Jan. 14, 1958 E. C. BULLOCK 2,819,937

MEANS FOR JOINING DESK AND TABLE TOGETHER WITH EDGES ABUTTING

Filed Aug. 15, 1955 2 Sheets-Sheet 1

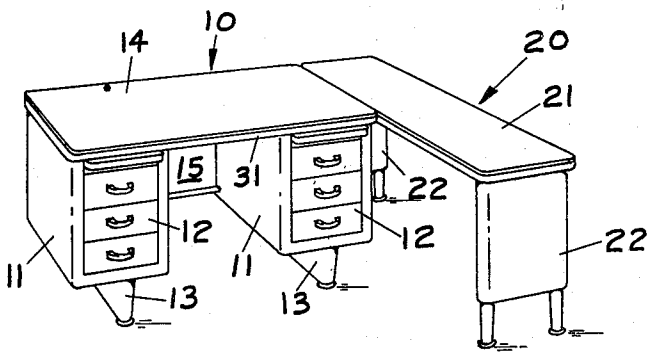


Fig. 1

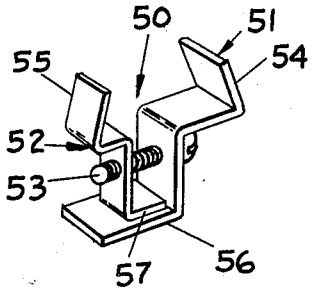


Fig. 2

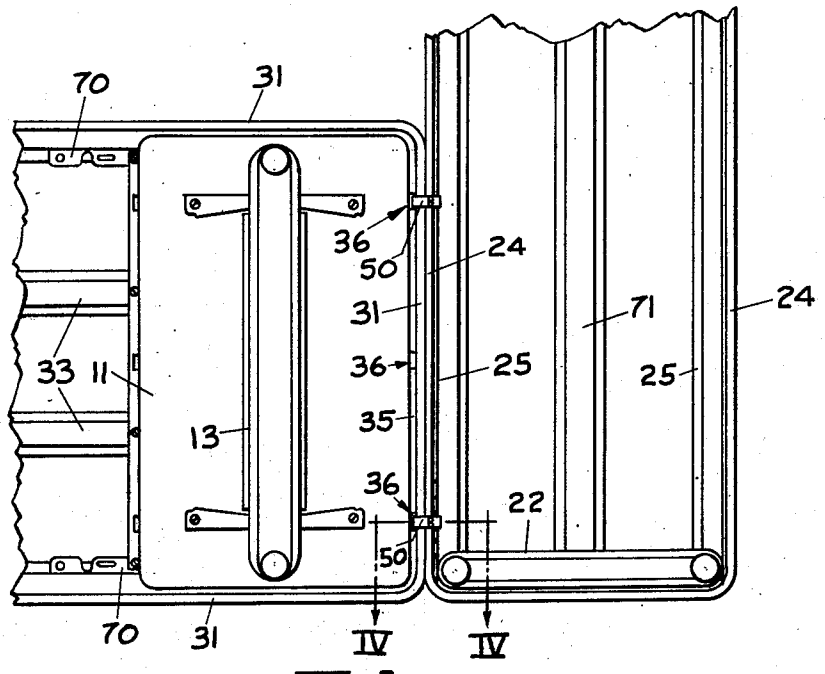


Fig. 3

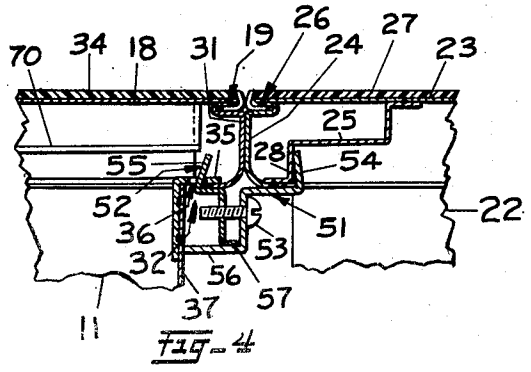


Fig. 4

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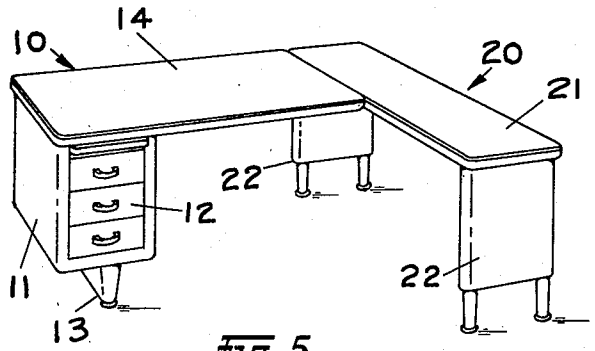


