Nov. 14, 1950 A. H. GROEGER 2,530,330

SLIDING DOOR LOCK

Filed June 23, 1948 4 Sheets-Sheet 1

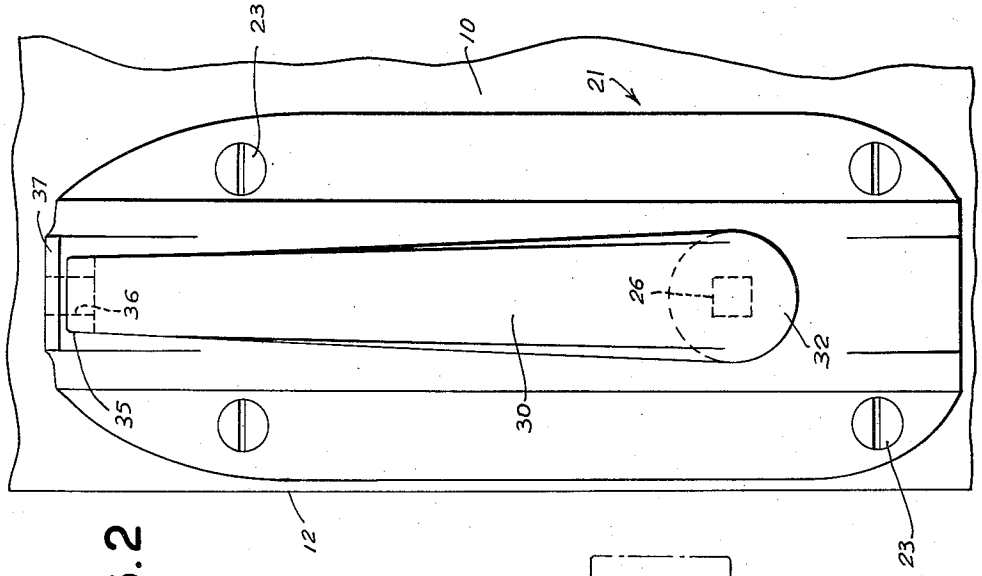


FIG. 2

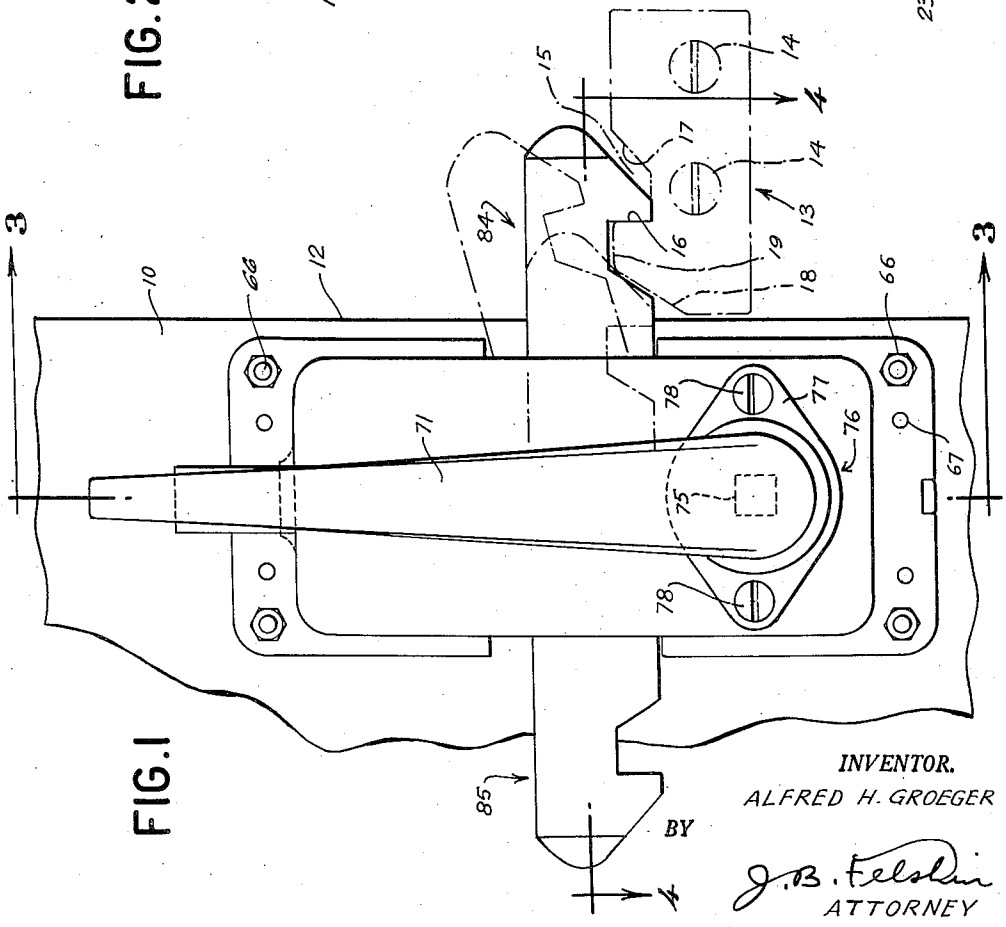


FIG. 1

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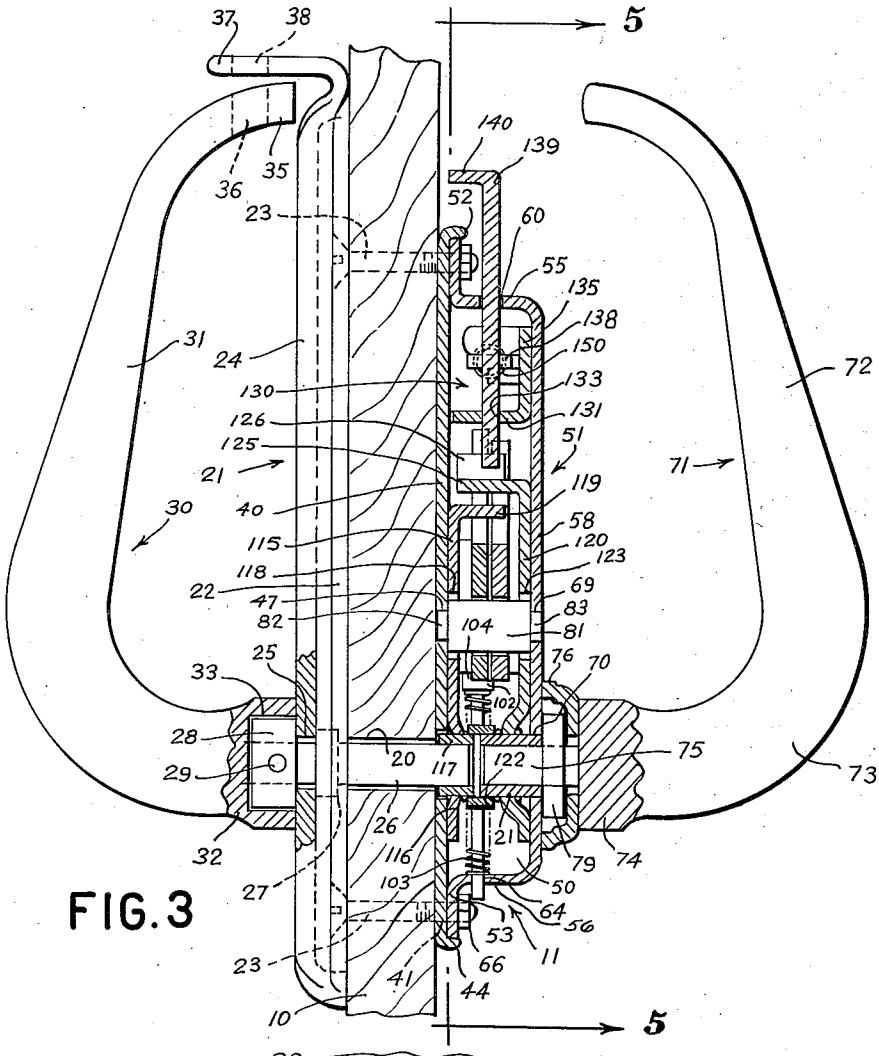


