Sept. 29, 1959 E. C. BULLOCK 2,906,574

ANCHOR BAR MEANS FOR JOINING METAL FURNITURE TOPS

Filed Oct. 17, 1955 2 Sheets-Sheet 1

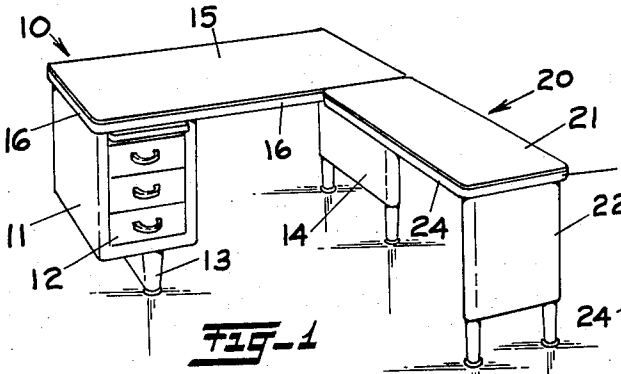


Fig-1

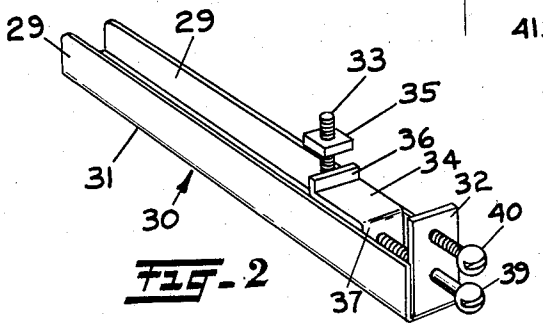


Fig-2

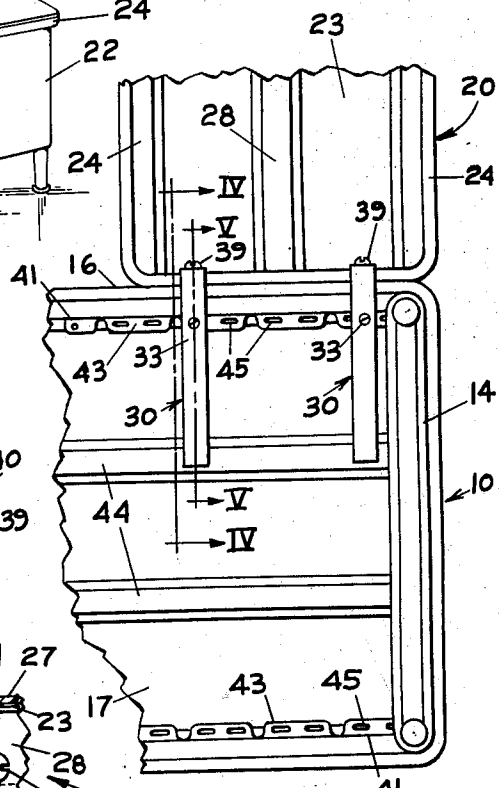


Fig-3

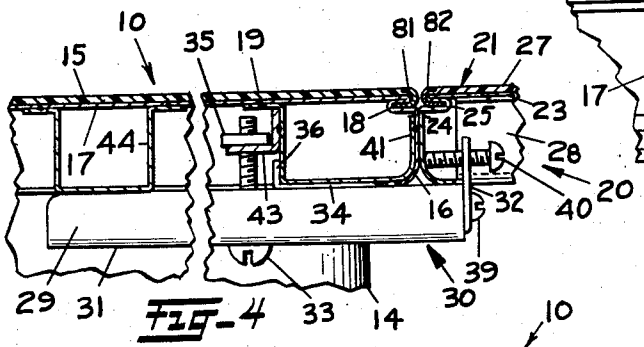


Fig-4

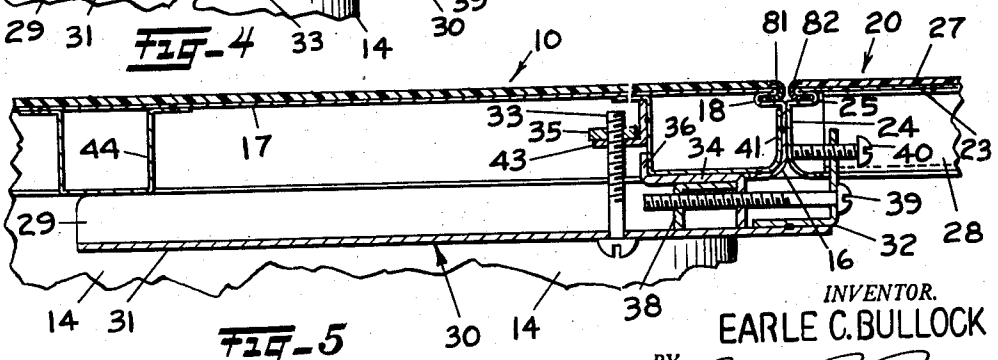


Fig-5

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ANCHOR BAR MEANS FOR JOINING METAL FURNITURE TOPS

Filed Oct. 17, 1955 2 Sheets-Sheet 2

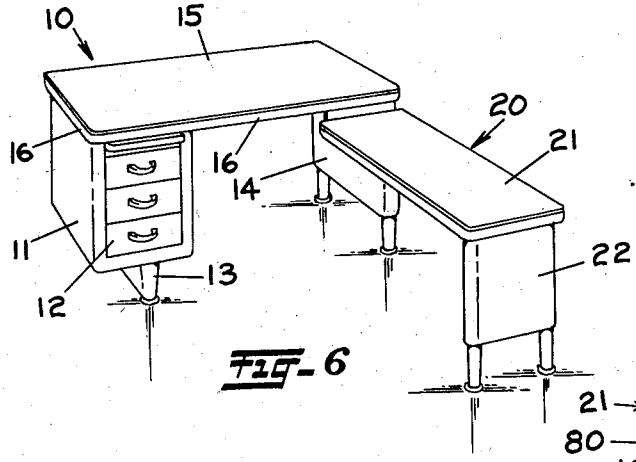


Fig-6

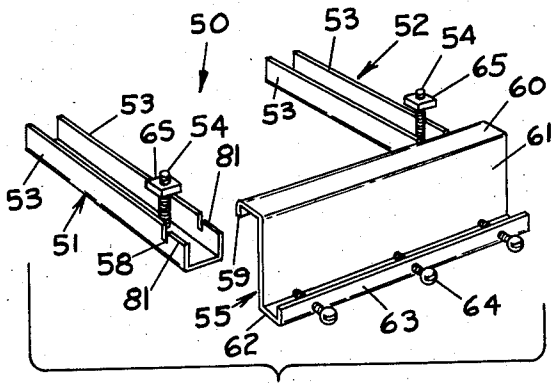


Fig-7

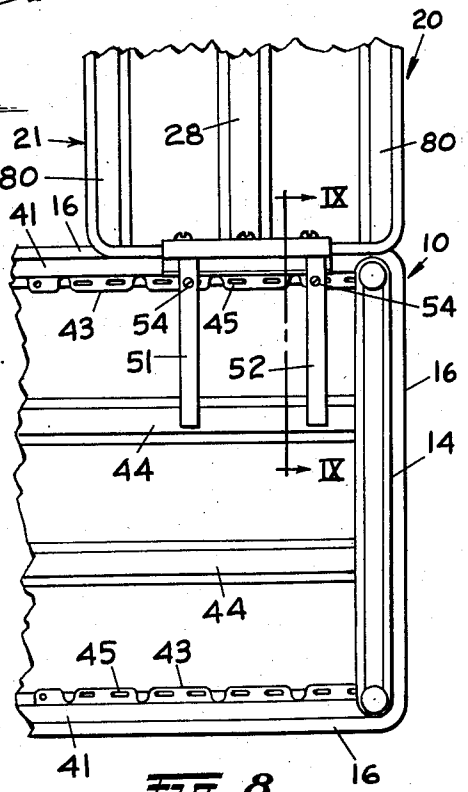


Fig-8

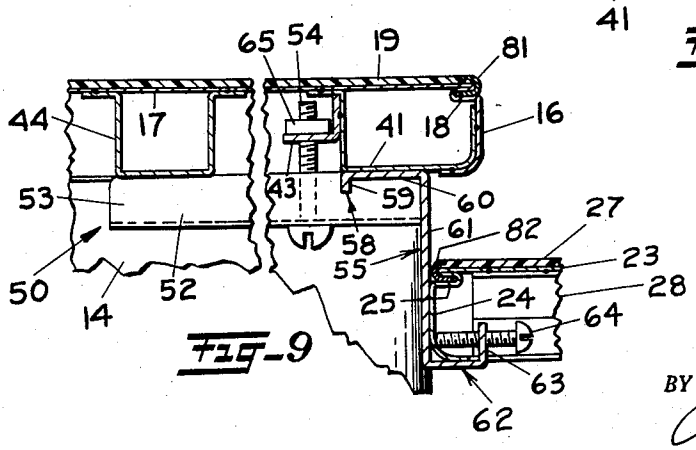


Fig-9

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2,906,574

ANCHOR BAR MEANS FOR JOINING METAL FURNITURE TOPS

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Application October 17, 1955, Serial No. 540,734

8 Claims. (Cl. 311—4)

This invention relates to means for anchoring the unsupported, free end of a top of a unit of metal furniture to the supported top of another unit of metal furniture. More particularly, this invention relates to means for anchoring and joining the free end of a metal table to the side of a metal desk.

The use of desks having tables extending from their sides has become extremely popular. Such an arrangement provides both front and side working space. Most of these units have been custom made and therefore are expensive. Another disadvantage of such custom made units is that the table is secured permanently to the desk making separation and relocation of the units a difficult and tedious task. Thus, when the furniture is to be rearranged or moved to another office the task is time consuming and sometimes almost impossible. In accordance with this invention the table is removably mounted on the side edge of the desk.

