

Nov. 24, 1959

E. J. HENSCH ET AL

2,914,370

FILING CABINET WITH DOUBLE-ACTING DRAWERS

Filed May 23, 1958

5 Sheets-Sheet 1

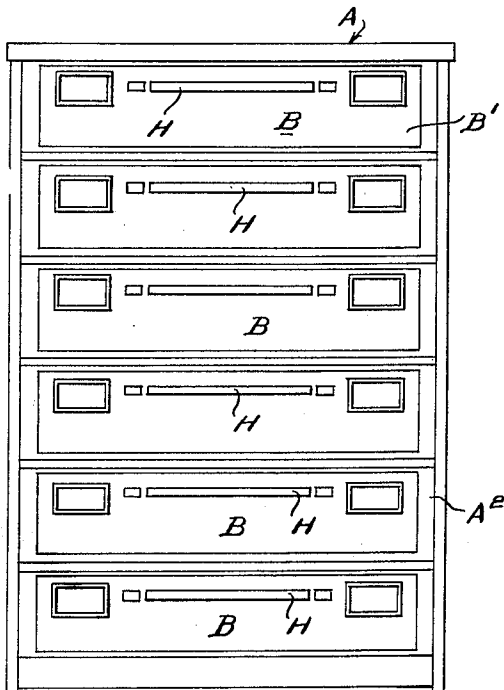


Fig. 1.

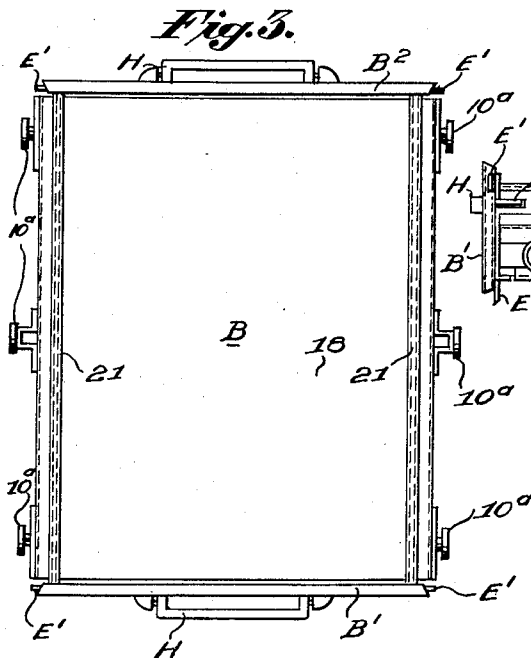


Fig. 3.

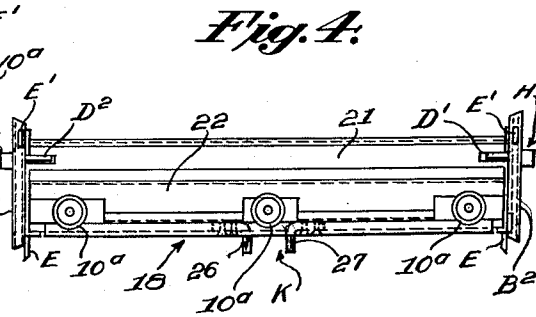


Fig. 4.

