

Dec. 4, 1962

F. S. KNOLL
DESK CONSTRUCTION

3,066,994

Filed Nov. 15, 1960

2 Sheets-Sheet 1

FIG. 1

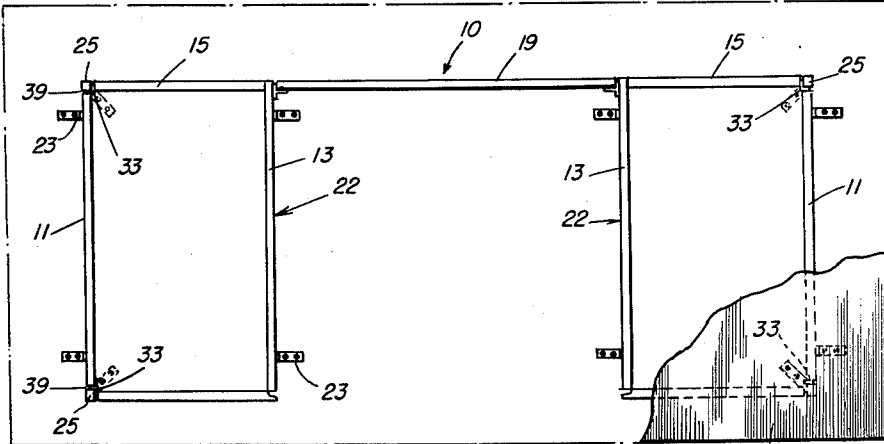


FIG. 2

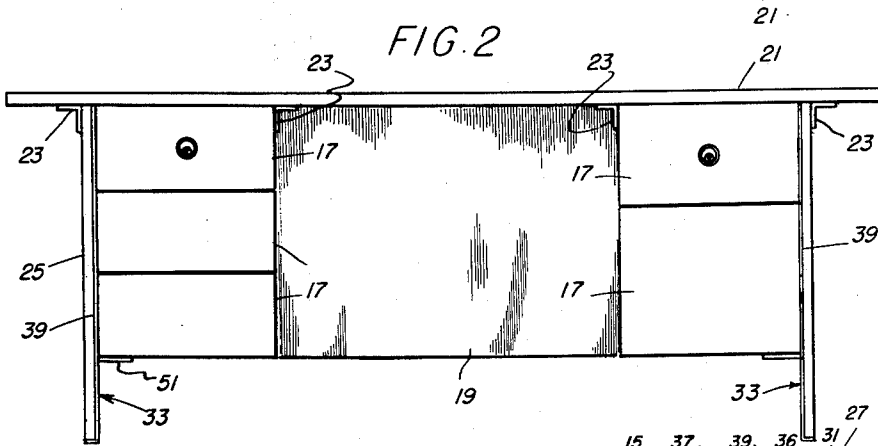


FIG. 3

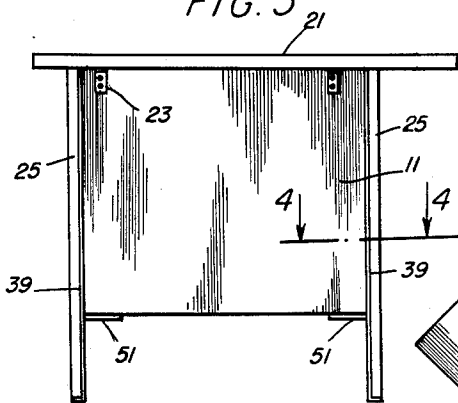
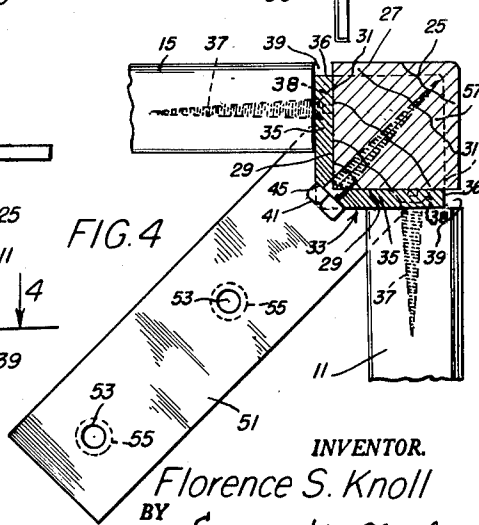


