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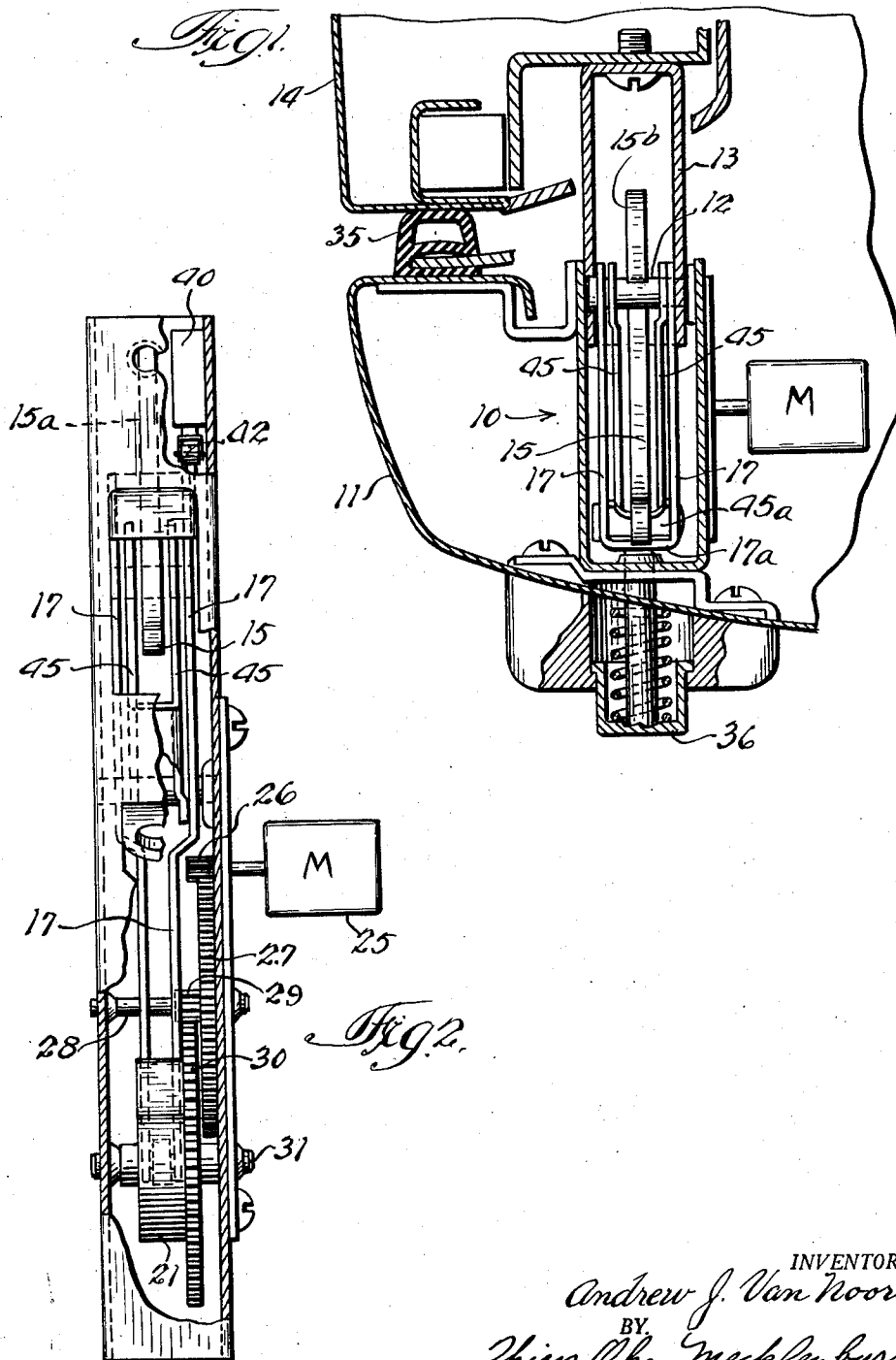
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POWER OPERATED LATCH MECHANISM

