

(No Model.)

T. CURLEY.  
DOOR CHECK.

No. 571,153.

Patented Nov. 10, 1896.

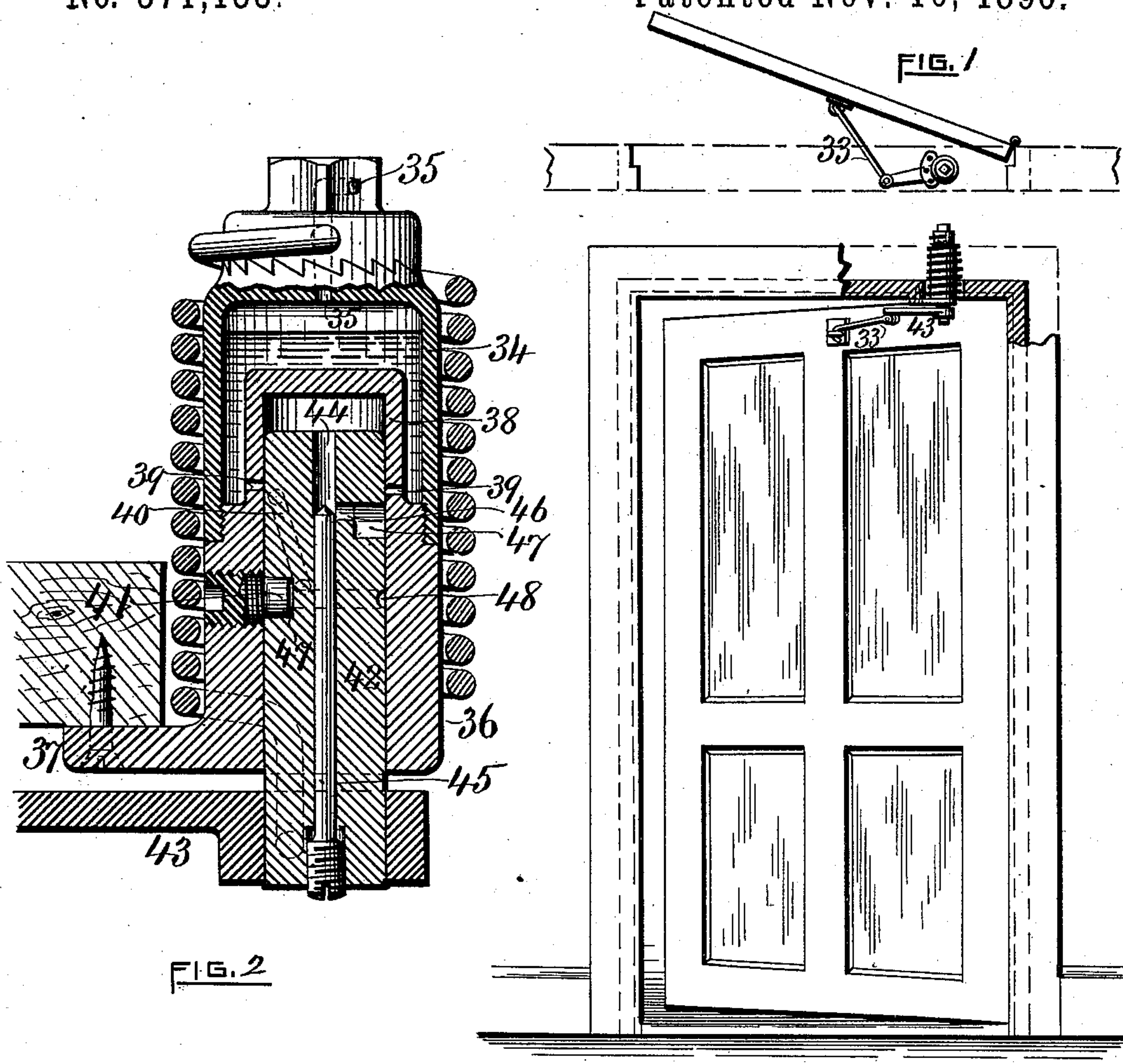


FIG. 2

FIG. 3

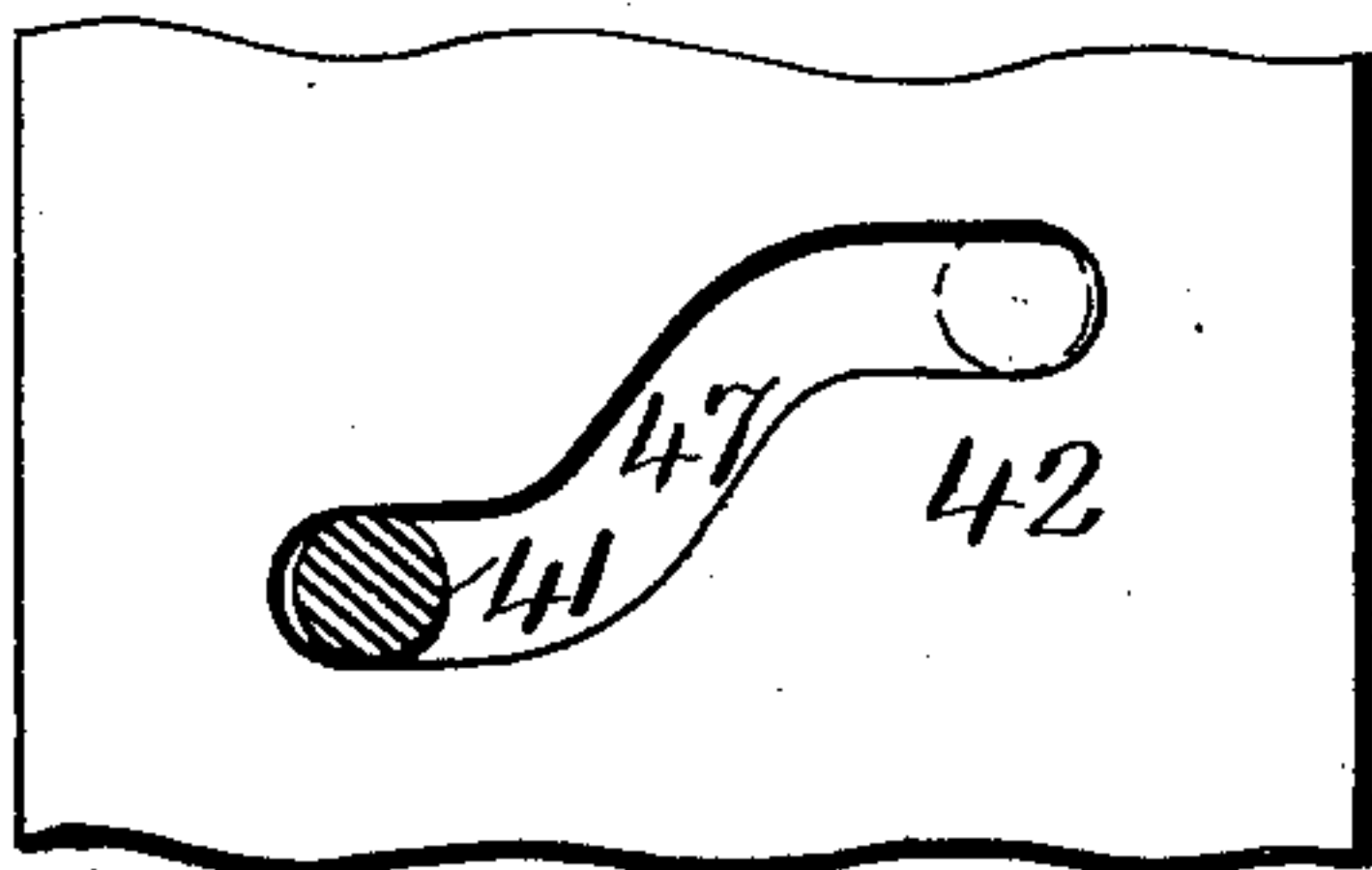


FIG. 4

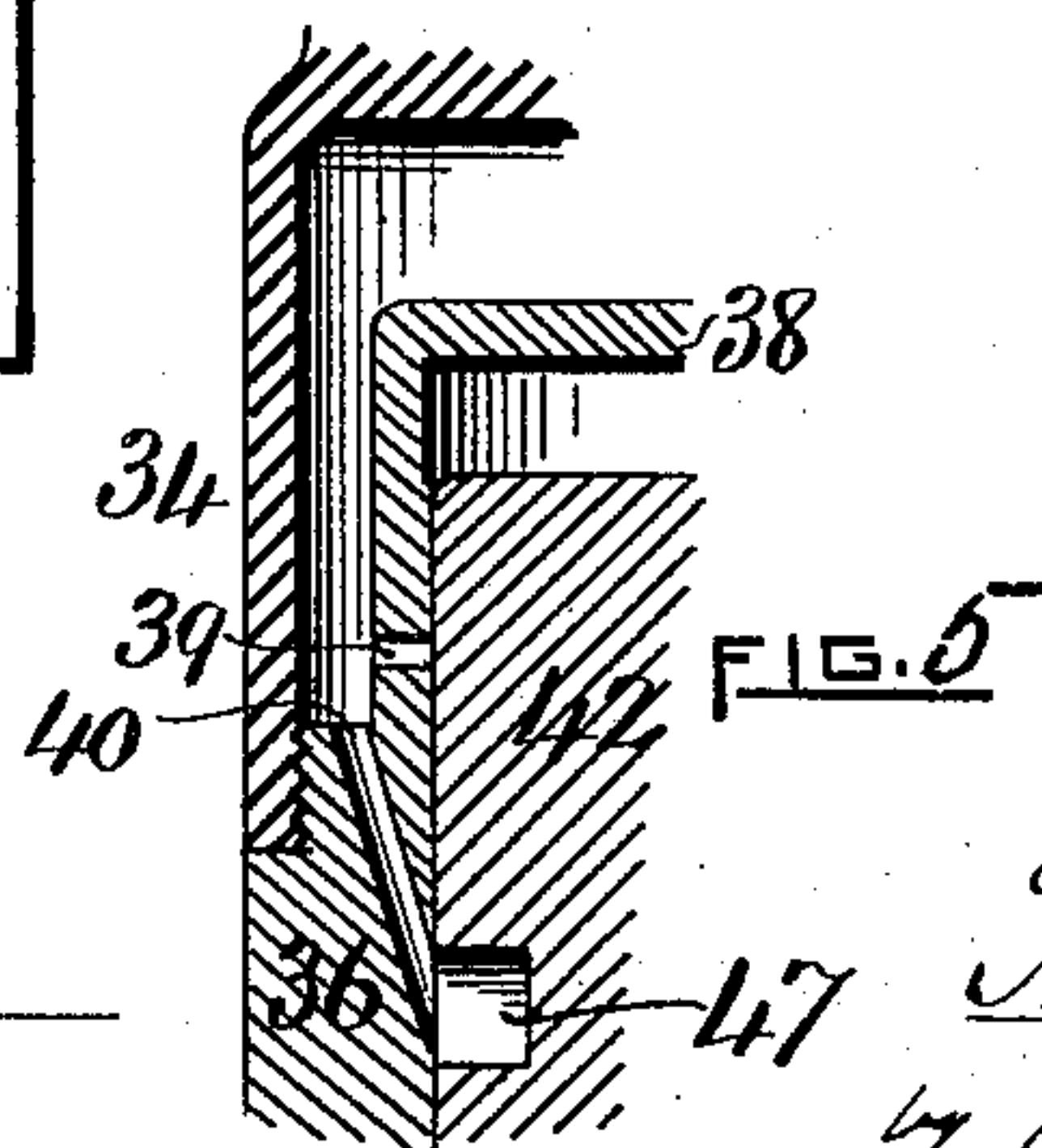


FIG. 5

WITNESSES.

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# UNITED STATES PATENT OFFICE.

THOMAS CURLEY, OF WALTHAM, MASSACHUSETTS.

## DOOR-CHECK.

SPECIFICATION forming part of Letters Patent No. 571,153, dated November 10, 1896.

Application filed July 23, 1891. Serial No. 400,468. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS CURLEY, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Door-Checks; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to improvements in that class of door springs and checks wherein a plunger or spindle is operated by the spring which closes the door to compress air and liquid contained within a cylinder in which the plunger works to check the action of the spring, the liquid and air thus compressed passing through contracted outlets in the cylinder-walls into a surrounding chamber.

The object of this invention is to produce a door-check of the nature described which will be of compact shape and size and in which the full power of the actuating-spring may be obtained, while the wear on the same is reduced.

