Nov. 8, 1966 O. LEWIN 3,284,149

LOCKING ARRANGEMENT FOR MULTIPLE DRAWER CABINETS AND THE LIKE

Filed April 23, 1965 2 Sheets-Sheet 1

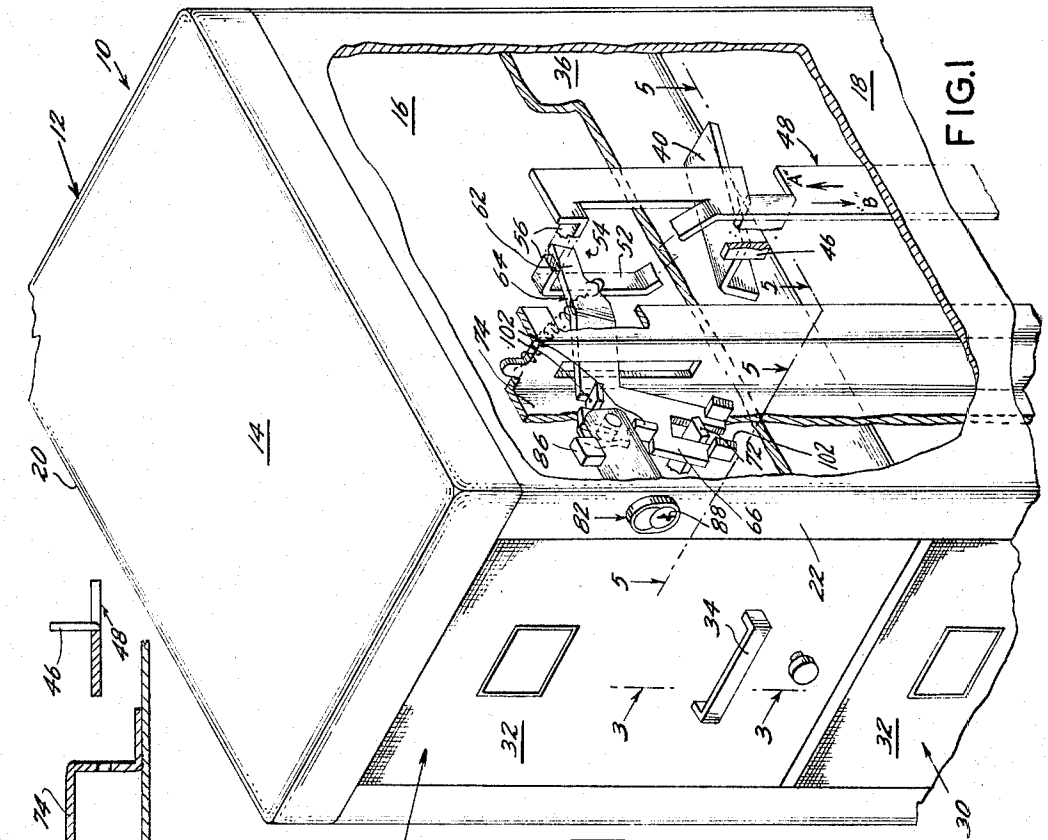


FIG. 1

