

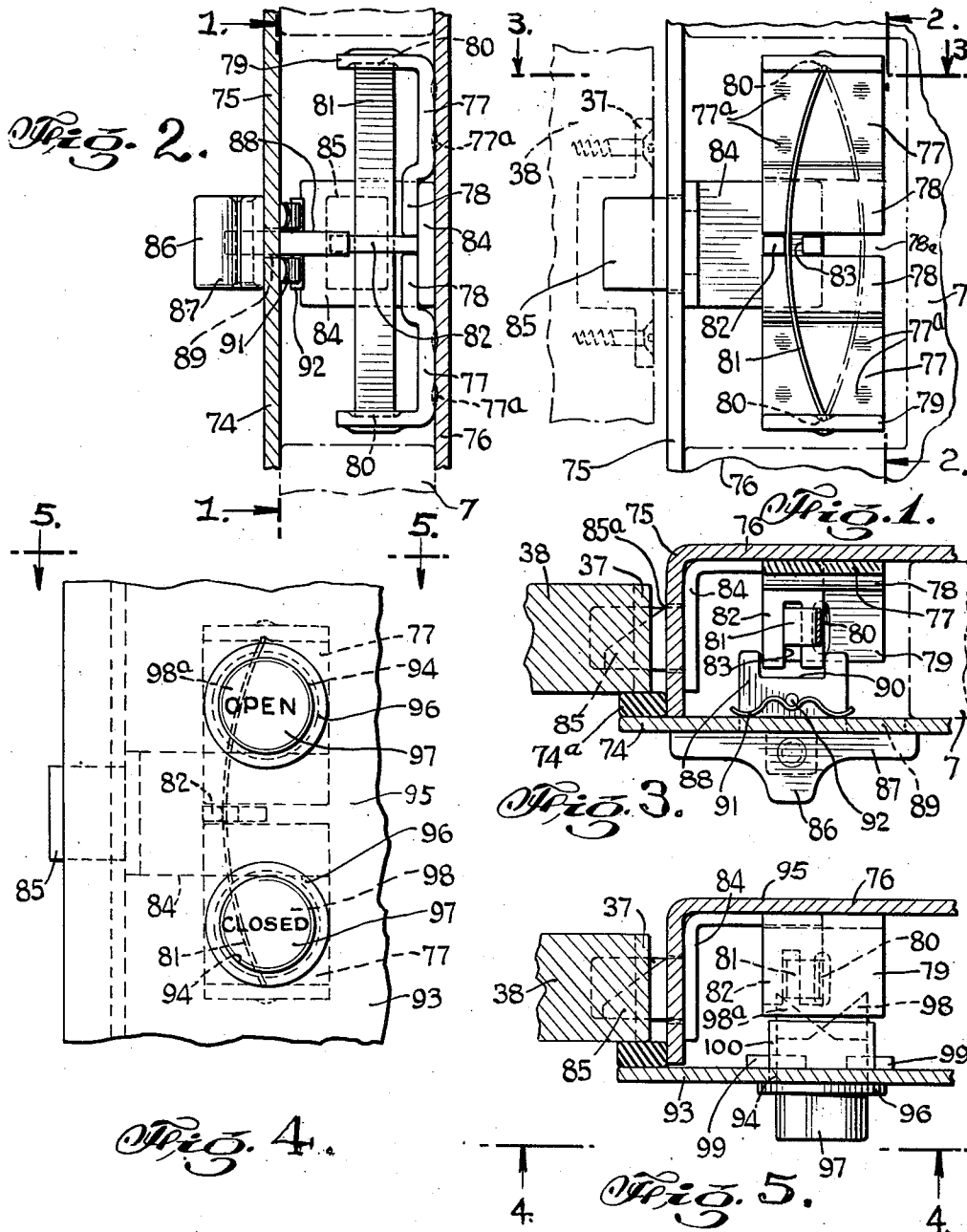
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LOCK MECHANISM

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LOCK MECHANISM

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14 Claims. (Cl. 292—164)

This invention refers to locks and more particularly to that class of locks rigidly secured to casements of toilet rooms or similar enclosures wherein the door is normally swung outwardly therefrom.

One object of this invention is to furnish a lock of comparatively narrow width whereby it may be attached to the edge of a wall having comparatively small jambs and without cutting excessively deep notches therein for housing the lock mechanism.

Another object is to furnish a lock wherein the opening and closing thereof is effected by a snap action during the movement of the bolt from one position to the other whereby the lock cannot be left in a mid-way position.

Another object is to furnish a lock wherein the bolt is operated by push-button movement in movement thereof between the open and closed positions of the lock.

