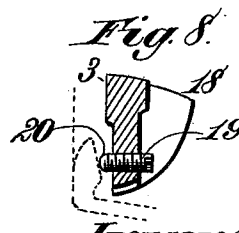
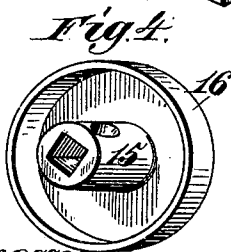
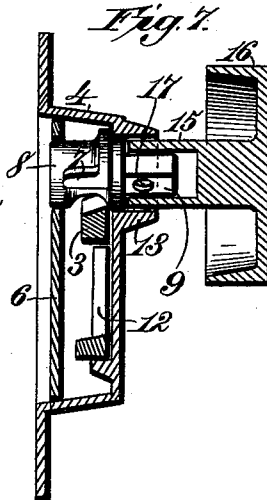
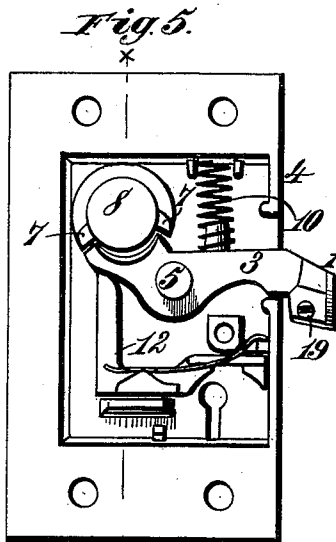
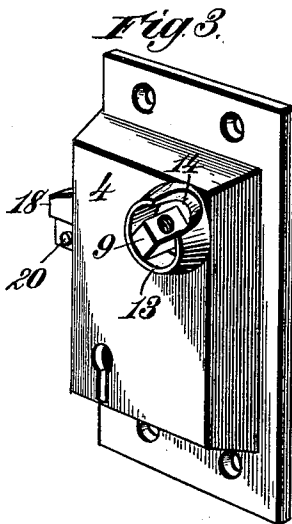
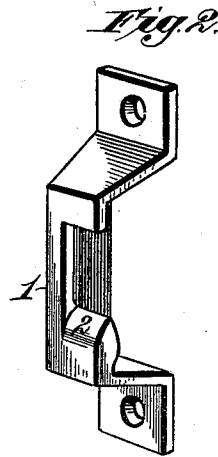
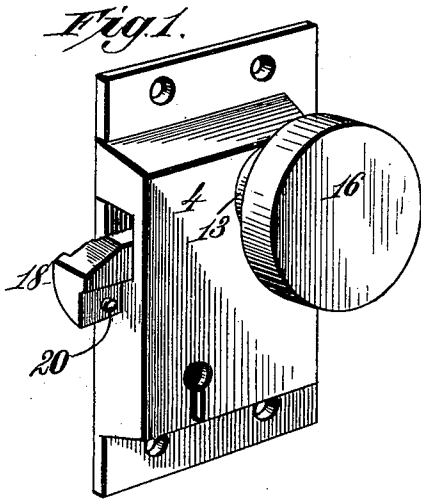


(No Model.)

J. K. CLARK.
LATCH.

No. 463,483.

Patented Nov. 17, 1891.



Witnesses:
Robert Everett.
Geo. W. Rea.

Inventor:
John K. Clark.
By James L. Norris
Atty.

UNITED STATES PATENT OFFICE.

JOHN K. CLARK, OF BUFFALO, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MARY K. CLARK, OF SAME PLACE.

LATCH.

SPECIFICATION forming part of Letters Patent No. 463,483, dated November 17, 1891.

Application filed July 23, 1891. Serial No. 400,443. (No model.)

To all whom it may concern:

Be it known that I, JOHN K. CLARK, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Latch-Locks, of which the following is a specification.

