

C. SCHÜTZ.  
 DOOR LATCH.  
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1,256,934.

Patented Feb. 19, 1918.

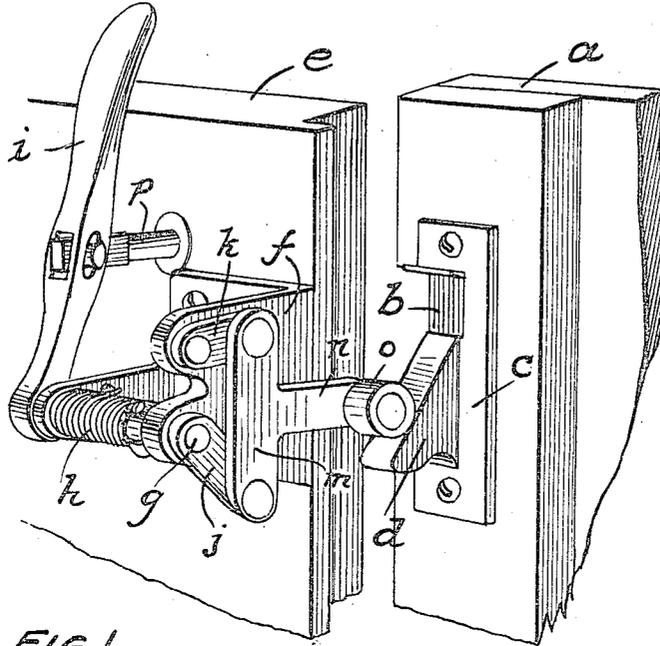


FIG. 1.

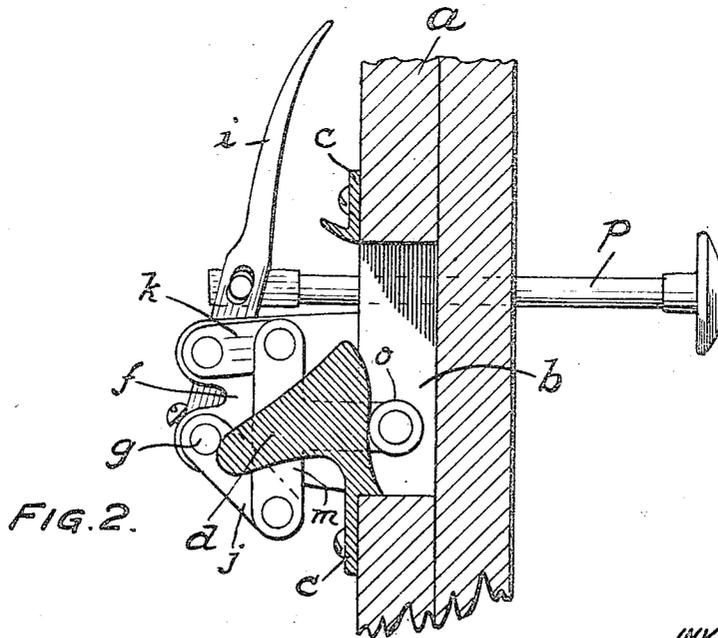


FIG. 2.

WITNESS:

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# UNITED STATES PATENT OFFICE.

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## DOOR-LATCH.

1,256,934.

Specification of Letters Patent. Patented Feb. 19, 1918.

Application filed June 21, 1917. Serial No. 175,994.

To all whom it may concern:

Be it known that I, CONRAD SCHÜTZ, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Door-Latches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

The object of my invention is to provide a spring latch for doors, particularly doors of refrigerators, which will operate, when the door is pushed into closed position, to hold the door tightly closed until the latch is manually released. My improved latch embodies features long known in the art, namely: a spring actuated shaft operable by a hand lever, a latch arm actuated by the shaft and a keeper having a cam face which, as the door is closed, engages a roller on the end of the latch arm and guides it into the mouth of a recess behind the keeper, the arm and shaft, in this action, being turned against the actuating spring, the latter, when the roller reaches the top of the keeper, turning the shaft and arm and snapping the roller into the recess.

In my invention, however, the latch arm is not fixed to, or connected directly with, the shaft, but is secured to a link the opposite ends of which are attached to two levers one of which is pivoted on the door frame and the other of which is secured to the shaft, the two levers being preferably of different length.