Another object is to furnish a lock of simple construction formed from metal stampings and screw machine parts whereby a low cost lock may be produced in mass production.

Another object is to furnish a lock mechanism of simple form which may be secured within hollow metal jambs of hollow metal partition, the jamb casing forming the casing for the lock mechanism.

Another object is to furnish a lock wherein the bolt is formed as a metal stamping, the stamping also furnishing the operation portion for the stamped bolt portion.

Another object is to furnish a novel lock mechanism wherein the operating handle of the lock may be symmetrically located with respect to the lock housing or wall jamb to present a more balanced appearance of the exposed portions of said lock.

Another object of the invention is to furnish a novel and peculiar combined door stop and lock mechanism to be attached to the stile of a wall forming an opening for an outwardly swinging door whereby said combined stop and lock mechanism may be applied in a single operation, the door being free of any locking fixtures, the door being preferably made of calamine structure and provided with an opening for the bolt which is cupped in the course of manufacture of said door.

Other objects and advantages will appear as the description of the invention progresses and the more novel features thereof are pointed out in the appended claims. It is to be understood that diverse changes may be made in the structure shown by the accompanying drawing without departing from the spirit of the invention.

In describing the invention in detail reference is had to the accompanying drawing wherein embodiments of the invention are illustrated and wherein like characters of reference indicate like

parts throughout the several views and in which:

Fig. 1 is an elevational view of one form of lock taken on line 1—1 of Fig. 2. Fig. 2 is a rear elevational view of the same taken on line 2—2 of Fig. 1. Fig. 3 is a part sectional part elevational view of the same taken on line 3—3 of Fig. 1. Fig. 4 is an elevational view of a modified form of lock taken on line 4—4 of Fig. 5. Fig. 5 is a top elevational view of the same taken on line 5—5 of Fig. 4.

Referring to Figs. 1, 2 and 3 showing a lock 75, having a casing or housing comprising the angle member 76 and plate or door stop member 74, the angle member 76 having bolt guide members 77—77 suitably secured thereto, as for example, by welds 77a—77a, said members having bolt guide portion 78 and spring support portions or extensions 79—79, the latter having grooves 80 formed therein arranged to receive and position the ends of biased or bowed spring 81, the mid-portion of which engages bolt operating extension 82 having slot 83, said extension being suitably secured to bolt arm 84 supporting bolt 85 operating in bolt opening 85a.

Operating handle 86 comprises manually operated portion 87 positioned exteriorly of plate or door stop member 74 and bolt operating extension 88 preferably molded therewith arranged to slide in slot 89, the notch 90 being arranged to matingly engage the outer end of bolt operating member 82 for moving the bolt upon movement of operating handle 86. Springs 91 positioned by pin 92 with respect to extension 88 act to urge the operating handle into frictional engagement with the exterior surface of plate member 74 for smoother operation thereof and prevent rattling thereof.

In operating lock 75, the manually operated handle 86 is moved between extreme right and left positions thereof, the spring initially resisting the movement thereof until the critical condition of said spring is reached after which said movement is accelerated by said spring during the final portion of movement, the extension 88 being limited in its movement by slot 89, said extension, during the movement thereof acting to also move the bolt between open and closed positions of the lock.

Referring to the modified form of lock 95 shown in Figs. 4 and 5, said lock being similar in form to lock 75 excepting that plate or door stop member 93 is formed with circular openings 94—94 and slot 89 is omitted, said openings supporting sleeve members or bushings 96—96, said bushings slidably supporting push buttons 97—97 having beveled operating extensions 98—98a arranged to engage spring 81, extension 98 acting to move said spring for closing the lock and extension 98a acting to move said spring for opening said lock, said spring, during the movement

thereof from one bowed position to the other, also acting to move bolt 85 between open and closed positions thereof.

Pins 99—99 secured to push buttons 97—97 operate in slots 100—100 for preventing rotative movement of said push buttons during the operation thereof.

Whereas the angle member 76 and the plate or door stop members 74 and 93 are shown as forming the housing for the lock mechanism, said mechanism may be positioned within the wall of a hollow metal jamb during the forming of the wall structure to which said jamb is attached in this manner further reducing the cost of manufacture of said locks, as well as eliminating the cost of their attachment after the wall structure has been erected.

It is to be noted that the slot 78a formed between members 77—77 acts as the guide for the rear end of the bolt member with respect to the edges thereof whereas the portions 78—78 act as the guide for the said rear end with respect to the top and bottom surfaces thereof.

