

[54] DESKS
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[22] Filed: Oct. 21, 1970
[21] Appl. No.: 82,622

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 814,738, April 9, 1969.

Foreign Application Priority Data

April 23, 1968 Great Britain.....19,245/68

[52] U.S. Cl.312/263, 312/195, 312/265
[51] Int. Cl.A47b 47/00, A47b 17/00, A47b 19/00
[58] Field of Search.....312/144, 195, 263, 245

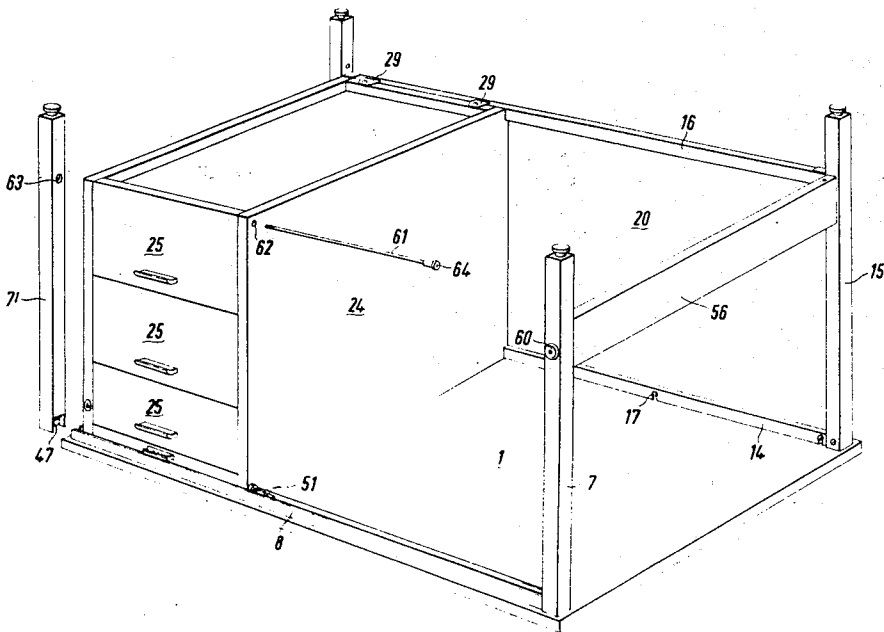
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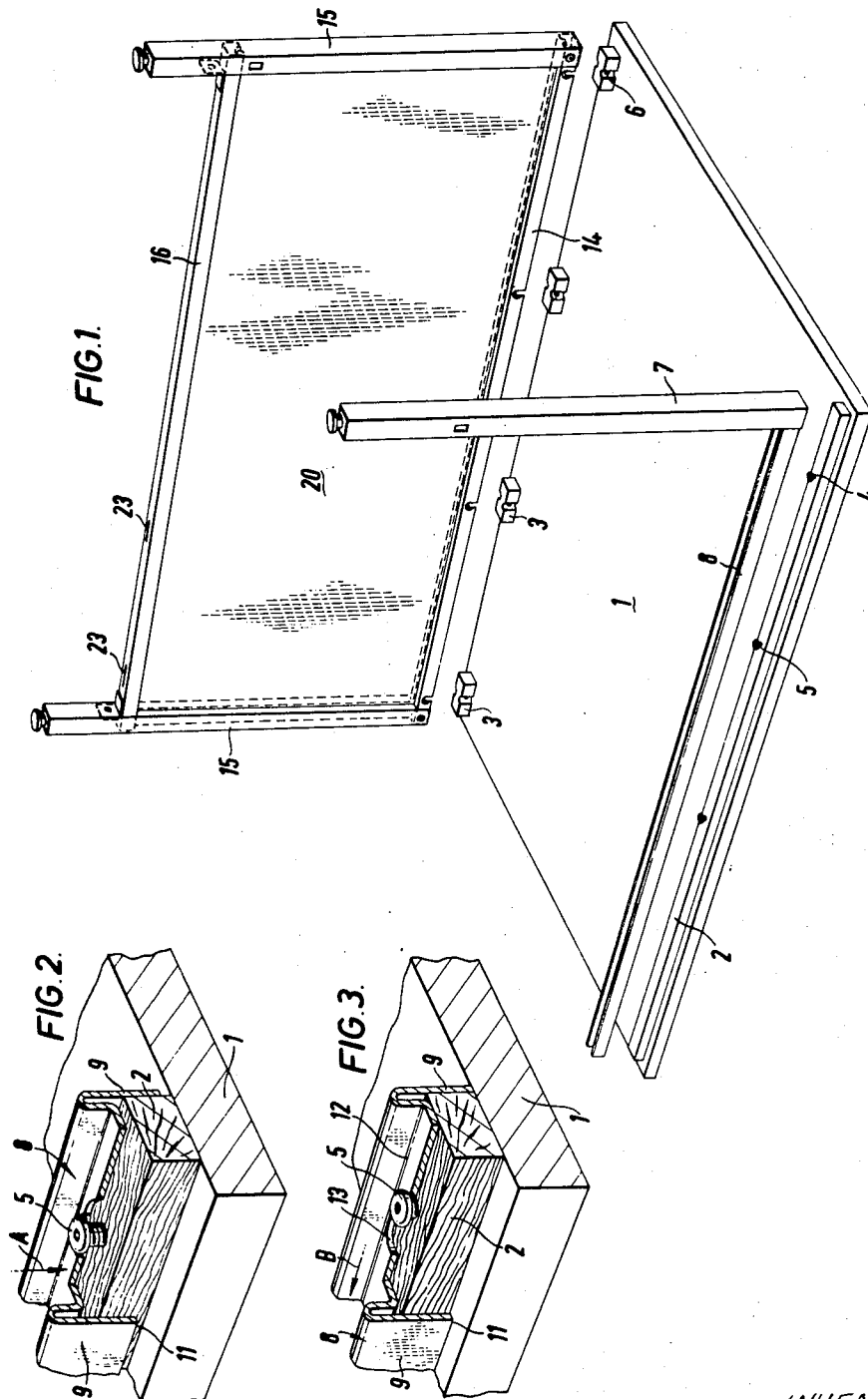
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[57] ABSTRACT

A desk adapted to be transported and stored in “k-nocked down” form, such desk comprising a top member providing a working surface, front and rear frames for supporting the top member, and at least one pedestal providing storage space, the pedestal being attached to the frames but not to the top member.