Fig-5

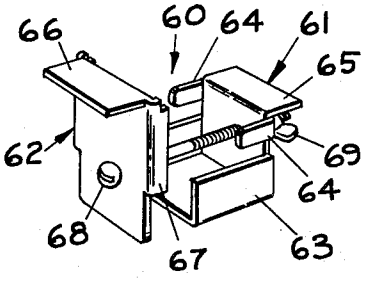


Fig-6

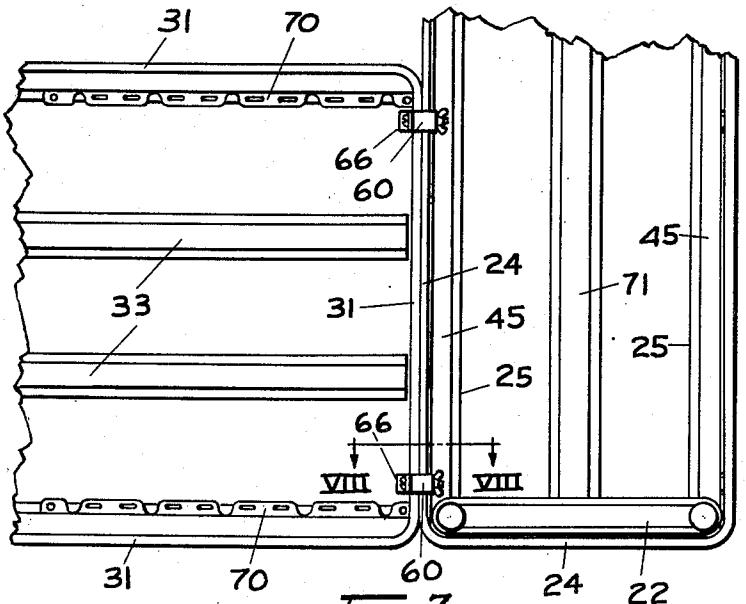


Fig-7

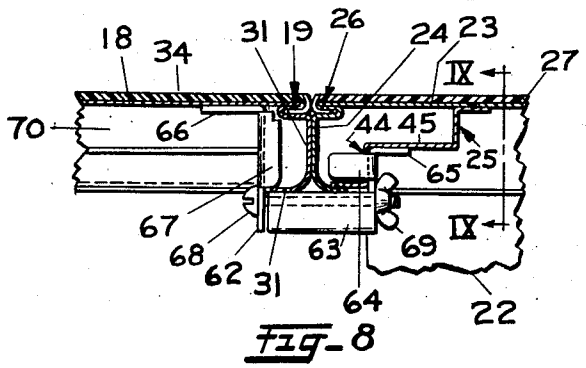


Fig-8

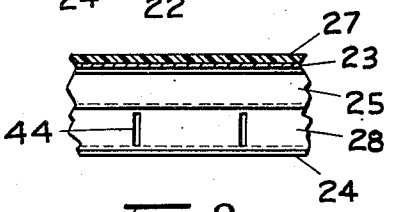


Fig-9

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MEANS FOR JOINING DESK AND TABLE TOGETHER WITH EDGES ABUTTING

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Application August 15, 1955, Serial No. 528,360

6 Claims. (Cl. 311—4)

This invention relates to a means for locking together a desk and a table, both of metal construction. More particularly, this invention relates to a quick and simple means of locking together a metal desk and a metal table with their edges abutting each other.

This invention specifically relates to a clamp for joining such desk and table together as a single, working unit.

