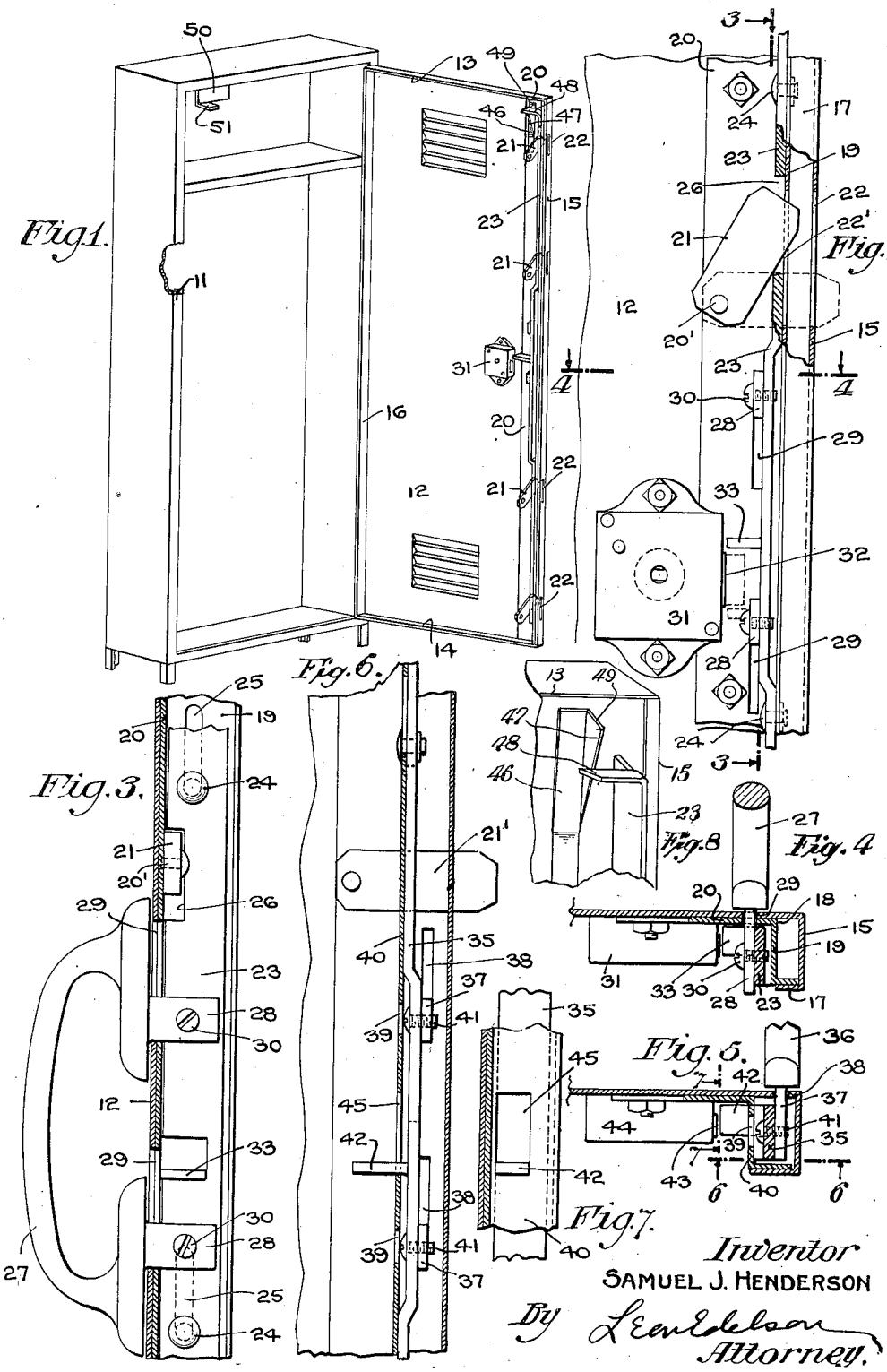
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CABINET DOOR LATCH

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CABINET DOOR LATCH

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This invention relates generally to door equipped cabinets, lockers and the like and more particularly to improvements in the design, construction and operation of the door locking mechanism.

Among the principal objects of the present invention is to provide a door locking mechanism which is simple in construction, inexpensive to manufacture, durable in use and which eliminates the necessity for employing upon the door frame separately mounted keepers for engaging the door latches to retain the door in closed position.

A further object of the invention is to provide a door locking mechanism wherein one or more pivotally mounted door latches are employed for engagement behind the inwardly turned vertically extending flange constituting one edge of the door frame, this flange being an integral part of the door-equipped locker.

A still further object of the invention is the provision of a stamped metal cabinet door in the free vertically extending edge of which is provided one or more pivoted latches having means associated therewith for effecting their movement into door-locking position, the said latch moving means being adapted to be locked in such position as to prevent the unauthorized opening of the door.

