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A. A. NAVARRO

3,403,473

REVERSIBLE DOOR OPENING ARRANGEMENT

Filed June 30, 1966

2 Sheets-Sheet 1

FIG. 1

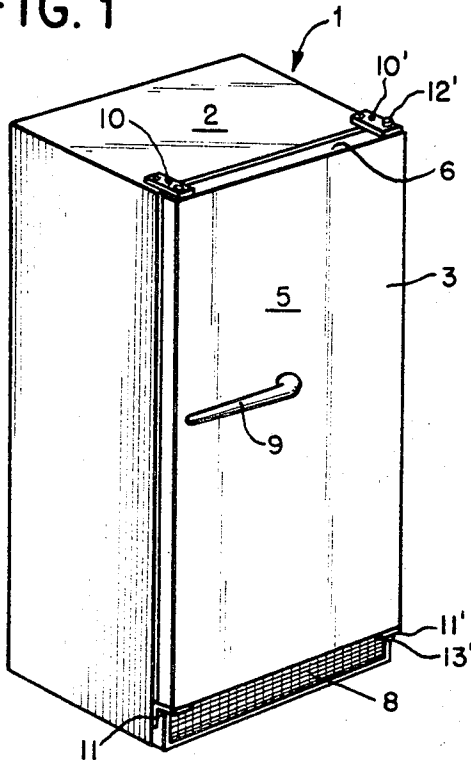


FIG. 4

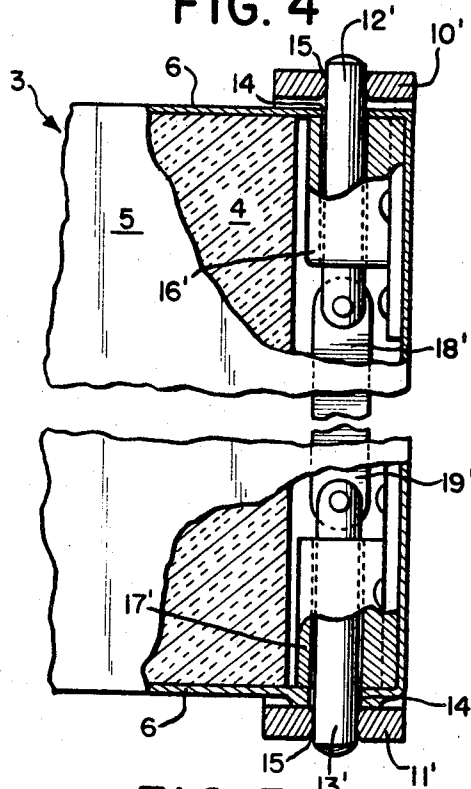


FIG. 2

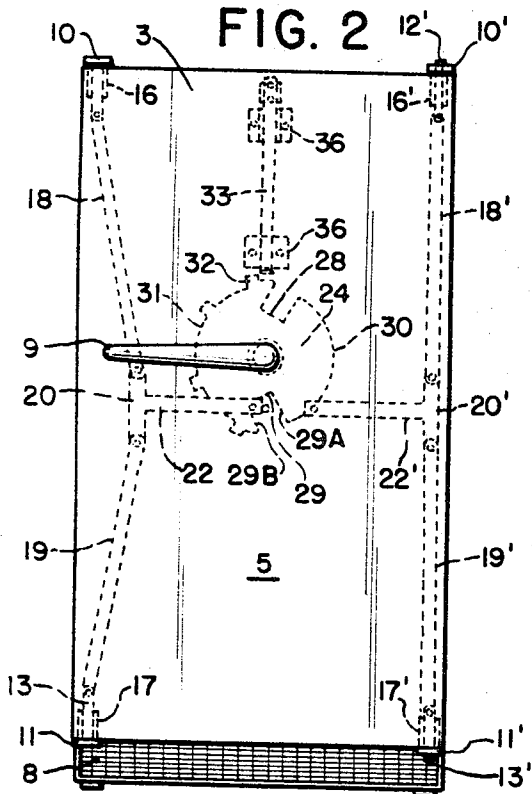
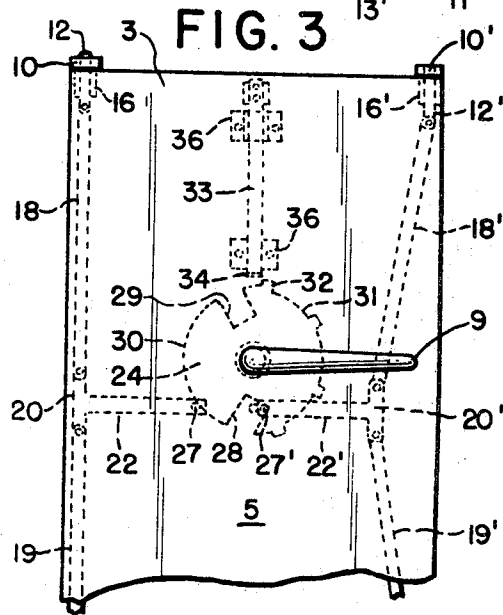


FIG. 3



INVENTOR.