FIG. 4



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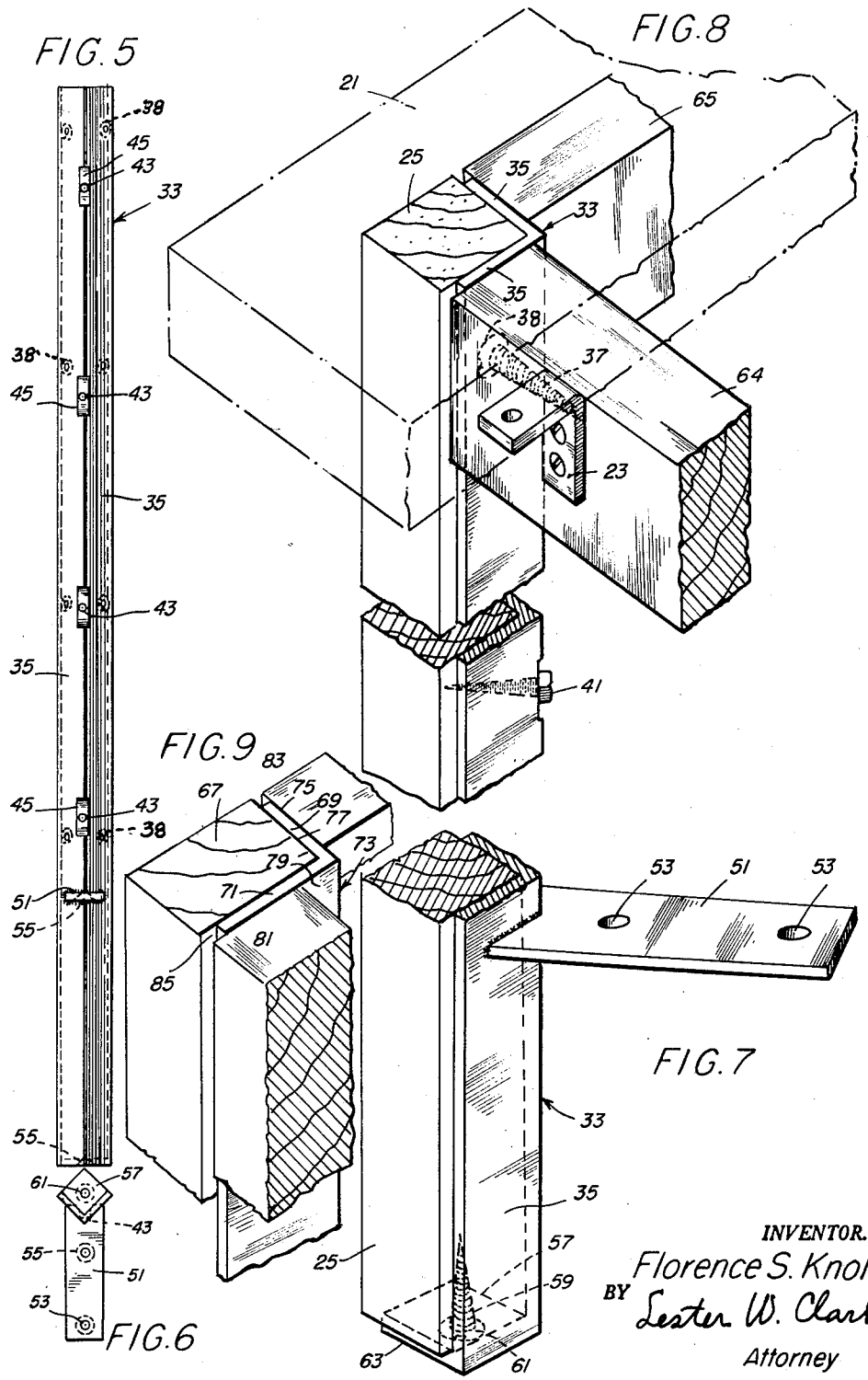
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DESK CONSTRUCTION

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Filed Nov. 15, 1960, Ser. No. 69,355
18 Claims. (Cl. 312-255)

This invention relates to an article of furniture providing a supporting leg and more especially to a desk or the like and the construction of a desk adjacent a corner thereof. The invention particularly relates to the construction of the leg supporting the desk or the like adjacent its corner.

