United States Patent

[11] 3,586,409

[72] Inventor **Earl J. Cisler**
Two Rivers, Wis.

[21] Appl. No. **826,564**
[22] Filed **May 21, 1969**
[45] Patented **June 22, 1971**
[73] Assignee **American Hospital Supply Corporation**
Evanston, Ill.

[54] **REFERENCE DESK CONSTRUCTION**
13 Claims, 11 Drawing Figs.

[52] **U.S. Cl.** **312/111,** 312/195
[51] **Int. Cl.** **F16b 12/00,** A47b 17/00
[50] **Field of Search** 312/195, 111

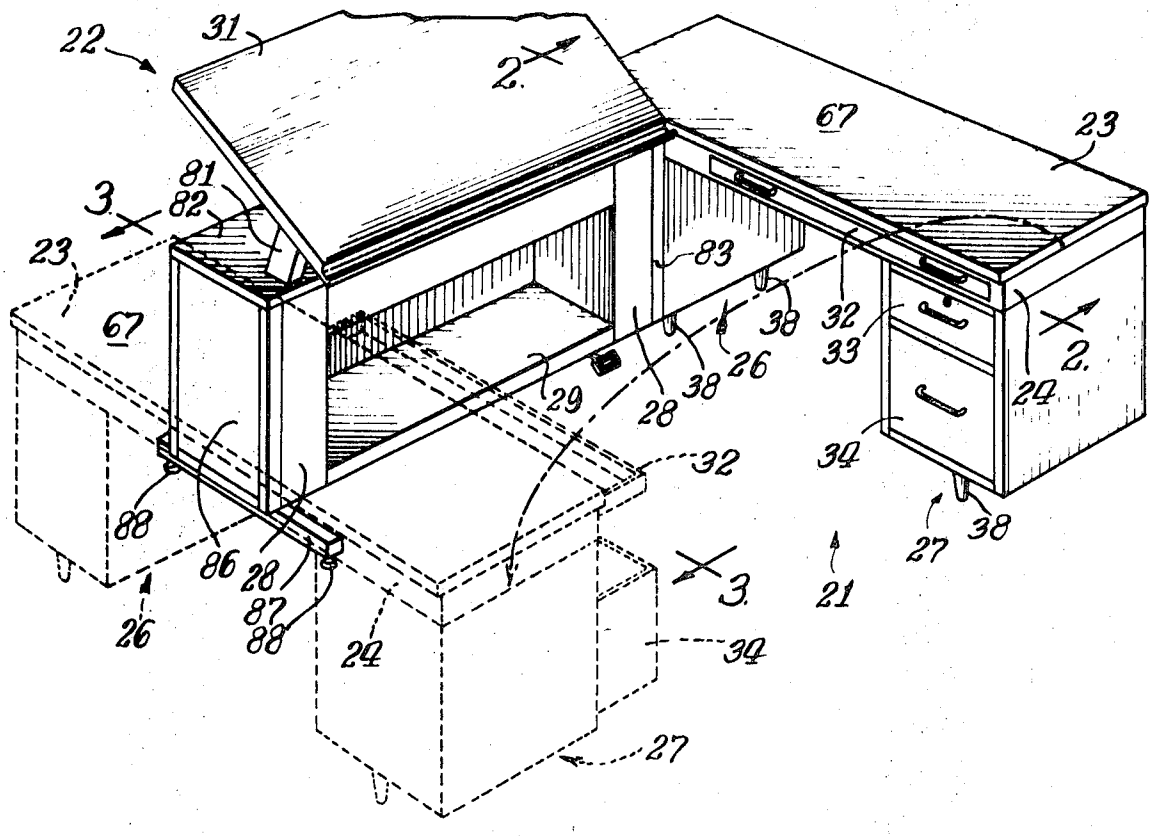
[56] **References Cited**

UNITED STATES PATENTS

1,873,932	8/1932	Hunter	312/195
2,233,003	2/1941	Epps	312/195
2,490,814	12/1949	Jacobs	312/111
2,987,362	6/1961	Bernath	312/195