Agustin A. Navarro  
BY  
Ronald Q. Sandler  
Attorney

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A. A. NAVARRO

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FIG. 5

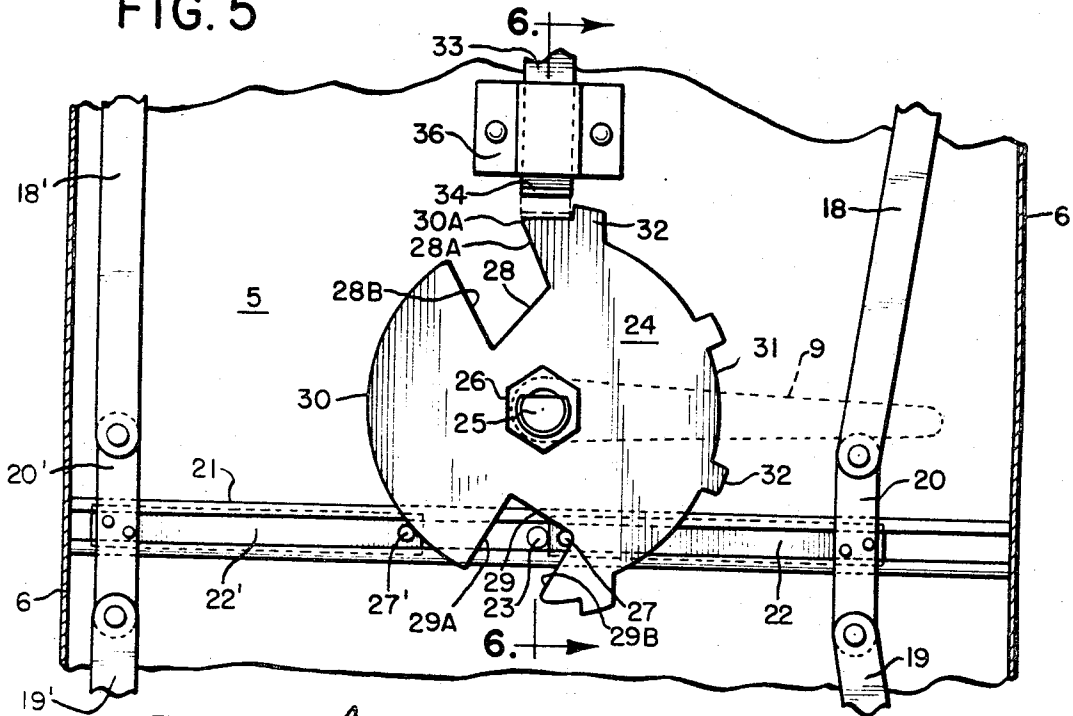


FIG. 6

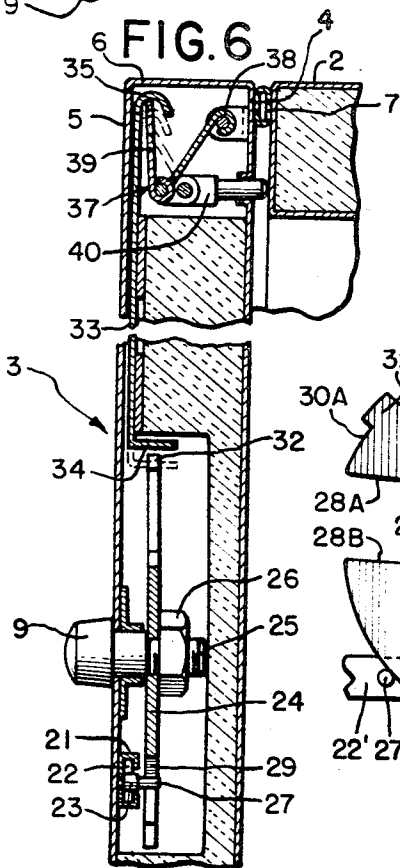


FIG. 5b

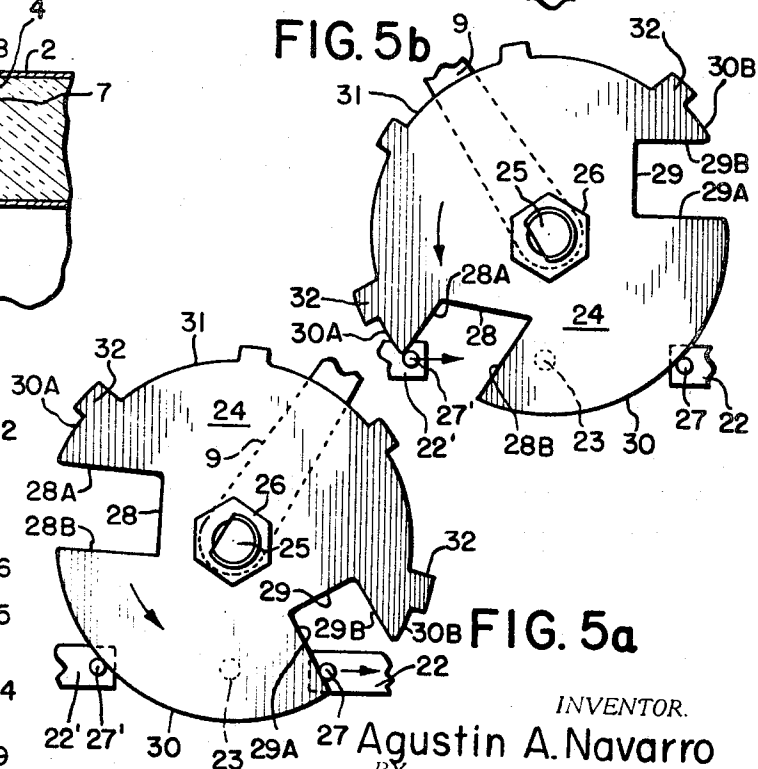


FIG. 5a

INVENTOR.

