United States Patent [19]

Levit et al.

[11] **3,748,006**

[45] **July 24, 1973**

[54] **CLIP**

[75] Inventors: **Edward C. Levit**, East Grand Rapids; **Robert C. Van Gessel**, Grand Rapids, both of Mich.

[73] Assignee: **Steelcase Inc.**, Grand Rapids, Mich.

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[52] **U.S. Cl.**..... **312/111**, 312/140, 312/196, 52/127

[51] **Int. Cl.**. **F16b 12/00**, A47b 17/00, A47b 19/00

[58] **Field of Search**..... 312/111, 140, 140.4, 312/305; 208/26; 24/73 B; 287/92 C, 189.35; 285/121; 248/300, 226 E, 466, 478, 223; 220/223, 23, 41; 52/627, 712, 472, 281, 285; 49/504

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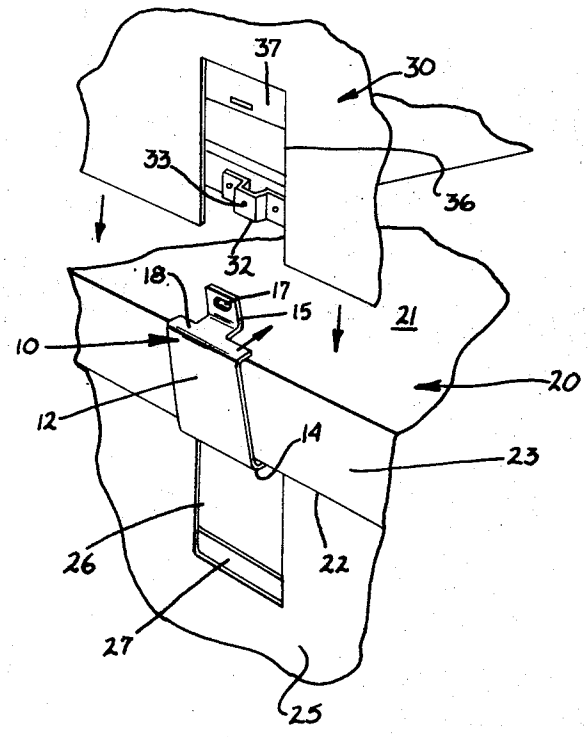
Primary Examiner—Paul R. Gilliam

Attorney—Price, Heneveld, Huizenga & Cooper

[57] **ABSTRACT**

A generally J-shaped clip is removably mounted to a desk or table top by hooking a leg of the clip underneath the edge of the top and pressing the shank of the clip against the side of the top such that the clip is held in place by the spring force between the leg portion of the clip pressing against the bottom surface of the table top and an upper lip on the clip which presses downwardly against the tabel top. A tab of the clip is integrally formed therewith and extends upwardly from the lip to receive a service module or the like which can be securely mounted to the tab thereby fastening the module to the table or desk top.

8 Claims, 9 Drawing Figures



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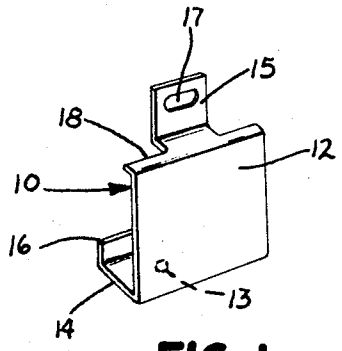

FIG. 1.