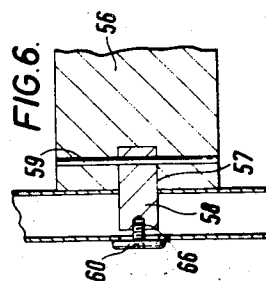
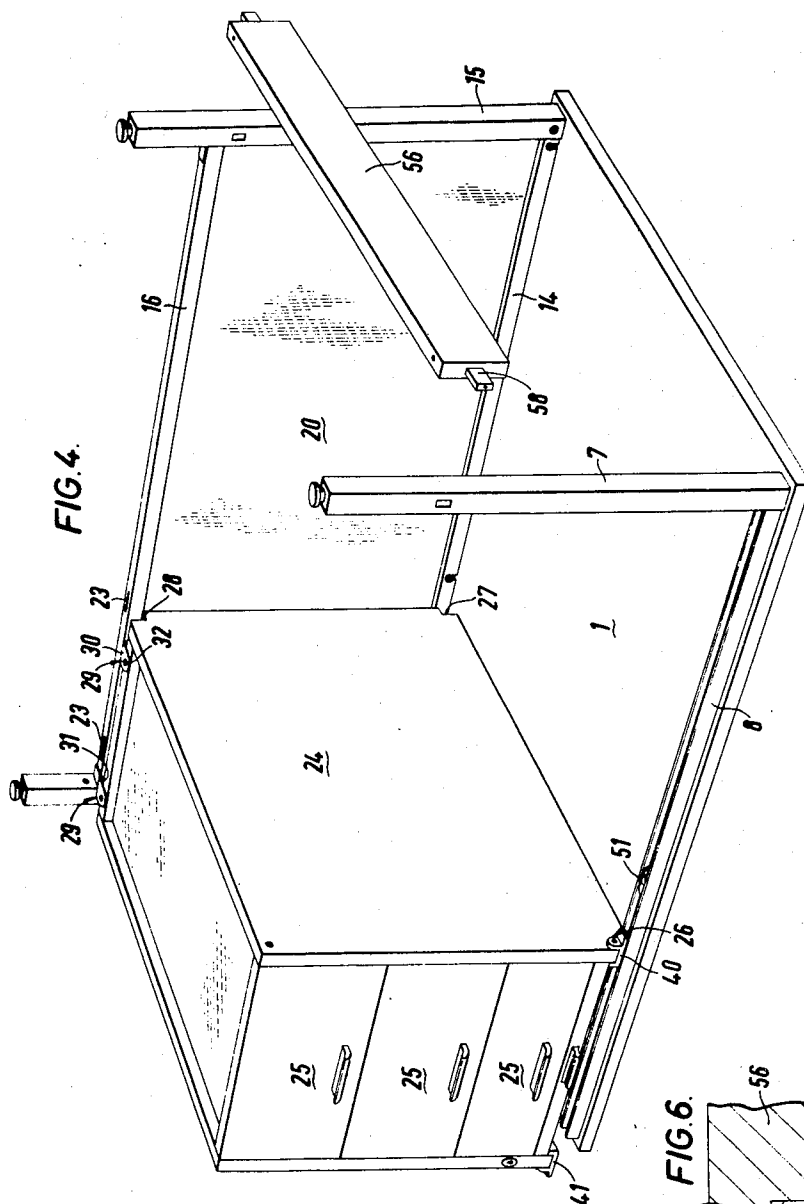
2 Claims, 14 Drawing Figures