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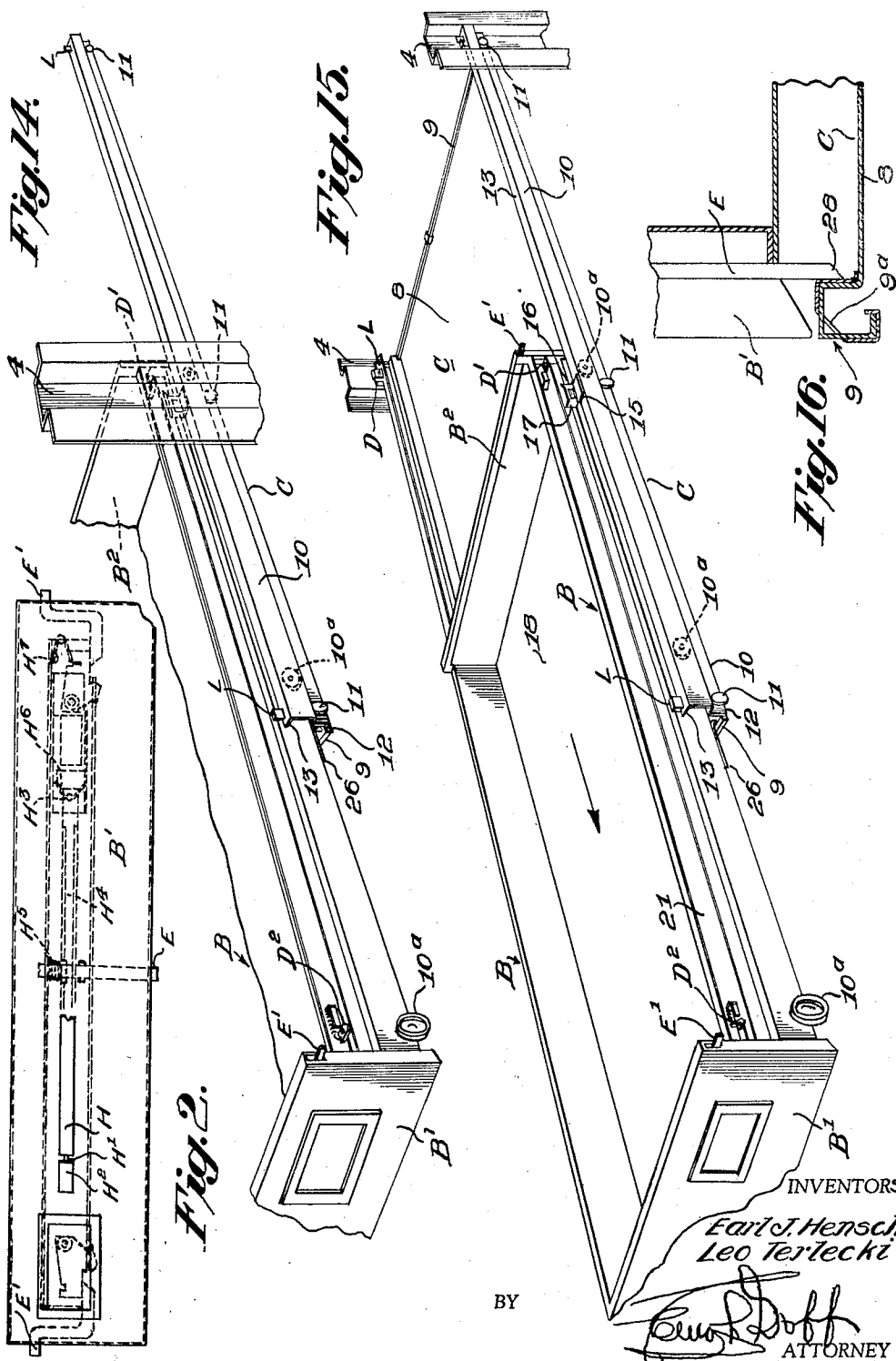
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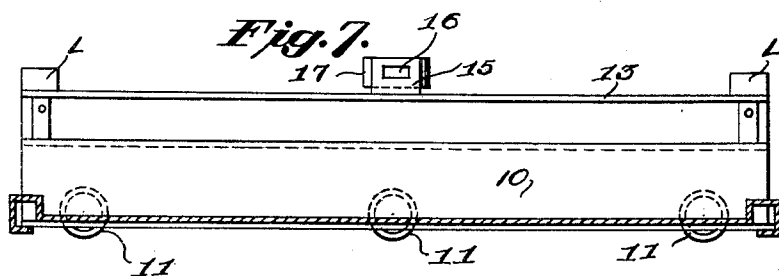
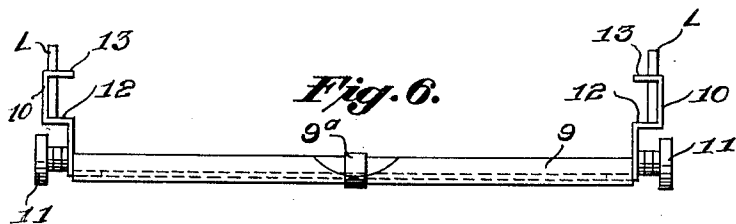
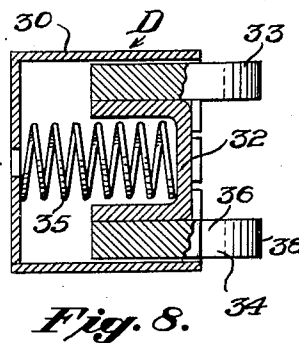
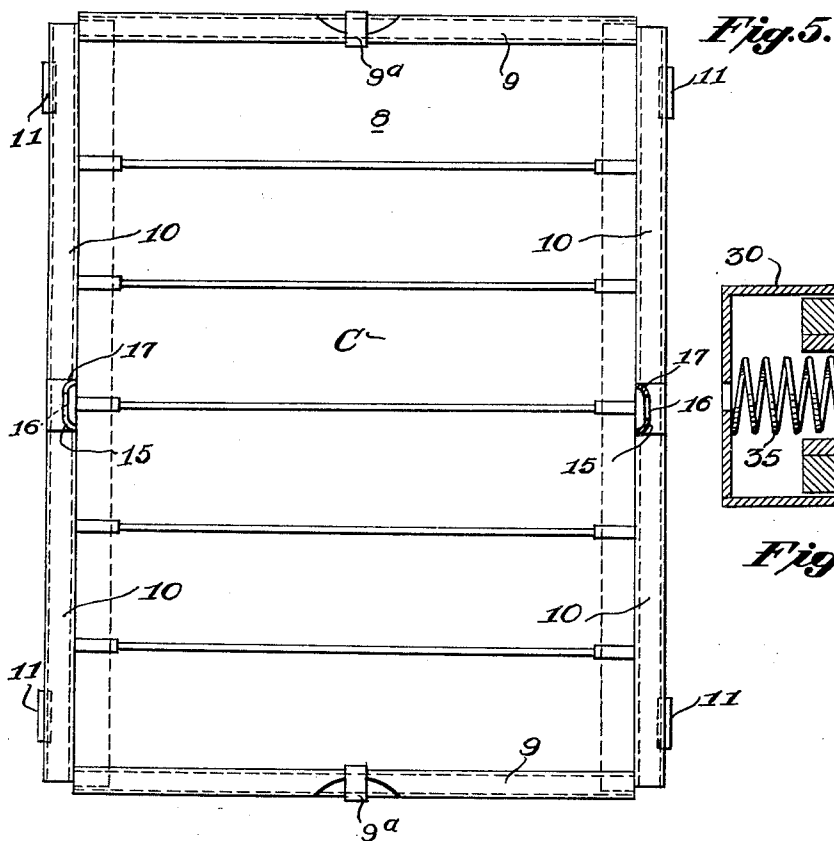
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Filed May 23, 1958

