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3,245,744

LATCH MECHANISM

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2 Sheets-Sheet 1

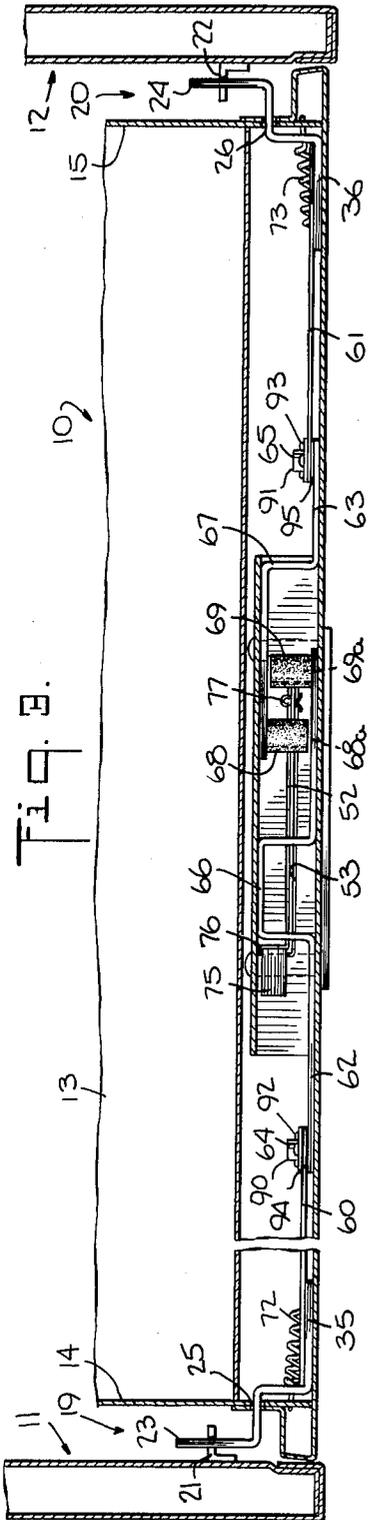


Fig. E.

