Jan. 15, 1929. 1,699,189

L. Q. HOEN

DOORCHECK, AUTOMATIC LATCH, AND NIGHT HOOK

Filed Sept. 27, 1927

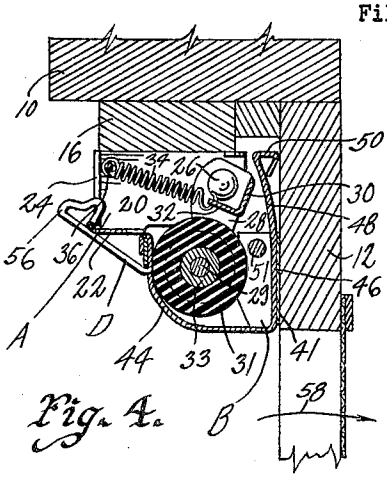


Fig. 4.

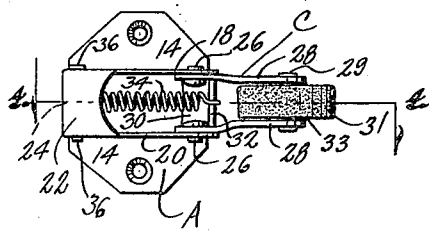


Fig. 1.

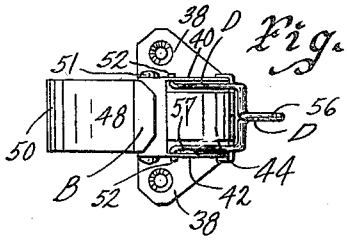


Fig. 3.

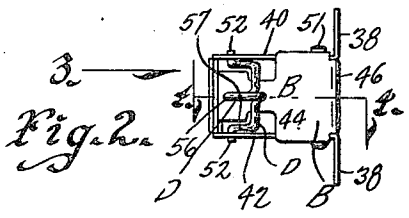


Fig. 2.

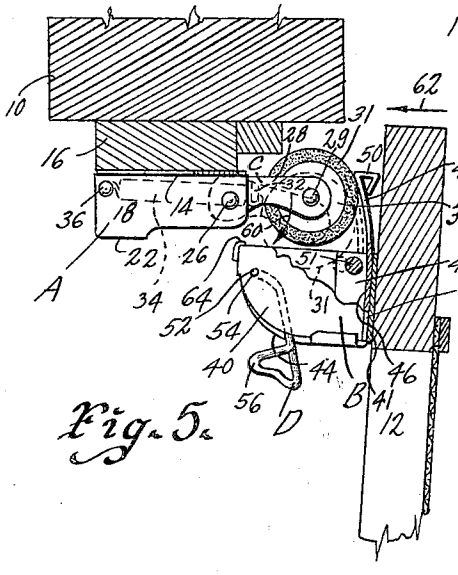


Fig. 5.

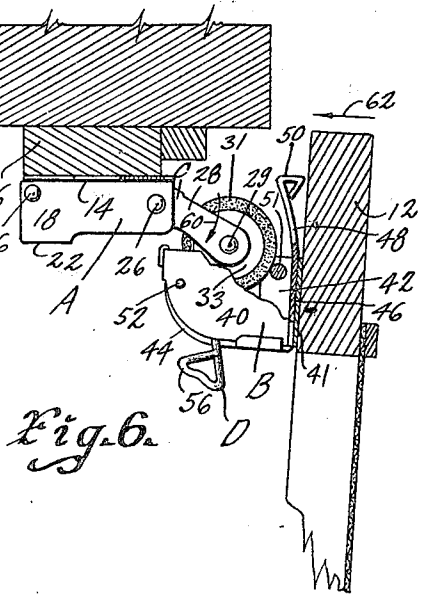


Fig. 6.

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UNITED STATES PATENT OFFICE.

LOUIS Q. HOEN, OF NEWTON, IOWA.

DOORCHECK, AUTOMATIC LATCH, AND NIGHT HOOK.

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The object of my invention is to provide a door check, automatic latch and night hook of simple, durable and comparatively inexpensive construction.

Another object of my invention is to provide a door check wherein the door is positively checked when closed violently and caused to rebound until its motion has been slowed down where it will close gently, the check itself operating to close the door as soon as its motion has been sufficiently slowed down.

