P. W. HODGKINSON.
LOCKING MECHANISM FOR CUPBOARDS.
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FIG. 1.

FIG. 2.

WITNESSES:

INVENTOR:

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LOCKING MECHANISM FOR CUPBOARDS.


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To all whom it may concern:

Be it known that I, Percy W. Hodgkinson, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Locking Mechanisms for Cupboards, of which the following is a specification.

My invention relates to locking mechanism for cupboards or other receptacles adapted to receive milk bottles and other articles. In connection with such cupboards or receptacles it is common to provide locking mechanism by which an outer door, through which the milk bottles or other articles are inserted in the receptacle, may be so controlled that after having once been opened for the insertion of an article and closed again thereafter, the door cannot again be opened until the locking mechanism has been released by the owner of the receptacle. Mechanism of such construction is disclosed in my pending application filed November 10, 1910, Serial No. 527,348, and the present invention is an improvement on said mechanism.

The object of the present invention is to produce a device of the kind referred to which shall be simple and inexpensive in construction and reliable in operation.

To the above end the invention consists in the locking mechanism hereinafter described, as the same is defined in the succeeding claims.

In the accompanying drawings, which illustrate the preferred embodiment of my invention: Figure 1 is an elevation of the locking mechanism in locked position, showing the cupboard or receptacle in vertical section; Fig. 2 is a horizontal section of the locking mechanism and receptacle on the line B—B in Fig. 1; Figs. 3 and 4 are views similar to Fig. 1, showing the parts in different positions; Fig. 5 is a detail perspective view of the keeper-actuating arm; and Fig. 6 is a detail perspective view of the latch.

The illustrated embodiment of my invention is shown as applied to a cupboard or receptacle formed in the outer wall of a building, and the drawings illustrate a side wall 1, the top 2, and the bottom 3, of the receptacle. The receptacle is provided with an outwardly-opening door 4, through which access may be had to the receptacle from without the building, and an inwardly-opening door 5, through which access may be had to the receptacle from within the building.

The outer door 4 is the one which it is necessary to lock, and for this purpose this door is provided with a latch in the form of an arm 6. This latch is fixed to a vertical rod 7, which is free both to slide and to turn in two lugs 8 projecting from a plate on the inner surface of the door 4. A compression spring 9 coiled about the rod 7, engaging a head 10 at the lower end of the rod, tends constantly to move the rod and the latch downwardly, and such movement is limited by a collar 11 on the rod 7, arranged to engage the upper lug 8 when the rod and latch are in their lowermost position.

A leaf spring 12 fixed to the upper end of the rod 7, and engaging the inner surface of the door 4, tends constantly to rotate the rod in a direction to swing the latch toward the wall 1 of the receptacle, and this movement is limited by a shoulder 13 formed on the latch and arranged to engage the inner surface of the bracket in which the rod 7 is mounted, as shown in dotted lines, Fig. 2.

The latch 6 co-operates with a latch-keeper 15 which is rotatively mounted upon a stud 16 projecting from a plate 17 secured to the wall 1 of the receptacle. This keeper is provided with a succession of radial arms, each of which terminates in a lug 18. When the latch 6 is in its normal position a lug 14 on its extremity has a locking engagement with one of the lugs 18, as shown particularly in Fig. 2, and under these conditions the outer door 4 is locked.

To release the latch from its locking engagement with the keeper, means are provided for imparting to the latter a step-by-step motion. These means comprise a lever 19 which is pivoted at one end upon the stud 16. The other end of the lever is connected, by a link 20, with a sliding rod 21 mounted in lugs 22 projecting from the plate 17. A compression spring 23 mounted upon the rod 21 tends constantly to move the rod to the right, and thus, through the link 20, to swing the lever 19 in the same direction. When the inner door 5 of the receptacle is closed, as shown in Fig. 1, the end of the rod 21 is engaged by the inner surface of this door, and the rod is moved to
and held in left-hand position, as shown in Figs. 1, 2 and 4. The door 5 is held closed by a latch 26 of any suitable form. When the door 5 is opened inwardly, however, as indicated in broken lines in Fig. 2, the spring 23 moves rod 21 to the right, thereby swinging the lever to the right and into the position of Fig. 3.

