Aug. 14, 1962 L. WOLFE 3,049,390

UTILITY DESK AND DRAWING BOARD AND THE LIKE

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Fig. 1.

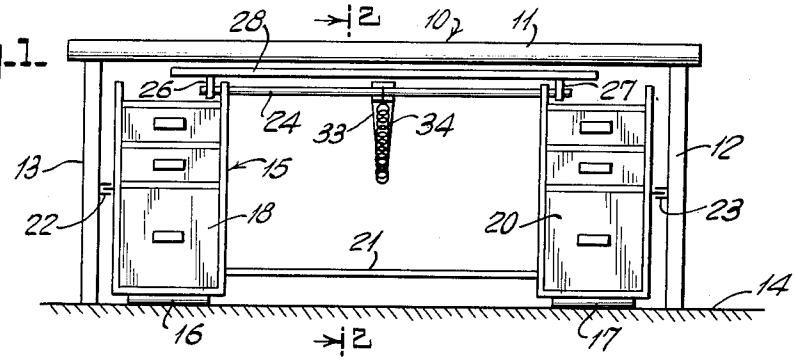


Fig. 2.

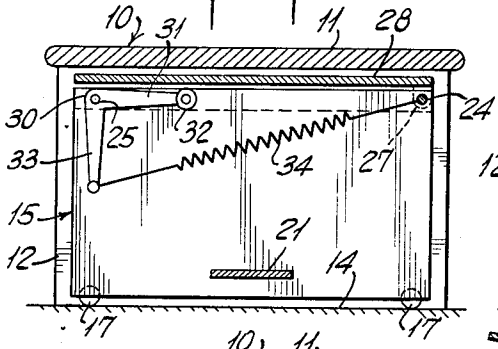
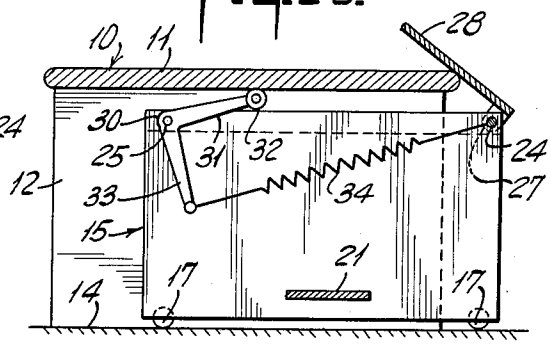


Fig. 3B.



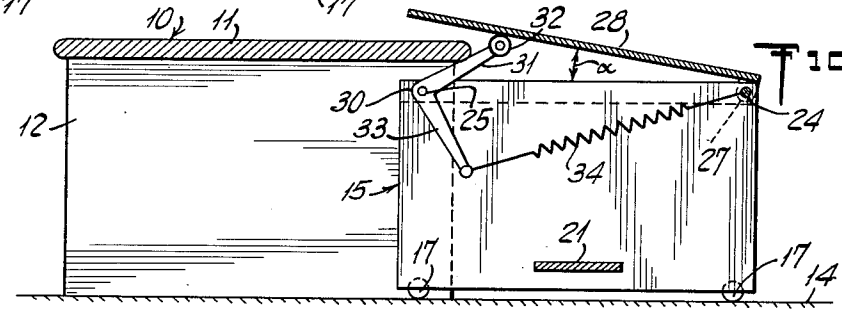


Fig. 3A.

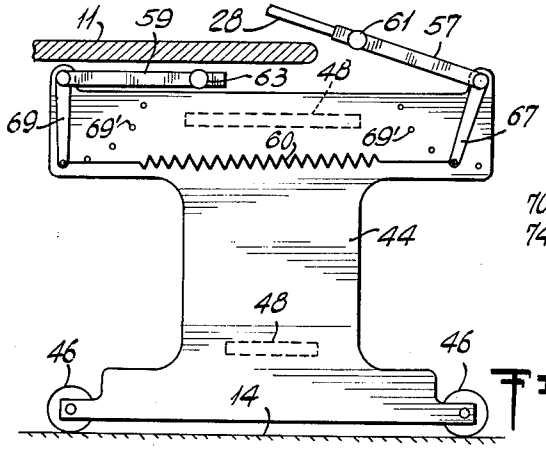


Fig. 7.