Agustin A. Navarro

BY *Ronald A. Sandler*

Attorney

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3,403,473  
**REVERSIBLE DOOR OPENING ARRANGEMENT**  
 Agustin A. Navarro, 4747 W. Congress Parkway,  
 Chicago, Ill. 60644  
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 5 Claims. (Cl. 49—193)

**ABSTRACT OF THE DISCLOSURE**

A mechanism is provided for reversibly mounting a door on a cabinet frame so that the door may be opened from selective sides of the cabinet. The mechanism includes support means disposed on two sides of the frame, and includes pivot pins on the door movably disposed on two sides thereof for engagement with the respective supports. A first toggle arrangement is provided to move the pivot pins on one side of the door into and out of engagement with the respective supports, whereupon the door may be rotated about one side thereof. A second toggle linkage is correspondingly provided for moving the pivot pins on the second side of the door. A rotatable actuator having cam surfaces is provided for sequentially moving the first and second toggle linkages in opposite directions, that is, movement of one of the toggle linkages in the engaging direction followed by movement of the other toggle linkage in the disengaging direction. A manually operable handle is provided for selectively moving the actuator. Lockout means are provided so that the mechanism is prevented from being operated when the door is open.

This invention relates to closure mounting structures, and more particularly, to means for mounting a closure upon a frame in a manner whereby the closure may be opened from either of two different sides of the frame selectively.

It is the usual practice in mounting a closure on a frame to provide hinges along one side so that the door may swing in a predetermined direction. It frequently occurs, however, that the swinging of the door about a different side is desirable, and it is to this end that my invention is directed.

Although my invention is applicable broadly to frames or cabinets of all types, it may prove to be very advantageous in domestic refrigerators. Conventionally, most cabinets of the one door type have been provided with doors that open and swing toward the right, and where conditions were encountered requiring a door to swing toward the left, it has been necessary to order a special structure. In refrigerator construction, it is difficult and expensive to provide both right and left hand models, as manufacturing delays, increased stock, and other added expenses arise when it is necessary to produce an oppositely hinged door.

It is also the desire of many homemakers to have a refrigerator with a door that may be opened from either side, thereby increasing the refrigerator's usefulness in the kitchen. This increased usefulness would be afforded by the adaptability of the refrigerator for placement in positions where its door can conveniently be opened only from either the right or the left side, or where it can be opened from either side, according to the convenience of the user.

Many manufacturers have been aware of this desire on the part of homemakers, and many have attempted to design door hanging mechanisms suitable for this purpose. Applicant is aware of various mechanisms for reversibly mounting a refrigerator door which have been proposed. While some of these arrangements have been mechanically satisfactory, none of these previous structures have met with any great success. The lack of success in the mount-

ing structures used heretofore is attributable, in part, to the high cost of providing the prior mechanisms within the refrigerator door. The high cost was a result of the extremely complex mechanical structure heretofore used to achieve the reversible mounting.

It is, therefore, a primary object of my invention to provide a simple and economical mechanism for reversibly mounting a door on a frame, which will permit the door to be opened from either of two sides thereof, selectively.

Another object of my invention is to provide an improved mechanism for reversibly mounting a door on a frame which includes means that prevent opening of the door about either of the two selective sides until the door is firmly secured to one side, to preclude the danger of the door falling off the frame.

In one aspect of my invention, the mechanism for reversibly mounting the door on a frame so that the door may be opened from selective sides of the cabinet includes support means disposed on two sides of the frame. The door has pivot means movably disposed on two sides thereof for engagement with the respective support means. First connecting means is provided to move the pivot means on one side of the door into or out of engagement with the respective support means, whereby the door may rotate about one side thereof when the pivot means engage the support means. Second connecting means is correspondingly provided for moving the pivot means on the second side of the door.

An actuator is provided for sequentially moving the first and second connecting means in opposite directions, that is, movement of one of the connecting means in the engaging direction is followed by movement of the other connecting means in the disengaging direction. Finally, a manually operable handle is provided for selectively moving the actuator so that either the first or second connecting means is movable in the engaging direction, whereby the door may be opened about a selective side thereof.