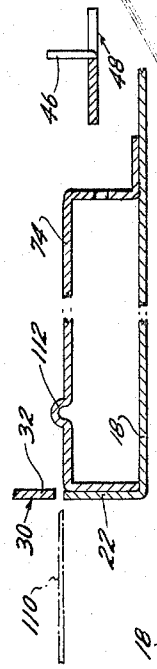


FIG. 5

FIG. 2

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FIG. 4

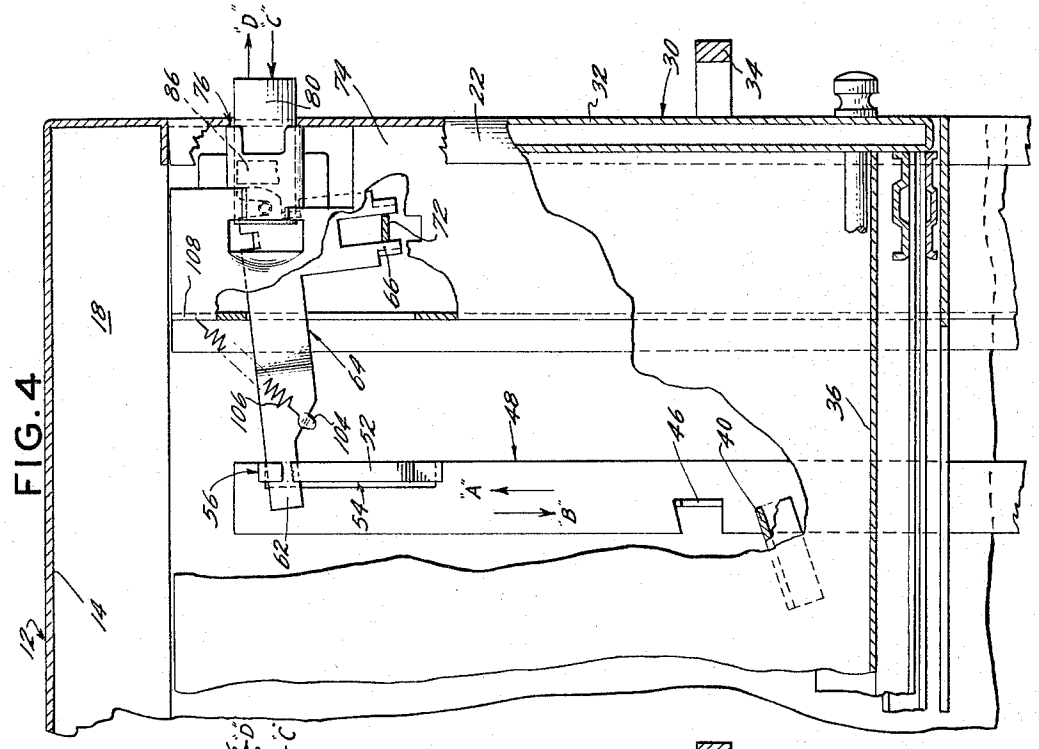
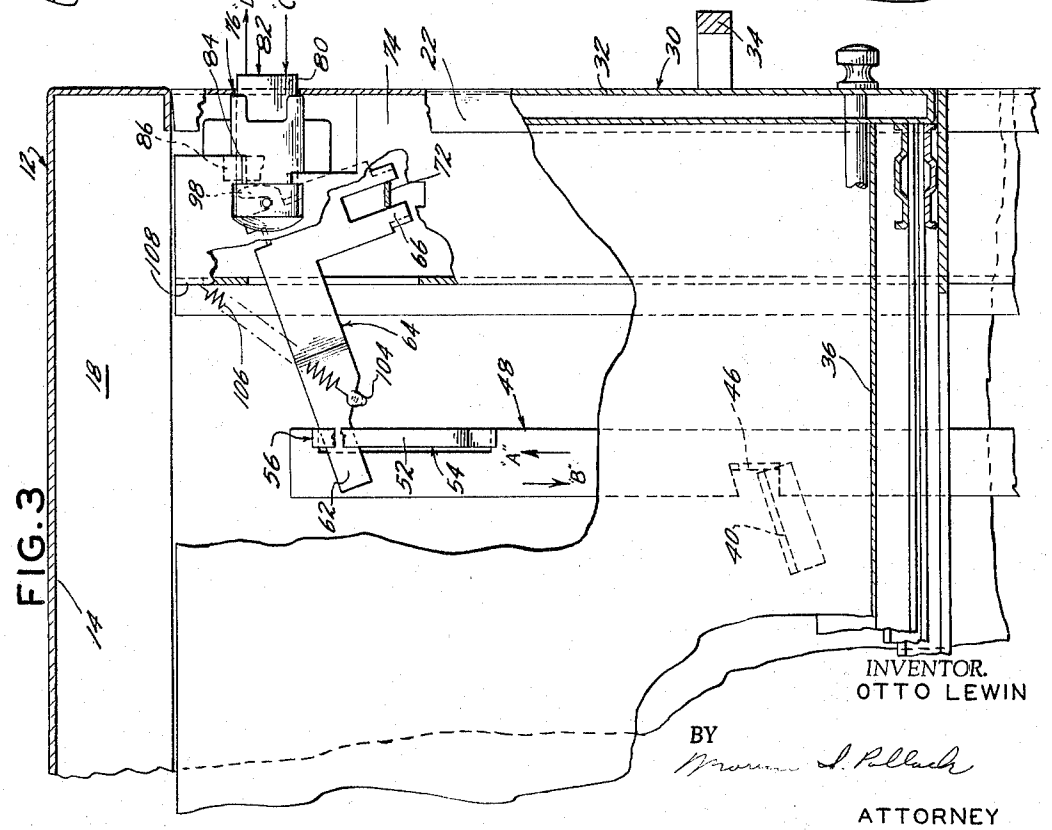