In desks and other articles of furniture of the prior art, and more particularly in desks which are provided with a rectangular top supported by a frame or supporting structure of generally rectangular outline in a horizontal plane, the supporting legs ordinarily are disposed adjacent the corners formed in the desk structure. In accordance with some aspects of modern furniture design the structures of desks or other articles of furniture of this type are made less massive than heretofore and consistently the legs are made slender and of relatively small cross section transverse to their vertical extent. To meet the requirements of strength, members of metal have been used in such structures and the legs in some cases themselves have been made of metal. Where, however, wood or material simulating the grain of wood is used for the desk top or for the vertical panels of the desk, or a veneer for these parts, it may be desirable also to utilize in the legs wood or a material simulating the grain of wood.

It is an object of the invention to provide in a desk structure or other piece of furniture a leg construction which is of slender form to conform to the desired design but has the required strength and rigidity to serve as a leg supporting the main structure of the desk or piece of furniture and capable of withstanding the stresses brought thereon in moving the desk or piece or otherwise in the use thereof.

It is a further object of the invention to provide a leg construction which in cooperation with the main structure of the desk or piece will develop a design feature adjacent the leg.

It is an additional object of the invention to provide a leg construction which may utilize wood or other material having desired surface characteristics to give the appearance of a slender supporting leg of wood or other selected material.

To accomplish these purposes the leg construction of the invention comprises an elongated member having two lengthwise portions disposed in angular relation to each other and extending therealong and an elongated upright having two surfaces in angular relation to each other, this upright being disposed with its length along the elongated member and with the two surfaces thereof facing outwardly thereof. This composite leg construction is disposed in relation to the main structure of the desk or the like with the angularly related portions of the elongated member disposed between the upright and respectively adjacent portions of the main structure and with the outwardly facing surfaces of the upright disposed outwardly of the main structure. The upright may be of wood or other selected material and usually will be of rectangular section transverse to its vertical length and the elongated member ordinarily will be provided by an angle member of metal, for example, of steel or aluminum, the upright being disposed in the angular space between the two legs of the angle member. The angle member carries means which is adapted to be secured to the main structure for supporting the structure on the angle member as a leg.

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It is a further feature of the invention that the dimensions of the angle member and of the transverse section of the upright are such that the edge of each leg of the angle member is set back with respect to the adjacent outwardly facing surfaces of the upright, so that a recess is formed between the upright and the adjacent portion of the main structure. This recess provides a design feature in the desk or piece. The upright may be made of wood or of a material simulating a wood grain or having other design characteristics. The two angularly related surfaces of the upright may be of sufficient width to give this upright the appearance of a slender leg but one of substantial strength and rigidity. The upright may be secured to the angle member so that this upright does not take any of the strain of the support for the main structure. The angle member may be of such section and may be secured to the main or desk structure so as to provide the requisite support and at the same time provide the requisite rigidity and resistance to bending of the leg. If desired, however, the upright may cooperate with the angle member in providing structural support.

The recess which is formed between the upright and the desk structure may be of a width equal to the thickness of the adjacent leg of the angle member and this thickness may be varied to suit different designs or to conform to other design characteristics of the desk or piece of furniture. For example, the width of the recess may be equal to or in other relation to the space between the upper and lower edges of the vertical faces of two superadjacent drawers of the desk. The rectangle of the cross section of the upright may be a square or one with unequal sides to suit different design conditions.

