April 22, 1969 K. D. SCHREYER 3,439,466

FURNITURE TOP CONSTRUCTION

Original Filed Oct. 23, 1965 Sheet 1 of 5

FIG. 1

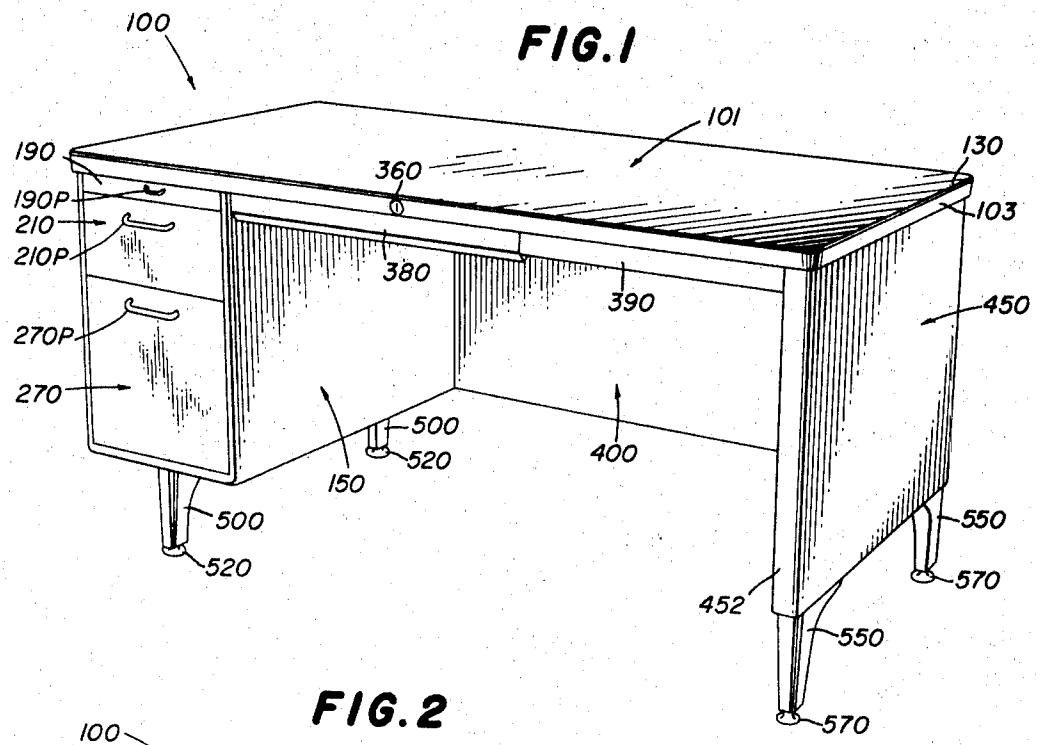
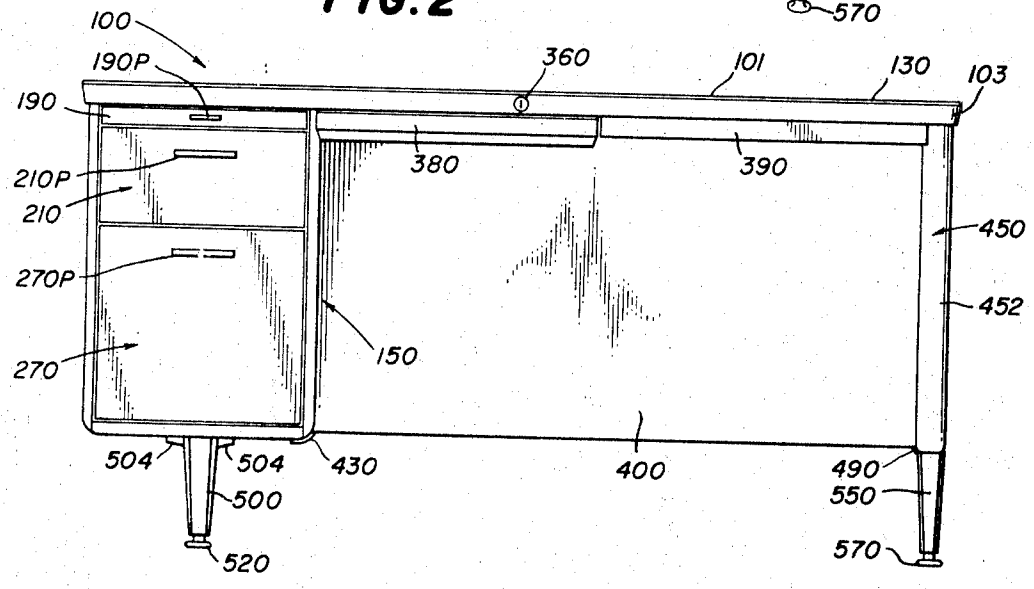


FIG. 2



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BY

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ATTYS.