FIG. 3



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LOCKING ARRANGEMENT FOR MULTIPLE DRAWER CABINETS AND THE LIKE

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16 Claims. (Cl. 312—218)

This invention relates to cabinets and more particularly to a locking arrangement for multiple drawer cabinets.

Multiple drawer cabinets, such as those commonly used for filing or as pedestals for desks, are often provided with a mechanism to lock the drawers thereof against being opened by unauthorized personnel. Such locking mechanisms quite often take the form of a bar or slide disposed for rectilinear sliding movement, along either the sides, back, or top of the cabinet, and in response to the actuation of a key controlled lock, slidably disposed in the cabinet, and interconnected with the bar or slide by suitable connecting means.

In conventional cabinet constructions the great majority of the cabinet space is devoted to the drawers and the suspension mechanism therefor and the area remaining, in which the locking mechanism must be disposed, is considerably small and almost invariably closely disposed to either the sides, top, or the rear walls of the cabinet. Such confined spacing has a considerable effect on the time required to assemble the locking mechanism into the cabinet and thus reflects heavily in the cost thereof.

It has become common practice, in assembling a locking mechanism into cabinets, to secure some or all of the pieces thereof into the cabinet by the use of intermediate connecting devices, such as, screws, bolts, rivets, etc. and to also interconnect the various elements of the locking mechanism in the same manner. However, due to the confined area wherein the locking mechanism is to be installed, the alignment of the elements to facilitate the installation thereof in the cabinet and the interconnection of one with the other by the use of such intermediate connecting devices is a tedious, cumbersome, time-consuming and expensive task.

It is therefore an object of this invention to provide an improved mechanism for securing one or more of a plurality of movable members against movement.

It is a further object to provide an improved locking arrangement for a cabinet and the like and especially a multiple drawer cabinet.

A still further object is to provide a locking arrangement for a multiple drawer cabinet wherein the elements of the locking mechanism are interconnected without the use of intermediate connecting devices such as screws, bolts, rivets, etc. to facilitate the ready interconnection thereof and installation within the cabinet.

Another object is to provide a locking arrangement for a multiple drawer cabinet wherein safety features are provided to prevent release of the locking mechanism by unauthorized personnel.

This invention involves multiple drawer cabinets of the type used for filing, and of the type used as pedestals for desks, wherein a locking bar is mounted closely adjacent one of the inner walls of the cabinet for longitudinal rectilinear movement, between a position coacting with stops provided on the drawers to prevent movement of

the drawers from within the confines of the cabinet and a position removed from the path of movement of the drawer stops to permit movement of the drawers from within the confines of the cabinet, such longitudinal rectilinear movement of the locking bar in turn being effected by linear movement of a rotary barrel type lock between an unlocked and a locked position, and through the intermediary of a member interconnecting the lock and locking bar and adapted to transmit the linear motion of the lock to the locking bar; and contemplates mounting the lock and the connecting member and interconnecting the lock, locking bar and connecting member without the use of intermediate fastening devices, members or elements (such as screws, bolts, rivets, and the like) to thus facilitate rapid, efficient, and economic interconnection thereof.

In carrying out the invention, according to a preferred embodiment thereof, an inner wall of a multiple drawer cabinet has formed from the material thereof structure for receiving a lock, for guiding longitudinal rectilinear movement of the lock, for determining the extent of movement of the lock in one direction, and for coaction with the bolt of the lock to latch same in a locked position; as well as a fulcrum upon which a connector-actuator is pivotally mounted. The connector-actuator is formed with a portion facilitating the pivotal mounting thereof on the fulcrum, a hook disposed for coaction with a pin carried by the lock to interconnect the two, and an arm extending into an open sided channel formed in the material of a locking bar disposed in the cabinet for movement between raised and lowered positions. A spring acts on the connector-actuator to urge same in an appropriate direction to raise the locking bar and move the lock to an unlocked position.

