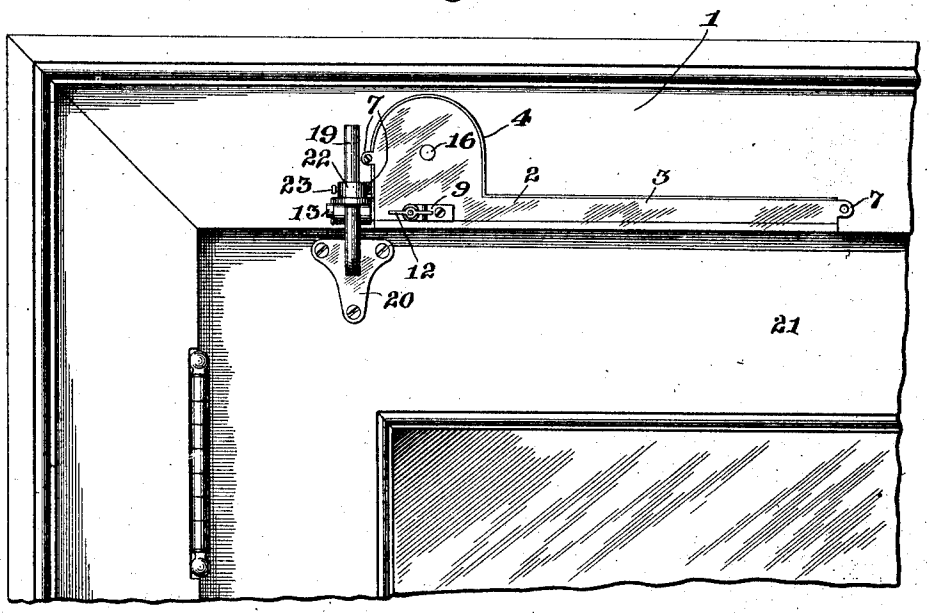
Feb. 17, 1925. 1,526,395

A. SWANSON

DOORCHECK

Filed Jan. 26, 1924

Fig. 1.



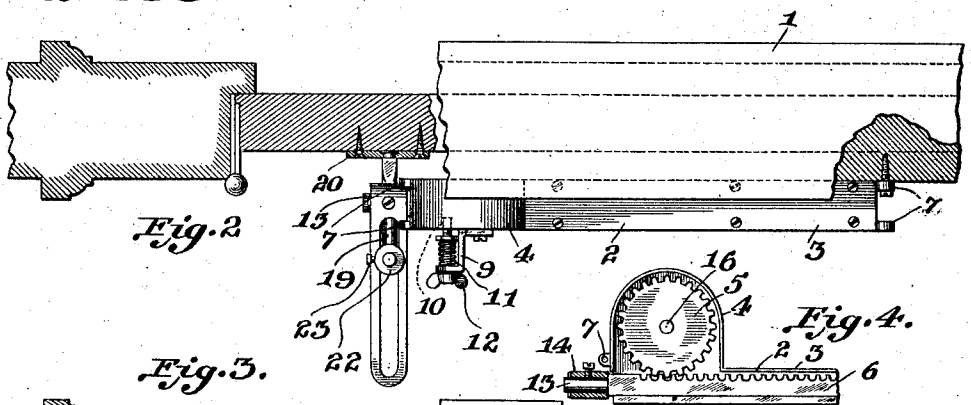
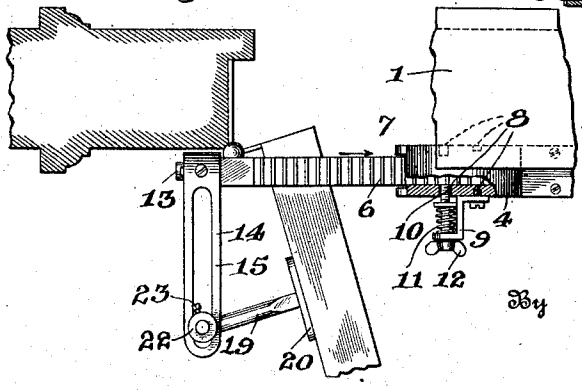


Fig. 2

Fig. 3.