FIG. 3

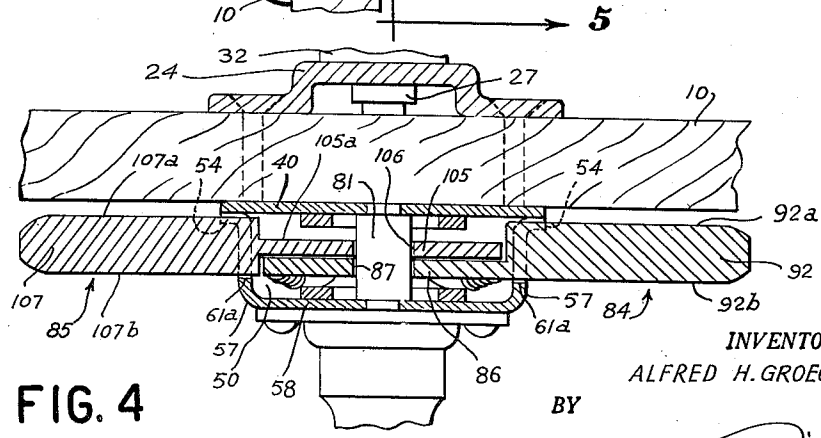


FIG. 4

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SLIDING DOOR LOCK

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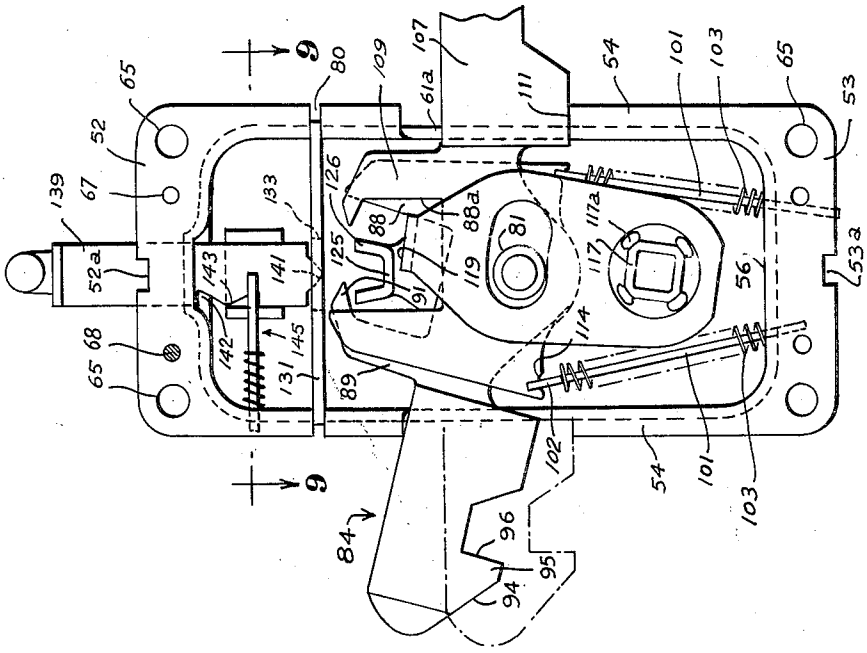