Filed Nov. 19, 1956

3 Sheets-Sheet 1



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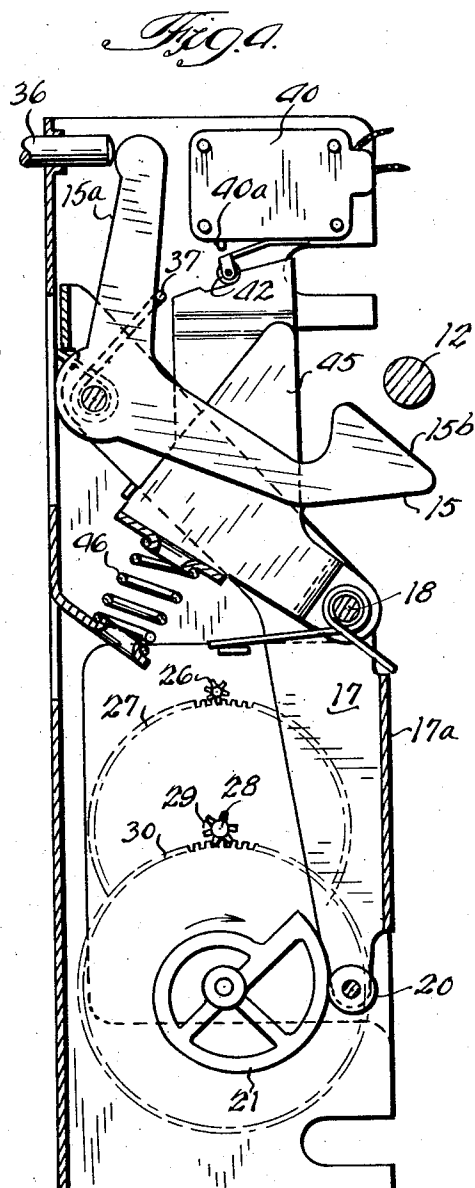
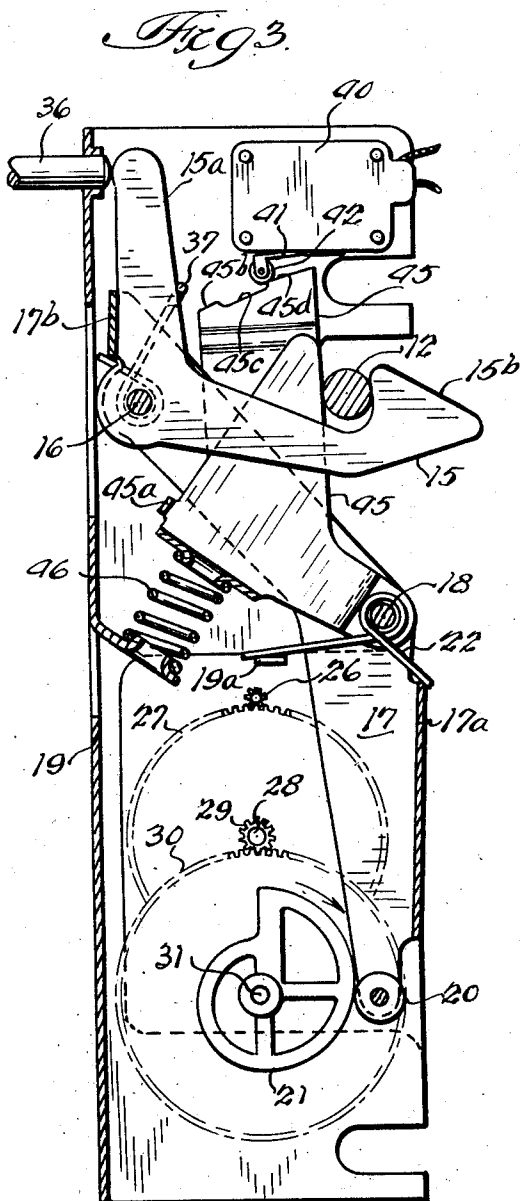
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POWER OPERATED LATCH MECHANISM

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3 Sheets--Sheet 2



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POWER OPERATED LATCH MECHANISM

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3 Sheets-Sheet 3

Fig. 5.