These and other features of the invention relating to the leg construction and to design aspects will be understood from the description to follow of the drawings in which:

FIG. 1 shows a plan view of a desk structure with a fragmentary portion of the desk top;

FIG. 2 is a vertical elevation of the desk viewed from the lower side of FIG. 1;

FIG. 3 is an end view of the desk taken at the right in FIGS. 1 and 2;

FIG. 4 is a section on line 4-4 of FIG. 3;

FIG. 5 shows an elevation of the elongated angle member looking at the exterior corner of the angle;

FIG. 6 is a top end view of the angle member of FIG. 5;

FIG. 7 shows to enlarged scale the lower portion of the leg construction of FIGS. 4 and 5;

FIG. 8 is a perspective view to enlarged scale showing the assembly of the leg construction of the invention with members of the desk structure, the desk top being shown in dot and dash line;

FIG. 9 shows a fragmentary view of a modification of the leg structure.

In FIG. 1 the main desk structure 10 in this embodiment comprises outside end panels 11 secured to the leg constructions as will be described, inside panels 13 and longitudinal panels 15 which also are secured to the leg constructions. The panels 11, 13 and 15 with suitable bottom panels and drawer slides form the boxes for receiving the drawers 17 of the desk. The two boxes shown in FIGS. 1 and 2 may be connected by a central panel 19. The longitudinal panels 15 and 19 are disposed at the side of the desk structure opposite to that at which the user sits. The panels 11 and 13 are secured to the top 21 of the desk by angle brackets 23 engaging the faces of the panels and the under side of the desk top 21. This desk top is of such construction as to provide a rigid top slab which cooperates with the drawer boxes 22 and with the leg constructions to form a rigid strong main desk struc-

ture. The details of this main desk structure itself are not part of the present invention.

The leg construction of the invention comprises an elongated upright 25 which in the embodiment of FIGS. 1-4, inclusive, is of square cross section and provides vertical outwardly facing surfaces 27, FIG. 4, disposed at right angles to each other, the surfaces 29 of the upright 25 that are inwardly disposed being in engagement with the interior surfaces 31 of an elongated angular member 33 having legs 35 disposed at right angles to each other. The legs 35 of this angle member are disposed between the upright 25 and the main desk structure. As shown in FIG. 4, the legs 35 are secured to the panels 11 and 15 by screws 37 which extend into the edge portions of the panels 11, 15, the heads of these screws being countersunk in the legs 35 at 38 in the interior surfaces of these legs, so that, in this embodiment, the sides of the square of the transverse section of the upright 25 will conform to the interior surface of the legs 35.

In the embodiment of FIGS. 1 to 4 the dimensions of the upright 25 and the disposition of the angle member 33 are such that the outwardly disposed surfaces 27 of the upright are substantially in the same plane as the exterior surfaces of the panels 11, 15, but the surfaces 27 may be disposed in somewhat outwardly or inwardly offset relation to the exterior surfaces of panels 11, 15. In this embodiment also the dimensions of the two exterior surfaces of the legs 35 of angle member 33 transverse to the length of these legs are equal and substantially equal to the side of the square of the transverse section of the upright 25. The width of the recesses 39 that are formed along the uprights 25 and between the end surfaces of the panels 11, 15 and the adjacent inwardly disposed surfaces 29 of the upright in this embodiment are equal to the thickness of the legs of the angle member 33. The uprights 25 thus appear to be spaced somewhat from the panels. The leg construction of the invention, moreover, provides a shoulder along its length between the lengthwise edge 36 of each of the legs 35 and the adjacent side of the upright 25, the lengthwise edges 36 being offset inwardly from the outwardly disposed surfaces of the uprights 25. This shoulder is continued along the length of the upright 25 below the bottom edge of the panels 11, 15, as may be seen in FIGS. 2 and 3. Thus, the desired design effect is secured which is provided by the recess and the shoulder extending along the leg construction and gives the appearance of the upright being slightly spaced from the desk structure while supporting this structure.

As shown in FIGS. 4, 5 and 6 the upright 25 is secured by a plurality of square head screws 41 extending through holes 43 drilled or otherwise formed at an angle to both legs 35 of angle member 33, these screws being screwed into the upright 25 at its corner. As shown in FIGS. 4 and 5, the angle member 33 is formed with flat surfaces at the exterior corner thereof at the several locations along the angle member at which holes 43 are formed, so as to provide proper bearing of the head of the screws 41.

