

June 16, 1931.

A. RUBIN

1,810,531

REFRIGERATOR LATCH

Filed Jan. 21, 1929

Fig. 1.

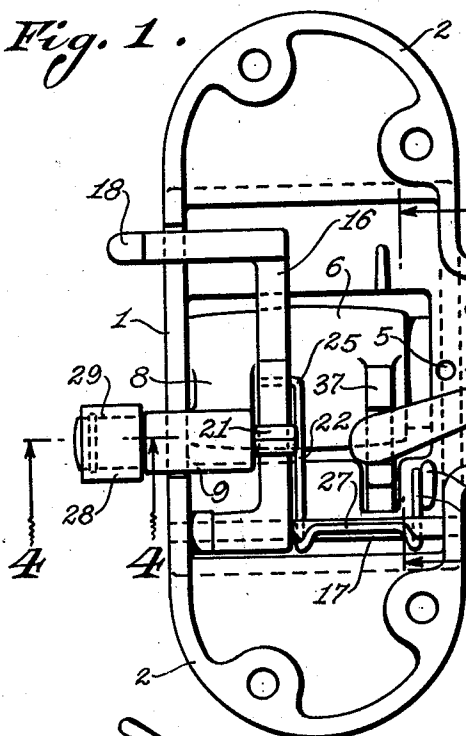


Fig. 4.

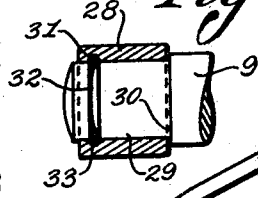


Fig. 5.

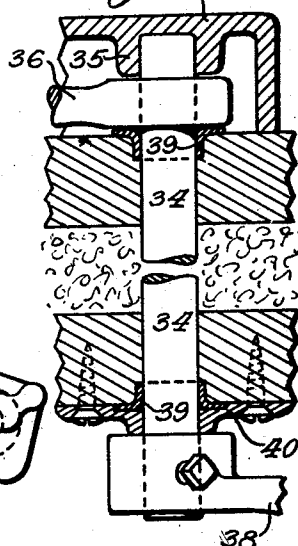


Fig. 3.

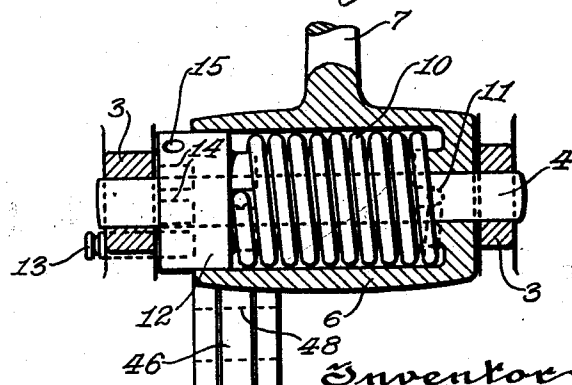
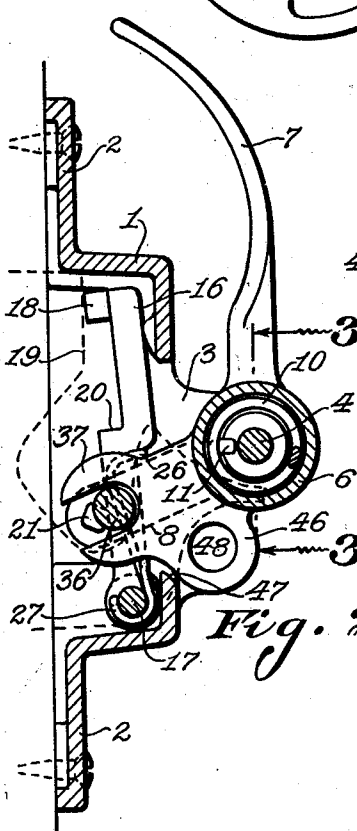


Fig. 2.



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REFRIGERATOR LATCH

Application filed January 21, 1929. Serial No. 333,765.

This invention relates to latches for refrigerator doors.

In the ordinary latch for refrigerator doors, the bolt must strike the bevel portion of the keeper in order to place it in position to snap behind the catch and keep the door in position. This causes a strain on the latch, its parts and fastenings.

