

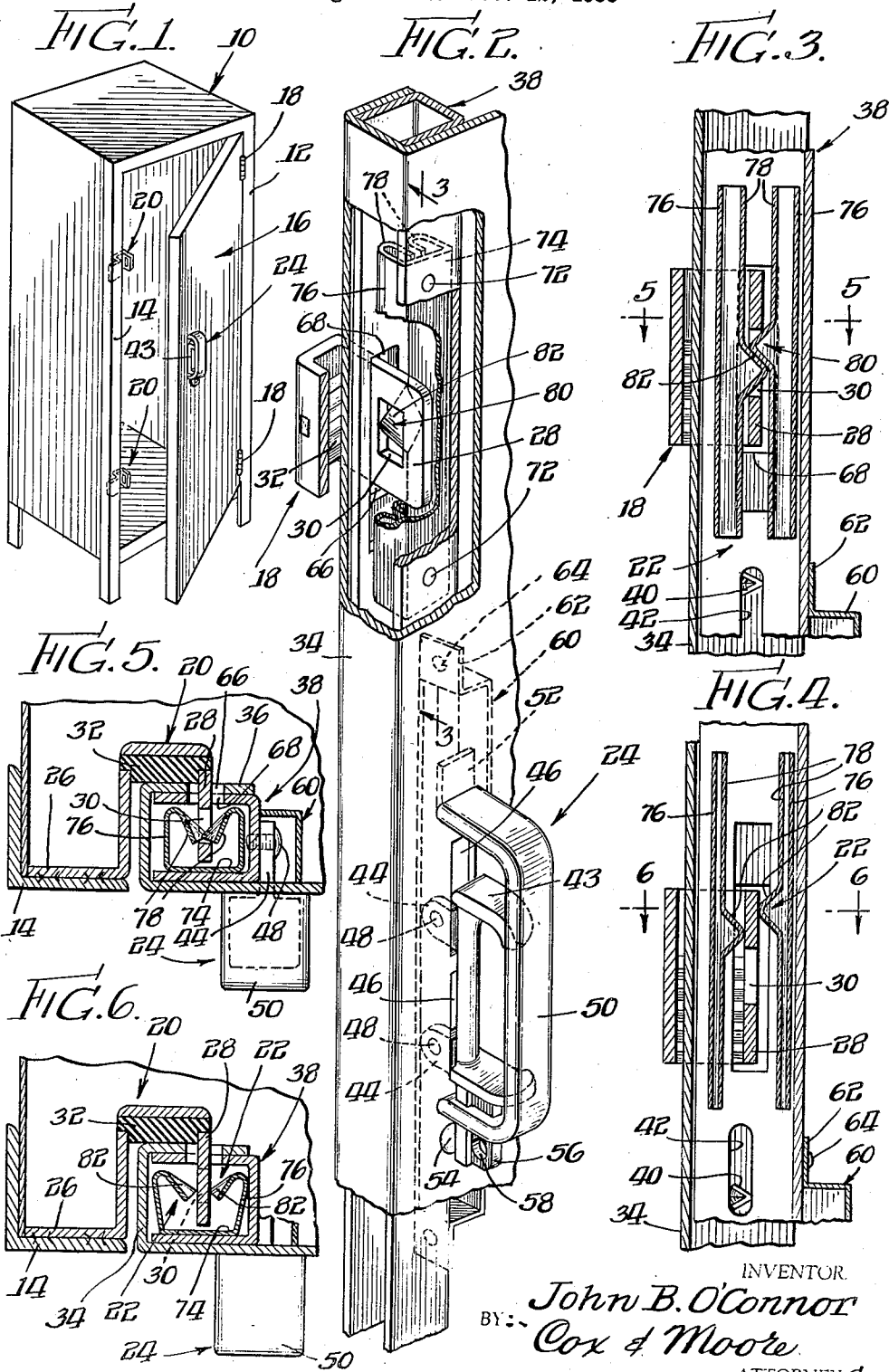
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LOCKING DEVICE

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LOCKING DEVICE

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The present invention relates in general to a locker construction, and more particularly to a locker latching construction for selectively latching a locker door.

5 It is an object of the present invention to provide a new and improved latching structure for lockers, which is adapted to engage a keeper to retain the door in closed position and which comprises a unitary latching element having opposed
10 resiliently mounted latch configurations adapted to engage the keeper from opposite sides.

Another object of the present invention is to provide a latching structure, as above, wherein the latching means are so configured as to positively engage the keeper against a relative door
15 opening movement, but which comprises inclined surfaces adapted to initially engage the keeper when the door is moved to closed position, which surfaces result from deforming a generally flat, resiliently arranged wall or flange at a predetermined point intermediate of its length.