FIG. 6

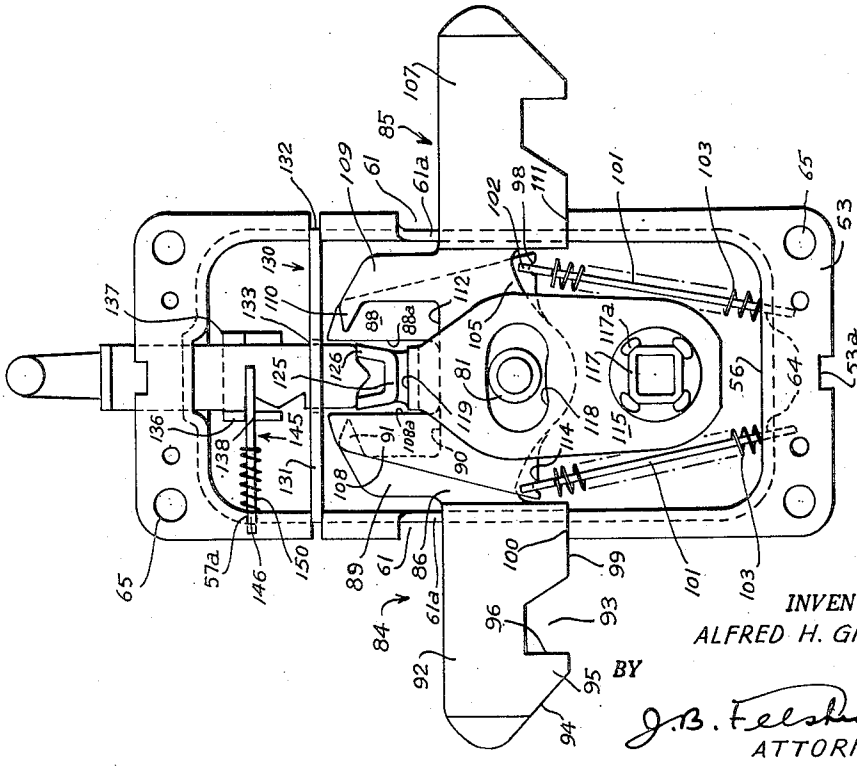


FIG. 5

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SLIDING DOOR LOCK

Filed June 23, 1948 4 Sheets-Sheet 4

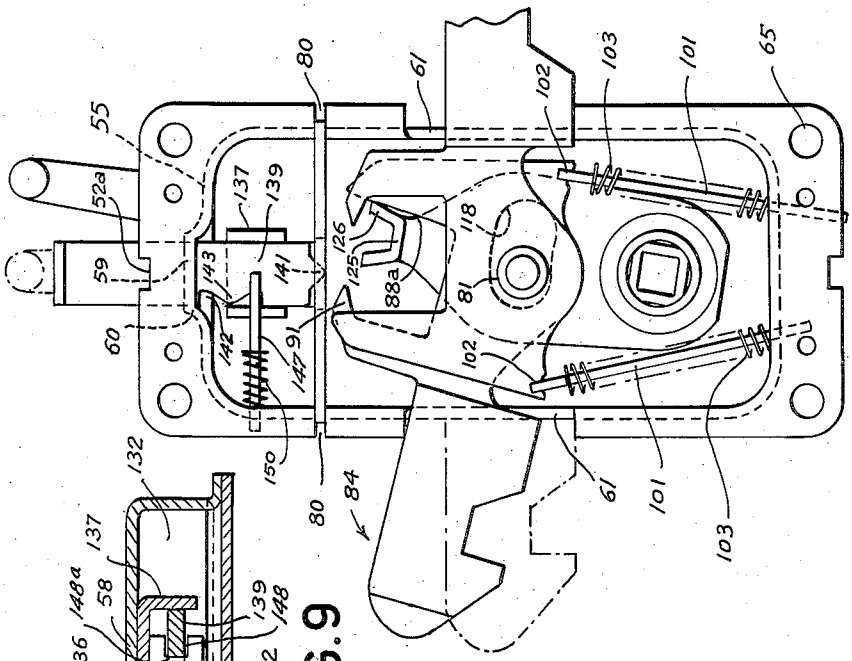


FIG. 8

FIG. 9

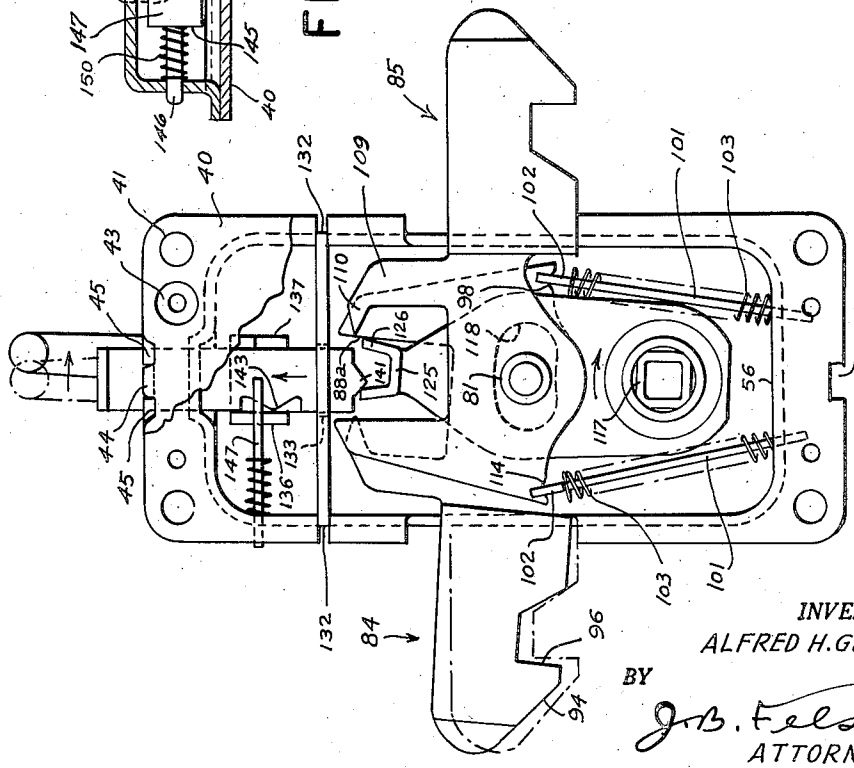


FIG. 7

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Patented Nov. 14, 1950 2,530,330

UNITED STATES PATENT OFFICE

2,530,330

SLIDING DOOR LOCK

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Application June 23, 1948, Serial No. 34,576

19 Claims. (Cl. 292—29)

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This invention relates to sliding door locks. It is particularly directed to locks for sliding doors which may be opened from the inside or outside of the door and which is provided with a pair of latches, one to engage a strike or keeper when the door is closed to retain the door in closed position, and another to engage a strike or keeper for retaining the door in open position.

Another object of this invention is to provide a highly improved lock of the character described, including a handle at the inside of the door and a handle at the outside of the door and means for releasing either latch from its keeper upon swinging either the inside or the outside handle, and means to lock the latches against releasing movement from the outside while permitting release of the latches from the inside, the arrangement being such furthermore that when the lock is in locked condition, release of either latch from the inside will release the locking mechanism so that the latches may thereafter be released from the outside.

Another object of this invention is to provide in a lock of the character described, a pair of latches pivoted on a common pivot, and a handle pivoted to the lock and located at the outside of the door, and a member movable with the outside handle and swingable in opposite directions for selectively swinging the latches to disengage the latches from their keepers, spring means to bias the latches toward keeper engaging positions, a locking bar movable between arms on the latches to prevent rotation of the latches upon pressing the outside handle in either direction, a member swinging with the inside handle and adapted to move either latch to releasing position, and being further adapted to release the locking bar when the inside handle is swinging in either direction to lift a latch.

Still another object of this invention is to provide a strong compact and durable lock of the character described, which shall be relatively inexpensive to manufacture, which shall be sure and positive in operation, easy to assemble and manipulate, and yet practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawings, in which is

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shown various possible illustrative embodiments of this invention,

Fig. 1 is an inside elevational view of the lock embodying the invention;

Fig. 2 is an outside elevational view of said lock;

Fig. 3 is a cross sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a cross sectional view taken on line 4—4 of Fig. 1;

Fig. 5 is a cross sectional view taken on line 5—5 of Fig. 3 and showing the lock with the locking mechanism in locked condition;

Fig. 6 is a view similar to Fig. 5 but showing the locking mechanism in release position and showing one of the latches raised upon swinging the outside handle to one side;

Fig. 7 is a view similar to Fig. 6 but with the operating member on the outside handle removed, and showing the locking mechanism in lock condition and the inside handle swung in one direction to some extent, just before the locking mechanism is released;

Fig. 8 is a view similar to Fig. 7, but showing the inside handle fully swung in the same direction as it has moved in Fig. 7 and showing the locking mechanism sprung to release position and one of the latches released; and

Fig. 9 is a cross sectional view taken on line 9—9 of Fig. 6.

Referring now in detail to the drawings, 10 designates a sliding door and 11 designates a lock therefor (Fig. 3). In the drawing, 12 designates an edge of the door adjacent which the lock is attached, and 13 designates a strike or keeper which may be mounted on a door jamb for engagement with one latch of the lock as will hereinafter appear. The keeper 13 may be attached to the door jamb by means of screws 14. It comprises a plate formed in its upper edge with a slot 15 having a vertical inner edge 16 and an inclined outer edge 17. The upper corner of the plate of the keeper is cut away adjacent the door, as at 18, thereby forming a tongue 19, which engages within a notch in a latch as will appear hereinafter. Another keeper or strike similar to keeper 13 may be mounted in a position to engage a second latch on the lock when the door is open. The two keepers are symmetrically disposed to engage symmetrical latches to be described hereinafter.

The door 10 is formed with a transverse through opening 20 adjacent the door edge 12 (Fig. 3). Attached to the outside of the door 10 is a plate 21 having flanges 22 contacting the outer surfaces of the door and formed with suit-

able openings to receive screws 23 which attach the plate 21 to the door. Between the flanges 22 is a plate portion 24 recessed outwardly and spaced from the outside surface of the door. The wall portion 24 is formed with a through opening 25. Extending through the opening 20 in the door is a rod 26 of square cross section. Fixed to said rod in any suitable manner is an annular collar 27 disposed between the outer surface of door 10 and wall 24 of member 21. Attached to the outer end of rod 26 is another annular collar 28. Fixed to the collar 28 by means of a transverse pin 29 is the outside handle 30. Said outside handle 30 has an upwardly and inwardly inclined portion 31 from the lower end of which extends rearwardly a portion 32 formed with a socket 33 to receive the collar 28. The transverse pin 29 passes through the collar 28, rod 26 and the annular flange on the handle which forms the socket 33.

At the upper end of the handle portion 31 is an inwardly and upwardly curved portion 35 formed with a vertical through opening 36. Plate 21 is formed at its upper end with an outwardly bent horizontal ear formed with an aperture 38 registering with the opening 36 when the handle 31 is in this medial or vertical position. A padlock may be inserted through the openings 36—38 for locking the outside handle against movement, if desired.

It will now be understood that the handle 30 is fixed for movement with the bar 26 and will rotate about the axis of the bar 26, and is held against appreciable sliding movement because of the engagement of collars 27 and 28 on opposite sides of plate portion 24. The bar 26 projects beyond the inner surface of door 10, as shown in Fig. 3 of the drawing.

