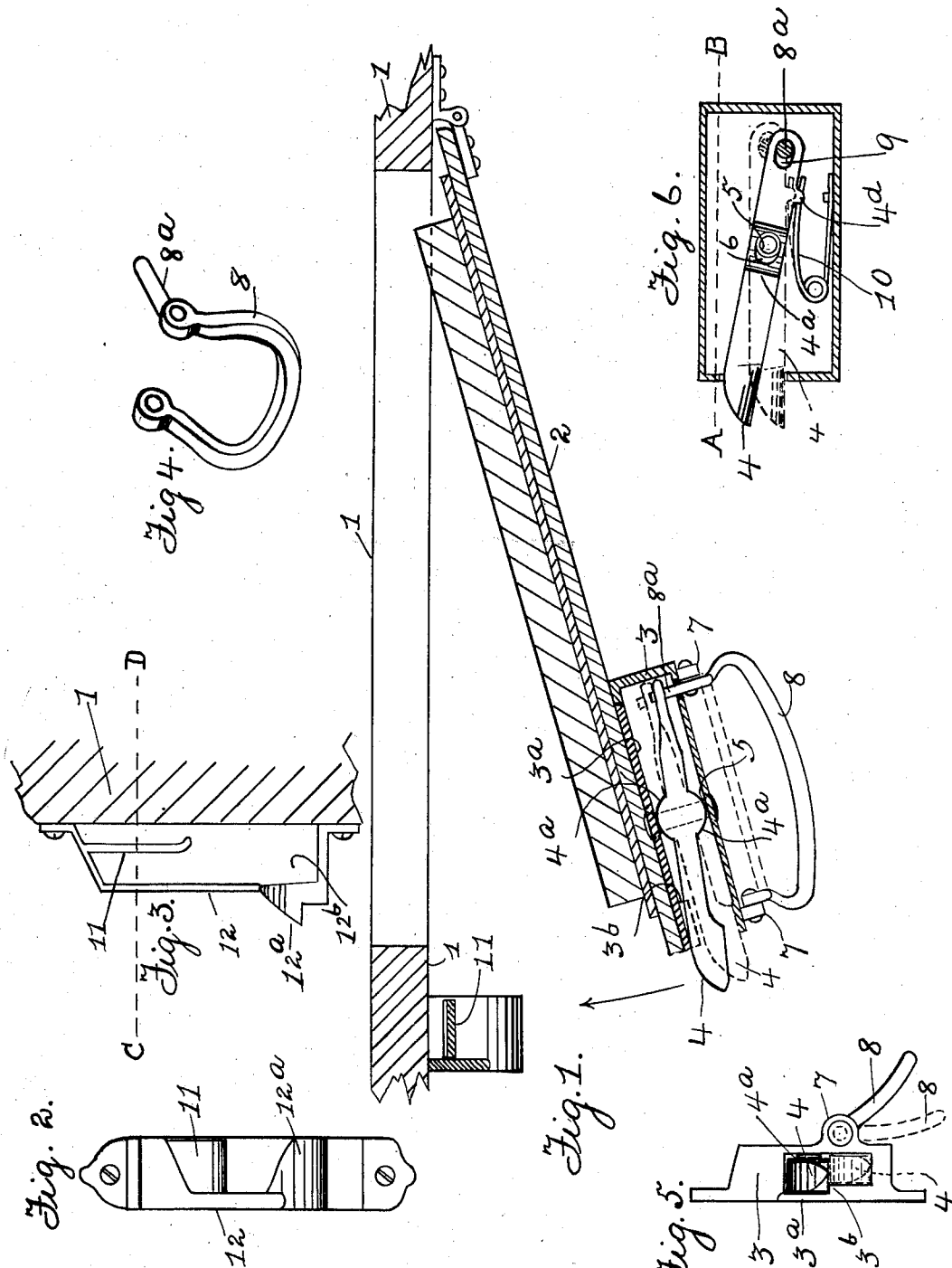


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LATCH.

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980,413.

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WITNESSES:

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, AUGUSTUS EDWIN GROCHAU, a citizen of the United States, residing at Eau Claire, in the county of Eau Claire and State of Wisconsin, have invented certain new and useful Improvements in Latches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to door latches and has for its object the provision of a latch in which the latch-bar will remain in retracted position while the door is open and will be released by forcible contact with a releasing finger in a keeper on the door frame, when the door is swung to closed position. Heretofore it has been a common fault with latches that they have failed to retract and enter the keeper when the door has been given an initial closing impulse by the operator and then set free. This fault has been particularly damaging when it has occurred with respect to refrigerator doors, and my invention is intended to remedy said fault and to insure, in large measure, the closing of the door.

My invention consists of the constructions, combinations and arrangements of parts hereinafter described and claimed.