Other objects, features, and advantages of the invention in its details of construction and arrangement of parts, will be seen from the above, from the following description of the preferred embodiment when considered in conjunction with the drawings, and from the appended claims.

In the drawings:

FIG. 1 is a fragmentary perspective view of a multiple drawer cabinet cut away in part to better show the details of a locking mechanism therefor embodying the present invention;

FIG. 2 is a fragmentary perspective view cut away in part of the construction of the inner forward right-hand wall of the cabinet of FIG. 1;

FIG. 3 is a fragmentary sectional view taken on line 3—3 of FIG. 1 showing the locking mechanism thereof in its actuated and locked condition;

FIG. 4 is a view similar to that of FIG. 3 but showing the locking mechanism thereof in its unactuated and unlocked condition; and

FIG. 5 is a partial fragmentary sectional view taken on line 5—5 of FIG. 1.

For convenience, the invention will be described as applied to a multiple drawer cabinet of the type commonly used for the filing of papers, documents, and the like, and usually referred to as a file cabinet; it being understood nevertheless that without departing from the scope of this invention that subject locking mechanism may be applied to a drawer cabinet of the type used as a pedestal for a desk or table or to any other cabinet

wherein there are one or more drawers movable from a position within the confines of the cabinet to a position exposed from the confines of the cabinet, and which are provided with locking mechanisms to secure such drawers against movement by unauthorized personnel or for that matter to any construction wherein there are one or more members which are to be secured against movement.

With reference to FIG. 1 there is shown generally at **10** a file cabinet of the kind commonly used for the purpose of storing papers, reports, and the like, consisting of a casing **12** formed with a top **14**, a rear wall **16**, a right-side wall **18**, a left-side wall **20**, and front frame **22**, and within which are slidably disposed drawers **30**, each including a front panel **32** supporting a drawer handle **34** and supported by a drawer body **36**.

Suitable suspension mechanism (not shown) is disposed within casing **12** to support each drawer **30** for movement between a position wherein front panels **32** of drawers **30** are in the same plane as front frame **22** of casing **12** to thus prevent access to whatever is stored in drawer body **36**, and a position wherein front panels **32** are removed from the plane of front frame **22** to permit access to whatever is disposed within drawer bodies **36** of drawers **30**.

A locking stop **40** (FIGS. 1 and 4) is fixedly disposed on each drawer body **36** of each drawer **30** for coaction with a locking ear **46** carried by a locking bar **48** suitably disposed in casing **12** for longitudinal sliding movement in the directions of arrows "A" and "B" (FIG. 1); it being understood that there are lock stops **40** and locking ears **46** for each drawer **30** of cabinet **10**.

A rib **52** (FIGS. 1, 3 and 4) is formed integral with and extending from lock bar **48** to form therewith a guide slot or channel **54** and a shelf **56** for coaction with an arm **62** of a connector-actuator **64** fulcrumed by forked legs **66** on a fulcrum lug **72** struck from an inner support wall **74** (FIGS. 1, 2 and 3) fixedly secured to right side wall **18** and front frame **22** of casing **12**.

A lock mounting and guide channel **76** (FIGS. 2 and 4) also formed from inner support wall **74** slidably receives the body **80** of a conventional key-controlled rotary barrel lock **82** for movement in the direction of arrows "C" and "D" between locked (FIG. 3) and unlocked (FIG. 4) positions.

A shoulder **84** (FIGS. 2 and 3) is formed on guide channel **76** for coaction with a bolt **86** (FIGS. 1 and 3) of lock **82** which is normally urged to an extended position by conventional means (not shown) and which may be withdrawn to a retracted position (FIG. 4) by rotation of a barrel **88** (FIG. 2) of lock **82** through the use of a suitable key (not shown). A stop **90** (FIG. 2), also struck from inner support wall **74**, determines the extent of movement of lock **82** in the direction of arrow "C" (FIG. 2).