In refrigerators and other structures having closure-doors considerable difficulty arises from the effect of swelling and shrinking which interferes to an objectionable extent with the proper engagement of the door-latch with the striker or catch-plate. If the door swells or expands, the latch cannot properly engage the striker or catch-plate, and if the door shrinks or contracts it is not held by the striker or catch-plate to secure a perfect closure for excluding the external atmosphere and prevent the escape of cold air from within. It has been proposed to avoid these objections by a peculiar beveled construction of the door-latch and striker or catch-plate in such manner as to wedge the door in place when closed, while permitting the engagement of the latch and striker or catch-plate under limited swelling or expansion of the door. This prior construction does not fulfill all the conditions required and is not entirely satisfactory and practicable in operation, especially if doors swell or expand to a considerable extent.

In my application for Letters Patent filed April 7, 1891, Serial No. 388,022, is described and claimed a novel construction which avoids all the objections stated and enables the door to be closed perfectly air-tight, even though the door or door-frame swells or shrinks; but in the former invention it is necessary to provide the striker-frame with an adjustable catch-plate.

In the manufacture of refrigerators it is desirable to so construct the door-latch that the knob or handle can be readily removed during transportation of the refrigerator, while when the knob or handle is in operative position it will project to the least possible extent.

The objects of my invention are to avoid

constructing the keeper or striker-frame with an adjustable catch-plate; to provide novel, simple, efficient, and economical means for effecting the correct engagement of the latch with the keeper or striker under any and all conditions of the door incident to shrinking or swelling, and to provide novel means whereby the knob or handle can be readily removed when the refrigerator is crated for shipment, while such knob or handle will project the least possible extent when in operative position. To accomplish all these objects my invention involves the features of construction and the combination or arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a detail perspective view of a rim-latch embodying my invention. Fig. 2 is a detail perspective view of the keeper or striker. Fig. 3 is a perspective view of the rim-latch, omitting the knob or handle. Fig. 4 is a detail perspective view of the knob or handle. Fig. 5 is a rear view of the latch, omitting the detachable back plate of the latch-case. Fig. 6 is a detail perspective view of the hub and spindle for operating the latch-dog. Fig. 7 is a sectional view taken on the line *xx*, Fig. 5, showing the back plate of the latch-case in position; and Fig. 8 is a detail sectional view of the latch-dog.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a keeper or striker which is formed with a catch-stud 2, having a curved front face and a beveled rear face; but inasmuch as I do not limit myself to any particular construction of keeper or striker, so long as it is provided with a catch or stud and serves to receive the latch, I do not deem it essential to more fully describe or illustrate the same.

The latch-dog 3 is shown as arranged in the casing 4 of a rim latch-lock adapted to be screwed to the outside of the door, and

this latch is cast integral with trunnions 5, journaled in suitable bearings in the latch-casing and the detachable back plate 6 thereof. The rear extremity of the latch is
 5 constructed to engage the lugs 7 of a rotary hub 8, cast integral with a spindle 9, which projects through an orifice in the front wall of the latch-casing in such manner that when the hub is rotated in either direction the
 10 latch-dog will be raised out of engagement with the catch-stud 2 of the keeper or striker 1 for the purpose of opening the refrigerator or other door. A spiral or other suitable spring 10 is arranged between the upper side
 15 of the latch-dog and the top wall of the latch-casing for the purpose of pressing the latch-dog downward and holding it in position to engage the catch-stud of the striker.

The latch-dog is adapted to be locked in its
 20 normal position through the medium of a sliding-lock bolt 12, as in my application for patent hereinbefore alluded to.