Other features and advantages of my invention will be apparent from the following detailed description of a presently preferred embodiment thereof, read in connection with the accompanying drawings, in which:

FIGURE 1 is a view in perspective and illustrates a cabinet embodying apparatus in accordance with the principles of my invention;

FIGURE 2 is a front view of the cabinet of FIGURE 1, and shows the position of the mounting mechanism in dashed lines, with the door being pivotable about the right hand side;

FIGURE 3 is a partial front view similar to FIGURE 2 and shows the position of the latching mechanism in dashed lines, with the door being pivotable about the left hand side;

FIGURE 4 is a partial cross-sectional view of the door illustrating the mounting mechanism in greater detail;

FIGURE 5 is a partial rear view of the cabinet door and illustrates the mounting mechanism and actuating means in greater detail;

FIGURES 5a and 5b illustrate the operation of the actuating mechanism on the mounting mechanism; and

FIGURE 6 is a view taken along the lines 6—6 of FIGURE 5 and illustrates in detail the operation of the lock-out device on the actuating mechanism.

Referring now to FIGURE 1, there is shown a box-like structure 1, which, for reference purposes only, may be designated a refrigerator, as my invention is particularly useful therefor. Refrigerator 1 comprises a cabinet 2 and door 3. As seen more clearly in FIGURE 6, the door includes an inner panel 4 and an outer panel 5, joined about their peripheries at 6 in any suitable manner. Inner panel 5 has a resilient magnetic sealing gasket 7 secured thereto. Gasket 7 also functions as a convenient latching

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mechanism for holding the door closed, as is conventional on currently manufactured refrigerators. Below door 3 is a grille 8 which permits passage of air to the machinery compartment of the refrigerator.

Rotatably secured midway between the sides of door 3 is an elongated handle 9. Handle 9 functions as the conventional means for opening and closing door 3, and also serves as the means for operating the actuating mechanism of my invention, as described in greater detail herebelow.

Referring now to FIGURES 1 through 4, cabinet 2 further includes a first pair of support plates, 10 and 11, secured to the top and bottom walls of the cabinet adjacent the left side thereof, and a second pair of support plates, 10' and 11', similarly secured to the top and bottom of the right side of the cabinet. The support plates all extend forwardly over the edge of cabinet 2, as best illustrated in FIGURE 1. Within door 3 and adjacent the corners thereof are pivot pins 12 and 13 on the top and bottom of the left side of the door, and 12' and 13' on the right side of the door. The pivot pins are all mounted for vertical reciprocation within the door in a manner hereafter described. The peripheral edge 6 of the door has suitable openings 14 (FIGURE 4) therethrough in vertical alignment with the respective pins, whereby the pins may extend beyond the edge 6 of the door when in their fully projected position. Each support plate 10, 11 and 10', 11', has an aperture 15 therethrough of substantially the same cross-section as the openings 14 in the edge of the door. The openings 15 in the plates are in vertical alignment with the openings 14 in the door when the door is closed and properly mounted on the cabinet.

When the pins 12' and 13' are in their projected position as shown in FIGURE 4, the outer ends thereof extend through the apertures 14 in the door and 15 in the support plates 10', 11' respectively, and thereby provide a vertical axis upon which the door may be rotated in a conventional manner.

Referring still to FIGURE 4, it will be noted that only two of the pins and their supports are disclosed in detail, but it is to be understood that the construction on both side of the door and all four corners thereof is identical. The hinge pins 12' and 13' are restricted to vertical reciprocation within the door by means of sockets 16' and 17' respectively, which may be welded or otherwise secured within the door at the corners thereof. Each socket 16', 17', includes an opening therethrough of slightly larger cross section than the respective pins, whereby the pins are free to reciprocate vertically within the sockets, while constrained to linear motion therethrough. Identical sockets 16 and 17 are provided at the top and bottom corners of the left side of the door as illustrated in FIGURES 2 and 3.

Referring now to FIGURE 2, it will be observed that pins 12 and 13 are pivotally connected at the inner ends thereof to the outer ends of toggle links 18 and 19 respectively. Links 18 and 19 are pivotally joined at their inner ends to a central link 20. Pins 12 and 13, toggle links 18 and 19, and central link 20 are suitably dimensioned so that the outer ends of the pivot pins project through the openings 15 in the support plates 10 and 11 when the links 18, 19, and 20 are in vertical alignment and parallel to the edge of the door, as illustrated in FIGURE 3. In a similar fashion, the corresponding pivot pins 12', 13', and links 18', 19' and 20' adjacent the right side of the door are likewise appropriately sized so that the pins 12' and 13' extend through the plates 10' and 11' on the right side of the cabinet when these links are in vertical alignment and parallel to the right edge of the door 3, as illustrated in FIGURE 2. When the pivot pins on either side of the door are in their projected positions and engage the respective support plates, the door may be rotated about the pins which are so engaged.

Secured to the inner face of the front panel 5 of the

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door is a C-shaped channel 21 (FIGURES 5 and 6). Channel 21 is horizontally disposed, and the ends thereof abut the opposite side edges of the door. A pair of plungers, 22 and 22', are supported for horizontal reciprocatory motion within channel 21. Central links 20 and 20' are rigidly secured at their midpoints to the respective outer ends of plungers 22 and 22', and are movable therewith. Of course, the toggle links may be pivotally connected directly to the ends of the plungers without the need for the intermediate central links.