Still a further object is to provide a pair of members, one mounted on a door jamb and the other on a door, which members coact with each other for accomplishing the purpose set forth in the last object.

Still a further object is to provide an arm having a bumper roller thereon which arm is resiliently held in either of two positions, one being a position where the check mechanism is "set" and the other being a position where it is not "set" and where it serves to hold the door in closed position.

Still a further object is to provide means on the door for engaging the bumper roller and causing it to move from a set to a non-set position and further means for preventing movement toward non-set position except when the door closes gently.

Still a further object is to provide a night hook on my latch whereby it may be locked when so desired.

With these and other objects in view my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a front elevation of one member of my door check showing the bumper roller in set position.

Figure 2 is a front elevation of the other member used in my construction which coacts with the member illustrated in Figure 1.

Figure 3 is a side elevation of the member illustrated in Figure 2 and looking in the direction of the arrow 3.

Figure 4 is a sectional view taken on the lines 4—4 of Figure 1; and

Figures 5 and 6 are views similar to Figure 4 showing the parts of the check mechanism in different positions.

On the accompanying drawings I have used the reference character A to indicate generally the member of my door check structure which is attached to the door jamb 10. The reference character B indicates the other member which is attached to the door frame 12.

The member A comprises a pair of attaching ears 14 which may be secured to a spacer block 16 which in turn is secured to the door jamb 10. Counter sunk wood screws are preferably used for this purpose. The ears 14 are bent at right angles to form top and bottom members 18 and 20. A front cross member 22 serves to connect the top and bottom 18 and 20 for forming a rigid member to support the mechanism of the door check. The ends of the top and bottom 18 and 20 extend toward each other as indicated in dotted lines in Figure 1 whereby they form a slot 24.

Pivoted to rivets 26 or the like is an arm C comprising side members 28, a cross connecting member 30 and a flange 32.

A rivet 29 extends through the arms 28 and has rotatably mounted thereon a wheel 33. The wheel 33 has on it a resilient bumper roller 31 of suitable material such as rubber.

The flange 32 is connected by a spring 34 to a rivet or the like 36 extending from the top to the bottom of the member A.

The member B comprises a pair of attaching ears 38 which may be secured to the door frame 12. A cardboard shim 40 is inserted between the member B and the door frame 12. The ears 38 are bent to form top and bottom members 40 and 42.

For covering the front and sides of the member B and thereby forming a socket I provide a strip of metal comprising the curved portion 44 and a comparatively flat portion 46 extending between the ears 38. A portion 48 of the strip 46 extends beyond the ears 38 and is provided with a doubled under bead 50.

A rivet or the like 51 extends from the top 40 to the bottom 42 of the member B for holding the parts in assembled position and this rivet has a further object as will be later disclosed in the specification.

A night hook D is provided with ears 52 which extend through openings 54 in the top and bottom 40 and 42 of the member B. The hook D is in this manner pivoted to the member B and is provided with a hook portion 56

adapted to engage the edge of the cross front member 22 of the member A and be positioned in the slot 24 as illustrated in Figure 4. This hook may be utilized when it is desired to lock the door for the night.

Practical operation.

Figure 4 illustrates the check mechanism of my structure as when the door is closed. The hook D is illustrated as being hooked for the purpose of locking the door in closed position. This hook may be unhooked as illustrated in Figures 5 and 6. When the door 12 is opened as indicated by the arrow 58, the socket formed by the strip of metal 44 will move the bumper roller 31 to the position illustrated in Figure 5. In this position the spring 34 has passed across the center of the rivets 26 whereby the roller 31 will be held in this position (Figure 5) by the spring 34. This "sets" the roller 31 in position to be actuated by the door when closed.