Contacting the inner surface of door 10 is a flat plate 40 (Figs. 7 and 8). The plate 40 may be of generally rectangular shape and is formed in its corners with openings 41 through which the screws 23 pass. It is also formed with a pair of countersunk through openings 43 aligned with each of the top and bottom pairs of the openings 41 and spaced inwardly therefrom. The countersink at each of the openings 43 is at the surface of plate 41 which contacts the inner surface of door 10. Said plate 40 is furthermore formed at its upper and lower ends with tongues 44 bent away from the door. The upper and lower edges of the plate 40 may be formed with notches 45 at opposite sides of each tongue 44. Plate 40 is furthermore formed with an opening registering with the opening 20 in the door 10. Said plate 40 is furthermore formed, for the purpose hereinafter appearing, with an opening 47 spaced directly above said opening for the purpose hereinafter appearing.

Attached to the plate 40 in covering relation thereto and forming a chamber 50 therewith, is a cover casing 51. The casing 51 has top and bottom flanges 52 and 53 contacting the upper and lower ends of plate 40, and side flanges 54 contacting the sides of said plate 40. Extending from said flanges 52, 53, 54 are upper and lower walls 55 and 56 and side walls 57. Said top, bottom and side walls are interconnected by a vertical wall 58 parallel to and spaced from plate 40. The top wall 55 may be formed with a central upwardly recessed portion 59. Said wall portion 59 is formed with a through slot 60 for the purpose hereinafter appearing. The side walls 57, as well as flanges 54 are formed with intermediate cut-away portions, slots or notches 61. The bottom wall 56 is formed on opposite sides of its center line with a pair of openings 64 for the purpose hereinafter appearing. The top and bottom flanges 52 and 53 are formed with corner openings 65 registering with the corner openings 41 in plate 40. The screws 23 pass through the registering openings 41 and 65 and nuts 66 screwed to the outer ends of the screws serve to clamp the plate 40 as well as casing 51 to the door 10 and to plate 21. The upper and lower flanges 52 and 53 are also formed with internally screw threaded openings 67 registering with the countersunk openings 43 of plate 40 and receiving conical head screws 68 which serves to fix plate 40 to the casing 51. The conical heads of the screws are received in the countersunk portions of the openings 43 in the plate 40.

Wall 58 of casing 51 is formed furthermore with an opening 69 aligned with and of similar diameter to the opening 47 in plate 40. Said wall 58 is furthermore formed with an opening 70 aligned with the opening located opposite opening 20 in plate 40 and of the same diameter.

Pivoted to wall 58 of casing 51 for rotation about the axis of opening 70 is an inside handle 71. Said handle 71 is formed with an intermediate portion 72 inclined upwardly. At the lower end of portion 72 is a curved portion 73 terminating in a horizontal portion 74, from which extends a horizontal rod 75 of square cross section passing loosely through the opening 70. Attached to the outside of wall 58 of casing 51 is a recessed bracket 76 having flanges 77 contacting said wall 58 and attached thereto by means of screws 78. On the rod 75 is a collar 79 rotatably mounted within the bracket 76 so that the handle is rotatably and non-slidably mounted on said bracket and hence on the casing 51. The rod 75 projects into the chamber 50 and is in alignment with the rod 26 which rotates with the outside handle, and likewise projects into the casing chamber 50. The side walls 57 of the casing as well as the side flanges 54 are formed above the cut-away portions 61 with aligned notches 80 for the purposes hereinafter appearing. The top and bottom flanges 52 and 53 are formed furthermore with central notches 52*a* and 53*a* to receive the aligning tongues 44 of plate 40.

Mounted on and between walls 40 and 58 is a horizontal transverse pivot shaft 81 crossing the chamber 50 and formed with axles 82 and 83 at the ends thereof received within the openings 47 and 69 respectively. Pivoted on the shaft 81 are a pair of latches 84 and 85. The latch 84 has a relatively thin plate portion 86 within the chamber 50, formed with an opening 87 through which the shaft 81 passes. Extending upwardly from said portion 86 are a pair of upstanding spaced arms 88 and 89 forming a notch 90 therebetween. When the latch 84 is in horizontal position, the inner edge 88*a* of arm 88 is closer to a vertical plane passing through the axis of shaft 81 than is arm 89. Said inner edge 88*a* is straight. Arm 89 however is formed at this upper end with an inwardly projecting pointed portion 91. The portion 91 points toward said vertical plane passing through the axis of shaft 81.

Extending from portion 86 of the latch 84 is a thickened portion 92. The outer surface of the thickened portion 92 is flush with the outer surface of portion 86, but said thickened portion extends inwardly toward door 10, as clearly shown in Fig. 4 of the drawing. Said portion 92 projects through one of the cut-away openings 61 of the casing. Said portion 92 is furthermore

formed at its end edge with the notch 93 shaped to engage tongue 19 of the strike or keeper 13. The outer end of portion 92 has a downwardly and inwardly inclined edge 94 forming a tongue 95 engageable in the notch 15 of the strike or keeper 13. The tongue 95 has an inner vertical edge 96 adapted to engage the vertical edge 16 of the strike or keeper 13. The latch 84 is furthermore formed at the under edge of portion 86 and adjacent the end of said portion with a notch 98 for the purpose hereinafter appearing. It will be noted when the latch 84 is in horizontal position, the end edge 99 of portion 92 will contact shoulder 100 formed at the lower end of the cut-out 61 in the casing 51 for retaining said latch in horizontal position. However, the cut-out 61 extends above portion 92 of the latch so as to permit swinging of said latch 84 upwardly or in a clockwise direction looking at Fig. 5 of the drawing, from the position shown in Fig. 5 to the position shown in Fig. 6, whereby to disengage said latch from the strike or keeper.

Means is provided to normally retain the latch 84 in horizontal or keeper engaging position. To this end there is provided a pin 101, the lower end of which projects downwardly through one of the openings 64 in the bottom wall 56 of the casing. The pin 101 inclines upwardly and to one side and at its upper end it is provided with a head 102 engaging the notch 98. On pin 101 is a coil compression spring 103 which is interposed between the bottom wall 56 of the casing and the head 102 of the pin. The spring 103 tends to rotate the latch 84 in a counterclockwise direction looking at Fig. 5. The head 102 of the pin 101 may be formed with an offset lug 104 to engage the side 105*a* of the latch portion 105 of latch 85, so as to retain the pin against accidentally moving out of place. The inner surface 92*a* of latch portion 92 substantially contacts plate 40 whereas the outer surface 92*b* thereof substantially contacts the vertical edge 61*a* of the side wall 57 formed by the cut-out 61, so as to prevent wabbling of the latch.

The latch 85 comprises a thinned portion 105 formed with a central opening 106 through which the shaft 81 passes, and a thickened portion 107 passing through the other cut-out 61 and extending in a direction opposite to portion 92 of latch 84. The thickened portion 107 extends to opposite sides of the thinner portion 105. The inner surface 107*a* of portion 107 substantially contacts plate 40 whereas the outer surface 107*b* thereof substantially contacts the vertical edge 61*a* of the cut-out 61 through which said portion 107 passes. The inner surface 105*a* of the thin portion 105 is thus spaced from the plate 40 for the purpose hereinafter appearing. The latch portion 107 is shaped similarly to, but in symmetrical relation to latch portion 92 of latch 84 so as to be capable of engaging a strike or keeper similar to strike or keeper 13 and symmetrically disposed thereto. Portion 105 is provided with a pair of upstanding arms 108 and 109, similar to but symmetrically disposed relative to arms 88 and 99 of latch 84. Arm 108 has a straight inner edge 108*a* parallel to edge 88*a* and similarly spaced from a vertical plane passing through the axis of shaft 81. Arm 109 which is further spaced from said vertical plane has an inwardly projecting pointed portion 110 similar to the point 91 of arm 89. Portions 86 and 105 of latches 85 and 84, respectively, contact one another. Latch portion 107 contacts shoulder 111 formed at the lower end of the notch 61 through which it passes, for retaining the latch 85 in horizontal position. Portion 105 is formed at its under-edge and at the outer end thereof with a notch 114. A pin 101 has its lower end passing through the other opening 64 in the bottom wall 56, and has a head 102 engaging within notch 114. On said pin is likewise a coil compression spring 103 interposed between the bottom wall of the casing and the head of the pin. Said spring tends to rotate the latch 85 in a clockwise direction looking at Fig. 5 to strike engaging position.