The angle member 33, as shown more particularly in FIGS. 4, 5 and 7 is provided with a bracket 51 which may be welded or otherwise secured to the angle member 33 at the exterior side of this angle member. Preferably, as shown in FIGS. 1, 4 and 7 this bracket 51 may extend generally in the horizontal plane perpendicular to the length of the angle member 33 and at an angle to the exterior surfaces of both of the legs 35 of this angle member. In this embodiment the length of the bracket 51 is disposed at 45° with respect to the legs 35. Holes 53 are formed in the bracket 51, the under side of the bracket at these holes being countersunk as at 55, FIGS. 4, 5 and 6 to receive flat headed wood screws adapted to be screwed into the bottom panels of the boxes 22. The brackets 51 are secured to the angle member 33 at such a height above the floor as to engage the boxes to

support these boxes with upper edges of the panels thereof substantially in a common plane which may be coincident with a planar surface and the underside of the desk top 21. The angle brackets 23 above mentioned may be secured by screws, not shown, passing through holes in the angle brackets and screwed into the panels 11, 13 and into the under side of the desk top 21.

The angle member 33 of the leg construction also is provided with a web 57 transverse to the length of the angle member at the lower end thereof. This web 57 at the bottom side thereof provides a smooth surface for engagement with the floor, a screw 59 extending through countersunk hole 61 in the web 57, as shown in FIGS. 5 and 7, and being screwed into the bottom end of the upright 25 which in this embodiment engages the upper surface of the web 57. The edges of the web 57, as shown in FIGS. 4 and 7, are offset inwardly with respect to the vertical surfaces of the upright 25, so that shoulders 63 are formed along the lower end of the uprights 25 corresponding to the shoulders along the vertical surfaces of the upright which extend along the vertical edges of the legs 35 of member 33. This shouldered relation of the vertical surface of the upright with respect to the edges of the angle member contributes to the design effect desired to be obtained.

In FIG. 8 is shown to enlarged scale in perspective view an assembly of the desk structure with the leg construction of the invention. In the figure the angle member 33 has equal legs 35, as in FIG. 4. The thicknesses of the two legs 35 of this angle member are equal and the upright member 25 is of square section, two angularly related faces of the upright bearing against the interior surfaces of the legs 35 of the angle member 33, the exterior surfaces of the angle member bearing against the ends of horizontal structural members 64, 65 of the desk structure. The leg construction of the invention and its relation to these structural members of the desk structure is generally the same as above described in connection with FIGS. 1-7, inclusive. It will be understood, in place of the panels 11, 15 which may be of a height equal to the height of the drawer boxes, as shown in FIGS. 2 and 3, that the structural members 64, 65 which may be the upper members of the main desk structure may be of suitable size to cooperate with lower structural members, these members being adapted to have attached thereto in any desired relation, for example at the exterior side thereof, panels of wood or metal or other materials secured by suitable fasteners. The leg construction of the invention as described in connection with FIGS. 1-7 may be utilized in the modification of FIG. 8, the screws 66 being screwed into the ends of such structural members similarly to the screws 37 in relation to the panels 11, 15.

In FIG. 9 is shown a modification of the leg construction in which the upright member 67 is of rectangular section with the sides of the rectangle unequal. In this embodiment the legs 69 and 71 of the angle member 73 corresponding to the angle member 33 are of unequal length and the dimension transversely of the length of the angle member 73 of the exterior surface 75 of the leg 69 is equal to the side 77 of the rectangle of the upright 67. The transverse dimension of the exterior surface 79 of the leg 71 is equal to the longer side 81 of the rectangle. As shown, the thicknesses of the legs 69 and 71 are equal, so that the depths of the recesses 83, 85 in this embodiment from the outer faces of the upright 67 are equal. It will be understood that the construction shown in FIG. 9 may be attached to the panels 11, 15 or to structural members 64, 65 of the desk structure in the same manner as previously described, the angle member 73 being drilled or otherwise provided with holes for screws or fasteners securing the upright 67 to the angle member 73 and for securing the leg construction to the desk structure.

