May 23, 1972 W. E. THOMAS 3,664,720

DRAWER LOCKING SYSTEM

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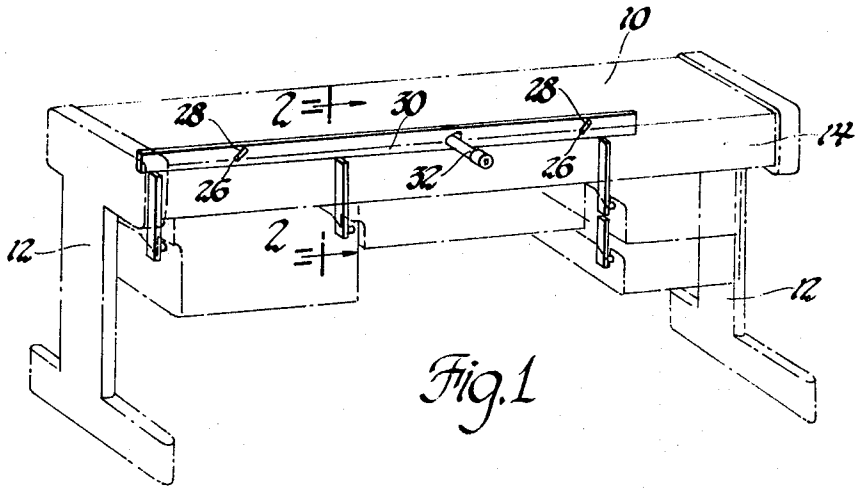


Fig. 1

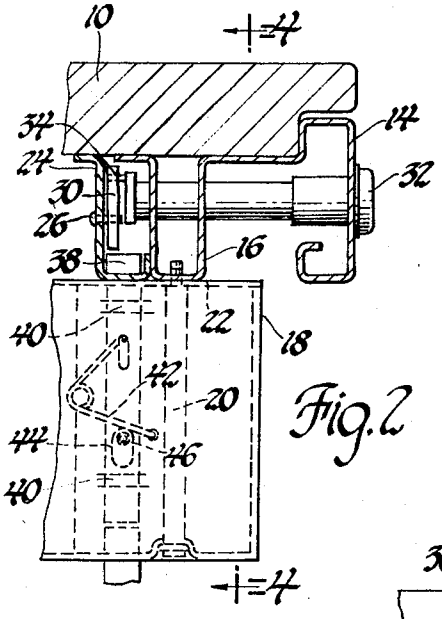


Fig. 2

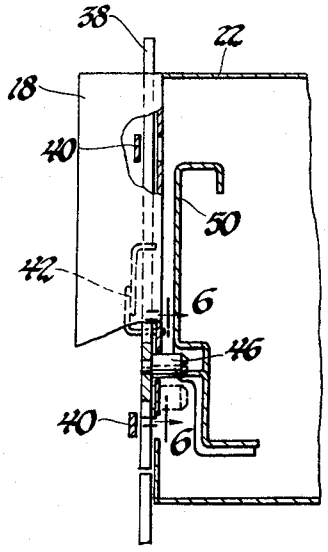


Fig. 4

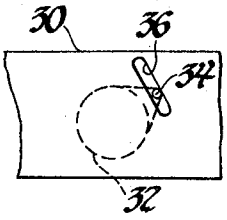


Fig. 5

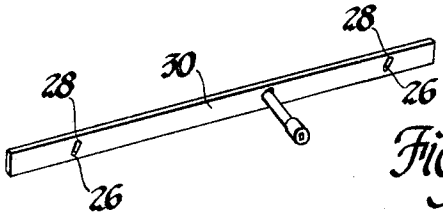


Fig. 3

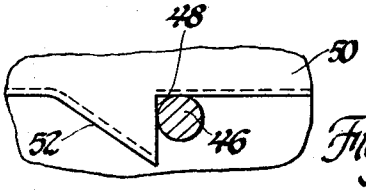


Fig. 6

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DRAWER LOCKING SYSTEM

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ABSTRACT OF THE DISCLOSURE

A locking system for desk drawers has a horizontal lock bar beneath the top and overlying drawers at the left, center and right of the desk. The lock bar is movable on inclined cam surfaces by a rotary lockable actuator. Each drawer has a vertically slidable detent biased upwardly and shiftable downwardly by the vertical component of the inclined motion of the lockbar.

In the construction of office desks, it is often desirable to provide for optional arrangements of the drawers as to number, vertical size, and lateral location. One construction providing this advantage utilizes the top of the desk as a means for suspending the drawers in vertical stacks to which drawers may be added or removed from the bottom and interchanged as desired. It is desirable on such a desk to provide a locking system which may be operated by a single key, yet which will be effective regardless of the number and arrangements of drawers which are assembled to the desk top.

The present invention provides such a system and consists in a desk having a top with a depending front valance, a plurality of drawer cases suspended beneath the top and valance and carrying slidable drawers and in which there is a horizontal lock bar extending longitudinally behind the valance and above the drawer cases, means mounting the lock bar for conjoint, horizontal and vertical motion, a rotary lockable operator for shifting the lock bar horizontally and vertically, movable detent means in the drawer cases positioned for operative engagement with the lock bar, each engageable with a drawer to maintain the drawer closed, the lock bar extending across the distance spanned by the detent means of the extreme left-hand and the extreme right-hand drawer cases.

In the drawings:

FIG. 1 is a phantom perspective view of a desk incorporating a preferred form of the present invention.

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

FIG. 3 is a perspective view of a lock bar incorporated in the desk of FIG. 1.

FIG. 4 is a fragmentary sectional view on line 4—4 of FIG. 2.