Means is provided for lifting either latch upon swinging the outside handle 30 from its normal position. To this end there is mounted on the portion of the rod 26 which projects into the chamber 50, an operating arm 115. Said arm 115 is formed at its lower end with opening 116 through which extends a square tube 117. The tube 117 is held on plate 115 by means of lugs 117*a* pressed therefrom and contacting opposite sides of said member 115 at said opening 116. Member 115 is formed with an arcuate slot 118 through which the shaft 81 passes. The arm 115 is formed with a finger 119 extending toward wall 58 and passing between the edges 88*a* and 108*a* on arms 88 and 108 respectively. It will be noted that said finger 119 passes through the notch 90 of latch 84 and also through the notch 112 between the arms 108 and 109.

It will now be understood that should the handle 31 be swung in one direction finger 119 will engage arm 108 to lift the latch 85, and if said handle is swung in an opposite direction, said finger 119 will engage arm 88 to lift the latch 84. The arcuate slot 118 permits limited oscillatory movement of member 115 in opposite directions. When latch 85 is swung in a counterclockwise direction looking at Fig. 5, spring 103 on the pin 101 which engages said latch, will be compressed for returning said latch to its normal position when pressure is removed from the handle. Likewise during the raising of the latch 84, the lower end of pin 101 will move downwardly through opening 64 in the bottom wall 56. When the latch 84 is lifted, the other spring 103 is compressed for returning the latch to normal position.

Means is provided for raising the latches 84 and 85 upon swinging the inside handle 71 from normal position. To this end there is mounted on the bar 75, and disposed within the chamber 50, an operating arm or member 120, contacting the inner surface of wall 58. Said arm 120 is formed at its lower end with a square opening 121 through which passes a square tube 122 through which rod 75 projects. The square tube 122 is formed with pressed out lugs engaging opposite sides of member 120 at the opening 121 (Fig. 3) for fixing said square tube to said member. Member 120 is formed with an arcuate slot 123 through which the shaft 81 passes. The arcuate slot 123 is similar to the arcuate slot 118 in member 115. At the upper end of member 120 is an offset finger 125 projecting toward plate 40 and formed with upwardly and somewhat outwardly inclined wings 126. The finger 125 is disposed above the finger 119 and likewise extends through the notches 90 and 112 and between the arms 88 and 108, so that swinging of handle 71 to one side or the other will raise one or the other of the latches 84 or 85.

Manually controlled means is provided for locking the latches against opening movement by means of the outside handle 30 while per-

mitting the latches to be opened upon swinging the inside handle 71. As will be seen hereinafter, when the locking mechanism is adjusted for locking the latches, movement of the inside handle 71 to open one or the other of the latches will release the locking means, which then remains in released condition until again moved to locking condition. To this end there is mounted within the casing, a member 130 comprising a horizontal wall portion 131 transversing chamber 50 and formed with projections 132 extending into the notches 80 in casing member 51. Said horizontal wall 131 is furthermore formed with a central slot 133 parallel to wall 58 and aligned with slot 60 in the upwardly recessed portion 59 of the top wall 55 of the casing. Extending upwardly from horizontal wall 131 is a wall portion 135, contacting the inner surface of wall 58. Extending from said wall 135 are a pair of parallel wings 136 and 137, projecting toward plate 40. Wing 136 is formed with a horizontal slot 138 for the purpose hereinafter appearing. Slidably extending through the openings 60 and 133 is a locking bar or member 139 having an offset finger 140 at its upper end projecting toward the door 10. At the lower end of member 139 is a central V-shaped projection 141. At the edge of member 139, adjacent the slotted wing 136 are a pair of symmetrical notches 142 forming therebetween an outwardly projecting V-shaped portion 143. Member 139 is received between the wings 136 and 137 and is guided for up and down movement therebetween.

Slidably mounted within slots 57*a* and 138 is a spring pressed plunger 145, having a reduced neck portion 146 passing through the slot 57*a*. Member 145 is in horizontal position and is disposed above wall 131 of member 130. It has a head 147 passing through the notch 138 in wing 136. It is formed with a notch 148 slidably receiving member 139. On the neck 146 is a coil compression spring 150 interposed between the inner surface of side wall 57 of the casing and the shoulder formed by the head 147. The inner edge 148*a* of notch 148 contacts the inclined edges of V-shaped portion 143 on member 139. The spring 150 keeps member 145 in engagement with one or the other of the notches 142 of member 139. When member 139 is in raised or unlocked position, the edge 148*a* engages the lower notch 142, and in such position the lower end of member 139 is above the arms 88, 89 and 108, 109 of the latches so as to be entirely clear of the latches. The spring 150 serves to retain member 139 in normal raised position. However, should member 139 be depressed from the position shown in Fig. 6 to the position shown in Fig. 5, member 145 will first be pushed back and will then snap into the upper notch 142 for retaining member 139 in its lower or locking position. In such position as shown in Fig. 5, the V-shaped lower end projection 141 of member 139 will be received between the wings 126 of finger 125 on the operating member 120 which is controlled by the inside handle 71. The lower end of said member 139 in such position furthermore, will overlap both pointed portions 91 and 110. With the locking member 139 in its lower, locking position, should an attempt be made to swing the outside handle 30 in either direction, one or the other of the points 91 or 110 will contact member 139 to prevent lifting of the latches.

It will now be noted that there is provided a mechanism to move the locking member 139 to clearing position or locking position upon moving said locking member past the mid-point between such position, depending upon the direction of movement.

However, should the inside handle 71 be rotated in either direction from position shown in Fig. 7 to the position shown in Fig. 8, one of the wings 126 engaging the V shaped projection 141 will force locking member 139 upwardly a sufficient distance so that the plunger 145 will be retracted and then snap into the lower notch 142 thereby raising the locking member 139 to clearing position and keeping it there, and then the handle can continue to move in the same direction for lifting one of the latches. The same operation can be carried out in either direction. It will be noted that the upper edges of the wings 126 are below the lower end of member 139 at opposite sides of the V shaped portion 141, when said member 139 is in its lower locking position.

In Fig. 5 the member 139 is shown in locking position and the latches are in their normal strike engaging positions. In Fig. 6 latch 84 is shown in full lines in raised position, having been moved by movement of the outside handle and showing the member 139 in clearing position.

