

Jan. 30, 1951

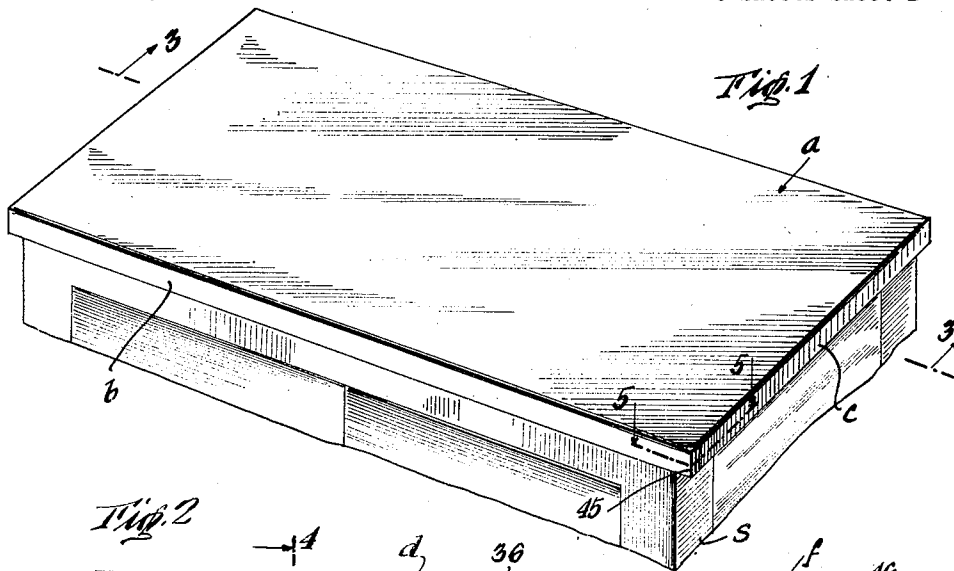
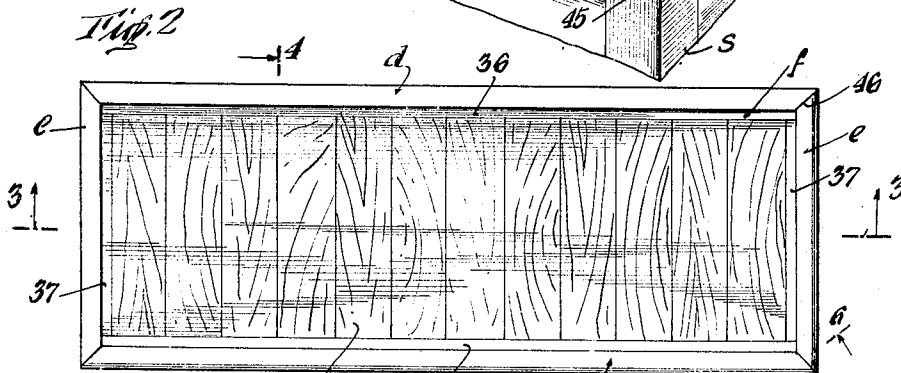
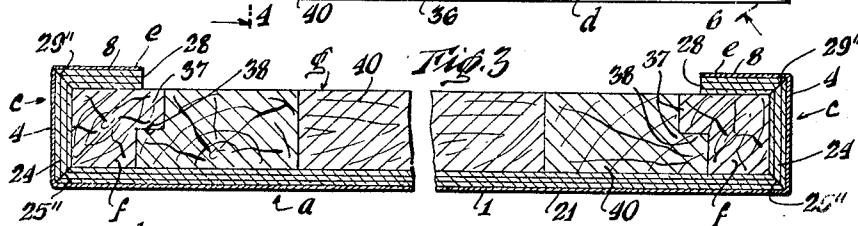
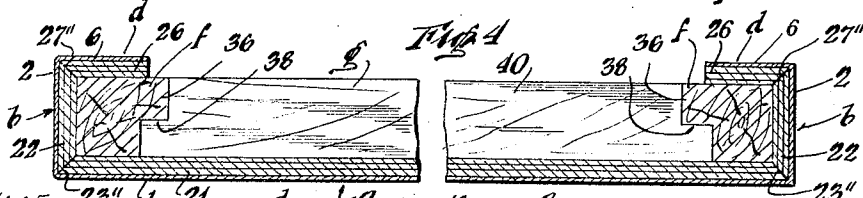
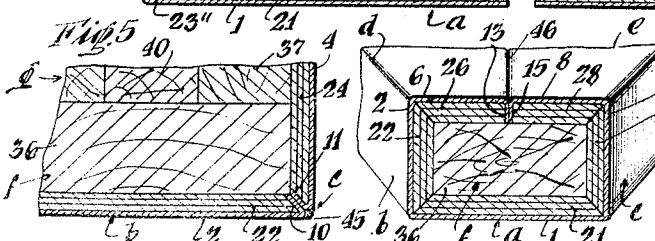
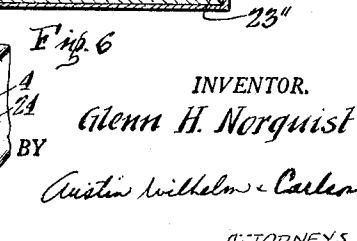
G. H. NORQUIST

2,539,461

METAL COUNTER TOP CONSTRUCTION

Filed Feb. 10, 1947

6 Sheets-Sheet 1



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METAL COUNTER TOP CONSTRUCTION

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Fig. 7

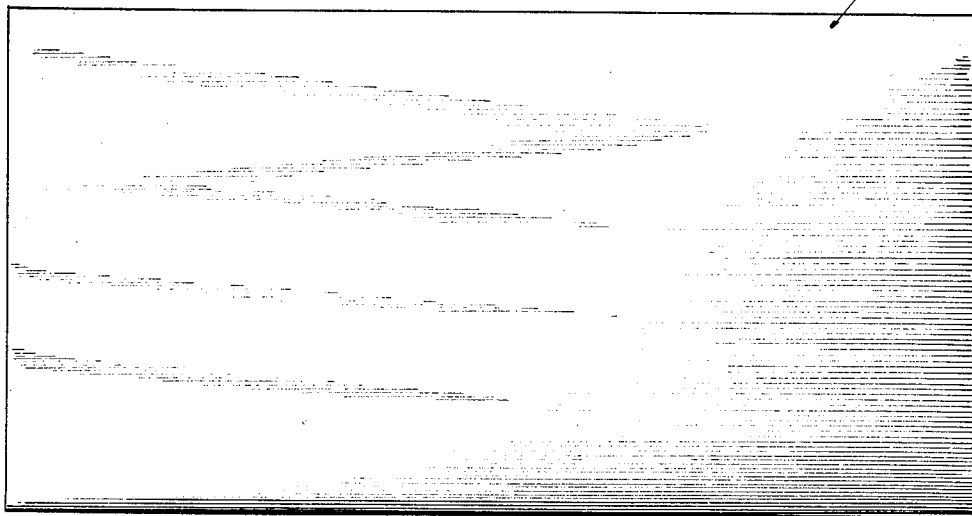
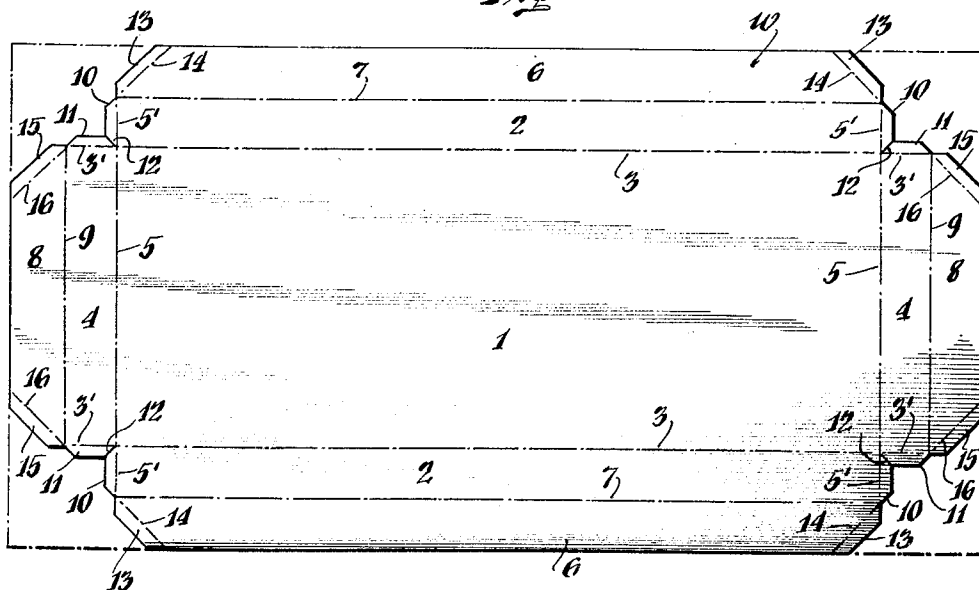