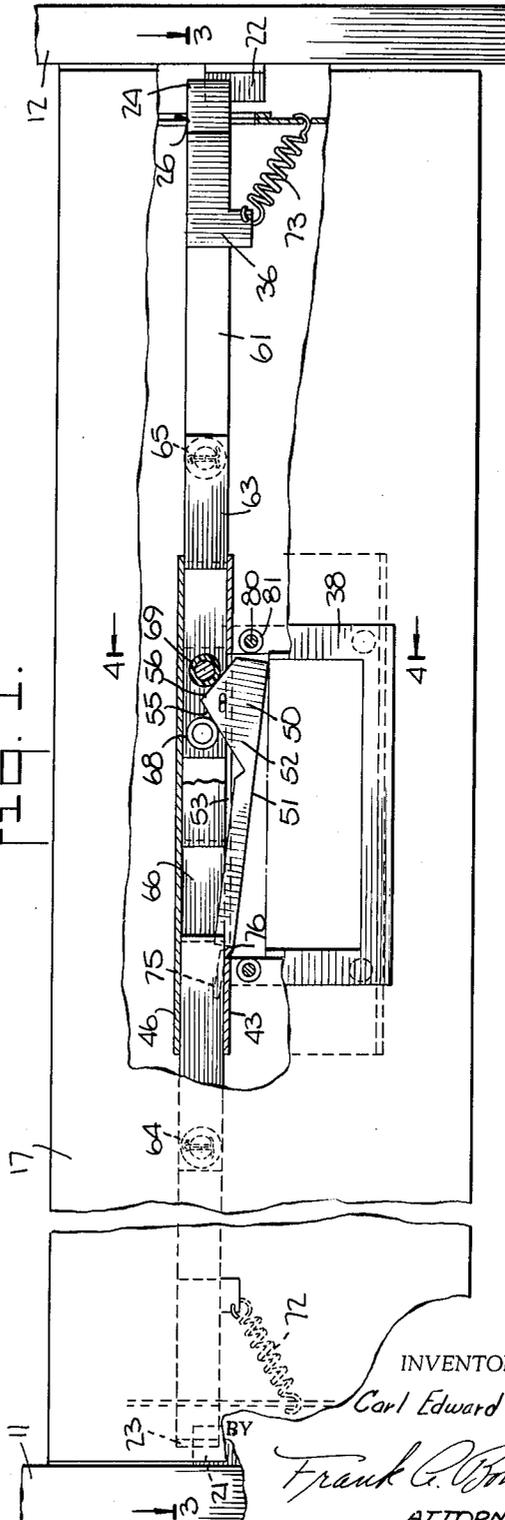


Fig. I.

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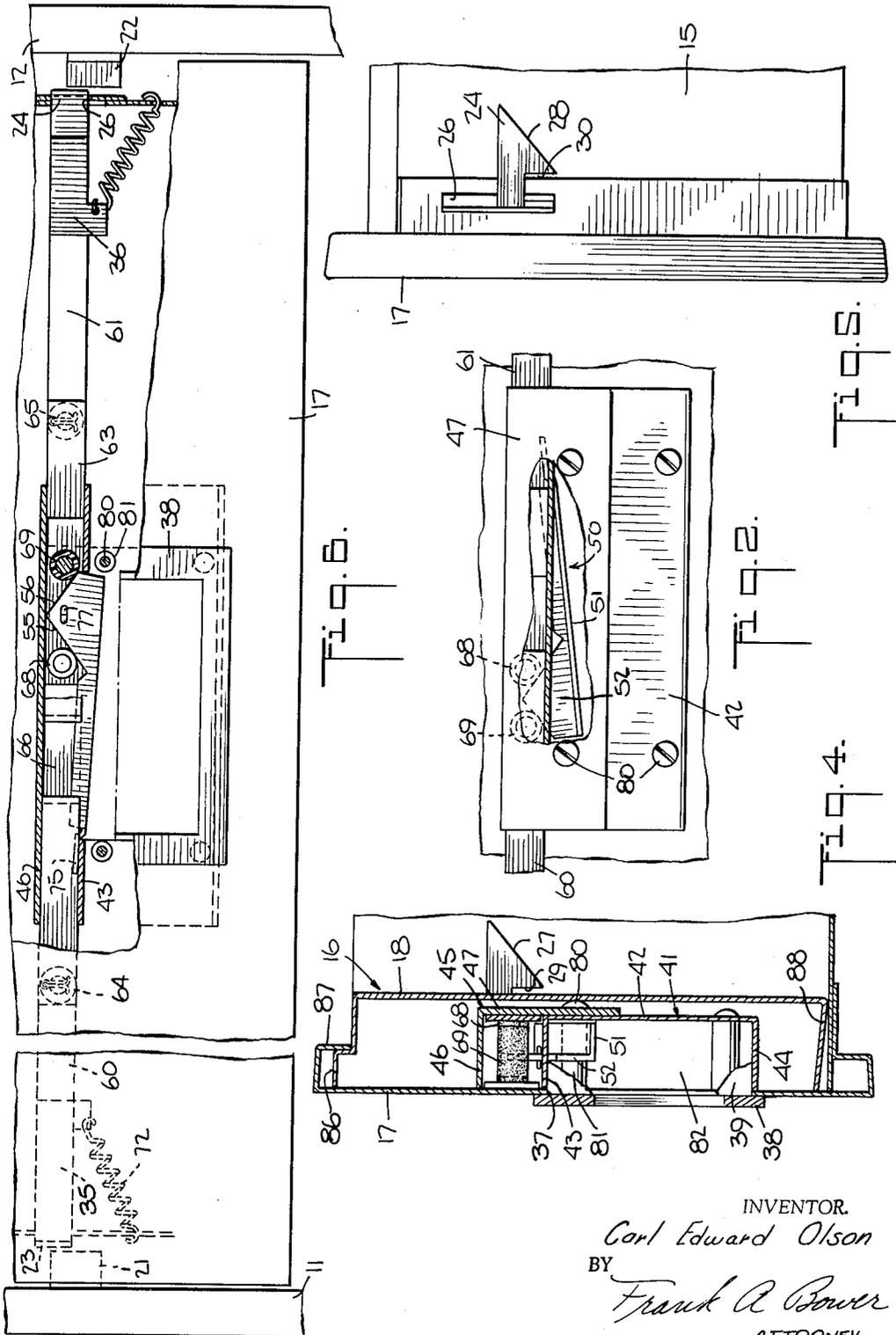
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2 Sheets-Sheet 2