FIG. 5 is an enlarged fragmentary view of a portion of FIG. 1.

FIG. 6 is a fragmentary sectional view on line 6—6 of FIG. 4.

The desk of FIG. 1 has a top **10** supported on pedestals **12** and carrying a front valance **14**, preferably of metal in the sectional configuration illustrated in FIG. 2. The valance **14** is formed integrally with a channel-shaped rail portion **16** from which a plurality of drawer cases **18** are suspended by means of studs **20** engageable with the top flanges **22** of the drawer cases **18**. Secured to the top **10** and the rail **16** behind the latter, is a longitudinal bar **24** from which project inwardly two cam follower pins **26**. Mounted upon the pins **26** by means of inclined cam slots **28** is a transverse longitudinal lock bar **30**. This partakes of simultaneous horizontal and vertical motion

under the control of a lockable operator **32**. The latter has an offset pin **34** which engages the bar **30** in a slot **36**.

Each of the drawer cases carries a vertically movable detent which is preferably formed as a bar **38** of the same length as the height of the drawer case. The bar **38** is slidable in guides **40**. A spring **42** urges the bar **38** upwardly. Secured to the bar **38** and projecting through a slot **44** is a dentent lug **46** which is engageable with a stop **48** on the drawer **50** to hold the latter in closed position. The incline **52** allows the drawer to depress the lug **46** as the drawer is closed should the detent bar **38** be in its uppermost locking position.

In operation with the desk assembled, for example with a single drawer at the left and another at the center and a stack of two drawers at the right, the desk is unlocked when the lock bar **30** is shifted leftwardly and downwardly. This depresses each of the detent bars **38** to move the detent lugs **46** downwardly below the stops **48**. In the stack of drawers at the right, the upper detent bar, when depressed, pushes the lower detent bar along with it. When it is desired to lock the desk, the operator **32** is turned a half revolution to the position shown in FIG. 5 which moves the lock bar **30** upwardly and to the right, thus allowing each of the detent bars **38** to rise and place the detent lugs **46** in opposition to the stops **48**. Additional drawers may be mounted below the left or the right hand drawers illustrated, and drawer stacks of various combinations as to drawer height and function may be readily attached and detached as desired without interfering with the operation of the locking system from a single keyed operator **32**.

I claim:

1. In a desk having a top with a depending front valance, a plurality of drawer cases suspended beneath the top and valance and carrying slidable drawers, that improvement which comprises a horizontal lock bar extending longitudinally behind the valance and above the drawer cases, means mounting the lock bar for conjoint, horizontal and vertical motion, a rotary lockable operator for shifting the lock bar, and vertically movable detent means in the drawer cases positioned for selective operative engagement with the lock bar, each engageable with a drawer to normally maintain the drawer closed, said lock bar when shifted through combined horizontal and vertical motion by operation of said rotary operator being effective to contact said vertically movable detent means in force transmitting relationship to unlock said drawers.

2. A desk as defined in claim **1** wherein the lock bar mounting means comprises a plurality of inclined cam surfaces and cam followers carried, one by the desk top and the other by the lock bar, to guide said lock bar through said combined horizontal and vertical motion.

3. A desk as defined in claim **1** wherein each detent means comprises a vertically slidable bar at one side of each drawer case having a stop lug for projection into the path of a protruding portion of a drawer when the detent means is in drawer locking position and disengaged from said lock bar.

4. A desk as defined in claim **3** wherein the vertically slidable bar extends from top to bottom of the drawer case to operate the bar of a drawer case beneath it and to be operated by the bar of a drawer case above it when the case is not the top case in a stack of cases.

5. A desk as defined in claim **3** wherein a spring means is provided for biasing the detent means into drawer locking position to cause engagement of said stop lug with said protruding portion of said drawer.

6. A desk as defined in claim **4** having drawer cases positioned at the left side, the center and the right side, with their respective detent bars adapted to abut the underside of said lock bar only when said lock bar is shifted into unlocking position.

7. A desk as defined in claim 3 wherein said protruding portion of said drawer defines an abutment protruding from the drawer sidewall, said abutment having a first surface extending in normal direction from said sidewall and an inclined cam surface extending towards the rear of said drawer wherein said first surface co-operates with said stop lug to maintain said drawer in locked position and said inclined cam surface is effective to permit overriding of said stop lug when said drawer is moved into closed position.

8. In a desk having a top, a plurality of drawer cases suspended beneath said top and each carrying a slidable drawer, the improvement characterized by a horizontal lock bar extending longitudinally beneath said top and above said drawer cases, cam means movably mounting said lock bar for combined horizontal and vertical motion relative to said top, a rotary operator for shifting said lock bar, detent means slidably disposed in said drawer cases and positioned for selective operative engagement with said lock bar, each of said detent means in a first position being normally biased into locking engagement with a respective one of said drawers, said detent means in said first position being disengaged from said lock bar, said lock bar when shifted through said combined horizontal and vertical motion being placed in operative force transmitting engagement with said detent means to move said detent means into a second position out of locking engagement with said drawer.

9. In a desk having a top, a plurality of drawer cases suspended beneath the top and carrying slidable drawers, the improvement comprising a lock bar extending longitudinally above said drawer cases, means mounting said lock bar for conjoint, longitudinal and angular motion, an operator for shifting said lock bar, movable detent means in the drawer cases positioned for selective operative engagement with said lock bar and each engageable with a drawer to normally maintain the drawer closed, said lock bar when shifted through combined longitudinal and angular motion by operation of said operator being effective to contact said movable detent means in force transmitting relationship to unlock said drawers.

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JAMES C. MITCHELL, Primary Examiner