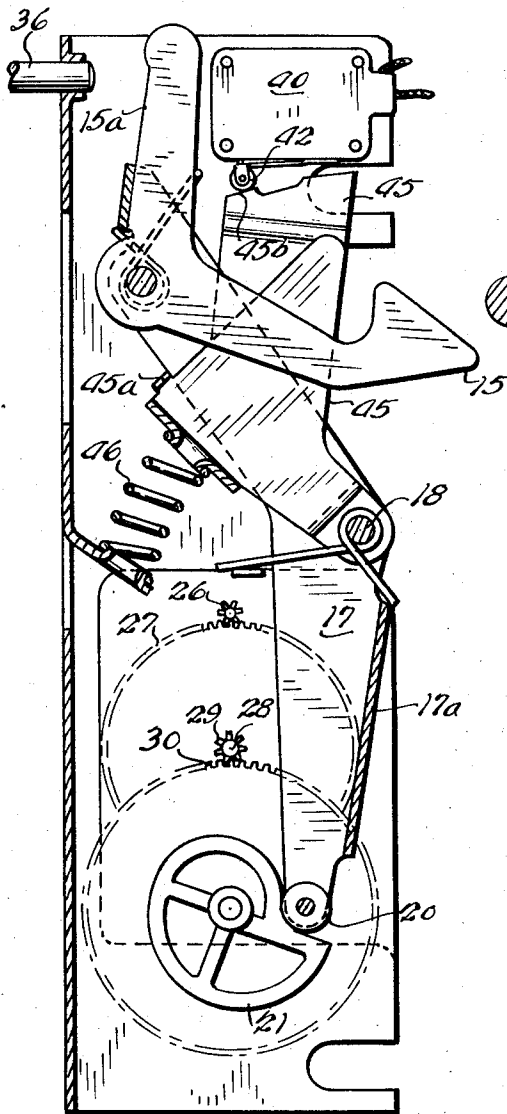
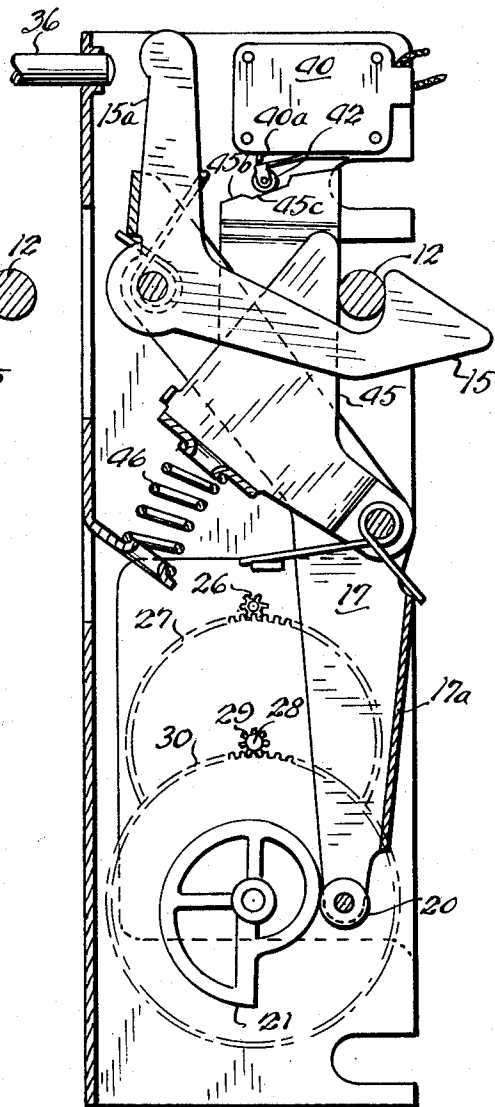


Fig. 6.



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2,898,138

POWER OPERATED LATCH MECHANISM

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10 Claims. (Cl. 292—122)

This invention relates to a power-operated latch mechanism capable of drawing an associated door or other closure tightly shut, and it is an object of the invention to provide improved apparatus of that character.

In latch mechanisms for use on household refrigerators or for other applications in which it is desirable that the latch mechanism be capable of drawing an associated door or closure tightly shut it is conventional to employ stored energy in a powerful main latch spring for this purpose. This main latch spring is manually energized during the opening or releasing of the latch mechanism, or sometimes during the closing of the door by movement of the latch bolt along a sloping approach surface of the associated keeper. In either case a large force must be exerted manually over an appreciable distance to produce the energization of the main spring. During the final closing movement of the door, the main spring is released or triggered to drive the latch bolt forcibly into its latching position with respect to the associated keeper, whereby the door is drawn tightly shut. In the case of such a latch mechanism being applied to a household refrigerator, this final closing movement of the door, energized by the main latch spring, may be employed to compress a gasket between the door and the door frame to seal the cabinet.

In accordance with the present invention, the door with which the latch mechanism is associated may be opened and closed by application of a very light force, and a power source is provided to operate the latch mechanism to draw the door tightly shut.

Accordingly, it is another object of the invention to provide an improved power-operated latch mechanism which may be latched and released with the application of a very light force and which is capable of drawing an associated door tightly closed through the operation of the latch mechanism proper by a power source.

It is another object of the invention to provide an improved power-operated latch mechanism capable of holding an associated door tightly closed in the event of power failure while the door is closed.

It is another object of the invention to provide an improved power-operated latch mechanism capable of holding an associated door tightly closed in the event of power failure while the door is closed, and which may readily be opened and may be slammed shut to its fully closed position, all while the power remains off.

It is another object of the invention to provide an improved power-operated latch mechanism capable of latching an associated door in substantially closed position in the event of power failure during the time that the door is open.

It is another object of the invention to provide an improved power-operated latch mechanism capable of latching an associated door in substantially closed position in the event of power failure during the time that the door is open and capable of drawing the associated door tightly shut upon the return of power.

It is another object of the invention to provide im-

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proved power-operated latch mechanism having various of the characteristics defined above while being rugged, reliable in operation and inexpensive to manufacture.

This invention, together with further objects and advantages thereof, will best be understood by reference to the following description taken in connection with the accompanying drawings and its scope will be pointed out in the appended claims.

