May 24, 1955 B. A. WOINA 2,709,123

APPARATUS FOR SELECTIVELY LOCKING DRAWERS

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Fig. 1

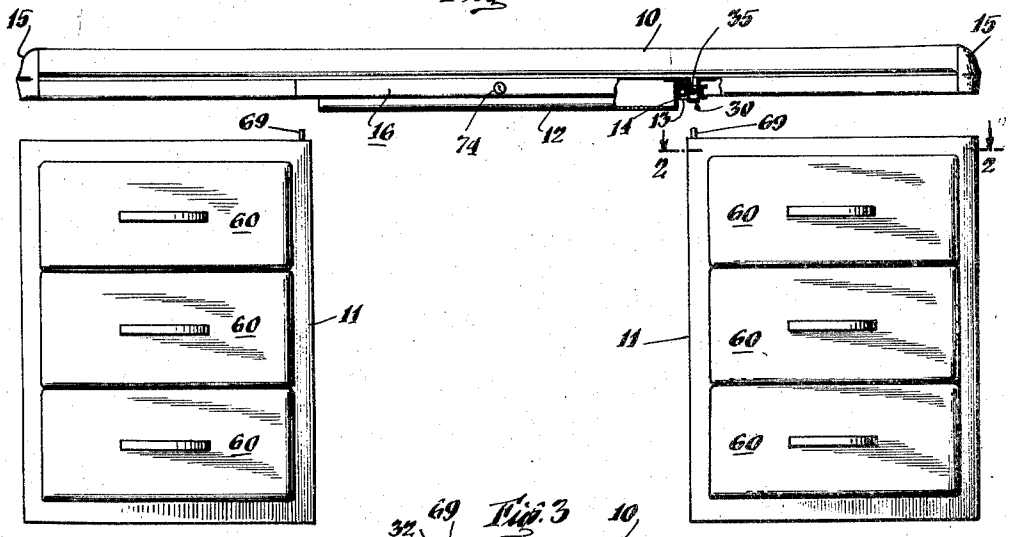


Fig. 3

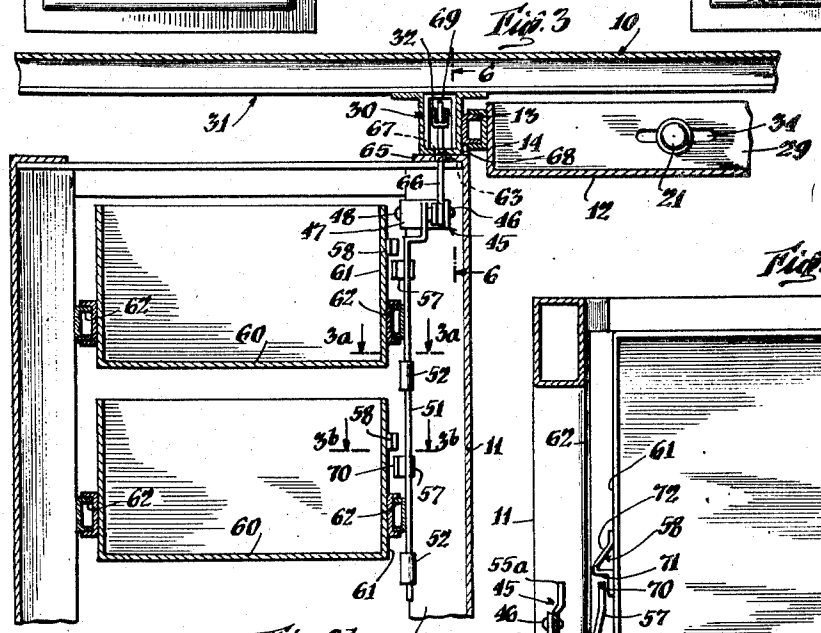


Fig. 2