Fig. 8



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METAL COUNTER TOP CONSTRUCTION

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Fig. 9

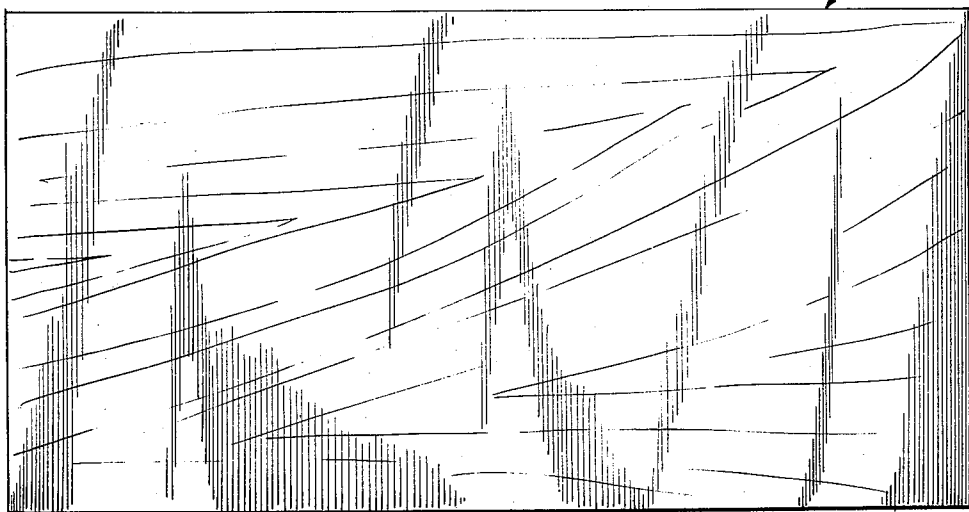
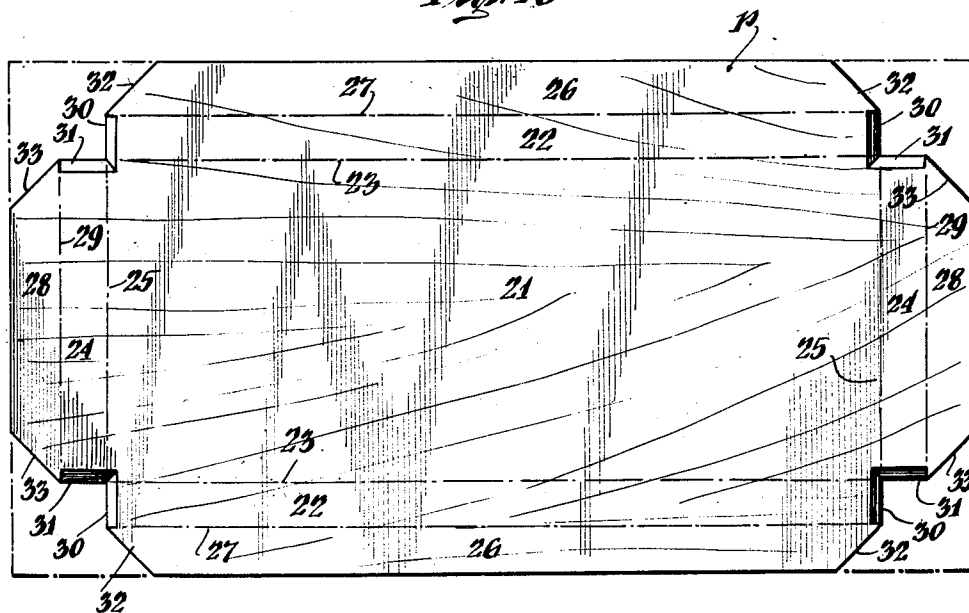


Fig. 10



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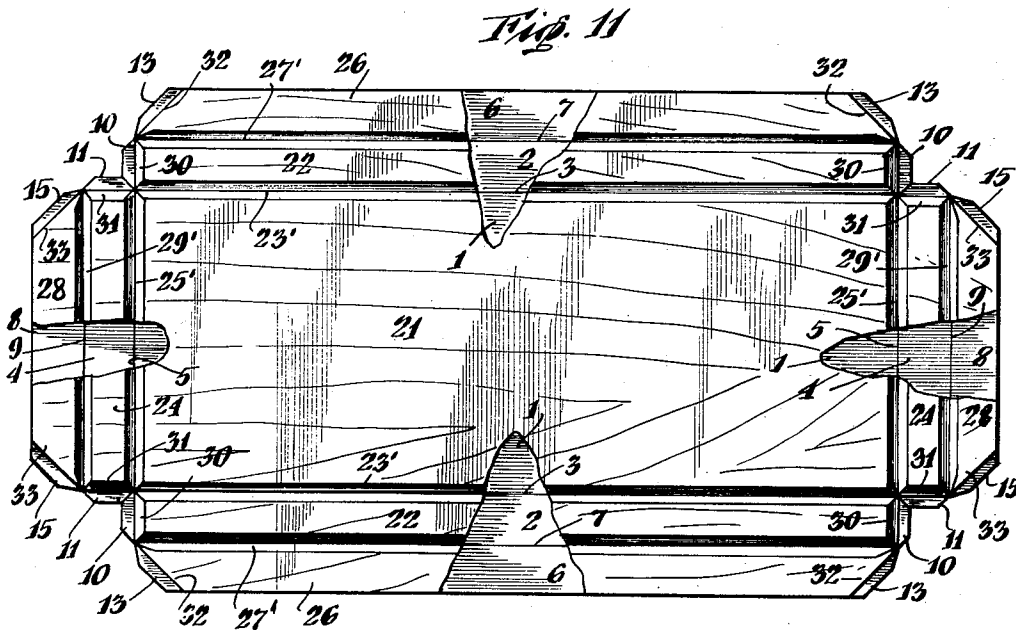
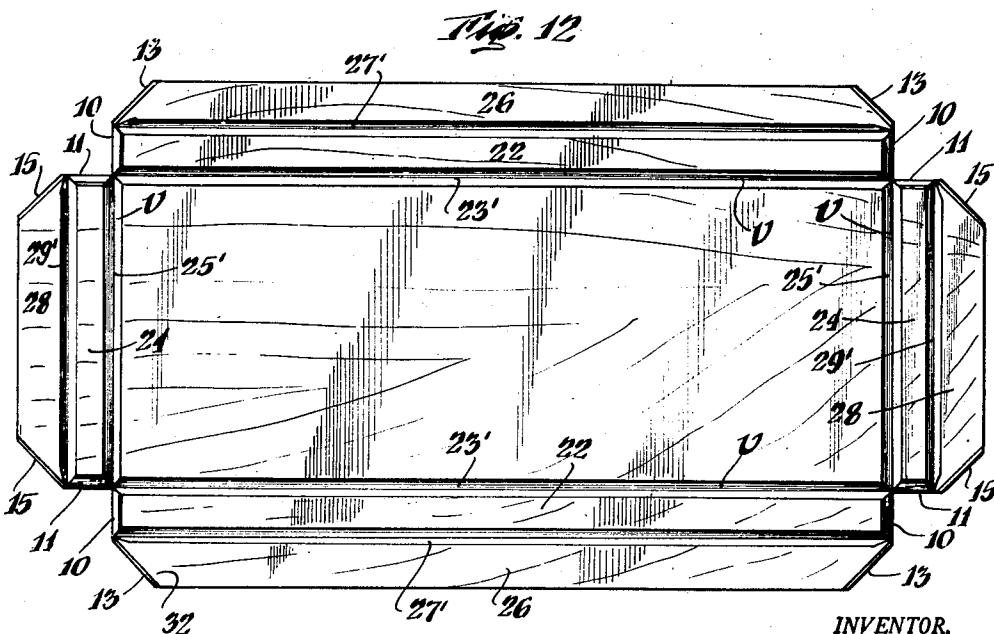
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METAL COUNTER TOP CONSTRUCTION