Of widespread use today in offices is the combination of a desk and a table extending along and beyond one side of the desk to provide working space in front of and on the side of the person occupying the desk. This type of desk and table arrangement is handy and has become quite popular. However, it has been cumbersome to assemble or move when the furniture is rearranged. This invention relates to a table and desk arrangement which permits the units to be easily assembled and taken apart at any time either for moving or for rearrangement of the furniture. In so doing, the furniture is not injured nor is the process long or complex.

An object, therefore, of this invention is to provide a means for quickly and simply locking together a desk and a table of metal construction utilizing existing openings in the bottom structure of the two units.

A further object of this invention is to provide a means for joining a supported desk to a table with edges of the table and the desk abutting each other.

A further object of this invention is to provide means for joining a desk unsupported at one end to a table with the edges of the desk and table abutting each other and the table supporting one end of the desk.

Still another object of this invention is to provide a clamp adapted to lock together a metal desk and table by simple and quick manipulation of the parts of the clamp.

Other objects of this invention will become obvious upon reading the following specification in conjunction with the accompanying drawings wherein:

Fig. 1 shows a perspective view of the desk and table arrangement.

Fig. 2 shows a perspective view of the clamp used for joining together the table and desk of Fig. 1.

Fig. 3 shows a bottom view of the joint between the desk and table of Fig. 1 with the clamp of Fig. 2 in place.

Fig. 4 shows an enlarged, fragmentary, sectional, elevational view taken along the plane IV—IV of Fig. 3.

Fig. 5 is a perspective view of a modified desk and table arrangement, the desk having an unsupported side joined to the table and supported thereby.

Fig. 6 is a perspective view of the clamp used in the arrangement of Fig. 5.

Fig. 7 is a bottom view of the joint between the table and desk of Fig. 5 with the clamp of Fig. 6 in place.

Fig. 8 is an enlarged, fragmentary, sectional elevational view taken along the plane VIII—VIII of Fig. 7.

Fig. 9 is a fragmentary section along the plane IX—IX of Fig. 8.

Briefly, this invention is concerned with means for joining a table and desk together with their edges abutting each other. This means comprises a clamp consisting of two opposing jaws and means for drawing the jaws toward each other. The jaws are adapted to be inserted in existing openings underneath the bottom edge of the table and desk top. In one form, the clamp is adapted to join a self-supporting desk and table. In a modified form, the clamp is adapted to join to a table an unsupported end of a desk, the desk having a single pedestal on the other end. In the latter modification, the clamp thus not only provides a cross linkage between the table and the desk but also is able to transmit loads in shear from the desk to the table.

Fig. 1 shows the self-supporting metal desk **10** and the table **20**. The desk **10** has a pair of pedestals containing drawer wells **11** in which are mounted the drawers **12**. Pedestals **11** are supported by the legs **13**, all of which support the top **14**. The desk **10** also has a back **15** to close the front of the knee well. All of these elements of the desk **10** are conventional and can be varied without departing from the scope of this invention. It will be understood that panel legs or other types of supporting structure may be substituted for the drawer wells **11** without in any way affecting this invention.

The structure of the desk top includes a metal panel **18** flanged along its edges to form the front, back and side aprons **31**. The lower ends of the aprons **31** are turned inwardly to form flanges terminating short of the side of the drawer well **11** thereby creating a gap or slot **32**. The panel **18** is supported and stiffened by parallel hat-shaped channels **33** extending lengthwise of the desk. These channels **33** are welded to the bottom surface of the panel **18**.

The aprons are inwardly crimped, creating a channel **19**. The channels **19** serve as the means of anchoring the edges of the top surfacing material **34**.

The drawer wells **11** are secured to the hold down angles **70** of the top structure by any suitable means permitting removal such as screws or bolts. A somewhat L-shaped bracket **35** is welded to each side of the drawer well **11** and projects outwardly from the top of the drawer well sides to nest within the lower portion of the end aprons **31** (Fig. 4). This bracket bridges the gap **32** between the end of the apron **31** and the drawer well, and adjacent the front and back of the desk has a plurality of slots **36** aligned with the gap **32** (Fig. 3).

The table **20** is also of metal construction having a top **21** and supporting legs **22** at either end. The top **21** has a sheetlike panel **23** flanged along its edges to form the front, back and side aprons **24**. The lower ends of the aprons **24** are turned inwardly and are welded to the Z-shaped reinforcement bar **25**. The upper end of the bar **25** is welded to the under surface of the panel **23**.