A further object of the present invention is to provide a latch construction, as above, engageable with an apertured keeper but having inclined
25 surfaces arranged transversely of the plane of the keeper and adapted to coast with the edges of the aperture to retract the latch portions from keeper engaging position when the latch or keeper is moved relatively transversely.

30 It is a still further object of the present invention to provide an improved one-piece integral latch unit, substantially enclosed on three sides for protection against unauthorized tampering.

35 Among other objects of the present invention is to provide a relatively small, inexpensive latching unit adapted to occupy a relatively small space on the door of the locker, and thus adaptable for mounting in a marginal molding or the like upon the door, and to provide such a latching unit
40 which may be mounted on a selectively actuatable control bar for release by relative movement with respect to the keeper.

Numerous other objects and advantages will be apparent from a consideration of the following specification and drawing which disclose a device constructed in accordance with the principles of the present invention, and in which

50 Fig. 1 is a perspective view of a locker constructed in accordance with the present invention;

Fig. 2 is a detail perspective view of a portion of the free edge of the door of the locker shown in Fig. 1, portions being broken away to disclose the interior construction thereof;

Fig. 3 is a sectional view taken on the line 3—3 in Fig. 2;

Fig. 4 is a view the same as Fig. 3, but showing the position of the parts during initial interengagement between the latch and keeper;

Fig. 5 is a sectional view taken on the line 5—5 in Fig. 3; and

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 4.

Referring more particularly to the drawing 10 wherein the present invention is disclosed more in detail, Fig. 1 shows a general view of a locker 10, embodying the principles of the present invention. The locker has the usual top, side and rear walls and a front opening, defined in part
15 by the vertically extending angle members 12 and 14. The opening or doorway is closed by a door 16, hinged to the angle member 12, as at 18. The angle member 14, forming the opposite door jamb, is provided with a pair of lugs 20 which extend
20 forwardly into the space occupied by the door in closed position. As will appear hereinafter more in detail, the lugs 20 are adapted to be engaged by latching means mounted on shiftable control means 24 for selectively latching and unlatching
25 the locker door in accordance with the will of the operator.

The lugs 20 have a portion of generally U- or channel-shaped section when viewed from above, as indicated in Figs. 5 and 6, one of the arms
30 of the U-shaped portion terminating in a transversely projecting flange 26, which is welded or otherwise secured to the inner surface of the forward wall of the angle member 14. The other forwardly extending side arm 28 of each lug 20 is
35 recessed, as at 30 (Fig. 2), to provide a keeper portion or latch engaging portion.

Attention is directed to the fact that a buffer 32, of rubber or similar material, is supported in the U-shaped portion of the keeper lugs 20, as
40 clearly shown in Figs. 5 and 6, each buffer being held in position by a suitable adhesive or by projecting portions interengaging with apertures (not shown) in the lug. As will hereinafter appear more in detail, the buffers 32 are so arranged as
45 to be contacted by the edge portions of the door when this latter element is moved to closed position to absorb the impact thereof and properly position the door.

The locker door 16 in the present embodiment 50 is made of sheet material which, along the free side edge thereof, is turned inwardly to form a longitudinally inwardly extending flange 34. At a point substantially spaced from the outer surface of the door this flange is again turned in- 55

wardly to provide a flange 36 parallel with the plane of the outer surface of the door, but spaced therefrom. In the enclosure thus formed is mounted a channel member 38 which is shown in the figures of the drawing and extends longitudinally of the edge of the door with the base portion of the channel section occupying the otherwise open side of the recess and the sides of the channel section bearing against the inner faces of the door and the parallel flange 36. The channel member or control bar 38 is secured in place with respect to the door by means of projecting deformed portions 40 in the flange 36 which engage in suitable slots 42. Thus the instant structure, while providing a substantially complete tubular closure adjacent the margin of the door, provides a bar or channel member 38 which is adapted for vertical movement with respect to the door, which movement is limited by the predetermined longitudinal dimension of the slots 42.

In accordance with the present invention any equivalent means may be employed to constrain the channel member for controlled slidable movement adjacent the margin of the door.