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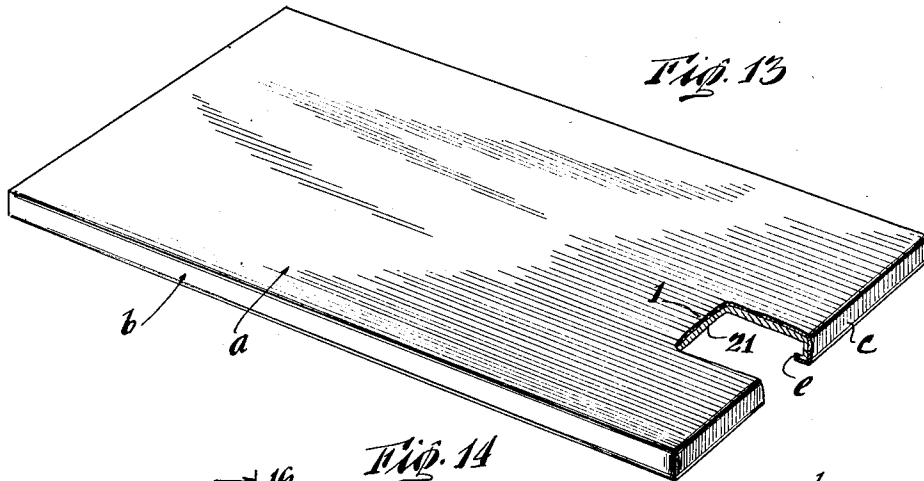
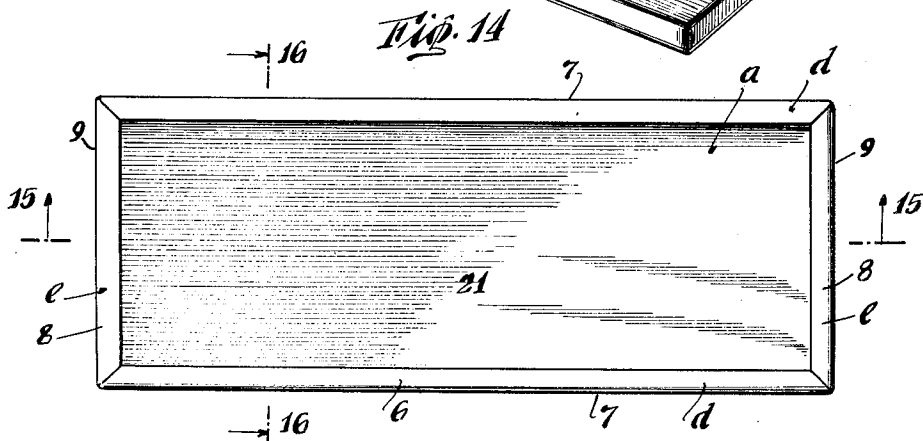
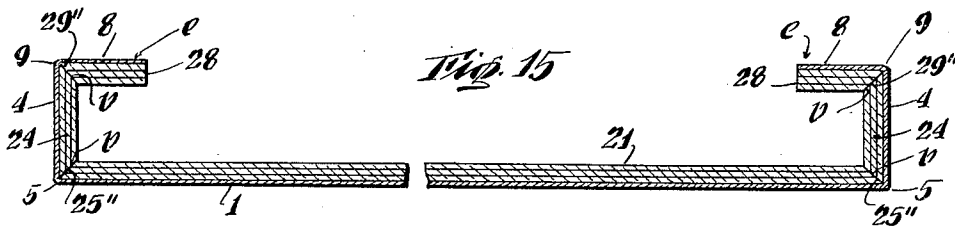
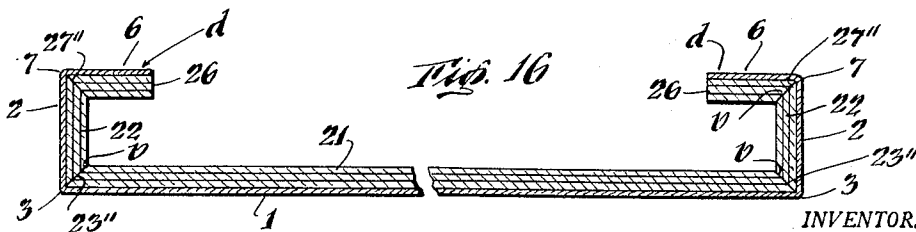
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METAL COUNTER TOP CONSTRUCTION

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6 Sheets-Sheet 5



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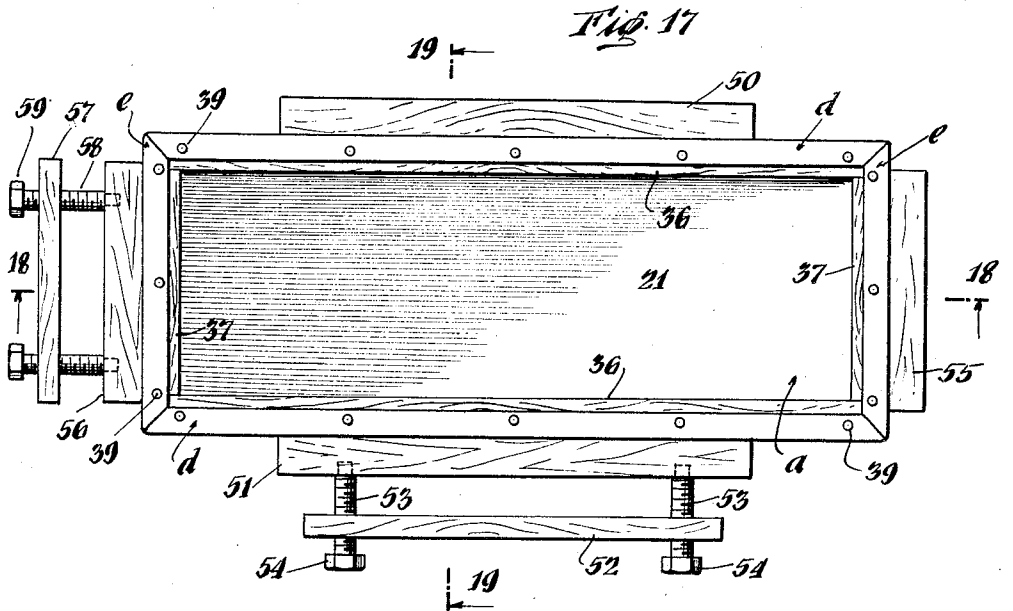
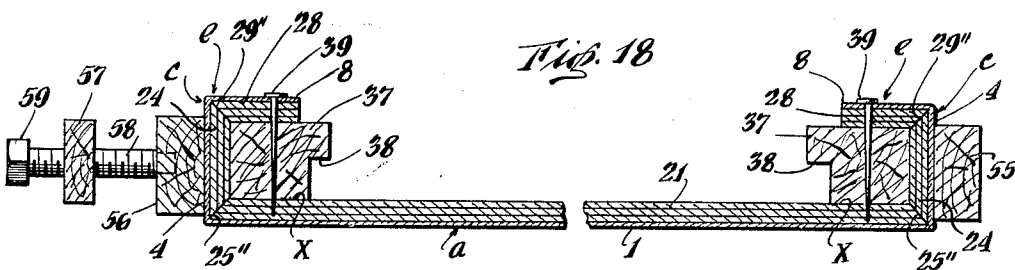
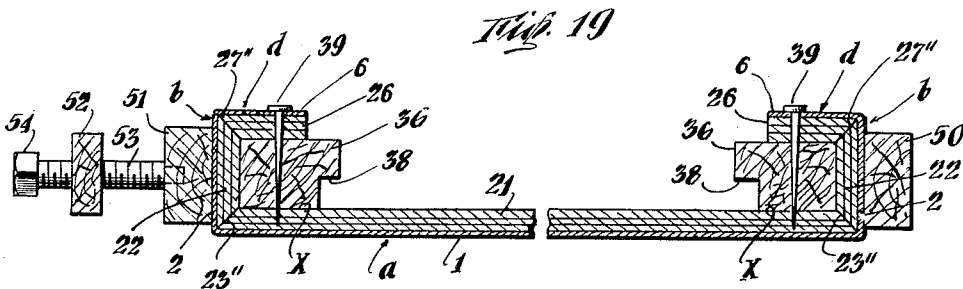
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METAL COUNTER TOP CONSTRUCTION