Fig. 4.



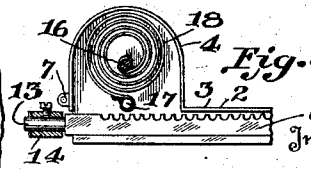


Fig. 5.

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Patented Feb. 17, 1925. 1,526,395

UNITED STATES PATENT OFFICE.

ALFRED SWANSON, OF BILLINGS, MONTANA, ASSIGNOR OF ONE-HALF TO JAMES HOWARD LESH, OF BILLINGS, MONTANA.

DOORCHECK.

Application filed January 26, 1924. Serial No. 688,733.

To all whom it may concern:

Be it known that I, ALFRED SWANSON, a citizen of the United States of America, residing at Billings, in the county of Yellowstone and State of Montana, have invented certain new and useful Improvements in Doorchecks, of which the following is a specification.

My invention relates to new and useful improvements in door checks and has for an object to provide a check which is comparatively simple in construction, positive in operation and relatively cheap to manufacture.

Most of the door checks which are in use today are operated by springs and a dash pot, the dash pot regulating the force with which the springs operate. The valve on the dash pot soon wears and calls for constant repair.

The other forms of door checks which are operated by springs with which I am familiar, are comparatively complicated, calling for a number of parts and constant repair.

One of the principal objects, therefore, of my invention is to provide a door check utilizing a minimum number of parts; namely, a suitably mounted rack and gear, a spring attached to the gear, a link attached to the rack, and an arm attached to the door and cooperating with the link.

Still another object of the invention is to provide a door check wherein the opening of the door will cause the rack to move outwardly and thus tighten the spring on the gear. After the door has been released, the spring will cause the rack to return and pull the door to its closed position. A small brake is attached to the check which by friction regulates the speed of the return of the rack to its normal position.

Still another object of the invention is to provide a door check which may be used either on a right-hand or a left-hand door, it being simply necessary to reverse the position of the link on the rack and place the brake on the other side of the door check proper.

With these and other objects in view, the invention consists in certain new and novel arrangements and combination of parts as will be hereinafter more fully described and pointed out in the claims.

Referring now to the drawings showing a preferred form of my invention, there is shown in—

Fig. 1 the fragmentary portion of a door and door case, the door check proper being secured to the lintel and the arm cooperating with the door check being secured to the top rail of the door.

Fig. 2 is a top plan view of the door check as attached to the door and casing, a portion of the door case being broken away for the sake of clearness, the door being shown in its closed position.

Fig. 3 is a fragmentary top plan view, the door being swung to an open position and the check being shown in its operative position.

Fig. 4 is a fragmentary portion of the door check with the front part of the casing removed to show the rack and gear; and

Fig. 5 is a similar view, but with the gear removed to show the spring for operating the gear and rack.

Referring now more particularly to the several views, there is shown the door case comprising the lintel 1, to which is secured the door check proper 2, which comprises a metal casing 3, at one end of which is formed the chamber 4 for the reception of a gear 5 which is positioned to mesh with a rack bar 6 which may slide within the casing as may be seen in the several figures. Lugs 7 are positioned at different points on the opposite sides of the casing so that the door check may be screwed to the lintel 1 and securely held in place. These lugs, as before mentioned, are placed on the opposite sides of the casing so that the door check may be used on either a right-hand or left-hand opening door.

Also on the opposite side of the casing and preferably at the end where the chamber is located, are two small holes 8, one of each set is internally threaded, so that a small bracket 9 may be threaded to the casing, which bracket in turn carries the pin 10, the spring 11 and the wing nut 12 so that the tension of the spring may be regulated to thereby regulate the force of the pin acting as a brake on the rack bar. By providing two sets of holes, the brake may be applied to either side of the casing, depending

whether the check is used on a right-hand or left-hand door.

Passing out one end of the casing, is an end 13 of the rack bar 6 on which is to be fastened the link 14, the link being provided with a bearing surface to tightly fit the end 13 of the rack bar while the slot 15 extends practically its entire length. This link may be easily removed when desired and reversed as to position so that it may operate likewise either on a right-hand or left-hand opening door.