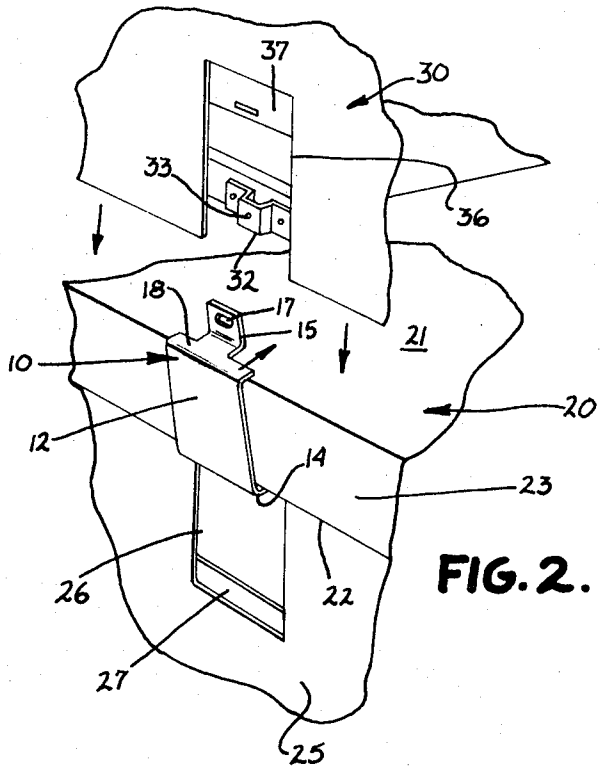

FIG. 2.

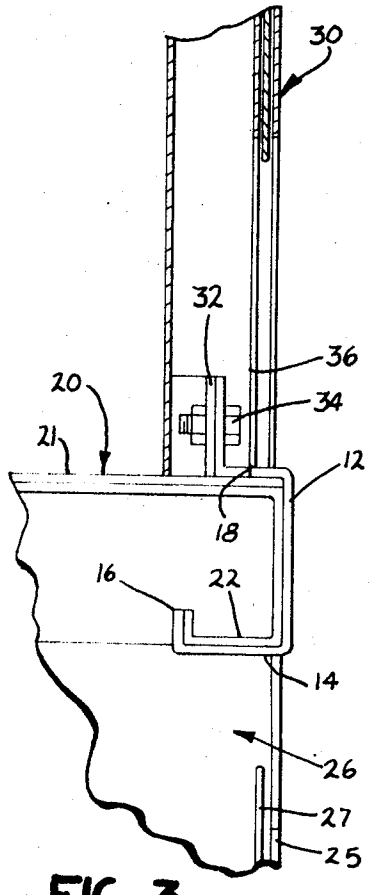

FIG. 3.

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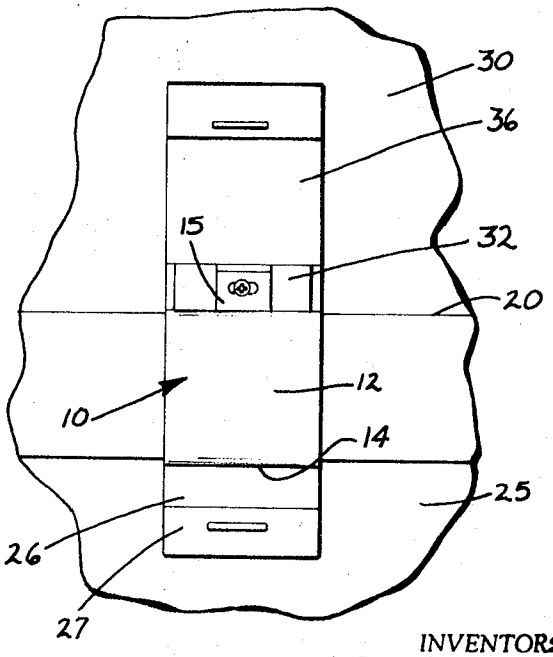


INVENTORS
EDWARD C. LEVIT
ROBERT C. VANGESSEL
BY Price, Heneveld, Huizenga & Cooper
ATTORNEYS