When plunger 22 moves toward the center of the door, it draws central link 20 therewith. As links 18 and 19 are pivotally secured to link 20, they are drawn laterally away from the edge of the cabinet, and pins 12 and 13 move downwardly therewith. Because the pivot pins 12 and 13 are constrained by sockets 16 and 17 to a vertical component of movement, horizontal displacement of plunger 22 thereby effects a vertical displacement of pins 12 and 13. Inward movement of the plungers is limited by a pin 23, which is fixedly secured to the midpoint of channel 21 (FIGURE 5). The maximum inward movement of the plungers is such that the pivot pins are retracted until they are substantially parallel to the edge of the door, whereby the peripheral edge 6 of the door has as smooth an appearance as possible.

In a similar manner, as plunger 22' reciprocates within channel 21, the pivot pins 12' and 13' will be retracted or projected from the edge of the door, depending on the direction of movement of the plunger.

The mechanism for effecting sequential movement of the plungers 22 and 22', whereby the pivot pins on one side of the door are projected and then the pivot pins on the opposite side of the door are retracted, is best illustrated in FIGURES 5 and 6. The actuating mechanism comprises a flat plate indicated generally by numeral 24, which is rigidly secured to handle 9 for rotation therewith. Handle 9 includes a shouldered hub portion 25 which extends through the front panel 5 of the door, and is disposed above channel 21. The actuating plate 24 is mounted on the stepped portion of the hub, and is locked in position by a lock-nut 26 that is threaded onto the hub.

Referring still to FIGURES 5 and 6, it will be observed that the plungers 22 and 22' each have a transversely projecting pin, 27 and 27', respectively on the inner ends thereof. Pins 27, 27' extend into the path of actuating plate 24, where they function as cam followers under the action of the plate.

The periphery of actuating plate 24 is generally circular, and includes two circumferentially spaced notches, 28 and 29, which divide the plate into two arcuate segments 30 and 31. Plate 24 also includes a number of ears 32 which project outwardly from arcuate segment 31, for reasons hereafter explained. The peripheral shoulder 30A between the side 28A of notch 28 and the immediately adjacent ear 32 comprises an arc of slightly larger radius than the remainder of arcuate segment 30. The peripheral shoulder 30B extending between the side 29B of notch 29 and the ear 32 immediately adjacent thereto is also of a larger radius than the arcuate segment 30. The notches 28 and 29, the intermediate arcuate segment 30, and the extended peripheral shoulders 30A and 30B provide a cam surface that engages the respective pins 27, 27' and effects movement thereof in the manner herebelow described.

When it is desired to open the door from a particular side, handle 9 is rotated to the position wherein it faces away from the side about which the door is to rotate. Rotation of the handle effects a concurrent rotation of the actuating mechanism therewith, as seen in FIGURES 5a and 5b. With the handle in the FIGURE 5 position, the door is pivotable about pins 12' and 13' and the cam follower or plunger pin 27 resides in the corner of notch 29, adjacent side 29B thereof, as illustrated in FIGURES 2 and 5.

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To rotate the door about the opposite side, handle 9 and plate 24 are rotated in the counterclockwise direction as shown by the arrows in FIGURES 5a and 5b. The initial action of actuating plate 24 is to bring side 29A of notch 29 into engagement with pin 27, as illustrated in FIGURE 5a. As the handle continues to rotate, the actuating plate moves the pin, and thereby plunger 22, to the right. As plunger 22 moves to the right, links 18, 19 and 20 move into vertical alignment. As handle 9 and plate 24 continue to rotate in the counterclockwise direction, and after links 18, 19 and 20 are in vertical alignment, plunger pin 27 rides over the edge 29A of notch 29, and is then in contact with arcuate segment 30. Arcuate segment 30 functions as a dwell between the two notches as the plate rotates to its next effective position. When pin 27 rides over the edge of the notch, all four pins are fully extended, and it is thereby impossible to open the door until rotation of the handle is essentially completed.

As the handle and actuating plate are rotated from the position shown in FIGURE 5a to that shown in FIGURE 5b, pin 27' and the projected links 12' and 13' remain in their position, since arcuate segment 30 is merely a dwell and effects no movement of the pins 27 or 27' during this period of rotation. At this time, all four pins are projected. When the handle is rotated to the position shown in FIGURE 5b, the peripheral shoulder 31A which commences at the edge 28A of notch 28 engages pins 27', and further rotation of the handle effects a horizontal displacement of plunger 22' toward the center of the door. The horizontal displacement of plunger 22' is accompanied by the lateral movement of links 18' and 19' to effect a retraction of the pivot pins 12' and 13' as heretofore described.

Handle 9 may not be rotated more than 180°, because the inner end of one of the plungers will then engage the inwardly projecting pin 23 in channel 21. Since pins 27, 27' on the plungers engage plate 24, movement of the plate and the handle is thereby limited to a 180° arc.

To open the door about the opposite side, handle 9 is rotated in the opposite direction, i.e., clockwise as viewed in FIGURES 5, 5a and 5b. Upon rotation, the side 28B of notch 28 will engage pin 27' and move it to the left. Further rotation of the handle will continue to move the pins 12' and 13' into their projected position.