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LATCH MECHANISM

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This invention relates to latch mechanism and is directed particularly to latch mechanisms having two catches on opposite sides of a drawer and an intermediately positioned unlocking means.

An object of the invention is to provide a latch mechanism that actuates oppositely positioned latches from an intermediate position at the same time that the locked means is opened.

Another object of the invention is to provide a latch mechanism for a file drawer with latches on opposite sides of the drawer and the actuating means intermediately positioned and operated at the same time that the drawer is opened.

Other and further objects will be apparent from the following description taken in connection with the drawings in which—

FIG. 1 is a front view of the latch mechanism in locking relation with the frame;

FIG. 2 is a fragmentary rear view of the latch mechanism with the back panel removed;

FIG. 3 is a sectional view of the drawer taken along lines 3-3 of FIG. 1;

FIG. 4 is a sectional view taken along lines 4-4 of FIG. 1 also illustrating one latch;

FIG. 5 is a side view of the drawer illustrating the other latch; and

FIG. 6 is a front view of the latch mechanism in an unlocked relation with the frame.

The invention is illustrated in connection with the drawer of a filing cabinet. The side walls 11, 12 of the frame are formed of pressed steel sheets assembled in a tubular arrangement. The drawer 10 is supported on these side walls 11 and 12 in any suitable manner for movement of the drawer in and out of the cabinet. As best illustrated in FIG. 3, the drawer 10 comprises a bottom 13 and side walls 14 and 15. A double front wall 16 extends between the side walls and has a front panel 17 and a back panel 18. The front panel 17 extends beyond the side walls 14 and 15 to close the spaces 19 and 20 formed between the side walls 11 and 14, and 12 and 15. The spaces 19 and 20 contain the supporting mechanism for the drawer 10. The spaces 19 and 20 also contain the projections or catches 21 and 22 mounted on the side walls 11 and 12, respectively, for engagement by the latches 23 and 24.

The front panel 17 has a rectangular opening 37 centered between the sides of the panel (FIGS. 1 and 4). An exterior frame 38 is mounted on the outside of the panel 17 extending around the opening 37. On the other side of the panel 17 is a U-shaped member 41 having a back plate 42 and horizontal flanges 43, 44 at right angles to the back plate 42 spacing the back plate 42 from the front panel 17. The frame 38 and the U-shaped piece 41 are fastened together by four bolts 80 threaded into cylindrical lugs 81 fastened to the frame 38 and extending through the panel 17. The bolts and lugs press the frame 38 against the front surface of the panel 17 and the edges of the flanges 43 and 44 against the rear surface of the panel 17. This forms a recess 82 closed on the top and bottom by the flanges 43 and 44 and in the rear by the back plate 42. The sides of the recess are closed by vertical flanges 39 and 40 extending inwardly from the sides of the frame 38.

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An L-shaped guide member 45 having a vertical portion 47 and a horizontal portion 46 is secured to the back plate 42 by means of the upper bolts 80. The horizontal portion 46 is spaced from the upper flange 43 to form a space for housing the members 62 and 63 actuating the latches 23 and 24.