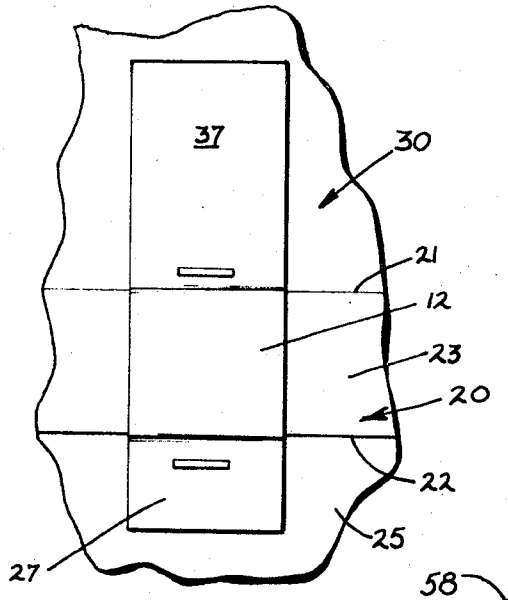
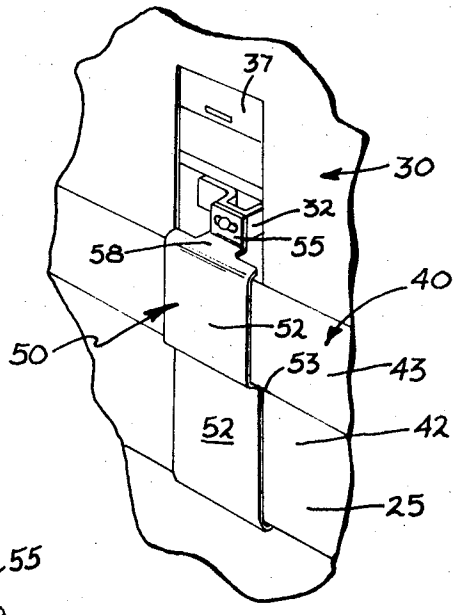


FIG. 5



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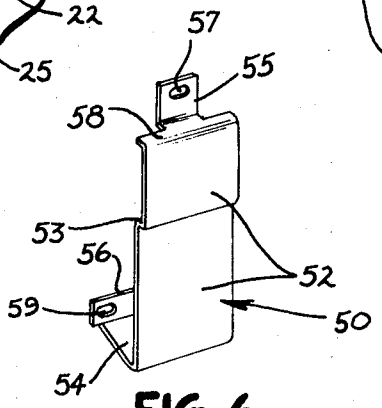

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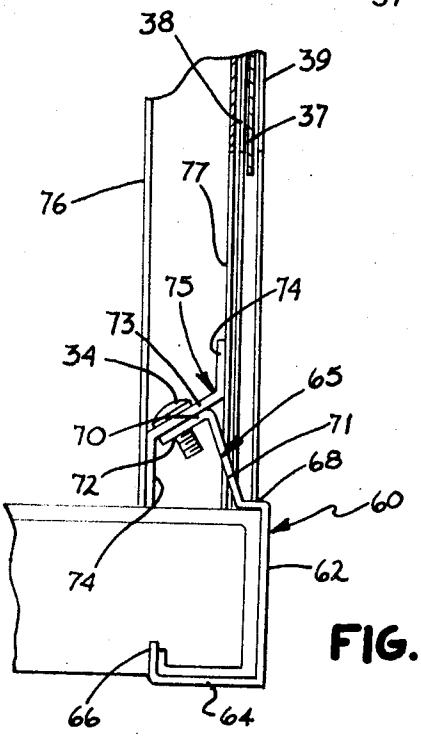

FIG. 9

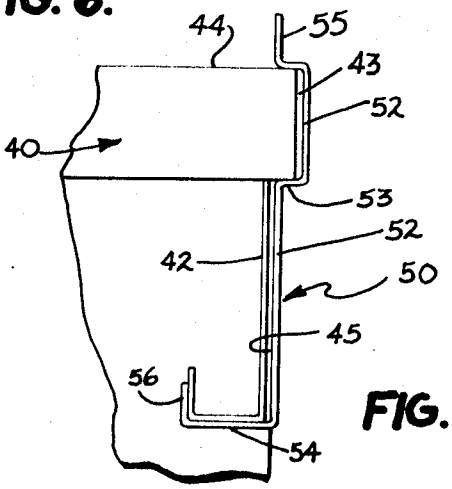

FIG. 8

INVENTORS
EDWARD C. LEVIT
ROBERT C. VAN GESSEL
BY Price, Heneveld, Huizenga & Cooper
ATTORNEYS

CLIP

BACKGROUND OF THE INVENTION

The present invention relates to a clip for mounting a service module to a desk or table top.

In modern office furniture, it is frequently desired to mount service modules such as bookshelves, storage compartments, or the like to the top of a desk or table. In the past, this has been done by providing a generally vertical clip which could be bolted or screwed to the edge of the desk or table top. The clip included a tab which extended upwardly from the clip body to receive the service module and be bolted thereto. The clip body was then bolted to the desk edge. Such an arrangement necessitated the drilling of holes through the side edge of the desk top; and if the service module and clip were later removed, the desk top was permanently damaged. Additionally, the heads of the bolts or screws used to fasten the clips to the top were visible and somewhat unsightly and could catch the clothes of persons using the desk.