Primary Examiner—Patrick D. Lawson
Attorney—Hibben, Noyes & Bicknell

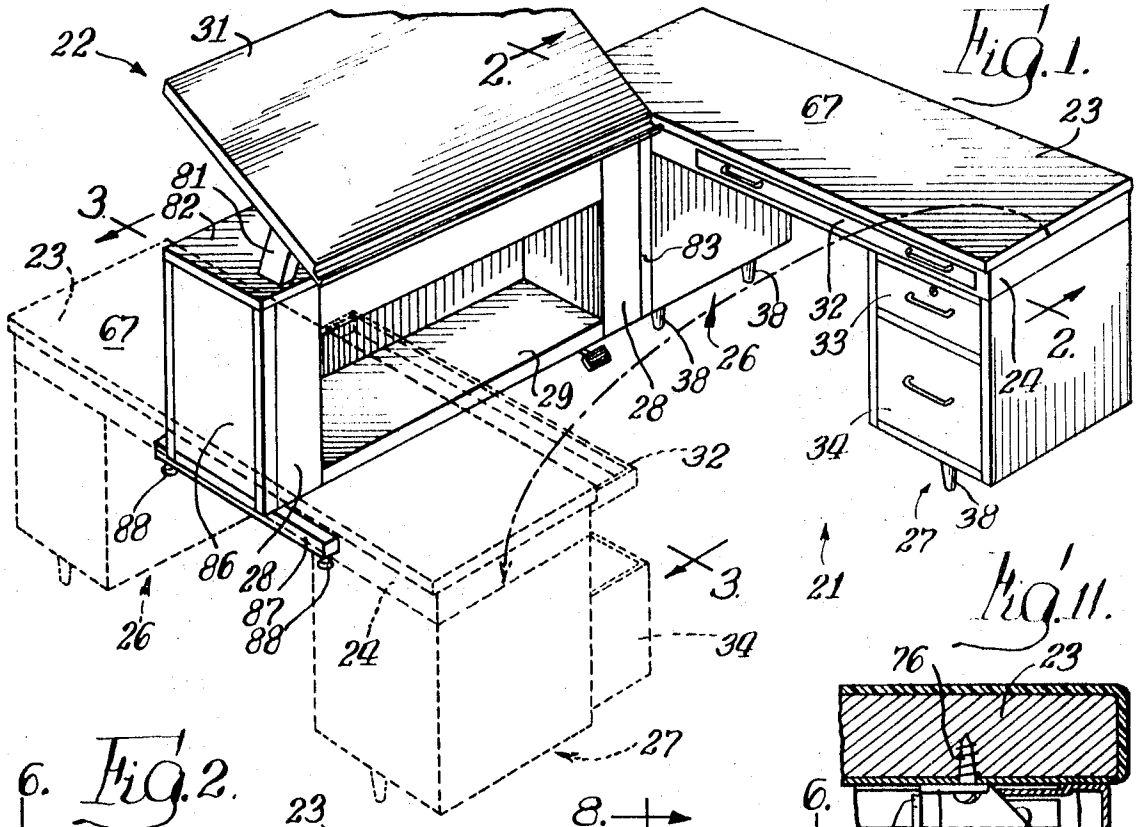
ABSTRACT: A drafting table and reference desk assembly wherein the reference desk may be attached to one side or the other of the drafting table to provide either a right-hand or a left-hand arrangement. The reference desk comprises a desk top, a frame and lower supports. With the frame in one position, the desk top and lower supports respectively may be secured to the top and bottom surfaces of the frame suitable for a right-hand arrangement. When the frame is inverted 180°, the desk top and lower supports may be secured to the opposite surfaces of the frame suitable for a left-hand arrangement. The desk top is removably fastened to the frame by retainers which simplify the assembly and disassembly of the parts. The lower supports are removably secured to the frame by ordinary fastening means.