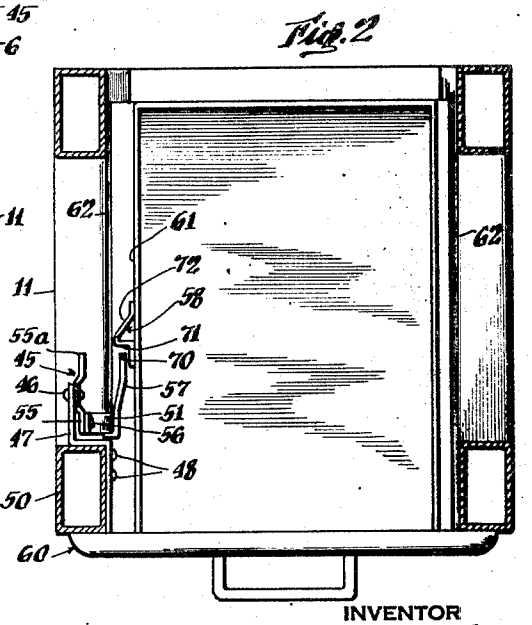


Fig. 3a

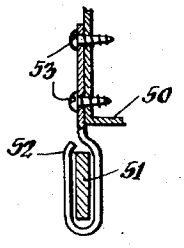
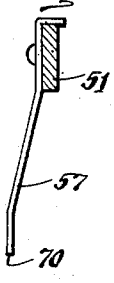


Fig. 3b



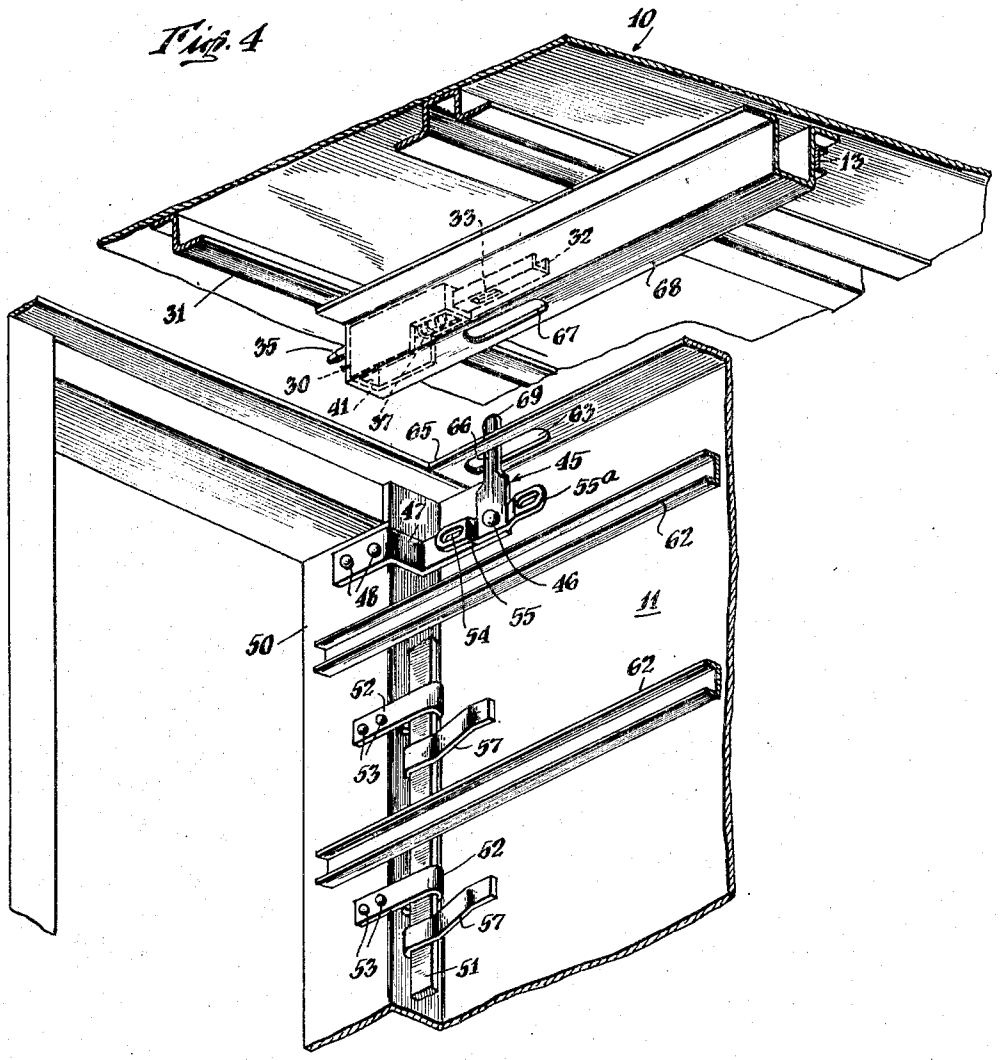
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APPARATUS FOR SELECTIVELY LOCKING DRAWERS