FIG. 3

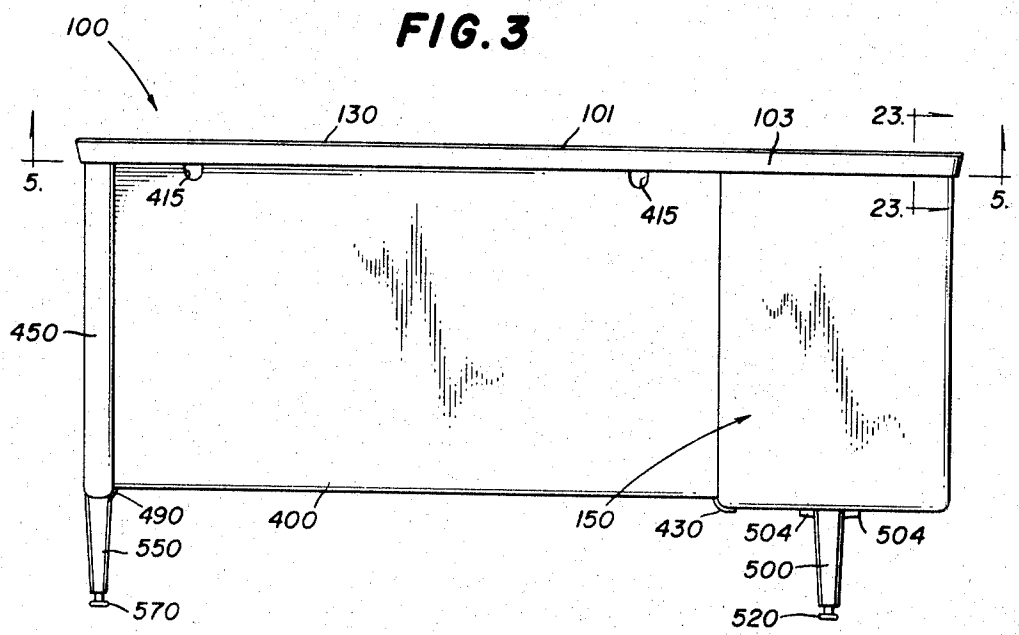
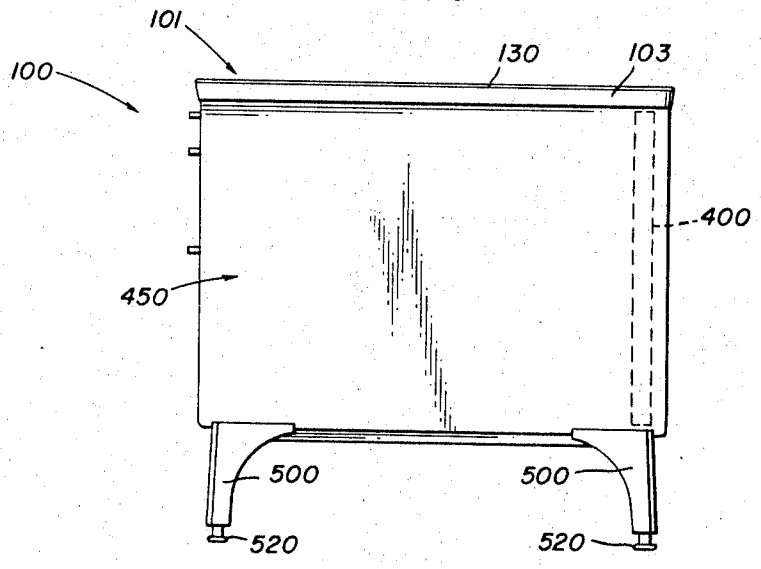

100
130
101
103
23.
5.
415
415
23.
5.
450
490
400
150
430
504
504
550
500
570
520