Still another object of the invention is the provision of a locking mechanism for stamped metal cabinet and locker door which is so mounted upon the vertically extending free edge of the door as to occupy a minimum amount of space and which may be provided with as many commonly actuated latches as is deemed necessary to adequately secure the door in locked position.

Other objects and advantages of the invention will appear more fully hereinafter.

The invention consists substantially in the combination, construction, location and relative arrangement of parts, all as shown in the accompanying drawing, as described in the following specification, and as finally pointed out in the appended claims. In the said accompanying drawing, which is merely illustrative of the general principles of the present invention:—

Figure 1 is a perspective view showing a stamped metal cabinet having a door equipped with the locking mechanism constructed in accordance with and embodying the principles of the present invention;

Figure 2 is an elevational view of the inner surface of the door showing a portion thereof as equipped with the door locking mechanism;

Figure 3 is a vertical sectional view taken on the line 3—3 of Figure 2;

Figure 4 is a transverse sectional view taken on the line 4—4 of Figure 2;

Figure 5 is a transverse sectional view of a modified form of the latch-equipped door taken on a line corresponding to the line 4—4 of Figure 2;

Figure 6 is a partial longitudinal sectional view taken on the line 6—6 of Figure 5;

Figure 7 is a partial longitudinal sectional view taken on the line 7—7 of Figure 5, and

Figure 8 is an enlarged view of the upper portion of the door showing the detent mechanism.

Referring now to the drawing and more particularly to Figures 1 to 4 thereof, it will be observed that the cabinet or locker 10 is of the usual construction wherein the door opening is defined by a perimetrically extending flange 11 lying substantially in the plane of the main panel of the door 12 when the latter is in its closed position. The door 12 is also provided along its top, bottom and vertical side edges with inturned flanges 13, 14, 15 and 16, the flanged edge 16 of the door being hinged to a vertical edge of the cabinet opening so as to adapt it to be swung into and out of closed position, it being observed that when the door is in its closed position the flange 15 at the free edge thereof projects interiorly of the cabinet beyond the plane of the cabinet flange 11.

As appears most clearly in Figure 4, the vertically extending flange 15 of the door is bent upon itself to provide a section 17 paralleling the door panel, there being secured to this vertical section 17, as by spot welding, riveting or the like, a vertically extending member 18 of Z-shaped cross-section whereby to provide in the free edge of the door a vertically extending hollow box section, the outer wall of which is the door flange 15 and the inner wall of which is the branch 19 of the Z-shaped member.

Pivotally secured, as at 20', to the branch 20 of the Z member are a plurality of vertically spaced latch elements 21, the free ends of which are each adapted for projection through alined elongated slots 22—22' respectively provided in the parallel members 15 and 19 in the free edge of the door, it being observed that each set of slots 22—22' is so arranged with respect to the corresponding pivoted latch element that when the latter is in horizontally extending position the free edge thereof projects freely through the slot 22 and beyond the plane of the door flange 15, this latter position of the latch element being

shown in broken lines in Figure 2. Also, it will be observed that the latch elements, which are each of flat form, are rotatable about their pivots in a plane spaced inwardly from and in parallelism with the body panel of the door 12, the arrangement being such that when the door is properly closed the latch elements are adapted to engage behind the flange 11 of the cabinet door opening. Thus, the latch elements are spaced from the body panel of the door a distance only slightly greater than the thickness of said flange 11.

Slidably secured upon the branch 19 of the Z-shaped member 18 is a vertically extending latch operating bar 23, this bar being provided with a plurality of vertically spaced pins 24 which are respectively projected through elongated slots 25 in the member 19 whereby to maintain the bar 23 flatwise against the surface of the member 19 and at the same time limit its permissible movement vertically with respect to the member 19. In Figures 1 and 2, the member 23 is shown in its uppermost position, whereas in Figure 3 it is shown in its lowermost position. The inner edge of the member 23 is provided with a plurality of vertically spaced notches 26 corresponding in number to the number of latch elements 21, it being observed, as is best shown in Figures 2 and 3, that the latch elements 21 are respectively embraced by the notches 26 of the operating member 23.

Secured to the operating member 23 is the door handle 27, the latter being provided with a pair of vertically spaced lugs 28 which respectively project through suitable elongated slots 29 provided in the door panel adjacent the free outer edge thereof, the lugs 28—28 being secured to the member 23 by screws 30 or the like. Suitably secured to the door 12 adjacent its free outer edge is a lock 31, preferably of the type having a sliding bolt 32, the lock being so arranged relatively to the latch-operating member 23 that when the lock is actuated its bolt 32 is projected into close proximity to the member 23, the latter being provided with a struck-out portion 33 which the lock bolt 32 is adapted to engage to prevent the vertical movement of the operating member 23 in either direction. Thus, when the operating member 23 is in its lowermost position, as shown in Figure 3, the projection 33 thereof is adapted to be engaged by the lock bolt 32 whereby to preclude the unauthorized return of the member 23 into its uppermost position. On the other hand, the lock 31 may be actuated to cause the bolt 32 thereof to engage beneath the projection 33 of the operating member 23 when the latter is in its uppermost position, thus insuring the retention of the member 23 in its uppermost position, as shown in Figure 2.