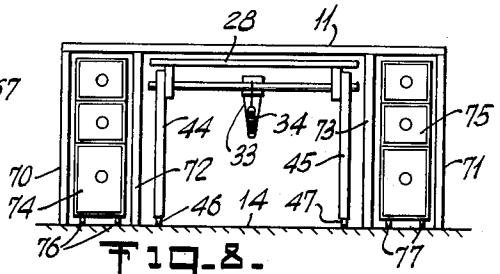


Fig. 8.

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FIG. 4.

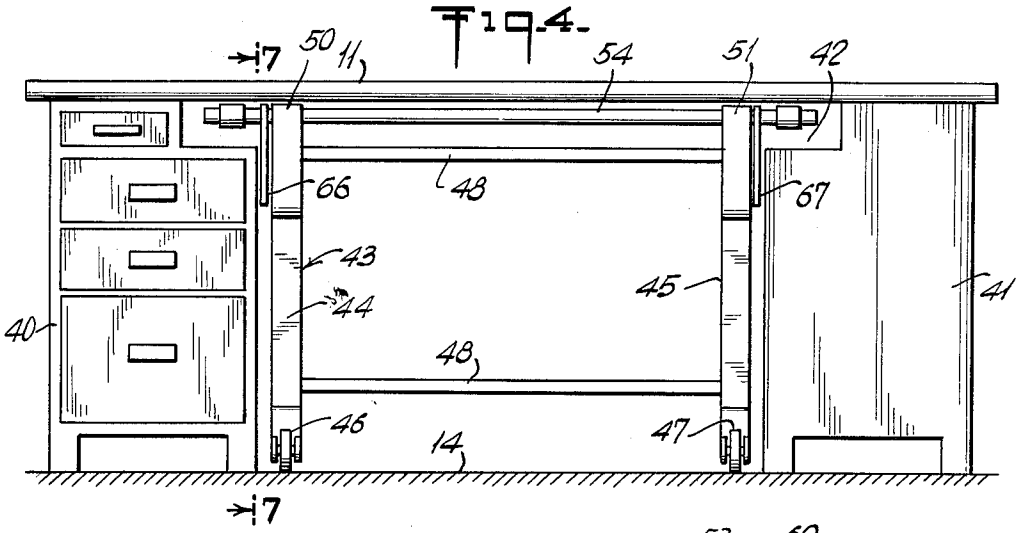


FIG. 5.