In the drawings, Figure 1, is a horizontal section of a door and of a latch mounted thereon and of a fragment of a door frame and of a keeper, the section of said latch being approximately on the line A—B of Fig. 6; the section of said keeper being approximately on the line C—D of Fig. 3. Fig. 2, is a front elevation of said keeper. Fig. 3, is a side elevation of said keeper on the side adjoining the door. Fig. 4, is a perspective view of a combined handle and bar-retracting lever embodied in my said invention. Fig. 5, is an elevation of the end of said latch adjoining the keeper. Fig. 6 is a front elevation of said latch, the front wall of the latch case being cut off to expose the mechanism. The operative positions of the movable parts of said latch are shown in broken lines, while the retracted positions thereof are shown in solid lines.

In the drawings, 1 is a door frame and 2 is a door. A latch casing 3 including a detachable plate 3^a is mounted on said door, within which case is a latch comprising a latch bar 4 which bar is pivoted within said

case by any suitable pivoting means, as by the pivot 5 which extends from front to rear through an aperture 6 in said bar of sufficient size to permit of a slight oscillatory movement of said bar at right angles to the path of its pivotal movement. The front and rear surfaces of said bar are preferably provided with rocker portions 4^a through which said aperture extends. Pivotaly secured to lugs 7 on said casing is a bell crank comprising a handle arm 8 and a latch-bar-retracting arm 8^a. Said retracting arm preferably extends through an aperture 9 formed in the rearward end of said latch bar and said bell crank is adapted when operated to depress the rearward end of said latch-bar in opposition to the upward action of a spring 10 positioned beneath said bar, and to thereby cause the forward end of said bar to rise. At the same time said bell crank, because of its pivotal movement, is adapted to draw the rearward end of said latch bar toward the front of said casing and thus cause the forward end of said bar to swing over a shelf 3^b which is formed upon the inner face of said plate 3^a. Upon the handle being released by the operator, the spring 10 causes the forward end of said bar to bear down upon said shelf, where it normally remains until it is brought into forcible contact with a finger 11 positioned within a latch keeper 12 secured to said frame. When the forward end of said bar is pushed off of said shelf by said finger, it will drop into the recess 12^b which is formed in said keeper. One end of said spring is preferably sprung to one side of the plane to which it naturally tends to return, and bears laterally against a lug 4^a on said bar in such manner as to tend to rock said bar laterally so that the forward end of said bar will swing over said shelf. Said spring may therefore assist said bell crank in so rocking said arm in such lateral direction. The forward end of said bar in such retracted position will be in suitable position to enter said keeper when the door is swung to closing position; but should the bar fail to catch on said shelf, it will, as heretofore, provided the door is closed with great force, ride to raised position upon a forwardly and downwardly beveled lip 12^a formed upon said keeper, and, after passing over said lip will drop into the recess 12^b formed in said keeper. The forward end of said bar is preferably beveled from the top outwardly and downwardly

and from the rearward face to a point near the front face and from the front face toward the rearward face, and from the upper edge of the front face downwardly and rearwardly all substantially as illustrated in the drawings, said beveled formation being well known to the art.

In operation, the forward end of the latch-bar is raised and simultaneously the door is opened by raising and pulling upon the handle, at the same time the rearward end or tail of the latch bar is drawn toward the front wall of the casing by said arm 8^a and the forward end of said bar is thereby caused to rise and at the same time to swing rearwardly over said shelf, upon which it rests when the handle is released and the pressure by said arm 8^a is discontinued. When the door is slammed toward said frame, the forward end of said bar enters said keeper without interference or resistance and comes into contact with said finger and is thereby forced off of said shelf, whereupon said spring forces said bar to return to operative position and to engage the rearward face of said lip.

While I have described the preferred form of my invention, certain of my claims are intended to cover the invention broadly and not to be limited to such preferred form.

What I claim is:—

1. The combination with a door and door-frame, of a latch-bar carried by said door, said bar being adapted to rock in a direction approximately parallel with the side of said door and also at right angles to said plane, means for rocking said bar in said directions, means for supporting one end of said

bar in retracted position, a keeper mounted on said door frame, and means within said keeper for releasing said bar from retracted position.

2. In a latch the combination with a door and door frame, of a latch-bar mounted on said door and adapted to rock in two directions at an angle to each other, means for rocking said bar in such directions, a keeper mounted on said door frame, means for holding said bar in retracted position, one end of said bar being adapted when in retracted position to enter said keeper when said door is closed, means positioned within said keeper for releasing said latch from retracted position, and means for returning said bar to operative position.

3. In a latch, the combination with a suitable support of a casing mounted thereon, a latch bar positioned within said casing and extending therefrom and adapted to rock in two directions at an angle to each other, a bell crank pivotally mounted on said casing and comprising a handle portion and a latch-bar-rocking arm, said arm engaging said bar within said casing and being adapted to rock said arm in both of said directions, means for supporting said arm in retracted position and a spring for returning said arm to operative position after it has been released from the latter said support.

In testimony whereof I hereunto affix my signature, in presence of two witnesses.

AUGUSTUS EDWIN GROCHAU.

Witnesses:

VIGO NIELSEN,
ORLANDO G. BRICE.