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Fig. 4



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Fig. 5

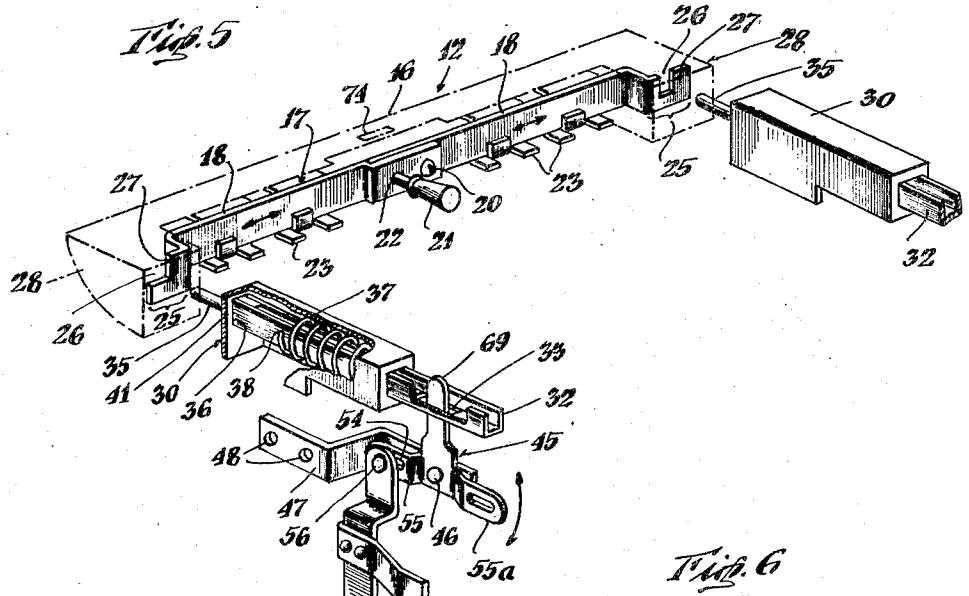
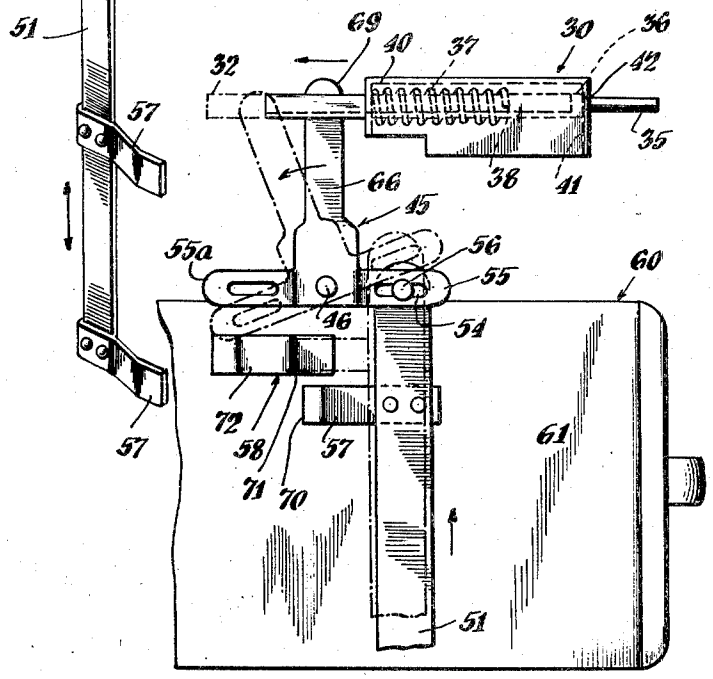


Fig. 6



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United States Patent Office 2,709,123 Patented May 24, 1955

2,709,123

APPARATUS FOR SELECTIVELY LOCKING DRAWERS

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Application March 28, 1951, Serial No. 217,908

8 Claims. (Cl. 312—221)

This invention relates to a locking apparatus which may be arranged with a desk or other article of furniture having several drawers therein so that the closing of one drawer may be used to selectively lock at least one other drawer. The invention is particularly concerned with an improved type of locking mechanism for selectively locking at least one controlled drawer by the movement of a pilot drawer in a desk of the type having a separable top portion with which a pilot drawer is associated and at least one pedestal containing one or more controlled drawers.