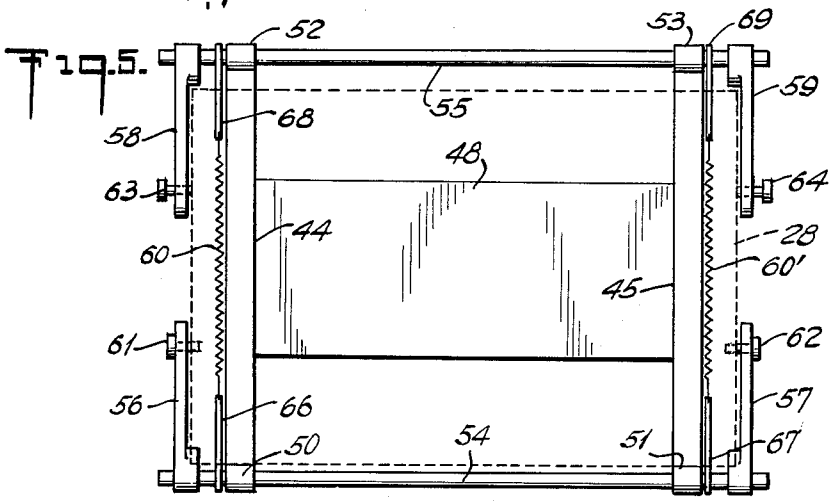
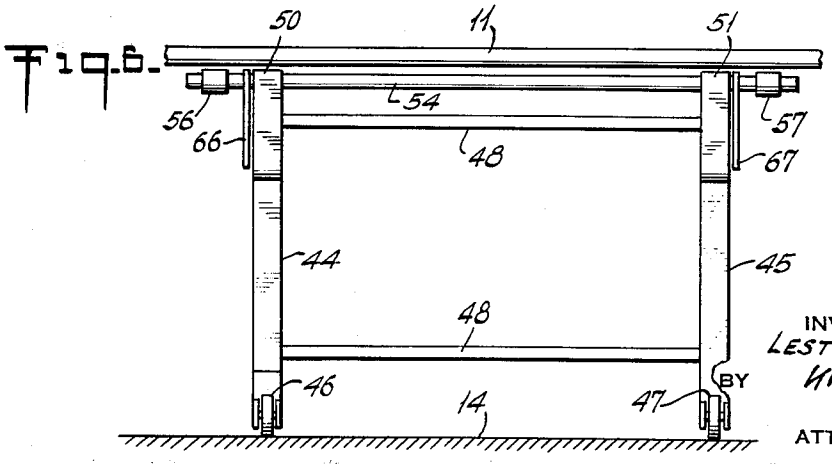


FIG. 6.



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3,049,390
UTILITY DESK AND DRAWING BOARD AND THE LIKE

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12 Claims. (Cl. 312—231)

The present invention relates to a combined utility desk and drawing board or the like and among the objects of the invention is the provision of means operatively combining a standard office desk or utility table with a drawing board, in such a manner as to enable the use of the desk in the ordinary manner, while allowing of an instant and ready adjustment of said board from an inoperative and normally concealed position within said desk to an operative or use position, without requiring the removal of files, papers and other articles from the top of the desk or otherwise interfering with the ordinary use thereof.

Another object of the invention is the provision of a combined desk and drawing board, wherein said board is completely concealed by said desk in the non-use position, so as not to change the appearance of the desk.

A more specific object of the invention is the provision of a combined desk and drawing board of this type whereby the desk, in the non-use position of the drawing board, retains its appearance of an ordinary office desk or utility table, while either the desk or board may be used independently and substantially without interference with one another.

Another object of the invention is the provision of a combined desk and extendable and retractable drawing board whereby normally, that is, in the non-use or retracted postion of the drawing board the latter is nested within the desk of standard construction so as to be substantially concealed thereby without changing the outward appearance of the desk or table.

Another object of the invention is the provision of simple and efficient means for operating the normally concealed drawing board in a combination of the above type to its operative or use position with the board forming a desired inclined or working angle, and for retracting said board to its inoperative or nested position within the desk when not in use or required.

Yet another object of the invention is the provision of a combined desk and retractable drawing board or the like, wherein said board in the retracted postion is completely concealed from view by and does not interfere with the ordinary use of the desk, while with said board being adjusted or operated to its use position, either the board or desk may be used separately and without interference with one another.

Still another object of the invention is the provision of a combined desk and extendable and retractable drawing board of this type which will require no appreciably greater floor space than the space occupied with the desk in both the inoperative or retracted as well as in the operative or extended position of said board.

The invention, both as to its ancillary objects and novel aspects, will be better understood from the following detailed description taken in conjunction with the accompanying drawings forming part of this specification, and wherein:

FIG. 1 is a front elevational view of a combined desk and drawing board constructed in accordance with the principles of the invention, said board being shown in its inoperative or nested position within said desk;

FIG. 2 is a sectional view taken on line 2—2 of FIG. 1;

FIG. 3A is a view similar to FIG. 2, showing the drawing board in the fully extended position;

FIG. 3B is a further view similar to FIG. 1, showing

the drawing board in partially retracted operative position;

FIG. 4 is a front elevational view of a modified desk and drawing board construction according to the invention, said board being shown in the inoperative or nested position within the desk;

FIG. 5 is a top view of the retractable drawing board supporting structure of FIG. 4;

FIG. 6 is a front elevational view and

FIG. 7 is a side elevational view, respectively of the retractable drawing board supporting structure of FIG. 4; and

FIG. 8 illustrates an improved multiple-purpose utility desk and drawing board constructed in accordance with the invention.

