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[54] **DRAWER LOCKING SYSTEM**

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[52] **U.S. Cl.** **312/221**

[51] **Int. Cl.** **E05c 7/06**

[58] **Field of Search** 312/216, 221

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[57] **ABSTRACT**

A writing slide controlled lock mechanism for simultaneously locking drawers of a pedestal type desk. The mechanism features latch members carried by the drawers and a locking bar movable by closure of the writing slide to a locking position for effecting locking of the drawers which are in or are subsequently moved into closed position.

7 Claims, 3 Drawing Figures

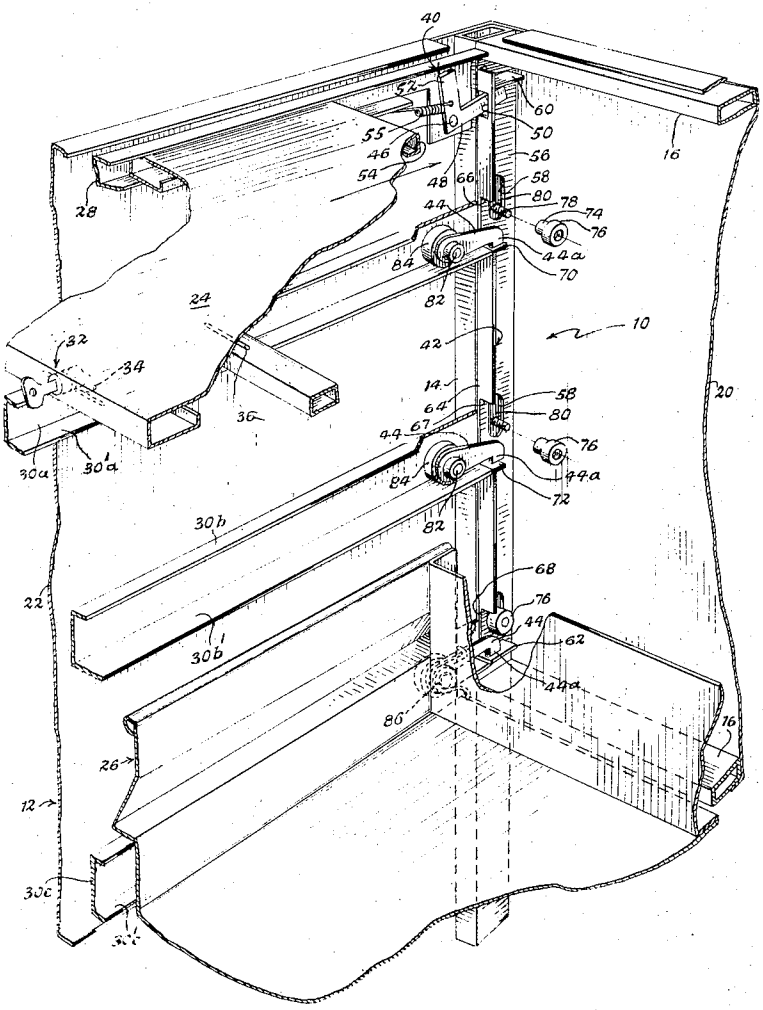


Fig. 1.