When the door is violently closed as illustrated in Figure 5, the bead 50 will engage the roller 31 causing the arm C to move in the direction of the arrow 60. The spring 34 will then have passed across the pivot center 26 whereby the roller 31 is caused to enter the socket formed in the member B. However, violent closing of the door produces enough movement of the door in the direction of the arrow 62 to cause the rivet 51 to engage the roller 31 as illustrated in dotted lines in Figure 5 and the roller is caught between the curved portion 48 of the socket member B and the rivet 51 thereof and its further movement in the direction of the arrow 60 is prevented. The resiliency of the roller 31 thereupon acts to cause a rebound of the door 12 and in rebounding, the edge 64 of the socket member B will again set the roller 31. This will continue until the motion of the door 12 has been sufficiently checked to allow the roller 31 to pass the rivet 51 before the roller can be caught between the rivet and the bead 50. This position is illustrated in Figure 6 and the arm C will continue to move in the direction of the arrow 60 whereby it engages in the socket of the member B and the spring 34 tends to close the door and maintain it in closed position.

From the foregoing description it will be obvious that I have provided a device which actually checks the movement of the door and causes it to rebound until its momentum has been reduced to a point where the door will not slam when allowed to close.

In operation, if a person gently closes the door the roller 31 will immediately enter the socket member B and maintain the door closed but violent closing of the door will cause a rebound and the number of rebounds will depend on the violence with which the door has been closed.

It will be obvious that my check can be used on all types of doors and will accomplish the same result. I have illustrated it as being attached to a screen door but I do not wish to be limited to its use on screen doors only.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. A door check of the character described comprising a pivoted arm, a roller carried thereby, a socket member adapted to move said arm and roller to a predetermined position when the door is opened and means associated with said socket member and adapted to engage the roller when the door closes and thereby check the motion of the door, said means causing said arm to swing into said socket and close the door after its motion has been sufficiently checked by rebounding.

2. A door check of the character described comprising a pivoted arm, a roller carried thereby, a socket member adapted to receive said roller whereby one edge of the socket will move said arm and roller to a predetermined position when the door is opened and means associated with said socket member and adapted to engage the roller when the door closes and thereby check the motion of the door, said means causing said arm to swing into said socket and close the door after its motion has been sufficiently checked by rebounding.

3. A door check of the character described comprising a pivoted arm, a roller carried thereby, a socket member adapted to receive said roller whereby one edge of the socket will move said arm and roller to a predetermined position when the door is opened, resilient means for maintaining said arm and roller in such position and means associated with said socket member and adapted to engage the roller when the door closes and thereby check the motion of the door, said means causing said arm to swing into said socket and close the door after its motion has been sufficiently checked by rebounding.

4. A door check of the character described comprising a pivoted arm, a roller carried thereby, a socket member adapted to receive said roller whereby one edge of the socket will move said arm and roller to a predetermined position when the door is opened, resilient means for maintaining said arm and roller in such position and means associated with said socket member and adapted to engage the roller when the door closes and thereby check the motion of the door, said means allowing said arm to swing into said socket and thereby allow the resilient means to

cause the roller to close the door after its motion has been sufficiently checked by rebounding.

5. In combination with a door jamb and a door, a door check comprising a resilient bumper, means on the door for engaging the bumper at two points and causing the door to rebound when closed violently, one of said means serving to move said bumper to position for closing the door and means on the door for counteracting such movement except when the door has rebounded sufficiently to permit it to close gently.

6. In combination with a door jamb and a door, a door check comprising a resilient bumper, means on the door for engaging the bumper at two points and causing the door to rebound when closed violently, one of said means striking the bumper for causing it to be moved to position to be engaged by the other of said means, said first mentioned means also serving to move said bumper to position for closing the door and means on the door for counteracting such movement except when the door has rebounded sufficiently to permit it to close gently.

7. A door check comprising members mounted on a door jamb and on a door for coacting with each other when the door is opened and closed, bumper means on one of said members, resilient means for constraining said bumper means to move to either of two positions, bumper striking elements on the other of said members, one of said elements causing the bumper means to move to one of its two positions when the door is opened, the second of said elements causing it to move to the other of said positions when the door is closed and the third element preventing the major portion of such last mentioned movement and causing the door to rebound except when the door closes gently.

8. In a door check, means for moving the check mechanism to set position by the opening movement of the door, said check including a bumper adapted to be struck when the door is closed and thereby move the check mechanism to nonset position, said bumper serving to cause the door to rebound and reset the check mechanism except when the door is closed gently.

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