Like reference characters denote like parts in the different views of the drawings.

With the foregoing objects in view, the invention, in its preferred embodiment, involves generally the combination with a desk or utility table having a horizontal top panel and supporting means, such as in the form of end panels or sections, of a preferably also desk-like supporting structure nested within said first desk or table, or within the space enclosed by said top and end panels or sections, respectively, whereby said structure is substantially concealed by said desk in the inoperative or non-use position and may be moved outwardly from the desk or table to an operative or use position and retracted to the nested position within said desk or table. Hingedly connected to one edge of said structure is a drawing board or the like, said board being urged to an inclined elevational or working position by the provision of suitable resilient means operably connected between said board and structure, said board being collapsible to a horizontal position against the action of said resilient means, in such a manner as to adjoin the underside of said panel in the nested position of said structure within said desk.

There is thus provided by the invention a simple and efficient utility table or desk operatively combined with a drawing board or the like with the latter being concealed in the non-use or nested position within the desk, substantially without requiring any increase of space in both the operative and inoperative positions of said board. Both the desk and board may be used in the ordinary manner substantially independently and without interference with one another and the board may be instantly extended to its operative position without requiring the removal of the objects from the top of the desk or without otherwise interfering with the use of the desk separately or in the ordinary manner.

According to an improved feature, the board in the partially extended position may be arranged with its underside engaging the edge of the table top or panel, to enable adjustment to a desired inclined or working angle by variation of the position or partial retraction of the board. Alternatively, separate adjustable securing means may be provided to lock the board to said structure at a desired tilting or working angle, to suit any personal and other requirements, as will become more apparent as the following description proceeds.

Referring more particularly to the drawings, FIGS. 1 to 3, there is shown a desk or utility table **10** comprising a table top **11** being supported by a pair of leg forming end walls or panels **12** and **13** resting upon a floor or the like supporting surface **14**. Mounted within the space enclosed by the panels **11**, **12** and **13**, so as to be substantially concealed by or not to change the outward appearance of the desk or table **10**, is a supporting structure or carrier collectively indicated by the numeral **15** and movable outwardly from the desk **10** and retractable to its nested position within the desk by the provision of suitable operating and/or guide means, such as rollers or

casters 16 and 17 supporting a pair of side sections 18 and 20, respectively, forming part of the structure 15.

Sections 18 and 20 may be mounted in spaced relationship by means of one or more connecting frame or spacing members 21, whereby to form a second desk-like structure extendably and retractably mounted within the main desk or structure 10. Sections 18 and 20 may extend close to the inside walls of the panels 12 and 13 of the desk 10, whereby said panels act as guides for the structure 15, or suitable additional guide means may be provided operably connecting the sections 12 and 13 with the table or desk 10, as indicated schematically at 22 and 23 in the drawing. Advantageously mounted within the side sections 18 and 20 may be suitable sets of sliding drawers or other provision may be made for the storing of papers, files, etc. or the mounting of a typewriter or the like within the said sections.