A slot **94**, formed in lock **82**. is spanned by a pivot pin **96** (FIG. 2) adapted to receive a hook shaped pivot lip **98** (FIG. 3) formed on connector-actuator **64**.

A plurality of lugs **102** (FIG. 1) extend out from actuator **64** to space same from the inner surface of side wall **18** of casing **12** while an anchor lug **104** (FIGS. 3 and 4) also formed on connector-actuator **64** anchors one end of an actuator spring **106**, the other end of which is anchored to inner support wall **74** as at **108**. Spring **106** urges connector-actuator **64** in the clockwise direction (FIG. 4) about fulcrum lug **72** urging, through arm **62** of connector-actuator **64** and shelf **56** of locking bar **48**, locking bar **48** in the direction of arrow "A" and, through pivot lip **98** of connector-actuator **64** and pivot pin **96** of lock **82**, lock **82** in the direction of arrow "D."

To assemble lock **82** and connector-actuator **64** within cabinet **10** (lock bar **48** having been disposed therein in substantially conventional manner during the assembly of other parts of cabinet **10**) the assembler need only slide lock **82** into lock mounting and guide channel **76**;

place forked legs **66** of connector-actuator **64** upon fulcrum lug **72** of inner wall **74**; insert hook shaped pivot lip **98** of connector-actuator **64** in slot **94** of lock **82** and about pivot pin **96** thereof; place arm **62** of connector-actuator **64** in guide slot **54** of locking bar **48**; and anchor one end of spring **106** to anchor lug **104** of connector-actuator **64** and the other end of spring **106** to anchor lug **108** of inner support wall **74**.

It should be noted that due to manufacturing tolerances required in the fabrication of the parts for cabinet **10** that some space will exist between the periphery of front panel **32** of drawer **30** and front frame **22** of casing **12**, as more clearly shown in FIG. 5. To prevent insertion of a thin element such as the blade **110** of a knife (FIG. 5) by unauthorzied personnel there is formed in inner support wall **74** a plurality of spaced ribs **112**, **114** (FIGS. 2 and 5) such that when knife blade **110** is inserted between front panel **32** of drawer **30** and front frame **22** of casing **10** it will be deflected and thus impossible to insert same into a position to lift locking bar **48** from its locked position as shown (FIGS. 1 and 3).

It should be further noted that due to manufacturing tolerances or for other reasons it may be desirable to attach a spring (not shown) to locking bar **48** to urge same in the direction of arrow "B" to thus facilitate movement thereof to its locked position.

When cabinet **10** is in its locked condition the elements of the locking mechanism are disposed as shown in FIGS. 1 and 3: with lock **82** in its locked position with bolt **86** thereof latched behind shoulder **84** of lock mounting and guide channel **76** of inner support wall **74**; connector-actuator **64** in its actuated condition; and locking bar **48** lowered to its locking position with locking ears **46** thereof disposed in the paths of movement of locking stops **40** of drawers **30**, thus preventing movement of front panels **32** of drawers **30** from their positions in the plane of front frame **22** of casing **12**, and access to drawer bodies **36**.

To unlock cabinet **10** and permit opening of the drawers **30** thereof one need only insert an appropriate key (not shown) in barrel **88** of lock **82** and rotate same in the direction to withdraw bolt **86** of lock **82** to its retracted position (FIG. 4). Spring **106**, immediately upon retraction of bolt **86**, acts on connector-actuator **64** to rock same in the clockwise direction (FIGS. 3 and 4) about fulcrum lug **72** and through the coaction of hook shaped pivot lip **98** of connector-actuator **64** and pivot pin **96** of lock **82** to move lock **82** in the direction of arrow "D" (FIG. 2) from its locked position (FIG. 3) to its unlocked position (FIG. 4). As connector-actuator **64** rocks in the clockwise direction arm **62** thereof acts on shelf **56** of rib **52** to move locking bar **48** in the direction of arrow "A" (FIG. 1) from its lowered or locking position (FIG. 3) to its raised or unlocking position (FIG. 4) wherein locking ears **46** of locking bar **48** are removed from the paths of movement of locking stops **40** of drawers **30**, thus permitting movement of drawers **30** and of front panels **32** thereof from the plane of front panel **22** of casing **12**.