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6 Sheets-Sheet 6



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UNITED STATES PATENT OFFICE

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METAL COUNTER TOP CONSTRUCTION

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Application February 10, 1947, Serial No. 727,581

11 Claims. (Cl. 311—106)

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This invention relates to an improved counter top construction, and more particularly to a metal clad counter top having metal facing surfaces formed of sheet metal supported and reinforced by backing sections of fibrous material.

Metal clad counter tops constructed in accordance with this invention may be formed from a single sheet of light gauge facing metal stiffened and supported by fibrous backing sections fabricated from a backing panel with a minimum waste of material. The metal facing sheet selected is preferably a bright metal, such as stainless steel, Monel metal, aluminum, brass or copper, which may be polished and finished on the top side prior to cutting, shaping and bending thereof.

After the metal facing sheet has been polished, the corners thereof are cut to the proper shape, and a fibrous backing panel then adhesively bonded to the unfinished side of the metal facing sheet. The fibrous backing panel may be formed from laminated plywood, hard pressed fiberboard, composition board or like fibrous sheetings commonly used in the building industry. The fibrous backing panel is initially substantially rectangular in form. The corners of the backing panel are trimmed off and shaped to the proper contour before the backing panel is bonded to the metal facing sheet. The corner notching operation can be economically performed at high speed on a corner notching machine.

Shaping grooves of generally V-shaped cross section are cut into the rear face of the backing panel, which grooving operation may be quickly and economically preformed on an automatic grooving machine before the backing panel has been bonded to the metal facing sheet, but most preferably, after the backing panel has been bonded to the metal facing sheet. The groove lines are so spaced and arranged as to permit shaping of the metal clad panel to provide the depending apron sections extending around the front, rear and sides of the table section thereof. A bonding adhesive may be applied to the open V grooves prior to bending formation of the metal clad panel.

The polished metal facing sheet, with the grooved backing panel bonded thereto, may be shaped into counter top form in a clamping frame which serves to bend the apron sections into position substantially at right angles to the table section. While the apron sections are thus retained in fixed position, the flange sections can be turned inwardly and stiffening strips inserted to fit snugly within the pocket formed by the in-turned flange sections and the adjacent formed

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apron sections. The stiffening strips thus provide a rectangular frame which further strengthens the construction. The inturned flange sections may be secured to the stiffening frame as by nails or screws, whereupon the partially assembled counter top may be removed from the clamping frame and the bonding adhesive deposited in the mitered joints permitted to harden and set. Fibrous filler boards may be employed to fill the space within the stiffening frame to further stiffen and strengthen the construction.

The metal facing sheet is provided with lip portions extending from the ends of the apron sections thereof which are folded over the adjacent inclined ends of the apron backing sections before the apron sections are shaped into formed position. When the apron sections have been shaped to extend substantially at right angles to the table section of the metal clad panel, the adjacent lip portions of the metal sheet will be in face-to-face contact and extend diagonally inwardly from each vertical corner of the formed counter top. A seam of soldering or welding metal is applied to the exterior surface of the joint defined between the adjacent lip portions, the solder seeping inwardly between the adjacent faces of the lip portions to firmly bond the adjacent lip portions into integral union. The exterior surface of the metallic seam may be burnished or polished to give the corner a rounded and finished appearance.

Each end of each of the flange sections of the metal sheet is also provided with a lip portion designed to be bent over the adjacent square cut end of the flange backing section of the backing panel. When the counter top has been formed, the adjacent metal lip covered ends of the in-turned flange sections will be in substantially face-to-face contact. This joint may be filled by a seam of soldering or welding metal which bonds the adjacent lip portions into integral union, and the exposed surface of the seam burnished or polished. As thus constructed, the exposed metal facing surfaces of the counter top construction is wholly free from cracks, crevices or visible joints, providing a construction of great strength and sanitary qualities.

The fibrous backing sections bonded to the rear face of the metal facing sheet prevent wrinkling, warping or other undesired distortions of the metal sheet during shaping and bending thereof into counter top form, and in addition insures stiffness, strength and rigidity to the construction, provides a sound deadening effect so that the metal facing surfaces will not reverberate

or produce a metallic ring when drummed upon, and in addition permits the use of a relatively light gauge metal facing sheet which can be worked and shaped with relative ease. The framing strips snugly fitted within the U shaped cavity defined by the apron sections and the adjacent inturned flange sections, and the filler boards fitted within the confines of the stiffening frame, further enhances the rigidity and strength of the construction without substantially increasing its weight. The counter top construction has all the exposed surfaces thereof covered by an unbroken metallic layer which may be made from bright metal and thus can be easily cleaned and kept in a highly sanitary condition.

An object of this invention is to provide an improved counter top construction which can be manufactured at relatively low cost, which presents a continuous and unbroken metal facing surface free of visible joints and crevices, which is durable, strong and lasting in use and yet relatively light in weight, and which is attractive and pleasing in appearance.

Other objects and advantages of this invention will become apparent as the disclosure proceeds.

Although the characteristic features of the invention will be particularly pointed out in the claims appended hereto, the invention itself, and the manner in which it may be carried out, may be better understood by referring to the following description taken in connection with the accompanying drawings forming a part hereof, in which

Fig. 1 is a perspective view of the fully assembled counter top construction, made in accordance with this invention.

Fig. 2 is an underside view of the assembled counter top construction.

Fig. 3 is an enlarged fragmentary longitudinal cross sectional view of the counter top construction as the same would appear when viewed along line 3—3 of Figs. 1 and 2.

Fig. 4 is an enlarged fragmentary transverse cross sectional view of the counter top construction as the same would appear when viewed along line 4—4 of Fig. 2.

Fig. 5 is an enlarged fragmentary sectional view illustrating a corner detail of the counter top construction as the same would appear when viewed along line 5—5 of Fig. 1.

Fig. 6 is an enlarged fragmentary transverse sectional view showing further details of the corner construction as the same would appear when viewed along line 6—6 of Fig. 2.

Fig. 7 is a plan view of the rectangular metal sheet from which the metal facing surfaces of the counter top construction is formed, this view showing the sheet after the top surface thereof has been polished but before any forming operations have been performed thereon.

Fig. 8 is a plan view of the metal facing sheet after the corner cutting operations have been performed thereon.