An object of this invention is to provide a simple and easy means for attaching or securing an unsupported free end of a metal furniture top to the side edge of a supported metal furniture top.

Another object of this invention is to provide a clamp adapted both to anchor and support the free, unsupported end of a table to the side of a desk.

Still another object of this invention is to provide a clamp which can be easily assembled and may be utilized without modification of the existing structure of metal table and desk tops.

Further an object of this invention is to provide a means for securing and supporting the free, unsupported end of a table to a desk which is vertically offset from the table.

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

Fig. 1 shows in perspective the arrangement of a table and a desk having their tops flush with the free unsupported end of the table supported by the side of the desk.

Fig. 2 is an oblique view of one of the clamps.

Fig. 3 is a fragmentary bottom view of the desk and table combination of Fig. 1.

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

Fig. 5 is an enlarged, fragmentary sectional view taken along the plane V—V of Fig. 3.

Fig. 6 is an oblique view of a modified desk and table combination in which the tops of the units are vertically offset.

Fig. 7 is an oblique, exploded view of the clamp for supporting the table top in the manner shown in Fig. 6.

Fig. 8 is a fragmentary bottom view of the connection between the table and desk top of Fig. 6.

Fig. 9 is an enlarged, fragmentary cross sectional view taken along the plane IX—IX of Fig. 8.

