

(No Model.)

2 Sheets—Sheet 1.

W. H. TAYLOR.  
DOOR CHECK AND CLOSER.

No. 558,621.

Patented Apr. 21, 1896.

Fig. 1.

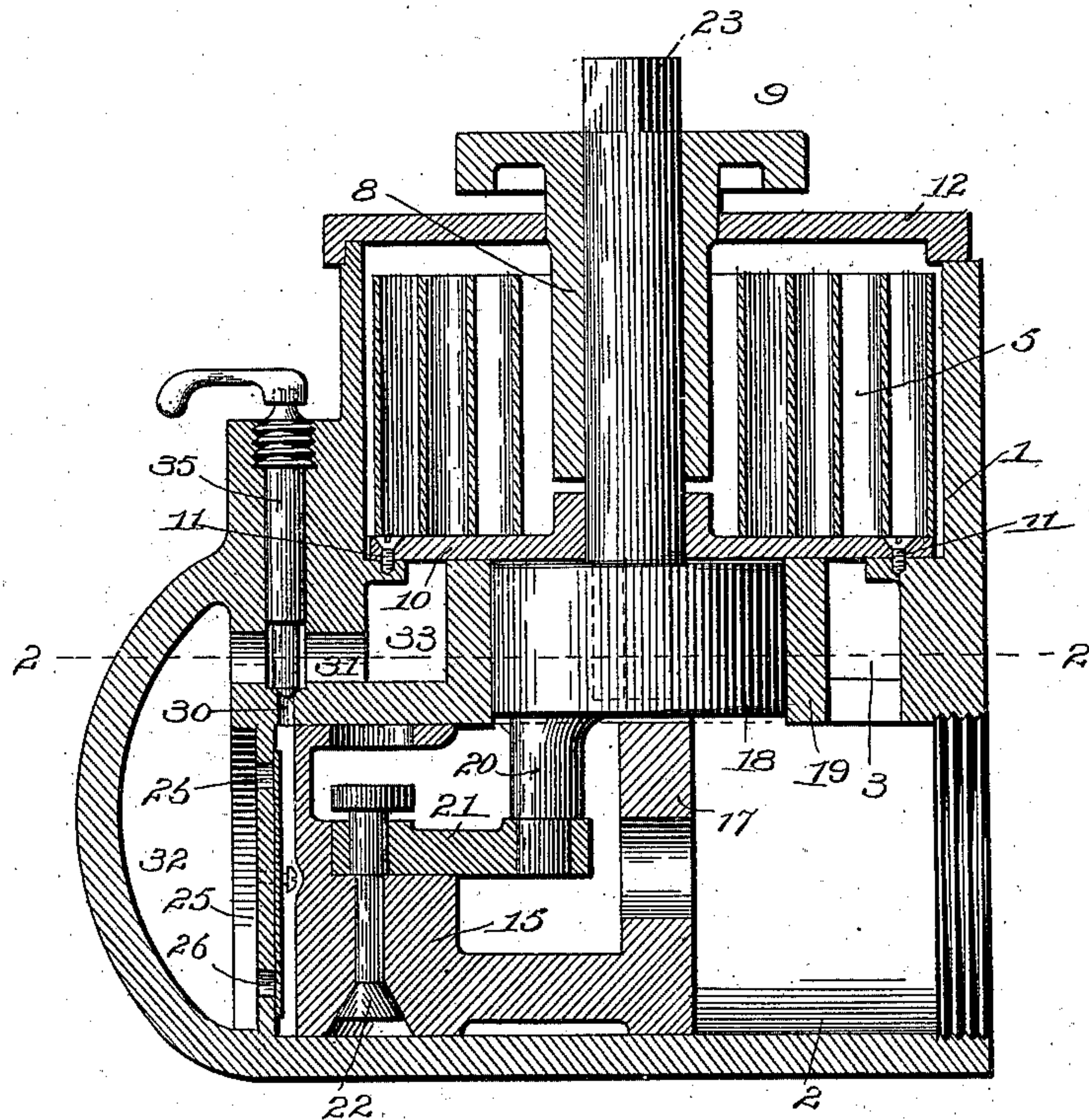
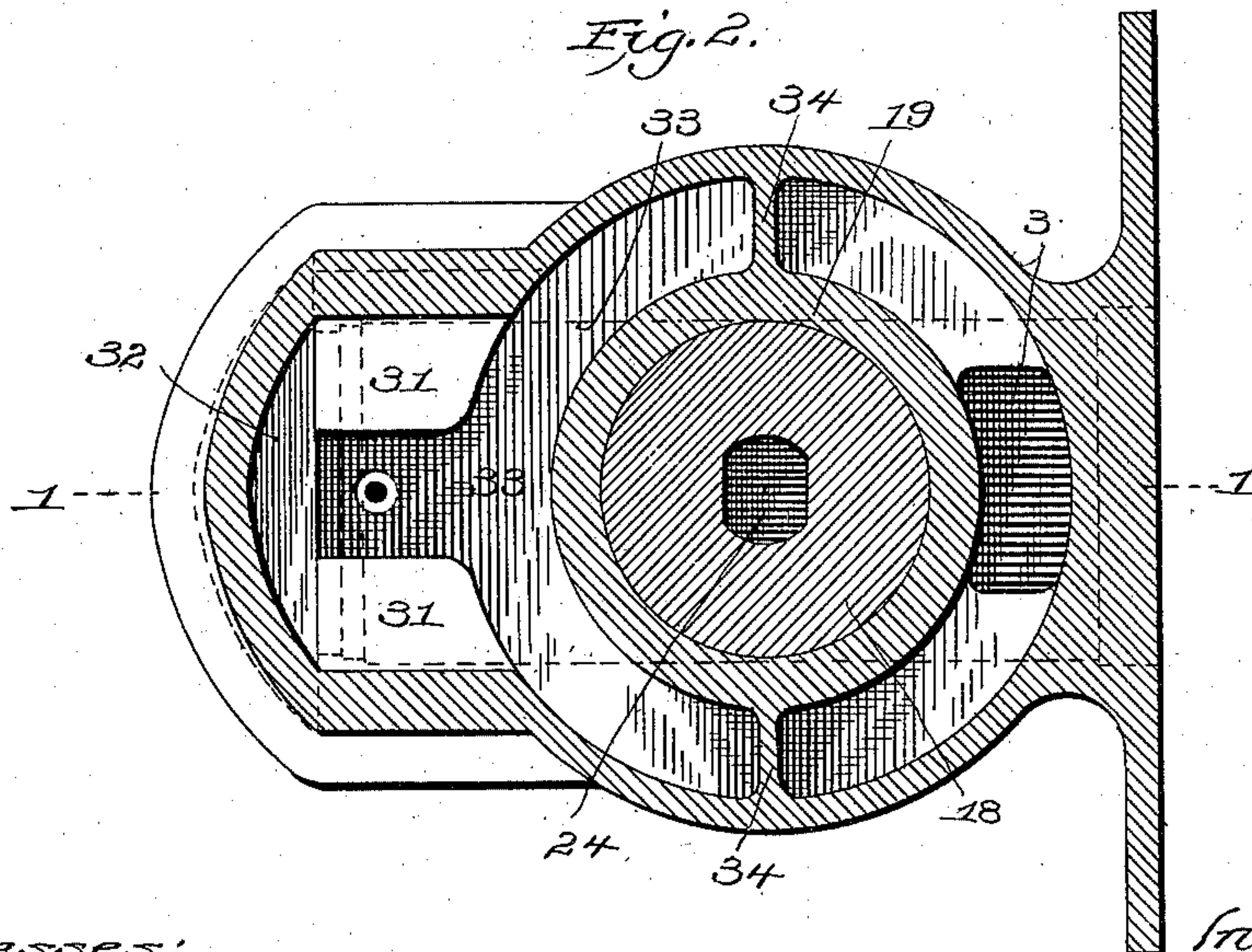