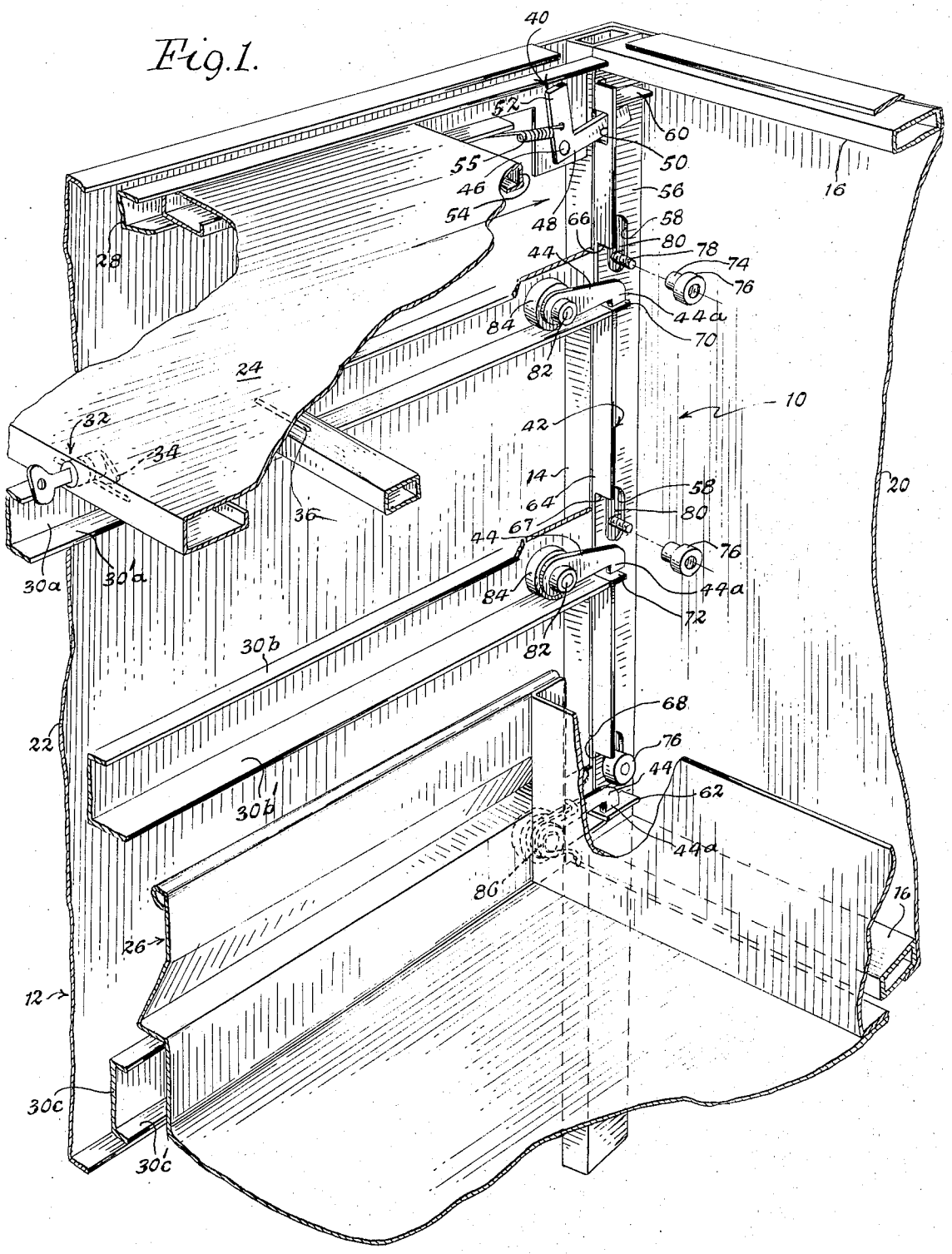
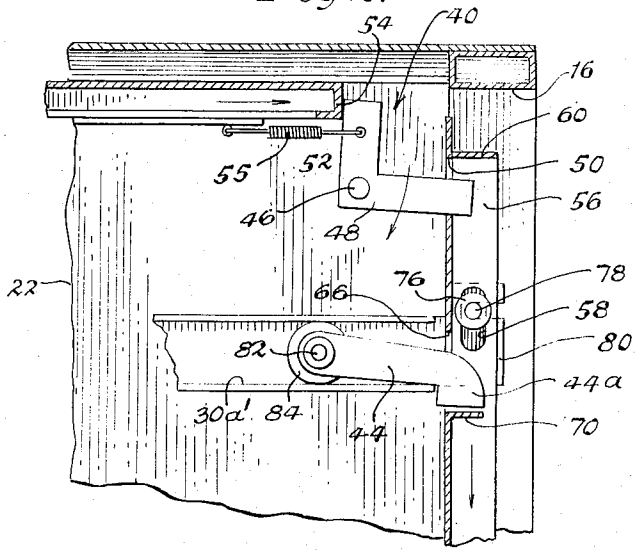

40
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58
80
78
74
76
44
44a
84
70
82
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10
42
32
34
36
14
64
67
20
30a
30d
30b
72
22
68
62
86
16
26
12
30c

Fig. 2.