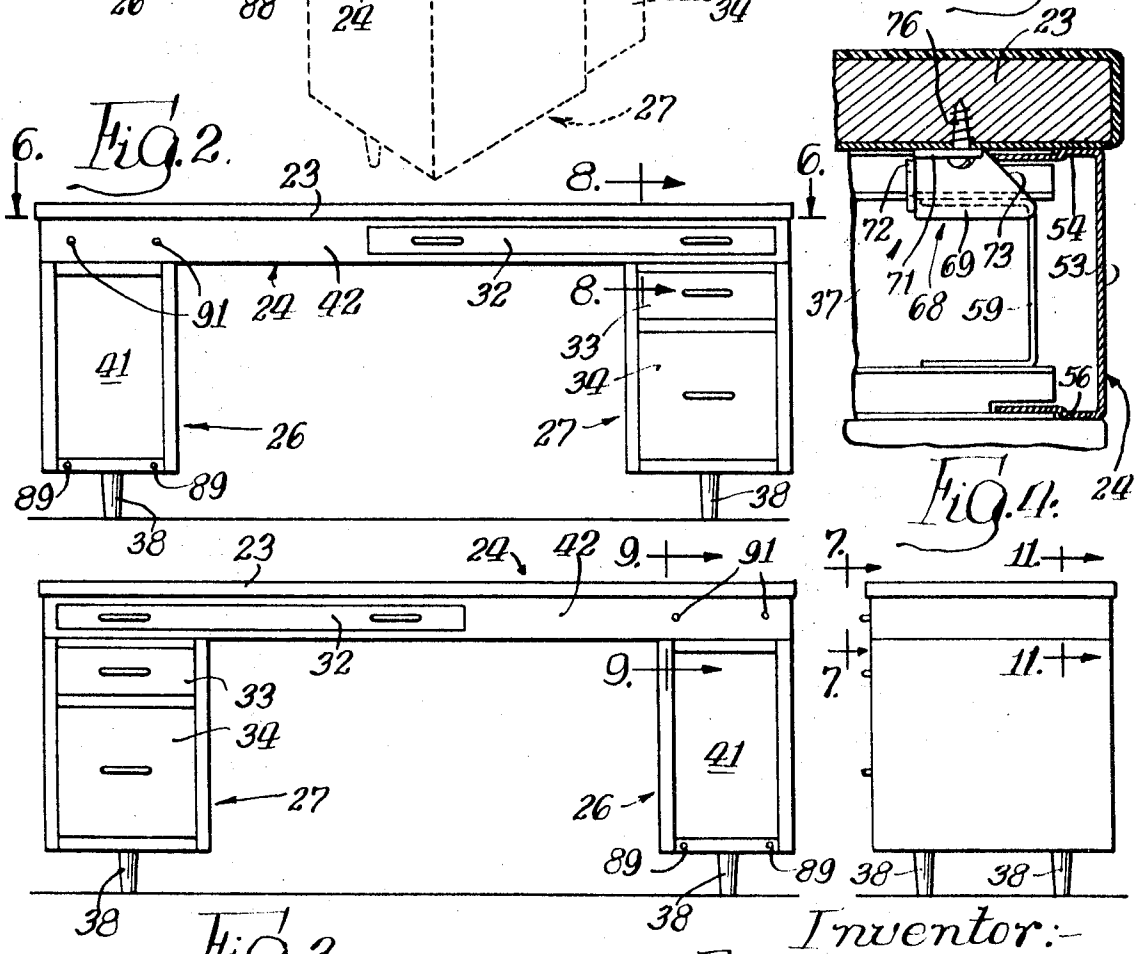


PATENTED JUN 22 1971

3,586,409

SHEET 1 OF 2





Inventor:-
Earl J. Cisler,
By Hibben, Noyes & Bicknell
Attys.

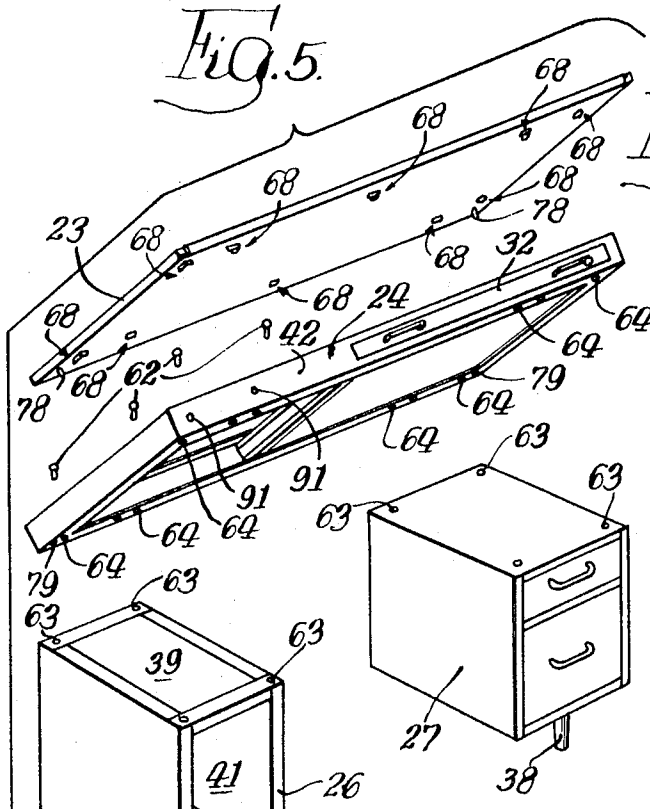


Fig. 5.

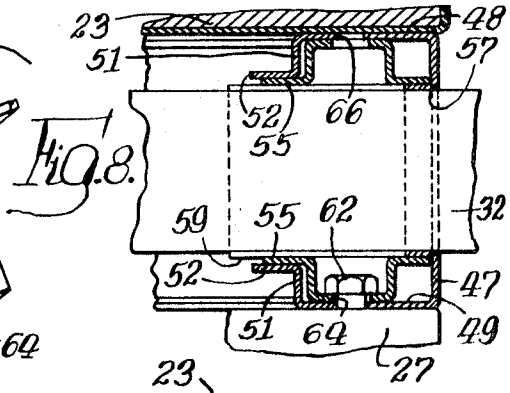


Fig. 8.