5 Sheets-Sheet 5

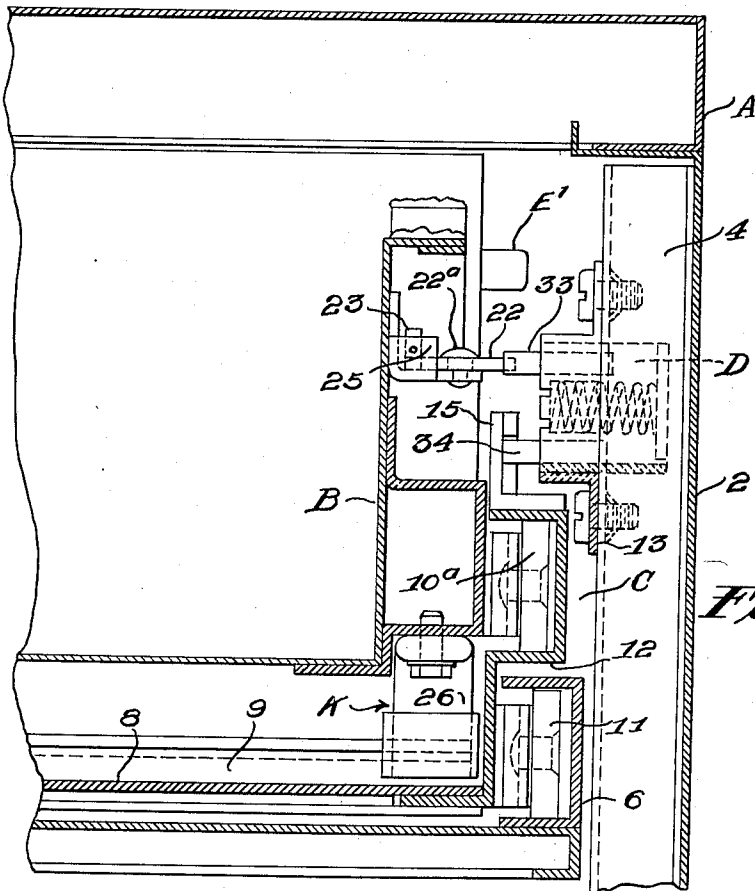


Fig. 11.