Briefly, this invention is concerned with a means for

anchoring one unsupported end of a metal furniture top to the side of another supported metal furniture top. In accordance with this invention the two tops have edges with rigid aprons extending downwardly and wrapped under the top. An anchor bar clamp is provided including an anchor bar extending along the bottom of the supported top and a hanger protruding from one of its ends and secured to the unsupported top. Intermediate the ends of the anchor bar is a fastening means adapted to be secured to the underside of the supported top. In one form, the anchor bar supports and anchors the tops with the aprons of said tops abutting each other. In a midified form, the tops are at different levels.

Fig. 1 shows the self-supporting metal desk **10** and the table **20** which is supported at one end but free at the other. The desk **10** has one pedestal containing the drawer well **11** in which are mounted the drawers **12**. Drawer well **11** is supported by the legs **13**. At its other end, the table is supported by the leg **14**. The desk **10** has a top **15** having front, back, and side aprons **16**. The structure of the desk top includes the metal panel **17** flanged along its edges to form aprons **16** (Fig. 9). The lower ends of the aprons **16** are wrapped under and turned inwardly to form wrapped under flanges. The panel **17** is supported and stiffened by parallel hat-shaped channels **44** extending lengthwise of teh desk. These channels **44** are welded to the bottom surface of the panel **17**. The aprons are inwardly crimped, creating a channel **18** serving as the means of anchoring the anchor strip **81** of the top surfacing material **19**.