The latches 23 and 24 extend through slots 25 and 26 (FIGS. 3 and 5) in the side walls 14 and 15 of the drawer. The latches 23 and 24 are attached to the levers 60 and 61 (FIGS. 1, 3 and 6) by portions 35 and 36 extending parallel to the front panel 17. These portions are guided in their movements by the panel. The levers 60 and 61 are connected to bars 62 and 63 by the pivotal means 64 and 65. The latches 23 and 24 have sloped ramps 27 and 28 which engage the projections 21 and 22 on the closing of the drawer to lift the catches by pivoting with the levers 60 and 61 about the connecting means 64 and 65. On the closing of the drawer the notches 29 and 30 on the latches 23 and 24 drop onto the projections or catches 21 and 22 to lock the drawer in a closed position.

The connecting bars 62 and 63 move horizontally and are guided in the horizontal movement by the front panel 17, the vertical portion 47 and by the horizontal piece 46 and the flange 43 defining the space 83. The connecting bar 62 has a U-shaped portion 66 which extends from the front panel 17 to the vertical piece 47, thus holding the actuating member horizontally. The connecting bar 63 has an L-shaped portion 67 extending along the vertical piece 47 to guide the connecting bar 63 horizontally. The connecting bars 62 and 63 overlap and have cylindrical pins or nylon bushings 68 and 69 fixedly mounted on the overlapping portion of the connecting bars 62 and 63 by studs 68a, 69a. The bushing 68 is on the opposite side of the bushing 69 from the latch 24 to which the bushing 68 is connected by the bar 63 and lever 61. The bushing 69 is on the opposite side of the bushing 68 from the latch 23 to which it is connected by the bar 62 and the lever 60. Thus a separating movement of the pins or bushings 68 and 69 will draw the latches 23 and 24 toward one another so as to disengage from the projections 21 and 22 respectively, thereby unlocking the drawer 10 from the cabinet. This opposite movement of the pins 68 and 69 is produced by the actuating member 50.

The actuating member 50 has a bottom strip 51 and a side 52 at right angles thereto. The side 52 extends through a slot 53 (FIG. 3) extending longitudinally and parallel to the panel 17 and intermediately positioned between the frame 38 and the back plate 42 so that the side 52 is approximately midway between the connecting bars 62 and 63. The side 52 has cam surfaces 55 and 56 sloped at opposite angles and fitting between the bushings 68 and 69 so that on upward movement of the cam surfaces the pins or bushings 68 and 69 will be forced in opposite directions (FIG. 6). The pins or bushings form a low frictional surface to the cam surfaces. The bottom strip 51 has an angular portion 75 fitting through a slot 76 at right angles to the slot 53 to form a hinge about which the member 50 vertically swings. A cotter pin 77 extends through the side 52 above the flange 43 so as to prevent the side 52 from dropping out of slot 53. The member 50 extends across the top of the recess 82. The frame 38 overlaps the opening 37 and the recess 82 to provide means for gripping the frame to pull the drawer out of the cabinet. The actuating member 50 is positioned back of the upper portion of the frame 38 so that as the fingers are inserted in the recess 82 to engage the back of the frame 38, the member 50 may be simultaneously moved upwardly to actuate the bushings 68 and 69 in opposite directions and thereby disengage the latches 23 and 24 so the drawer may be pulled out.

The back panel 18 covers the latch mechanism so

as to isolate it from the files and has a ledge 86 fitting in the L-shaped portion 87 and is pivotally swung so that the edge portion 88 bears against the bottom 13 to hold the panel 18 in place under a forced fit.

The latch mechanism may be easily assembled by mounting the actuating member 50 in the flange 43 and inserting the cotter pin 77. The connecting bars 62 and 63 may be set on top of the flange 43 and the L-shaped piece 45 positioned thereon. This assembly may be then secured to the front panel 17 by the bolts 80 threading into the lugs 81 on the frame 38. The levers 60 and 61 with the latches 23 and 24 welded thereto may then be attached to the connecting bars 62 and 63 by fitting the latches 23 and 24 through the openings 25 and 26 and fitting the levers 60 and 61 on the pins 90 and 91 formed as part of the connecting bars 62 and 63, and the cotter pins 92 and 93 inserted through openings therein. Nylon washers 94 and 95 may be provided between the levers 60 and 61 and the respective connecting bars 62 and 63.