It has been found desirable in the manufacture of desks, particularly those constructed of metal, to provide a separable flat top portion and at least one pedestal having several tiers of drawers, the top and the pedestals being bolted or otherwise connected to each other so that they may be disconnected into the component parts to permit easy transporation and storage. It has also been found that, by manufacturing the desk in several units, they may be combined as desired; for example, the desks may be made up with one pedestal supporting one end of the top and with legs supporting the other end or with pedestals at either end of the top or with pedestals having more or less drawers depending upon the use to which the desk is to be put.

In view of the fact that it is customary and convenient to lock the drawers of a desk by closing the center drawer, i. e. the drawer which is disposed beneath the top in the central portion thereof, it becomes advantageous to have a suitable mechanism which will provide operating connection between the means for locking the drawers in the pedestal and the means, in the top, for actuating the locking means in the pedestal, and which will not have to be separately connected and disconnected when the top is fastened to the pedestal or removed therefrom.

It is also desirable that the actuating means in the top positively engage the locking means in the pedestal when the top and pedestal are assembled. Furthermore, it is important that the means for actuating the locking means and the locking means itself be entirely contained and concealed within the top and the pedestal when the members are united, to prevent tampering and to enhance the outer appearance of the desk. Especially in combination with all of the foregoing characteristics, a particularly desirable feature that is sought is to provide a means for locking the drawers in the pedestal which can be selectively operated by the closing of the center drawer so that only when it is desired to lock the drawers in the pedestal by the closing of the center drawer will such actuating means operate the locking means.

An important object of the present invention is therefore to provide a novel and simple means of selectively actuating the locking means of several drawers arranged in tiers.

A further object of the invention is to provide improved locking means for the drawers of a desk pedestal which may be readily assembled with actuating means provided in the top of the desk, and, which are concealed

within the desk housing when the top and pedestal are assembled.

A still further object of the invention is to provide a new, convenient and reliable lock actuating means which can be made inoperative at such times as it may be desired.

Other objects reside in the provision of improved locking apparatus which is rugged and effective, which can be manufactured with unusual efficiency, and which embodies the various features and advantages described above.

The invention consists of an apparatus for selective locking of at least one controlled drawer, such as one or more drawers in the pedestal of a desk, by movement of a pilot drawer, such as the center drawer of a desk, the selective lock actuating means carried by the pilot drawer thus having an inoperative and an operative position in respect to the closing of the pilot drawer. A lock shifting mechanism is arranged to be engaged by the actuating means, and may be mounted in or associated with the desk top, very advantageously so as to be coupled with the locking means in the pedestal by an element passing vertically between the upper surface of the pedestal and the abutting lower surface of the desk top assembly. The locking means provided in the pedestal of the desk includes conventional devices adapted to interdict the outward movement of the controlled drawers, and also has means including an upwardly projecting coupling element as described above, which engages the mechanism in the top and is adapted to be operated by it. The selective lock actuating means comprises an element which is shiftable selectively into inoperative and operative positions, respectively to avoid and effectuate actuation of the lock-shifting mechanism, i. e. so that when such lock actuating element is at its inoperative position, suitable means in the lock-shifting mechanism will prevent the locking of the controlled drawer or drawers, no matter what the position of the pilot drawer. Similarly, when the shiftable element of the selective lock actuating means is at its operative position, it is effective to actuate the mechanism in the top and thus to lock the controlled drawers, upon closing the pilot drawer.