SUMMARY OF THE INVENTION

The clip of the present invention, however, will snap onto the desk or table top without the need for drilling holes on the edge of the top. Also, once installed, only a flat surface is visible.

Clips embodying the present invention comprise a J-shaped structure including an elongated shank portion, a leg portion perpendicular to the shank portion which fits under the desk or table edge, and an inwardly bent upper lip portion parallel to the leg portion for gripping the top of a desk to which the clip is mounted. A lower lip extends upwardly from the leg portion to grip the inside edge of the desk or table top. The clip includes an upwardly extending tab portion having a slot therein adapted to receive a locking bolt or the like such that a service module can be mounted to the desk top by means of fastening the service module to the tab portion of the clip which is mounted to the desk top. Although clips have been used in the past for joining two bodies such as shown in U. S. Pat. No. 2,213,234 (A. H. Tinnerman) issued Sept. 3, 1940, (FIGS. 1 and 3), it is noted that such S-shaped or C-shaped clips do not provide lateral support to prevent a service module or the like from sliding horizontally away from the desk top to which it is mounted by means of such a clip. The clip of the present invention, however, curls around a bottom channel portion of the desk top such that it is not horizontally or laterally movable.

Preferably, the clip is used in conjunction with a desk and service module having small, sliding doors in aligned openings. The tab portion of the clip extends through the opening in the service module and is completely hidden by closing the door. The leg of the clip is similarly hidden and essentially only the shank of the clip is visible.

It is an object, therefore, of the present invention to provide an improved clip for mounting a service module on a desk top or the like without the necessity of bolting the clip onto the side of the desk top.

It is an additional object of the present invention to provide an improved clip which has a locking tab which can be concealed in a compartment of the service module such that only the leg portion of the clip is exposed.

It is still a further object of the present invention to provide a J-shaped clip which has a shank and bottom portion which curls around an edge of a desk top and a tab portion which projects upwardly to receive and secure a service module to the desk top.

These and other objects and advantages of the invention will be appreciated by reference to the written specification and appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of one clip embodying the present invention;

FIG. 2 is a perspective view of the clip mounted on a desk top with a service module being attached to the desk top by means of the clip;

FIG. 3 is a fragmentary cross-sectional view showing the service module mounted to the desk by means of the clip;

FIG. 4 is a side elevational view showing the service module mounted to the desk by means of the clip and showing the cover doors in the open position;

FIG. 5 is a side elevational view of the service module mounted to the desk by means of the clip with the cover doors in their closed position;

FIG. 6 is a perspective view of an alternative embodiment of the present invention;

FIG. 7 is a perspective view showing the clip of FIG. 6 coupling a service module to a table top;

FIG. 8 is a fragmentary, cross-sectional view of the mounting arrangement for the clip shown in FIG. 7; and

FIG. 9 is a fragmentary, cross-sectional view of another alternative embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the preferred embodiment, clip **10** snaps over edge member **22** of desk **20** and includes a tab **15** secured to the J-shaped portion which is bolted to service module **30** to thereby secure service module **30** to desk **20** (FIG. 2). Clip **10** extends through an opening **36** in service module **30** which can subsequently be closed by sliding door **37** (FIG. 5). Similarly, clip **10** extends through an opening **26** in desk **20** which can be closed by sliding door **27**.

Clip **10** includes shank **12**, a leg **14** turned inwardly at the base of shank **12** at 90°, and a lower lip **16** turned upwardly at the edge of leg **14** (FIG. 1). The clip **10** includes an upper lip **18** extending inwardly from the top edge of shank **12** and a tab **15** integrally formed with the clip, extending upwardly from upper lip **18** and including an aperture **17** therethrough for receiving a bolt or the like. Clip **10** is particularly designed for use on a desk top or table top having an edge member **22** projecting downwardly below the desk top **21**. As shown in FIGS. **2** and **3**, the clip of FIG. **1** is installed on a desk top **21** by hooking the lower lip **16** over and in behind edge member **22** of the desk top **21** and pressing the shank portion **12** against the side **23** of the desk top until the upper lip **18** of the clip snaps over the desk top **21** such that the spring force of the leg **14**, upper lip **18** and shank **12** exert a compressive force for holding the clip in position on the desk top (FIG. **3**). In some applications, it may be desired to provide an aperture **13** (FIG. **1**) in the leg portion **14** of the clip so that it can be secured to the edge member **22** of the desk top by means of a screw or bolt. Such a fastening arrangement would not be visible once the cover door of the desk is closed. Also, the required hole in the edge

member would not be visible once the clip is removed.

