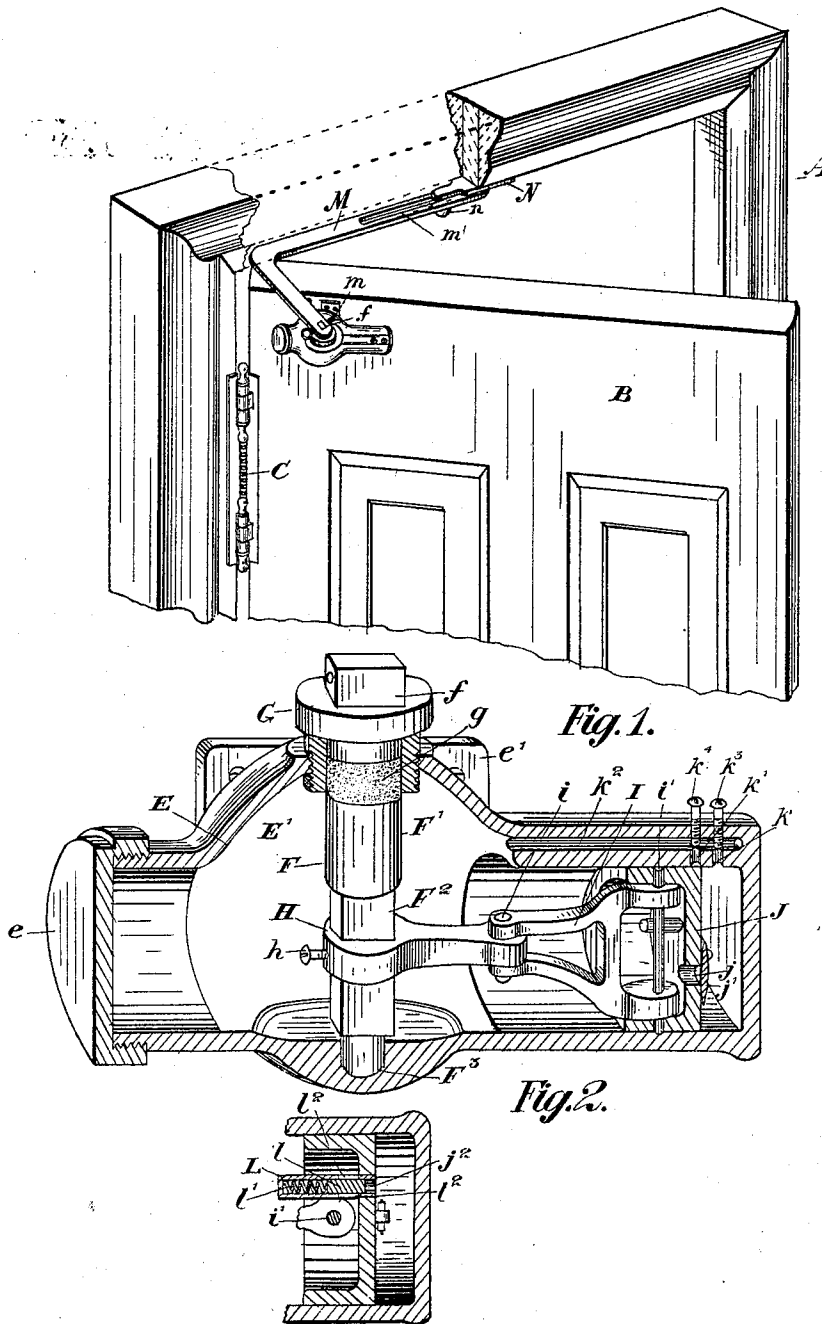


(No Model.)

J. F. LASH.
DOOR CHECK.

No. 578,084.

Patented Mar. 2, 1897.



Witnesses.
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Fig. 3.

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UNITED STATES PATENT OFFICE.

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DOOR-CHECK. **REISSUED**

SPECIFICATION forming part of Letters Patent No. 578,084, dated March 2, 1897.

Application filed April 14, 1896. Serial No. 587,503. (No model.)

To all whom it may concern:

Be it known that I, JOHN FANNON LASH, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Door-Checks, of which the following is a specification.

My invention relates to improvements in door-checks in which oil, glycerin, or other liquids are employed, and is more particularly adaptable for the prevention of the slamming of the doors swung on double-acting spring-hinges, and the object of the invention is to devise a simple and effectual form of check capable of controlling the action of the spring-hinges, so that the door will not swing past the center or closed position, and thereby obviate the danger commonly incident to people passing in and out of such doors; and it consists, essentially, of a door-check having a central spindle connected to an arm which is slotted and connected to a pin underneath the center of the frame of the door, the arm and frame and the interior of the door-check being constructed as hereinafter more particularly explained.

Figure 1 is a perspective view of a portion of the frame and a door swung on double-acting spring-hinges, exhibiting my device. Fig. 2 is an enlarged sectional perspective view of the check. Fig. 3 is a sectional plan view of a portion of the door-check cylinder, showing the relief-valve.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the door of the frame, B the door, and C one of the double-acting spring-hinges, which is designed to allow the door to swing both ways.