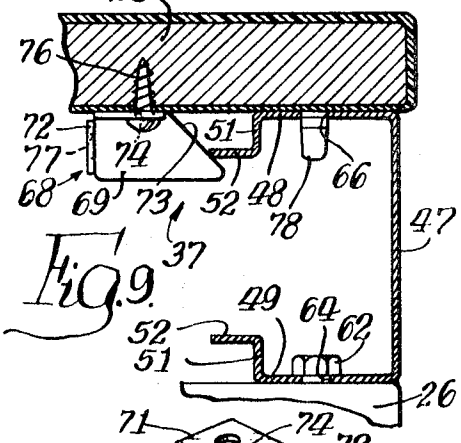


Fig. 9.

Fig. 6.

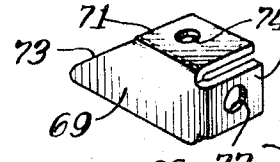


Fig. 10.

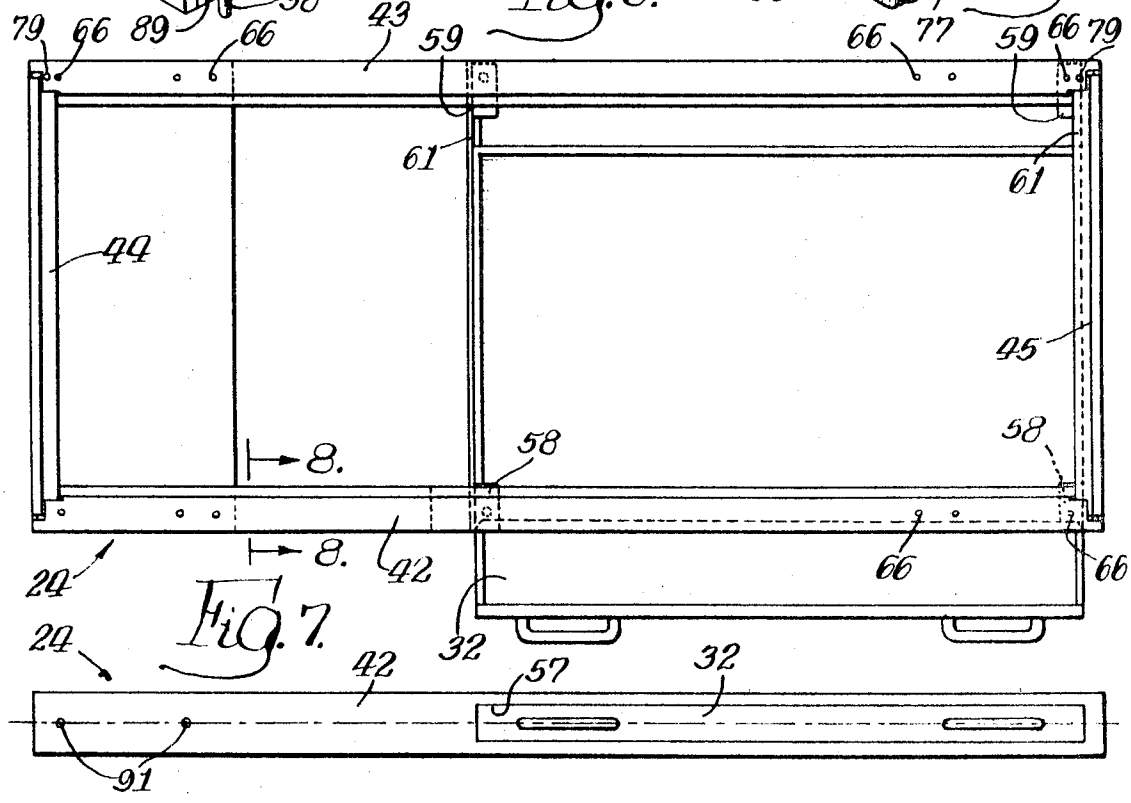


Fig. 7.

REFERENCE DESK CONSTRUCTION

DISCLOSURE OF THE INVENTION

In addition to a drafting table, a reference desk or table is frequently provided for an engineer or draftsman. The reference desk provides a convenient place for the draftsman to do certain types of work and to store files and reference books, and by placing the reference desk near to the drafting table, both are convenient to him by merely shifting his chair.

The reference desk has been frequently placed at right angles to the drafting table and joined to one side or the other of the drafting table. This arrangement of the drafting table and reference desk allows a draftsman, by merely turning his chair, to work at either his drafting table or his reference desk.