Connected between the upper front and rear edges of the inside panels of the sections 18 and 20 are a pair of shafts 24 and 25 which may serve as additional spacing or mounting means for the sections. Rotatably mounted upon the opposite ends of the front shaft 24 are a pair of brackets or supports 26 and 27 to which is secured a drawing board or the like 28, whereby said board may be swung to and from relatively horizontal and inclined positions in the extended position of the structure 15, FIGS. 3A and 3B. The board 28, in the preferred embodiment of the invention, is normally urged to a predetermined inclined or elevational position by the provision of suitable biasing means comprised, in the example shown, of an angular lever or bracket 30 rotatably mounted upon the rear shaft 25 and having a first arm 31 carrying a friction roller 32 at its extreme end and a second arm having its end connected to one end of a coiled tension spring 34, the opposite end of said spring being connected to the front shaft 24. As a consequence, the board 28, in the extended position of the structure 15, is urged to an elevational or inclined position such as to form a predetermined tilting or working angle α by resting upon the roller 32 through the action of the spring 34. If a greater working or tilting angle is desired, the structure or carrier 15 may be partially retracted into the desk 10, whereby to cause the roller 32 to slide underneath the top panel 11 and to cause the board 28 to engage or rest upon the edge of the panel 11 acting as a pivot, in such a manner as to maintain the drawing board of a desired working angle, FIG. 3B. For this purpose, the edge of the top panel 11 may be suitably rounded and the underface of the board 28 covered with a soft material, such as felt or the like, to prevent scratching of or otherwise damaging of the desk.

If it is desired to retract the drawing board 28 to its inoperative position, when no longer required or used, all that is necessary will be to again extend the structure 15 to its fully extended position, FIG. 3A, to collapse the board to and hold it in a horizontal position against the action of the spring 34, and to retract the structure 15 to its nested position, FIG. 2, within the main desk or table 10.

An advantage, among others, of the construction hereinbefore described is the fact that the board 28, by the simple movement or extension from its inoperative or nested position within the desk, automatically assumes an initial working or tilting angle without requiring lifting by the user or the carrying out of additional adjusting operations. This angle may be further controlled by partially retracting the board to the desired working position, in the manner described. If desirable, auxiliary locking means operably connected to the board and its supporting structure may be provided for adequately supporting the board in inclined or working position, as shown by FIG. 7 to be described presently.

Instead of using the board 28 as a drawing, sketching or drafting surface, it may serve any other purpose, for instance as a projection screen, display board, black board, etc., in which case the design may be such as to cause the board to assume a vertical position upon full retraction of the structure 15 toward the desk or table 10, as will be readily understood.

Referring to FIGS. 4 and 7, there is shown a modified construction of a combined desk and drawing board or the like embodying the principles of the invention. According to this modification, the table top 11 is supported by a pair of side sections 40 and 41 which may include suitable sets of sliding drawers or the like, in the manner of an ordinary office desk, while the supporting structure for the drawing board takes the form of a rolling table 43 nested within the space enclosed by said top panel and side sections. The table or support 43 is comprised, in the example shown, of a pair of leg forming side panels 44 and 45 suitably fitted with rollers or casters 46 and 47 and being connected and maintained in mutually spaced relationship by the provision of one or more connecting frame members or the like spacing means 48. Mounted upon both the front and rear top edges of the panels 44 and 45 are a pair of brackets or bearings 50, 51 and 52, 53, wherein are journalled a pair of front and rear shafts 54 and 55, respectively. Secured to the ends of said shafts are mounting brackets 56, 57 and 58, 59, respectively, which serve to removably support the drawing board 28, as indicated in dotted line in FIG. 5. The mounting brackets 56 to 59 may be provided with suitable recesses adapted to receive the edges of the board 28 which may be further locked in position by the provision of suitable securing means, such as set screws or spring urged locking pins 61, 62 and 63, 64, respectively.

This construction has the advantage of enabling selectively to mount the board 28 upon either the front shaft 54 or the rear shaft 55 for extension of the board in either direction from the desk or panel 11, to suit any existing conditions or requirements. In order to adjust or lock the board 28 at a desired tilting or working angle, the shafts 54 and 55 are furthermore shown fitted with radial extension or locking arms 66, 67 and 68, 69, respectively, being located adjacent to the panels 54 and 55. The arms 66 to 69 may be provided with perforations for the reception of suitable locking pins arranged to engage depressons 69', FIG. 7, in the panels 44 and 45, to firmly lock the board 28 in a desired inclined working position. A pair of coiled tension springs 60 and 60' connecting the ends of corresponding front and rear locking arms serve to bias or urge the board 28 to a predetermined initial tilting angle, in the manner of the spring 34 of FIGS. 1 to 3. For this purpose, the locking arms opposite to the shaft to which the board is connected, that is, arms 68 and 69 in the example shown, are locked in the vertical position or with the corresponding brackets 58 and 59 extending horizontally underneath and adjoining the table top 11. If the board 28 is connected to the supports 58 and 59, arms 66 and 67 are locked in the vertical position, whereby to cause the springs 60 and 61 to bias the board to the same vertical angle in either mounting position of the board, in a manner readily understood from the foregoing.