It will be understood further, although in the embodi-

ments shown in the drawing and described the thicknesses of the two legs of the angle member are equal and the lengths of the legs at their exterior surfaces respectively are equal to the adjacent dimensions of the rectangle of the upright 25, 67, that both of these leg dimensions may be different in the two legs of the angle members 33, 73. Thus, either the depth or the width of the recesses, or both, may be varied with different thicknesses of the legs 35 when an upright 25 is used which is of square section as shown in FIGS. 4 and 8, or when an upright 67 is used which is of rectangular section but with unequal sides, and similar variations may be accomplished by varying the dimensions of the legs 35 transverse to the length of the angle member. Moreover, although in the embodiments disclosed the uprights 25, 67 are shown with their inwardly disposed surfaces in contacting engagement with the interior surfaces of the angular member, the uprights being disposed in the angular space between the legs of the angle member, these upright members in some cases may be spaced by suitable means somewhat from these interior surfaces of the legs of the angle members 33, 73. Also, instead of the legs of the angle members 33, 73 being disposed in engagement with the end surfaces of the panels 11, 15 or with ends of structural members 64, 65 of the desk structure, these legs may be somewhat spaced from the edges of the panels or from the structural members, suitable spacers or washers being used. Such variations may be practiced within the scope of the invention in order to secure variations in the design effect or for practical reasons.

In each case, however, the leg construction provides the recess which has been described, or the shoulder or both, the angle member serving for the most part or entirely to carry the load and to afford the requisite rigidity, the uprights serving to give the appearance of a leg of substantial cross section but of relatively slender design. The upright member, however, by virtue of being secured suitably to the angle member, also may serve to reinforce the angle member to increase the rigidity of the leg construction and to support the load, especially where it is desired to develop in the leg construction in association with the desk structure a relatively narrow recess extending along the leg and a narrow shoulder between the edge of the angle member and the outwardly disposed face of the upright.

Although in the embodiment shown in FIGS. 1 and 2 the vertical ends of the front panels of the drawers 17 overlap the forward vertical edges of the inner panels 13 of the drawer boxes 22, so that at the corners formed between the front drawer panels and the panels 13 no recess along a vertically extending member is provided, nevertheless, within the scope of the invention a vertically extending composite member utilizing an angle member and an upright disposed in the angle between the legs of the angle member and providing outwardly disposed vertical surfaces on the upright may be utilized at this location. In such case the edges of the angle members disposed adjacent the front drawer panels and inset with respect to the vertical surfaces of the uprights will form with these drawer panels and with the forward faces of the upright members vertically extending recesses along the vertical edges of the drawer panels in a manner similar to the recesses 39 formed along the other vertical edges of the drawers, as shown at the left of the left hand box 22 and at the right of the right hand box 22 of FIG. 2 of the drawings.

While for the most part the invention has been described in connection with the drawings with respect to a desk structure, it will be understood that this invention will find application in other types of furniture where a leg construction of relatively slender form and appearance is desired while providing also a leg support of sufficient rigidity and strength for the purpose. For example, the leg construction of the invention may be utilized in a

cabinet or a credenza or a console for various purposes. Although also the disclosure for the most part relates to a desk or other piece of furniture which is of rectangular form providing square corners, it will be understood that this leg construction may be utilized in connection with furniture of other contour or outline which, however, ordinarily will have adjacent surfaces which are in angular relation to each other adjacent which the leg construction may be disposed in the manner described.

In the claims, where the outwardly facing vertical surfaces of the upright are described as "generally parallel" to the two angularly related portions of the outline of the desk structure, it will be understood that the words "generally parallel" are intended to include the disposition where the two vertical surfaces respectively are in the same planes as the two angularly related portions of the outline of the desk structure as well as the disposition where the two vertical surfaces of the upright respectively are horizontally offset from the angularly related portions of the outline.

Other modifications may be made without departing from the scope of the invention while utilizing the leg construction and its embodiment in a desk or similar furniture structure, this leg construction providing the upright and the angle member disposed and cooperating as described for supporting the desk structure. All such variations and modifications are intended to be within the scope of the appended claims.

This application, Serial No. 69,355, filed November 15, 1960, discloses and claims an improvement upon the invention disclosed and claimed in the application of Forest G. Stark, Serial No. 57,806, filed September 22, 1960.