Fig. 9 is a plan view of the fibrous backing panel used to provide backing support and reinforcement for the metal facing surfaces of the counter top construction, this view showing the backing panel in its initial state prior to cutting or shaping thereof.

Fig. 10 is a plan view of the fibrous backing panel shown in Fig. 9 after the corner cutting operations have been performed thereon.

Fig. 11 is a plan view of the metal clad panel comprising the fibrous backing panel shown in Fig. 10 adhesively bonded to the metal facing

sheet, as shown in Fig. 8, the fibrous backing panel as shown in Fig. 11 also having the appropriate groove formations cut therein, certain parts of the backing panel being shown cut away to illustrate further details.

Fig. 12 is a plan view of the underside of the metal clad panel as it would appear at a further stage of assembly with the lip portions of the metal sheet bent to overlie the adjacent end edges of the apron backing sections and flange backing sections of the backing panel.

Fig. 13 is a perspective view of the metal clad panel, as shown in Fig. 12, after the apron sections and flange sections have been shaped and folded into counter top form, a small portion thereof being shown broken away to illustrate further details.

Fig. 14 is a rear face view of the partially completed counter top construction as shown in Fig. 13.

Fig. 15 is an enlarged longitudinal cross sectional view of the partially completed counter top construction as the same would appear when viewed along line 15—15 of Fig. 14.

Fig. 16 is an enlarged transverse cross sectional view of the partially assembled counter top construction as the same would appear when viewed along line 16—16 of Fig. 14.

Fig. 17 is a rear face view of the counter top construction at a further stage of assembly, this view showing the partially assembled counter top construction set in a forming press to hold the apron sections in formed position, this view also showing the reinforcing frame inserted under and secured to the inturned flange sections.

Fig. 18 is an enlarged longitudinal cross sectional view through the table top construction assembled to the stage shown in Fig. 17 and as the same would appear when viewed along line 18—18 of Fig. 17; and

Fig. 19 is an enlarged transverse cross sectional view through the counter top construction shown in Fig. 17 as the same would appear when viewed along line 19—19 of Fig. 17.

Similar reference characters refer to similar parts throughout the several views of the drawings and specification.

This improved counter top construction, as generally illustrated in Figs. 1 to 6 inclusive, comprises a metal clad table section *a*, having depending front and rear apron sections *b* extending in generally parallel relationship, and depending side apron sections *c* extending in generally parallel relationship. The lower edges of the front and rear apron sections *b* are each joined to an inturned flange section *d*, and the lower edges of the side apron sections *c* are each joined to an inturned flange section *e*. The adjacent mitered ends of the side apron section *c* and the front and rear apron sections *b* meet to form the vertical corners of the counter top construction. The adjacent ends of the inturned flange sections *d* and *e* meet to form a mitered joint as shown more particularly in Fig. 2. The metal facing sections backed up by the fibrous backing sections are further reinforced by a stiffening frame *f* which seats under the inturned flange sections *d* and *e*, as shown more particularly in Figs. 2 to 6 inclusive. The space within the stiffening frame *f* may be packed with fibrous filler *g* to further deaden sound and further stiffen the construction.

This improved counter top construction may be used to provide a table top for restaurant, bar and merchandise counters, and tables, cab-

inets and like supporting structures S, as typically illustrated in Fig. 1. This improved counter top is adapted to be fixed and secured to the supporting structure by concealed fasteners, providing a construction which is strong and durable, light in weight, pleasing in appearance and highly sanitary, with all exposed surfaces thereof covered by a metal facing which is smooth and unbroken and free from crevices or cracks.

The exposed facing surfaces of this improved counter top construction can be economically manufactured from a single substantially rectangular sheet of bright metal such as stainless steel, aluminum alloy, Monel metal, magnesium alloy, tin, brass or copper, or ordinary sheet steel which is later to receive an enamel finishing coat. The metal facing sheet *w* as shown in Fig. 7 is initially substantially rectangular in form, and may be relatively thin metal, of from 18 to 30 gauge in thickness. As an initial step in the manufacture, the rectangular metal facing sheet *w* is first run through a sander or polisher to give one side of the sheet its final and ultimate polish and finish.

The corners of the rectangular metal sheet are then trimmed off as shown in Fig. 8, which operation can be quickly performed on a metal shearing press. As thus formed, the metal facing sheet presents a table section 1, front and rear apron sections 2 defined by the generally parallel extending bending lines 3, and side apron sections 4 defined by the generally parallel extending bending lines 5. The front and rear apron sections 2 are each provided with a flange section 6 defined by a bending line 7, and the side apron sections 4 are each provided with a flange section 8 defined by a bending line 9.

A lip portion 10 extends from each end of the front and rear apron sections 2 and is defined by a bending line 5' substantially in alignment with the adjacent bending line 5. Each end of each of the side apron sections 4 is also provided with a lip portion 11 defined by a bending line 3' substantially in alignment with the adjacent bending line 3. The adjacent lip portions 10 and 11 are separated by a diagonally extending cut 12 which terminates at the adjacent corner of the table forming section 1. Each end of the front and rear flange sections 6 are also provided with a projecting lip portion 13 defined by the bending line 14 which terminates at the adjacent corner of the adjacent apron section 2. Each of the bending lines 14 extends at an angle of approximately 45° with respect to the adjacent bending line 7. Each end of each of the side flange sections 8 is also provided with a lip portion 15 defined by a bending line 16 which terminates at the adjacent corner of the adjacent side apron section 4. Each of the bending lines 16 extends at an angle of approximately 45° with respect to the adjacent bending line 9.

It will be appreciated that the bending lines 3 and 7, 5 and 9, 5' and 3', 14 and 16 are the lines along which the metal facing sheet, as shown in Fig. 8, will be bent in a later forming operation. These bending operations are performed only after the fibrous backing panel *p* has been bonded to the rear surface of the metal facing sheet *w*.

The fibrous backing panel *p* as shown in Fig. 9 may be formed of laminated plywood, hard pressed fiberboard, pressed composition board, or like relatively strong fibrous sheeting commonly used in the building industry. The fibrous backing panel *p* is preferably approximately ¼ inch in thickness, although it will be appreciated that

the fibrous backing panel may vary in thickness from as low as ⅛ of an inch to ½ inch or more in thickness. The fibrous backing panel is initially approximately rectangular in shape as shown in Fig. 9.

As an initial operation, the corners of the plywood backing panel *p* are shaped and trimmed off as generally illustrated in Fig. 10. This operation can be performed upon an automatic notching press whose cutting knives are so arranged as to accurately give the trimmed corner edges the desired contour. When the corners of the fibrous backing panel have thus been trimmed off as shown in Fig. 10, the backing panel defines a table backing section 21, front and rear apron backing sections 22 defined by generally parallel extending grooving lines 23, and side apron backing sections 24 defined by the generally parallel extending grooving lines 25. A pair of flange backing sections 26 may also be provided for, each defined by a grooving line 27 which extend generally parallel to the paired grooving lines 23. A pair of side flange backing sections 28 may also be provided for, each defined by a grooving line 29 which extends generally parallel to the paired grooving lines 25.

Each end 30 of each of the front and rear apron backing sections 22 is sliced, by the corner notching operation previously described, on an approximately 45° slant with respect to the metal attaching face of the backing section 22, and with the sloped end 30 substantially in alignment with the adjacent grooving line 25. Each end 31 of the side apron backing sections 24 is also sliced on an approximately 45° incline, with respect to the metal attaching face of the backing section 24, with the sloped end 31 approximately in alignment with the adjacent grooving line 23. Each end 32 of the front and rear flange backing sections 26 are cut at an angle extending approximately 45° to the adjacent grooving line 27, and terminate at the adjacent corner of the adjacent apron backing section 22. Each end face 32 of each of the flange backing sections 26 is, however, cut to present a square cut end extending at a right angle to the attaching face of the backing section 26. Each end 33 of each of the side flange backing sections 28 are cut at an angle of approximately 45° with respect to the adjacent grooving line 29, the end face 33 terminating at the adjacent corner of the adjacent side apron backing section 24. Each end face 33 is square cut so as to extend at a right angle with respect to the metal attaching face of the flange section 28.