FIG. 8 shows a further modification according to the invention comprising a combination of a utility table, and extendable and retractable drawing board normally nested within said table, and exchangeable side sections, in the form of file cabinets or the like, being also nested within said table, to further more enhance the usefulness of the device according to the invention.

The top panel 11 for this purpose is supported by pairs of outer and inner end panels 70, 71 and 72, 73, respectively, to provide a pair of outer open spaces and an inner open space, the former serving to accommodate a pair of independent side sections 74 and 75, such as file or storage cabinets or the like, and the inner space serving to accommodate an extendable and retractable drawing board constructed and operable in the manner de-

scribed hereinbefore. The sections **74** and **75** may be provided with rollers or casters as shown at **76** and **77**, respectively, for ready extension and/or exchange, while the drawing board may be constructed in any suitable manner as disclosed by the invention.

The spring **34** of FIGS. 1 to 3B and springs **60** and **60'** of FIGS. 4 to 7 may be replaced by any equivalent means to normally urge the board **28** to an initial inclined angle in the fully extended position of the nested structures **15** or **43**, respectively. Alternatively, the board may be raised and adjusted at a desired angle by partially retracting the structures **15** or **43** in the manner described or by means of separate adjusting or locking means, as shown by FIGS. 5 and 7.

Furthermore, the side sections **74** and **75** in FIG. 8 may be provided with top panels serving as additional desk space in extended position in the manner of a T-shaped desk, for which purpose said panels may be adjustable in the vertical direction, such as by spring pressure or the like, so as to be flush with the main desk or panel **11**.

In the foregoing, the invention has been described with reference to a specific illustrative device. It will be evident however, that variations and modifications, as well as the substitution of equivalent elements or parts for those shown for illustration, may be made without departing from the broader spirit and purview of the invention, as set forth in the appended claims. The specification and drawings are accordingly to be regarded in an illustrative rather than in a restrictive sense.

I claim:

1. In a device of the class described, the combination with a desk having a horizontal top panel and supporting means at the opposite ends of said panel, of a supporting structure nested within said desk so as to be substantially concealed thereby and extendable outwardly from said desk and retractable to its nested position, a drawing board having an edge hinged to said structure to be swung to selected inclined positions, and resilient means operably connected between said board and said structure, to urge said board to a predetermined inclined elevational working position in the extended position of said structure from said desk such as to cause the undersurface of said board to engage the edge of said panel upon partially retracting said structure into said desk, for adjusting said board to varying working angles with said edge acting as a pivot, said board upon collapse to a horizontal position against the action of said resilient means adapted to adjoin the underside of said panel in the nested position of said structure.

2. In a device as claimed in claim 1, said supporting means being comprised of a pair of end panels and said supporting structure having side sections connected with one another and supporting said drawing board, and rollers supporting said sections for movement thereof to and from nested position within said desk with said end panels acting as guides for said structure.

3. In a device of the class described, the combination with a desk having a horizontal top panel and supporting means therefor to provide an open space underneath said panel, of a supporting structure nested within said space so as to be concealed by said desk and movable outwardly from said desk and retractable to its nested position within said desk, a drawing board having an edge hinged to said structure to be swung to selected inclined positions, and spring means operably connected between said board and said structure, to urge said board to a predetermined inclined working angle in the extended position of said structure from said desk such as to cause the undersurface of said board to engage the edge of said panel upon partially retracting said structure into said desk, for adjusting the working angle of said board with said edge acting as pivot, said board upon collapse to a horizontal position against the action of said spring means adapted to adjoin the underside of said panel in the nested position of said structure.