For a more complete description of a presently preferred embodiment of the invention, reference is made to the drawings, which are a part of the application, wherein:

Fig. 1 is a front elevation of a desk embodying the invention and in which the top has been separated from the drawer-containing pedestals;

Fig. 2 is a cross-sectional view of one pedestal taken along the line 2—2 in Fig. 1;

Fig. 3 is a vertical section, with parts cut away, looking from the rear to the front of the desk;

Fig. 3*a* is a detail of a bracket supporting the locking means for the controlled drawers, taken along the line 3*a*—3*a* in Fig. 3;

Fig. 3*b* is a detail of a locking finger mounted on the locking bar taken along the line 3*b*—3*b* in Fig. 3;

Fig. 4 is a perspective view, with parts cut away, of the interior of the desk, viewed from the lower rear side of the right-hand pedestal of Fig. 1, i. e. looking upwardly and toward the front of the desk;

Fig. 5 is a diagrammatic view of the several working elements of the selective lock actuating means, the lock shifting mechanism which is actuated thereby, and the locking means coupled to the shifting mechanism; and

Fig. 6 is a detail of the linkage or coupling between the lock shifting means in the top and the locking means associated with the drawer-containing pedestal.

The desk containing one form of the apparatus of this invention consists of a planar top member or assembly **10** and at least one drawer-containing pedestal **11**. A center drawer **12** is mounted on suitable slide

tracks 13 attached to the top 10 and may be centrally disposed between the ends 15 of the top member. Although basic features of the present apparatus can be applied to other types of desks, the drawings show a desk of metal (e. g. steel) construction, for which the invention is specially and most advantageously adapted.

Referring to Fig. 5, a slide bar 17 is horizontally disposed in the drawer 12 adjacent the front face 16. The slide bar may be made of any suitable rigid material, such as metal, and for convenience of insertion and assembly may be formed in two sections 18, which are suitably joined together in the center as by the bolt 20 and the lock actuating knob 21, which may be suitably threaded to be received in holes 22, tapped through both sections 18 of the slide bar 17. Guide brackets 23 are suitably fixed to the drawer to support the slide bar in vertical position, and to guide the bar 17 as it is moved laterally by knob 21 in either direction, as indicated by the arrows in Fig. 5. The ends 25 of the slide bar 17 are formed with openings 26 and abutments 27. The ends 28 of the front portion 16 of the center drawer 12 and the ends 25 of the slide bar 17 extend outwardly toward the ends 15 of the top 10, beyond the trackways 13 supporting the center drawer, and thus beyond the side walls 14 of the body portion of the drawer (Figs. 1 and 3).

As indicated by dotted lines in Fig. 5, the projecting end portions 28 constitute enclosures for the ends 25 of the slide bar, except at the rearwardly facing wall of each end portion where access is desired for the lock-shifting mechanism now to be described. The entire central section of the slide bar 17 may also be suitably enclosed, as indicated by the transverse plate 29 (Fig. 3) which defines the front wall of the center drawer cavity and which has a horizontal slot 34 traversed by the shank of the knob 21.

Adjacent the trackways 13 on each side of the drawer 12 and in line with the ends 25 of the bar 17 is a lock actuating channel housing 30 which is suitably fixed to the underside structure 31 (Figs. 3 and 4) of the top 10 by welding or other suitable means. A channel bar 32 is slidably mounted in the housing 30 for sliding movement parallel to the trackway 13. An opening 33 is formed in the bottom or web of the channel bar 32 adjacent one end thereof. An axially projecting pin or rod 35 is fixed at the other or front end 36 of the channel bar 32 and is adapted to pass through a hole 42 and to extend beyond the housing 30 and into engagement with the end 25 of the bar 17. A spring 37 is fixed at one end 38 to the channel bar 32, with its other end abutting against the rear end 40 of the housing 30, the spring acting thereby to urge the channel bar 32 forward until it abuts against the front end 41 of the housing 30, the pin 35 extending through hole 42 provided in the front end 41. As will now be apparent, the sliding support of the channel bar 32 is effected by the hole 42 (through which the pin 35 can slide, but not the bar) and by an aligned opening in the rear end of the housing 30, through which the bar 32 itself, including its end portion having the hole 33, projects. It will be noted that the members which have been described thus far are fixed to the top 10 of the desk.

The following description is of the locking members contained in each of the drawer-containing pedestals 11.