The apron **16** is reinforced and supported by a reinforcement member **41**. One end of the reinforcement member **41** nests within the lower end of the apron **16** and is secured thereto by welding. The other end seats against and is welded to the bottom surface of the panel **17**. Adjacent to this end the reinforcement member **41** has a vertical web.

The drawer well **11** is secured to the hold down angles **43** which are in turn secured, by welding or any other suitable means, to the vertical web of the apron reinforcement member **41**. Screws or bolts adapted to be inserted in the holes **45** are provided to fasten the drawer well **11** to the hold down angles **43**.

The table **20** is also of metal construction having a top **21** and supporting legs **22** at one end. The other end is free and supported by the top **15** of the desk **10**. 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 wrapped inwardly in a similar manner to that of the dish **10**. The aprons **24** are inwardly crimped creating a channel **25** which serves as a means for anchoring the anchor strip **82** of the top surfacing material **27**. The panel **23** is braced and supported by a hat-shaped channel **28** extending lengthwise of the table and welded to the undersurface (Fig. 3).

In the form illustrated in Figs. 1 through 5, the desk **10** and table **20** are of the same height, causing the aprons **16** and **24** to abut and the tops **15** and **21** to be flush. The clamp **30** used to lock these flush, table and desk tops together comprises a channel shaped strap or anchor bar **31** of a U-shaped cross section. The anchor bar **31** has upstanding flanges **29** which are adapted to bear against the lower edges of the aprons **24** and **16** and the bottom of the hat-shaped channel **44**. Bolt **33** is provided to extend through the bight portion of the U-shaped channel **31**. Slidably mounted in the channel of bar **31** is a somewhat Z-shaped gripping unit **34** having a finger **36** extending out of the channel. The gripping unit **34** also has an L-shaped angle **38** welded to the Z-shaped section forming a leg parallel to the vertical leg **37**. A threaded screw **39** extends through threaded holes

in the vertical leg 37 and the leg of the L-shaped angle 38, to provide a means for opening and closing the gripping unit 36 in the channel 31. The clamp 30 also has an L-shaped hanger 32 welded to one end of the channel bar 31 and extending upwardly. The hanger 32 has a threaded hole near its top through which screw 40 is threaded for securing the hanger 32 to the apron 24.

In Figs. 4 and 5 it will be seen that the anchor bar 31 extends the entire distance from the aprons 24 and 16 to the hat-shaped channel 44 and bears against the bottom surfaces of such members. Thus, the bar 31 is parallel and maintains the table tops 15 and 21 in flush relationship. The bolt 33 extending upwardly from the bight portion of the anchor bar 31 is inserted through one of the slots or holes 45 of the hold down angles 43. The nut 35 is screwed on the end of the bolt 33 and tightened causing the upstanding flanges 29 of the channel 31 to bear tightly against the hat-shaped channel 44 and the bottom surfaces of the aprons 16 and 24 thus causing the table and desk tops to be flush. With the clamp 30 in place the finger 36 of the gripping unit 34, when closed, grips the inner edge of the reinforcement member 41. Tightening of the screw 39 causes the gripping unit to be moved toward the apron 24 pulling the apron 24 tightly against the apron 16 of the desk. The screw 40 extending through the top of the hanger member 32 and hooked around the apron 24, when tightened, causes the apron 24 to be pushed against the apron 16.

The screw 40 strikes the radius formed by the inward forming of the apron 24. This wedges the screw upwardly, assuring tight bearing between the apron 24 and the sides 29 of the clamp 30.

It should be apparent that with this arrangement the hold down angle 43 bears the entire weight of the unsupported top 20. The anchor bar 31 bearing against the hat-shaped channel 44 actually operates as a lever pivoted about the end which bears on the channel 44. The location of the bolt 33 takes advantage of the mechanical advantage obtained by the arrangement.

The assembly of the arrangement shown in Figs. 1 to 5 is simple and should be readily apparent. First, the desk 10 and table 20 are arranged in the manner shown in Fig. 1, with the side apron 16 of desk 10 and the end apron 24 of table 20 aligned and abutting each other with the table tops flush. Then the screw 40 at the end of the hanger member 32 is hooked around the apron 24. The bar 31 is properly placed with the side flanges 29 bearing against the channel 44 and the aprons 16 and 24. The bolt 33 is inserted through one of the aligned holes 45 of the hold down angle 43 and the nut 35 is screwed on the end of bolt 33 and tightened sufficiently to make the table tops 15 and 21 flush. When in this position, the finger 36 of the gripping unit 37 is adapted to fit around and grip the lower inside corner of the reinforcement member 41. Thus, screw 39 is tightened causing the apron 24 to be pulled tightly against the apron 16. Screw 40 is tightened pushing the apron 24 more tightly against the apron 16. With the entire clamp in place and the bolts 33 and screws 39 and 40 tightened, the free end of the table 20 is rigidly supported with the aprons 16 and 24 in tight, abutting relationship and the tops 15 and 21 flush.