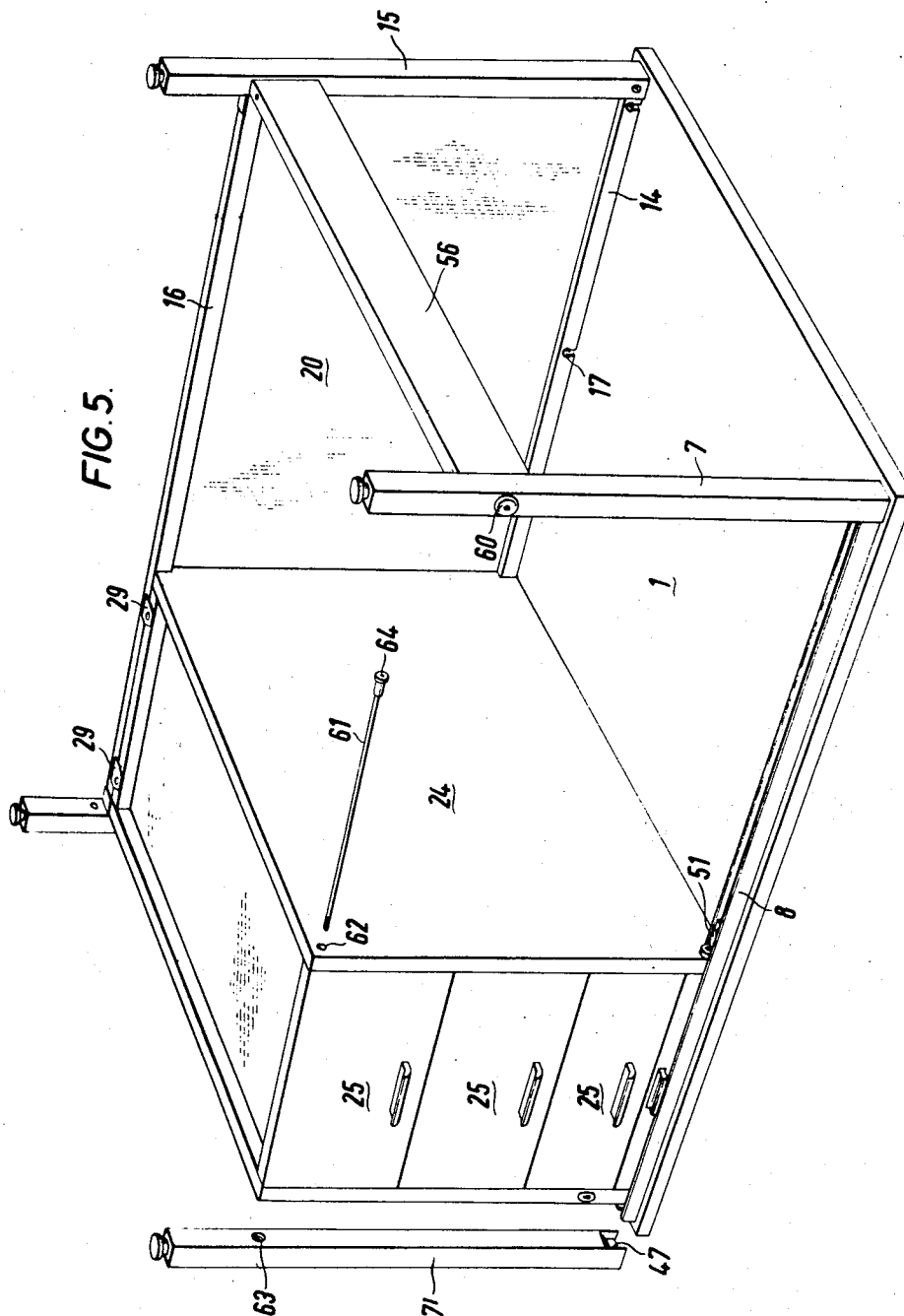
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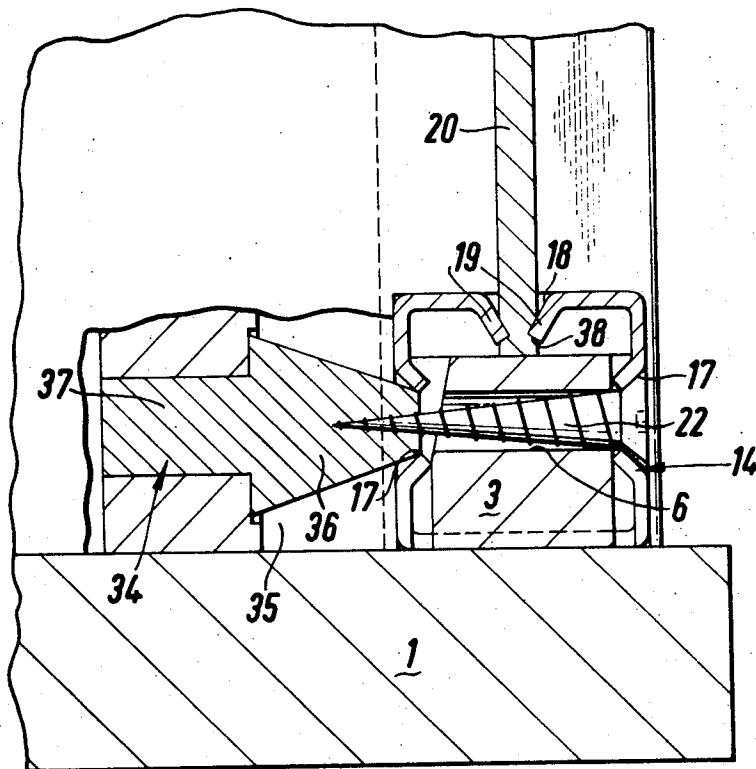


FIG. 7

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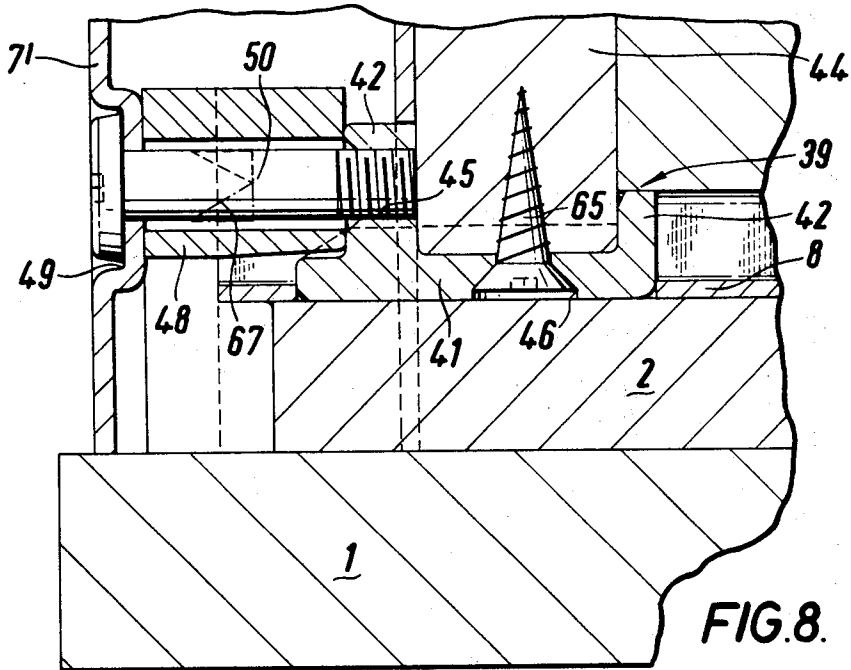


FIG. 8.