To lock cabinet **10** one need only apply suitable force against lock **82** to move same in the direction of arrow "C" (FIG. 2) until bolt **86** thereof is free of channel **76** and moved to its extended position (FIGS. 1 and 3) by appropriate mechanism (not shown) behind shoulder **84** of inner support wall **74**. The coaction between pivot pin **96** of lock **82** and pivot lip **98** of connector-actuator **64**, during movement of lock **82** in the direction of arrow "C," results in a counterclockwise rocking (FIGS. 3 and 4) of connector-actuator **64** about fulcrum lugs **72** and against the action of spring **106**. As arm **62** of rocking connector-actuator **64** moves away from shelf **56** of rib **52** of locking bar **48**, locking bar **48** moves in the direction of arrow "B" (FIG. 1) under force of gravity until blocking ears **46** of locking bar **48** are disposed in the paths of movement of locking stops **40** of

drawers 30 and movement of drawers 30, and of front panels 32 of drawers 30 from the plane of front frame 22 of casing 12 is prevented.

Should any drawer 30 be in a position with front panel 32 thereof out of the plane of front frame 22 of casing 12, when lock bar 48 is in its locking at lowered position (FIGS. 1 and 3) its locking stop 40 will not be located behind its respective locking ear 46 and movement thereof is possible. Movement of such a drawer 30 to place its front panel 32 in the plane of front frame 22 of casing 12 results in a coaction between its locking stop 40, which is disposed thereon in an inclined manner, and the appropriate locking ear 46 of locking bar 48 and a movement of locking bar 48 in the direction of arrow "A" (FIG. 1) until such locking stop 40 has moved past the path of travel of said locking ear 46 at which time, since arm 62 of connector-actuator 64 is still in its actuated (FIGS. 1 and 3) position, locking bar 48 again moves in the direction of arrow "B" (FIG. 1) until it assumes its locked position (FIGS. 1 and 3) with locking ears 46 in the paths of movement of locking stops 40 of drawers 30.

From the above description it will thus be seen thaat a novel and improved locking mechanism has been provided for securing one or more of a plurality of movable members against movement and is adapted for use in cabinets and the like and especially multiple drawer cabinet, which mechanism is inexpensive and simple in construction, requires a minimum of labor for installation, and does not require the use of intermediate connecting or attaching elements (such as bolts, screws, rivets, etc.) to enable installation and interconnection of the various elements of the locking mechanism.

It is understood that although I have shown the preferred form of my invention that various modifications may be made in the details thereof without departing from its spirit as comprehended by the following claims:

I claim:

1. A mechanism for simultaneously securing one or more of a plurality of movable members against movement; comprising

(a) securing means disposed for coaction with each member of the plurality of movable members and for movement between a first position securing one or more of the plurality of movable members against movement and a second position permitting movement of all of the plurality of movable members;

(b) lock means disposed for movement between a locked position and an unlocked position; and

(c) actuator means pivotally mounted upon suitable pivot means fixedly disposed with respect to said securing means, said lock means and said actuator means;

(d) said actuator means being interconnected to said lock means and said securing means without the use of intermediate elements by being formed with a hook engaged with a pin disposed on said lock means and by being formed with an arm engaged in a slot in said securing means, and interconnecting said lock means and such securing means so that movement of said lock means to said locked position effects a movement of said securing means to said first position, and so that movement of said lock means to said unlocked position effects a movement of said securing means to said second position.

2. The mechanism of claim 1: wherein said securing means is in the form of an elongated bar and has formed in spaced relationship thereon a plurality of extensions each of which is disposed for coaction with a different one of the plurality of movable members.

3. The mechanism of claim 2: wherein said elongated bar is disposed for vertical up and down movement and wherein movement from said first position to said second position is in the up direction.

4. The mechanism of claim 1: wherein

(a) latching means are provided to latch said lock means in said locked position; and

(b) unlatching means are provided to release said lock means.

5. The mechanism of claim 4: wherein

(a) said latching means is in the form of a bolt movable between an extended position cooperating with an appropriately disposed latching surface and a retracted position removed from said latching surface; and

(b) said unlatching means is in the form of a set of key actuated tumblers responsive to operation of a key to retract said bolt from said extended position.