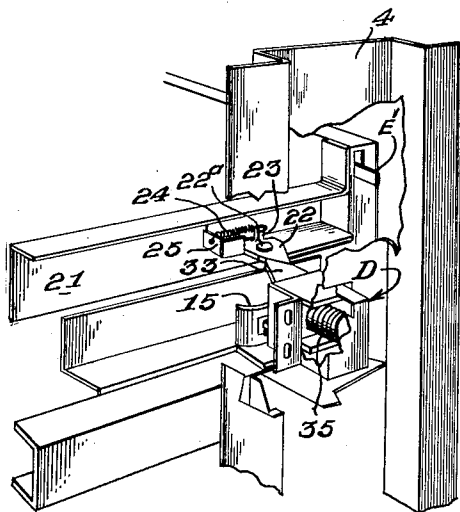


Fig. 12.

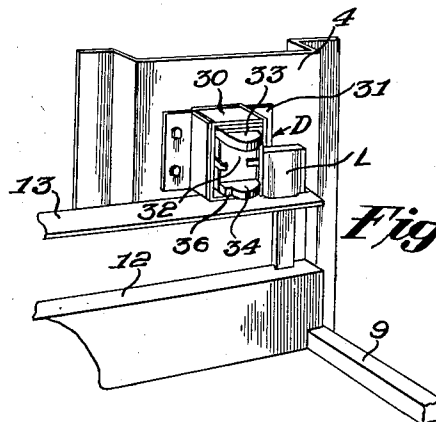


Fig. 13.

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FILING CABINET WITH DOUBLE-ACTING DRAWERS

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Application May 23, 1958, Serial No. 737,428

7 Claims. (Cl. 312—286)

This invention relates to double-acting drawers for filing cabinets having opposite front ends.

In a conventional card filing cabinet having a closed back and an open front, the drawers may be withdrawn only from one end, so that it is not convenient for more than one person to work at drawers on different levels in a cabinet at the same time. Moreover, cabinets of this type when set back to back to form aiseways take up an unnecessary amount of valuable floor space. On the other hand, cabinets with opposite fronts use such space economically and also greatly facilitate examination of the contents of drawers by office personnel.

Accordingly, a primary object of the invention is to provide a filing cabinet in which novel individual two-part drawer assemblies are mounted in stacked relation and operate in a simple, practical and reliable manner, to be readily and easily withdrawn from either front end of the cabinet so that persons can be examining papers of cards in drawers at either side of the cabinet.

Another object is to provide a novel drawer assembly wherein the cradle element thereof, as it moves progressively out of the drawer, supports the drawer as it moves to its outwardly extended position, and the cradle also provides simple and practical means to prevent both the drawer and cradle from being completely withdrawn from the cabinet.

A further object of the invention is to provide a unique latch unit located medially of the cabinet, for holding the cradle stationary until the drawer advances to a position substantially half-way out of the cabinet and then the drawer in its continued outward movement releases the cradle from the cabinet automatically by appropriate means located near the ends of the drawer.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is an elevation of one front end of a filing cabinet showing the drawers in closed position.

Figure 2 is an enlarged front elevational view of the drawer showing the locking bolt and detents in dotted lines.

Figure 3 is a top plan view of the drawer of Figure 2.

Figure 4 is a side elevation of the drawer in Figure 3.

Figure 5 is a top plan view of the cradle.

Figure 6 is a front elevation of the cradle.

Figure 7 is a side elevation of the cradle as shown in Figure 5.

Figure 8 is an enlarged detail sectional view of the latch unit.

Figure 9 is a detail diagrammatic view illustrating the drawer and its cradle withdrawn from one front end of the cabinet.

Figure 10 is a view similar to Figure 9 showing a

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drawer and its cradle pulled outwardly from the opposite front end of the cabinet.

Figure 11 is an enlarged vertical sectional view taken through the superimposed drawer and cradle and also illustrating the latch unit and the means carried by the drawer for actuating the latch unit to release it from the keeper on the cradle.

Figure 12 is a detail perspective view of a portion of the latch unit and the actuating means on the drawer in the form of a dog engaged with the upper actuating arm of the unit for the purpose of releasing the plate of the latch unit from the keeper on the drawer.

Figure 13 is a detail perspective view of the medial upright on the inside of the cabinet showing the latch unit supported thereon and with the cradle moved to its outward limit and arrested by the stud on the cradle engaging with one side wall of the casing of the latch unit.