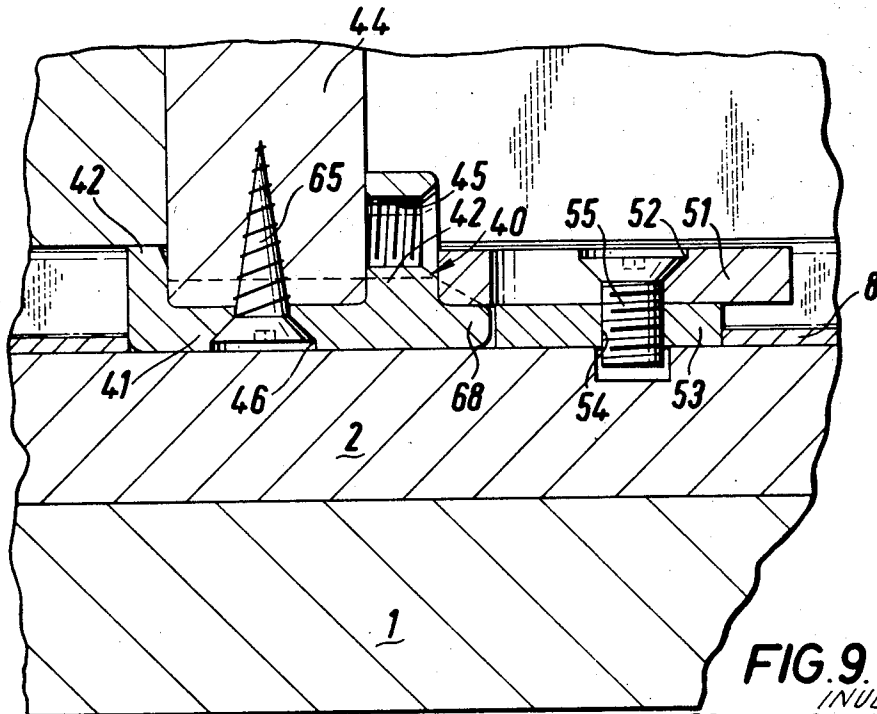


FIG. 9.

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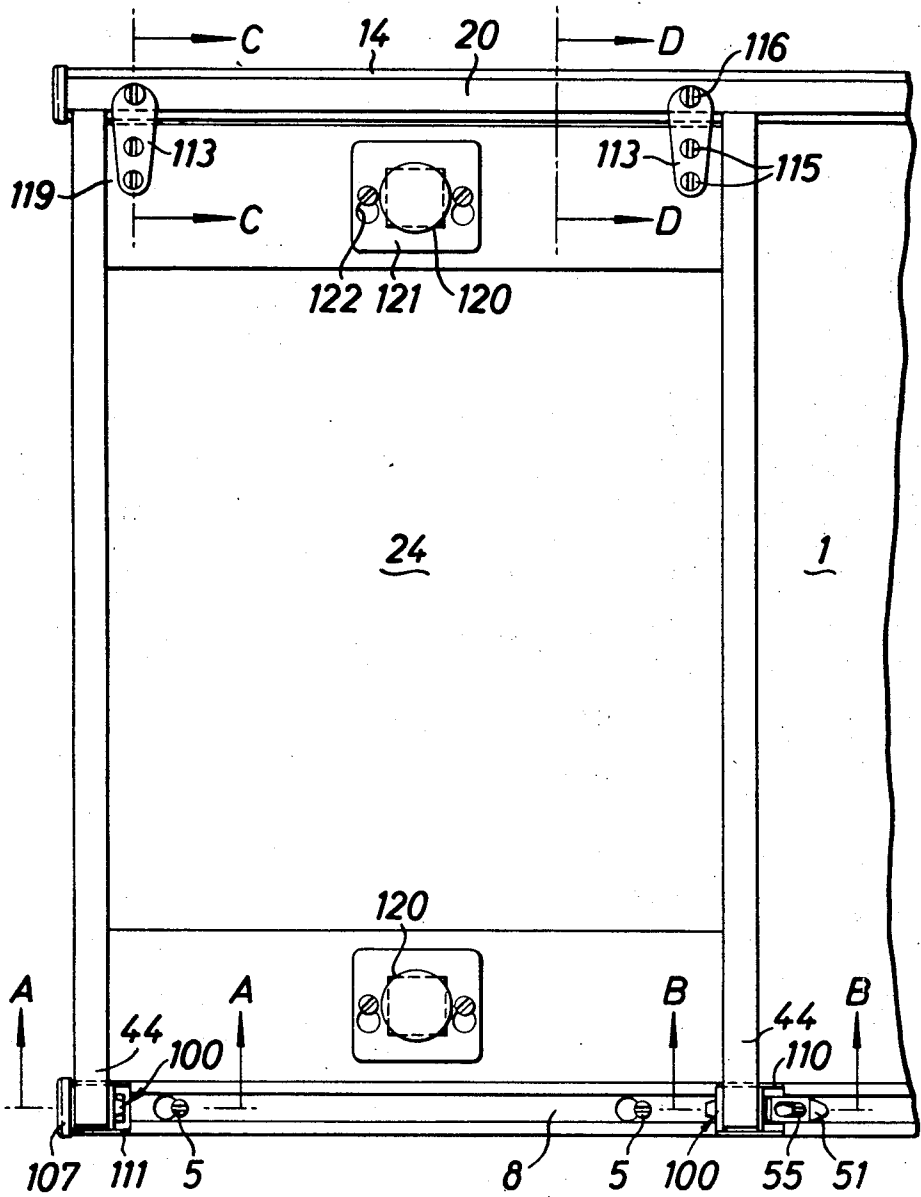
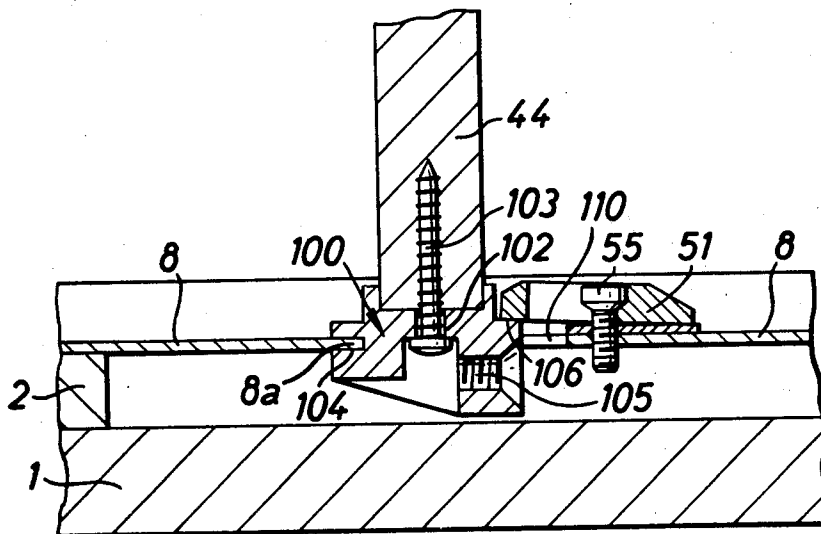
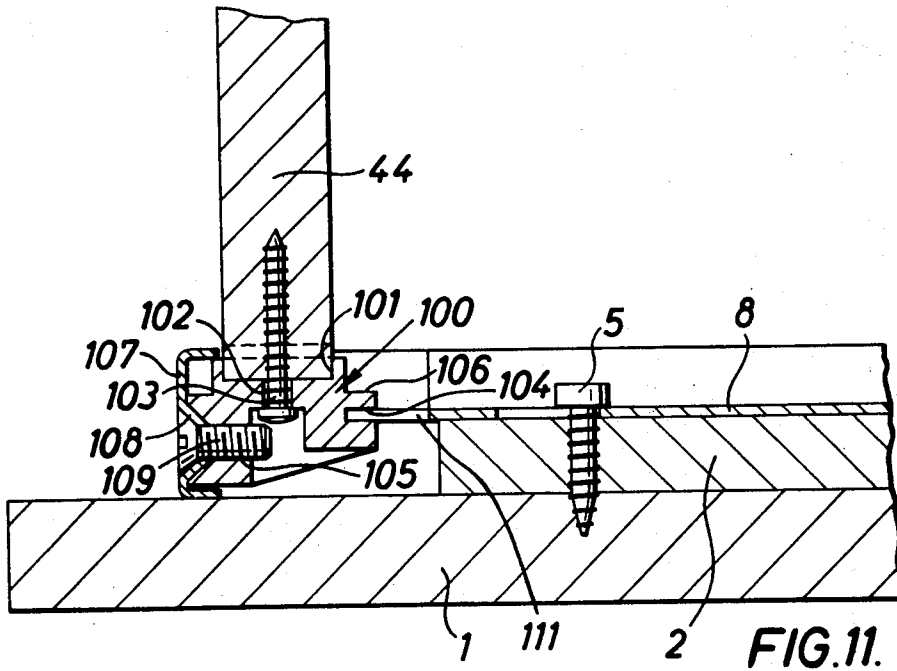