54
40
16
60
55
52
50
46
48
56
22
76
78
66
58
82
80
44a
30a'
84
44
70

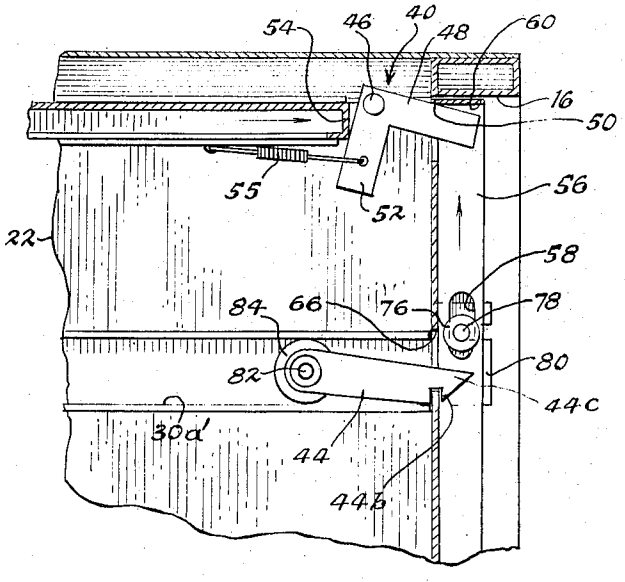

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22
58
84
66
76
78
82
80
44c
30a'
44
44b

Fig. 3.

DRAWER LOCKING SYSTEM

SUMMARY OF THE INVENTION

The present invention relates to drawer locks and more particularly to locks of the type including a locking bar movable vertically to effect locking of a plurality of vertically stacked drawers, such as are provided in a pedestal desk or filing cabinet.

In a preferred form of the invention, movement of a lockable writing slide to closed position is employed to drive a spring returnable locking bar from an upper drawer unlocked to a lower locked position, whereby permitting latches pivotally carried by the several drawers to cooperate with abutments defined by drawer case or slide channels to lock the drawers in closed position. Upon return movement of the locking bar to its upper position incident to movement of the writing slide to open position the bar automatically removes the latches from locking engagement with the case channels in order to permit opening of the drawers.

In an alternative form of the present invention, movement of the writing slide to closed position serves to drive the locking bar upwardly into a locked position in which it lockingly engages the drawer latches.

DRAWINGS

The nature and mode of the present invention will now be more fully described in the following detailed description taken with the accompanying drawings wherein:

FIG. **1** is a perspective view of a drawer lock formed in accordance with a preferred embodiment of the present invention showing adjacent parts of a pedestal desk;

FIG. **2** is a sectional view taken generally along line **2—2** in FIG. **1**; and

FIG. **3** is a view similar to FIG. **2**, but showing an alternative form of the present invention.

DETAILED DESCRIPTION

Reference is now made more particularly to FIG. **1**, wherein the drawer lock of the present invention is generally designated at **10** and shown in combination with a conventional pedestal desk construction **12**. Desk construction **12** is shown for purposes of references as including a pedestal frame having vertically rising leg and horizontally disposed rear and front frame members **14, 16** and **18**, respectively; frame mounted rear and side pedestal wraps or panels **20** and **22**, respectively; writing slide **24**; a plurality of drawers only one of which is shown at **26**; and writing slide and drawer case or slide channels **28** and **30***a*–**30***c*, respectively. Writing slide **24** may be releasably locked in closed position by suitable means, such as a key operated barrel lock **32** having a retaining or latch plate **34** removably receivable within a slot or recess **36** formed in front frame member **18**.

Lock **10** generally includes a generally L-shaped actuator plate **40**; a lock bar **42**, which is supported for vertical reciprocating movements by frame leg **14**; and a plurality of latch dogs **44**, which are provided at least one in association with each of drawers **26**.

More specifically, actuator plate **40** is shown as being supported for vertical pivotal movements relative to the pedestal frame by writing slide case channel

mounted pin shaft **46**; and as having a first leg portion **48** arranged for receipt within a vertically disposed lock bar slot **50** and a second leg portion **52** arranged for engagement by the rear edge **54** of writing slide **24** when the latter is moved into closed position. Suitable means, such as coil spring **55** end connected to leg portion **52** and case channel **28**, normally tends to retain plate **40** in its unlocked position illustrated in FIG. **1**, while permitting movement thereof into the locking position illustrated in FIG. **2** when leg portion **52** is engaged by rear edge **54** of writing slide **24** when the latter is closed.