The aprons **24** are inwardly crimped, creating a channel **26**. The channels **26** serve as the means of anchoring the strips used for securing the margins of the top surfacing material **27**. The panel **23** is braced and supported by hat-shaped channels **29** welded to its under surface (Fig. 3).

Table **20** is also a conventional, metal table having the reinforcement channel **71** for the top **21**. Desk **10** and table **20** are of the same height, causing the aprons **31** and **24** to abut and the tops **14** and **21** to be flush.

The clamp used to lock the table and desk together comprises two jaws **51** and **52**. The jaws **51** and **52** each have a gripping finger **54** and **55** respectively. These fingers **54** and **55** are adapted to be inserted into the openings beneath the edge of the table top and desk top respectively. Jaws **51** and **52** also each have a foot **56** and **57** respectively at their lower end. These feet **56** and **57** give rigidity to the clamp **50**. The foot **56** of jaw **51** serves as a support for the jaw **52**. The feet also prevent the

jaws from turning with respect to each other about the screws 53. The foot 57 bearing against the body of the jaw 51 acts as a fulcrum when the screw 53 is tightened. Each of the jaws 51 and 52 also have an L-shaped intermediate portion between the fingers and the feet consisting of a vertical and a horizontal part. Thus, the fingers 54 and 55 each extend upwardly from the horizontal part and the feet 56 and 57 extend horizontally from the vertical part. The horizontal part serves the function of aligning and supporting the bottom wrapped under flanges of the aprons 31 and 24, thus helping to maintain the tops 14 and 21 flush. The screw 53 threadedly engages the vertical part of the jaw 52, thus providing a means having mechanical advantages for closing the jaws. The clamps are preferably of steel to give them sufficient rigidity.

While Fig. 3 shows two clamps, it should be realized that several clamps can be used, if desired or necessary.

In Fig. 4 it will be seen that the jaw 51 passes about and bears against the lower vertical portion 28 of the bar 25. Openings 44 (Fig. 9) are provided for a modified form of this invention. The jaw 52 is inserted through one of slots 36 in the angle 35 of the drawer well 11. Tightening of the screw 53 causes the apron 24 of the table to be pulled tightly against the apron 31 of the desk. The foot 56 of jaw 51 is of such length that it abuts against the side 37 of drawer well 11. Similarly, the foot 57 is made of such a length that when nut 53 is tightened it abuts against the vertical side of the intermediate portion of jaw 51. As a result, when screw 53 is tightened, the feet 56 and 57 prevent relative rotative movement of the jaws away from each other and they cause the jaws to be pulled toward each other. Thus, tightening of the screws draws the aprons 31 and 24 against each other.

Assembly of the arrangement shown in Figs. 1, 3 and 4 is simple and should be readily apparent. First, the table 20 and desk 10 are arranged in the manner shown in Fig. 1 with the edge of desk 10 and the side edge of table 20 aligned and abutting each other. Then the fingers 54 and 55 of the clamp 50 are inserted in the slots 36 and behind the bar 25, this being done while the screw is loosened sufficiently for installation. After the fingers 54 and 55 are properly seated, the screw 53 is tightened causing the jaws to be pulled together and the table and desk to be tightly drawn together. The clamps 50 can be located in the position shown in Fig. 3 or in any other of the slots 36. More than two clamps can be used without departing from the scope of this invention. When the table 20 and desk 10 are to be separated for any reason, the screw 53 is loosened sufficiently to permit the fingers 54 and 55 to be withdrawn.

Figs. 5, 6, 7 and 8 show a modification of this invention. As will be seen by Fig. 5, this modification relates to the joining of the unsupported end of a desk 10 to a supported table 20. The desk 10 is supported only on one end by the pedestal 11 and leg 13. The other end 16 is supported by the table 20. Accordingly, a modified type of clamp is necessary for this type of assembly.