The object of the improvement is to impart such a movement to the roller, as it snaps into the recess, that it will cooperate with the rear face of the keeper to effect a stronger and more secure tightening of the door against the door frame.

The invention will be better understood by reference to the drawings, which show a preferred embodiment, in which—

Figure 1 is a perspective view of a latch embodying my invention applied to a door and door frame.

Fig. 2 is a sectional view through the door frame and keeper and an end view of the other mechanism.

The door frame *a* is recessed at *b* and has secured to it a plate *c* carrying a keeper *d*, which extends in front of the recess and has a front cam face sloping downward and out-

ward, the lower part of the cam face being on a level with the normal position of the roller on the latch arm hereinafter described. The recess *b*, behind the keeper *d*, is shaped to receive and guide said roller and sufficient space is left above the top of the keeper to permit the entry of the roller.

Secured to the door *e* is a bracket *f* having bearings for a shaft *g* which extends horizontally and parallel to the door. A coil spring *h* surrounds the shaft and at one end engages the bracket and at the other end is secured to a collar on the shaft. An operating lever or arm *i* is secured at the end of the shaft more remote from the edge of the door. On the end of the shaft opposite the edge of the door is secured one end of a short arm *j*.

The bracket *f* has also a bearing in which turns one end of a lever *k*. The pivot of the lever *k* is above, and preferably in vertical alinement with, the axis of the shaft *g*. In the specific embodiment shown, the lever *k* extends toward the door frame in a direction inclined slightly upward from the horizontal, while the arm *j*, which is considerably longer than the lever *k*, extends also toward the door frame but downward at a relatively steep angle. The lengths and angles of inclinations toward the horizontal of the arm *j* and lever *k* are so proportioned that, preferably, their outer ends are in vertical alinement. Attached to the outer ends of these two members is a link *m*, which is of T-shape, the leg *n* of which constitutes the latch arm and has a laterally extending bearing carrying a roller *o*.

When the door is pushed to closing position, the roller *o* engages the inclined front face of the keeper *d*, which swings the roller and latch arm *n* upward, causing the link *m* to swing the arms *j* and *k*, turning the shaft *g* and putting into tension the spring *h*. When the roller *o* overrides the top of the keeper *d*, the spring *g* restores the operative parts to normal position, thereby forcing the roller *o* to the bottom of the recess *b* and into position to securely hold the door in closed position.

The door may be opened from the inside by means of any known expedient. I have shown a bolt *p* movable outwardly through the door against the operating lever *i*, which, it will be understood, is turned when it is desired to swing the shaft and latch arm into

position to lift the roller *o* out of fastening relation with the keeper *d*.

Having now fully described my invention, what I desire to claim and protect by Letters Patent is:—

1. In a door latch, the combination with a recessed door frame and a keeper, attached to the door frame, having a front inclined face, of a door, a shaft turnable on its axis in bearings on the door, manually operable means to turn the shaft, a lever pivotally movable on the door, an arm secured to the shaft, a link connecting said arm and lever, and a latch arm carried by the link the free end of which is adapted to engage said face of the keeper and be actuated thereby to operate the link, lever, arm and shaft to turn the latter until the end of the latch arm overrides the keeper.
2. In a door latch, the combination with a recessed door frame and a keeper, attached to the door frame, having a front inclined face, of a door, a shaft turnable on its axis in bearings on the door, manually operable means to turn the shaft, an arm secured to the shaft, a lever turnable on the door on an axis directly above the axis of the shaft, said arm being longer than the lever and extending inward toward the door frame at a

substantially greater angle to the horizontal, 30 a T-link the vertically extending arm of which is pivoted to said arm and lever, and a roller carried on the end of the leg of the T link.

3. In a door latch, the combination with a recessed door frame and a keeper, attached to the door frame, having a front inclined face, of a door, a shaft turnable on its axis in bearings on the door, manually operable means to turn the shaft, a lever pivotally movable on the door, an arm secured to the shaft, the axes of the lever and shaft being located one above the other, said lever and arm being of different lengths and extending inward toward the door frame at substantially different angles to the horizontal, a link connecting said arm and lever, and a latch arm carried by the link the free end of which is adapted to engage said face of the keeper and be actuated thereby to operate the link, lever, arm and shaft to turn the latter until the end of the latch arm overrides the keeper.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, on this 7th day of June, 1917.

CONRAD SCHÜTZ.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."