FIG. 4


101
130
103
100
400
450
500
500
520
520

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FIG. 5

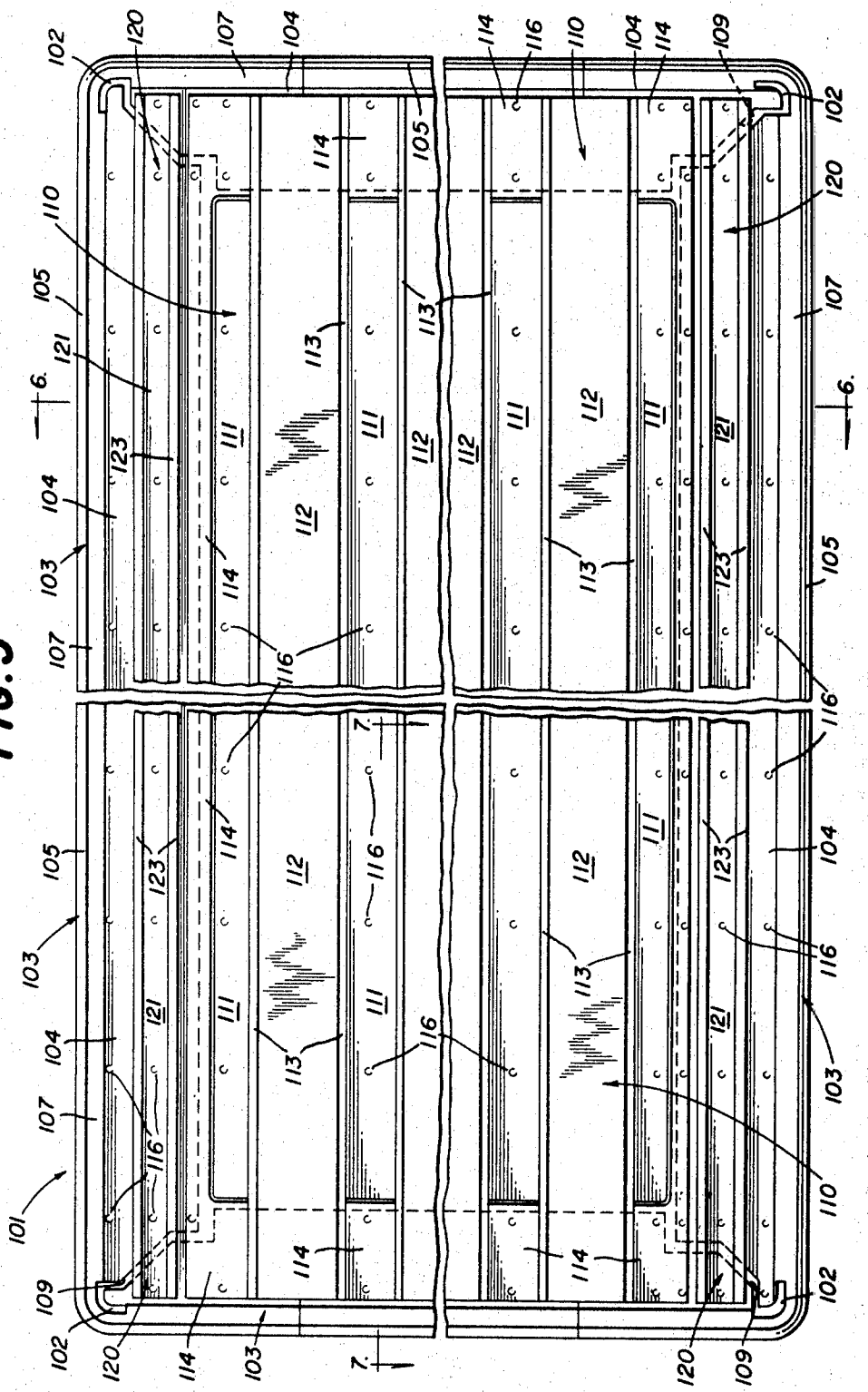


FIG. 6

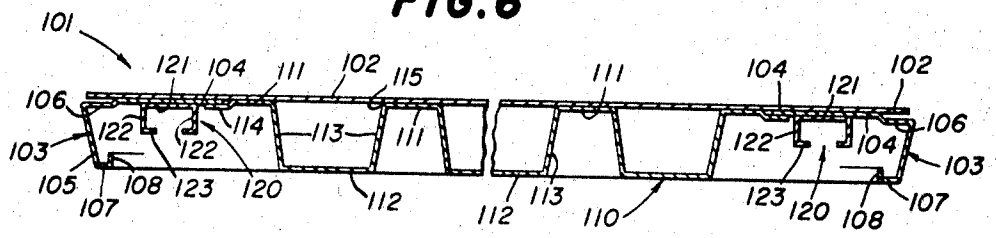


FIG. 7

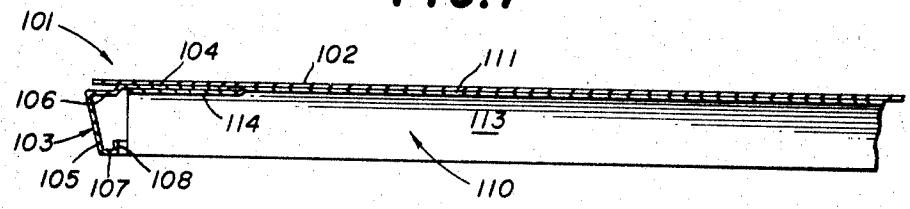


FIG. 8

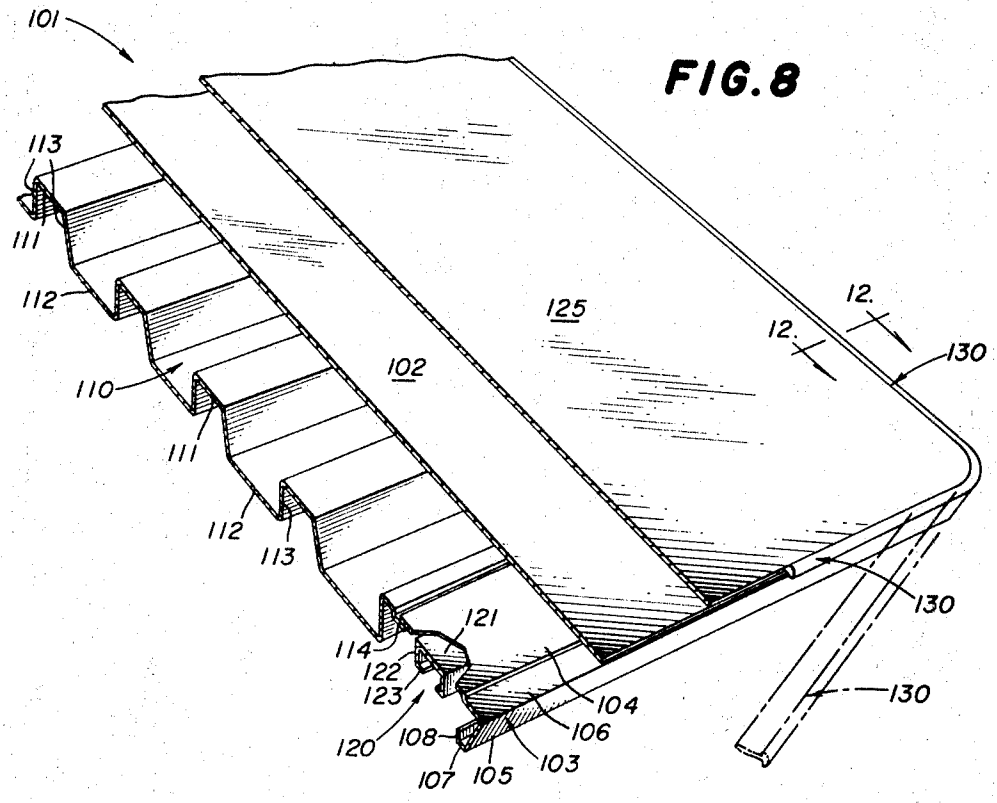


FIG. 9

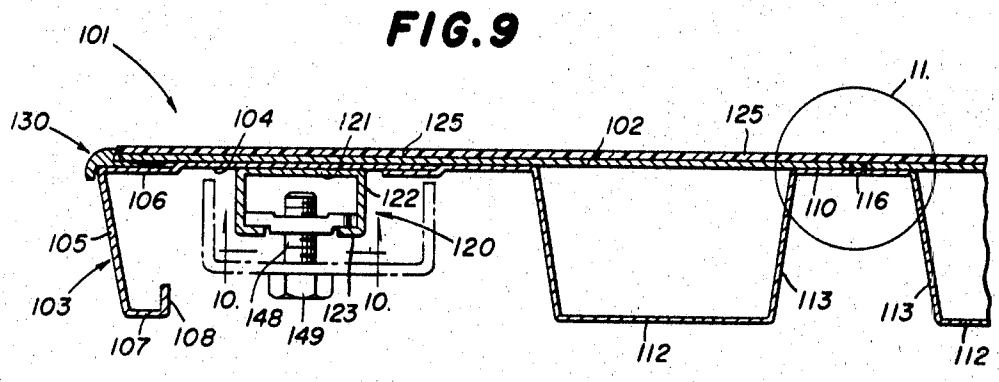


FIG. 10

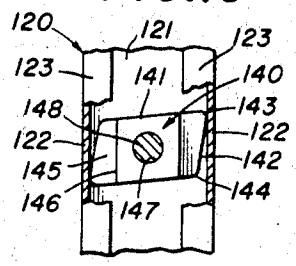


FIG. 11

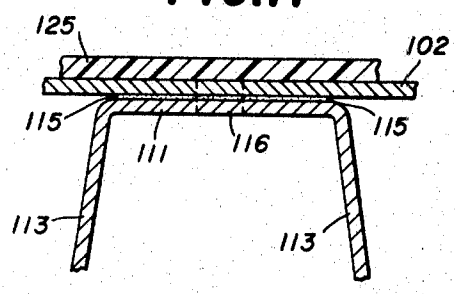


FIG. 12

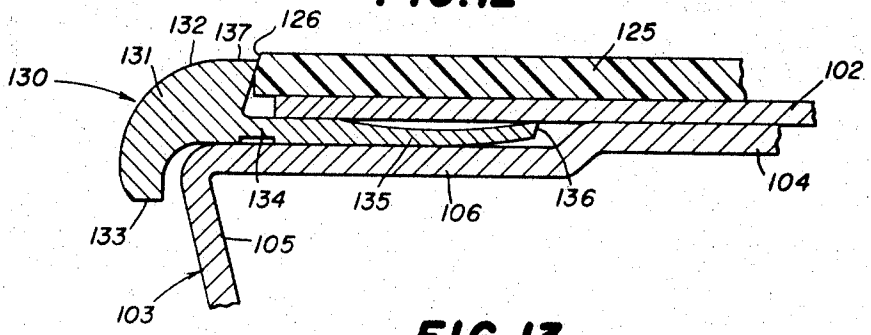
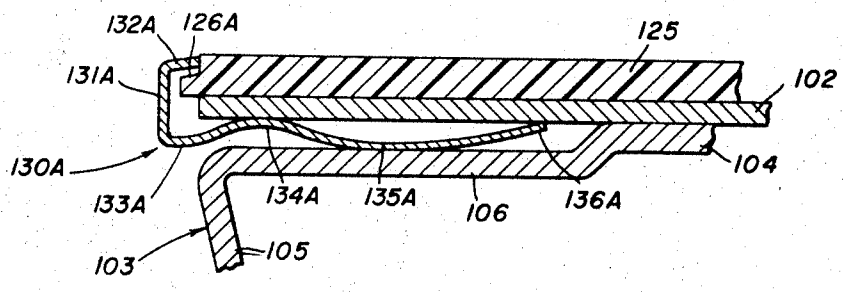


FIG. 13



United States Patent Office 3,439,466 Patented Apr. 22, 1969

3,439,466

FURNITURE TOP CONSTRUCTION

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Original application Oct. 23, 1965, Ser. No. 503,157, now Patent No. 3,363,955. Divided and this application Apr. 5, 1967, Ser. No. 635,944

Int. Cl. A47b 17/00, 13/08, 96/20

U.S. Cl. 52—624 14 Claims

ABSTRACT OF THE DISCLOSURE

The present invention is directed to a furniture top including a flat top plate, an edging extending around the periphery of the top plate and disposed adjacent to the underside thereof, the edging having an inwardly extending attachment flange and a dependent side flange on the outer edge thereof disposed outwardly with respect to the periphery of the top plate, welds interconnecting the attachment flange and the top plate at points spaced inwardly with respect to the outer periphery thereof, a reinforcing sheet of ribbed construction disposed beneath the top plate and within the edging and having a layer of adhesive disposed therebetween, welds being provided between the top plate and the reinforcing sheet and the attachment flanges to mount the reinforcing sheet in place, the side flange of the edging extending downwardly a distance at least equal to the distance that the reinforcing ribs are disposed from the top plate, a decorative trim being provided around the periphery of the top plate and having a mounting tongue extending inwardly into the space between and grippingly engaging the underside of the top plate and the upper side of a mounting flange on the attachment flange of the edging, and a pair of spaced apart mounting channels disposed beneath the underside of the top plate and extending in the general direction of the reinforcing ribs.

This application is a division of the co-pending application, Ser. No. 503,157, filed Oct. 23, 1965 for Desk Construction, now Patent No. 3,363,955.

It is a general object of the invention to provide an improved furniture top for use on desks and the like, the furniture top including a top plate and a reinforcing sheet of ribbed construction secured together by welding to provide high strength, flatness and good sound qualities in the top.