An object therefore, of this invention is to provide a latch in which the bolt after the door is opened, will be held in withdrawn position until the door is closed.

Another object is to provide a latch that can be opened from the inside of the door.

In opening a cooler door, a person very often has his hands engaged with articles he is removing, and it is, therefore, desirable to provide means whereby the door can be opened with the foot. Another object of this invention is, therefore, to provide a latch that can be opened from the inside by a foot lever attachment.

Another object is to provide locking means for such a latch.

A further object is to provide a latch which is simple of construction, economical to manufacture, positive in operation, durable in use, and easy of repair.

Other objects will appear from the following description taken in connection with the accompanying drawings, in which:

Fig. 1 is a rear elevation;

Fig. 2 is a sectional view taken on line 2—2,

Fig. 1;

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

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

Fig. 5 is a view taken on line 5—5, Fig. 1.

The improvements claimed in this application are modifications of the invention illustrated and described in applicant's co-pending application, Serial No. 333,764, filed January 21, 1929, in which application is claimed the common subject matter.

The base, or casing, of the latch may be of any preferred form. As shown in the drawings, the casing 1 has the attaching flanges 2. Supported on the casing are two ears 3. Pivotally mounted on the ears 3, by means

of the pin 4 is a latching element. The pin 4 may be secured in place by a screw or key inserted at 5.

The latching element comprises the sleeve 6 to which is attached the handle 7, an arm 8 supporting the bolt 9. This element is preferably formed integrally and may be cast in one piece.

A torsion spring 10 is placed within the sleeve 6 about the pin 4, with one end in engagement with the sleeve at 11 and the other end in engagement with a bushing 12. The tension of the spring may be secured or adjusted by means of a stud 13 passing through an ear 3 into one of the several holes 14 in the bushing. A hole 15 is provided in the periphery of the bushing in order to accommodate a pin so that the tension may be held while adjustment of the stud 13 is being made.

A trigger 16 is pivotally mounted in the casing on the pin 17. The trigger has a projection 18 adapted to strike an abutment 19 on the keeper (shown in dotted line, Fig. 2). There is a recess in the trigger having a plane surface 20 adapted to engage the plane surface of the lug 21 on the bolt 9.

The trigger is actuated by the spring 22 which has an arm 23 pressing against the top of the casing and bearing against a flange 24 in the casing to prevent displacement. The lever 25 of the spring engages the trigger 16 and has a projection or shoulder 26 for the purpose of preventing displacement. The spring also has a projection 27 adapted to pass between the pin 17 and the wall of the casing to prevent its lateral displacement.

The bolt may have a roller 28 at its end to engage the keeper. The bolt has the reduced shank 29 and the shoulder 30 to form a journal for the roller. The roller has on its inner surface a circular groove 31 to register with a like groove 32 in the shank 29, the grooves 31 and 32 being so positioned as to register with each other. A resilient arcuate member 33 of circular cross section is provided which will fit within one of the grooves but which has a tendency to spring out of that groove and into the other groove when the roller is in position, such member being larger than the

groove in which it has a tendency to bear. For instance, the groove 32 is made large enough to accommodate the arcuate member 33, while the groove 31 is smaller; the arcuate member 33 is compressed into the groove 32, the roller 28 is pushed onto the shank 29, and when the groove 31 is in registry with the groove 32 and the arcuate member 33, the member 33 will spring into the groove 31, but will also partially project into the groove 32 and thus secure the roller against displacement.

The latch may have mechanism to permit its being opened from the inside of the door. A rocker shaft 34 fits in a bearing 35 in the casing, and has attached to it the lever 36 which engages the forked lever 37 integral with the sleeve 6, and, therefore, integral with the bolt. On the inside of the rocker shaft is keyed the hand lever 38. Flanged washers 39 may be provided to furnish bearings in the door for the rocker shaft, and the bearing plate 40, with attaching flanges, may be provided to hold one of the washers 39 in position.

The inside mechanism may also include a foot attachment to permit the latch being opened by foot pressure. A bar 41 connects the lever 38 with a foot lever 42 having a foot pedal 43. The foot lever 42 may be pivotally mounted on a lug 44 having flanges 45 to permit its being fastened to the door.

To provide locking means for the latch, the lug 46 depending from the latching element, extends through a slot 47 in the top of the casing, and has a hole 48 to accommodate the link of a padlock, so arranged that it will be outside of the casing when the latch is closed, and inside the casing when the latch is open.