The operating member 23, of course, commonly actuates all of the latch elements 21, it being apparent that when the member 23 is shifted downwardly by its handle 27 the several latch elements 23 immediately assume horizontally extending positions with the free edges thereof projecting freely through and beyond the slots 22—22' for engagement behind the flange 11 of the door opening in the cabinet or locker, the latch elements being locked in their lowered positions upon projection of the lock bolt 32 into the path of and above the projection 33 of the member 23. In order to release the door from its locked position the lock 30 is actuated to withdraw its bolt 32 from the dotted line position shown in Figure 2, whereupon the member 23 is free to be shifted upwardly by its handle 27, thereby causing the latch elements 21 to be rotated out of their horizontal positions into the full-line position shown in Figures 1 and 2, the door being then free to be opened.

In Figures 5, 6 and 7 a somewhat modified form of construction is shown. In this modified arrangement, the vertically shiftable operating bar 35 for the latch elements 21' is enclosed within the hollow box section formed in the free edge of the door, the door handle 36 being secured to the operating member 35 in substantially the same manner as in the former instance. The lugs 37—37 of this handle project interiorly of the box-like section through the elongated slots 38—38 formed in the main panel of the door adjacent the free outer edge thereof, suitable apertures 39—39 being provided in the intermediate branch 40 of the Z-shaped member to afford access to the screws 41 which secure the handle lugs to the operating member 35. The operating member 35 as employed in the modified arrangement is substantially similar in all respects to the operating member 23 of Figures 1 to 4, inclusive, the member 35 being also provided with a laterally extending projection 42 for engagement with the sliding bolt 43 of the lock 44 and with spaced notches in one longitudinal edge thereof through which the several detents 21' are respectively projected. The branch 40 of the Z-shaped member is, of course, provided with an elongated opening 45 through which the projection 42 of the operating member projects, the slot 45 being of such length as not to interfere with the free movement of the operating member in either direction.

It will be apparent that in both of the forms of the invention as above described, the operating member for commonly actuating the vertically spaced latching detents may be retained in its raised position by the sliding bolt of the lock. However, if desired, the operating member may be retained in such raised position automatically and independently of the lock bolt by means of a spring-pressed detent 46 which is secured to the door adjacent the upper extremity of the operating member 23 (see Figure 1). This detent 46 is provided at one edge thereof with a triangularly-shaped side wall having an inclined edge 47 along which a lateral extension 48 of the operating member 23 is adapted to ride. As the latter member is raised in position, the upper lateral extension 48 thereof rides over and beyond the inclined edge 47 whereupon it is engaged by the upper horizontal edge 49 of the side wall of the spring-pressed detent, the operating member being thus suspended in raised position by the detent.

Upon closing the door, the spring-pressed detent is actuated by a releasing member 50 fixedly secured to the upper edge of the door opening whereby to automatically effect the lowering of the operating member 23. To this end, the releasing member 50 is provided with an outwardly projecting finger 51 which is so located relatively to the latch-operating member that as the door is closed, the finger engages the spring-pressed detent and causes the latter to become disengaged from the upper lateral extension 48 of the operating member, whereupon the latter, by its own weight, is free to shift downwardly into door-latching position.

From the foregoing, it will be apparent that the door locking mechanism of the present invention is principally characterized by the fact that the latching elements require no special or auxiliary seats or detents with which they are adapt-

ed to engage to maintain the door in closed position, the latching elements of the present invention being of such design and so located in the free edge of the door as to readily engage behind the inwardly turned flange 11 of the door opening.

What is claimed as new and useful is:

1. A cabinet lock assembly comprising, in combination, a support of Z-shaped cross-section, a plurality of vertically spaced latch elements pivotally secured upon one branch of said support, a vertically shiftable substantially flat member mounted upon the intermediate branch of said support in such manner that it is disposed in a plane normal to that of said latch elements, said member being provided with vertically spaced notches through which said latch elements respectively project, a handle fixed to and carried by said shiftable member for effecting the oscillation of said latch elements about their respective pivots in one direction or the other, a spring pressed detent carried by said first-mentioned branch of said support at a point adjacent the upper extremity thereof, and means formed as an integral part of said shiftable member for engaging said spring pressed detent to normally maintain the said shiftable member in raised position.

2. A cabinet lock assembly comprising, in combination, a support of angular cross-section, a plurality of vertically spaced latch elements pivotally secured to one branch of said angular support, the other branch of said support being provided with relatively spaced slots through which the free ends of said latch elements may project, a vertically shiftable substantially flat member mounted upon said second branch of said angular support, said shiftable member being disposed in a plane normal to that of said latch elements and being adapted to engage the same to shift them into either latching or unlatching position, a sliding-bolt lock fixed in position relatively to said angular support, and means fixed to and carried by said shiftable member for direct engagement by the bolt of said lock for locking the said member in either raised or lowered position.

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