Figs. 6, 7, 8, and 9 show a modified form of this invention. As will be seen from Fig. 6, this modification relates to the joining of an unsupported end of a table to a supported desk, the table being vertically offset from the desk top 15.

Desk 10 of Fig. 6 comprises all of the elements of the desk of Fig. 1. For example, there is shown the leg 14, drawer well 11, and legs 13 supporting the top 15. The top 15 includes the aprons 16 crimped inwardly to form the channel 18 in which the strip 81 for covering 19 is gripped, and the reinforcement hat-shaped channels 44 secured to the underside of the metal panel 17. The table top includes the sheet metal panel 23 formed downwardly

to provide the aprons 24. The aprons 24 are crimped inwardly forming the channel 25 in which strip 82 for the covering 27 is gripped. The hat-shaped reinforcement member 28 extends longitudinally of the table top underneath the panel 23. The side aprons of the desk are reinforced by somewhat V-shaped, rolled channels 80 similar in shape to the reinforcement member 41 (Fig. 9).

The side aprons 16 of the desk 10 are reinforced by rolled reinforcement member 41, one end of which rests within the aprons and the other end bears against the panel 17 (Fig. 9). The reinforcement member 41 is welded to both the aprons 16 and the panel 17. The hold down angle 43 is welded to the vertical web of the reinforcement member 41.

Since this modified form of this invention is adapted to support a free, unsupported end of a table having a top vertically offset from the top of the desk the clamp 50 comprises a hanger 55 extending downwardly to the level of the top 21. Hanger 55 is common to two channel anchor bars 51 and 52 of U-shaped cross sections with upstanding flanges 53. Similar to the form previously described, a bolt 54 extends through the bight portion of the U-shaped channel 51 and is adapted to be inserted in the holes 45 of the hold down angles 43. Each of the U-shaped anchor bars 51 are provided with a slot 58 in its upstanding flange 53 to seat the lip 59 of the hanger 55. The top of the flanges 53 between the end of the bar 51 and the slots 58 is notched out at 81 to provide space for the top horizontal flanges 60 of the hanger 55. The notch out at 81 is to a depth equal to the thickness of the material of the hanger 55 whereby the hanger will be firmly clamped between the anchor bars 52 and the reinforcement member 41 without misalignment of the anchor bars 52.

The hanger 55 is somewhat Z-shaped, having a top flange 60 with a depending lip 59 extending downwardly, a vertical, intermediate web 61, and a foot portion 62. The foot portion 62 has an upstanding terminal flange 63 through which the screw 64 is threaded. The foot 62 with its upstanding flange 63 forms a channel adapted to receive and seat the apron 24.

The clamp 50 is shown in operative position in Figs. 8 and 9. The anchor bars 51 and 52 are shown extending from the reinforcement member 41 to the first hat-shaped channel 44. The bolts 54 extend upwardly through selected ones of the holes 45 in the hold down angles 43. The nuts 65 are threaded on the end of the bolts 54, thus securing the bars 51 and 52 to the desk top 15. The position of the bolts 54 in respect to the fulcrum points at the hat-shaped reinforcement produces a mechanical advantage which permits the angle 43 to sustain the entire weight of top 21. The top horizontal flange 60 and its lip 59 are inserted and seated in the slots 58 and the notched portions 81. Thus the flange 60 nests between the reinforcement member 41 and the bars 51 and 52 and is held tightly in that position.

The vertical section 61 extends downwardly with the foot portion 62 hooked around the apron 24. The screws 64 are screwed in tightly securing the apron 24 in the channel of the foot portion 62 of the hanger 55. The engagement between the screws 64 and the radius at the bottom of the apron 25 urges the table top downwardly into the foot 62 of the hanger 55. With this arrangement the table top 21 is rigidly supported by the desk top 15 and is held in vertical offset relationship thereto thus maintaining its top level.