Lock bar **42** is shown as being of generally L-shaped construction, wherein a first flange **56** is formed with a plurality of vertically spaced guide slots **58** and essentially parallel upper flange portions and lower support flange portions **60** and **62**, respectively; and a second flange **64** is formed with slot **50** and a plurality of side opening, vertically spaced slots **66–68**. Second flange **64** is also formed with essentially parallel support flange portions **70** and **72**, which are defined by bending over material partially cut away to define slots **66** and **67**. Guide slots **58** are dimensioned to slideably receive reduced diameter shank portions **74** of headed lock nuts **76**, which are threadable onto studs **78** carried by frame leg **14**. In the specific construction illustrated, the ends of shank portions **74**, which extend through slots **58**, additionally serve to clamp the slotted or apertured central flange extension **80** of case channels **30***a*–**30***c* in assembled relationship with frame leg **14**.

It will be understood that in the preferred form of the present invention, engagement of shank portions **74** with the lower ends of guide slots **58** determines the upper or unlocked position of lock bar **42** and when the lock bar is in this position the upper surface of support flange portions **62, 70** and **72** are arranged essentially flush with the upper surfaces of case channel lower flanges **30***a*′–**30***c*′, respectively. In this connection, it will be appreciated that a gig may be employed to accurately control the spacing of apertures formed in frame leg **14** for the receipt of studs **78** and that present metal cutting and bending techniques makes it possible to accurately control the spacing between lock bar guide slots and the positioning of lock bar support flanges **62, 70** and **72** relative thereto, as well as the vertical spacing between the mounting openings **80***a* in central flange extension **80** and associated case channel lower flanges **30***a*′–**30***c*′. Thus, by employing studs **78** and lock nuts **76** to both clamp the case channels to the frame leg and to determine the upper position of the lock bar, the flush relationship of support flange portions **62, 70** and **72** relative to case channel lower flanges **30***a*′–**30***c*′ may be assured.

Alternatively, the unlocked position of lock bar **42** may be determined by engagement of upper flange portion **60** with a part of the pedestal frame in a manner, not shown. In either case, the lock bar may be moved into its upper position by engagement of leg portion **48** with the upper end of slot **50** or the lower surface of upper flange portion **60**.

Each of latch dogs **44** is supported for vertical pivotal movement by a pin shaft **82**, which extends outwardly from a side wall of its associated drawer **36**. Preferably, pin shaft **82** additionally serves to mount a drawer rear supporting roller **84**.

In the preferred construction illustrated in FIGS. **1** and **2**, the free swing end of each latch dog is down turned to define a foot **44***a*, which slides along case channel lower flange portion **30***a'*–**30***c'*, during opening and closing movements of the drawer whereby to normally support the latch dogs in a first pivotal position thereof. If desired, coil spring devices **86** may be associated with one or more of latch dogs **44** for the purpose of positively biasing their feet **44***a* downwardly in a clockwise sense, as viewed in FIGS. **1** and **2**. When desiring to lock the drawers of a desk or cabinet employing the present invention, as illustrated in FIGS. **1** and **2**, it is merely necessary to move writing slide **24** into its fully closed position wherein it may be retained by operation of lock **32**. When the writing slide **24** is in closed position, its rear edge **54** engages with actuator plate leg **52** and the actuator plate **40** is thereby maintained in the locked position illustrated in FIG. **2** against the return bias of coil spring **55**. Upon movement of actuator plate **40** to its locked position, lock bar **42** is lowered into its locked position illustrated in FIG. **2**, due to the weight of the lock bar, to engagement of actuator plate leg **48** with the bottom end of slot **50** and/or to downward force exerted by coil springs **86** on support flange portions **70, 72** and/or **62** through latch dogs **44**. As will be apparent, with support flange portions **70, 72** and **62** disposed below case channel flanges **30***a*–**30***c*, the weight of latch dogs **44** and/or their associated springs **86** is operable to swing the latch dogs downwardly into a second pivotal position wherein latch dog feet **44***a* engage against the rearwardly facing edges of case channel flanges **30***a*–**30***c*, which serve to define abutments for positively locking their associated drawers in closed position. Any drawers remaining in open position after the writing slide is locked in closed position, will be automatically locked when returned to their closed positions.