In connection with the foregoing object, another object of the invention is to provide a furniture top of the type set forth wherein an adhesive layer is disposed between the top plate and the ribbed reinforcement sheet to provide good sound deadening qualities in the furniture top.

Yet another object of the invention is to provide an improved furniture top of the type set forth having on the underside thereof front and rear mounting channels to which all other furniture structures are connected, and to provide an improved nut and channel fastener construction for connecting the furniture parts to the mounting channels.

Still another object of the invention is to provide in a furniture top of the type set forth an improved trim structure and an improved structure for mounting the trim on the furniture top.

Further features of the invention pertain to the particular arrangement of the parts whereby the above-outlined and additional features thereof are attained.

The invention, both as to its organization and method of construction, together with other objects and advantages, will best be understood by reference to the following

specification taken in connection with the accompanying drawings, in which:

FIGURE 1 is a prespective view of a single pedestal desk incorporating therein a furniture top made in accordance with and embodying the principles of the present invention;

FIG. 2 is a front elevational view of the desk of FIG. 1;

FIG. 3 is a rear elevational view of the desk of FIGS. 1 and 2;

FIG. 4 is an elevational view of the desk illustrated in FIGS. 1 to 3;

FIG. 5 is a view of the underside of the top of the desk of FIG. 3 substantially as seen in the direction of the arrows along the line **5—5** thereof, certain portions being broken away and the trim and covering thereon removed;

FIG. 6 is an enlarged fragmentary view in vertical section through the desk top of FIG. 5 along the lines **6—6** thereof;

FIG. 7 is an enlarged fragmentary view in vertical section through the desk top of FIG. 5 along the line **7—7** thereof;

FIG. 8 is a perspective view with certain portions broken away of a corner of the desk top of FIGS. 1 to 4, a portion of the trim being shown in dashed lines in the position thereof immediately prior to installation thereof;

FIG. 9 is a further enlarged view in vertical section similar to FIG. 6 and illustrating specifically the interconnection between the desk top and the pedestal front frame;

FIG. 10 is a fragmentary view in horizontal section with certain portions broken away along the line **10—10** of FIG. 9;

FIG. 11 is a still further enlarged fragmentary view in vertical section of the portion of the desk top within the circle **11** in FIG. 9;

FIG. 12 is a still further enlarged view in vertical section along the line **12—12** of FIG. 8 and illustrating the mounting of the trim on the edge of the desk top; and

FIG. 13 is a view similar to FIG. 12 and showing a modification of the trim construction.

Referring now to the drawings, and particularly to FIGS. 1 to 4 thereof, there is illustrated a piece of furniture incorporating therein a furniture top made in accordance with and embodying the principles of the present invention, a lefthand single pedestal desk **100** having been shown for purposes of illustration. The desk **100** includes a desk top **101** at one end of which is disposed a pedestal **150** supported by a pair of legs **500** having associated feet **520**, the pedestal **150** having mounted therein a shelf **190**, a box drawer **210** and a file drawer **270**, the shelf **190** being provided with a pull **190P**, the box drawer **210** being provided with a pull **210P** and the file drawer **270** being provided with a pull **270P**. Mounted on the other end of the desk top **101** is an end panel **450** supported by a pair of legs **550** having associated feet **570**, the space between the pedestal **150** and the end panel **450** at the rear of the desk top **101** being closed by a back panel **400**; as may be best seen in FIG. 3, the back panel **400** is provided with a pair of wiring openings **415** for the reception of telephone wires and the like. There further is mounted on the desk top **101** a center drawer **380** and a depending front wall or skirt **390**, a lock **360** being provided in substantially the center of the front edge of the desk top **101** to lock the several drawers **210**, **270** and **380**.

Referring now to FIGS. 5 to 13 of the drawings, additional details of construction of the desk top **101** will be described. As is best seen in FIGS. 6 and 7, the desk top **101** includes a generally flat top plate **102** that is

generally rectangular in shape, the corners thereof being rounded, the periphery of the top plate **102** being essentially the same as the periphery of the desk top **101**. Disposed beneath the top plate **102** and extending around the periphery thereof is an edging **103** also formed of sheet metal, a substantially flat piece of sheet metal having been deformed to provide an attachment flange **104**, a side flange **105**, a mounting flange **106**, a bottom flange **107** and an upturned flange **108**. More specifically, the attachment flange **104** is disposed against the underside of the top plate **102** but is spaced inwardly with respect to the outer edge thereof, the outer edge of the attachment flange **104** carrying thereon the mounting flange **106** which is offset downwardly away from the underside of the top plate **102** and extends outwardly slightly beyond the outer edge thereof. As illustrated, the side flange **105** is integral with the mounting flange **106** and depends therefrom and extends slightly inwardly toward the center of the top plate **102**, the flange **105** making an angle of for example 75° with respect to the mounting flange **106**. The bottom flange **107** is disposed on the lower edge of the side flange **105** and extends inwardly substantially parallel to the flanges **104** and **106** and carries on the inner end thereof the upturned flange **108** that extends upwardly toward the top plate **102** and is disposed substantially normal thereto and to the bottom flange **107**. Preferably the edging **103** is formed of two pieces secured to the top plate **102** by welding at the attachment flange **104** and the abutting edges of the edging **103** located substantially at the midpoints of the shorter top sides are also welded to form seams therebetween. By reference to FIG. 5 it will be seen that the attachment flange **104** is cut out as at **109** at the corners of the table top **101** to permit bending of the remaining portions thereof without providing overlapping of the attachment flanges **104**.