As thus cut and formed, it will be appreciated that the backing panel is flat as shown in Fig. 10, and that the adjacent ends 30 and 31 of the side apron backing sections 24 and the adjacent front and rear apron backing sections 22, extend at an angle of approximately 90° with respect to each other and are sloped at an angle of 45° with respect to the metal attaching face to the apron backing sections. The ends 32 of the front and rear flange backing sections 26 each extend at an angle of 45° with respect to the sloped end 31 of the adjacent side apron backing sections 24. The ends 33 of the side flange backing sections 28 each extend at an angle approximately 45° to the adjacent end 30 of the adjacent front and rear apron backing sections 22. Finally, the square cut ends 32 of the front and rear flange backing sections 26, and the square cut end 33 of each side flange backing section 28 would also extend at an angle of approximately 90° with respect to the

metal attaching face of the adjacent flange backing section.

It will be noted that the grooving lines 23 and 27, 25 and 29 of the backing panel *p* at this stage of manufacture, as shown in Fig. 10, may be only mark lines intended to indicate the location where the V grooves will be cut in the rear face of the fibrous backing panel. These V grooves may be cut in the rear face of the backing panel before it is adhesively bonded to the metal facing sheet *w*, but preferably the grooves are formed in the rear face of the fibrous backing panel after the backing panel has been adhesively bonded to the metal facing sheet *w*.

As shown in Fig. 11, the fibrous backing panel is adhesively bonded by a layer of adhesive to the unpolished underface of the metal facing sheet *w* formed as illustrated in Fig. 8. The table backing section 21 is shaped to neatly cover the rear face of the metal table section 1 as defined by the parallel extending bending lines 3 and 5 thereof; the front and rear apron backing sections 22 are designed to cover the rear face of the front and rear apron sections 2 of the metal sheet and neatly defined between the bending lines 3, 7 and 5' thereof; the side apron backing sections 24 are designed to neatly cover the rear face of the side apron sections 4 of the metal sheet as defined by the bending lines 5, 9 and 3' thereof; the front and rear flange backing sections 26 are designed to cover the rear face of the front and rear flange sections 6 of the metal sheet as defined by the bending lines 7 and 13 thereof; and the side flange backing sections 28 are designed to neatly cover the side flange sections 8 of the metal sheet as defined by the bending lines 9 and 16 thereof. A metal clad panel is thus provided properly shaped for further processing operations. To facilitate accurate registry of the backing panel with the metal facing sheet, the lip portions 10, 13, 11 and 15 of the metal facing sheet may be bent upwardly prior to the application of the backing panel thereto, so that the lip portions will abut the adjacent end faces of the backing panel, thus insuring accurate registry of the backing panel until the adhesive has attained a firm set.

At this stage of assembly, it will be assumed that no V grooves have yet been formed in the fibrous backing panel. The desired V grooves can be expeditiously cut into the rear face of the plywood backing panel after the backing panel has been adhesively and firmly bonded to the metal facing sheet *w*. The grooving operations can be performed at a high rate of production on two automatic grooving machines, each equipped with four grooving wheels properly spaced to perform the desired grooving operations. Parallel extending V grooves 23' are cut in the backing panel by one pair of grooving wheels, the parallel grooves 23' being located along the grooving lines 23 illustrated in dot and dash lines in Fig. 10. The parallel V grooves 23' are so located that the valley of each groove is located directly over the proposed bending line 3 of the metal facing sheet. Parallel extending grooves 27' are cut by the second pair of grooving wheels along the proposed grooving lines 27, as shown in dot and dash lines in Fig. 10, so as to directly overlie the proposed bending lines 7 of the metal sheet.

The second grooving machine is provided with one pair of grooving wheels which cut the V grooves 25' along the proposed grooving lines 25 shown in dot and dash lines in Fig. 10. The

valley of each V groove 25' is located directly over the adjacent proposed bending line 5 of the metal sheet. The second pair of grooving wheels cut the V grooves 29' along the grooving lines 29 as shown in dot and dash lines in Fig. 10. The valley of the V grooves 29' are located directly over the adjacent proposed bending lines 9 of the metal sheet.

These grooving operations can be performed with accuracy and precision by an automatic grooving machine of the type disclosed in my copending application, now Patent No. 2,505,788, contributing to the low cost production of metal clad counter tops of high quality. It will be noted that the inner inclined faces of the V grooves 23' are substantially in alignment with the adjacent sloped ends 31 of the side apron backing sections 24, and the inclined inside faces of the V grooves 25' are substantially in alignment with the adjacent inclined end faces 30 of the adjacent front and rear apron backing sections 22 as shown in Fig. 11. The tapered extremities of the inclined ends 30 of the front and rear apron backing sections 22 are substantially in alignment with the adjacent bending line 5' of the adjacent metal lip portions 20, and the tapered extremities of the inclined ends 31 of the side apron backing sections 24 are in substantial alignment with the adjacent bending line 3' of the adjacent metal lip portions 11. Likewise, the square cut ends 32 of the front and rear flange backing sections 26 are each substantially in alignment with adjacent bending line 14 of the adjacent metal lip portion 13, and the square cut end 33 of the side flange backing sections 28 are each substantially in alignment with the bending line 16 of the adjacent metal lip portion 15. These features will be further apparent from an examination of the structural details shown in Figs. 8, 10 and 11.

In the next operation as more particularly illustrated in Fig. 12, each metal lip portion 10 is folded along its bending line 5' so as to snugly overlie the adjacent inclined end face 30 of the front and rear apron backing sections 22; and each metal lip portion 11 is bent along its bending line 3' so as to snugly overlie the adjacent sloped end 31 of the adjacent side apron backing sections 24. Similarly, each metal lip portion 13 is bent along its bending line 14 so as to snugly overlie the adjacent end 32 of the adjacent front and rear flange backing sections 26; and each metal lip portion 15 is bent along its bending line 16 so as to snugly overlie the adjacent end 33 of the side flange backing sections 28. When this operation has been completed, the metal clad panel will appear as illustrated in Fig. 12, and the panel will be ready for shaping into counter top form.

Immediately before the shaping operation, it may be desirable to apply a strip of bonding adhesive *v* within the V shaped grooves 23', 27', 25' and 29', and to the end faces 32, 30, 31 and 33 of the backing panel. Thereupon the front and rear apron sections *b*, and the side apron sections *c* are bent to extend substantially at right angles to the table section *a*, as shown more particularly in Figs. 13 to 16 inclusive. The front and rear flange sections *d* and the side flange sections *e* are also bent inwardly so as to extend substantially at right angles to their associated apron sections *b* and *c*. This operation can be performed by hand or by a simple shaping jig or fixture. As thus formed, the V grooves 23' and 25' will close to form mitered joints 23''' and 25'',

as shown more particularly in Figs. 15 and 16, with the bonding adhesive x sandwiched therebetween. Likewise, the open V grooves 27' and 29' as shown in Fig. 12 will be closed to form mitered joints 27'' and 29'' as shown in Figs. 15 and 16. It will be further noted that upon the completion of the shaping operation, the adjacent metal lip portions 10 and 11 will be brought into face-to-face contact as shown more particularly in Fig. 5, and the adjacent metal lip portions 13 and 15 will be brought into face-to-face contact as shown in Fig. 6.