It will now be understood that when the door is closed and latch 84 engages keeper 13, if the member 139 is in release position, either handle may be swung in a direction away from the edge 12 of the door 10 to thereby raise the latch 84 and move the door to open position. When the door is fully opened, latch 85 will strike the inclined edge 18 of the opposite strike and will be raised thereby and snap into engagement with said strike. To release the latch 85 from the strike which retains the door in open position, the handles must be swung toward edge 12 of the door 10. It will be noted that the releasable locking member 139 is at the inside of the door so that the latches may be locked in full open and closed position of the door against opening by means of the outside handle, while always permitting lifting of the latches by means of the inside handle no matter whether member 139 is in a latch locking or latch releasing position.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

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

1. In combination, a lock having an inside face and including a pair of oppositely extending latches, an inside handle on the lock, an outside handle on the lock, means to raise said latches upon turning the inside or outside handles, and releasable means manually operated from the inside face of the lock to lock said latches against lifting by the outside handle while permitting lifting of the latches by the inside handle, said locking means being movable manually to release position upon operating the inside handle to lift one or the other of the latches when the locking means is in locking position, and spring means to retain the locking means in either its locking position or its release position.

2. In combination, a lock comprising a casing, a pivot within said casing, a pair of oppositely ex-

tending latches mounted for rotation on said pivot, each latch having a pair of upstanding arms, a pair of handles pivoted relative to said casing about an axis parallel to and spaced from said pivot, a primary operating arm mounted for rotation with one handle and having a finger extending between the upstanding arms of said latches, said finger being adapted to engage an arm of one latch upon swinging said operating arm in one direction for lifting one latch and being adapted to engage an upstanding arm of the other latch upon swinging said operating arm in an opposite direction to raise said other latch, a secondary swinging operating arm within the casing and fixed to the other handle for rotation therewith, and having an offset finger disposed between the upstanding arms of said latches and being adapted to engage an arm of the first latch upon rotating the second handle in one direction, and being adapted to engage an arm of said other latch upon rotating said second handle in an opposite direction, a locking member slidably mounted on said casing, said locking member being movable to a position between one arm of the first latch and one arm of the other latch to prevent lifting of said latches when pressing the first handle in either direction, and means on the second operating member for raising the locking member upon turning the second handle to lift either one or the other of said latches.

3. In combination, a lock comprising a casing, a pivot within said casing, a pair of oppositely extending latches mounted for rotation on said pivot, each latch having a pair of upstanding arms, a pair of handles pivoted relative to said casing about an axis parallel to and spaced from said pivot, a primary operating arm mounted for rotation with one handle and having a finger extending between the upstanding arms of said latches, said finger being adapted to engage an arm of one latch upon swinging said operating arm in one direction for lifting one latch and being adapted to engage an upstanding arm of the other latch upon swinging said operating arm in an opposite direction to raise said other latch, a secondary swinging operating arm within the casing and fixed to the other handle for rotation therewith, and having an offset finger disposed between the upstanding arms of said latches and being adapted to engage an arm of the first latch upon rotating the second handle in one direction, and being adapted to engage an arm of said other latch upon rotating said second handle in an opposite direction, a locking member slidably mounted on said casing, said locking member being movable to a position between one arm of the first latch and one arm of the other latch to prevent lifting of said latches when pressing the first handle in either direction, and means on the second operating member for raising the locking member upon turning the second handle to lift either one or the other of said latches, and spring means to retain each of said latches in its normal position.

4. In combination, a lock comprising a casing, a pivot within said casing, a pair of oppositely extending latches mounted for rotation on said pivot, each latch having a pair of upstanding arms, a pair of handles pivoted relative to said casing about an axis parallel to and spaced from said pivot, a primary operating arm mounted for rotation with one handle and having a finger extending between the upstanding arms of said latches, said finger being adapted to engage an

arm of one latch upon swinging said operating arm in one direction for lifting one latch and being adapted to engage an upstanding arm of the other latch upon swinging said operating arm in an opposite direction to raise said other latch, a secondary operating arm within the casing and fixed to the other handle for rotation therewith, and having an offset finger disposed between the upstanding arms of said latches and being adapted to engage an arm of the first latch upon rotating the second handle in one direction, and being adapted to engage an arm of said other latch upon rotating said second handle in an opposite direction, a locking member slidably mounted on said casing, said locking member being movable to a position between one arm of the first latch and one arm of the other latch to prevent lifting of said latches when pressing the first handle in either direction, and means on the second operating member for raising the locking member upon turning the second handle to lift either one or the other of said latches, and spring means to retain each of said latches in its normal position, each of said operating arms being formed with an arcuate slot through which the pivot for said latches passes.

5. In combination, a lock comprising a casing, a pivot within said casing, a pair of oppositely extending latches mounted for rotation on said pivot, each latch having a pair of upstanding arms, a pair of handles pivoted relative to said casing about an axis parallel to and spaced from said pivot, a primary operating arm mounted for rotation with one handle and having a finger extending between the upstanding arms of said latches, said finger being adapted to engage an arm of one latch upon swinging said operating arm in one direction for lifting the latch and being adapted to engage an upstanding arm of the other latch upon swinging said operating arm in an opposite direction to raise said other latch, a secondary swinging operating arm within the casing and fixed to the other handle for rotation therewith, and having an offset finger disposed between the upstanding arms of said latches and being adapted to engage an arm of the first latch upon rotating the second handle in one direction, and being adapted to engage an arm of said other latch upon rotating said second handle in an opposite direction, a locking member slidably mounted on said casing, said locking member being movable to a position between one arm of the first latch and one arm of the other latch to prevent lifting of said latches when pressing the first handle in either direction, and means on the second operating member for raising the locking member upon turning the second handle to lift either one or the other of said latches, and means for retaining said locking member in a position clearing the arms of said latches and also in locking position between the arms of said latches, and said retaining means including mechanism to move said locking member to clearing position or locking position upon moving said locking member past the midpoint between such positions, depending upon the direction of movement.

6. In a lock, a casing comprising a plate, a cover casing on said plate having flanges contacting said plate, and top, bottom and side walls and a front wall parallel to said plate, means for fixing said flanges to said plate, said plate and front wall having aligned openings, a pivot pin mounted in said openings, the side walls of said casing being formed with opposed slots, a pair of

latches pivoted to said pivot pin, said latches having overlapping portions within the casing and oppositely extending portions passing through the slots in said side walls, each of said overlapping portions being formed with a pair of upstanding arms, a pair of handles pivoted to said casing on a common axis parallel to and disposed below said pivot pin, an operating arm on one handle having an offset finger disposed between the upstanding arms of said latches and an operating arm on the other of said handles and formed with an offset finger disposed between the upstanding arms of said latches, said operating arms being formed with arcuate slots through which the pivot pin passes.

7. In a lock, a casing comprising a plate, a cover casing on said plate having flanges contacting said plate, and top, bottom and side walls and a front wall parallel to said plate, means for fixing said flanges to said plate, said plate and front wall having aligned openings, a pivot pin mounted in said openings, the side walls of said casing being formed with opposed slots, a pair of latches pivoted to said pivot pin, said latches having overlapping portions within the casing and oppositely extending portions passing through the slots in said side walls, each of said overlapping portions being formed with a pair of upstanding arms, a pair of handles pivoted to said casing on a common axis parallel to and disposed below said pivot pin, an operating arm on one handle having an offset finger disposed between the upstanding arms of said latches and an operating arm on the other of said handles and formed with an offset finger disposed between the upstanding arms of said latches, said operating arms being formed with arcuate slots through which the pivot pin passes, and spring means to bias said latches to normal position, and the oppositely extending portions of said latches being adapted to engage shoulders in the side walls of the case through which it passes for retaining the latches in normal position.