The lever 19 is provided with an inwardly-extending offset lug 24. When the lever moves to the right, as above described, the lug 24 rides over the intervening arm of the keeper, owing to the beveled inner surface of the lug, the necessary freedom in the lever being secured by means of a spring 27 which is coiled about the stud 16 and which holds the lever yieldingly in engagement with the outer surface of the keeper.

With the parts in the position of Fig. 3, if the inner door of the receptacle be closed the consequent movement of the slide rod 21 to the left causes the lever 19 to swing to the left, and the lug 24 on the lever is caused to engage and move one of the arms of the keeper, thereby rotating the keeper, in a clockwise direction, through the angle between two of its arms. The first part of this movement causes the keeper to disengage the latch, so as to unlock the outer door 4, through the vertical movement of the arm of the keeper which at the time is in engagement with the latch. The last part of the described movement of the keeper has the further function of raising the latch into an inoperative position. This is accomplished by the engagement of one of the lugs 18 with a detent plate 25 fixed to the end of the latch near the lug 14. The lower surface of this detent plate is engaged by whichever of the lugs 18 is rising into operative position, and, so long as the parts remain in the position of Fig. 4, the latch rests in elevated position upon such lug.

With the parts in the position of Fig. 4, the outer door 4 is free to be opened for the insertion of an article into the receptacle. As soon, however, as the door 4 is so opened, and the latch 6 is drawn out of engagement with the lug 18, the spring 9 depresses the rod 7 and the latch returns to its original position, as in Fig. 1. Upon the succeeding closing movement of the outer door 4, the beveled extremities of the lugs 14 and 18 engage each other and the latch swings, through its pivotal movement with the rod 7, so that the lugs 14 and 18 pass each other, and when the closing movement of the door is completed, the spring 19 swings the latch back into locked position, as in Fig. 2. The outer door cannot then be opened again until the step-by-step movement of the keeper hereinbefore described has again been accomplished by the opening and closing of the inner door 5.

My invention is not limited to the embodiment hereinbefore described and illustrated in the accompanying drawings, but may be embodied in various other forms within the nature of the invention and scope of the following claims.

I claim:—

1. In combination with a receptacle having an outer door and an inner door, means for locking the outer door comprising two interengaging members relatively movable in one direction to lock and relatively movable in another direction transverse to the first mentioned direction to unlock, connections between one member and the outer door constructed and arranged to produce said locking movement when said door is closed, and connections between the other member and the inner door constructed and arranged to produce said unlocking movement when the inner door is closed.

2. In combination with a receptacle having an outer door and an inner door, means for locking the outer door comprising two interengaging members, one member being pivotally mounted within the receptacle and being movable in one direction to disengage and unlock from the other member, and the other member being mounted on the outer door and being movable in another direction transverse to the first-mentioned direction to engage and interlock with the first mentioned member, and connections between the first mentioned member and the inner door constructed and arranged to produce said unlocking movement in said member.

3. In combination with a receptacle having an outer and an inner door, means for locking the outer door comprising two interengaging members, one of said members being pivotally mounted in the receptacle and the other member being pivotally mounted on said door and movable in a direction transverse to the direction of motion of the other member, means connected with and actuated by the inner door for moving one member about its pivot to disengage and unlock the members, and means for moving the other member about its pivot to engage and interlock the members.

4. In combination with a receptacle having a door, means for locking the door comprising a latch mounted on said door and movable in two directions, a rotary keeper mounted in the receptacle and having a series of latch-engaging lugs, and means for imparting a step-by-step rotation to the keeper to cause each lug in succession first to engage and move the latch, in one direction, into inoperative position, and, upon the next actuation of the keeper, to disengage itself from locking engagement with the latch, the latch having normally a tendency to move in both of its directions of movement into locking relation with the keeper.
5. In combination with a receptacle having two doors, means for locking one door comprising a latch mounted on said door and movable in two directions at right angles with each other, a rotary keeper mounted in the receptacle and having a series of latch-engaging lugs, and means actuated by the other door for imparting a step-by-step rotation to the keeper to cause each lug in succession first to engage and move the latch, in one direction, into inoperative position, and, upon the next actuation of the keeper, to disengage itself from locking engagement with the latch, the latch having normally a tendency to move in both of its directions of movement into locking engagement with the keeper.

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Witnesses:
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