FIG. 10.

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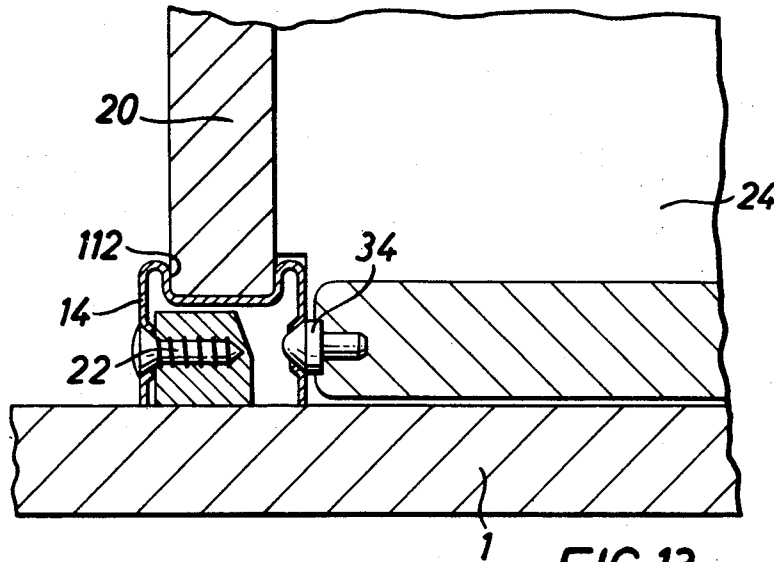


FIG. 13.

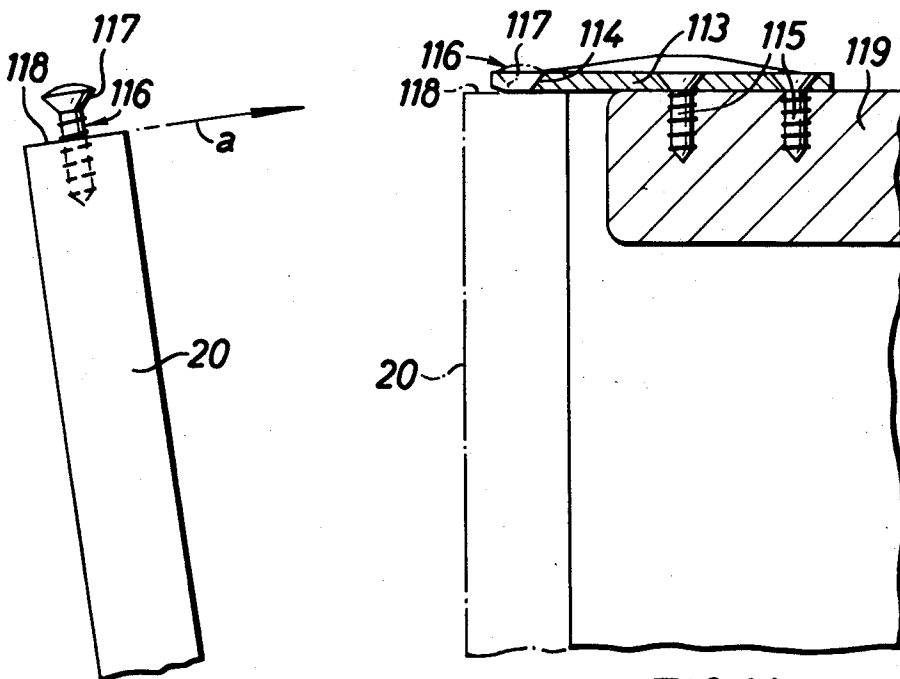


FIG. 14.

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DESKS

This is a continuation-in-part of Application Ser. No. 814,738, filed Apr. 9, 1969.

The invention relates to desks and has for an objective the provision of an improved desk assembly made up of components which can be transported and stored separately and readily assembled into a desk when required. Such a desk assembly in the dissembled condition suitable for transport and storage will hereinafter be referred to as being in "knocked down" form.

According to the present invention there is provided a desk assembly adapted to be transported and stored in "knocked down" form, such assembly comprising a top member providing a working surface, front and rear frames for supporting the top member, and at least one pedestal providing storage space, the pedestal being attached to the frames but not to the top member.