In the illustrated embodiment, the drawer locking members (Figs. 2 to 6) include a bell-crank 45, pivotally mounted at 46 on a supporting bracket 47 which may be bolted or otherwise suitably mounted at 48 to the front frame member 50. A drawer locking bar 51 is vertically disposed in the pedestal and is supported for sliding vertical movement by brackets 52 (see Fig. 3a). The brackets 52 may be suitably fixed to the frame member 50 by bolts 53. The locking bar 51 is pivotally connected to the arm 55 of the bell-crank 45 by a pin

56 slidably mounted in slot 54 formed in the arm 55. Resilient locking fingers 57 are fixed at predetermined positions on the locking bar 51 with respect to drawer stops 58 provided on the sides 61 of the drawers 60. The drawers 60 are slidably mounted in the pedestal 11 on slide tracks 62. A slot 63 is formed in the top of the frame 65 of the pedestal 11 through which the upper arm 66 of the bell-crank extends. A similar slot 67 is provided in the underside of the frame member 68 of the top to permit the upper end 69 of the arm 66 to extend into the top 10 when the top has been positioned on the pedestal 11.

When thus extended into the top, the upper end 69 of the bell crank arm 66 is received in the opening 33 formed in the channel bar 32 of the lock actuating mechanism, thereby forming a connection between the locking means of the pedestal and the lock actuating means of the top when the two members 10 and 11 are joined. It will be noted that the lock-shifting mechanism as embodied in the channel housing 30 is conveniently mounted in the channel of the fore-and-aft frame member 68, the shape and arrangement of the housing 30 and its working parts being designed to that end. In such fashion, the member 68 serves the multiple purposes of providing a framing and bracing element for the top 10, of supporting the slide tracks 13 and thus the center drawer 12, and of mounting the lock-shifting mechanism in operative position relative both to the drawer 12 and the locking arm 66 that projects upwardly from the top of the pedestal.

In order to lock the drawers 60 contained in the pedestal 11, the slide bar 17 is moved laterally by the knob 21 so that the abutment 27 in each end 25 of the slide bar 17 is brought into line with the corresponding pin 35 extending from the housing 30. As the center drawer 12 is closed, the abutment 27 then presses the pin 35 and the channel bar 32 toward the rear of the desk against the forward pressure of the spring 37, as indicated by the arrow in Fig. 6. The bell-crank arm 66, the top 69 of which is disposed in the opening 33 of the channel bar 32, is also pressed to the rear by the movement of the channel bar and causes the bell-crank 45 to rotate about the pivot 46 and to assume the dotted line position shown in Fig. 6. The movement of the bell-crank 45 about the pivot 46 causes the arm 55 of the bell-crank 45 to move and to draw the lock bar 51 upward, so that the locking fingers 57 on the locking bar 51 are brought into alignment with the drawer stops 58 fixed on the sides 61 of the drawers 60. The abutment of the ends 70 of the fingers 57 against the shoulders 71 of the drawer stops 58 prevent the withdrawal of the drawers 60 while the members 57 and 58 are in the locked position, indicated in Fig. 6 by the dotted lines.

It will be noted that the rear sides 72 of the drawer stops are inclined so as to permit the resilient fingers 57 to be cammed past the drawer stops 58 in the event that a drawer 60, on which the drawer stop 58 is mounted, is in the opened position at the time the locking mechanism is actuated.

If it is not desired to lock the drawers 60 of the pedestal 11, when the center drawer is closed, the slide bar 17 is moved laterally so that the openings 26 in the ends 25 of the bar 17 are in line with the pins 35 extending from the housing 30; therefore, when the drawer 12 is closed, the pins 35 pass through the openings 26 of the ends 25 of the slide bar 17 and the locking mechanism is not actuated, the springs 37 acting to maintain the channel bar 32 in the forward position. As will be understood, the center drawer is preferably provided with a conventional key-operated lock 74, so that it may if desired be locked in closed position while the pedestal drawers remain unlocked, and also so that the locked condition of the pedestal drawers may be secured, and the center drawer held firmly closed against the depressed pins 35, when it is intended that all drawers of the desk be locked.

It will be appreciated that the apparatus of this invention achieves all the objects set out above and the desk may be assembled or disassembled without disconnecting any portion of the locking means because in accordance with this invention, the locking means of the pedestal and the lock actuating means in the top merely slide into engagement with each other when the top is properly mounted upon the pedestal. It should be noted additionally that because the arm **66** of the bell-crank **45**, which connects the locking means of the pedestal **11** to the lock actuating means of the top **10**, extends up through the top of the frame **65** of the pedestal and through the slot **67** in the frame **68** of the top, the locking apparatus is contained and concealed within the desk when the top and pedestal are assembled so that they cannot be tampered with. As indicated, the assembly and disassembly of the top and pedestal is specially facilitated by the preferred connections upward through the top of the pedestal, e. g. without the difficulty of fitting a direct mechanical connection between the side of the center drawer and the sides of the pedestal.