E is the liquid-chamber, which is provided with an end cap *e* and has journaled centrally in the spherical enlargement *E'* a spindle *F*, the upper portion *F'* of which is cylindrical, the central portion *F²* square, and the bottom portion *F³* cylindrical. The upper and lower portions form journals for the turning of the spindle. The spindle *F* is also provided with a square top *f*.

G is a sleeve or collar which is provided with a threaded lower end which is screwed into a corresponding opening in the top of the liquid-chamber.

g is an annular packing which fits into a corresponding recess between the spindle *F* and the sleeve *G*. The packing *g* is designed to keep the journal of the spindle perfectly liquid-tight.

H is an arm which is secured on the square portion *F²* of the spindle *F* by a set-screw *h*.

I is an arm which is connected by the pin *i* to the arm *H* and by the pin *i'* to the piston *J*.

j is a port in the piston which is provided with an ordinary flap-valve *j'*.

k and *k'* are ports leading into a passage-way *k²* at the upper end of the major cylindrical portion of the liquid-chamber.

k³ and *k⁴* are screw-valves designed to control the flow of the liquid from the cylinder in front of the piston *J*.

L is a hollow sleeve closed at one end and having the open end extending through the port *j²* in the piston.

l is a plug, and *l'* is a spring behind the plug, and *l²* are slots in the sleeve *L*, which are normally closed by the plug *l*. These ports form a relief for the piston, as hereinafter described. (See Fig. 3.)

M is an arm, preferably L-shaped, the outer end of which is connected to the square top *f* of the spindle *F* by a split pin *m*. The long member of the arm *M* is provided with a slot *m'*, through which extends a pin *n*, attached to or forming part of the plate *N*, secured to the bottom of the top of the door-frame. The long member of the arm *M* pivots and slides on the pin *n*, so that as the door closes the short member of the arm *M* will swing inwardly and the long member slide up and turn on the pin *n*.

When the door is closed, as there is always a space between the top of the door and the bottom of the top of the door-frame, it will be readily seen that such arm *M*, being thin, will readily fit in this space, so that there will be no portion of the arm extending out beyond the top *f* of the spindle *F* of the liquid-chamber.

It will thus be seen that the device itself will present a very neat appearance.

The liquid-chamber hereinbefore described is of course secured to the door by means of flanges *e'* and suitable screws.

Having now described the principal parts

involved in my invention, I shall briefly describe its operation.

In Fig. 2 the position of the piston and the ports will be understood when the door is closed. In this position it will be noticed that the arms H and I are in alinement or in dead-center. It is from this fact that I am enabled to utilize the liquid-check in the manner I shall now describe.

Should the door be swung open either way, the arm H will be swung by the arm M and spindle F in the corresponding direction, thereby drawing the piston toward the spindle F, so that the liquid will pass through the port j, the valve opening into the cylindrical portion in front of the piston. Upon the door being caused to swing back again by its spring-hinges the valve j' will close and the liquid in front of the piston will be forced to pass through the ports k and k' and passage-way k² into the other portion of the chamber. Upon the piston reaching and covering the port k' it will be readily understood that the liquid will very much more slowly escape through the port k', and consequently as the door approaches its closed position it will move very slowly and will, I find in practice, stop exactly on the center line of the frame. The action of the door is the same in either direction in which it may be pushed, and the slotted arm M, coacting with the pin n, permits of its double movement. Should a person, when the door is opened in one direction, wish to push it more quickly than it would naturally close to pass through in the opposite direction, he may still do so, as the liquid in front of the piston having a greater pressure exerted upon it will force the plug l backwardly and the liquid will pass through the slots l² and thereby relieve the check and permit of the free retrograde movement of the door.

What I claim as my invention is—

1. The combination with a door swung on double-acting spring-hinges, of a liquid door-check and a flat arm secured at one end to the operating-spindle of the liquid-check, arranged to cross over the top edge of the door

and underneath the top of the door-frame, and a longitudinally-adjustable connection between the arm and bottom of the top portion of the frame as and for the purpose specified.

2. The combination with a door swung on double-acting spring-hinges, of a liquid door-check having a central operating-spindle suitably journaled in the top and bottom of the chamber and suitably connected to a piston of an L-shaped arm secured to the top of the spindle at one end and having the other end slotted and designed to be in alinement with the door when closed and a pin connecting it to the bottom of the top of the frame through the slot as and for the purpose specified.

3. The combination with a door swung on double-acting spring-hinges, of a liquid door-check and arm connecting the spindle of same to the bottom of the top of the frame as specified, a piston also suitably connected to the spindle by a jointed arm and a plurality of ports extending from the outer end of the cylindrical end of the liquid-chamber into a separate passage-way and means in the head of the piston for allowing the liquid to escape into the other portion of the chamber upon an extra pressure being exerted upon the door in the same direction to which it is closing as and for the purpose specified.

4. The combination with a door swung on double-acting spring-hinges, of a liquid door-check or closer and arm connecting the spindle of same to the bottom of the door-frame as specified, a piston also suitably connected to the spindle by a jointed arm and a plurality of ports extending from the outer end of the cylindrical end of the liquid-chamber into a separate passage-way and a sleeve provided with slots and an open end in the head of the piston and a spring-pressed plug held in such sleeve, so as to normally close the slots as and for the purpose specified.

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Witnesses:

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