More specifically the present invention provides a desk assembly adapted to be transported and stored in "knocked down" form, such assembly comprising a top member providing a working surface, front and rear frames, each comprising side legs and at least one cross rail, means for securing the upper cross rail of at least one of the frames to the undersurface of the top member, at least one storage pedestal adapted to be positioned between the frames under the top member, means on at least one of the frames for holding the pedestal in abutting relationship with the side legs at one side of the top member, and means for connecting the undersurface of the pedestal to at least one of the cross rails.

Preferably in the assembled desk upper cross rails of both front and rear frames are fixed to the undersurface of the top member, the undersurface of the pedestal rests on, and is connected to, a lower cross rail of the rear frame, a pair of shoes associated with the upper front marginal part of the pedestal are connected one to a side leg and the other to the upper cross rail of the front frame and a tie rod passing through the pedestal engages the said side leg.

According to the development of the present invention the side legs at one or both sides of each frame are omitted when a pedestal is provided under that side of top member. One or more legs depend from the undersurface of the pedestal to support the desk. Thus in the case of a single-pedestal desk each frame will have a single side leg while in the case of a double-pedestal desk both side legs will be omitted. It will be appreciated that the or each pedestal constitutes part of the frame.

A particular embodiment of the present invention will now be described by way of example and with reference to the accompanying drawings wherein:

FIG. 1 is a perspective view showing a desk at an initial stage of assembly;

FIGS. 2 and 3 are enlarged scrap perspective views showing part of the assembly shown in FIG. 1;

FIG. 4 is a view similar to FIG. 1 showing the desk at a later stage of assembly;

FIG. 5 is a view similar to FIGS. 1 and 4 showing the desk approaching completion;

FIG. 6 is a sectional view showing a fixing arrangement for the desk assembly;

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FIGS. 7, 8 and 9 are enlarged sectional views showing respectively the fixing of the upper rail of the rear frame of the backing board of the desk shown in FIGS. 1 to 6, and the fixing of the front part of the pedestal to a leg and the upper rail of the front frame of the desk.

FIG. 10 is an underneath view of one side of a desk in accordance with a second particular embodiment;

FIG. 11 is a section on the line A—A of FIG. 10;

FIG. 12 is a section on the line B—B of FIG. 10;

FIG. 13 is a section on the line D—D of FIG. 10; and

FIG. 14 is a sectional view on the line C—C of FIG. 10 illustrating a stage in the assembly of the desk from its components.

Referring now to FIG. 1 of the drawings the desk in accordance with the particular embodiment comprises a flat rectangular chipboard top member 1 having upper and under large-area surfaces, and front, rear and side small-area edge surfaces. In the drawings, the desk is shown inverted with the upper surface of the top member 1 downwardly directed. The illustrated orientation is that used during assembly of the desk, but the terms "upper" and "lower" are used in the specification and claims with reference to the desk in the upright working position with the top member 1 standing on its legs.

A continuous elongate shallow beechwood batten 2 is secured to the undersurface of the top member 1 adjacent to the front margin thereof and spaced shorter battens 3 are similarly secured adjacent the rear margin of the top member 1. Each batten extends parallel to the said margin. Vertically disposed bores 4 adapted to receive wood screws are formed in the downwardly facing surface of the front batten 2, and a horizontally disposed through bore 6 also adapted to receive a wood screw is formed through each rear batten 3.

A front frame adapted to depend from the undersurface of the front marginal part of the top member 1 comprises side legs 7 and 7' and a top rail 8 extending between the upper parts of the legs. The rail 8, as can best be seen in FIGS. 2 and 3, is in the form of a channel having flanges 9 on either side of a connecting web. Upwardly directed edge surfaces 11 of the flanges abut the undersurface of the top member 1. The inwardly directed surfaces of the flanges 9 fit over the batten 2. The web is formed into an elongate depression 12 of rectangular cross section. A plurality of, for example three, keyhole slots 13 extend through the base of the depression 12 at positions spaced along the rail 8 corresponding to the threaded bores 4 in the batten 2. In order to secure the rail 8 to the undersurface of the top member 1, headed wood screws 5 are engaged with the bores 4 in the battens, the rail 8 lowered in the direction of the arrow A in FIG. 2 so that the enlarged heads of the screws 5 pass through the wider parts of the keyhole slots 13. The rail 8 is then moved laterally of the top member in the direction of the arrow B shown in FIG. 3 to a position such that the stems of the screws 5 are engaged in the narrower parts of the slots 13 and the screws 5 tightened.

The side legs 7 and 7' depend vertically from the end parts of the front rail 8. Each leg is of tubular form and of square cross section and one, 7', of the legs is engaged with its rail end part at a later stage of assembly to that shown in FIGS. 1 to 3 of the drawings.

A rear frame adapted to depend from the undersurface of the rear marginal part of the undersurface of the top member 1 comprises an upper rail 14 having an upper surface adapted to abut the said undersurface, legs 15 depending from either end of the upper rail 14, and a lower rail 16 parallel to the upper rail, extending between the legs 15 at a position intermediate the ends thereof. The top rail 14 is of tubular form, see FIG. 7, having a generally square cross section. An elongate slot 18, extends the length of the rail through the horizontally disposed surface of the top rail 14. The marginal parts 19 of the rail defining the slot are upwardly intumed and provide a pair of jaws adapted to receive and retain an upper edge part of a rectangular backing board 20 for the desk. Registering bores 17 are formed through the front and rear walls of the rail 14 at positions adapted to engage the bored battens 3. The bores 17 are formed at the bases of countersinks. The battens 3 in the assembled state shown in FIG. 7 fit exactly within the bore defined by the inwardly directed edge surfaces of the said jaws and countersinks. A screw 22 passes through each set of registering bores 17 and 6. The lower rail 16 of the rear frame is generally similar to the upper rail without the bores 17 and the elongate slot 18 is being upwardly directed. In order to secure the rear frame and the backing board 20 to the top member 1 the screws 22 are passed through registering bores 17 and 6 in the rail walls and the battens 3. The jaws 19 close to trap the upper and lower marginal parts of the backing board 20. Shallow grooves 38 extend parallel to, and a little distance from, the upper and lower marginal parts of the backing board, these grooves being engaged by the jaws 19. It will be appreciated that rectangular recesses are formed in the backing board 20 to receive the battens.