In many prior-drafting table and reference desk assemblies, the drafting table and reference desk were connected to each other by means enclosed within portions of the drafting table and reference desk, and to gain access to the interior of such portions to insert or remove the connecting means, removable panels had to be provided for such portions.

Most prior art-drafting table and reference desk assemblies had the further disadvantage in that two different forms were required, one form having the reference desk at the right-hand side of the drafting table and the other form having the reference desk at the left-hand side of the drafting table. Paulsen U.S. Pat. No. 2,928,703 discloses an assembly where only one set of parts is required for either the right-hand or the left-hand arrangement, but change of the assembly shown in this patent to shift from the one hand to the other can be accomplished only by an extensive rearrangement of the parts of the drafting table as well as of the desk. Further, the Paulsen structure could not be conveniently used with a drafting table having a counterbalanced or a power-operated drafting board.

In accordance with the present invention the foregoing disadvantages are avoided by providing a novel reference desk comprising a desk top, a frame, and lower supports. The area within the frame is open at the upper and lower surfaces of the frame, and the frame may be inverted through 180° so that either of such surfaces may be the upper surface and the other the lower surface. The frame is mounted on the lower supports, and one support has an opening at its top, which provides access to the interior of the support for joining the reference desk and drafting table and for assembling the support to the frame. The desk top is mounted on the frame, and may be easily removed from or attached to the frame so that the openings in the frame and in the lower support, which are normally covered by the desk top, may be used as an access opening to the interior of reference desk. Simple, easily engageable retainers are provided to secure the desk top to the frame.

By making the desk top and the lower supports removable from the frame and by constructing the frame so that the desk top and lower supports may be secured to either of two surfaces thereof, a right-hand reference desk or a left-hand reference desk may be provided from one set of components with only minor modification of the drafting table. To provide a right-hand reference desk, the desk top is fastened to the upper surface of the frame when the latter is in one position, and the lower supports are fastened to the opposite or lower surface of the frame. To provide a left-hand reference desk the frame is inverted 180°, and the desk top and the lower supports are fastened respectively to the then upper and lower surfaces of the frame.

Objects and advantages of the invention will be apparent from the following detailed description taken in conjunction with the accompanying FIGS. of the drawings, in which:

FIG. 1 is a perspective view of a drafting table and a reference desk assembly embodying the invention, the reference desk when in its right-hand position being shown in solid lines, and when in its left-hand position being shown in dashed lines;

FIG. 2 is a front elevational view showing the reference desk arranged for use in its right-hand position;

FIG. 3 is a view similar to FIG. 2 but showing the reference desk arranged for use in its left-hand position;

FIG. 4 is an end view of the reference desk;

FIG. 5 is an exploded view of the reference desk;

FIG. 6 is an enlarged view taken on the line 6–6 of FIG. 2;

FIG. 7 is an enlarged elevational view of one of the parts of the reference desk;

FIG. 8 is a further enlarged fragmentary sectional view taken on line 8–8 of FIG. 2 with the base cabinet in elevation;

FIG. 9 is an enlarged fragmentary sectional view taken on line 9–9 of FIG. 3 with the base cabinet in elevation;

FIG. 10 is an enlarged perspective view of a part shown in FIG. 9; and

FIG. 11 is an enlarged fragmentary sectional view taken on line 11–11 of FIG. 4 with the base cabinet in elevation.

An assembly embodying the invention comprises a reference desk, indicated generally at 21, which may be joined to one side or the other of a drafting table, indicated generally at 22, (FIG. 1), by rearranging the members which comprise the drafting table and the reference desk. The reference desk 21 comprises a desk top 23, a frame 24 and lower supports 26 and 27. The drafting table 22 comprises two pedestals 28, a center section 29 which connects the pedestals 28, and a drawing board 31 supported by the pedestals 28. The reference desk 21 may be joined to either pedestal 28 of the drafting table 22.

With particular reference to FIG. 1, the solid line illustration of the reference desk 21 shows its position relative to the drafting table 22 when it is assembled to serve in a right-hand arrangement, and the dashed line illustration shows its position when it is assembled to serve in a left-hand arrangement. The frame 24 carries a drawer 32, and in either arrangement the drawer is at the end of the desk 21, which is remote from the drafting table 22, permitting a larger drawer to be used. The lower support 27, which carries two drawers 33 and 34, is also at the remote end of the reference desk 21. Thus, the drawers 32, 33 and 34 may be opened without interference by the drafting table 22. In more detail, the reference desk 21 also includes fastening means to removably secure the frame 24 to the lower supports 26 and 27 and fastening means 37 to removably secure the desk top 23 to the frame 24.