The notches 28 and 29 are spaced such that it is only after the links on one side of the door are in substantial vertical alignment, with the respective plunger pin in contact with the dwell portion, that the second notch engages the second plunger pin to effect a retraction of the second pair of pivot pins. It will thus be observed that the projection and the retraction of the pivot pins is essentially sequential, that is, the previously projected pivot pins are not retracted until the opposite pair of pivot pins is fully projected. Accordingly, there is at all times a pair of pivot pins on one side of the door which extends fully into the support plates. When the handle is only partially rotated, both pairs of pivot pins are projected and thus preclude opening of the door until the handle is substantially completely rotated to the selected position.

It is readily apparent that it is the location and configuration of the respective notches and shoulders that control the movement of the respective plungers to achieve the sequential operation thereof. In this respect, it is evident that whether or not the plate has a generally circular periphery is not critical to my invention, but is only a preferred form thereof.

To prevent rotation of the handle while the door is open, so that the pivot pins which are projected may not be retracted without the other set of pivot pins engaging the support plates on the opposite side, I have provided the lock-out mechanism best illustrated in FIGURES 5 and 6.

The lock-out device comprises an L-shaped member 33, the bottom leg 34 of which overhangs the actuating

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plate 24. The upper end of the vertical leg thereof comprises an inverted U-shaped flange 35. The lock-out member 33 is restricted to vertical movement above plate 24 by means of the brackets 36 which are secured to the back face of the front panel 5 of the door.

The mechanism for effecting movement of the lock-out member is best illustrated in FIGURE 6. A V-shaped member 37 is pivotally secured at the top end of leg 38 thereof to the inside face of the inner panel 4. The top of the opposite leg 39 of the V-shaped member is disposed within the U-shaped flange 35 at the upper end of the lock-out member. A pin 40 is pivotally secured to the apex of the legs 38 and 39. The pin extends through an opening in the inner panel 4 of the door, and functions as a strike for the lock-out device.

When the door is closed, the pin or strike 40 engages cabinet 2, as illustrated in FIGURE 6. When so engaged, the pin swings the V-shaped member 37 about the pivot axis of leg 38 toward the left as viewed in FIGURE 6. The opposite leg 39 acts on flange 35 to raise the lock-out member 33 to the position shown in full lines in FIGURE 6. When the lock-out member is so raised, the forwardly extending leg 34 is positioned above and out of the path of the outwardly extending ears 32 on actuating plate 24. When the door is ajar or fully open, the weight of the lock-out member causes the V-shaped member to pivot toward the right, whereupon the lock-out device descends vertically within the restraining brackets 36. Upon descending, the lock-out member terminates in the position shown by the dashed lines in FIGURE 6. In this position, the forwardly extending leg 34 is in the path of the outwardly extending ears 32, and no motion of the handle is thereafter possible. The effect of this engagement is such that the sides of the notch closest to the engaged ear may not engage the respective plunger pin to retract the projecting pivot pins while the door is open.

It is also possible to locate strike 40 as a fixed member of the cabinet, whereby when the door is closed the strike will enter an opening in the rear panel of the door and engage the pivot member 37.

When the door is closed, strike 40 engages the cabinet and causes the lock-out member to ascend so that leg 34 will be out of the path of ears 32, whereupon the handle may be rotated. While I have shown four ears on the actuating plate, it will be obvious that any suitable number may be placed thereon. Conversely, the configuration of the plate may likewise be changed so that indentations are used instead of ears.

It will be observed from the foregoing that I have provided a simple and economical mechanism for mounting a door on a cabinet. A single handle serves as the means for operating the mounting mechanism, and as the means to open the door. I have provided a simple but effective lock-out device which precludes operation of the actuating mechanism while the door is open, to thereby insure that the door will always be supported by the cabinet.

While the illustrated embodiment provides pivot pins 12, 12', 13 and 13', which extend fully through the respective plates 10, 10', 11 and 11', it will be obvious that the pins may be hollow members and the plates may provide inwardly extending projections about which the hollow members may telescopically engage to provide the pivot axes for the door. It is also possible to use my linkage and actuator in a door that one desires to open about adjacent sides, rather than opposite sides as illustrated herein. This can be accomplished by appropriate changes in the configuration of the actuator, for example, by locating the respective notches at right angles to each other, so long as the operation on the adjacent plungers is sequential.

While there has been described what is at present thought to be the preferred embodiment of my invention, it will be understood that various modifications may be made therein, and it is intended to cover in the appended

claims all such modifications as fall within the true spirit and scope of the invention.