It will be apparent from the above disclosure that the channel member will be maintained by the force of gravity in its lowermost position with respect to the door. Means is provided for manually shifting the control bar 38 to relatively elevated positions, and comprises a control handle 43 configured with manually engageable portions and having a pair of rearwardly extending flanges or projections 44. It will be noted that the handle 43 is mounted on the front face of the door 16, the projecting portion 44 extending through elongated slots or apertures 46 in the door and being rigidly secured to the channel member or control bar 38 by means of rivets 48. (See Figs. 2, 5 and 6.) A door handle 50 surmounts the control handle 43 and is rigidly mounted on the door 16 through the agency of a lug 52 and a machine screw 54.

The control handle may be manually engaged to lift the handle and correspondingly the control bar 38 upwardly for disengaging the latching mechanism, as will hereinafter appear more in detail, at which time the door may be opened by drawing upon the handle 50. A lug or projection 56, integral with the lower portion of the control handle 43, passes through a corresponding slot in the lower portion of the door handle 50 and is provided with an aperture 58 for accommodating a suitable padlock or any other conventional locking device (not shown). When such a locking device is engaged with the aperture 58 the control handle 43 will be retained in the lowermost position.

The elongated slots or apertures 46 accommodating the rearwardly projecting lugs 44 on the control handle are enclosed interiorly of the locker by means of the angle member 60. This angle member is of relatively elongated construction and accordingly forms an enclosure with the corner provided by the channel member 38 and the inner surface of the locker door, which is of sufficient extent to reside opposite the slotted apertures 46, regardless of any normally adjusted position of the control bar. The angle member 60 is, moreover, secured in the position shown through the agency of a flange portion 62, configured as shown in Fig. 2, and fastened to the base portion of the channel member 38 through the agency of fastening means 64.

The rearward door flange 36, as viewed in the

figures, as well as the adjacent wall of the control bar of the channel member 38, are apertured as at 66 and 68, respectively, to permit entry of the keeper and portions of the lugs 20 into the enclosure formed adjacent the margin of the door to permit engagement by the latching units 22, so that the keeper may enter freely at all times. Attention is directed to the fact that the aperture 68 in the channel member is of relatively considerable extent. Accordingly, when the door is in closed position the latch engaging portions of the lug are positioned interiorly of this enclosure.

The latching unit 22 is mounted on the vertically shiftable bar or channel member 38 through the agency of fastening means 72 (Fig. 2). The latching unit is made of a single integral piece of sheet stock bent in a generally symmetrical configuration to provide the central wall 74, which is the wall secured to the control bar 38, and rearwardly extending parallel walls 76 projecting rearwardly along the upstanding side edges of the central wall 74. The side walls 76 adjacent their rearward edges are bent reversely to form the inwardly extending walls or flanges 78. Attention is directed to the fact that these walls or flanges 78 are both vertically arranged in spaced relationship so as to accommodate the keeper therebetween when the door is moved to closed position. In other words the latching unit is mounted opposite the apertures 66 and 68, which permit entry of the keeper into the marginal enclosure.

The flange or wall sections 78 are, in accordance with the present invention, configured to interengage the keeper, and particularly the aperture 30 therein, for the purpose of selectively retaining the door in closed position, and to this end attention is directed to the fact that these wall portions are at an intermediate point along their length distorted oppositely inwardly, as at 80 (Figs. 2 to 6).

Referring more particularly to Figs. 2, 5 and 6, it will be seen that the inwardly distorted portions are so proportioned that they are of increasing depth or displacement with respect to the walls or flanges 78. In other words, in forming the distorted portions 80 the sheet material of the walls or flanges 78 is displaced out of the normal plane thereof a maximum distance adjacent the forward or free edges of the said flanges. These distorted edges, accordingly, provide locking edges projecting oppositely and adapted to engage behind the forward edge of the aperture 30 in the keeper, as clearly shown in Figs. 2 and 5. The inclined configuration of the distorted portions 80, in addition, provides inclined rearward surfaces adapted to initially contact the forward edge of the keeper when the door is moved to closed position.

It will be apparent from the foregoing that the control bar, and accordingly the latching unit, will normally be maintained in lowermost position by the force of gravity. When in this position, closing of the door will permit the keeper portions 28 of the lugs 20 to enter into the marginal enclosure through the apertures 66 and 68 and to pass between the walls or flanges 78 of the keeper unit. At this time the keeper and the inwardly deformed latching portions 80 will be located in the same horizontal plane as shown in Fig. 3, and accordingly the forward edge of the keeper will initially engage the inclined rearward surfaces of the latching portions and spread them apart, as shown in Fig. 6, so that the keeper

can pass therebetween. Ultimately, the door comes to rest with the aperture 30 opposite the deformed latching portions 89, which accordingly spring thereinto with their edge portions engaging behind the edge of the aperture 30 to securely latch the door.