It is to be noted that in both the forms of combined door stop and lock mechanisms shown in Figs. 1 to 5 the lock mechanism housing is made in two parts, one part, as for example housings 75 and 95 comprising a member having angularly disposed body portions for supporting a bolt and the other part comprising a plate shaped member as for example member 74 and 93 arranged to support a resilient door stop 74a against which door 38 is arranged to be arrested during the closing movement thereof, said door being preferably normally spring closed. Under these conditions a door as 38 is supplied with a handle on the exterior surface thereof. When it is desired to enter a compartment said door is opened by means of said handle and immediately closes as a person enters said compartment whereafter the handle 86 or push button 97 (closed) may be operated to move the bolt 84 to the extended position for locking said door. It is obvious the handle 86 or push button 97 (open) must be operated to move said bolt to the retracted position before said compartment can be vacated and owing to the snap action of said lock mechanisms, the bolt will remain in said retracted position thereby preventing damage to the clothes of persons entering or leaving said compartment through said door.

Whereas a strike as 37 has been shown as attached to door 38 for receiving bolt extension 85, where said doors are of calamine construction it is preferable to cut an opening in the end of said door for receiving said bolt portion before said doors leave the factory, and when this is done the combined door stop and lock mechanisms shown may be mounted to a wall or stile in a single operation.

It is to be understood that the two part housing members 95 and 93 and 75 and 74 are suitably clamped together onto said wall 7 by suitable bolts which pass through said members and said wall.

This application constitutes a refile of my abandoned application Serial Number 580,683, filed December 12, 1931.

What I claim is:

1. A snap acting lock comprising, a housing having a bolt opening formed therein, a bolt member reciprocally supported by the housing having a bolt arranged to reciprocate in the bolt opening as the bolt member is reciprocated between locked and unlocked positions, an end-

supported normally bowed spring having the mid-portion thereof movable from one bowed position to an oppositely bowed position, means on said bolt member engaging said mid-portion for movement thereof between locked and unlocked positions, when said mid-portion is moved from one position to the other, a push button supported by the housing for effecting movement of the spring from one bowed position to the other upon depression thereof, and another push button supported by the housing spacedly from the first named button for effecting movement of the spring from one bowed position to another upon depression thereof, the last named push button effecting a movement of the spring oppositely to the movement effected by the first named push button.

2. A lock comprising a housing having an inner side wall, an outer side wall and a front wall containing a bolt opening, a bolt slidable through the opening, said bolt having an offset element movable on the inner side wall, a fork fixed in said element to extend into the housing, a double ended bracket fixed on the inner wall acting as a guide for said bolt element, a bow spring engaged by said fork and held at its ends by the raised ends of said bracket, a manually operable slide mounted on the exterior of said side wall, a stem on said slide reaching through the wall, lugs on said stem engaging said fork, and tensional means to frictionally retain said slide in its adjusted positions.

3. A lock comprising a housing having spaced side walls and a front wall provided with a bolt opening, a bolt reciprocable in the opening and having a portion thereof slidably guided on one of said side walls, a forked element fixed on said bolt member, a bow spring engaged therewith, means for anchoring the ends of said spring, a manually operable slide on the opposite side wall, and operative connections between said slide and said forked element.

4. A lock comprising a housing having spaced side walls and a front wall provided with a bolt opening, a bolt reciprocable in the opening and having a portion thereof slidably guided on one of said side walls, a forked element fixed on said bolt member, a bow spring engaged therewith, means for anchoring the ends of said spring, a pair of spaced push buttons independently operable on said casing, and means on the inner ends of said buttons engaging said spring at spaced portions thereof to advance and retract said bolt selectively.

5. A lock comprising a housing having spaced side walls and a front wall provided with a bolt opening, a bolt reciprocable in the opening, a bow spring having its central portion connected to said bolt, the ends of said spring being anchored in the casing, a pair of push buttons on said casing and reversely positioned angular projections on the inner ends of said push buttons, said projections adapted to reverse the positions of the bow spring, thereby to shift said bolt, upon depression of the corresponding push button.

6. In a lock, a housing, a bolt opening therein, a slidable bolt member having a bolt portion slidable inwardly and outwardly in the opening relatively to a keeper and a guided portion for aligning the bolt member, a bowed spring having the mid-portion thereof engaging the bolt member, the mid-portion of the spring being arranged to be sprung from one bowed position to another, for normally retaining the bolt member in extreme

inward or outward position, oppositely facing angle members each having one leg thereof partially surrounding the guided portion of the bolt member and the other leg thereof supporting the ends of the spring for producing the bowing thereof, and manually operated means supported by the housing for moving the bolt between the extreme inward and outward positions thereof.