It is thus seen from the foregoing description that a relatively simple latch mechanism converts the vertical movement of the actuating member 50 to a horizontal catch disengaging action on the gripping of the drawer. The action between the cam surfaces 55 and 56 and the nylon bushings 68 and 69 is substantially frictionless and the movement of the connecting bars 62 and 63 and levers 60 and 61 is horizontal so that the separating force is directly applied to shifting the latches 23 and 24 from disengagement from the catches 21 and 22.

I claim:

1. A latch mechanism for locking a file drawer having a front wall and slidably mounted in a filing cabinet having side walls with catches thereon comprising two horizontal bars having overlapping portions at the central portion of said front wall and having latches pivotally mounted on the opposite ends of said bars from the overlapping portions with notches for interlocking with said catches and pivoting to raise said latches on engagement with said catches on closing of the drawer, means on said front wall slideably supporting said bars to move horizontally, pins on said overlapping portions extending towards the other bar and spaced in the line of movement of said bars, an actuating member movably supported in a generally horizontal position by said supporting means and pivotally mounted to move vertically and having two oppositely sloped surfaces engaging said pins to actuate said bars in opposite directions on movement of said actuating member.

2. A latch mechanism as set forth in claim 1 wherein said front wall has an opening and said supporting means comprises a U-shaped piece extending horizontally with a portion above said opening and an L-shaped member attached to said wall and U-shaped member above said opening to form a channel reciprocally guiding said bars.

3. A latch mechanism as set forth in claim 2 wherein said U-shaped member has a slot and said actuating member has an angular portion fitting through the slot to pivotally support the actuating member and has a second slot longitudinal to the direction of movement of the bars, a portion of said actuating member extending through said slot and having said sloped surfaces engaging said pins.

4. A latch mechanism for locking a file drawer having a front wall and slideably mounted in a filing cabinet having side walls with catches thereon comprising two

bars having overlapping portions at the central portion of said front wall and having latches pivotally mounted on the opposite ends of said bars from the overlapping portions with notches for interlocking with said catches and pivoting to raise said latches on engagement with said catches on closing of the drawer, means on said front wall for slideably supporting said bars, pins on said overlapping portions extending towards the other bar and spaced in the line of movement of said bars, an actuating member movably supported in a generally parallel relation to the movement of said bars by said supporting means and pivotally mounted to move generally transversely to the movement of said bars and having two oppositely sloped surfaces engaging said pins to actuate said bars in opposite directions on movement of said actuating member.

5. A file drawer slideably fitting in a filing cabinet with side walls having catches and comprising a front wall having a rectangular opening centrally positioned, a U-shaped plate attached to said front wall with upper and lower sides normal to and attached to the wall and above and below the opening to form a recess in back of the front wall, an L-shaped plate attached to said front wall and U-shaped plate and having a side spaced above said upper side of the U-shaped plate to form a channel, two horizontal bars reciprocally supported by said plates in said channels and having overlapping portions in said channel with pins on a respective bar spaced in the line of movement thereof, said bars having latches pivotally mounted on the opposite ends of said bars from the overlapping portions for interlocking with said catches and pivoting to raise said latches on engagement with said catches on closing of the drawer, an L-shaped actuating member having one side horizontal and the other side vertical, said upper side of said U-shaped plate having an L-shaped slot with one leg extending in the direction of movement of the bars and the shorter leg extending normal to the front wall, said actuating member having a portion fitting in said transverse leg to pivotally support the actuating member and the vertical portion of said actuating member slideably fitting in said longitudinal slot to guide said actuating member, said actuating member having two oppositely sloped surfaces fitting between and engaging said pins to actuate said bars in opposite directions, said horizontal portion of said actuating member being positioned in the upper portion of the recess for engagement and actuation by a hand therein for removal of the file so as to unlock the latching mechanism on withdrawal of the drawer.

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