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DOOR CHECK.

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1,085,192.

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Fig. 1.

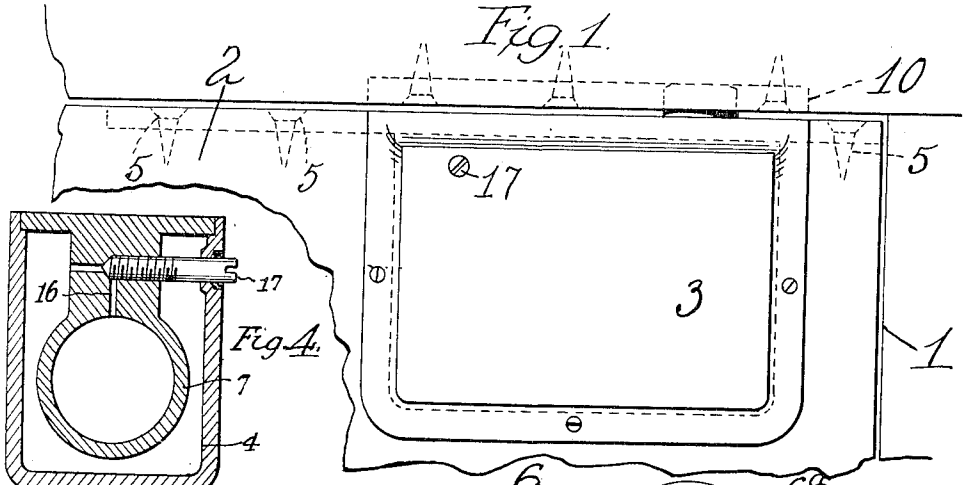


Fig. 4.

Fig. 2.

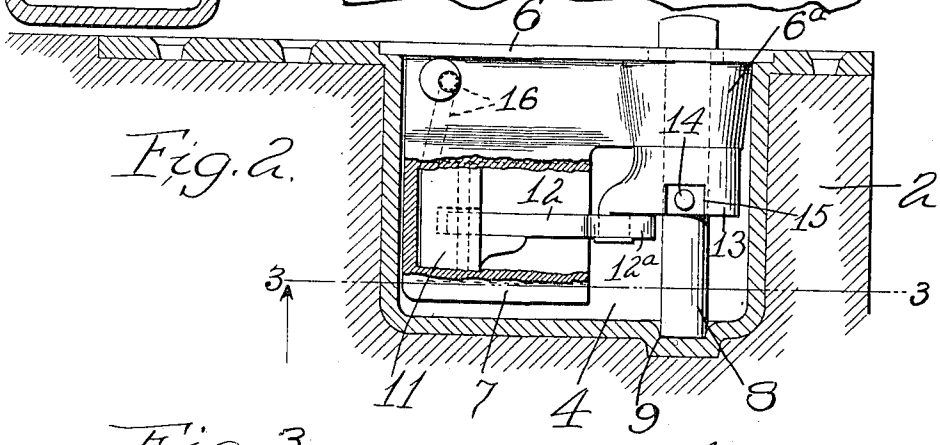
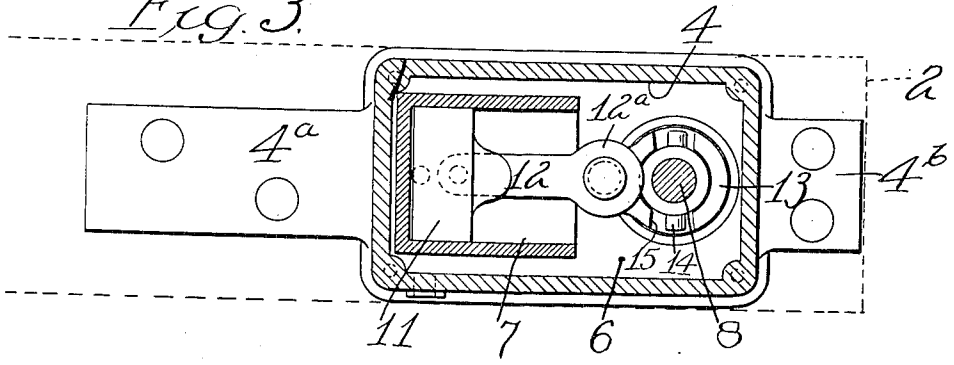


Fig. 3.



Attest

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UNITED STATES PATENT OFFICE.

FRANCIS BRUCKER, OF SHELBY, OHIO, ASSIGNOR TO THE STANDARD MANUFACTURING COMPANY, OF SHELBY, OHIO.

DOOR-CHECK.

1,085,192. Specification of Letters Patent. Patented Jan. 27, 1914.

Application filed May 27, 1912. Serial No. 699,918.

To all whom it may concern:

Be it known that I, FRANCIS BRUCKER, citizen of the United States, residing at Shelby, Ohio, have invented certain new and useful Improvements in Door-Checks, of which the following is a specification.

My invention is a door check designed to be used on a door provided with any kind of a closing spring. My object is to simplify and reduce the cost of spring door hinges and checks, without impairing their efficiency.

My invention consists essentially in providing a check wholly separate from the door spring and adapted to coact with any form of door returning spring, and at the same time to act as one of the door hinges.