In the drawings, in which like parts are designated by like reference numerals:

Figure 1 is a sectional plan view of a latch mechanism illustrating one embodiment of the invention;

Fig. 2 is a sectional front elevational view of the same latch mechanism;

Fig. 3 is a sectional side elevational view of the same latch mechanism, and

Figs. 4, 5 and 6 are views similar to Fig. 3 but illustrating the latch mechanism in different operating positions.

The power-operated latch mechanism shown in the drawings and described below is well adapted to use on household refrigerators. However, it is to be understood that a latch mechanism constructed in accordance with the present invention may be used to advantage in any other application which calls for the latch mechanism to draw a closure tightly shut and in which ease of operation is of substantial significance.

In the particular embodiment of the invention disclosed in the drawings, the latch mechanism 10 is mounted on a door 11 as seen in Fig. 1, while a keeper 12 and its supporting structure 13 are mounted on a cabinet or door frame 14. Referring to Fig. 3, it will be seen that the operating portion of the keeper 12 is a simple pin. The pin may be rotatable to reduce friction, or it may have a sleeve rotatable thereon.

Engageable with the keeper is a latch bolt 15 which is pivotally mounted through a pin 16 on one end of an elongated lever 17. The lever is pivotally mounted through a pin 18 on a latch housing 19 and carries at its other end a roller 20 which is engageable with a cam 21. A light spring 22 is wound around the pin 18, with one end engaging an ear 19a on the housing and the other end engaging a web portion 17a of the lever 17. This spring 22 thereby urges the roller 20 into engagement with the cam 21. As will be noted in Fig. 1, the lever 17 is of double-wall construction with an interconnecting web portion 17a.

A motor 25 is provided for driving the cam 21 as may best be seen in Fig. 2. The motor shaft terminates in a small spur gear 26 which engages a large gear 27 mounted on an idler shaft 28. Also secured to the shaft 28 is another small gear 29 which drives a large gear 30. This latter gear is secured to the same shaft 31 as is the cam 21. It will now be seen that the various illustrated gears comprise a speed reduction train of large ratio. The motor 25 furthermore may have incorporated therein a speed-reducing gear train of substantial ratio. The net result is preferably that the cam 21 rotates at a speed on the order of 20 r.p.m. when the motor is in operation. This results in high torque applied to the cam even though a very small motor is employed. The cam 21 is driven in a clockwise direction or in the direction of the arrow in Fig. 3.

It will be seen that as the cam 21 rotates from the position of Fig. 5 to the position of Fig. 3, the cam follower or roller 20 is forced or retracted to the right, with the result that the upper end of the pivoted lever 17 is moved to the left. Since the bolt 15 is pivotally secured to the upper end of the lever 17, the bolt in turn is drawn or extended to the left in Fig. 3. Accordingly, if the bolt 15 is first brought into latching engagement with the

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keeper 12, as indicated in Fig. 6, following which the cam 21 is rotated, the latch bolt 15 will draw the fixed keeper 12 relatively toward the door 11 and, therefore, pull the door forcibly closed. This operation may serve to compress a gasket 35, illustrated in Fig. 1, so as to seal the door.

The latch is releasable, without operation of the motor 25, by a push button 36, seen in Figs. 1 and 3. The push button bears against an upwardly extending projection 15a of the latch bolt and causes the latch bolt to pivot in a clockwise direction. This pivots the latch bolt out of engagement with the keeper 12 with the result that the latch mechanism 10 and the door 11 may move away from the keeper as illustrated in Fig. 4. A spring 37 is wound around the pivot pin 16 of the latch bolt and bears against another web portion 17b of the lever 17 and against the upwardly extending arm 15a of the latch bolt. The spring 37 thereby urges the latch bolt in a counterclockwise direction toward its keeper-engaging position. Counterclockwise movement of the latch bolt is limited by engagement of the arm 15a with the web portion 17b of the lever 17. Accordingly, after the door 11 is opened and after the push button 36 is released, the latch bolt 15 may be pivoted in a counterclockwise direction to its keeper-engaging position by the spring 37.

If, while the door is open, the motor drives the cam 21 from the position of Fig. 3 to the position of Fig. 5, the latch bolt 15 will be moved to the right or toward the keeper 12. In this position the latch bolt may latchingly engage the keeper without compression of the gasket; that is, the latch bolt is positioned inwardly toward the keeper with respect to the door a sufficient distance that it may latchingly engage the keeper while the door is still slightly ajar. It should be noted that as the door is pushed toward this nearly closed position, the keeper 12 will bear against the sloping approach surface 15b of the latch bolt and cause the latch bolt to swing in a clockwise direction out of the path of relative movement of the keeper. After the door has been pushed further shut, the peak of the latch bolt passes inwardly beyond the keeper whereupon the spring 37 may again pivot the latch bolt in a counterclockwise direction and into latching engagement with the keeper. At this point the door is still slightly ajar by virtue of the fact that the latch bolt 15 has been moved by the lever 17 toward the cabinet 14 with respect to the door 11.