Desk 14 also comprises all of the elements set forth in the description of Figs. 1, 2, 3, and 4. For example, there is shown the top 14, the top covering 34, metal panel 18, the channel 19 in which the anchor strip for the covering 34 is gripped, the wrapped under portion forming the side and end apron 31 and the reinforcement channels 33. The table is exactly the same as that shown in Figs. 1 and 4. Thus, it includes the legs 22, top covering 27, sheet metal panel 23, channel 26 in which the anchor strip for the covering 27 is gripped, the wrapped under portions forming the side and end aprons 24, and a double offset reinforcing bar 25. In this modification, for purposes which will become evident, it is necessary that vertical slots 44 be provided for in the vertical wall 28 of bar 25 (Fig. 9). To reduce the cost of fabricating parts of different designs and to make all furniture units freely interchangeable, the slots 44 are provided as standard design in the bars 25 of all tables,

As stated previously, it is necessary that the clamp for securing or anchoring the edge of a non-supported side of a desk to the table be constructed differently from the clamp used in securing a supported edge. Thus, the clamp 60 (Figs. 6, 7, and 8) must not only provide a cross-linkage between the desk and the table but it must be able to transmit loads in shear from the desk to the table.

The clamp 60 comprises two jaws 61 and 62, each of these jaws having means adapted to be inserted in the openings beneath the top edges of the table and desk for gripping such edges. However, whereas in clamp 50 the jaws are similar, in clamp 60 the jaws are somewhat dissimilar. Hereinafter, jaw 61 is referred to as the primary jaw and jaw 62 as the secondary jaw.

Primary jaw 61 is adapted to be inserted in the opening underneath the top edge of table 20. It comprises a foot portion having a pair of upstanding side flanges 63. These flanges 63 ride against the bottom surface of the table and desk aprons 31 and 24 as will be explained hereinafter. Jaw 61 also has two ears 64 extending outwardly from an intermediate portion of the jaw. On top of jaw 61 is the top flange 65 extending outwardly from the intermediate portion oppositely to the foot portion and substantially parallel to the table top.

Jaw 62 has a top flange 66 and a pair of outwardly projecting marginal flanges 67. The marginal flanges 67 project oppositely from the top flange 66 and toward the ears 64. The jaw 61 is drawn toward the jaw 62 by a bolt 68 extending through the intermediate portions of the jaws. A wing nut 69 is used on the end of the bolt 68. In this case, the jaws are drawn together by tightening the wing nut 69.

It should be understood that the structure of the jaws 61 and 62, although described specifically in terms of an intermediate portion with ears and marginal flanges projecting from an upstanding member, have in reality fingers extending toward each other, these fingers being the ears 64 and marginal flanges 67 respectively. Therefore, fingers seated about aprons as used broadly in the appended claims are generic to fingers 54 and 55 (Fig. 2), and the ears 64 and marginal flanges 67 (Fig. 6). The term apron as used generically in the claims includes both the apron 24 and the reinforcement and supporting bar 25 of the table.

The clamps 60 are shown in operative position in Figs. 7 and 8. Fig. 7 shows two of the clamps 60 secured in their operative position. The top flange 66 of the jaw 62 seats against the under surface of the metal panel 18 of the table. Side flanges 67 hook over the bottom edge of the apron 31. This is possible since the removal of the drawer well 11 eliminates interference with the clamp's installation since the bracket 35 is removed with the drawer well.

The upstanding flanges 63 of the jaw 61 bear against the bottom surfaces of the aprons 31 and 24. The ears 64 extend through the slots 44 in vertical wall 28 of the bar 25. The top flange 65 nests against the horizontal wall 45 of bar 25. With this arrangement, as shown in Fig. 8, the ears 64 transmit to table 20 the weight of the unsupported end of desk 14. The upstanding side flanges 63 align and support the bottom of the aprons assuring flush alignment of the desk and table tops bearing against the panel 18. The flange 65 seats against the horizontal wall 45 and the top flange 66 of jaw 62 helps maintain alignment of the jaws 61 and 62.

With this modification the desk and table join together easily. First, the edges are aligned so that they abut each other. Then the ears 64 are inserted through the openings 44 in the channel 25, thus placing the jaw 61 in the position shown in Fig. 8. Next, the jaw 62 is seated about apron 31 and the wing nut 69 tightened on the bolt 68. This procedure is repeated for as many clamps as is desired or necessary. Disassembly of the units is effected by reversal of the above procedure.