A pedestal 24, see FIGS. 4 and 5, of rectangular box-like configuration is disposed underneath one side part of the top member 1. The pedestal has horizontally disposed upper and lower surfaces and vertically disposed front, rear and front, rear and side surfaces. The pedestal 24 contains sliding drawers 25. The upper surface of the pedestal abuts, but is not attached to, the undersurface of the top member 1 between the front and rear frames. Rebates 26 and 27 are formed in the pedestal side walls at the upper front and rear marginal parts of the pedestal. The front rebates 26 receive the upper rail 8 of the front frame, while the rear rebates 27 receive that part of the upper rail 14 of the rear frame which is in front of the backing board 20. A lower pair of rebates 28 are formed in the pedestal side walls at the lower rear margin of the pedestal. The downwardly directed surface of the lower pair of rebates 28 seats on that part of the upper surface of the lower rail 16 which is located in front of the backing board 20. Two locating plates 29 are secured by screws to the undersurface of the rear wall of the pedestal 24. Each plate 29 comprises a horizontally disposed rectangular rear part 30 having one long edge thereof bent upwardly at right angles to define an upstanding shallow flange 31. The other long edge of the rectangular rear part provides the longer parallel side of a trapezoidal member 32 extending in the plane of the rectangular plate and having a through bore 33 through which the bolt passes. The upstanding flange 31 engages a slot 23 of a pair formed through the undersurface of the lower rail 16 of the rear frame.

Referring now to FIG. 7 of the drawings, a synthetic resin spigot 34 is housed in each of a pair of recesses 35 disposed in the rear face of the pedestal rear wall adjacent the upper margin thereof. Each recess 35 is so positioned that the rear end of the spigot 34 engages the countersink of the rear bore 17. Each spigot 34 has a frusto-conical head part 36 having the narrower end part thereof extending rearwardly to engage the said countersink and a cylindrical stem 37 fixed in the pedestal rear wall. The pointed end part of the screw 22 enters into the head part 36 to fix the rear frame, desk top member and pedestal together.

A pair of similar metal shoes 39 and 40, see particularly FIGS. 8 and 9 of the drawings, are disposed one on either side of the front of the pedestal 24. Each shoe comprises a rectangular plate 41 having a flat upper surface adapted to slide along the base of the depression 12 of the top rail 8 of the front frame. Flanges 42 projecting at right angles from the plate 41 define a channel which receives a side wall 44 of the pedestal 24. A horizontally disposed internally threaded bore 45 is formed in the outer of the flanges 42 and a vertically disposed countersunk bore 46 is formed through the plate 41. The upper end part of the separately attachable leg 7' of the front frame has the upper part of the inner side wall thereof cut away at 47 so that the leg 7' can be engaged over the rail end part in the manner shown in FIG. 8. An insert piece 48 formed of synthetic resin material and located within the upper end part of the leg 7' defines a bore adapted to be aligned with the bore 45 and a bore formed through a recessed part 49 of the outer side wall of the leg 7'. A bolt 50 passes through the aligned bores to fix the leg 7' to the front rail 8 and hence to the top member 1, and to the pedestal 24. Fins 67 project inwardly from the periphery of the bore in the piece 48 to locate the bolt 50. A plate 51 having a countersunk vertical key hole through slot 52 is slidable along the depression 12 to a position where it abuts the laterally inner surface of the shoe 40. In this position the plate 51 presses down on the part 68 of the shoe 40 which projects outwardly from the flange 42 and thus locates the pedestal 24. The web of the front rail 8 is thickened at 53 under the plate and a vertically disposed threaded bore 54 formed in the thickening 53. A bolt 55 engages the bores 52 and 54 to fix the plate 51. The shoes 39 and 40 are secured to the walls 44 by screws 65 passing through bores 46.

An elongate tie rod 61 (see FIG. 5), passes laterally through a bore 62 in the pedestal 24 and has an outer threaded end to engage a threaded socket 63 within the leg of the front frame to which the shoe is attached. The other end of the tie rod 61 has a bolt head 64.

A further pedestal may similarly be fixed under the other side of the top member or in the case of a single-pedestal desk as shown, a strut 56 may extend parallel to the undersurface of the top member between opposite legs 7 and 15 of the front and rear frames. The strut 56 is advantageously of wood and is of rectangular cross section. As can well be seen in FIG. 6 a longitudinally extending socket 57 of rectangular cross section is formed in each end of the strut 56. A metal block 58 is inserted into each socket and a vertically disposed rod 59 passes through the strut and block to hold the block in the socket. A threaded bore 66 is formed in the outer end surface of each block and bolts 60

passing through the front and rear walls of front and rear side legs 7 and 15 engage the threaded bores to fix the strut 56.

To assemble the single-pedestal desk described with reference to the drawings the top member is inverted on a supporting surface in the manner shown in FIG. 1. The front frame without the leg 7' is fixed and the rear frame located but not fixed. The strut 56 at the side of the desk without the pedestal is then attached but not tightened. These stages of assembly are shown in FIGS. 4 and 5 of the drawings. The pedestal 24 is located, the leg 7' engaged with the end part of the rail 8 and the shoes 39 and 40 at the front thereof fixed respectively to the front leg 7' and the rail 8. The tie rod 61 passing through the pedestal is engaged with the front frame leg and tightened. The strut 56 is then tightened. The locating plates 29 at the rear of the pedestal undersurface are then engaged with the slots 23 at the undersurface of the rail 16 and finally the back frame fixing screws 10 tightened. This assembly procedure can be carried out without removing the drawers 25 from the pedestal 24. All screws and bolts have the heads thereof provided with a rectangular recess to receive an Allen Key, which key is supplied with the "knocked down" desk.

According to a further feature of the invention the connections between the pedestal and the front and rear frames are such as to urge the pedestal, during tightening of the connections laterally outwardly against the side legs of the frame. Thus by way of example in the above described particular embodiment the slots 23 in the bottom rail 16 of the back frame are slightly laterally outwardly offset with respect to the flanges 31 of the locating plates 29. During tightening of the bolts fixing the plates 29 the pedestal is moved or "winched" laterally outwardly to press against the inwardly directed surfaces of the legs 7' and 15. This ensures tight assembly and allows for manufacturing tolerances.

Parts identical or substantially identical to those described with reference to FIGS. 1 to 9 of the drawings will be accorded the reference numerals from those drawings.