Wtih this modification the desk and table are joined together easily. First the clamp is mounted underneath the desk top 15, this being accomplished by placing the anchor bars 51 and 52 in position with the flange 60 located between the bars 51 and 52 and the apron reinforcement member 41. The bolts 54 are then inserted through the holes 45 of the hold down angle 43. The nuts 65 are threaded on the end of the bolt 54 until the clamp 50 is firmly secured to the top 15.

With the clamp 50 secured to the underside of the top 15 the table top 21 is brought into position as shown in Fig. 9 and apron 24 seated in the channel of the foot portion 62. In this position, the screws 64 are tightened thus pushing the apron 24 against the vertical section 61 of the hanger 55. After tightening the bolts 54 and screws 64, the table top 21 is firmly and rigidly supported by the top 15 of the desk and is held in level position in respect to the floor.

It will be seen that means have been provided for locking the side of a desk to the side of a table and supporting the free, unsupported end of the table. This means is quick and simple and adapted to be utilized in existing openings in the under-structure of the table and desk. With this means, the table and desk can be carried into an office separately, properly located and there assembled. Units can also be easily disassembled for rearrangement and movement of the furniture. Disassembly of the two units can be effected simply by loosening the screws 64 sufficiently to permit the apron 24 to be lifted out of the foot portion 62 of the hanger 55.

It should be understood that in describing this invention and the modification 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 the specification nor should the exact structure of the clamp 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 and one top having a free unsupported end supported by said other supported top, said supported top having a reinforcement member attached to its underside and arranged parallel to and spaced from the supported top's side apron, said reinforcement member extending downwardly substantially the same distance as said supported top's side apron, said means comprising: an elongated anchor bar adapted to extend underneath said supported top and span and bear against the apron and reinforcement member of said supported top; at least one fastening means located intermediate the ends of said anchor bar for securing said bar underneath and to said supported top; a hanger member secured to one end of said bar; and clamp means on said hanger member for supporting said side apron of said unsupported top; said fastening means being located proximate the apron and serving as a fulcrum whereby downward force on said hanger member is transmitted to the end of said anchor bar against said reinforcement member.

2. In means for locking together the tops of two units of metal furniture, each of said units having rigid depending side aprons and one top having a free unsupported end supported by said other supported top, said supported top having a reinforcement member attached to its underside and arranged parallel to and spaced from the supported top's side apron, said reinforcement member extending downwardly substantially the same distance as said supported top's side apron, said means comprising: a U-shaped elongated anchor bar having upstanding flanges adapted to span and bear against the apron and reinforcement member of said supported top; at least one fastening means adapted to secure said bar underneath said supported top, a hanger member secured to one end of each of said bars nearest the apron of said supported top; said hanger member having clamp means for supporting said apron of said unsupported top to said hanger; said fastening means being located proximate the apron and serving as a fulcrum whereby downward force on said hanger member is transmitted to the end of said anchor bar against said reinforcement member.

3. In means for locking together the tops of two units of metal furniture, each of said units having rigid depending side aprons and one top having a free unsupported end supported by said other supported top, said supported top having an elongated reinforcement member secured to its underside and spaced from one of its side aprons; said means comprising a plurality of anchor bars adapted to extend underneath said supported top from said apron to said reinforcement member, said bars adapted to bear against said apron and said reinforcement member; at least one fastening means located intermediate the ends of said anchor bars for securing said bars underneath and to each supported top; a hanger member secured to one end of each bar; and clamp means on said hanger member for supporting said side apron of said unsupported top said fastening means being located proximate the apron and serving as a fulcrum whereby downward force on said hanger member is transmitted to the end of said anchor bar against said reinforcement member.

4. In means for locking together the tops of two units of metal furniture, each of said units having rigid depending side aprons and one top having a free unsupported end supported by said other supported top, said supported top having a reinforcement member attached to its underside and arranged parallel to and spaced from the supported top's side apron, said reinforcement member extending downwardly substantially the same distance as said supported top's side apron, said means comprising: a plurality of elongated anchor bars adapted to extend underneath said supported top and bear against and span the apron and reinforcement member of said supported top; at least one fastening means located intermediate the ends of said anchor bars for securing said bars underneath and to said supported top; a hanger member secured to one end of each bar; and clamp means on said hanger member for supporting said side apron of said unsupported top; a hanger member secured to one end of each of said bars and extending upwardly therefrom; means for securing said side apron of said unsupported top to said hanger member; and gripping members adjustably mounted on each of said bars and adapted to grip the understructure of said supported top; and means secured to said hanger member for opening and closing said gripping members whereby said apron of said unsupported top can be pulled into abutting relationship with said apron of said supported top; said fastening means being located proximate the apron and serving as a fulcrum whereby downward force on said hanger member is transmitted to the end of said anchor bar against said reinforcement member.