Figure 14 is a diagrammatic perspective view illustrating relative position of the drawer and cradle substantially at the point where the dog on the drawer engages the upper actuating arm of the latch unit.

Figure 15 is a view similar to Figure 14 showing the relative position of the drawer and the cradle after the latter has been unlocked from the latch unit and with one of the limiting stop lugs on the cradle engaging with the side of the casing of the latch unit as shown in Figure 13.

Figure 16 is a detail sectional view showing a portion of the superimposed drawer and cradle unit with a vertically movable bolt of the drawer head engaging behind the inner face of one of the end walls of the cradle.

Similar reference characters designate corresponding parts in the several figures of the drawings.

GENERAL DESCRIPTION

As will be seen from the drawings, the invention includes in its organization a cabinet A provided with opposite front end panels A² and A³ and having therein drawer assemblies designated generally as B and each including opposite drawer heads B¹ and B².

The said drawer assemblies include the drawer proper B for receiving cards or the like, said drawers being slidably mounted on cradles C, which in turn are slidable in the cabinet. As shown, the drawer assemblies are disposed at different levels in the cabinet, and each drawer is capable of being pulled out of either front end of the cabinet.

When the drawer is in closed position, it is superimposed on the cradle in substantially registering relation therewith and the cradle is held immovable by a latch unit D fixed medially on an inner wall of the cabinet.

To release the cradle for ultimate sliding movement after the drawer has been pulled approximately half-way out of the cabinet, the latch unit D is actuated by a dog at the end of the drawer opposite the direction of the drawer movement. Thus, since a drawer can move out either end of the cabinet, dogs D¹ and D² are provided near the end of each drawer.

The cradle in its progressive movement into and out of the cabinet supports the drawer and its contents after the fashion of a roller bearing suspension.

Also, when the drawer and the cradle are in superimposed closed position within the cabinet, they are locked together and the drawer head at each end of the drawer is also locked to the cabinet.

That is to say, each of the drawers is held releasably locked to the cradle C by vertically movable bolts E engaging with the front edge of the cradle as shown in Figure 16, and also each of the drawer heads B¹ and B² are locked in the cabinet A by the horizontally disposed detents E¹, E¹. The detents E¹, E¹ engage behind the hooks G (Figures 9 and 10) at the inner faces of the cabinet side walls 2.

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The bolts E and detents E¹, E¹, all mounted on the respective drawer heads, are spring biased to locking position and are simultaneously released by manually depressing a handle H.

Thus, assuming that the drawer assemblies B including cradle C are locked in the cabinet in superimposed registering relation, and the operator desires to inspect the contents of a selected drawer, it is only necessary to depress the handle H to elevate its related bolt E from interlocking engagement with the cradle and simultaneously withdraw the detents E¹, E¹ to clear the hooks G. The operator will then continue pulling the drawer B progressively out of the cabinet, when at about the half-way point (Figure 14), the dogs D¹ mounted on the drawer sides will release the cradle from latch units D, assuming for example, the drawer is moved to the left in Figures 9, 14 and 15.

As the drawer is pulled further out of the cabinet the coupling K on the drawer bottom will engage the related front wall of the cradle (Figures 9, 10) to draw both the cradle and the drawer out of the cabinet until the upstanding studs L on the trailing end of the cradle engage with a related abutting side of the latch unit D whose latch plate previously held the cradle locked in the cabinet (Figures 14 and 15).

When the drawer is pushed back into the cabinet that is toward the right, as shown in Figure 9 or towards the left as shown in Figure 10, its drawer heads B¹, B² are again locked flush with the related front end panels A², A³, respectively, of the cabinet by hooks G. It will be understood that when the drawer moves back into superimposed relation with the cradle, and the drawer heads B¹ and B² are flush with the opposite fronts, the detents E¹, E¹ on each drawer head will lock the drawer in the cabinet until one of the handles H is again depressed.

The cabinet

The cabinet may be of any appropriate construction, including the cross pieces 1 at the opposite front ends A² and A³ which connect parallel side walls 2, 2 each provided internally with vertical supporting channels 3, 4 and 5 at opposite inner faces of said walls.

Fixed to the inner opposite faces of the side walls 2 are opposite horizontally disposed and aligned guides 6 which support the cradle C for longitudinal movement into and out of the cabinet.

The hooks G which constitute the outer limit stops for the drawer are carried by inner face portions of the outer vertical channels 3 and 5 whose flanges are welded or otherwise secured to the sides of the cabinet.