The front and rear apron sections b and the side apron sections c may be held in their proper formed position by a clamping frame as illustrated in Figs. 17 to 19 inclusive. The clamping frame may be associated with a suitable work table upon which the partially formed counter top construction is supported, the table having associated therewith a rear clamp bar 50 which may be fixed to the work table and an adjustable front clamp bar 51 between which the front and rear apron sections b are clamped. The adjustable clamping bar 51 may have associated therewith a fixed bar 52 preferably made of metal having threaded apertures therein for the reception of the threaded adjusting bolts 53 having suitable manipulating heads 54. The side apron section c may likewise be clamped between a fixed clamping bar 55 and an adjustable clamping bar 56, the adjustable clamping bar 56 being manipulated by means of threaded bolts 58 supported in the threaded apertures associated with a fixed bar 57, the manipulating bolts 58 having suitable manipulating heads 59. By the use of a clamping frame as above generally described, it is appreciated that the front and rear apron sections b and the side apron section c may be firmly held in their intended fixed position substantially at right angles to the table section a .

A reinforcing and stiffening frame f is then inserted under the inturned flange sections d and e , as shown more particularly in Figs. 17, 18 and 19. This is preferably accomplished by providing a pair of front and rear stiffening strips 36, which may be made of wood or like fibrous material, each shaped to snugly fit within the U shaped pocket defined by the adjacent apron section b and flange section d . Each of the stiffening strips 36 preferably extend along the full inside face of the adjacent apron backing section 22. The stiffening strips 36 may be coated with a bonding adhesive x which upon hardening will adhesively secure the stiffening strip to the adjacent faces of the flange backing section 22, apron backing section 22 and table backing section 21. A pair of side stiffening strips 37, suitably shaped and coated with adhesive x , are inserted to snugly fit within the pocket defined by the side flange sections e , and side apron sections c , as shown more particularly in Figs. 15 and 16. The side stiffening strips 37 extend between the adjacent ends of the front and rear stiffening strips 36. The adjacent ends of the stiffening strips may have a notched interlock and may be further secured together by nails or screws to provide a relatively rigid reinforcing frame f .

Before the partially assembled counter top construction is removed from the clamping frame as shown in Figs. 17, 18 and 19, it is desirable to secure the inturned flange sections d and e to the adjacent framing strips 36 and 37 as by screws or nails 39, which thus serve to hold the flange sections d and e and the apron sections b and c in proper assembled relationship

until the bonding adhesive x has fully set. If no bonding adhesive x is used, a sufficient number of space screws or nails 39 are employed to maintain the assembly in assembled position after removal thereof from the clamping frame.

To further stiffen and strengthen the construction, the space defined within the stiffening frame f may be filled with a backing filler g as shown more particularly in Figs. 2 to 6 inclusive. The backing filler g may comprise a plurality of boards 40 formed of wood or other fibrous material which may extend either longitudinally or transversely of the counter top construction. The filler boards 40 may have a notched interlock connection 38 with the stiffening strips 36 and 37 shown more particularly in Figs. 3 and 4, and the boards may be spaced apart at the time of installation to permit normal expansion of the boards, so that no undue stress is placed on the bonding adhesive, backing panel, or the metal facing sheet as a result of normal expansion of the boards.

Since all the exposed faces of the metal surfacing sheet have been polished while the sheet was in flat form as shown in Fig. 7, the only remaining operation to give the counter top construction its final finished appearance is to apply a seam 45 of soldering or welding metal to the vertical corners as shown in Figs. 1 and 5. The molten soldering or welding metal will seep in between the adjacent faces of the inturned lip portions 10 and 11 of the metal sheet so as to integrally bond the lip portions 13 and 11 together over a substantial surface area, providing a corner construction of great strength. The exterior surface of the metal seam 45 may be burnished and polished to provide a smooth and rounded corner free of cracks or any visible lines of juncture. A seam 45 of soldering or welding metal may also be applied to the adjacent inturned lip portions 13 and 15 of the metal sheet as shown in Figs. 2 and 6, the molten metal readily seeping between the adjacent surfaces of the lip portion 13 and 15 to integrally bond them together into a joint of great strength. The exposed surface of the metal seam 45 may be polished or burnished to provide a smooth juncture free of cracks or any visible lines of juncture.

It will thus be appreciated that the adjacent ends of the side apron sections 4 and front and rear apron sections 2 of the metal sheet are integrally bonded together by an invisible metallic seam 45 which provides a construction of pleasing appearance and great strength. The adjacent ends of the side flange sections 8 and front and rear flange sections 6 are integrally bonded together by the metal seams 46 as shown in Figs. 2 and 6, further enhancing the appearance of the construction and increasing the strength and durability thereof.

Counter tops may be made in accordance with this invention of any desired width and length to satisfy requirements. The apron sections b and c may also be made of any desired height and the inturned flange sections d and e may extend inwardly for any desired distance. For example, the table section a may vary from one foot to ten feet or more in length, and may vary in width from one foot to five feet or more. The apron sections d and e may vary from one inch to ten or more inches in height. This improved counter top construction may be made to satisfy any dimensional requirements.

By reason of the fibrous backing sections which support the entire area of the metal table sec-

tion 1, the front and rear metal apron sections 2, and the metal side apron sections 4, an improved counter top construction is provided which is free of metallic ring or sound when drummed upon. The application of fibrous backing sections to the sheet metal prior to bending formation thereof, permits the use of a relatively light gauge metal facing sheet which is prevented from wrinkling or warping by the backing sections adhesively bonded thereto. By constructing the counter top in the manner above described, the exposed face of the metal sheet may be sanded and finished rapidly and economically in its flat condition and before any forming operations are executed thereon, thus avoiding the more difficult and time consuming finishing operations normally necessary after the counter top has been constructed. By forming the facing surfaces of the counter top from a single piece of sheet metal, crevices and cracks in which foreign matter may gather is substantially avoided. Extensive and time consuming welding and soldering operations, heretofore necessary in the manufacture of metal clad counter tops as heretofore constructed, are also avoided.

Metal clad counter tops constructed as above described are unusually light in weight, since strength is achieved by the use of relatively light fibrous backing sections and wood or fibrous filler boards and strips. The counter top nevertheless possesses unusual strength and rigidity and will not warp or deform during manufacture, or during shipment, or while in use. Counter tops may be manufactured in accordance with this invention to snugly fit and seat upon any desired supporting structure S. The inturned flange sections d and e may be made of sufficient width so that the inner ends thereof and the associated securing screws or nails 39 are concealed by the structure upon which the counter top is supported.

Counter tops may be manufactured in accordance with the teachings of this invention on a mass production basis at greatly reduced cost as compared with methods heretofore employed in the construction of metal clad counter tops. These improved counter tops are lasting in use, provide a construction of lasting utility, and highly attractive and appealing in appearance and finish.

While certain novel features of the invention have been disclosed herein, and are pointed out in the annexed claims, it will be understood that various omissions, substitutions, and changes may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. An improved counter top construction having a table top section, apron sections depending from said table top section, and flange sections extending inwardly from said apron sections, said counter top being formed from a metal sheet shaped to form the facing surfaces for said table top section, apron sections and flange sections, fibrous backing sections bonded to said metal facing sheet to provide backing support for the table top section and apron sections of said metal facing sheet, the adjacent ends of said apron backing sections presenting mitered joints therebetween, said apron sections of the metal sheet having a lip portion at the ends thereof extending inwardly and in hugging contact with the adjacent mitered end of the adjacent backing section, the adjacent metal lip portions being in face-to-face contact, and a seam of bonding

metal covering the exterior joint between said inturned lip portions bonding said lip portions into integral union, the space defined within said apron sections being filled with fibrous filler providing a counter top presenting finished metal facing surfaces supported and reinforced by fibrous material.

2. An improved counter top construction having a table top section, apron sections depending from said table top section, and flange sections extending inwardly from said apron sections, said counter top being formed from a metal sheet forming the facing surfaces for said table top section, apron sections and flange sections, fibrous backing sections bonded to said metal facing sheet to provide backing support for the table top section, apron sections and flange sections of said metal facing sheet, the adjacent ends of said apron backing sections and flange backing sections presenting mitered joints therebetween, said apron sections and flange sections of the metal sheet having a lip portion at the ends thereof extending inwardly and in hugging contact with the adjacent mitered end of the adjacent backing section, the adjacent metal lip portions being in face-to-face contact, the space defined within said apron sections being filled with fibrous filler providing a counter top presenting finished metal facing surfaces supported and reinforced by fibrous material.