Supporting the gear 5 in its correct position within the chamber is the shaft 16, the gear being fixedly attached thereto, and also fastened to this shaft and to a pin 17 is the coil spring 18 under compression, so that it will force the rack to its normal position, after the rack bar has been pulled partly out of the casing by the operation of the door as will be hereinafter mentioned.

The compression of the spring will be adjusted when the parts are assembled and of course a movement of the rack bar tends to more tightly compress the spring. The operation of a spring operated gear and rack bar is so well-known that no further explanation is deemed necessary.

Cooperating with this link is the arm 19 which is securely fastened at its one end to the foot or base plate 20, which may be of the shape shown, so that it may be securely fastened to the top rail 21 of the door. This arm, as may be seen in Figs. 1 and 3, extends first outwardly and then upwardly, and passes through the slot 15 of the link. Also fastened on this arm above the link is a stop nut 22 which may be held in place by the set screw 23.

The operation of the device is exceedingly simple. An opening of the door will cause the arm to slide outwardly in the link and at the same time pull the rack bar outwardly of the casing, and further compressing the spring 18, so that the arm and rack bar will assume the position shown in Fig. 3. On releasing the door, the spring operated gear will pull the rack bar inwardly and likewise pull the door to its closed position, the speed of the closing of the door being regulated by the wing nut 12 of the brake.

From the foregoing, it will be seen that the door check is comparatively simple, contains but relatively few parts, calls for but little attention, and may be readily placed in its operative position.

Many slight changes might be made in the several parts without in any way departing from the spirit and scope of my invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A door check comprising a detached arm, a slidable member, a link cooperating with said arm and said slidable member, said link extending at right angles to the slidable member and spring operated means for returning said slidable member to its normal position after the same has been operated by the movement of a door.

2. A door check comprising a detached arm, a rack bar, a link cooperating with said arm and said rack bar, said link extending at an angle to the said rack bar, a gear for operating said rack bar and a spring holding said gear under tension and said gear returning the said rack bar to its normal position after the same has been operated by a door.

3. A door check comprising an arm adapted to be secured to a door, a casing adapted to be attached to the lintel, a slidable member within said casing, a link cooperating with said arm and said slidable member within said casing, the said link being secured to the end of slidable member and extending at substantially right angles thereto, spring operated means within said casing for returning said slidable member to its normal position after the same has been moved by the opening of the door.

4. A door check comprising an arm extending outwardly and upwardly and adapted to be secured to the door, a casing adapted to be secured to the lintel of the door, a slidable rack within said casing, a link secured to the end of the slidable rack and extending at right angles thereto and cooperating with said arm and a gear within said casing for operating said rack, a spring holding said gear under tension and revolving said gear to return the rack to its normal position after the same has been moved outwardly by the movement of the door.

5. A door check comprising an arm adapted to be secured to the door, a casing adapted to be secured to the lintel of the door, a chamber formed at one end of the casing and a spring operated gear within said casing, a slidable rack bar within said casing and in mesh with said gear, a link secured to the end of the rack bar extending at right angles thereto and cooperating with said arm, and a friction brake secured to said casing and in contact with said slidable rack to regulate the speed of the return of the rack bar after the same has been pulled outwardly by the opening of the door.

6. A reversible door check comprising a casing having a chamber formed at one end, a gear within said chamber and a slidable rack bar within said casing, the casing being similar on its opposite sides so that it may be attached on one side or the other to the lintel depending on the hinged position of the door, a brake adapted to be secured to one side or the other of the casing for operating on said rack bar, and a link slidably fitting upon the ends of the rack bar and capable of rotation on said rack bar and

always extending at right angles to the longitudinal axis of said rack bar, said link cooperating with an arm adapted to be secured to the door so that after said rack bar is operated by an opening movement of the door, a return of said rack bar will close said door and a reversible link attached to said rack bar and an arm adapted to be secured to the door and cooperate with said link so that after said rack bar is operated by an opening movement of the door, a return of said rack bar will close said door.

In testimony whereof I affix my signature.

ALFRED SWANSON.