If, now, the motor 25 is again operated to move the cam 21 from the position of Fig. 5, through the position of Fig. 6 and to the position of Fig. 3, the latch bolt is moved to the left with respect to the door 11 and accordingly pulls the door tightly shut to compress the gasket 35.

Control of the motor 25 is accomplished in accordance with the illustrated embodiment of the invention by a switch 40 having an operating button 40a. The button is in turn operated by a roller 42 mounted on a spring arm 41. This switch may be of the type commonly referred to as a microswitch. Since the switch itself and the circuitry through which it may control the motor 25 are common and are well known in the art, they are not shown in the drawings. For the purpose of disclosing the present invention, it is believed to be sufficient to indicate that when the roller 42 is in raised position, as in Figs. 3 and 5, the switch contacts are in such condition that the motor 25 is deenergized, and, conversely, when the roller 42 is in its lowered position, as in Figs. 4 and 6, the switch contacts are in such condition that the motor 25 is energized.

The roller 42 is actuated by an arm 45 which is pivotally mounted on the pin 18. A coil spring 46 urges the arm 45 to pivot in a clockwise direction, and such pivotal movement is limited by engagement of an ear 45a with the left-hand edge of the lever 17.

It will be seen that when the lever 17 is permitted by

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the cam 21 to swing to its extreme clockwise position (the door being open), the arm 45 may also swing to its extreme clockwise position with the ear 45a engaging the left-hand edge of the lever 17, all as illustrated in Fig. 5. In this position of the arm 45, a raised cam surface 45b engages the switch-controlling roller 42 and maintains the roller in a raised position, such that the motor 25 is de-energized.

When the door is moved to its substantially closed position, such that the latch bolt 15 is brought into latching position with respect to keeper 12, the keeper bears against the right-hand edge of the arm 45 and causes the latter to pivot in a counterclockwise direction, as illustrated in Fig. 6. This brings a recessed cam portion 45c into contact with the roller 42, with the result that the switch is operated to cause energization of the motor 25.

The motor 25 then drives the cam 21 and causes counterclockwise pivotal movement of the lever 17. This pulls the latch bolt 15 and hence the keeper 12 to the left with respect to the door 11. The keeper in turn, still bearing against the right-hand edge of the arm 45, causes further counterclockwise pivotal movement of the arm 45 until the roller 42 leaves the recessed cam surface 45c and rides onto a second raised cam surface 45d. The motor 25 is thereby de-energized, leaving the latch mechanism in the position illustrated in Fig. 3. The driving means should be unidirectional, that is, the reduction gearing and the angle of the force of the cam roller 20 against the cam 21 should be such that the motor and gears cannot be caused to rotate by force of the cam roller against the cam.

When it is again desired that the door 11 be opened, the push button 36 may be depressed to pivot the latch bolt in a clockwise direction until the keeper is freed thereof. As the door is opened, the keeper 12 is withdrawn from the arm 45 with the result that the latter may pivot in a clockwise direction under the influence of the spring 46 to the position illustrated in Fig. 4. This again brings the roller 42 into engagement with the recessed cam surface 45c with the result that the motor 25 is again energized. The motor continues to operate then until the cam following roller 20 passes over the highest point of the cam 21 and pivots under the influence of the spring 22 into engagement with the lowest point of the cam surface 21. This swings the lever 17 and the arm 45 to the positions illustrated in Fig. 5 wherein the roller 42 is again in engagement with the raised cam surface 45b. This de-energizes the motor and leaves the latch mechanism in proper position for closing.

In order that the motor 25 may leave the cam 21 and associated parts in their proper positions each time that the motor is de-energized, the motor should be of a type which comes quickly to a stop when de-energized. Still further, a clutch may be added, or incorporated in the motor, which disengages very rapidly when the motor is de-energized and re-engages when the motor is again energized. Since motors and clutches of this type are well known in the art and do not constitute in themselves a feature of the present invention, they are not described in detail herein.

While operation of the various parts of the illustrated latch mechanism has been largely explained in the description of the parts, a better understanding of the invention may result from a complete explanation of one operational cycle of the apparatus. Starting with the latch mechanism in its closed or latched position as illustrated in Fig. 3, the latch may be released by pressure of the push button against the upwardly extending arm 15a of the latch bolt 15. This pivots the latch bolt in a clockwise direction until the keeper is free of the latch bolt as may be seen in Fig. 4.