In operation, a movement of the handle 7 withdraws the bolt 9 from the keeper, whereupon the lug 21 on the bolt is caught in the recess 20 of the trigger 16 and held until the trigger is released. Similarly the latching element may be operated through its forked lever 37 cooperating with the lever 36 on the rocker shaft 34, by movement of the hand lever 38 or the foot pedal 43. Upon closing the door, the projection 18 on the lever strikes an abutment 19, on the keeper, shown in dotted lines, Fig. 2, tripping the trigger and releasing the latching element, which moves the bolt into its keeper by reason of the operation of the spring 10.

It will thus be seen that the invention accomplishes its purpose. A latch is provided in which the bolt is held in withdrawn position until the door is closed. A latch is also provided which may be opened by the hand or by the foot from the inside of the door. Means are also provided for locking such a latch. It will be seen that an article is provided which is simple of construction, economical to manufacture, positive in operation, durable in use, and easy of repair.

It is to be understood that various parts of this invention are capable of independent use without the incorporation of all of the elements and improvements described; and accordingly various changes, omissions and additions may be made within the scope of the claims, without departing from the spirit of this invention.

It is also to be understood that the invention is not limited to the means specifically illustrated and described, but that changes may be made, within the scope of the claims, without departing from the spirit of this invention.

Having thus described the invention, what is claimed is:

1. A refrigerator door latch comprising a casing having attached flanges, a handle and bolt pivotally mounted on said casing about the same axis for rotation in a plane transverse of the door, a spring to actuate such latching member, a trigger adapted to engage and hold the latching member in inoperative position while the door is open, and a spring to actuate said trigger.

2. A refrigerator door latch comprising a casing having attaching flanges, a latching member including integrally a handle and bolt pivotally mounted on said casing for rotation in a plane, transverse of the door, a spring to actuate said latching member, a trigger adapted to engage and hold the latching member in inoperative position while the door is open, and a spring to actuate said trigger.

3. A refrigerator door latch comprising a casing having attaching flanges, a latching member including integrally a handle and bolt pivotally mounted on said casing, a spring to actuate said latching member, a trigger adapted to engage and hold the latching member in inoperative position while the door is open and a spring to actuate said trigger, said spring having an arm to engage the casing, an arm to engage the trigger and means for retaining the spring in position comprising a projection to lie between the trigger pivot pin and the casing, a projection to engage the side of the trigger and a flange in said casing to engage one of the arms.

4. A refrigerator door latch comprising a casing having attaching flanges, a latching member including integrally a handle and bolt pivotally mounted on said casing, a spring to actuate said latching member, a trigger adapted to engage and hold the latching member in inoperative position while the door is open, a spring to actuate said trigger and projections on said spring to prevent displacement thereof.

5. A refrigerator door latch comprising a casing for mounting on the outside of the door, a latching element, a lever on said latching element, a rocker shaft adapted to pass thru the door, a bearing in said casing

adapted to engage the rocker shaft, a lever on said rocker arm adapted to engage the lever on the latching element, flanged washers on said rocker shaft, a bearing plate having attaching flanges adapted to be inserted
5 on said shaft on the inside of the door and a handle on one end of the rocker shaft.

6. A refrigerator door latch comprising a casing for mounting on the outside of the door, a latching element including integrally
10 a handle and bolt pivotally mounted on said casing, a lever on said latching element, a rocker shaft adapted to pass thru the door, a lever on said rocker arm adapted to engage the lever on the latching element, and
15 a handle on one end of the rocker shaft.

7. A refrigerator door latch comprising a casing for mounting on the outside of the door, a latching element, a forked lever on
20 said latching element, a rocker shaft adapted to pass thru the door, a lever on said rocker shaft adapted to engage said fork, and a handle on one end of the rocker shaft.

8. A refrigerator door latch comprising a casing having attaching flanges, a latching member pivotally mounted on said casing and a lug on said latching member positioned and adapted by rotation of the latching element to pass through a slot in the casing
25 and so situated that a hole in the lug will lie outside the casing when the latch is closed and inside when opened, whereby a padlock inserted in said hole will prevent the operation of the latch.

30 In testimony whereof I affix my signature this 22nd day of August 1928.

ADOLPH RUBIN.