DRAWER ASSEMBLY

The cradle

The drawer assembly includes the drawer proper B and the cradle C. Referring to Figures 5, 6 and 7, it will be seen that the cradle C includes a flat rectangular bottom 8, upstanding front and rear walls 9, and identical opposite side walls 10 of channel formation. The opposite end walls 9 of the cradle are parallel to each other and are each medially inclined upwardly as shown at 9a in Figures 5, 6 and 16, providing a strike plate having a ramp portion to permit the bevelled lower end of the bolt E to readily slide thereover when the cradle and drawer are moved to closed position within the cabinet.

Mounted along the lower outer faces of the channel type side walls 10 of the cradle C are a plurality of rollers 11, adapted to travel in the guides 6 on the sides of the cabinet.

The bottom horizontal flanges 12 of the channel-type side walls 10 are intended to support the rollers 10a rotatably mounted on the sides of the drawer B and the upper horizontal flanges 13 have limiting stop studs L located near their extreme outer ends and projecting up-

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wardly therefrom. A keeper plate 15 having a central opening 16 is mounted on the center portion of the flange 13, and while said center portion is of substantially L-shape in cross-section vertically, its upper portion having the opening is flanked on either side by inclined ramp faces 17, while its horizontal portion is welded or otherwise fixed to the flange 13.

The drawer; coupling for the drawer and cradle and latch releasing dogs

Referring to Figs. 2, 3 and 4, each drawer B comprises a bottom wall 18 and opposite front heads B¹ and B² and the side walls 21. The opposite front drawer heads are of identical construction and each carries the handle H, latch bolt E and detents E¹, E¹.

As previously indicated, the lower portion 22 of the side walls 21 carry the fixed rollers 10a which ride on flanges 12 of the cradle C.

Adjacent each end of both drawer side walls 21, there is provided on the outer face thereof, cradle release dogs D¹ and D² for actuating the cradle latch unit D (Figures 12, 14 and 15).

These cradle release dogs (Figure 12) comprise a horizontally disposed detent 22 mounted on pivot 22a and have an upstanding ear 23 attached by spring 24 to support 25 mounted on the drawer side which serves as an abutment for one edge of the detent 22. This arrangement permits the detent to swing or pivot in one direction only, since movement in the opposite direction is restricted by the rear corner of the detent 22 striking the adjacent edge of the support 25.

Beneath the drawer bottom 18 (Figures 4 and 11) there is attached a pair of coupling members 26, 27 located near the center of the drawer. Opposite sides of said coupling members are adapted to engage the inner edges of the opposite end walls 9 of the cradle, depending upon the direction of travel of the drawer, to thereby slidably carry the cradle with the drawer as the drawer is moved to its extended position.

MEANS FOR LOCKING THE DRAWER AND CRADLE IN THE CABINET

The front and rear drawer heads B¹ and B² are each provided with the handle H operatively connected through linkage mechanism means for controlling the locking and release of the drawer in the cabinet.

Said locking means consists generally of the vertically disposed locking bolt E located on the inner face of the drawer head and having an inclined lower edge 28 (Figure 16) and the horizontal locking detents E¹, E¹ projecting laterally from the upper side portions of the drawer head. The locking bolt E locks the drawer to the cradle by riding over incline 9a of the wall 9 to snap behind the same whereas detents E¹, E¹ lock the drawer in the cabinet by engaging stop hooks G.

The handle H on each drawer head is adapted to be moved downwardly to cause the vertical bolt E and the horizontal detents E¹, E¹, respectively, to be raised and withdrawn from locking engagement with their cooperating parts of the cradle and cabinet respectively. More specifically, the handle H has the oppositely disposed trunnions H' journaled in bearings H² on the front of the drawer head, and, also, has radial studs H³ which pass through the drawer head and engage bar H⁴ to move it upwardly as the handle is moved downwardly against the force of a coil spring H⁵ while at the same time elevating the vertical bolt E. The studs H³ in moving upwardly engage the cams H⁶ to retract the latches E' against the force of their biasing springs H⁷.

The cradle latch unit

The latch units D which are shown in detail in Figures 8 and 13, are mounted on each of the medial or center vertical channel members 4 within the cabinet. Said units each comprise a casing 30 having wings 31

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for securing the same to the channel members by welding or suitable fastenings.