The further object of this invention is to produce a door check and spring combined which may be inclosed in a socket formed in the door-frame.

The invention consists of a spring-operated plunger working in a cylinder containing liquid and provided with a cam working on bearings adapted to lift the plunger when the same is turned by the operating-arm, as will be more fully described hereinafter, and pointed out in the claims.

Figure 1 represents an edge view of a door and frame, showing the check and spring secured thereto. Fig. 2 is a vertical sectional view of the improved check and spring adapted for insertion in a socket provided in the upper portion of the door-frame. Fig. 3 represents a door and the casing, showing the check inserted in a socket provided in the upper frame and connected by a pivoted arm with the door. Fig. 4 represents a plan view of a modified form of the cam projected on a plane surface. Fig. 5 represents an enlarged sectional view of a portion of the plunger and cylinder with the liquid-containing chamber, showing the passage connecting said cham-

ber with the space between the sides of the plunger and those of the cylinder.

Similar numbers of reference designate corresponding parts throughout.

In the drawings the fluid-containing chamber is designated by the number 34 and forms the upper end of the device, having a ratchet and a cap provided with ratchet-teeth working therein and a square shank to turn the same and increase the tension of the spring surrounding the whole. Through this cap an air-passage 35 is formed, and this passage is continued through the top of the chamber 34, the lower inner edge of this chamber having a screw-thread which engages with a threaded shoulder on the cylinder-base 36, having the attaching-plate 37.

The cylinder 38 is formed in part with the base 36, and its outer diameter is somewhat less than the inner diameter of the chamber 34. In the walls of this cylinder are provided the ports 39 and the downwardly-slanting passage 40, (more fully shown in Fig. 5,) the thicker wall of the base having a horizontal perforation in which the set bearing-screw 41 is secured.

The plunger 42, fastened to the operating-arm 43, to the shank of which the lower end of the spring is also secured, has a central vertical perforation 44, somewhat enlarged at the lower end to provide a threaded socket in which the threaded head of the adjusting-pin 45 engages, while near the upper end of this perforation 44 an outlet 46 is formed at right angles therewith and connects the same with the upper end of the cam-groove 47, formed in the circumference of the plunger, extending spirally downward and meeting the packing-groove 48, located at or near the point where the bearing-screw 41 enters the cam-groove, leaving a space between the end of this screw and the inner wall of the groove.

The chamber 34 is partially filled with a suitable liquid and the device is placed in a socket provided in the upper door-frame and secured in place by screws passing through the attaching-plate 37. The operating-arm is now connected to the door by the pivoted link 33.

When the end of the operating-arm 43 is brought forward by the opening of the door, the plunger 42 will be rotated thereby and



the cam-groove 47, moving over the bearing 41, will advance the plunger, causing a partial vacuum in the cylinder 38. Air will now enter the outer chamber 34 and force the liquid contained therein through the passage 40 into the cam 47, and thence through the outlet 46 and vertical perforation 44 into the cylinder 38, and, as the plunger moves past the ports 39, the flow of liquid will be through these ports directly into the cylinder.

If the door be released the expanded and elongated spring will force the arm 43 backward and the plunger 42 will be rotated in the opposite direction, and the cam, working on its bearing, will force the plunger inward, closing the ports 39. The liquid being compressed in the cylinder will be gradually forced back through the passages already described into the chamber 34, compressing the air contained therein and driving it out through the passage 35.

The flow of the liquid can be readily adjusted by the end of the adjusting-pin 45 being advanced or withdrawn from the junction of the outlet 46 with the vertical perforation 44.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. In a door check and spring, the combination with a chamber containing fluid and surrounding a cylinder formed integral with a base having an attaching-plate, contracted passages formed in the walls of the cylinder through which fluid may pass to the outer chamber, of a spring-operated rotatory plunger contained within said cylinder and having a cam-groove moving on a bearing when the plunger is rotated, all adapted to be contained within a socket formed in the door-frame and operated, as described.

2. The combination with the cylinder 38 having the contracted passages 39 and 40 and surrounded by the chamber 34 containing a fluid and having the air-inlet 35, of a spring-operated plunger 42, rotated in said cylinder by the arm 43, having a cam-groove 47 working on the bearing 41, and passages 44 and 46 and an adjusting-pin 45, adapted to wholly or partially close said passages, as described.

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Witnesses:

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