The lower supports 26 and 27 support the desk top 23 and the frame 24 on the floor, and may take various forms. In the present instance, the lower support 27 at the remote end of the desk includes the two drawers 33 and 34, and two legs 38 secured to the underside of the lower support 27. The lower support 26 at the near end of the reference desk may have the shape of a box positioned at the side of the drafting table, and also has two legs 38. The upper surface and side surface that faces the drafting table of support 26 have access openings 39 and 41 to facilitate assembly of the reference desk 21 and to facilitate joining the desk 21 and drafting table 22.

As is best shown in FIGS. 5 to 9, the frame 24 is preferably made of sheet metal which is bent into a rectangular configuration having a front portion 42 (FIG. 5), a rear portion 43 and two end portions 44 and 45. As best seen in FIGS. 8 and 9, the front portion 42 and rear portion 43 are channel shape in cross section, each channel having a web 47 and a pair of flanges 48 and 49. The opening of the channel faces the center of the frame. The inner end portions of the two channels include flange portions 51 which extend vertically toward each other and flange portions 52 which extend horizontally toward the center of the frame. As is best shown in FIG. 11, each of the end portions 44 and 45 has a channel-shape cross section having a center web 53 and a pair of flanges 54 and 56.

An elongated drawer opening 57 (FIGS. 6 and 7) for the drawer 32 is formed in the web 47 of the front portion 42. Reinforcement channels 55 (FIG. 8) are provided above and below the openings 57. Adjacent to and on both sides of the opening 57 are provided drawer track mountings 58, and similar track mountings 59 are provided on the rear portion 43. Drawer runs or tracks 61 are secured to the mountings 58 and 59 and extend horizontally and rearwardly from the opening 57, the tracks slideably supporting the drawer 32.

Fastening means, in the present instance comprising threaded fasteners, secure the lower supports 26 and 27 to the frame 24. A plurality of nuts 63 for the bolts 62 are secured to the support 26 and 27. Further, holes 64 are formed in the flange 49 of the frame 24 and line up with the nuts 63 on the lower supports. Additional holes 66 are formed in the other flange 48 of the frame 24, for purpose hereinafter described, the holes 66 being in vertical alignment with the holes 64 and nuts 63.

The desk top 23 extends across the frame 24 and provides a working surface 67 (FIG. 1). The desk top 23 is secured to the frame 24 by the fastening means shown at 37. The fastening means 37 may be used in a number of different instances to secure two members together, but as stated is used to secure the desk top 23 to the frame 24. The fastening means 37 comprises a retainer 68 (FIGS. 5, 9, 10 and 11) pivotally secured to the underside of the desk top 23. Each retainer 68 comprises three integrally formed portions 69, 71 and 72 which are bent at right angles to each other. As is best shown in FIG. 9 and FIG. 11, the portion 69 has a downwardly inclined or slanted surface or edge 73 which underlies the uppermost flanges of the four portions 42, 43, 44 and 45 of the frame 24. The retainer 68 because of the inclined edge 73 is capable of engaging flanges at different elevations. The second portion 71 of each retainer 68 has an opening 74 formed therein, which receives a screw 76 threaded into the underside of the desk top 23 and on which the retainer pivots. To permit pivoting the retainer 68 on the screw, the third portion 72 has an opening 77 formed therein to receive a tool such as a rod or screwdriver (not shown). A plurality of retainers 68 are located about the perimeter of the desk top 23 (FIG. 5) and are spaced inwardly from the adjacent edges of the top 23 so that, when the retainers 68 are pivoted to place the portion 71 parallel to the adjacent edge of the desk top 23, the desk top 23 may be seated on the uppermost flanges of the frame 24 with the retainers 68 spaced inwardly from the flanges of frame 24. The portion 72 of each retainer is then engaged by the tool to turn the retainer 68 approximately 90° and swing the edge 73 into tight engagement with the uppermost flange of the frame 24. As shown in FIGS. 9 and 11, the end of each retainer 68 extends under the flange and the inclined edge 73 pulls the top 23 firmly down on the frame 24.

Two pins 78 (FIGS. 5 and 9) are provided for aligning the desk top 23 with the frame 24. The pins 78 are mounted in the desk top 23, and are located to extend into holes formed in the frame. In this instance the holes for the pins 78 are holes 79 but the hole 66 previously referred to, may be used.

As shown in FIG. 1 in more detail, the drafting table comprises two pedestals 28 joined together by center panels 29, and a column assembly 81 for movably supporting a tiltable drawing board 31. The pedestals 28 form the sides of the drafting table 22, and a top 82 rests on and overhangs the pedestals. The pedestals 28 are open at their outer end faces.