Tap **15** of the clip **10** is set inwardly from the plane of shank **12** and extends upwardly to be coupled to a U-shaped mounting bracket **32** mounted on the service module **30** (FIGS. **2** and **3**). An aperture **33** in the mounting bracket **32** is adapted to receive a self-tapping bolt **34** which extends through the aperture **17** in the clip and securely engages the mounting bracket **32.**

As seen in FIGS. **2** through **5,** the service module has an opening **36** in which the bracket **32** is mounted to a frame portion of the service module. A cover door **37** is slidably mounted on service module **30** to slide down over the bracket **32** and tab **15** of clip **10** such that once installed, the door **37** covers the bolt **34** and tab **15.** FIG. **9** shows the sliding door **37** in its open position. The door **37** is mounted between a door mounting plate **38** and a side panel **39** of the service module **30.** Door mounting plate **38** bends toward side panel **39** at the edges of door **37** and then bends out again to define mounting tabs which are secured to side panel **39.** Door mounting plate **38** includes an aperture corresponding to the opening **36.** The edges of the door mount and side panel are visible in the figure while a cross-sectional portion of the door is shown.

The desk **20** likewise includes an opening **26** in a side panel **25.** A door **27** is slidably mounted to side panel **25** in the same manner as door **37** is mounted to side panel **39.** Door **27** can be slid upwardly to come into contact with the leg portion **14** of the clip **10** once installed. Thus with door **37** and door **27** closed, only the outer surface of the shank **12** is visible (FIG. **5**). The exterior surface of the shank **12** is chrome plated or painted to enchance its appearance.

From the foregoing, it is seen that to remove the service module, it is only necessary to open cover doors **27** and **37,** remove the bolt or screw **34,** and lift the service module **30** from the desk. It is noted that two or more clips would be required in most applications for mounting a service module to a desk. The clip is removed by an unsnapping movement, i.e., by pushing the tab **15** away from the desk top **21.**

FIG. **6** shows an alternative embodiment of the present invention in which a similar J-shaped clip **50** has a somewhat elongated shank **52** which includes an inward bend or deviation **53** adapted to be used with a table **40** shown in FIGS. **7** and **8.** The table **40** includes a downwardly depending apron **42** mounted underneath the table top **44** and slightly inwardly from the edge **43** of the table top. Deviation **53** causes the bottom portion of shank **52** to be offset laterally from the top portion of shank **52.** With the exception of shank **52,** the remainder of clip **50** is identical in configuration to clip **10.** Thus it includes a leg **54,** lower lip **56,** upper lip **58** and tab **57.**

In this arrangement, the lower lip **56** of the clip **50** is fitted over and behind the bottom of apron **42** and the shank portion **52** is pressed inwardly until the shank **52** comes into contact with the edge **43** of the table **40** and the outside **45** of the apron **42.** The deviation or bend **53** of shank **52** fits into the corner formed by the junction of apron **42** with the bottom surface of the table top **44.** The upper lip **58** of the clip **50** and the leg **54** apply a compressive force to the table top and apron such that the clip securely grips the table top. In some applications, it may be desirable to include one or more apertures **59** in the lower lip **57** of clip **50** such that the clip can be bolted to the apron in an unobtrusive manner. A service module **30** (FIG. **7**) can then be mounted to the tab **57** of clip **50** in the same manner as described with reference to FIGS. **2** and **3.**