6. A mechanism for simultaneously securing one or more of a plurality of movable members against movement: comprising

(a) an elongated locking bar adapted for coaction with the plurality of movable members, formed with a plurality of locking ears each of which is disposed on said locking bar for coaction with a different one of the movable members, and disposed for vertical up and down movement from a raised position with said locking ears permitting movement of all of the plurality of movable members to a lowered position with said locking ears preventing movement of one or more of the plurality of movable members;

(b) a key actuated rotary tumbler lock housed in a lock body disposed for horizontal back and forth movement between a locked position and an unlocked position and provided with a latching bolt normally urged to an extended position for cooperation with a shoulder disposed to restrain said bolt and thereby said lock body in said locked position and responsive to key activation of said tumblers for retraction to permit movement of said lock body to said unlocked position;

(c) a connector-actuator formed with a pair of spaced legs pivotally seated on an appropriately disposed fulcrum lug, with a curved lip hooked over a pin carried by said lock body, and with an actuator arm projecting between said elongated locking bar and a rib formed from said locking bar and spaced therefrom by a shelf; and

(d) an actuator spring coacting with said connector-actuator to urge same in a predetermined direction about said fulcrum lug engaging a surface of said curved lip with said lock body pin to thereby urge said lock body to said unlocked position, and engaging a surface of said actuator arm with said shelf of said locking bar to thereby urge said locking bar to said raised position;

(e) said lock body pin, during movement of said lock body from said unlocked to said locked position, engaging a surface of said curved lip of said connector-actuator to rock said connector-actuator about said fulcrum lug, and against the action of said actuator spring, to move said actuator arm away from said shelf of said locking bar and permit movement of said locking bar to said lowered position.

7. The mechanism of claim 6; including a locking bar spring acting on said locking bar to urge same towards said lowered position.

8. A locking arrangement for a cabinet having at least one closure disposed for movement between a position permitting access to the cabinet and a position obstructing access to the cabinet; comprising

(a) locking means disposed in the cabinet for movement between a first position coacting with the closure to lock the closure in its position obstructing access to the cabinet and a second position permitting movement of the closure to its position permitting access to the cabinet;

(b) lock means disposed in the cabinet for movement between an unlocked position and a locked position; and

(c) actuating means pivotally mounted upon suitable pivot means fixedly disposed in the cabinet;

(d) said actuating means being interconnected to both said lock means and said locking means without the use of intermediate connecting members by being formed with a hook engaged with a pin disposed on said lock means and by being formed with an arm engaged in a slot in said locking means, and responsive to movement of said lock means to effect a corresponding movement of said locking means.

9. A locking arrangement for a cabinet having at least one drawer disposed for movement between a position confined within the cabinet and a position exposed from the cabinet; comprising

(a) locking means disposed in the cabinet for movement between a first position coacting with the drawer to lock same in its position confined within the cabinet and a second position permitting movement of the drawer to its position exposed from the cabinet;

(b) lock means disposed in the cabinet for movement between an unlocked position and a locked position; and

(c) actuating means pivotally mounted upon suitable pivot means fixedly disposed in the cabinet;

(d) said actuating means being interconnected to both said lock means and said locking means without the use of intermediate connecting members by being formed with a pivot lip coacting with a pin carried by said lock means and by being formed with an arm coacting with the side walls of a slot formed in said locking means, and responsive to movement of said lock means to effect a corresponding movement of said locking means.

10. The locking arrangement of claim **9**; wherein

(a) there are a plurality of drawers;

(b) said drawers each carry a locking stop; and

(c) said locking means is in the form of a locking bar having a locking ear for each said locking stop;

(d) each of said ears in said first position of said locking means being disposed in the path of travel of its respective locking stop to prevent movement thereof and to thereby lock its respective drawer in its positions confined within the cabinet; and

(e) each of said locking ears in said second position of said locking means being removed from the path of travel of its respective locking stop to permit movement thereof and of said drawer from its position confined within the cabinet.

11. The locking arrangement of claim **10** wherein said locking stops and locking bar are disposed to permit movement of a drawer from its position exposed from the cabinet to its position confined within the cabinet even though said locking means is in said first position.