When desiring to unlock drawers **26**, it is merely necessary to unlock lock **32**; spring **55** being normally effective to both force the writing slide open sufficiently to permit return of actuator plate **40** to its original unlocked position and to raise lock bar **42** to its unlocked position. As support flange portions **70, 72** and **62** are returned to their initial positions wherein they are arranged flush with case channel flanges **30***a*–**30***c*, latch dog feet **44***a* are raised sufficiently to free same from engagement with the rear ends of the case channels.

The alternative construction of the present invention illustrated in FIG. **3** differs from that previously described in that actuator plate **40** is arranged such that it is pivoted in a counter-clockwise sense upon closing movement of the writing slide to effect upward movement of the lock bar into a locked position and spring **55** normally tends to drive the lock bar downwardly into an unlocked position, not shown. Further, in this construction, the feet of latch dogs **44** are deleted and replaced by downwardly opening slots **44***b*, which are dimensioned to receive those portions of second flange **64** forming the lower ends or edges of slots **66–68**. Thus, in this construction lock, bar **42** defines abutments for locking the drawers in closed position, which are either inserted into or removed from slot openings **44***b* when the lock bar is moved vertically between its upper locked and lower unlocked positions. Any drawers remaining in open position after the writing slide is locked in closed position, will be automatically locked when returned to their closed position. In this connection, it will be understood that the inclined end **44***c* of each latch dog serves to cam its latch dog upwardly as the drawer approaches its fully closed position and that when the drawer is fully closed the weight of the latch dog and/or the bias of its associated coil spring pivots the latch dog downwardly to a position wherein the lock bar is received within slot **44***b*.

I claim:

1. A locking mechanism in combination with a desk having a pedestal cabinet with a pull out writing slide, at least one pull out drawer arranged below and in vertical alignment with said slide, surface means for independently supporting said slide and said drawer for movement between opened and closed positions, and a lock means for releasably retaining said slide in closed position, said locking mechanism comprising:

a latch dog carried one by each said drawer for vertical, pivotal movement relative thereto, said latch dog being normally supported in a first pivotal position by sliding engagement with said surface means during opening and closing movements of said drawer;

abutment means defined by a rear end portion of said surface means and associated one with each said latch dog;

lock bar means supported by said desk for movement between vertically spaced unlocked and locked positions, said lock bar means including latch dog supporting means arranged in an essentially coplanar relationship with said surface means when said lock bar means is in said unlocked position, whereby to support said latch dog in said first pivotal position when said drawer is in closed position, said latch dog supporting means being arranged vertically below said surface means when said lock bar means is in said locked position, whereby to permit said latch dog to pivot downwardly from said first pivotal position into a second pivotal position for drawer locking engagement with its associated abutment means when said drawer is moved into closed position; and

means responsive to movement of said writing slide between opened and closed positions for moving said lock bar means vertically between said unlocked and locked positions, respectively, whereby when said writing slide is in said closed position and said drawer is in said closed position said latch dog is engaged with its associated abutment means to effect locking of said drawer in said closed position.

2. A locking mechanism according to claim **1**, wherein said locking mechanism additionally includes spring means tending to bias said latch dog from said first pivotal position into said second pivotal position, said latch dog being pivotally mounted on a side wall of said drawer by a pin shaft and said pin shaft additionally serves to mount a drawer rear supporting roller.

3. A locking mechanism in combination with a desk having a pedestal cabinet with a pull out writing slide, at least one pull out drawer arranged below and in vertical alignment with said slide, surface means for independently supporting said slide and said drawer for movement between opened and closed positions, and a lock means for releasably retaining said slide in closed position, said locking mechanism comprising:

a latch dog carried one by each said drawer for vertical, pivotal movement relative thereto, said latch

dog being normally supported in a first pivotal position by sliding engagement with said surface means during opening and closing movements of said drawer;

lock bar means supported by said desk for vertical movement between upper locked and lower unlocked positions, said lock bar means defining abutment means associated one with each said latch dog, said abutment means being movable from a position essentially coplanar with said surface means when said lock bar means is in said unlocked position into a position elevated above said surface means when said lock bar means is in said locked position; and

means responsive to movement of said writing slide between open and closed positions for moving said lock bar means between said unlocked and locked positions, respectively, whereby when writing slide is in closed position and said drawer is moved into closed position said latch dog is moved into engagement with said abutment means.