I claim:

1. In a desk or similar article of furniture the combination with a main structure having an exterior outline comprising two generally horizontal portions in angular relation to each other adjacent a corner of said structure, of an elongated upright disposed adjacent said corner of said main structure and having two vertical surfaces outwardly facing with respect to said structure and disposed generally in angular relation to each other and respectively generally parallel to said two portions of said exterior outline of said main structure, an elongated member having two lengthwise portions disposed in angular relation to each other and extending along and adjacent to and generally coextensive with said upright at the sides thereof respectively opposite to said outwardly facing vertical surfaces of said upright, said elongated member being disposed with said lengthwise portions thereof between said upright and respectively adjacent portions of said main structure, the edges of said angularly related lengthwise portions along the length of said elongated member being disposed inwardly of said outwardly facing vertical surfaces of said upright so as to leave recesses extending along said upright between said upright and said main structure, means securing said elongated member to said main structure to provide for supporting said main structure on said elongated member, and means securing said upright to said elongated member so that said upright provides the appearance of a leg supporting said main structure and spaced by said recesses from said main structure.

2. In a desk or similar article of furniture the combination with a main structure providing outwardly disposed vertical surfaces at right angles to each other adjacent a corner of said structure, of an elongated upright having lengthwise exterior surfaces defining a rectangular section of said upright transverse to the length thereof, said upright being disposed adjacent said corner with its length vertical and with two of its rectangularly related surfaces facing outwardly of the desk and respectively generally parallel to said vertical surfaces of said main structure, the inwardly facing rectangularly related surfaces of said upright being respectively adjacent and spaced from adjacent portions of said main structure,

an angle member inwardly disposed with respect to and extending along and generally coextensive with said upright with its legs respectively in the spaces between said inwardly facing vertical surfaces of said upright and the respectively adjacent portions of said main structure, the edges of said legs of said angle member being disposed inwardly from the respectively adjacent outwardly facing vertical surfaces of said upright to form recesses along said upright, means securing said angle member to said main structure to provide for supporting said structure on said angle member, and means securing said upright to said angle member so that said upright provides the appearance of a leg spaced by said recesses from and supporting said main structure.

3. In a desk or similar article of furniture the combination as defined in claim 2 in which the surface of at least a given leg of said angle member that is disposed toward the space between the legs of said angle member engages the adjacent surface of said upright that faces inwardly of said main structure, the dimension of the exterior surface of said given leg transverse to the length of said angle member being substantially equal to the corresponding transverse dimension of said adjacent inwardly facing surface of said upright.

4. In a desk or similar article of furniture the combination as defined in claim 2 in which the surfaces of the respective legs of said angle member that are disposed toward the space between the legs of said angle member engage the respective adjacent surfaces of said upright that face inwardly of said main structure, the dimensions of the exterior surfaces of said two legs of said angle member transverse to its length respectively being substantially equal to the corresponding transverse dimensions of the respective inwardly facing surfaces of said upright, so that the edge of each leg of said angle member is inset in its space from the adjacent vertical outwardly facing surface of said upright a distance equal to the thickness of the other leg of said angle member.

5. In a desk or similar article of furniture the combination as defined in claim 2 in which the dimensions of the sides of said rectangular section of said upright are equal.

6. In a desk or similar article of furniture the combination as defined in claim 2 in which the dimensions of the sides of said rectangular section of said upright are unequal.

7. In a desk or similar article of furniture the combination as defined in claim 6 in which the dimensions of the two legs of said angle member transverse to its length are unequal, the legs of said angle member respectively of greater and less dimension being disposed adjacent the surfaces of said upright of longer and shorter dimension in said rectangular section.

8. In a desk or similar article of furniture the combination as defined in claim 2 in which said rectangular section of said upright is a square and the dimensions of said two legs of said angle member transverse to its length substantially are equal, the surfaces of the respective legs of said angle member that are disposed toward the space between the legs of said angle member engaging the respective adjacent surfaces of said upright that face inwardly of said main structure.

9. In a desk or similar article of furniture the combination as defined in claim 8 in which the dimensions of the exterior surfaces of said two legs of said angle member transverse to the length of said angle member substantially are equal to the dimension of a side of said square.