8. In a lock, a casing comprising a plate, a cover casing on said plate having flanges contacting said plate, and top, bottom and side walls and a front wall parallel to said plate, means for fixing said flanges to said plate, said plate and front wall having aligned openings, a pivot pin mounted in said openings, the side walls of said casing being formed with opposed slots, a pair of latches pivoted to said pivot pin, said latches having overlapping portions within the casing and oppositely extending portions passing through the slots in said side walls, each of said overlapping portions being formed with a pair of upstanding arms, a pair of handles pivoted to said casing on a common axis parallel to and disposed below said pivot pin, an operating arm on one handle having an offset finger disposed between the upstanding arms of said latches and an operating arm on the other of said handles and formed with an offset finger disposed between the upstanding arms of said latches, said operating arms being formed with arcuate slots through which the pivot pin passes, and spring means to bias said latches to normal position, and the oppositely extending portions of said latches being adapted to engage shoulders in the side walls of the case through which it passes for retaining the latches in normal position, and releasable locking means movable between an upstanding arm of one latch and an upstanding arm on the other latch to prevent lifting of the latches when an attempt is made to move the first handle.

9. In a lock, a casing comprising a plate, a cover casing on said plate having flanges contacting said plate, and top, bottom and side walls and a front wall parallel to said plate, means for fixing said flanges to said plate, said plate and front wall having aligned openings, a pivot pin mounted in said openings, the side walls of said casing being formed with opposed slots, a pair of latches pivoted to said pivot pin, said latches having overlapping portions within the casing and oppositely extending portions passing through the slots in said side walls, each of said overlapping portions being formed with a pair of upstanding arms, a pair of handles pivoted to said casing on a common axis parallel to and disposed below said pivot pin, an operating arm on one handle having an offset finger disposed between the upstanding arms of said latches and an operating arm on the other of said handles and formed with an offset finger disposed between the upstanding arms of said latches, said operating arms being formed with arcuate slots through which the pivot pin passes, and spring means to bias said latches to normal position, and the oppositely extending portions of said latches being adapted to engage shoulders in the side walls of the case through which it passes for retaining the latches in normal position, and releasable locking means movable between an upstanding arm of one latch and an upstanding arm on the other latch to prevent lifting of the latches when an attempt is made to move the first handle, and means on the second arm to release said locking means upon turning the second handle.

10. A lock comprising a casing, a pair of latches pivoted to the casing and each having a strike engaging portion projecting from said casing, said portions projecting in opposite directions, an arm on one latch, an arm on the second latch, a handle pivoted to the casing, an operating arm within the casing and fixed to the handle for rotation therewith and having an offset finger disposed between the arms on said latches, means dependent upon rotation of the handle in one direction to cause said finger to engage the arm on one latch for lifting said latch and dependent upon rotation of said handle in an opposite direction to cause said finger to engage the arm of the other latch for lifting said other latch, a second arm on the first latch and a second arm on said other latch and locking means movable into a position between said second arms to prevent movement of said latches.

11. A lock comprising a casing, a pair of latches pivoted to the casing and each having a strike engaging portion projecting from said casing, said portions projecting in opposite directions, an arm on one latch, an arm on the second latch, a handle pivoted to the casing, an operating arm within the casing and fixed to the handle for rotation therewith and having an offset finger disposed between the arms on said latches, whereby rotation of the handle in one direction will cause said finger to engage the arm on one latch for lifting said latch and rotation of said handle in an opposite direction will cause said finger to engage the arm of the other latch for lifting said other latch, a second arm on the first latch and a second arm on said other latch and locking means movable into a position between said second arms to prevent movement of said latches, said locking means

being movable to a position clearing said arms whereby to permit rotation of said handle in either direction for lifting one or the other of said latches and spring snap means for retaining the locking means in either locking position or clearing position.

12. A lock comprising a casing, a pair of latches pivoted to the casing and each having a strike engaging portion projecting from said casing, said portions projecting in opposite directions, an arm on one latch, an arm on the second latch, a handle pivoted to the casing, an operating arm within the casing and fixed to the handle for rotation therewith and having an offset finger disposed between the arms on said latches, whereby rotation of the handle in one direction will cause said finger to engage the arm on one latch for lifting said latch and rotation of said handle in an opposite direction will cause said finger to engage the arm of the other latch for lifting said other latch, a second arm on the first latch and a second arm on said other latch and locking means movable into a position between said second arms to prevent movement of said latches, said locking means being movable to a position clearing said arms whereby to permit rotation of said handle in either direction for lifting one or the other of said latches and spring snap means for retaining the locking means in either locking position or clearing position, a second handle pivoted to said lock, a second operating arm within said casing fixed for rotation with said second handle and having an offset finger disposed between the first arms of said latches and adapted to engage the first arm of one latch upon swinging the second handle in an opposite direction for lifting the second latch and cooperating means on the finger of the second operating arm and on said locking means for causing the locking means to snap from its locking position to its clearing position upon turning the second handle in either direction with the locking means in locking position.

13. A lock comprising a casing, a pair of latches pivoted to the casing and each having a strike engaging portion projecting from said casing, said portions projecting in opposite directions, an arm on one latch, an arm on the second latch, a handle pivoted to the casing, an operating arm within the casing and fixed to the handle for rotation therewith and having an offset finger disposed between the arms on said latches, whereby rotation of the handle in one direction will cause said finger to engage the arm on one latch for lifting said latch and rotation of said handle in an opposite direction will cause said finger to engage the arm of the other latch for lifting said other latch, a second arm on the first latch and a second arm on said other latch and locking means movable into a position between said second arms to prevent movement of said latches, said locking means being movable to a position clearing said arms whereby to permit rotation of said handle in either direction for lifting one or the other of said latches and spring snap means for retaining the locking means in either locking position or clearing position, a second handle pivoted to said lock, a second operating arm within said casing fixed for rotation with said second handle and having an offset finger disposed between the first arms of said latches and adapted to engage the first arm of one latch upon swinging the second handle in an opposite direction for lifting the second latch and cooperating means on the finger of the second operating arm and on said locking means for causing the locking means to snap from its locking position to its clearing position upon turning the second handle in either direction with the locking means in locking position, spring means to bias said latches toward strike engaging positions, and stop means on the casing to engage said latches in strike engaging positions.

14. A lock comprising a casing having openings, a pivot pin in the casing, a pair of latches pivoted on said pivot pin, said latches having oppositely projecting strike engaging portions projecting through said openings in the casing, a first arm on the first latch, a second arm on the second latch, spaced from the first arm of the first latch, a handle pivoted to the casing about an axis parallel to the pivot pin and spaced therefrom, an operating arm within the casing fixed for rotation with said handle and having a finger disposed between the first arms on said latches and adapted to engage said arms upon turning said handle from normal position for raising either one or the other of said latches, depending upon the direction of rotation of said handle, a second arm on each of said latches in spaced, opposed relation to the first arms respectively of said latches, a plate mounted within said casing and formed with a slot, said casing being formed with a slot aligned with the first slot, a lock bar slidably mounted through said slots and projecting from said casing, said lock bar being formed at one edge with a pair of notches and a ridge between said notches, said guide means including a member formed with a slot, a spring pressed plunger within said casing passing through the slot in said guide means and having an edge portion pressed into one or the other of said notches in said lock bar, one end of said lock bar being adapted to be interposed between the second arms of said latches when the lock bar is moved to locking position, to prevent rotation of said operating arm when the handle is pressed in either direction.