I claim:

1. Mechanism for mounting a door on a frame whereby said door may be selectively opened about different sides thereof, comprising:

- (a) first support means disposed adjacent a first side of said frame;
- (b) second support means disposed adjacent a second side of said frame;
- (c) first pivot means movably disposed on a first side of said door;
- (d) second pivot means movably disposed on a second side of said door;
- (e) first connecting means operatively associated with said first pivot means for moving a said first pivot means into or out of engagement with said first support means, said door being rotatable about said side thereof when said first pivot means engage said first support means;
- (f) second connecting means operatively associated with said second pivot means for moving said second means into or out of engagement with said second support means, said door being rotatable about said second side thereof when said second pivot means engage said second support means;
- (g) an actuator for sequentially moving said first and second connecting means in the engaging and disengaging directions respectively, whereby movement of one of said connecting means in the engaging direction is followed by movement of the other of said connecting means in the disengaging direction;
- (h) manually operable means for selectively moving said actuator so that either said first or said second connecting means is movable in the engaging direction, whereby said door may be opened about a selected side thereof; and,
- (i) lock-out means mounted on said bore adjacent to said actuator and engageable therewith, said lock-out means being operable between a first position when said door is open, wherein said lock-out means engages said actuator to prevent movement thereof, and a second position when said door is closed wherein said lock-out means releases said actuator to permit movement thereof, whereby said actuator is operable to effect movement of said first and second connecting means only when said door is closed.

2. Mechanism for mounting a door on a frame whereby said door may be selectively opened about different sides thereof, comprising:

- (a) first support means disposed adjacent the first side of said frame;
- (b) second support means disposed adjacent a second side of said frame;
- (c) first pivot means movably disposed on a first side of said door;
- (d) second pivot means movably disposed on a second side of said door;
- (e) first connecting means operatively associated with said first pivot means for moving said first pivot means into or out of engagement with said first support means, said door being rotatable about said first side thereof when said first pivot means engages said first support means;
- (f) second connecting means operatively associated with said second pivot means for moving said second pivot means into or out of engagement with said second support means, said door being rotatable about said second side thereof when said pivot means engage said second support means;
- (g) an actuator for sequentially moving said first and second connecting means in the engaging and disengaging directions respectively, whereby movement of one of said connecting means in the engaging

direction is followed by movement of the other of said connecting means in the disengaging direction;

- (h) manually operable means for selectively moving said actuator so that either of said first or second connecting means is movable in the engaging direction, whereby said door may be opened about a selected side thereof;
  - (i) said actuator comprising a circular flat plate rotatably mounted on said door in a plane parallel thereto and in the path of said first and second connecting means, said plate including:
    - (i) first and second circumferentially spaced notches formed therein, said first and second arcuate segments, said first arcuate segment providing a dwell surface for said first and second connecting means;
    - (ii) first and second peripheral shoulders extending from said second arcuate segment, said first and second shoulders being disposed adjacent the respective opposite sides of said first and second notches;
  - (j) said first and second shoulders, said first and second notches, and said first arcuate segment being of a configuration such that upon selected rotation of said plate in a first direction, the side of said notch opposite said first shoulder engages said first connecting means and effects movement thereof in the engaging direction, thereby projecting said first pivot means, and thereby said first connecting means moves out of said notch and into contact with said first arcuate segment that provides a dwell therefor, and upon continued rotation of said plate in said first direction, said second shoulder engages said second connecting means and effects movement thereof in the disengaging direction, thereby retracting said second pivot means after said first pivot means are projected; and upon selected rotation of said plate in the opposite direction, the side of said second notch opposite said second shoulder engages said second connecting means and effects movement thereof in the engaging direction thereby projecting said second pivot means and then said second connecting means moves out of said notch and into contact with said first arcuate segment, and upon continued rotation of said plate, said first shoulder engages said first connecting means and effects movement thereof in the disengaging direction, whereupon said first pivot means are retracted; and,
  - (k) said manually operable means for selectively moving said actuator comprising a handle rigidly secured to said plate so that rotation of said handle in a selected direction is accompanied by rotation of said plate in said selected direction, whereby said door may be opened about a selected side thereof.
3. Mechanism for reversibly mounting a door on a cabinet whereby said door may be selectively opened from different sides thereof, comprising:
- (a) socket means for said door adjacent each corner thereof;
  - (b) a first pair of upper and lower retractable pivot means mounted on and adjacent a first side of said door;
  - (c) a second pair of upper and lower retractable pivot means mounted on and adjacent a second side of said door;
    - (i) said first and second pairs of pivot means each being movable between a projected position wherein said pivot means extend beyond the peripheral edge of said door, and a retracted position wherein the ends of said pivot means are substantially parallel to the edge of said door;
  - (d) said first and second pairs of pivot means comprise vertical pins movable longitudinally within said