A combined latch and actuating element including an intermediate member 32 has fixed thereto an upper actuating arm 33 and a lower latch plate 34 both of which are normally projected through openings in the outer wall of the casing by a spring 35 confined between the rear of the intermediate member and the rear wall of the casing. The actuating arm 33 has a substantially round nose to be engaged alternately edgewise by a related dog D¹ or D² respectively, adjacent drawer heads B² and B¹. The latch plate 34 has shoulders 36 formed thereon to provide solid abutment edges for engaging the sides of the eye 16. The latch plate 34 is formed with a beveled tip portion 38 which engages within the eye or opening 16 of the keeper 15 on the cradle when the drawer and cradle are interlocked by the shoulders 36.

When a drawer is in its fully closed position in the cabinet, the position of the various locking members is as follows:

The latch plate 34 is engaged in opening 16 of the keeper member 15 on the cradle and locks the cradle to the cabinet. The vertical bolts E carried by the drawer heads B¹ and B² are engaged behind the front and rear walls respectively of the cradle 9, and horizontal detents E¹, E¹ are locked in engagement behind the stop hooks G mounted on the sides of the cabinet. It will now be seen specifically how the drawer and cradle are securely locked in the cabinet against accidental opening.

CYCLE OF OPERATION

The cycle of operation will now be described with particular reference to Figures 9, 10, 14 and 15.

When it is desired to open a drawer to the left in Figure 9, the handle H is pressed downwardly, causing vertical locking bolt E to be raised and released from engagement with the cradle. Detents E¹, E¹, are also raised and released from engagement with the stop hooks G. As the drawer is pulled outwardly (to the left Fig. 14) approximately halfway of the cabinet, dogs D¹ mounted on the railing drawer side strike the upper actuating arms 33 of the latch unit, forcing the same inwardly thereby releasing lower latch member 34 from engagement with the eye 16 of keeper 15 mounted on the cradle C. Coupling member 26 carried by the drawer bottom 18 engages the related inner edge 9 of the cradle front and moves the cradle outwardly with the drawer.

The drawer B will continue its outward movement until stop lugs L on the trailing end of the cradle strike the related side wall of the latch units D (Figures 9 and 15), thus stopping further movement of the cradle, one-half of which has already moved out of the cabinet proper.

Thus, the drawer B may be extended so that it is fully outside of the cabinet and be rigidly supported by cradle C.

When the drawer B is moved inwardly sufficiently toward closed position, the vertical locking bolt E carried by the inner end of the drawer head B¹ (Figure 9) will first engage a strike plate including the ramp 9a of the cradle. Because of its roller mounting, the cradle will start moving inwardly with the drawer since the force required to move the roller supported cradle is comparatively small, and, the lower end of the spring biased bolt will not initially move up the ramp but will only snap behind wall 9 of the cradle when the movement of the latter is again arrested and held by latch unit D.

Dogs D¹ near the end of the drawer head B² will ride over actuating arm 33 without pushing it in since they are pivotally mounted to yield without overcoming force of spring 35. The cradle will continue to be carried by the locking bolt E on the drawer head B¹ until the ramp end of keeper 15 of the cradle strikes lower latch plate 34 of the latch unit and the latter rides into open-

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ing 16 and is locked therein. Vertical locking bolt E then rides up the incline 9a of the trailing edge 9 of the cradle and drops behind it to lock the drawer to the cradle. Horizontal detents E¹, E¹ on the edges of the drawer head B² will strike the vertical edges of hooks G to prevent the drawer from moving out of the other end of the cabinet, while the detents E¹, E¹ on drawer head B¹ will ride over the inclined edges of hooks G and lock behind them.

Thus one out-and-in movement of drawer assembly B—C and the drawer head B¹ is completed.

Movement of drawer assembly B—C and drawer head B² to the right as shown in Figure 10 will now be described.

It will now be seen that the drawer may be withdrawn from the front A² of the cabinet by depressing the handle H of drawer head B² to lift the related bolt E out of engagement with the front edge of the cradle C and also withdraw the detents E¹, E¹ from the hooks G.

Bearing in mind that the cradle C is interlocked with the latch unit D, it will remain stationary for a portion of the outward travel of the drawer B. As the drawer B proceeds to move to approximately its mid-point, the dog D² will trip the latch unit D to release the cradle and thereafter the continued movement of the cradle will, because of the coupling means 27 cause both the drawer and the cradle to continue moving outwardly until the stop lug L on the rear of the cradle engages with the abutment side of the latch unit D opposite the one engaged by the counterpart of L when the drawer is moved to the left.