Also disposed on the underside of the top plate **102** is a reinforcing sheet **110** formed from a substantially flat piece of sheet metal bent to provide attachment portions **111**, ribs **112** having side walls **113**, and connecting portions **114** at the periphery thereof. The attachment portions **111** are disposed toward the underside of the top plate **102**, there being a body of mastic **115** applied therebetween (see FIG. 11), the preferred mastic being a heat curing mastic sold under the trademark "Presstite No. 719." The attachment portions **111** are further connected to the top plate **102** by welding as at **116**, the heat from the welding operation curing the mastic whereby both the mastic **115** and the weld **116** serve to interconnect the attachment portions **111** and the top plate **102** to provide a firm connection therebetween, the mastic also serving to deaden sound transmission therebetween. The side walls **113** depend downwardly from the attachment portion **111** to form the ribs **112** which are spaced from the underside of the top plate **102**. The connecting portions **114** are offset from the underside of the top plate **102** to accommodate therebetween portions such as the attachment flange **104** on the edging **103**, the three layers mentioned being connected as by welding at **116**.

Also mounted beneath the top **101** are two longitudinally extending and substantially parallel and spaced apart mounting channels **120**, each mounting channel **120** including a longitudinally extending main wall **121** and a pair of depending side flanges **122** carrying on the lower ends thereof respectively inturned holding flanges **123**. As will be explained in detail hereinafter, all of the other parts of the desk **100** are mounted upon the desk top **101** by means of the mounting channels **120**.

Disposed on the upper surface of the top plate **102** is a covering **125**, preferably formed of a synthetic organic resin, the preferred materials being those sold under the trademarks "Textolite," "Micarta" and "Formica." An adhesive is applied both to the upper surface of the top plate **102** and to the lower surface of the covering **125** to provide a good bond therebetween, the preferred adhesive being a synthetic rubber resin adhesive of the contact type such as that sold under the trademark "D–500" by the Armstrong Cork Co., the two parts being oven heated to about 200° F. to drive off the volatile ingredients in the adhesive. The outer edge of the covering **125** extends slightly beyond the outer edge of the top plate **102** (see FIGS. 9 and 12). The upper outer corner being slightly beveled as at **126**.

To complete the desk top **101**, a decorative trim **130** is provided therearound (see FIGS. 8, 9 and 12 particularly). In a first preferred form of the trim **130**, it comprises a length of extruded aluminum metal including a decorative body **131** having a rounded or curved outer surface **132** extending from adjacent to the upper surface of the covering **125** and downwardly below the upper edge of the edging **103** and terminating in the bottom edge **133**. Integral with the body **131** is a neck **134** from which extends an integral mounting tongue **135**, the tongue **135** being concavely curved as viewed in FIG. 12 and having an inner end **136** disposed against the undersurface of the top plate **102**. As constructed, the neck **134** and the mounting tongue **135** both lend resiliency to the trim at the respective points indicated and, as is diagrammatically illustrated in FIG. 8, the trim **130** is installed upon the desk top **101** by progressively urging the mounting tongue **135** into the space defined between the outer edge of the top plate **102** and the mounting flange **106** on the edging **103**. Preferably before installation the mounting tongue **135** has a curvature such that the thickness thereof as viewed in FIG. 12 is greater than the space between the top plate **102** and the flange **106**, whereby the mounting tongue **135** must be resiliently deformed upon insertion into that space, whereby the neck **134** and the inner end **136** are pressed against the underside of the top plate **102** while the lower surface of the mounting tongue **135** presses against the upper surface of the mounting flange **106**. The resilient neck **134** also accommodaates a small amount of movement between the trim body **131** and the mounting tongue **135**, thereby to accommodate slight variations in the abutment between the body **131** and the covering **125**, preferably the body **131** having an inwardly directed sharp edge **137** that bears into the covering **125** slightly below the upper surface thereof at the bevel **126**.

There is illustrated in FIG. 13 of the drawings a modification of the trim, it being noted that the covering **125** also has a notch **126A** at the periphery thereof in lieu of the bevel **126** described above with respect to FIG. 12. The trim **130A** illustrated in FIG. 13 is preferably formed of sheet metal, the preferred material being stainless steel, which is bent to provide an outer wall **131A**, a top flange **132A**, a bottom flange **133A**, a curved portion **134A**, a mounting tongue **135A** and an inner end **136A**. As illustrated, the outer wall **131A** is disposed essentially vertically and carries on the upper edge thereof the top flange **132A** that extends inwardly and slightly upwardly from the outer wall **131A** and abuts against the edge of the covering **125** at the notch **126A**. The lower edge of the outer wall **131A** extends downwardly at least to the top of the edging **103** and carries on the lower end thereof the bottom flange **133A** that extends inwardly toward the space formed between the top plate **102** and the mounting flange **106**. The curved portion **134A** extends upwardly from the bottom flange **133** to bear against the undersurface fo the top plate **102** and the mounting tongue **135A** extends downwardly therefrom and presses against the upper surface of the mounting flange **106**, and the inner end **136A** is integral therewith and extends upwardly to contact the underside of the top plate **102**. Prior to the mounting of the trim **130A** and in the normal condition thereof, the curved portion **134A** and the mounting tongue **135A** and the inner end **136A** combine to provide a thickness or vertical extent greater than the distance between the top plate **102** and the flange **106**, whereby in the driving of the mounting tongue **135A**

thereinto, the tongue **135A** is resiliently deformed with the curved portion **134A** and the inner end **136A** being resiliently pressed against the underside of the top plate **102** and the mounting tongue **135A** being resiliently urged against the upper surface of the flange **106**, thereby resiliently to hold the trim **130A** in the mounted position around the periphery of the desk top **101**.