In my Patent No. 1,007,532, granted October 31, 1911, I show a door check located in the edge of the door, and connected with a returning spring hinge located in direct opposition beneath the floor. This has been found effective for the purposes intended, but I have conceived the further improvement herein set forth, by means of which, while retaining the advantage of the separate construction and location of check and spring hinge, I can make the check serve as the other hinge, at the other end of the door, opposite to the spring hinge. It takes the place of the ordinary pivot used in connection with the spring hinge shown in my patent, or in place of other spring hinges, an obvious economy and convenience in application.

The conception of the idea of using the check for a hinge, I found to require, in practical application, a special adaptation of the check to the new situation and conditions, and this adaptation is set forth in the following specification, and is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of the upper corner of a door and door frame with my invention applied thereto. Fig. 2 is a horizontal vertical section, and Fig. 3 is a horizontal section on line 3—3 of Fig. 2 looking in the direction of the arrow. Fig. 4 is a transverse sectional view illustrating the by-pass.

In these drawings a part of the door frame (the upper on the hinge side of the door) is indicated by numeral 1. At 2 is shown the adjacent corner of the door on the hinge side, said door being assumed as provided with a double acting spring hinge without checks as commonly used.

As shown in these drawings, this check is located in a mortise, in the upper end of the door, near the hinge edge, which in this instance is the right hand edge. In order that the pivot of the check which operates on the resisting medium may form the upper pivot of the door, it must be adapted to be located near this edge, and at a variable distance, to suit the conditions of the ordinary spring hinge which may happen to be used below. To this end I form a casing, which is fitted to be so placed in a mortise near the vertical edge on the hinge side of the door with the check post near that end of the casing. This casing has an oil chamber 4, and end flanges 4^a and 4^b, adapted to be secured to the door by screws 5. The flange 4^b near the edge is made short, so that the casing may be adjusted toward or from the edge to suit the position of the lower hinge. A cover 6 carries the check cylinder 7, preferably cast with the cover, and is properly secured on the casing.

A hinge pin or pivot post 8 is journaled in the plate in front of the open end of the cylinder, a firm bearing for the pin being provided by the boss or thickened portion 6^a, also preferably cast integral with the plate. The lower end of the hinge pin, or pivot post, is journaled in a bearing in the bottom of the chamber or case 4, preferably in the form of a simple recess 9. The upper end of the pin or post is of non-circular form in cross section and adapted to engage a recess or socket of similar shape in the plate 10 secured to the door frame, to keep the pin or post from turning only a limited amount.

Within the cylinder is located a piston 11, provided with the usual passage controlled by a check valve, and connected by a pitman 12, to a loose crank on the pin or post. This crank comprises a sleeve or collar 13 rotatably mounted on the post and having a lug or projection which engages an eye 12^a in the end of the pitman. Only a limited amount of movement of the collar on the post is permitted, due to the pin 14 passing through the post and having its ends located in diametrically arranged recesses 15 in the collar, which recesses are larger than the pin and hence permit a limited amount of relative or loose movement between the

pin and crank. Slow escape of the liquid from the cylinder in rear of the piston on the closing of the door is permitted by by-pass 16 controlled by set screw 17.

The improved pivot check is applied to the top of the door by cutting out a notch to receive the check and have the wood of the door stile extend back of the check as high as the door leaving a wood finish at the heel so that in setting the check it is only necessary to cut the recess to receive the check in such position as to bring the center of the pivot in line with the hinge post at the bottom of the door. It is evident that if the pivot check were applied so that the end extended to the heel of the door it could not be used in connection with the different makes of double acting spring hinges on account of the difference in distance mentioned from edge of door to center of hinge post.

By my construction I have simplified the check mechanism, casting the cover of the liquid containing chamber, and checking cylinder all in one piece, so all the check mechanism is assembled in connection with this cover before it is fastened to the liquid containing chamber which is extremely simple and efficient and a great saving cost.

An important feature is the loose crank on pivot post, thus allowing a certain amount of loose motion of the crank on the pivot post. The purpose of this is to hold the door in check until it comes to the center or closed position to prevent oscillating at that point. The crank is held back against the pin in the recess by the pressure in the cylinder and the door comes to the center before the crank gets to the dead center. By this means the door is held in check up to the closed point, whereas, if the crank were tight upon the post it would come to the dead center when the door reached the closed position and lose the effect of the check right at that point. With my construction of having a recess in the crank the crank is held back when the door is swung from either way and the result is that the door stops at the closed position without that flip-flap or oscillating motion so prevalent with double acting doors.

I claim as my invention:—

1. The combination with a door and door casing, of a pivot post carried by one of said parts, a checking device carried by the other part and acting on said part, and a loose connection between said checking device and post.

2. In a door check, a pivot post and a cylinder, one of said parts being movable with relation to the other, a crank carried by said post to have a limited amount of rotary movement thereon, and a piston in the cylinder connected to said crank.

3. In a door check, a pivot post and a cylinder, one of said parts being movable in relation to the other, a collar on said post having diametrically located recesses, a pin passing through the post and having ends, of less size than the recesses, resting therein, and a piston in the cylinder connected with said collar.

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

FRANCIS BRUCKER.

Witnesses:

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MARION M. SCALES.