It will also be appreciated that although the description above has been directed primarily to describing the actuation of the locking means in one pedestal of a desk, the means are suitably adapted for locking the drawers of two pedestals, which are disposed adjacent the two ends **15** of the top. This dual arrangement is indicated in Figs. 1 and 5. The end portions **25** are so arranged, for example, with one opening **26** constituting a notch at the very end corner of the bar outside the abutment **27** and with the other opening **26** spaced from the corresponding end by its related abutment **27** (all as shown in Fig. 5), so that when the bar **17**, as a simple, rugged unit, is moved to either locking or non-locking position, it will cooperate properly with both of the pins **35**, which may be symmetrically located relative to the drawer **12**. For economy in manufacture, the bell-crank **45** may have a T-shaped configuration providing an additional slotted lower arm **55***a* (Figs. 4, 5 and 6) so that by rotating such bell-crank (or an identical bell-crank assembly with its support **47**) 180°, it may be mounted to operate the locking bar of the opposite pedestal.

Also, although the locking apparatus has been described with relation to a pedestal type desk of a particular type, it may be suitably adapted for various other installations.

In accordance with the provisions of the patent statutes, the principles of this invention have been described together with the best mode of applying those principles; however, it should be understood that the structure disclosed is but one mode of utilizing the invention and the structure described is merely illustrative, for the invention may be carried out by other and alternative means. Also, while it is contemplated to use the various features and elements in the combinations and relations described, some of these may be altered and modified in ways other than those suggested without departing from the spirit and scope of the invention.

What is claimed is:

1. In a desk, in combination with a pedestal having a top-receiving upper side and having at least one drawer, and a top member for assembling with said pedestal upon downward abutment of said top member on the upper side of the pedestal and having a pilot drawer slidably mounted in the top member, apparatus for selectively locking said pedestal drawer by movement of the pilot drawer to closed position, comprising, selective lock-actuating means carried by said pilot drawer having operative and inoperative positions with respect to said pilot drawer, locking means for said controlled drawer extending into the path of said lock-actuating means when the drawer is moved to the closed position while the actuating means is in the operative position whereby the locking means is actuated, said locking means comprising a lock-shifting mechanism mounted in the top member and adapted to be engaged by said lock-actuating means of the drawer, and drawer-locking mechanism in the pedestal adapted to be actuated by the lock-shifting mechanism, one of said mechanisms including a coupling member extending vertically therefrom and the other of said mechanisms having a member for receiving and releasably engaging the vertically-extending member when the top member is assembled on the pedestal.

2. In a desk having a separable top member with a pilot drawer slidably mounted therein and at least one controlled-drawer-containing pedestal, apparatus for selectively locking at least one controlled drawer contained in the pedestal by movement of the pilot drawer, comprising, selective lock-actuating means carried by said pilot drawer having inoperative and operative positions in respect to said pilot drawer, a mechanism positioned in said top arranged to engage the selective lock actuating means when the latter is in operative position for locking a controlled drawer, controlled drawer locking means in the pedestal, slidably separable means extending between the pedestal and the top releasably connecting the locking means and the mechanism in the said top.

3. In a desk having a separable top with a pilot drawer slidably mounted therein and at least one pedestal containing controlled drawers, apparatus for selectively locking at least one controlled drawer contained in the pedestal by movement of the pilot drawer, comprising, locking means for the controlled drawer arranged in the pedestal, lock operating means extending from the upper side of the pedestal, selective lock-actuating means carried by said pilot drawer having inoperative and operative positions in respect to said pilot drawer, a mechanism for releasably engaging the lock-operating means and arranged to be engaged by said selective locking means when it is at its operative position for locking the controlled drawer upon the closing of said pilot drawer, and resilient means effective when said selective locking means is at its inoperative position to prevent actuation of said mechanism and thereby to prevent locking of said controlled drawer independent of the position of said pilot drawer.