7. In a lock, a housing having integrally joined front and side walls, a bolt opening in the front wall, a slidable bolt member having a bolt portion movable inwardly and outwardly in the opening and a guided portion for aligning the member, a bowed spring having its mid-portion engaging the bolt member, the mid-portion being arranged to be sprung from one bowed position to another for normally retaining the bolt member in extreme inward or outward position, members secured to the side wall each having one portion supporting the ends of the spring for effecting the bowing thereof and another portion partially surrounding the guided portion of the bolt member for the alignment thereof, a cover plate for the housing, and means supported thereby for moving the bolt between the extreme inward and outward positions thereof.

8. In a lock, a housing having a reciprocable bolt therein, reciprocable push buttons on the housing arranged to be selectively depressed to effect movement of the bolt, and means including a spring in the housing responsive to depression of the push buttons having a mid-portion movable to complete its full movement independently of the push buttons after moving past its median movement, means operably connecting said mid-portion and said bolt for movement thereof when said mid-portion is moved by said buttons, the push buttons and the bolt reciprocating in planes angularly disposed one to the other.

9. In a lock, a housing having end and side walls, a bolt opening in the end wall, a reciprocable bolt member having a bolt reciprocating in the bolt opening, a guided portion on the bolt member, a bowed spring having the mid-portion thereof engaging the guided portion of the bolt member, angle members secured to the side wall of the housing each having one leg thereof arranged to guide the guided portion of the bolt member and the other leg arranged to support the ends of the spring for effecting the bowing thereof, and means operated at will for effecting reciprocation of the bolt member from one position to the other.

10. In a lock mechanism, an angle shaped member and a plate shaped member forming a channel shaped lock housing, a bolt opening in one leg of said angle shaped member, a bolt member slidably supported by the other leg of said angle shaped member movable between locked and unlocked positions in said bolt opening, an end supported normally bowed spring having the mid-portion thereof inherently moved from one position to the other after passing through a median movement thereof, means on said bolt member engaging said mid-portion for movement of said member between said locked and unlocked positions when said mid-portion is moved from one position to the other, and means slidably supported by said plate shaped member for moving said bolt member from one position to the other.

11. In a lock mechanism, an angle shaped

member and a plate shaped member forming a channel shaped housing, a bolt opening in one leg of said angle shaped member, a bolt slidably supported by the other leg of said angle shaped member movable between locked and unlocked positions in said bolt opening, fixed supports positioned spacedly each side of said bolt with respect to the plane of movement thereof, snap acting means including a resilient member extending between said supports having a mid-portion inherently moved from one position to another after movement past a median position, means on said bolt engaging said mid-portion for moving said bolt between said locked and unlocked positions when said mid-portion is moved from one position to the other, and means movable on said plate shaped housing member for moving said bolt between said locked and unlocked positions.

12. In a lock mechanism, an angle shaped member and a plate shaped member forming a channel shaped housing, a bolt opening in one leg of said angle shaped member, a bolt slidably supported by the other leg of said angle shaped member movable between locked and unlocked positions in said bolt opening, fixed supports positioned spacedly each side of said bolt with respect to the plane of movement thereof, snap acting means including a resilient member extending between said supports having a mid-portion movable from one position to another after movement thereof past a median position, means on said bolt engaging said mid-portion for moving said bolt between locked and unlocked positions when said mid-portion is moved from one position to the other, and an operating member slidably supported by said plate member engaging said bolt for movement thereof between said locked and unlocked positions.

13. In a lock, a housing having a bolt opening, a reciprocating bolt member having a guided portion and a bolt supporting portion extending in planes angularly disposed one to the other, a bolt secured to said bolt supporting portion operable in said bolt opening, guide members supported by said housing for slidably supporting the guided portion of said bolt member, snap acting means including a resilient member supported by said guide members having a mid-portion inherently moved from one position to another after passing through a median position, and means operatively connecting said mid-portion and said bolt member for effecting operation thereof between locked and unlocked positions upon movement of said mid-portion from one position to the other.

14. In a lock, a housing having a reciprocating bolt therein, selectively depressed push buttons on said housing, snap acting means including a spring on said housing having a mid-portion inherently moved from one position to another after movement thereof beyond a median movement, means on said buttons for moving said mid-portion from one position to the other upon depressing one of said buttons and to the other position upon depressing the other of said buttons, and means operatively connecting said snap acting means and said bolt for effecting reciprocation of said bolt upon movement of said mid-portion from one position to the other, the movement of said mid-portion by depressing one of said buttons acting to restore the other button to normal position.

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