The connecting device is shown by itself in Figure 6, and in this case the struck-up tongues 53 (for engagement with the openings 52 as shown in Figure 5) are formed in longitudinally spaced relation on the body part 54 of a bar having a substantially U-shaped cross-section, as in Figures 1–4. At one end of the body 54 there is a downturned part 55, also of U-shaped cross-section, to afford strength and rigidity. Projecting from the lower end of the part 55 is an angled end which comprises an arm 56 parallel to the body 54 and an up-turned end wall 57 parallel to the part 55. The wall 57 corresponds to the end wall 42 of Figures 2 and 4 and carries the clamping screw 58. At its outer end there is a graspable part 59 and on its inner end a swiveled bracing plate 60.

The angled end of the connector, consisting of the parts 56 and 57, is adapted to lie beneath and behind the flange 49, and a tightening of the clamping member 58 squeezes the flange 49 against the downturned part 55. The tongues 53 are so located, relative to the outer surface of the downturned part 55, that when they are firmly positioned within the openings 52 (involving an upward insertion and a movement of the bar to the right, as viewed in Figure 5) the outer faces of the flange 48 and of the part 55 lie in substantially a single plane.

A loosening of the clamp, and a release of the tongues 53 from the table top 46, allows the tables to be separated whenever it may be desirable to do so for disassembly or re-arrangement.

In each of the constructions illustrated and described, the interengagement of the connecting bar with a table top involves tongues on one of these parts and corresponding openings in the other, and while I prefer the arrangement in which (as shown) the struck-up tongues are on the connector while the openings are in the plate members secured to the table, it will be understood that

under certain circumstances it may be desirable to reverse this arrangement.

In general it will be understood that many of the details herein described and illustrated may be modified by those skilled in the art without necessarily departing from the spirit and scope of the invention as expressed in the appended claims.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is:

1. In a composite table structure, a pair of table tops each of which has a depending marginal flange, said tops being in adjacent relation with the flange of one in abutting contact with the flange of the other, and means separably holding said flanges in clamped-together engagement, said means comprising plate elements secured to the underside of one of said table tops in spaced parallel relation thereto and provided with a pair of spaced openings arranged along a line at right angles to said abutting flanges, a connecting bar beneath said plate elements and in alignment with said openings and provided with struck-up tongues extending into said openings and into firm engagement with said table top, and a securing means adjustably carried by said bar and adapted to engage with the flange of the other table top to draw said flanges against each other.

2. In a composite table structure, a pair of table tops each of which has a depending marginal flange, said tops being in adjacent relation with the flange of one in abutting contact with the flange of the other, and means separably holding said flanges in clamped-together engagement, said means comprising hollow reinforcing stiffeners secured to the underside of one of said table tops, the lower walls of said stiffeners defining plate elements in spaced parallel relation to the table top, said plate elements being provided with a set of spaced openings arranged along a line at right angles to said abutting flanges, a connecting bar beneath said plate elements and in alignment with said set of openings and provided with struck-up tongues extending into said openings, each tongue frictionally clamping an edge of its opening between the tongue and the bar, said tongues facing in the direction of said flanges, said bar having an end extending across the plane of said flanges, and a screw clamp carried by said bar end and adapted to bear against the near one of said flanges to draw said bar in clamping direction to urge said flanges against each other.

3. In a composite table structure, the combination of elements defined in claim 2, there being at least one additional set of openings in said plate elements parallel to the first-named set and adapted to cooperate with a similar clamping bar extending toward the opposite edge of the table top.

4. A connecting means for a pair of adjacently arranged table tops having depending marginal flanges intended to be held in abutting relation, comprising a bar of U-shaped cross-section having one end turned in the direction opposite to the arms of the U to define a transverse wall, struck-up tongues formed in the body of the bar at longitudinally spaced regions of the bar, said tongues also extending in the direction opposite to the arms of the U and their free ends facing toward said transverse wall, and a screw clamp in threaded engagement with said transverse wall and provided at the end nearest the tongues with a swiveled bracing element, said tongues being adapted to engage with one of the table tops, said clamp being adapted to engage with the flange of the other table top.

5. A connecting means for a pair of adjacently arranged table tops one of which is at a lower level than the other and has a depending marginal flange, comprising a bar having a body of U-shaped cross-section adapted to underlie the higher table top, a down-turned part at one end of said body, and an angled end projecting from said downturned part and adapted to lie beneath and behind said flange, struck-up tongues formed in the body of said bar at longitudinally spaced regions of said body, the free ends of said tongues extending in the direction of said angled end, and a screw clamp in threaded engagement with said angled end and provided at the end nearest said downturned part with a swiveled bracing element, said tongues being adapted to engage with the higher of the table tops, said clamp being adapted to engage said flange and clamp it against said downturned part.

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