- sockets, the outer ends of said pins being engageable with said respective first and second pairs of support plates when projected beyond the peripheral edge of said door;
- (e) first and second pairs of upper and lower support plates disposed adjacent opposite sides of said cabinet and adapted respectively to receive in support engagement said first and second pairs of pivot means when said pivot means are in their projected position, whereby said door may be rotated about either of said first or second pair of pivot means when so engaged with said respective first or second pairs of support plates;
- (f) first and second link means mounted on said door and operatively associated with said respective first and second pairs of pivot means for moving said respective first or second pairs of pivot means into or out of engagement with said respective first or second pairs of support plates;
- (g) said first and second link means being disposed substantially adjacent said first and second sides of said door and each including:
- (i) a pair of oppositely extending toggle links mounted on said door, the outer ends of said toggle links being pivotally connected to the inner ends of said pins;
- (ii) first and second plungers including respective first and second cam followers thereon and disposed for horizontal reciprocatory movement on said door, the inner ends of said respective toggle links being operatively joined to the outer ends of said first and second plungers, whereby horizontal movement of said plungers effects a vertical movement of said pins;
- (h) an actuator for sequentially moving said first and second link means in the engaging and disengaging directions, respectively, whereby movement of one of said link means in the engaging direction is followed by movement of the other of said link means in the disengaging direction;
- (i) said actuator comprising a circular flat plate rotatably mounted on said door in a plane parallel thereto and in the path of said cam followers, said plate including:
- (i) first and second circumferentially spaced notches formed therein, said first and second notches dividing said plate into a first smaller arcuate segment and a second larger arcuate segment, said smaller arcuate segment providing a dwell surface for said cam followers;
- (ii) first and second peripheral shoulders extending from said second larger arcuate segment, said first and second shoulders being disposed adjacent the opposite sides of said respective first and second notches;
- (j) said first and second shoulders, said first and second notches, and said first arcuate segment being of a configuration such that upon selected rotation of said plate in a first direction, the side of said first notch opposite said first shoulder engages said first cam follower and effects movement of said first cam follower and said first plunger in the engaging direction, thereby projecting said first pair of pivot pins, whereupon said first cam follower moves out of said notch and into contact with said first arcuate segment that provides a dwell for said first cam follower, and upon continued rotation of said plate in said first direction, said second shoulder engages said second cam follower and effects movement of said second cam follower and said second plunger in the disengaging direction, thereby retracting said second pair of pivot pins after said first pivot means are projected; and upon selected rotation of said plate in the opposite direction, the side of said second notch opposite said second shoulder engages said sec-

- ond cam follower and effects movement of said second cam follower and said second plunger in the engaging direction thereby projecting said second pair of pivot pins, whereupon said second cam follower moves out of said notch and into contact with said first arcuate segment, and upon continued rotation of said plate, said first shoulder engages said first cam follower and effects movement of said first cam follower and said first plunger in the disengaging direction, whereupon said first pair of pivot pins are retracted; and,
- (k) manually operable means for selectively moving said actuator so that either of said first or second link means is movable in the engaging direction, whereby said door may be opened about a selective side thereof, said manually operable means comprising a handle rigidly secured to said plate so that rotation of said handle in a selected direction is accompanied by rotation of said plate in said selected direction.
4. The combination according to claim 3 wherein:
- (a) said first plate further includes at least two ears thereon adjacent said first and second shoulders and extending outwardly from said second arcuate segment;
- (b) a lock-out member comprising a substantially L-shaped member mounted for vertical movement on said door between a lower position, in which a projecting leg thereof engages one of said ears on said plate and thereby precludes rotational movement of said plate, and an upper position, in which said lock-out member is disposed above said plate and said projecting leg is disengaged from said ear to thereafter permit rotational movement of said plate;
- (c) a V-shaped member pivotally secured at the upper end of a first leg thereof to said door, with the upper end of the second leg thereof in engagement with the upper end of said L-shaped lock-out member, said V-shaped member being pivotal between a first position wherein the weight of said lock-out member on said second leg thereof causes said V-shaped member to pivot towards said cabinet, and a second position wherein said V-shaped member pivots away from said cabinet and thereby raises said lock-out member to its upper position; and,
- (d) strike means effective upon closing said door to pivot said V-shaped member to its second position and thereby raise said lock-out device to its upper position in which said lock-out member disengages from said ear on said plate whereupon said plate may be rotated to a selected position, and said strike means effecting a release of said V-shaped member upon the opening of said door so that said V-shaped member may pivot to said first position thereof, whereby said lock-out member may descend to its lower position and thereby preclude rotational movement of said plate when said door is open.
5. The combination according to claim 2 wherein:
- (a) said flat plate further includes at least two ears thereon adjacent said first and second shoulders and extending outwardly from said second arcuate segment;
- (b) a lock-out member comprising a substantially L-shaped member mounted for vertical movement on said door between a lower position, in which a projecting leg thereof engages one of said ears on said plate and thereby precludes rotational movement of said plate, and an upper position, in which said lock-out member is disposed above said plate and said projecting leg is disengaged from said ear to thereafter permit rotational movement of said plate;
- (c) a V-shaped member pivotally secured at the upper end of a first leg thereof to said door, with the

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upper end of the second leg thereof in engagement with the upper end of said L-shaped lock-out member, said V-shaped member being pivotally between a first position wherein the weight of said lock-out member on said second leg thereof causes said V-shaped member to pivot towards said cabinet, and a second position wherein said V-shaped member pivots away from said cabinet and thereby raises said lock-out member to its upper position; and, (d) strike means effective upon closing said door to pivot said V-shaped member to its second position and thereby raise said lock-out device to its upper position in which said lock-out member disengages from said ear on said plate whereupon said plate may be rotated to a selected position, and said strike means effecting a release of said V-shaped member upon the opening of said door so that said V-shaped member may pivot to said first position thereof, whereby said lock-out member may descend to

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its lower position and thereby preclude rotational movement of said plate when said door is open.

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DAVID J. WILLIAMOWSKY, *Primary Examiner.*DENNIS L. TAYLOR, *Assistant Examiner.*