When it is desired to close the drawer, its drawer head B² is pushed back into the cabinet and the stop lug L will move away from the latch unit and the dog D¹ will idly trail over the actuating arm 33 of the spring pressed latch unit D so that as the drawer and cradle continue to move inwardly, the keeper eye 16 on the cradle will again become engaged with the latch plate 34 and the drawer will move until its drawer head B¹ is flush with the front of the cabinet and the bolts E and detents E¹, E¹ are again in locked position.

We claim:

1. A filing cabinet, comprising, in combination, opposite front end panels, a drawer assembly including a drawer proper and a cradle interfitted for relative sliding movement, means for slidably mounting said assembly in the cabinet to enable the same to be moved selectively outwardly and inwardly relative to a front end panel, latch means rigidly mounted medially of the cabinet and spring biased to normal projected position, keeper means on the cradle releasably engaged with said latch means for locking the cradle relative to the drawer proper, pivoted dogs on the drawer near the ends thereof spring biased to movable position in one direction and held rigidly in the opposite direction for actuating said latch means during partial movement of the drawer in one direction and trailing over the same in the opposite direction, and stop means at each end of the cradle and alternately engageable with a portion of said latch means to determine the outward maximum movement of both the drawer and the cradle.

2. In a filing cabinet, the combination including, top, bottom and side walls and opposite front end panels, aligned tracks mounted on the inside of said side walls, a drawer assembly including a drawer proper and a cradle longitudinally slidable relative to each other and also slidable in said tracks, keeper means on the medial side walls of the cradle latch means spring biased to normal position and mounted on the inside medial face of said cabinet and having an actuating portion and a plate for releasably engaging said means to lock said cradle within the cabinet, a drawer head at each end of the drawer, a handle on each drawer head spring biased to normal position and means controlled by said handle for releasably locking said drawer and cradle in

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superimposed registering relation and also locking the drawer and cradle in said cabinet, means carried by said drawer for engaging with the actuating portion of said latch means to cause the plate portion thereof to release said cradle from engagement with said keeper means, coupling means also carried by said drawer and adapted to engage said cradle for extended sliding movement with said drawer, stop means at either end of said cradle for engagement with the plate portion of said latch means to restrict outward movement of the extended cradle and drawer in either direction.

3. In a filing cabinet the combination, including, top, bottom and side walls and opposite front end panels, oppositely disposed and horizontally aligned tracks mounted on the inside of said side walls, a drawer assembly including a drawer proper and a cradle mounted for sliding movement relative to each other and both the drawer and the cradle slidable in said tracks, latch units each spring biased to normal position and including a latch plate and an integral actuating arm, said units carried by the inner face of said side walls, stop means fixed to the outer end portions of the cradle for engaging a portion of said latch units to set the outward limit of movement of the drawer assembly, keeper means on the cradle intermediate said stop means for receiving said latch plate, opposite drawer heads for the drawer, drawer locking and release means thereon, means mounted on said drawer adjacent each end thereof for engaging the actuating arms of the latch units and manually operated cooperating means on the drawer and cabinet for releasably holding the drawer assembly interlocked with the front end panels.

4. In a filing cabinet according to claim 3, wherein the cradle has side walls of channel cross-section providing

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a valley flanked by upper and lower flanges, rollers carried by the lower flanges for traveling in said tracks, and rollers on the drawer proper riding in the valley of the channel type side walls.

5. In a filing cabinet according to claim 3, wherein the cradle comprises a bottom having upstanding opposite front walls, coupling means depending from the bottom of the drawer proper and adapted for engagement with the inner side of a related front wall of the cradle after the latter has been released from said latch unit.

6. In a filing cabinet according to claim 3, wherein the latch units each including a casing secured to a side wall of the cabinet and including an upper actuating arm and a lower latch plate connected by a web, and a spring confined between one side of the web and the inner face of the side of the casing attached to the cabinet.

7. In a filing cabinet according to claim 3, wherein, the means for engaging said actuating arm of the latch unit comprises dogs mounted on horizontal pivots carried by opposite sides of the drawer adjacent each drawer head, abutment means on the drawer at the outer sides of the dogs, and springs normally biasing said dogs against the abutment, whereby, the dogs will be rigid relative to the abutment in one direction of movement of the drawer to push the actuating arm and latch plate inwardly, and will yield on their pivots when the drawer is moving in the opposite direction.

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