During this pivotal movement of the latch bolt the lever 17 remains stationary. However, since the latch bolt and the keeper are thus disengaged, the door is

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free to open, and opening movement of the door is encouraged by the spring 46 acting through the arm 45 against the keeper 12. Initial opening movement of the door permits clockwise movement of the arm 45 by the spring 46, with the result that the switch-controlling roller 42 moves downwardly into contact with the recessed cam surface 45c. The clockwise pivotal movement of the arm 45 is limited by engagement of the ear 45a with the left-hand side of the lever 17, with the result that the roller 42 remains in contact with the recessed cam surface 45c. The switch 40 is thereby actuated to energize the motor 25.

The cam 21 is driven by the motor in a clockwise direction and initially pivots the lever 17 in a counterclockwise direction. However, this pivotal movement of the lever 17 and corresponding pivotal movement of the arm 45 is small enough that the roller 42 remains in contact with the recessed cam surface 45c. The motor 25 continues to drive the cam 21 until the cam following roller 20 falls from the high point of the cam 21 to the lowest point thereof as illustrated in Fig. 5. The lever 17 pivots suddenly from its extreme counterclockwise position to its extreme clockwise position, and the arm 45 is simultaneously permitted to swing to its extreme clockwise position under the influence of the spring 46. This brings the raised cam surface 45b into contact with the roller 42 and causes the switch 40 to de-energize the motor 25. The latch bolt 15 has now been moved a substantial distance to the right, as compared to its position illustrated in Fig. 3.

Assuming that the push button 36 has been released, the door 11 may now be pushed shut. The keeper 12 engages the sloping approach surface 15b of the latch bolt and pushes the latch bolt aside such that the keeper and latch bolt come into latching engagement as illustrated in Fig. 6. Since the latch bolt 15 has been moved to the right, this latching engagement may be accomplished while the door 11 is still slightly ajar, with the result that the gasket 35, seen in Fig. 1, is not compressed. Accordingly, the operator may bring the door into latched position without exerting the substantial force which would be necessary to compress the gasket 35.

When the keeper is thus arranged in latching engagement with the latch bolt 15, it holds the arm 45 to the left against the action of the spring 46 as is illustrated in Fig. 6. This brings the roller 42 again into contact with the recessed cam portion 45c with the result that the motor 25 is again energized. As the motor drives the cam 21 further in a clockwise direction, the lever 17 is made to pivot in a counterclockwise direction. This draws the latch bolt 15 to the left and accordingly draws the door further closed and compresses the gasket 35.

This closing movement of the door also causes counterclockwise pivotal movement of the arm 45 by virtue of the pressure of the keeper thereagainst. Closing movement of the door continues until roller 42 passes off the recessed cam portion 45c and onto the raised cam portion 45d. This actuates the switch 40 to de-energize the motor, whereupon the over-all latch mechanism has again reached the position illustrated in Fig. 3.

It has now been shown that the latch mechanism illustrated in the drawings is one in which a power source is employed to supply the energy necessary to compress a door-sealing gasket or to draw a closure tightly shut for any other reason. The forces which must be exerted by the operator to release the latch mechanism and to relatch the mechanism are very small and are determined only by such incidental factors as frictional forces. More particularly, none of the force or energy required to compress the gasket 35 or otherwise to draw the door tightly shut need be supplied by the operator.

In the event that there should be a power failure while the door is closed and the latch mechanism is in

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the position of Fig. 3, there will be no effect on the latch mechanism and the door will be maintained tightly shut. Furthermore, the door may readily be opened in the usual manner by a light pressure against the push button 36. Still further, even though the power failure should continue, the door can be closed if the operator bears hard enough against the door to compress the gasket. It will be seen that with the latch mechanism in the position of Fig. 3, it will be necessary to close the door with sufficient force to compress the gasket before the keeper 12 can come into latching engagement with the bolt 15. Accordingly, if there is a power failure while the latch mechanism is in its closed position, the door may be opened or closed by the operator in a completely satisfactory manner with the obvious exception that the operator must slam the door with sufficient force to compress the gasket, this being the work normally accomplished by the motor 25.

In the unusual event of a power failure during the short time that the door 11 may be open, the latch mechanism would remain in the position illustrated in Fig. 5. In this case, the latch mechanism may readily be latched and unlatched but when the latch mechanism is latched, the door would be slightly ajar, since the latch bolt is in its right-hand position. It should be noted, however, that if the latch mechanism is thus left latched with the door slightly ajar, the latch mechanism being in the position of Fig. 6, the door would automatically be pulled tightly shut immediately upon power being restored and without further attention by the operator.

While one particular embodiment of the invention has been disclosed in the drawings and described in detail above, it will be apparent that substantial modifications can be made without departing from the spirit of the invention. For example, the keeper 12 has been shown as being mounted on the door frame or cabinet while the latch bolt 15 is mounted on the door. This arrangement could, of course, be reversed without affecting operation of the illustrated latch mechanism in any way. In the embodiment disclosed in the drawings, the latch bolt 15, the arm 45 and the lever 17 are shown as being pivotable. This suggested form of movement is preferred because it is generally accompanied by less friction than is sliding movement, but is in no sense critical to the invention. It should be noted, furthermore, that the relative movement of the keeper and the latch bolt between latching position and released position necessarily includes a component of movement in a direction generally parallel to the door. Other components of direction of movement may also be employed but a component of direction of movement parallel to the door must be present to permit complete disengagement of the latch bolt and the keeper.