The latching mechanism may be released by grasping the control handle 43 and manually actuating it upwardly in the slots 46, thus bodily shifting the control bar 38 and the latching unit 22. Attention is particularly directed to the fact that the relative shifting of the latching unit with respect to the keeper is permitted by the inclined upper surfaces 82 of the inwardly distorted or deformed latching portions. In other words, in spite of the fact that the keeper comprises an aperture, these inclined upper surfaces 82 resulting from the preferred distortion of the latching portions, when moved upwardly, first contact the upper edge of the aperture 30 and subsequently are shifted outwardly to the position shown in Figs. 4 and 6, in which position the interlocking engagement between the latch and keeper is released so that the door may be freely swung open.

The present invention provides a simple, inexpensive and efficient latching device which is extremely resistant to unauthorized tampering and fully enclosed and protected.

The present latch structure, moreover, adapts itself to use in enclosed marginal portions which may be associated with the conventional type of locker structure and which may be completely enclosed therein. To this end the novel arrangement available in accordance with the present invention permits the provision of latching means occupying a relatively small space, while resulting in a latching engagement in opposed directions so that unauthorized release of one of the latching members will not permit opening of the door.

While the above preferred embodiment discloses the formation of latching portions by configuring a resiliently supported wall or flange with a transversely extending deformed portion of increasing depth, the present invention is not so limited, but contemplates the provision of various other equivalent deformed latching portions wherein a latch engaging edge or projection is presented to the keeper, in combination with inclined keeper engaging surfaces.

This application is a division of my copending application, Serial No. 115,595, filed December 12, 1936, now Patent No. 2,195,223 issued March 26, 1940.

It is thought that the invention and numerous of its attendant advantages will be understood from the foregoing description, and it is obvious that numerous changes may be made in the form, construction and arrangement of the several parts without departing from the spirit or scope of the invention, or sacrificing any of its attendant advantages, the forms herein described being preferred embodiments for the purpose of illustrating the invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

1. In a locker, a latching unit adapted for engagement with a keeper and comprising opposed, spaced, resiliently arranged wall members extending longitudinally along the plane of the door and each wall member having an inwardly and reversely bent flange extending from a longitudinal side edge thereof, said flanges being provided

with transversely extending latching portions deformed inwardly from the plane thereof, said latching portions approaching closely together adjacent the free side edge of each of the flanges and providing laterally projecting free edges adapted to interengage with the keeper to lock the door.

2. In a locker, an integral latching unit adapted for engagement with a keeper and comprising opposed, longitudinally extending, spaced, resiliently arranged wall members having inwardly and reversely bent flanges extending from one longitudinal side edge thereof, said flanges terminating along the opposite side in a free, generally parallel side edge, said flanges being provided with transversely extending latching portions deformed out of the plane thereof, said latching portions being relatively inclined in said transverse direction and providing locking edges adapted to interengage with the keeper to lock the door.

3. In combination with a locker comprising a door and a doorway, a resiliently mounted wall member extending longitudinally of the door and extending generally rearwardly therefrom, said wall member terminating in a generally reversely extending flange, said flange being configured adjacent a predetermined point in its length by a deformed portion of the flange, displaced out of the normal plane thereof, said displaced portion extending to the forward edge of said flange and being adapted to provide a latching edge engageable with the keeper for latching the door.

4. In combination with a locker comprising a door and a doorway, a resiliently mounted wall member arranged adjacent the margin of the door and extending vertically with respect to the door and rearwardly therefrom, said wall member terminating in a generally reversely extending flange, said flange at one side edge, and adjacent a predetermined point in its length having a portion laterally displaced out of the normal plane thereof, said deformed portion extending to the edge of said flange and being adapted to provide a latching edge, and a keeper projecting forwardly into the plane of the doorway and being adapted to engage behind said edge of the deformed portion in operative position when the door is closed for interengaging therewith.

5. In combination with a locker comprising a door and doorway, a resilient wall member arranged with an axis thereof parallel to the plane of the door, said wall member projecting generally rearwardly of said plane and terminating at its rearward portion in a generally reversely and forwardly projecting flange, said flange providing adjacent a predetermined point in its length a deformed configuration comprising a portion of the flange displaced out of the normal plane thereof, said displaced portion extending to a point substantially adjacent the forward edge of the flange and terminating in a latching abutment engageable with a keeper for latching the door.