15. A lock comprising a casing having openings, a pivot pin in the casing, a pair of latches pivoted on said pivot pin, said latches having oppositely projecting strike engaging portions projecting through said openings in the casing, a first arm on the first latch, a second arm on the second latch, spaced from the first arm of the first latch, a handle pivoted to the casing about an axis parallel to the pivot pin and spaced therefrom, an operating arm within the casing fixed for rotation with said handle and having a finger disposed between the first arms on said latches and adapted to engage said arms upon turning said handle from normal position for raising either one or the other of said latches, depending upon the direction of rotation of said handle, a second arm on each of said latches in spaced, opposed relation to the first arms respectively of said latches, a plate mounted within said casing and formed with a slot, said casing being formed with a slot aligned with the first slot, a lock bar slidably mounted through said slots and projecting from said casing, said lock bar being formed at one edge with a pair of notches and a ridge between said notches, guide means including a member formed with a slot, a spring pressed plunger within said casing passing through the slot in said guide means and having an edge portion pressed into one or the other of said notches

in said lock bar, one end of said lock bar being adapted to be interposed between the second arms of said latches when the lock bar is moved to locking position, to prevent rotation of said operating arm when the handle is pressed in either direction, a second handle pivoted to said casing, a second operating arm within said casing mounted on said second handle for rotation therewith, said second operating arm having an offset finger disposed between the first arms of said latches and adapted to lift either of said latches upon turning the second handle, depending upon the direction of turning of said second handle.

16. A lock comprising a casing having openings, a pivot pin in the casing, a pair of latches pivoted on said pivot pin, said latches having oppositely projecting strike engaging portions projecting through said openings in the casing, a first arm on the first latch, a second arm on the second latch, spaced from the first arm of the first latch, a handle pivoted to the casing about an axis parallel to the pivot pin and spaced therefrom, an operating arm within the casing fixed for rotation with said handle and having a finger disposed between the first arms on said latches and adapted to engage said arms upon turning said handle from normal position for raising either one or the other of said latches, depending upon the direction of rotation of said handle, a second arm on each of said latches in spaced, opposed relation to the first arms respectively of said latches, a plate mounted within said casing and formed with a slot, said casing being formed with a slot aligned with the first slot, a lock bar slidably mounted through said slots and projecting from said casing, said lock bar being formed at one edge with a pair of notches and a ridge between said notches, guide means including a member formed with a slot, a spring pressed plunger within said casing passing through the slot in said guide means and having an edge portion pressed into one or the other of said notches in said lock bar, one end of said lock bar being adapted to be interposed between the second arms of said latches when the lock bar is moved to locking position, to prevent rotation of said operating arm when the handle is pressed in either direction, a second handle pivoted to said casing, a second operating arm within said casing mounted on said second handle for rotation therewith, said second operating arm having an offset finger disposed between the first arms of said latches and adapted to lift either of said latches upon turning the second handle, depending upon the direction of turning of said second handle, said finger of the second operating arm having a pair of wings, and said lock bar being formed with a cammed projection between said wings adapted to be engaged by said wings when said second handle is turned for lifting the lock bar to permit said plunger to snap from one notch in the lock bar to the other, for retaining said lock bar in clearing position.

17. A lock comprising a casing having openings, a pivot pin in the casing, a pair of latches pivoted on said pivot pin, said latches having oppositely projecting strike engaging portions projecting through said openings in the casing, a first arm on the first latch, a second arm on the second latch, spaced from the first arm of the first latch, a handle pivoted to the casing about an axis parallel to the pivot pin and spaced therefrom, an operating arm within the casing fixed for rotation with said handle and having a finger disposed between the first arms on said latches and adapted to engage said arms upon turning said handle from normal position for raising either one or the other of said latches, depending upon the direction of rotation of said handle, a second arm on each of said latches in spaced, opposed relation to the first arms respectively of said latches, a plate mounted within said casing and formed with a slot, said casing being formed with a slot aligned with the first slot, a lock bar slidably mounted through said slots and projecting from said casing, said lock bar being formed at one edge with a pair of notches and a ridge between said notches, guide means including a member formed with a slot, a spring pressed plunger within said casing passing through the slot in said guide means and having an edge portion pressed into one or the other of said notches in said lock bar, one end of said lock bar being adapted to be interposed between the second arms of said latches when the lock bar is moved to locking position, to prevent rotation of said operating arm when the handle is pressed in either direction, a second handle pivoted to said casing, a second operating arm within said casing mounted on said second handle for rotation therewith, said second operating arm having an offset finger disposed between the first arms of said latches and adapted to lift either of said latches upon turning the second handle, said finger of the second operating arm having a pair of wings, and said lock bar being formed with a cammed projection between said wings adapted to be engaged by said wings when said second handle is turned for lifting the lock bar to permit said plunger to snap from one notch in the lock bar to the other, for retaining said lock bar in clearing position, said handles being rotatable on a common axis.

18. A lock comprising a casing having openings, a pivot pin in the casing, a pair of latches pivoted on said pivot pin, said latches having oppositely projecting strike engaging portions projecting through said openings in the casing, a first arm on the first latch, a second arm on the second latch, spaced from the first arm of the first latch, a handle pivoted to the casing about an axis parallel to the pivot pin and spaced therefrom, an operating arm within the casing fixed for rotation with said handle and having a finger disposed between the first arms on said latches and adapted to engage said arms upon turning said handle from normal position for raising either one or the other of said latches, depending upon the direction of rotation of said handle, a second arm on each of said latches in spaced, opposed relation to the first arms respectively of said latches, a plate mounted within said casing and formed with a slot, said casing being formed with a slot aligned with the first slot, a lock bar slidably mounted through said slots and projecting from said casing, said lock bar being formed at one edge with a pair of notches and a ridge between said notches, guide means including a member formed with a slot, a spring pressed plunger within said casing passing through the slot in said guide means and having an edge portion pressed into one or the other of said notches in said lock bar, one end of said lock bar being adapted to be interposed between the second arms of said latches when the lock bar is moved to locking position, to prevent rotation of said operating arm when the handle is pressed in either direction, a second handle pivoted to said casing, a second op-

erating arm within said casing mounted on said second handle for rotation therewith, said second operating arm having an offset finger disposed between the first arms of said latches and adapted to lift either of said latches upon turning the second handle, depending upon the direction of turning of said second handle, said operating arms being formed with arcuate slots through which the pivot pin passes.

19. A lock comprising a casing having openings, a pivot pin in the casing, a pair of latches pivoted on said pivot pin, said latches having oppositely projecting strike engaging portions projecting through said openings in the casing, a first arm on the first latch, a second arm on the second latch, spaced from the first arm of the first latch, a handle pivoted to the casing about an axis parallel to the pivot pin and spaced therefrom, an operating arm within the casing fixed for rotation with said handle and having a finger disposed between the first arms on said latches and adapted to engage said arms upon turning said handle from normal position for raising either one or the other of said latches, depending upon the direction of rotation of said handle, a second arm on each of said latches in spaced, opposed relation to the first arms respectively of said latches, a plate mounted within said casing and formed with a slot, said casing being formed with a slot aligned with the first slot, a lock bar slidably mounted through said slots and projecting from said casing, said lock bar being formed at one edge with a pair of notches and a ridge between said notches, guide means including a member

formed with a slot, a spring pressed plunger within said casing passing through the slot in said guide means and having an edge portion pressed into one or the other of said notches in said lock bar, one end of said lock bar being adapted to be interposed between the second arms of said latches when the lock bar is moved to locking position, to prevent rotation of said operating arm when the handle is pressed in either direction, said casing being formed with a pair of openings, pins extending through said openings and having heads engaging said latches, and coil compression springs on said pins and interposed between said casing and the heads on said pins.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,029,748	Giese	June 18, 1912
1,301,789	Howard	Apr. 22, 1919
2,096,980	Schjolin	Oct. 26, 1937
2,224,671	Crooks	Dec. 10, 1940
2,411,941	Smith	Dec. 3, 1946

FOREIGN PATENTS

Number	Country	Date
10,625	Netherlands	Feb. 15, 1924
154,112	Switzerland	July 1, 1932
376,475	Great Britain	July 14, 1932