It should be noted, furthermore, that either of the latching elements, namely, the keeper 12 or the latch bolt 15 might be movable toward and away from the other, or, more particularly, the door member or the door frame member on which the other element is mounted, and be power-operated in such movement to cause the final power-operated closing movement of the door. It will be further apparent that various types of power sources and controls therefor might be employed without departing from the spirit of the invention.

For instance another variation deemed to be within the spirit and scope of this invention is the placement of switch 40, roller 42, switch roller actuating arm 45, bolt 15, elongated operating lever 17, and associated pivots and springs within the door-adjacent pilaster section of the refrigerator cabinet. This arrangement would allow motor 25 to be conveniently placed in the base of the cabinet and permit the mechanism to be used in connection with thin-paneled refrigerator doors and cabinets. Cam 21 and gearing connecting it to the motor 25 would preferably be also placed in the pilaster section although with simple mechanical design changes, these elements

could also be placed in the base of the cabinet with the motor.

It will also be apparent that the invention may be varied in its physical embodiment without departing from the spirit of the invention, and it is desired, therefore, that the invention be limited only by the prior art and the scope of the appended claims.

What is claimed is:

1. In a power-operated latch mechanism for cooperating with a keeper to draw a hinged door tightly shut with respect to a cabinet, a lever mounted on said door, a hook-shaped latch bolt mounted on said lever and pivotable with respect thereto between a keeper-interlocking position and a keeper-releasing position, said lever being pivotable with respect to said door to move said latch bolt toward and away from said cabinet with respect to said door, power-operated means for pivoting said lever to move said latch bolt away from said cabinet with respect to said door whereby when said latch bolt has been moved toward said cabinet by said lever and is interlocked with said keeper said power-operated means operating through said lever may draw said latch bolt away from said cabinet with respect to said door and thereby pull said door tightly shut, and control means for controlling said power-operated means including an arm pivotally mounted on said door, spring means urging said arm to pivot toward said cabinet, and stop means limiting such pivotal movement beyond a given angle with respect to said lever, said arm being arranged closely adjacent said hook-shaped latch bolt whereby entrance of said keeper into interlocking position with respect to said latch bolt forces said arm to pivot away from said cabinet against the action of said spring means, and cam means carried by said arm for controlling energization of said power-operated means according to the relative position of said cam means with respect to said door.

2. In a power-operated latch mechanism for cooperating with a keeper to draw a hinged door tightly shut with respect to a cabinet, a lever mounted on said door, a latch bolt mounted on said lever and pivotable with respect thereto between a keeper-interlocking position and a keeper-releasing position, said lever being pivotable with respect to said door to move said latch bolt toward and away from said cabinet with respect to said door, power-operated means for pivoting said lever to move said latch bolt away from said cabinet with respect to said door whereby when said latch bolt has been moved toward said cabinet by said lever and is interlocked with said keeper said power-operated means operating through said lever may draw said latch bolt away from said cabinet with respect to said door and thereby pull said door tightly shut, control means for controlling said power-operated means including an arm pivotally mounted on said door, spring means urging said arm to pivot toward said cabinet, stop means on said arm and said lever limiting such pivotal movement of said arm beyond a given position with respect to said lever, said arm being arranged closely adjacent said latch bolt whereby entrance of said keeper into interlocking position with respect to said latch bolt forces said arm to pivot away from said cabinet against the action of said spring means, cam means carried by said arm for controlling energization of said power-operated means according to the relative position of said cam means with respect to said door, and manually operable means for pivoting said latch bolt from said keeper-interlocking position to said keeper-releasing position.

3. In a power operated latch mechanism for cooperating with a keeper element to draw a hinged closure member tightly shut with respect to a door frame member, a lever mounted on one of said members and pivotally movable between an extended and a retracted position, a bolt element pivotally mounted on said lever and movable with respect to said lever between a keeper engaging and a keeper releasing position, a cam element

and power actuated means for rotating said cam element, said cam element being in contact with a portion of said lever and effective to move said lever and the bolt mounted thereon between an extended and a retracted position.

4. In a power operated latch mechanism for cooperating with a keeper element to draw a hinged closure member tightly shut with respect to a door frame member, an elongate lever pivotally mounted on one of said members and having two lever arms, a bolt element pivotally mounted on one of said lever arms and movable with respect to this lever arm between a keeper engaging and a keeper releasing position, spring means urging said bolt element toward the keeper engaging position, a cam element and power actuated means for rotating said cam element, said cam element being in engagement with the other arm of said lever and effective to move said lever and the bolt mounted on the first-mentioned lever arm between an extended and a retracted position.

