P. ZIGANEK & F. W. WILKINSON.
LATCH FOR SWINGING DOORS.
APPLICATION FILED JUNE 8, 1914.

1,111,426. Patented Sept. 22, 1914.

Fig. 1.

Fig. 2.

Fig. 3.

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To all whom it may concern:

Be it known that we, FERDINAND ZIGANEK and FRANK W. WILKINSON, citizens of the United States, residing at West Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Latches for Swinging Doors, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to new and useful improvements in door latches, and relates particularly to a latch adapted for use in connection with swinging doors, such as refrigerator doors or the like.

An object of this invention is the provision of a latch for swinging doors which will automatically lockingly engage the keeper carried on the door frame as the door is moved to closed position.

Another object of this invention is the provision of a latch in which a spring pressed keeper engaging member is provided, means being provided to adjust the tension of the springs, so as to regulate the force necessary to be used in closing and opening the door.

With these and other objects in view, our invention consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described, claimed, and illustrated in the accompanying drawing, in which:

Figure 1 is a horizontal sectional view through our improved device; Fig. 2 is a vertical sectional view of the same; and Fig. 3 is an elevational view of an alternative form thereof.

Referring more particularly to the drawing, the numeral 1 designates the latch casing, the casing being enlarged at its outer end as at 2, and the top wall of the casing which connects the enlarged portion thereof to the smaller inner portion being inclined as at 3 to form a stop shoulder. Slidably mounted in the enlarged portion 2 of the casing is a guide member 4, the guide member having a beveled upper edge 5 for engagement with the shoulder 3 of the casing, whereby the inward movement of the guide member is limited. The member 4 is hollow, and the forward end thereof receives a portion of a latch roller 6, the roller having a shaft 7 mounted therein, the opposite ends of which project beyond the opposite sides of the roller and engage the side walls of the guide member, so that when the roller 6 is moved inwardly, the member 4 will also be actuated within the casing. The forward end of the casing 1 is provided on its opposite sides with inwardly extending seats 8 to receive the opposite ends of the shaft 7 when the roller is in its outermost position, the seats receiving the shaft of the roller when substantially one-half of the same is projected outwardly of the casing so that outward movement of the roller with relation to the casing is limited. To reduce the friction as the member 4 slides within the casing, cylindrical rollers 9 are journaled in 70 the member to engage the upper and lower walls of the casing.

To normally hold the member 4 in its outermost position so that a portion of the roller 6 is projected from the casing, rods 75 10 are secured at one end in the rear end of the member 4, and extend rearwardly within the casing and are slidable at their rear ends within an adjusting member 11. Helical springs 12 are disposed around the rods 10 to bear at one end against the inner end of the guide member and at their other end against the adjusting member 11, the adjusting member 11 comprising a hollow block which closely engages the walls of the casing at its inner end. The inner wall of the block 11 has a threaded opening 13 formed therein in which the threaded portion of a screw 14 is engaged, the screw 14 having an enlarged head 15 formed thereon between the threaded portion and the head of the screw, the head of the screw projecting through an opening in the rear end of the casing and the enlarged portion 15 of the screw engaging the inner face of the wall to prevent the screw from passing outwardly of the casing. A keeper 16 is provided to receive the roller 6 when the door is closed.

In the practical use of our improved latch, the latch casing 1 is secured to the outer face of the door and the keeper 16 is secured to the inner edge of the door frame, and it will be understood that when the door is in an open position, a portion of the roller 6 is projected forwardly of the casing, owing to the tension of the springs 12 bearing against the inner end of the member 4. When the door is closed, the projecting portion of the roller 6 engages the
outer edge of the keeper 16 whereby the roller 6 is forced inwardly within the casing, and the member 4 is moved inwardly against the tension of the springs 12 until the roller 6 passes the forward edge of the keeper, whereupon it is again forced outwardly to engage within the keeper, whereby the door is held against accidental opening. It will be seen that as the member 4 is moved forwardly and rearwardly within the casing, the friction is taken up by the rollers 9 which engage the upper and lower walls of the casing, and forward movement of the guide member is limited by reason of the engagement of the walls thereof with the opposite ends of the shaft 7 of the roller, which, in turn, engage the seats 8 which prevent the roller from moving entirely out of the casing. It will also be readily understood that the tension of the springs 12 may be adjusted by turning the adjusting screw 14, so as to move the block 11 either forwardly or rearwardly within the casing; the block 11 being moved forwardly in the casing, as the tension of the springs becomes weaker owing to continued use.

In Fig. 3 of the drawing we have illustrated an alternative form of our invention, this form including a pair of swinging doors 17 which close against the central post 18, from which projects an outwardly extending keeper bolt 19. Secured upon the outer face of each door 17, adjacent its opposing edges, is a casing 1 which in which the latch mechanism hereinbefore described is disposed, the roller 6 projecting forwardly of each casing for engagement in the recesses 20 formed in the opposite sides of the bolt 19. The outer extremity of the bolt is tapered as at 21, so that the rollers 6 will easily ride over the end of the bolt to engage in the recesses 20 when the doors are closed, to hold the doors against accidental opening.

Having thus fully described our invention, what we desire to claim and secure by Letters Patent, is:

A device of the character described comprising a casing, a hollow guide member slidably mounted in the casing, a roller mounted in the casing forwardly of the guide member and engaged thereby, rearwardly extending pins carried by said guide member, a hollow adjusting block slidably mounted in the rear end of the casing and having the rear ends of said pins extending therein, helical springs engaged around said pins for engagement at one end against said adjusting block and at their other end against said guide member whereby the guide member is normally forced forwardly within the casing, means for limiting outward movement of said roller, the rear wall of said block having a threaded opening therein, the rear wall of said casing having an opening formed therein in alinement with said threaded opening, a screw threadably disposed through said threaded opening, said screw having an enlarged portion engaged between the rear end wall of said block and the rear wall of said casing, the head of said screw projecting through the opening in the rear wall of said casing, whereby the screw may be rotated to move the block in the casing, to regulate the tension of said springs.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

FERDINAND ZIGANEC.
FRANK W. WILKINSON.

Witnesses:
C. A. WEBBER,
OSCAR REDDING.