4. In a device of the class described, the combination with a desk having a horizontal top panel and supporting means at the opposite ends of said panel, of a supporting structure nested within said desk so as to be substantially concealed thereby and movable outwardly from said desk and retractable to its nested position, a shaft rotatably mounted at one end of said structure, a drawing board having an edge secured to said shaft to be swung to selected inclined positions, and means including resilient means operably connected between said structure and said board, to urge said board to a predetermined inclined elevational working position in the extended position of said structure from said desk whereby to cause the undersurface of said board to engage the edge of said panel upon partially retracting said structure into said desk, for adjusting the working angle of said board with said edge acting as pivot, said board upon collapse to a horizontal position against the action of said resilient means adapted to adjoin the underside of said panel in the nested position of said structure.

5. In a device as claimed in claim 4, said last means being comprised of a second rotatable shaft upon said structure parallel to and arranged opposite to said first shaft, an angular lever rotatably mounted upon said second shaft having a first arm extending radially therefrom and bearing against the underside of said board in the working position and having a second arm extending radially at an angle with said first arm, and a coiled spring connected between the end of said second arm and said first shaft.

6. In a device as claimed in claim 5, including a friction roller at the end of said first arm bearing against the underside of said board in the working position and bearing, respectively, against the undersurface of said panel in the retracted position of said structure and board.

7. I a device as claimed in claim 4, including adjustable mounting means to removably secure said board to said first shaft.

8. In a device as claimed in claim 4, including a pair of radial extension members at the ends of said first shaft, and means to removably secure said board to said members.

9. In a device as claimed in claim 4, including a pair of radial extension members at the ends of said first shaft, means to removably secure said board to said members, and locking means between said structure and said first shaft for adjusting the elevational working angle of said board.

10. In a device of the class described, the combination with a desk having a top panel and an open space underneath said panel, of a drawing board, a supporting structure therefor nested within said space so as to be concealed by said desk in the non-use position of said board and movable outwardly from said desk and retractable to its nested position, a first and a second shaft rotatably mounted at opposite ends of said structure, said drawing board having an edge secured to said first shaft to be swung to selected inclined positions, an angular lever secured to said second shaft having a first and a second arm radially extending therefrom, and a coiled spring connected between said first arm and said first shaft, to urge said board to a predetermined inclined angle in the fully extended position of said structure from said desk with the end of said second arm slidably bearing against the undersurface of said panel, whereby to cause the underside of said board to engage the edge of said panel upon partially retracting said structure into said desk for adjusting the working angle of said board with said edge acting as a pivot, said board upon collapse to a horizontal position adapted to adjoin the undersurface of said panel in the nested position of said structure with the end of said second arm slidably bearing against the undersurface of said board.

11. In a device of the class described, the combination with a desk having a top panel and supporting means therefor to provide a central open space underneath said panel, of a drawing board, a supporting structure therefor nested within said space so as to be substantially concealed thereby in the non-use position of said board and movable outwardly in either direction from said desk and retractable to its nested position, a pair of rotatable parallel shafts mounted at opposite ends of said structure, means to removably secure one edge of said board to either of said shafts to be swung to selected inclined positions, a radial extension of each of said shafts and means to lock each of said extensions in a predetermined fixed angular position to said structure, and a coiled spring connecting the ends of said extensions, whereby to urge said board to a predetermined inclined working angle in either of the fully extended position of said structure from

said desk and to cause the undersurface of said board to engage the adjoining edge of said panel upon partially retracting said structure into said desk, for adjusting the working angle of said board with said edge acting as a pivot, said board upon collapse to a horizontal position adapted to adjoin the undersurface of said panel in the nested position of said structure.

12. In a device as claimed in claim 11, means for additionally locking said board to said structure at the adjusted working angle.

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