Thus referring initially to FIGS. 10 to 12 of the accompanying drawings, the desk shown therein comprises a top member 1 having on its undersurface a front batten 2 and rear battens 3. Front and rear rails 8 and 14 are engaged with the battens. Again a pedestal 24 is disposed under the side part of the top member 1 shown in FIG. 10. Front side parts 44 of the pedestal 24 are, as before, engaged in shoes which engage the front rail 8 but these shoes 100 differ from the shoes 39 and 40 described with reference to FIGS. 8 and 9 of the drawings.

Each shoe 100 is moulded from a synthetic resin material preferably that sold under the Registered Trade Mark "KEMETAL". Each shoe has an upwardly facing rectangular channel 101 to engage a pedestal side part 44 and a vertical bore 102 below and communicating with the channel 101. A shoulder 106 is provided at either side of the channel 101. A screw 103 passes through the bore 102 and engages the pedestal to fix the shoe 100 thereto. Each shoe has at one side a horizontally disposed slot 104 and at the other side a horizontally disposed countersunk threaded bore 105.

The batten 2 supporting the front rail 8 is interrupted in the region of the inner of the shoes 100 which is shown in FIG. 14 and the rail 8 is slotted at 110 to receive the shoe. The slot 104 is outwardly disposed to engage the rail part 8a. In similar fashion to the arrangement described with reference to FIG. 9 of the drawings a plate 51 slides along the depression 12 of the rail 8 to engage the shoulder 106 to urge the shoe outwardly. As before the bolt 55 fixes the plate 51 in the fixing position shown. Referring now to FIG. 11 of the drawings a cap 107 closes the outer end of the rail 8. The rail 8 is slotted at 111 to receive the outer of the shoes 100 and the batten 2 terminates at the inner end of the slot. A countersink 108 in the cap 107 fits the countersink of the bore 105 in the shoe 100. A screw 109 through the cap 107 engages the bore 105 to fix the shoe 100 and hence the outer of the pedestal side parts 44. It will be appreciated that the side leg 7' of the front frame of FIGS. 5 and 8 of the drawings is omitted. In the present invention a pair of legs 120 depend from the undersurface of the pedestal 24, which latter forms a part of the front frame. Each leg 120 is carried by a plate 121 having keyhole slots 122. Screws 123 pass through the slots 122 and engage the pedestal undersurface.

The fixing of the rear of the pedestal 24 to the top rail 14 of the rear frame and the fixing of rear panel 20 will now be described with reference to FIG. 13 and in comparison with FIG. 7 of the drawings in the present invention the upper edge part of the rear panel 20 simply locates in a shallow channel 112 of the rail 14. The screw 22 does not moreover extend rearwardly to penetrate the spigot 34.

The fixing of the undersurface of the rear panel 20 is shown in FIGS. 10 and 4 of the drawings. It will be noted that the lower cross member 16 of the rear frame (see FIGS. 1, 4 and 5 of the drawings) has been omitted as the pedestal is supported by the legs 120. Locating plates 113 are fixed by screws 115 to the undersurface 119 of the pedestal. Each plate 113 extends rearwardly and has an open ended rearwardly directed countersunk slot 114 at the rear end thereof. A screw 116 having a countersunk head 117 engages the edge surface 118 of the board 20. During assembly the board 20 is moved forwardly in the direction of the arrow *a* so that the protruding shank of the screw 16 is engaged by the slot 114 of the locating plate 113. The center of the slot 114 is disposed rearwardly of the center of the screw 116 in this engaged position so that, on tightening of the screw 116, the board 20 is pulled or winched forwardly against the pedestal.

We claim

1. A desk adapted to be transported and stored in "knocked down" form, said desk comprising:

a top member having a working surface, an opposite undersurface and marginal edges defining the extent of said surfaces; said top member having two side areas which are, respectively, generally in the vicinity of respective opposite marginal edges of said top members;

a front frame secured to said desk top member undersurface; a rear frame secured to said desk top member undersurface and spaced away from said front frame, each said frame forming a respective supporting surface and at least one cross-rail join-

ing said supporting surfaces; both said cross-rails
 extending between said side areas of said top
 member, first securing means securing each said
 frame cross-rail to said top member undersurface;
 a second cross-rail extending between said support- 5
 ing surfaces on at least one of said frames; said
 second cross-rail being spaced away from the
 other said cross-rail of the respective said frame;
 at least one pedestal shaped to define storage space;
 means permitting access within the pedestal 10
 storage space facing in a direction transverse to
 the direction of extension of a said cross-rail; said
 pedestal being positioned beneath said top
 member undersurface and in one of said side areas
 of said top member; means on at least one of said 15
 front and rear frames for securing said pedestal in
 abutting relationship with one respective said sup-
 porting surface of that said frame, which said sup-
 porting surface is beneath the same side area of
 said top member as said pedestal; said pedestal 20
 having an undersurface which is connected to said
 second cross-rail,
 said second cross-rail extending between said sup-
 porting surfaces of said rear frame;
 said pedestal being shaped and positioned such that 25
 its said undersurface rests upon and is connected
 to said second cross-rail;
 said pedestal having an upper front marginal area
 which is positioned in the vicinity of said front

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frame;
 said means for securing said pedestal also comprising
 connecting shoes connected with said upper front
 marginal area of said pedestal; one said connecting
 shoe being positioned so as to be connected a por-
 tion of said supporting surface of said front frame;
 another said shoe being positioned so as to be
 secured to said cross-rail of said front frame;
 securing means effecting such securements to said
 front frame; said pedestal being free of direct at-
 tachment to said top member;
 a tie-rod passing through said pedestal and secured
 to the said front frame supporting surface with
 which said pedestal is in abutment, thereby further
 joining said pedestal to that said front frame sup-
 porting surface, and tightenable cooperating
 securing means on said frames and said pedestal;
 said cooperating securing means on said pedestal
 and said frames being laterally offset from one
 another in a manner that urges said pedestal out-
 ward against the said side which it is to abut during
 assembly of said desk by tightening said securing
 means.
 2. The desk according to claim 1 in which said
 pedestal is provided with at least one leg extending
 from the undersurface of said pedestal and cooperating
 with said frame side legs for supporting said desk.

* * * * *