5. In means for locking together the tops of two units of metal furniture, each of said units having an understructure for said top and rigid depending side aprons and one top having a free unsupported end supported by said other supported top, said means comprising: a plurality of U-shaped anchor bars having upstanding flanges adapted to bear against the understructure of said supported top and against the undersides of said aprons; securing means adapted to secure said bars underneath said supported top; a hanger member secured to one end of each of said bars nearest said apron and extending upwardly therefrom; means for removably securing said side apron of said unsupported top to said hanger member; and gripping members slidably mounted in each of said U-shaped channels of said bars and having a finger extending upwardly to grip existing understructure of said supported top; and means extending through said hanger member for moving said gripping units toward said hanger member, whereby said finger gripping said understructure causes the apron of said unsupported top to be pulled

into abutting relationship with said apron of said supported top.

6. In means for locking together the tops of two units of metal furniture, each of said units having rigid depending side aprons and one top having a free unsupported end supported by said other supported top, said unsupported top being vertically offset from said supported top, said supported top having a reinforcement member attached to its underside and arranged parallel to and spaced from the supported top's side apron, said reinforcement member extending downwardly substantially the same distance as said supported top's side apron, said means comprising: an anchor bar adapted to extend underneath said supported top and bear against the apron and reinforcement member of said supported top; at least one fastening means located intermediate the ends of said anchor bar for securing said bar underneath and to said supported top; a hanger member secured to one end of said bar and depending therefrom, and clamp means on said hanger member for supporting said side apron of said unsupported end, said fastening means being located proximate the apron and serving as a fulcrum whereby downward force on said hanger member is transmitted to the end of said anchor bar against said reinforcement member.

7. In means for locking together the tops of two units of metal furniture, each of said units having rigid depending side aprons and one top having a free unsupported end supported by said other supported top, said supported top having a reinforcement member attached to its underside and arranged parallel to and spaced from the supported top's side apron, said reinforcement member extending downwardly substantially the same distance as said supported top's side apron, said means comprising: a plurality of U-shaped anchor bars having upstanding flanges adapted to bear against the apron and reinforcement member of said supported top, at least one fastening means adapted to secure said bars underneath said supported top; a Z-shaped hanger member having, a top horizontal flange with a downwardly extending lip, an intermediate section extending downwardly, and an L-shaped foot portion forming a channel with said intermediate section adapted to receive said apron of said unsupported top; said U-shaped bars each having at one end nearest said apron a slot and cut-out portions in its flanges adapted to seat said top horizontal flange and its lip; said fastening means being located proximate the apron and serving as a fulcrum whereby downward force on said hanger member is transmitted to the end of said anchor bar against said reinforcement member.

8. In means for locking together the tops of two units of metal furniture, each of said units having rigid depending side aprons and one top having a free unsupported end supported by said other supported top, said supported top having a reinforcement member attached to its underside and arranged parallel to and spaced from the supported top's side apron, said reinforcement member extending downwardly substantially the same distance as said supported top's side apron, said means comprising: a plurality of U-shaped anchor bars having upstanding flanges adapted to bear against the apron and reinforcement member of said supported top, at least one fastening means adapted to secure said bars underneath said supported top; a Z-shaped hanger member having, a top horizontal flange with a downwardly extending lip, an intermediate section extending downwardly, and an L-shaped foot portion forming a channel with said intermediate section adapted to receive said apron of said unsupported top; said U-shaped bars each having at one end nearest said apron a slot and cut-out portions in its flanges adapted to seat said top horizontal flange and its lip; and means on said foot portion for removably securing said apron of said unsupporting top in said channel formed by said foot portion and said intermediate section, said fastening means being located proximate the apron and serving as a fulcrum whereby downward force on said hanger member is transmitted to the end of said anchor bar against said reinforcement member.

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