As has been mentioned heretofore, all of the other structures combining to form desk **100** are secured to the desk top **101** through the mounting channels **120** on the underside thereof. There is illustrated in FIGS. 9 and 10 of the drawings the details of an improved nut **140** particularly useful for engagement with bolts, it being understood that the nut **140** is not generally accessible to the workmen during assembly with the associated desk bolts. As is best seen in FIG. 10, the nut **140** has the outline of a rhombus having parallel longer sides **141** and parallel shorter side **142** connected by rounded acute corners **143** and rounded obtuse corners **144**. As illustrated, the distance between the sides **141** is slightly less than the distance between the inner edges of the flanges **123**, whereby the nut **140** can be inserted therebetween at any point therealong, and the corners **143** are adapted to engage the side flanges **122** of the mounting channels **120** to limit the rotation of the nut **140** with respect thereto. The underside of the nut **140** also has the outer ends cut away as at **145** to provide edges **146** spaced apart a distance slightly less than the distance between the inner edges of the holding flanges **123**, whereby the edges **146** depend downwardly along the adjacent inner edge of the associated holding flange **123** also to provide abutment therewith when necessary. Disposed essentially centrally of the nut **140** is a threaded opening **147** threadedly to receive therethrough a threaded shank such as the shank **148** of the bolt **149** as illustrated.

Fundamentally the desk **100** is formed of sheet metal with the exception of the several parts mentioned during the above description. Furthermore, the sheet metal forming the various parts is of relatively light gauge, as will be appreciated from the following examples of the gauge of the sheet metal utilized to form various parts of the desk **100**. For example, in a typical illustrative embodiment of the desk top **101**, the top plate **102** is formed of 20 gauge steel, the edging **103** is formed of 18 gauge steel, reinforcing sheet **110** is formed of 24 gauge steel and the mounting channel **120** is formed of 18 gauge steel.

The details of construction of the remaining parts of the desk **100** are set forth in the above-mentioned co-pending application Ser. No. 503,157, now Patent No. 3,363,955, and the description of those parts set forth therein is incorporated in its entirety in this application by reference.

From the above description it will be seen that there has been provided an improved furniture top comprising a top plate and a reinforcing sheet of ribbed construction secured together by welding to provide high strength and flatness and further being provided with an adhesive layer therebetween to provide good sound qualities therefor. The improved furniture top further is provided with a nut and channel fastener construction for mounting all of the desk parts on the mounting channels; in addition, an improved trim extending around the periphery of the furniture top has been provided.

While there have been described what are at present considered to be the preferred embodiments of the invention, it will be understood that various modifications may be made therein, and it is intended to cover in the appended claims all such modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. A furniture top comprising a substantially flat top plate, an edging extending around the periphery of said top plate and disposed adjacent to the underside thereof, said edging including an inwardly extending attachment flange and a dependent side flange on the outer edge thereof disposed outwardly with respect to the periphery of said top plate, means interconecting said attachment flange and said top plate at points spaced inwardly with respect to the outer periphery of said top plate, a unitary reinforcing sheet disposed adjacent to the underside of said top plate and being substantially coextensive with the area of said top plate and within said edging, said reinforcing sheet including a plurality of longitudinally extending spaced apart attachment portions disposed adjacent to the underside of said top plate and a plurality of longitudinally extending reinforcing ribs disposed between adjacent pairs of said attachment portions and spaced from the underside of said top plate, the transverse dimension of each of said ribs being substantially greater than the transverse dimension of each of said attachment portions, and means securing each of said attachment portions to the adjacent section of the underside of said top plate and to the underside of the adjacent one of said attachment flanges.

2. The furniture top set forth in claim **1**, wherein said top plate and said edging and said reinforcing sheet are all formed of sheet metal, said attachment flange and said top plate are interconnected by welding, and each of said attachment portions is secured to the adjacent section of the underside of said top plate and the underside of the adjacent one of said attachment flanges by welding.

3. The furniture top set forth in claim **1**, wherein the side flange of said edging extends downwardly a distance at least equal to the distance that said reinforcing ribs are disposed from said top plate.

4. A furniture top comprising a substantially flat top plate, an edging extending around the periphery of said top plate and disposed adjacent to the underside thereof, said edging including an inwardly extending attachment flange and a dependent side flange on the outer edge thereof disposed outwardly with respect to the periphery of said top plate, means interconnecting said attachment flange and said top plate at points spaced inwardly with respect to the outer periphery of said top plate, a unitary reinforcing sheet disposed adjacent to the underside of said top plate and being substantially coextensive with the area of said top plate and within said edging, said reinforcing sheet including a plurality of longitudinally extending spaced apart attachment portions disposed adjacent to the underside of said top plate and a plurality of longitudinally extending reinforcing ribs disposed between adjacent pairs of said attachment portions and spaced from the underside of said top plate, the transverse dimension of each of said ribs being substantially greater than the transverse dimension of each of said attachment portions, a body of mastic disposed between each of said attachment portions and the adjacent section of the underside of said top plate, and means in addition to said mastic bodies for securing each of said attachment portions to the adjacent section of the underside of said top plate and to the underside of the adjacent one of said attachment flanges.