Fig. 2.



witnesses:

Henry B. Jones,  
Walter E. Allen.

Inventor:

Warren H. Taylor.

by Knight Bros.  
attys.



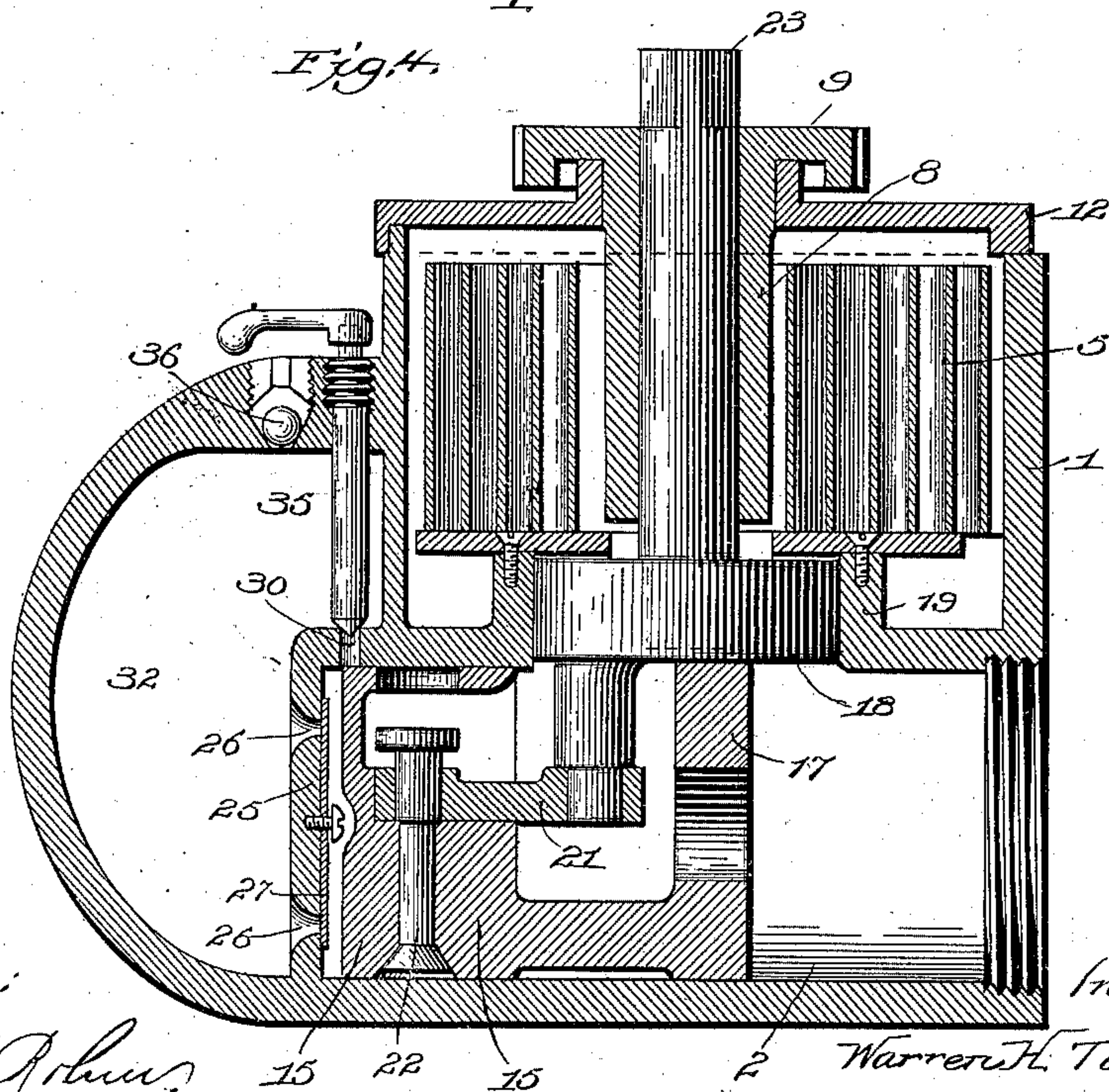
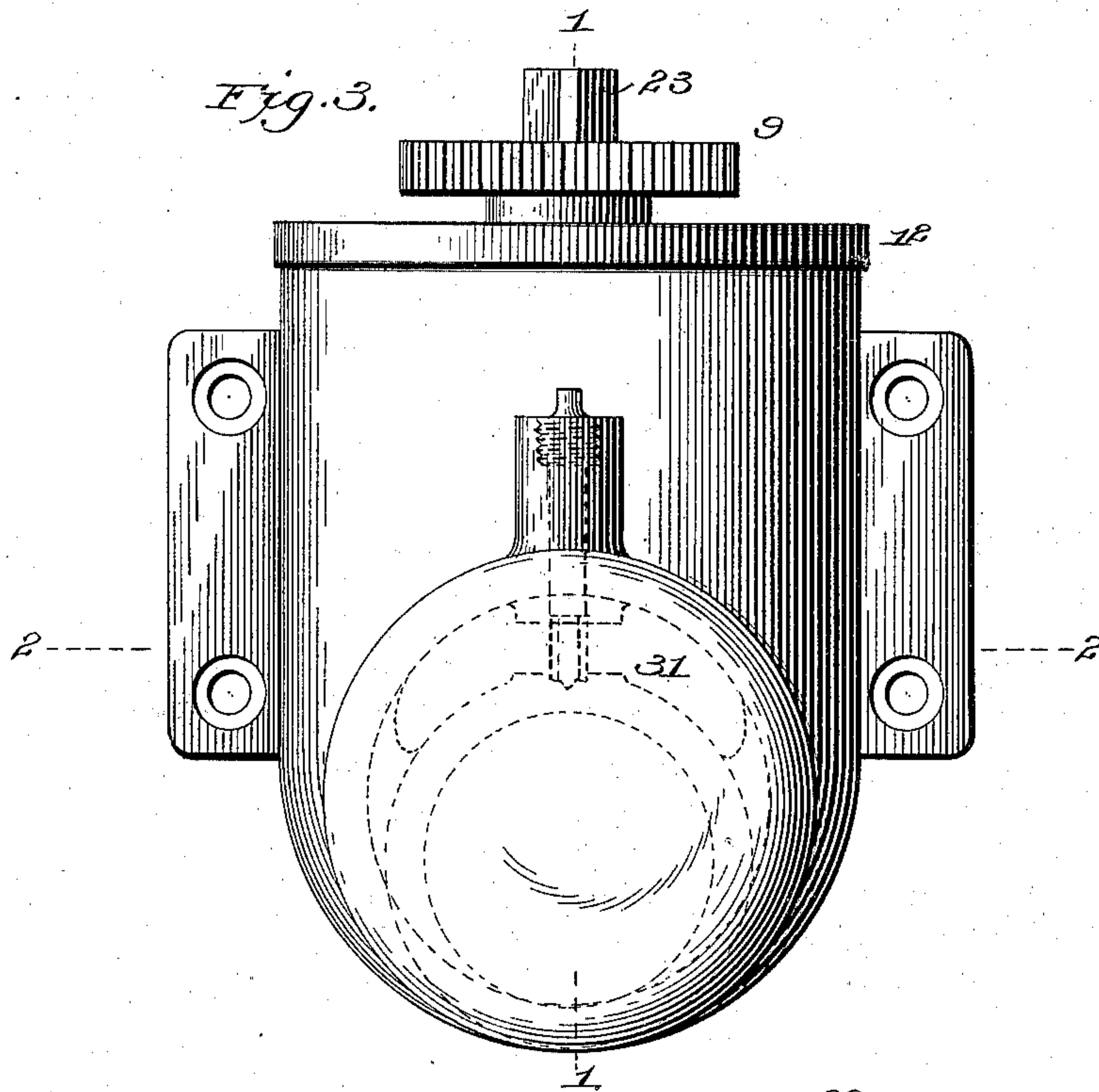
No Model.)