The front wall of the latch-casing is cast integral with a projecting annular collar 13,
 25 having a recess or notch 14, and adapted to receive the inner end of the cylindrical shank 15 of the knob or handle 16. The shank of the knob or handle is constructed with an angular socket to receive the angular spindle 9, which is formed with the rotary hub 8, so that
 30 a screw may be passed through the recess or notch 14 of the collar 13 to rigidly connect the shank of the knob or handle with the spindle of the hub. The screw 17, which connects
 35 the shank with the spindle, is adapted to pass under the annular collar 13, and consequently this collar serves to prevent accidental displacement of the screw. By this novel construction I am enabled to materially reduce
 40 the extent to which the spindle projects and further render it possible to conveniently and quickly remove the knob or handle when the refrigerator is to be crated for shipment or transportation, thereby entirely avoiding
 45 injury to the knob or handle, which sometimes results during transportation of a refrigerator. By forming the rotary hub 8 in a single piece with the spindle 9 I not only reduce the length of the knob-spindle, but materially
 50 lessen the expense of manufacture, since it is not necessary to cast the hub with an angular orifice for the reception of the knob-spindle, as is usually the case. The recess or notch in the annular collar 13 materially contributes in enabling me to reduce the extent
 55 to which the spindle projects from the latch-casing. This recess or notch serves to receive the screw by which the knob or handle shank is attached to the spindle of the hub. The
 60 annular collar 13 in fact constitutes a rose which is integral with the latch-casing, and this construction, in connection with the notch or recess in the rose, enables the screw 17 to be conveniently applied and retained
 65 in position against accidental displacement.

The nose 18 of the latch-dog 3 is provided with a transverse screw-threaded orifice, in which is arranged a set-screw 19, adapted to be rotated for the purpose of adjusting its
 70 front extremity or point 20 in a direction toward and from the front wall of the latch-casing in such manner that if the refrigerator or other door should shrink the set-screw can be turned to adjust its extremity or point
 75 20 in an outward direction, so that such extremity or point 20 will act upon the striker 1 for obtaining a perfect air-tight closure of the refrigerator-door. If the door should swell, the set-screw can be rotated to adjust
 80 its extremity or point 20 in an inward direction to the required extent.

The adjustable set-screw in the nose of the latch-dog enables me to compensate for swelling or shrinking of the door, and thereby
 85 enable the latch-dog to properly engage the striker under all circumstances, even though the door should shrink or swell,

By providing the nose of the latch-dog with a transverse set-screw which is adjustable
 90 back and forth, as described, I avoid the necessity of constructing the striker-frame with an adjustable catch-plate to compensate for swelling or shrinking of the door, and therefore I materially reduce the cost of manufacture and produce an efficient latch which ful-
 95 fills all the conditions required to secure a perfect air-tight closure of a refrigerator or other door, even though the door should swell or contract to a considerable extent.

I have described my invention as applied
 100 to a rim-lock; but I wish it distinctly understood that it is well adapted for a mortise-lock.

Having thus described my invention, what I claim is—
 105

1. The combination, with a latch-casing, of a latch movable in a vertical plane relatively to the casing, and having a nose provided with a transversely-arranged set-screw adjustable in a plane approximately at right
 110 angles to the length of the latch to project more or less from the outer side of the keeper-engaging nose, a movable knob or handle supported by the latch-casing for lifting the latch to open the door, and a keeper having a catch-
 115 stud over which the nose of the latch moves when the door is closed to cause the latch to enter the keeper and a part of the screw to fall behind the catch-stud, substantially as described.
 120

2. A rim latch-lock having a vertically-moving latch-dog, in combination with a rotary hub operating the dog, and provided with a rigidly-attached spindle, and a knob or handle having a shank detachably connected with the spindle, substantially as described.
 125

3. A latch-casing having its front wall formed integral with an annular collar or rose provided with a recess or notch, in combina-
 130

tion with the swinging latch journaled in the latch-casing, a rotary hub also journaled in the latch-casing and having a spindle, and a knob or handle having a shank extending
5 into the collar or rose and detachably connected with the spindle by a screw adapted to move inside the collar or rose, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN K. CLARK.

Witnesses:

NORMAN P. SMITH,
GEORGE S. HERGER.