It will be seen that means have been provided for lock-

ing the side of a desk to the side of a table. This means is quick and simple and adapted to be utilized in existing openings in the bottom structure of the table and desk. With this means the table and desk can be carried into an office separately and then assembled. The units can be easily disassembled for rearrangement and movement of furniture.

It should be understood that in describing this invention and the modifications thereof, such description has been made for purposes of illustration only. Various modifications of this invention may be made, each without departing from the principles thereof. It should be especially understood that this invention should not be limited by the exact structure of the table and desk shown in this specification, nor should the exact structure of the clamps be considered to be the only structure which can be used within the spirit of this invention. The structure of such clamps shall be considered to be limited only as set forth in the appended claims. Various modifications are to be considered as included in the hereinafter appended claims unless these claims, by their language, expressly state otherwise.

I claim:

1. In means for locking together the tops of two units of metal furniture, each of said units having rigid depending side aprons, said means comprising: a pair of jaws movable with respect to each other; each of said jaws having an upstanding member and finger elements, said finger elements projecting from said upstanding members toward each other; each of said finger elements engaging one of said aprons; means characterized by mechanical advantage and secured to said upstanding member for drawing said jaws together.

2. In means for locking together the tops of two units of metal furniture, each of said units having rigid depending side aprons, said means comprising: a pair of jaws movable with respect to each other; each of said jaws having an upstanding member and finger elements, said finger elements projecting toward each other; each of said finger elements engaging one of said aprons; bearing means secured to said jaws and seated against the lower edge of said aprons; and means characterized by mechanical advantage and secured to said upstanding member for drawing said jaws together.

3. In means for locking together the tops of two units of metal furniture, each of said units having rigid depending side aprons, said means comprising: a pair of jaws movable with respect to each other; said jaws each having a finger portion and a foot portion joined by an L-shaped web, one portion of said web being vertical; said fingers being inclined toward each other and engaging the lower ends of said aprons; said foot portions extending toward each other and means characterized by mechanical advantage and secured to the one vertical portion for drawing said jaws together.

4. In means for locking together the tops of two units of metal furniture, each of said units having rigid depending side aprons, said means comprising: first and second jaws movable with respect to each other; each of said jaws having a finger portion and a foot flange joined by an L-shaped web, one portion of each of said webs being vertical; said foot portion of said second jaw being seated upon and shorter than said foot portion of said first jaw and bearing against the vertical portion of said web of said first jaw; said fingers being inclined toward each other and engaging the lower ends of said aprons; and means characterized by mechanical advantage for pivoting said second jaw about its foot portion thereby drawing said fingers together and urging said aprons into abutting relationship upon tightening of said means.

5. In means for locking together the tops of two units of metal furniture, each of said units having rigid depending side aprons, said means comprising a pair of jaws movable with respect to each other; said first jaw having a top horizontal flange extending away from said second jaw, a vertical member depending from said flange, said vertical member having marginal flanges extending toward said second jaw and seated behind one of said aprons; said second jaw being Z-shaped with a top horizontal flange extending away from said first jaw, an upstanding member depending from said top flange, and a foot extending toward said first jaw, said foot being seated against said lower edges of both of said aprons, said upstanding member having ears extending toward said first jaw and inserted in existing openings behind the other of said aprons; and means characterized by mechanical advantage for drawing said jaws together.

6. In means for locking together the tops of two units of metal furniture, each of said units having rigid depending side aprons, one of said units having a reinforcement member extending upwardly from the bottom end of said apron to the underside of said unit, said means comprising: a first and second jaw movable with respect to each other; said first jaw being L-shaped and having a horizontal flange extending away from said second jaw, a vertical member depending from said flange, said vertical member having marginal flanges extending toward said second jaw and inserted so as to seat in between the inside top and bottom of one of said aprons; said second jaw being Z-shaped and having a top horizontal flange extending away from said first jaw, an upstanding member depending from said top flange, and a foot extending toward said first jaw, said foot having upstanding side flanges seated against the lower edges of both of said aprons, said upstanding member having ears extending therefrom toward said first jaw and inserted in openings in said reinforcement member of said one apron and means characterized by mechanical advantage for drawing said jaws together.

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