4. A cabinet construction comprising in combination:

a cabinet frame;

a plurality of drawers;

a plurality of surface means fixed to said frame in a vertically spaced relationship for supporting said drawers relative to said frame in a vertically aligned relationship and for independent movement between drawer open and closed positions, each said surface means defining an abutment adjacent a rear end thereof;

a latch dog carried one by each of said drawers for vertical pivotal movement relative thereto, each said latch dog having a foot end portion for normally supporting said latch dog in a first pivotal position by sliding engagement with its drawer associated surface means during opening and closing movements of its drawer but being movable rearwardly of said abutment defined by its drawer associated surface means when its drawer is in fully closed position;

a lock bar carried by said frame for vertical reciprocating movements and having a plurality of supporting surface means spaced vertically therealong at distances corresponding to the distances between said surface means; and

operating means for selectively moving said lock bar between an upper unlocking position wherein said supporting surface means forms a continuation of said surface means for supporting said foot end portions out of engagement with said abutments and a lower locked position wherein said supporting surface means is disposed vertically below said surface means for permitting downwardly pivotal movement of said latch dogs to position said foot end portions in drawer locking engagement with said abutments.

5. A cabinet construction according to claim **4**, wherein said frame includes a vertically rising frame leg, each of said surface means includes a case channel having at least a vertically extending mounting flange and a horizontally disposed flange portion for supporting an associated drawer and its latch dog during opening and closing movements of said drawer, and said case channels and said lock bar are fixed to said frame leg by an assembly serving to define said upper unlocking position wherein each said supporting surface means forms a continuation of said horizontally disposed flange portion of an associated one of said case channels, said assembly including a plurality of vertically rising guide slots formed in said lock bar in a predetermined relationship to said supporting surface means, a mounting opening formed in each said vertically extending mounting flange adjacent a rearwardly extending end thereof in pre-determined relationship to an associated horizontally disposed flange portion, a plurality of threaded studs extending horizontally from said frame leg in a predetermined vertically spaced relationship, and headed lock nuts provided one in association with each said stud and having reduced diameter shank portions dimensioned to be slideably received within said guide slots, said studs being received one within each of said mounting openings and the shank portion of an associated stud mounted lock nut passing through one of said guide slots and clamping the vertically extending mounting flange to said frame leg, engagement of said shank portions with lowermost ends of said guide slots determining the upper unlocking position of said lock bar.

6. A cabinet construction comprising in combination:

a cabinet frame;

a plurality of drawers;

a plurality of surface means fixed to said frame in a vertically spaced relationship for supporting said drawers relative to said frame in a vertically aligned relationship and for independent movement between drawer open and closed positions;

a plurality of latch dogs carried one by each of said drawers for vertical pivotal movements relative thereto, each of said latch dogs being supported for sliding movement in engagement with its drawer associated surface means during opening and closing movements of its drawer and having a downwardly opening slot positionable rearwardly of its drawer associated surface means only when its drawer is in fully closed position;

a lock bar carried by said frame for vertical reciprocating movements, said lock bar defining a plurality of abutments spaced vertically therealong at distances corresponding to the distances between said surface means; and

operating means for selectively moving said lock bar between an upper locked position wherein said abutments are raised above said surface means to insert said abutments within said latch dog slots to lock said drawers in fully closed position and a lower unlocked position wherein said abutments are moved downwardly from within said latch dog slots and said latch dogs are supported by said surface means for sliding movement as aforesaid.

7. A cabinet construction according to claim **6**, wherein said frame includes a vertically rising frame leg, each of said surface means includes a case channel having at least a vertically extending mounting flange and a horizontally disposed flange portion for supporting an associated drawer and its latch dog during opening and closing movements of said drawer, and said case channels and said lock bar are fixed to said frame leg by an assembly including a plurality of vertically rising guide slots formed in said lock bar in a predetermined relationship to said abutments, a mounting opening formed in each said vertically extending

mounting flange adjacent a rearwardly extending end thereof in pre-determined relationship to an associated horizontally disposed flange portion, a plurality of threaded studs extending horizontally from said frame leg in a pre-determined vertically spaced relationship, and headed lock nuts provided one in association with each said stud and having reduced diameter shank portions dimensioned to be slideably received within said guide slots, said studs being received one within each of said mounting openings and the shank portion of an associated stud mounted lock nut passing through one of said guide slots and clamping the vertically extending mounting flange to said frame leg.

* * * * *