12. The locking arrangement of claim **9**; wherein

(a) said lock means includes a key operated set of tumblers carried by a lock body disposed for sliding movement in a lock housing formed as a unit with a member of the cabinet;

(b) said lock means including a bolt movable between extended and retracted positions;

(c) said lock housing in the unlocked position of said lock means preventing movement of said bolt to its extended position;

(d) said lock housing in the locked position of said lock means permitting movement of said bolt to its extended position; and

(e) a shoulder formed with said lock housing and coacting with said bolt in said extended position thereof to retain said lock means in the locked position.

13. The locking arrangement of claim **9**; wherein

(a) said pivot means fixedly disposed in the cabinet includes a fulcrum lug formed as a unit with a member of the cabinet; and

(b) a spring anchored at one of its ends to the cabinet and at the other of its ends to said actuating means biases said actuating means in a predetermined direction about said fulcrum lug to urge said lock means to said unlocked position thereof and said locking means to said second position thereof.

14. A locking arrangement for a file cabinet, or the like, having a substantially closed casing and a plurality of drawers each disposed in the casing for sliding movement between a position wherein a front wall of the drawer is in the plane of a front wall of the casing and access to the inside of the drawer is prevented, and a position wherein the front wall of the drawer is removed from the plane of the front wall of the casing and access to the inside of the drawer is not prevented; comprising

(a) a locking stop on each drawer;

(b) a locking bar, formed with a locking ear for each of said locking stops, mounted in the casing for reciprocatory movement between a locking position with each of said locking ears disposed to obstruct movement of its respective locking stop to thereby prevent movement of the associated drawer and of the drawer front thereof from the plane of the front wall of the casing, and a nonlocking position with each of said locking ears disposed so as not to obstruct movement of its respective locking stop to thereby permit movement of the associated drawer and of the drawer front thereof from the plane of the front wall of the casing;

(c) a lock mounted for reciprocatory movement through the front wall of the casing having a set of tumblers adapted for actuation by a key and a lock bolt normally urged to a locked position behind a ledge disposed in the casing and retractable from said locked position in response to key actuation of said set of tumblers;

(d) a stop disposed in the casing to determine the extent of reciprocatory movement of said lock in one of its directions of its reciprocatory movement;

(e) a lock bar actuator formed with a pair of spaced legs disposed to straddle a fulcrum lug formed in the casing, with a hook end hooked around a connecting pin carried by said lock body, and an actuator arm freely disposed in an open sided guide member formed on said locking bar and connected thereto at its ends; and

(f) an actuator spring anchored at one of its ends in the casing and at its other end to said lock bar actuator so as to urge said lock bar actuator about said fulcrum lug to engage said actuator arm thereof with an end of said guide member to thereby urge said locking bar to said nonlocking position and to urge said hook end of said actuator against said connecting pin to thereby urge said lock in the other direction of its reciprocatory movement; whereby

(g) upon actuation of said tumblers by a key said lock bolt is retracted and said actuator spring rocks said lock bar actuator about said fulcrum lug to move said hook end against said connecting pin and said lock in said other direction of its reciprocatory movement and to move said actuating arm against said end of said guide member to move said locking bar to said nonlocking position to thus place said locking ears so as not to obstruct movement of their respective locking stops and thereby permit movement of the drawers, and of the drawer fronts from the plane of the front wall of the casing; and

(h) upon movement of said lock in said one direction said connecting pin thereof engages said hooked end of said lock bar actuator to rock same about said fulcrum lug and against the action of said actuator spring moving said actuator arm thereof away from said end of said guide member to permit movement of said locking bar to said locking position with the locking ears thereof disposed to obstruct movement of the locking stops to thereby prevent movement

of the drawers and of the drawer front thereof from the plane of the front wall of the casing, the extent of movement of said lock in said one direction being determined by said lock stop and said lock being retained in said latter position by movement of said lock bolt behind said ledge on said casing.

15. The locking arrangement of claim **14** wherein said locking bar is disposed for movement to said locking position under the force of gravity.

16. The locking arrangement of claim **14** wherein a locking bar spring is disposed for coaction with said locking bar to move same to said locking position.

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