10. In a desk or similar article of furniture the combination as defined in claim 2 in which said rectangular section of said upright is a square, the surfaces of the respective legs of said angle member that are disposed toward the space between the legs of said angle member engaging the respective adjacent surfaces of said upright that face inwardly of said main structure, the dimensions

of the exterior surfaces of the two legs of said angle member transverse to its length substantially being equal and substantially equal to the dimension of the side of said square, the thickness of said two legs of said angle member being substantially equal and substantially equal to the width of the recesses extending along the edges of said legs so that the edges of said legs of said angular member are inset in said spaces respectively from the vertical outwardly facing surfaces of said upright a distance substantially equal to the thickness of the legs of said angle member.

11. In a desk or similar article of furniture the combination as defined in claim 2 in which said angle member is provided with a bracket secured thereto and extending transversely of the length of said angle member from an inwardly facing exterior surface of a leg of said angle member, said bracket being secured to said main structure for supporting said structure on said angle member.

12. In a desk or similar article of furniture the combination as defined in claim 2 in which said angle member is provided with a bracket extending from the corner formed between the two inwardly facing exterior surfaces of the legs of said angle member and at an angle to each of said surfaces, said bracket engaging said main structure to support said structure on said angle member and being formed to receive fastening means for securing said bracket to said main structure.

13. A leg construction for a desk or the like which comprises an elongated member adapted to be disposed with its length vertical in the desk structure, said member being formed with two leg portions disposed in angular relation to each other and extending along the length of said member, an elongated upright providing two surfaces extending along the length of said upright and disposed in angular relation to each other, said elongated member being substantially coextensive with said upright, said upright being disposed in the angular space between said two angularly related leg portions of said elongated member and with said angularly related surfaces of said upright disposed adjacent the respective leg portions of said elongated member, the edges of the respective leg portions of said elongated member along the length thereof being spaced inwardly from respective outwardly disposed portions of the surface of said upright to form shoulders with said upright generally coextensive therewith, means securing said upright to said elongated member, and means carried by said elongated member and adapted to be secured to the desk structure with said elongated member disposed vertically adjacent a corner of said desk structure formed between two angularly related horizontally extending portions of the outline of said desk structure and with said angularly related surfaces of said upright facing inwardly with respect to said desk structure and disposed generally parallel to the respective angularly related portions of said outline, whereby said leg portions of said elongated member separate said upright from the respectively adjacent portions of said desk structure and said leg construction forms with said desk structure vertically extending recesses along said upright.

14. A leg construction as defined in claim 13 in which said elongated member is provided by an angle member having the legs thereof at right angles to each other and extending along the length of said angle member, said elongated upright providing surfaces extending along the length of said upright and defining a rectangular section of said upright transverse to its length, so that said upright may be disposed in relation to said corner of said desk structure formed between a front vertical surface and a side vertical surface of said desk structure that are at right angles to each other with said inwardly facing angularly related surfaces of said upright generally parallel to said front and side surfaces of said desk structure.

15. A leg structure as defined in claim 14 in which the dimensions of the exterior surfaces of said legs of said angle member transverse to the length of said angle mem-

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ber respectively are equal to the dimensions of the sides of said rectangular section of said upright adjacent the respective legs of said angle member.

16. A leg structure as defined in claim 14 in which the dimensions of the exterior surfaces of the two legs of said angle member transverse to the length of said angle member substantially are equal.

17. A leg structure as defined in claim 14 in which said angle member comprises a web transverse to the length thereof at an end of said angle member to provide a foot for said angle member.

18. In a furniture construction the combination with a main structure having an exterior outline comprising a generally horizontal portion, of an elongated upright disposed adjacent said main structure and having a vertical surface disposed generally parallel to said portion of said exterior outline of said main structure, an elongated spacer member disposed between said upright and said main

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structure and generally coextensive with said upright, a lengthwise edge of said spacer member being offset inwardly with respect to said vertical surface of said upright so as to provide a recess extending along said upright between said upright and said main structure, and means securing said upright and said spacer member to said main structure so that said upright provides the appearance of a leg spaced by said recess from said main structure.

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