The drafting table 22 is joined to the reference desk 21 to form either a right-hand or left-hand arrangement. For the right-hand arrangement as shown in FIG. 1, the pedestal 28 to which the reference desk is joined has a filler section 83 to which the frame 24 and the lower support 26 of the reference desk are removably secured by fastening means. The other pedestal 28 has removably secured to it a cover panel 86 and an outrigger 87 having vertically adjustable legs 88.

The filer section 83 is located between one pedestal 28, the right-hand pedestal for this arrangement, and the reference desk 21 to provide clearance between the drawing board 31 and the reference desk 21 when the board is tilted. The length of the filler 83 needed depends upon the size of the drawing board 31. The filler 83, in this instance, is generally box-shaped, and has openings in the sides facing the reference desk and drafting table to facilitate assembly. The filler section 83 is removably secured to the pedestal 28, in this instance by means of bolts (not shown) which screw into nuts (not shown) secured to the pedestal.

Fastening means which, in the present instance, comprises threaded fasteners (not shown) is provided to secure reference desk 21 to the filler section 83 of the drafting table 22. Bolt holes 89 are formed in the support 26 and aligned nuts (not shown) are provided on the filler section 83 of the pedestal 28 of the drafting table 22 to receive bolts. Further, holes 91 are formed in the web 47 of the front section 42 of the frame 24, and additional nuts (not shown) for the bolts (not shown) are provided in the filler section 83 of the pedestal of the drafting table in alignment with the holes 91. The holes 91 are preferably located at the horizontal midplane of frame 24, and the associated nuts in the filler section 83 of the pedestal 28 of the drafting table 22 are all at the same vertical level for reasons which will hereinafter appear.

The right-hand arrangement of the drafting table and reference desk (FIG. 1) is put together by partially assembling the reference desk 21, joining the partially assembled desk 21 to the assembled drafting table 22, and then completing the assembly of the reference desk 21. To assemble the reference desk, the lower supports 26 and 27 are spaced-apart with the support 26 on the draftsman's left and support 27 on the draftsman's right. The drawers 33 and 34 of support 27 and the opening 41 of support 26 face the draftsman's side of the desk (FIG. 2). The draftsman'24 with the drawer 32 also facing the draftsman's side of the desk (FIG. 2) is secured to the lower supports 26 and 27 by threaded fasteners. The drafting table 22 is assembled with the cover panel 86 and the outrigger 87 secured to the left pedestal 28, and the filler section 83 secured to the right pedestal 28 to which the reference desk 21 is to be joined (FIG. 1). The drafting table 22 and the partially assembled reference desk 21 are moved together, and the former is joined to the frame 24 and the lower support 26 by threaded fasteners. The threaded fasteners may be easily secure by reaching through the frame 24 and through the access openings 39 and 41 in lower support 26. The assembly of the reference desk 21 is completed by securing the desk top 23 to the frame 24 by the fastening means 37. Thus, the reference desk may be used as a right-hand desk.

If it is desired to transfer the reference desk 21 from a right-hand arrangement to a left-hand arrangement the same parts are used. The positions of the filler panel 83 and the cover panel 86 are interchanged so that the filler section 83 is on the left pedestal 28 to which the desk 21 is to be joined and the cover panel 86 is on the right pedestal 28. The outrigger 87 of the drafting table 22 is removed and installed on the right pedestal 28 at the end of the table 22 farthest from the side to which the desk 21 is to be joined.

The parts of the reference desk 21 would then be reassembled, with the two lower supports 26 and 27 turned 180°. The support 26 is positioned on the draftsman's right with lower support 27 again being at the far end of the reference desk, now the draftsman's left. The drawer 32 is removed from frame 24, and the drawer tracks 61 on which the drawer 32 moves are in this instance removed from the frame 24. The frame 24 is inverted, keeping the opening 57 for the drawer 32 at the far end of the reference desk, now on the draftsman's left. The drawer tracks 61 are reinstalled on mountings 58 and 59 in a 180° rotated position, and the drawer 32 is reinstalled. If desired, the drawer tracks 61 and the drawer 32 may be constructed so that the drawer tracks 61 will support the drawer 32 right side up when the frame is in either of its two positions so that removal and reinstallation of the drawer tracks 61 would be unnecessary. The lower supports 26 and 27 are fastened to the frame 24 with the bolts 62 passing through holes 66 of frame 24. The lower support 26 and frame 24 and the filler section 83 are joined together by fastening means. Top 23 is then fastened to frame 24 by the fastening means 37.

It is apparent from the foregoing, that a novel and useful drafting table and reference desk assembly has been provided which can be easily assembled since the reference desk top is removable to give access to assembly points and which may be made into either a right- or left-hand arrangement. It is also apparent that we have provided a novel retainer for securing two parts, such as a desk top and frame, together.