FIG. **9** shows an alternative embodiment **60** of the clip of this invention which has a shank **62,** a leg **64,** a lower lip **66,** and an upper lip **68** similar to the clip shown in FIG. **1.** The upper portion of the clip, however, includes a tab **65** which is generally L-shaped, having a leg **71** and a base **70.** Leg **71** is inclined at an obtuse angle to upper lip **68** for receiving a module **30** which has an S-shaped bracket **75** instead of a U-shaped bracket as shown in the other service modules. S-shaped bracket **75** includes a pair of arms **74** in spaced, parallel planes joined by a body **73.** The S-shaped bracket **75** is mounted by arms **74** between a first upright member **76** and a second upright member **77** of the service module and includes an aperture through body **73** to receive a locking bolt **34** which extends into the tab **65.** The bolt **34** is securely mounted to tab **65** by means of a threaded aperture **67** in the base **70** of tab **65.**

The service module in this embodiment is mounted on the table top in much the same manner as that described with reference to the earlier embodiments. The primary difference being that the locking screw or bolt **34** is threaded into the tab **65** from the inside of the service module at an angle instead of horizontally from the outside. Once the service module is fastened to the clip, the door **37** can be slid down to cover the S-shaped mounting bracket **75** and the locking tab **65** of the clip. Thus, in this arrangement only the outside surface of the shank portion **62** of the clip **60** is exposed once the service module is installed.

Thus, in all embodiments, the clip of this invention snaps into position on a desk or table top and a service module is then bolted to an upwardly projecting tab on the clip. Preferably, the clip extends into an aperture in the service module which can be closed by a sliding door. Similarly, if secured to a desk, the sidewall of the desk includes an opening into which the clip extends and which can be closed by a sliding door. In this manner, only the shank of the clip is visible. When removed from the desk or table top, no visible signs of the clip or of a securing means remains.

Of course, it is understood that the above is merely a preferred embodiment of the invention and that many changes and alterations can be made thereof without departing from the spirit and broader aspects of the invention.

We claim:

1. In a furniture assembly including a desk, table or the like and a service module and means for securing said service module to the top of said desk, table or the like, the improvement comprising: a clip having a shank, a leg formed substantially perpendicularly to said shank, and a lower lip formed on an end of said leg remote from its junction with said shank and upwardly turned, projecting from said leg in the same direction as said shank, such that said lower lip is generally parallel to said shank; said clip further including an upper lip formed on said shank at an end remote from said leg, said upper lip being substantially parallel to said leg and projecting from said shank in the same direction as said leg; said clip fitting over the edge of the desk top or the like with said leg and lower lip hooking around the underside of said top and said upper lip fitting over the

upper surface of said top; a tab projecting upwardly from said lip and including means for securing said service module thereto; said service module including an opening therein into which said tab projects and a cover door for covering said opening to thereby substantially hide said tab.

2. The furniture assembly as defined in claim **1** wherein said upwardly projecting tab of said clip is parallel to said shank.

3. The furniture assembly as defined in claim **1** wherein said upwardly projecting tab of said clip is generally L-shaped, including a leg extending from said lip and a base extending from said leg, said base including an aperture therethrough adapted to receive securing means.

4. The furniture assembly as defined in claim **1** wherein said shank of said clip includes a deviation therein such that the lower portion of said shank is offset from the plane of the upper portion thereof, thereby facilitating use of said clip where the top of said desk has a recessed apron, said lower lip and leg hooking beneath said apron.

5. In furniture including a desk, table or the like a service module and means for securing said service module to the top of said desk, table or the like, the improvement comprising: said service module including a small aperture therein; said securing means including a generally U-shaped portion for embracing the edge of a desk, table or the like and being adapted for securely connecting said securing means to said desk, table or the like; said securing means including a portion extending into said aperture at one edge thereof for securing to said service module; said service module including a door mounted thereon for movement over said aperture whereby said portion of said securing means extending into said aperture can be hidden from view.

6. The funiture of claim **7** comprising: said desk including a panel extending downwardly from the top thereof; said panel including an aperture therein just below said top; the bottom leg of said generally U-shaped portion of said securing means extending from the shank of said U-shaped portion through said aperture in said panel for positioning on the underside of said top; said desk including a door mounted to said desk panel for movement over said aperture whereby said door in said desk and said door in said service module can be closed to thereby leave generally only the shank of said generally U-shaped portion of said securing means exposed.

7. The furniture of claim **6** in which each said door of said desk and of said service module is slidably mounted thereon for slidable movement over its respective aperture.

8. The furniture of claim **5** in which said door of said service module is slidably mounted thereon for sliding movement over said service module aperture.

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