5. A furniture top comprising a substantially flat top plate, an edging extending around the periphery of said top plate and disposed adjacent to the underside thereof, said edging including an inwardly extending attachment flange and a dependent side flange on the outer edge thereof disposed outwardly with respect to the periphery of said top plate, means interconnecting said attachment flange and said top plate at points spaced inwardly with respect to the outer periphery of said top plate, a unitary reinforcing sheet disposed adjacent to the underside of said top plate and being substantially coextensive with the area of said top plate and within said edging, said reinforcing sheet including a plurality of longitudinally extending spaced apart attachment portions disposed adjacent to the underside of said top plate and a plurality of longitudinally extending reinforcing ribs disposed between adjacent pairs of said attachment portions and spaced from the underside of said top plate, the transverse dimension of each of said ribs being substantially greater than the transverse dimen-

sion of each of said attachment portions, means securing each of said attachment portions to the underside of said top plate and to the adjacent section of the underside of the adjacent one of said attachment flanges, a pair of spaced apart mounting channels disposed adjacent to the underside of said top plate and extending in the general direction of said reinforcing ribs, and means fixedly securing said mounting channels to said top plate.

6. The furniture top set forth in claim 5, wherein said reinforcing ribs have an extent in a direction perpendicular to said top plate substantially greater than the extent of said mounting channels in a direction perpendicular to said top plate.

7. A furniture top comprising a substantially flat top plate, an edging extending around the periphery of said top plate and disposed adjacent to the underside thereof, said edging including an inwardly extending attachment flange and a mounting flange integral with said attachment flange and extending outwardly therefrom and offset away from said top plate and carrying on the outer edge thereof a dependent side flange disposed outwardly with respect to the periphery of said top plate, means interconnecting said attachment flange and said top plate at points spaced inwardly with respect to the outer periphery of said top plate, a unitary reinforcing sheet disposed adjacent to the underside of said top plate and being substantially coextensive with the area of said top plate and within said edging said reinforcing sheet including a plurality of longitudinally extending spaced apart attachment portions disposed adjacent to the underside of said top plate and a plurality of longitudinally extending reinforcing ribs disposed between adjacent pairs of said attachment portions and spaced from the underside of said top plate, the transverse dimension of each of said ribs being substantially greater than the transverse dimension of each said attachment portions, a body of mastic disposed between each of said attachment portions and the adjacent section of the underside of said top plate, means in addition to said mastic bodies for securing each of said attachment portions to the adjacent section of the underside of said top plate and to the underside of the adjacent one of said attachment flanges, a pair of spaced apart mounting channels disposed adjacent to the underside of said top plate and extending in the general direction of said reinforcing ribs, means fixedly securing said mounting channels to said top plate, a covering for said top plate extending over the entire upper surface thereof and secured thereto, and a trim extending around the periphery of said top plate, said trim including a mounting tongue extending inwardly into the space between and grippingly engaging the underside of said top plate and the upperside of said mounting flange and a decorative body integral with said mounting tongue and extending around the periphery of said top plate and covering the outer edge of said top plate and at least a portion of the outer edge of said covering.

8. A furniture top comprising a substantially flat top plate, a unitary reinforcing sheet disposed adjacent to the underside of said top plate and being substantially coextensive with the area of said top plate, said reinforcing sheet including a plurality of longitudinally extending spaced apart attachment portions disposed adjacent to the underside of said top plate and a plurality of longitudinally extending reinforcing ribs disposed between adjacent pairs of said attachment portions and spaced from the underside of said top plate, the transverse dimension of each of said ribs being substantially greater than the transverse dimension of each of said attachment portions, and means securing each of said attachment portions to the adjacent section of the underside of said top plate.

9. A furniture top comprising a substantially flat top plate, a unitary reinforcing sheet disposed adjacent to the underside of said top plate and being substantially coextensive with the area of said top plate, said reinforcing sheet including a plurality of longitudinally extending

spaced apart attachment portions disposed adjacent to the underside of said top plate and a plurality of longitudinally extending reinforcing ribs disposed between adjacent pairs of said attachment portions and spaced from the underside of said top plate, a body of mastic disposed between each of said attachment portions and the adjacent section of the underside of said top plate, the transverse dimension of each of said ribs being substantially greater than the transverse dimension of each of said attachment portions, and means in addition to said mastic bodies for securing each of said attachment portions to the adjacent section of the underside of said top plate.

10. The furniture top set forth in claim 5, wherein said mounting channels depend downwardly from said top plate, and the dependent side flange of said edging extends downwardly well below said mounting channels.

11. A furniture top comprising a substantially flat top plate, an edging extending around the periphery of said top plate and disposed adjacent to the underside thereof, said edging including an inwardly-extending attachment flange and a mounting flange integral with said attachment flange and extending outwardly therefrom and offset away from said top plate and carrying on the outer edge thereof a dependent side flange disposed outwardly with respect to the periphery of said top plate, means interconnecting said attachment flange and said top plate at points spaced inwardly with respect to the outer periphery of said top plate, a covering for said top plate extending over the entire upper surface thereof and secured thereto, and a trim extending around the periphery of said top plate, said trim including a resilient mounting tongue having a curved portion with a lateral thickness exceeding the distance between said top plate and said mounting flange, said mounting tongue being inserted between said top plate and said mounting flange to tend to flatten said curved portion, whereby said curved portion grippingly engages the underside of said top plate and the upperside of said mounting flange, and a decorative body integral with said mounting tongue and extending around the periphery of said top plate and covering the outer edge of said top plate and at least a portion of the outer edge of said covering.

12. The furniture top set forth in claim 11, wherein said trim is in the form of an extruded strip of metal including said mounting tongue integral with said decorative body.

13. The furniture top set forth in claim 11, wherein said trim is in the form of a metal sheet bent to form said mounting tongue and said decorative body integral therewith.

14. The furniture top set forth in claim 11, wherein said mounting tongue includes a further curved portion curved in a direction opposite to said first-mentioned curved portion, one of said curved portions bearing against the underside of said top plate and the other of said curved portions bearing against the upperside of said mounting flange.

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