5. In a power operated latch mechanism for cooperating with a keeper element to draw a hinged closure member tightly shut with respect to a door frame member, a lever pivotally mounted on one of said members, a bolt pivotally mounted on said lever and movable with said lever between an extended and a retracted position, said bolt being movable with respect to said lever between a keeper engaging and a keeper releasing position, said bolt having an elongate actuating arm rigidly connected thereto and being resiliently urged toward the keeper engaging position, a manually operable element engageable with said actuating arm to effect movement of said bolt element toward the keeper releasing position, a rotatable cam element in contact with a portion of said lever and effective to move said lever and the bolt mounted thereon between an extended and a retracted position and a power operated means for rotating said cam element.

6. In a power operated latch mechanism for cooperating with a keeper element to draw a hinged closure member tightly shut with respect to a door frame member, an elongate lever mounted on one side of one of said members and pivotally movable between an extended and a retracted position, said lever having two arms, a bolt element pivotally mounted on one of said lever arms and movable with respect thereto between a keeper engaging and a keeper releasing position, said bolt element being substantially L-shaped and having a hook-like keeper engaging arm and an elongate actuating arm, spring means urging said bolt element toward its keeper engaging position, a manually operable element engageable with the actuating arm of said bolt element to effect movement of said bolt toward the keeper releasing position, a cam element in contact with the other arm of said lever and power operated means for rotating said cam element, said cam element being effective to move said lever and the bolt mounted on the first-mentioned arm thereof between an extended and a retracted position.

7. In a power operated latch mechanism for cooperating with a keeper element to draw a hinged closure member tightly shut with respect to a door frame member, the keeper element being mounted on one of said members, said mechanism comprising a lever mounted on the other of said members and pivotally movable between an extended and a retracted position, a bolt element pivotally mounted on said lever and movable with respect to said lever between a keeper engaging and a keeper releasing position, spring means resiliently urging said bolt element toward its keeper engaging position, a cam element in contact with a portion of said lever, power operated means for rotating said cam element, said cam element being effective to move said lever and the bolt mounted thereon between the extended and the retracted positions, a control arm, said keeper and said

lever being alternately engageable with said control arm to effect movement thereof, and means responsive to the movement of said control arm for controlling said power means.

8. In a power operated latch mechanism for cooperating with a keeper element to draw a hinged closure member tightly shut with respect to a door frame member, the keeper element being mounted on one of said members, said mechanism comprising a lever mounted on the other of said members and pivotally movable between an extended and a retracted position, a bolt element pivotally mounted on said lever and movable with respect to said lever between a keeper engaging and a keeper releasing position, spring means resiliently urging said bolt element toward its keeper engaging position, power operated means effective to move said lever and the bolt element mounted thereon between an extended and a retracted position, a control arm movable into one position coincident with the engagement of the keeper and movement of the bolt element to its retracted position, said control arm being movable into another position coincident with the release of the keeper and the movement of the bolt element to its extended position, and means responsive to the movement of said control arm for controlling said power means.

9. In a power operated latch mechanism for cooperating with a keeper element to draw a hinged closure member tightly shut with respect to a door frame member, the keeper element being mounted on one of said members, said mechanism comprising a lever mounted on the other of said members and pivotally movable between an extended and a retracted position, a bolt element pivotally mounted on said lever and movable with respect to said lever between a keeper engaging and a keeper releasing position, spring means resiliently urging said bolt element toward its keeper engaging position, power operated means effective to move

said lever and the bolt mounted thereon between an extended and a retracted position, a control arm movable into and out of engagement with said lever, second spring means urging said control arm toward engagement with said lever, said arm being moved out of engagement with said lever by engagement with said keeper, and means responsive to the movement of said control arm controlling said power means.

10. In a power operated latch mechanism for cooperating with a keeper element to draw a hinged closure member tightly shut with respect to a door frame member, the keeper element being mounted on one of said members, said mechanism comprising a lever mounted on the other of said members and pivotally movable between an extended and a retracted position, a bolt element pivotally mounted on said lever and movable with respect to said lever between a keeper engaging and a keeper releasing position, spring means resiliently urging said bolt element toward its keeper engaging position, power operated means effective to move said lever and the bolt mounted thereon between an extended and a retracted position, a control switch for controlling the energizing of said power means, a control arm movable into and out of engagement with said lever, spring means urging said arm toward engagement with said lever, said control arm being moved out of engagement with said lever by the engagement with said keeper and having portions which cooperate with said control switch to effect deenergization of said power means when said keeper is engaged and said bolt is in its retracted position and when said keeper is disengaged and said bolt is in its extended position.

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