3. An improved counter top construction having a table top section, apron sections depending from said table top section, and flange sections extending inwardly from said apron sections, said counter top being formed from a one piece metal sheet forming the facing surfaces for said table top section, apron sections and flange sections, and fibrous backing sections bonded to said metal facing sheet to provide backing support for the table top section and apron sections of said metal facing sheet, the adjacent edges of said fibrous backing sections presenting mitered joints therebetween, each of the apron sections of the metal sheet having a lip portion at each end thereof extending inwardly and in hugging contact with the adjacent mitered end of the adjacent backing section, the adjacent metal lip portions being in face-to-face contact.

4. An improved counter top construction having a table top section, apron sections depending from said table top section, and flange sections extending inwardly from said apron sections, said counter top being formed from a one piece metal sheet forming the facing surfaces for said table top section, apron sections and flange sections, fibrous backing sections bonded to said metal facing sheet to provide backing support for the table top section, apron sections and flange sections of said metal facing sheet, the adjacent edges of said fibrous backing sections presenting close fitting mitered joints therebetween, each of the apron sections and flange sections of the metal sheet having a lip portion at an end thereof extending inwardly and in hugging contact with the adjacent mitered end of the adjacent backing section, the adjacent metal lip portions being in face-to-face contact, and a seam of bonding metal covering the exterior joint between said adjacent inturned lip portions associated with said apron sections bonding said lip portions into integral union.

5. An improved counter top construction having a table top section, apron sections depending from said table top section, and flange sections

extending inwardly from said apron sections, said counter top being formed from a one piece metal sheet forming the facing surfaces for said table top section, apron sections and flange sections, fibrous backing sections bonded to said metal facing sheet to provide backing support for the table top section and apron sections of said metal facing sheet, the adjacent ends of said apron backing sections presenting mitered joints therebetween, each of the apron sections of the metal sheet having a lip portion at an end thereof extending inwardly and in hugging contact with the adjacent mitered end of the adjacent backing section, the adjacent metal lip portions being in face-to-face contact, and a stiffening frame formed from stiffening strips of fibrous material seating within the pocket formed by the adjacent apron sections and associated flange sections providing a counter top presenting finished metal facing surfaces supported and reinforced by said backing sections and stiffening frame.

6. An improved counter top construction having a table top section, apron sections depending from said table top section and flange sections extending inwardly from said apron sections, said counter top being formed from a one piece metal sheet forming the facing surfaces for said table top section, apron sections and flange sections, fibrous backing sections bonded to said metal facing sheet to provide backing support for the table top section and apron sections of said metal facing sheet, the adjacent edges of said fibrous backing sections presenting mitered joints therebetween, each of the apron sections of the metal sheet having a lip portion at each end thereof extending inwardly and in hugging contact with the adjacent mitered end of the adjacent backing section, the adjacent metal lip portions being in face-to-face contact, and a seam of bonding metal covering the exterior joint between said inturned lip portions bonding said lip portions into integral union, and a stiffening frame formed from stiffening strips of fibrous material seating within the pocket formed by the adjacent apron sections and associated flange sections providing a counter top presenting finished metal facing surfaces supported and reinforced by said backing sections and stiffening frame.

7. An improved counter top construction having a table top section, apron sections depending from said table top section and flange sections extending inwardly from said apron sections, said counter top being formed from a one piece metal sheet forming the facing surfaces for said table top section, apron sections and flange sections, fibrous backing sections bonded to said metal facing sheet to provide backing support for the table top section, apron sections and flange sections of said metal facing sheet, the adjacent edges of said fibrous backing sections presenting close fitting mitered joints therebetween, each of the apron sections and flange sections of the metal sheet having a lip portion at the ends thereof extending inwardly and in hugging contact with the adjacent mitered end of the adjacent backing section, the adjacent metal lip portions being in face-to-face contact, and a seam of bonding metal covering the exterior joint between the adjacent inturned lip portions associated with said apron sections bonding said lip portions into integral union, and a stiffening frame formed from stiffening strips of fibrous material seating within the pocket formed by the adjacent apron sections and associated flange sections providing a

counter top presenting finished metal facing surfaces supported and reinforced by said backing sections and stiffening frame.

8. An improved counter top construction having a table top section, apron sections depending from said table top section, and flange sections extending inwardly from said apron sections, said counter top being formed from a one piece metal sheet forming the facing surfaces for said table top section, apron sections and flange sections, fibrous backing sections bonded to said metal facing sheet to provide backing support for the table top section and apron sections of said metal facing sheet, the adjacent edges of said fibrous backing sections presenting close fitting mitered joints therebetween, each of the apron sections of the metal sheet having a lip portion at each end thereof extending inwardly and in hugging contact with the adjacent mitered end of the adjacent backing section, the adjacent metal lip portions being in face-to-face contact, and a seam of bonding metal covering the exterior joint between said inturned lip portions bonding said lip portions into integral union, a stiffening frame formed from stiffening strips of fibrous material seating within the pocket formed by the adjacent apron sections and associated flange sections, the space defined within said stiffening frame being filled with fibrous filler providing a counter top presenting finished metal facing surfaces supported and reinforced by said backing sections, stiffening frame and fibrous filler.

9. An improved counter top construction having a table top section, apron sections depending from said table top section and flange sections extending inwardly from said apron sections, said counter top being formed from a one piece metal sheet forming the facing surfaces for said table top section, apron sections and flange sections, fibrous backing sections bonded to said metal facing sheet to provide backing support for the table top section, apron sections and flange sections of said metal facing sheet, the adjacent edges of said fibrous backing sections presenting mitered joints therebetween, each of the apron sections and flange sections of the metal sheet having a lip portion at the ends thereof extending inwardly and in hugging contact with the adjacent mitered end of the adjacent backing section, the adjacent metal lip portions being in face-to-face contact, and a seam of bonding metal covering the exterior joint between the adjacent inturned lip portions associated with said apron sections bonding said lip portions into integral union, a stiffening frame formed from stiffening strips of fibrous material seating within the pocket formed by the adjacent apron sections and associated flange sections, the space defined within said stiffening frame being filled with fibrous filler providing a counter top presenting finished metal facing surfaces supported and reinforced by said backing sections, stiffening frame and fibrous filler.

10. An improved counter top construction having a table top section, apron sections depending from said table top section, and flange sections extending inwardly from said apron sections, said counter top being formed from a one piece metal sheet shaped to form the facing surfaces of said table top section, apron sections and flange sections, fibrous backing sections bonded to said metal facing sheet to provide backing support for the table top section and apron sections of said metal facing sheet, the adjacent ends of said apron backing sections presenting mitered joints

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therebetween, each of said apron sections of the metal sheet having a lip portion at each end thereof extending inwardly and in overlying hugging contact with the adjacent mitered end of the adjacent apron backing section, the adjacent metal lip portions being in face-to-face contact and a seam of bonding metal covering the exterior joint between said inturned lip portions bonding said lip portions into integral union.

11. An improved counter top construction having a table top section, apron sections depending from said table top section, and flange sections extending inwardly from said apron sections, said counter top being formed from a one piece metal sheet shaped to form the facing surfaces of said table top section, apron sections and flange sections, fibrous backing sections bonded to said metal facing sheet to provide backing support for the table top section, apron sections and flange sections of said metal facing sheet, the adjacent ends of said apron backing sections and flange backing sections presenting mitered joints therebetween, each of the apron sections and flange sections of the metal sheet having a lip portion at each end thereof extending inwardly and in overlying contact with the adjacent mi-

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tered end of the adjacent backing section, the adjacent metal lip portions being in face-to-face contact, and a seam of bonding metal covering the exterior joint between said inturned lip portions bonding said lip portions into integral union.

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