4. In a desk having at least one pedestal and a separable top member, said top member carrying suitable guide tracks for slidably supporting a pilot drawer, apparatus for selectively locking at least one controlled drawer in said pedestal by movement of said pilot drawer along said guide tracks in said top member to a closed position, comprising, a selective lock-actuating bar slidably mounted for movement transverse to the guide tracks of the pilot drawer, to operative and inoperative positions, a lock-shifting mechanism in the top adapted to be engaged by the lock-actuating bar when it is in the operative position upon the closing of said pilot drawer, locking means in the pedestal having an element projecting vertically from the top of the pedestal releasably and operatively engaging the lock-shifting mechanism and responsive to the lock-shifting mechanism for locking the controlled drawer when the lock-shifting mechanism is actuated by the lock-actuating bar.

5. In a desk having a separable top member with a pilot drawer slidably mounted therein for movement along guide tracks and at least two controlled-drawer-containing pedestals, apparatus for selectively locking, at least one controlled drawer contained in each of said pedestals, by movement of the pilot drawer, comprising, a selective lock-actuating bar, slidably mounted for movement transverse to the guide tracks of the pilot drawer to operative and inoperative positions in respect to said pilot drawer, lock-shifting mechanisms positioned adjacent said guide tracks and adapted to be engaged by said guide bar when the latter is in the operative position, upon closing of said pilot drawer, locking means for the respective pedestals for locking at least one controlled drawer in each pedestal, means extending vertically from

the respective pedestals releasably and operatively connecting the locking means with the lock-shifting mechanisms in the top member, and means effective when said selective lock-actuacting bar is at its inoperative position aforesaid to prevent actuation of said lock-shifting mechanisms and thereby prevent the locking of the controlled drawers independent of the position of said pilot drawer.

6. A desk structure having at least one pedestal containing a controlled drawer which is to be selectively locked and a top assembly containing a pilot drawer, said top assembly being adapted to be assembled on and disassembled from said pedestal, lock-actuating means carried by said pilot drawer having operative and inoperative positions with respect to said pilot drawer, means in the top assembly adapted to be actuated by the lock-actuating means when the pilot drawer is moved to a closed position and locking means in said pedestal for locking the controlled drawer and a slidably separable element vertically extending, for releasably and operatively connecting said means in the top assembly and said locking means in the pedestal, and means effective when said lock-actuating means is at its inoperative position aforesaid to prevent actuation of the means in the top assembly and thereby prevent locking of the controlled drawers independent of the position of said pilot drawer.

7. In a desk having a separable top member with a pilot drawer slidably mounted on slide tracks therein and at least one controlled-drawer-containing pedestal, apparatus for connecting locking means for said controlled drawer in the pedestal to lock-actuating means provided in the top, comprising, a locking bar slidably mounted for vertical movement in the pedestal and having means provided on the bar for preventing the outward movement of the drawer when the locking bar is in a predetermined vertical position, a bell crank pivotally mounted at the upper end of the pedestal having one arm extending upwardly through the frame of the pedestal and into releasable engagement with lock-actuating means provided in the top and having another arm connected to the upper end of the locking bar so that movement of the first mentioned arm by the lock-actuating means in the top of the desk will cause the locking bar to move vertically to the predetermined controlled drawer locking position.

8. In combination with a desk structure including a pilot drawer in a removable top assembly and at least two controlled drawers respectively disposed in pedestals on opposite sides of the pilot drawer, said pilot drawer having guide tracks adjacent its sides, apparatus for selectively locking both controlled drawers together by movement of the pilot drawer along its guide tracks to closed position, comprising, a unitary, selective lock-actuating bar slidably mounted for movement transverse to the guide tracks of the pilot drawer to operative and inoperative positions on both sides of the pilot drawer, locking mechanisms having mutually releasably separable elements respectively associated with the top and with the controlled drawers in the pedestals on each side of the pilot drawer, each of the mechanisms in the top being arranged to be engaged by said selective locking bar when said bar is at its operative position for locking both controlled drawers through the mutually separable locking mechanisms in the top and in the controlled drawers upon the closing of said pilot drawer, said locking bar being shaped at its ends to engage the locking mechanisms in the top only when in the operative position and to clear both the mechanisms when in the inoperative position, said mechanisms including means effective when selective lock actuating bar is at its inoperative position aforesaid to prevent actuation of said mechanism and thereby prevent locking of said controlled drawer independent of the position of said pilot drawer.

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