6. In combination with a locker comprising a door and doorway, a resilient wall member arranged with an axis thereof parallel to the plane of the door, said wall member projecting generally rearwardly of said plane and terminating at its rearward portion in a generally reversely and forwardly projecting flange, said flange providing adjacent a predetermined point in its length a deformed configuration comprising a portion of the flange displaced out of the normal plane thereof, said displaced portion extending to a point substantially adjacent the forward edge of

the flange and terminating in a latching abutment engageable with a keeper for latching the door, said deformed configuration tapering inwardly toward the normal plane of the flange in a direction rearwardly from said keeper engaging abutment.

7. In combination with a locker comprising a door and doorway, resilient wall members arranged with an axis thereof parallel to the plane of the door, said wall members projecting generally rearwardly of said plane and terminating at their rearward portions in generally reversely and forwardly projecting flanges, each of said flanges providing adjacent a predetermined point in its length a deformed configuration comprising a portion of the flange displaced out of the normal plane thereof, each of said displaced portions extending to a point substantially adjacent the forward edge of each flange and terminating in a latching abutment engageable with a keeper for latching the door, said deformed configuration extending into position for positively engaging a keeper.

8. A combination such as defined in claim 7, wherein said deformed configurations project laterally toward each other out of the planes of the respective flanges and extend in laterally overlapping relationship.

9. In combination with a locker comprising a door and a doorway, a flange having its longitudinal axis extending generally parallel to the plane of the door, said flange being resiliently mounted on the rear portion of the door and extending forwardly toward the said plane, said flange being provided adjacent a predetermined point in its length with a laterally deformed portion displaced out of the normal plane of said flange, said deformed portion extending forwardly to a point adjacent the forward edge of the flange and terminating in a laterally disposed abutment engageable with a keeper for latching the door.

10. In a latching device of the class described, a keeper, a pair of elongated supported latching members adapted oppositely to engage said keeper, latching projections occupying a limited portion only of the elongated members between their ends, said latching members being formed of metal that is inherently resilient and said members being resiliently separable to permit the passage of said keeper into locking contact with said members, and means to produce relative lateral displacement between the latching members and said keeper to prevent unrestrained movement of said keeper in a reverse direction.

11. A latching mechanism for a locker or the like comprising a pair of elongated members of inherently resilient metal mounted in spaced relation and provided with latching projections occupying a limited portion only of the elongated members between their ends, said members being resiliently and normally yieldable about similarly directed elongated axes into converging position whereby to engage a keeper inserted therebetween.

12. Latching mechanism for a locker or the like comprising a pair of spaced, generally parallel, elongated members formed of inherently

resilient material, fixed substantially adjacent their ends and provided intermediate of their ends with laterally extending latching portions of limited longitudinal extent, said latching portions being opposed and normally adjacent relatively and being resiliently separable whereby, upon the insertion of a keeper, said latching portions are adapted to separate and thereafter resiliently tend to converge into interlocking relationship therewith.

13. In combination, a keeper member having rearwardly facing, engaging shoulder means thereon, latch means engageable with said keeper and comprising spaced, elongated members formed intermediate their length with opposed, laterally extending, converging latching portions, means for supporting said elongated members for resiliently and oppositely engaging behind said shoulder means on the keeper, and means for shifting said latching portions out of registration with said keeper to release said keeper.

14. In combination, a keeper member having rearwardly facing, engaging shoulder means thereon, latch means engageable with the shoulder means of said keeper and comprising spaced members formed with opposed, laterally extending, converging latching portions, means to support said latching portions resiliently and oppositely to engage behind said shoulder means on the keeper, and means for relatively shifting said keeper and latching portions generally longitudinally of said shoulder means to a disengaging point to permit release of said latching device.

15. In a locker, a longitudinally shiftable bar, latching means mounted on said bar and comprising spaced, generally parallel, elongated members provided intermediate their length with laterally extending, converging latching conformations, and means for retaining said elongated members against substantial separation while permitting resilient rotational movement of said relatively inclined latching conformations about the axes of said elongated members.

16. In a locker, a longitudinally shiftable bar, latching means mounted on said bar and comprising spaced, generally parallel, elongated members provided intermediate their length with laterally extending, converging latching conformations, means for retaining said elongated members against substantial separation while permitting resilient rotational movement of said relatively inclined latching conformations about the axes of said elongated members, and keeper means adapted to be oppositely engaged by said latching conformations and including, rearwardly facing shoulder means.

17. In a locker construction, elongated latches having corresponding ends spaced apart and corresponding intermediate portions normally disposed in adjacency, and keeper means adapted to move between said adjacent portions and provided with shoulder means adapted to engage lockingly behind said latches, whereby upon reverse movement of said keeper it tends wedgingly to engage the adjacent ends of said latches to prevent unlocking.

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