I claim:

1. Means for securing a generally flat member to a frame having a flange portion, said means comprising at least one retainer pivotally attached to a face of said flat member adjacent said flange portion, said retainer including an engaging portion and being pivotable between a first position where said engaging portion extends toward and in tight engagement with said flange portion and a second position where said engaging portion is spaced from said flange portion, said engaging portion including a surface which slants from said face toward and is moved into binding engagement with said flange portion solely by pivoting said retainer to said first position.

2. The structure of claim 1, wherein said flat member is above said flange portion of said frame, and said slanting surface extends under said flange portion when said retainer is in said first position, the slanting of said surface compensating for misalignment between said flat member, frame and retainer.

3. Means for securing a generally flat member to a frame having a large portion, said means comprising at least one retainer pivotally attached to a face of said flat member adjacent said flange portion, said retainer including at one end thereof an engaging portion and being pivotable between a first position where said engaging portion extends toward said flange portion and a second position where said engaging portion is spaced from said flange portion, said engaging portion including a surface which slants from said face toward and into binding engagement with said flange portion when said retainer is in said first position, and a bent portion at the opposite end from said engaging portion, said bent portion having a hole to receive a tool for pivoting said retainer.

4. A reference desk comprising lower support means, generally horizontal frame means positioned over and secured to said lower support means, generally horizontal top means positioned over and secured to said frame means, said frame means having oppositely disposed surfaces which are generally similar, and said top means is secured to either of said surfaces and said support means is secured to the surface opposite to that to which said top means is secured.

5. Apparatus as in claim 4, wherein said surfaces comprise generally horizontally extending flanges, and said top means is secured to said frame means by retainers connected to said top means and engageable with either of said flanges.

6. A reference desk adapted to be secured to either the right side or the left side of a drafting table and thereby form either a right-hand or a left-hand arrangement, said desk comprising lower support means, frame means positioned over said lower support means and secured thereto, and top means positioned over said frame means and secured thereto, said frame means having one position when in one of said arrangements and having an inverted position when in the other of said arrangements, said frame means having oppositely disposed generally similar surfaces, and both of said surfaces having means to connect either said lower support means or said top means thereto and thereby enabling said inversion.

7. Apparatus as in claim 6, wherein said lower support means comprises two separate members, one of said members having means to connect said one member to said drafting table and being adapted to abut said drafting table and the other of said members being remote from said drafting table in either of said arrangements.

8. Apparatus as in claim 6, wherein one side of said frame means adjacent one end thereof has means to connect said frame means to said drafting table and is adapted to abut said drafting table in both of said arrangements, said frame means including a drawer which opens from said one side and is located adjacent the other end thereof in both of said arrangements.

9. A reference desk adapted to be secured to either the right side or the left side of a drafting table and thereby form either a right-hand or a left-hand arrangement of said desk and table, said desk comprising lower support means, frame means positioned over said lower support means and secured thereto, and top means positioned over said frame means and secured thereto, said frame means having one position when in one of said arrangements and having an inverted position when in the other of said arrangements, said frame means having oppositely disposed, generally similar surfaces, and means for connecting either of said surfaces to either said lower support means and said top means and thereby enabling said inversion, one side of said frame means adjacent one end thereof being adapted to abut said drafting table in both of said arrangements, said frame means including a drawer which opens from said one side and is located adjacent the other end thereof, said drawer being inverted relative to said frame means when said frame means is inverted to form said other arrangement.

10. Apparatus as in claim 9, wherein said frame means includes tracks for supporting said drawer, said tracks being detachably mounted in said frame means and being inverted relative to said frame means when said frame means is inverted.

11. The combination of a drafting table and reference desk, said table and desk forming alternatively both left and right-hand arrangements, said drafting table comprising a pair of pedestals and a drawing board mounted on said pedestals, said reference desk comprising a pair of support means, one of said support means alternatively secured to one side or the other side of said drafting table, the other of said support means being remote from said drafting table, frame means, one same side thereof being secured to said drafting table, and a top, said support means and said top being secured to opposite surfaces on said frame means in the left-hand arrangement, and said support means and said top being secured to said surfaces of said frame means in reverse position of the left-hand arrangement to form the right-hand arrangement.

12. Means for securing a desk top to a desk frame having a flange, said means comprising a retainer formed of sheet metal, said retainer having one portion adapted to be pivotably secured to said top and a second portion having an inclined edge, said portions being perpendicular to each other, said edge being inclined with respect to said one portion and adapted to tightly engage said flange.

13. Means as in claim 12, further comprising a third portion adapted to be engaged by a tool for pivoting said retainer, said third portion being perpendicular to said one and second portions.