2 Sheets—Sheet 2.

W. H. TAYLOR.  
DOOR CHECK AND CLOSER.

No. 558,621.

Patented Apr. 21, 1896.



witnesses:

Henry S. Johns,  
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# UNITED STATES PATENT OFFICE.

WARREN H. TAYLOR, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE  
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## DOOR CHECK AND CLOSER.

SPECIFICATION forming part of Letters Patent No. 558,621, dated April 21, 1896.

Application filed April 20, 1895. Serial No. 546,552. (No model.)

*To all whom it may concern:*

Be it known that I, WARREN H. TAYLOR, a citizen of the United States, residing at Stamford, in the county of Fairfield, State of Connecticut, have invented certain new and useful Improvements in Door Checks and Closers; and I do hereby declare the following specification to be a full, clear, and exact description of my invention, such as will enable those skilled in the art to make and use the same.

My present invention relates to improvements in the form of door checks and closers covered by my copending application executed April 5, 1895, in which I provide a piston with a solid head operating in a liquid chamber or pocket having open communication with the spring-chamber.

My present invention differs, essentially, from the door check and closer covered by my application above referred to in that the liquid-chamber is practically separate and distinct from the spring-chamber and piston-chamber. In this form of my invention I also employ a piston with a solid head, and preferably form the liquid-chamber or a portion of it directly contiguous to the diaphragm or wall at the end of the piston-pocket, suitable communications being provided between the liquid-chamber and said pocket. One or more of the communicating passages is provided with a check-valve to allow the liquid to flow into the pocket when the piston-head moves away from the diaphragm or end wall and to prevent its backward flow, while another one of the passages is provided with an adjustable plug-valve to regulate the rapidity of the flow of the liquid back into the liquid-chamber when the piston returns.

The liquid in my improved door-check moves the same as in my application above referred to, being always forced from and allowed to return to the same end of the piston.

In order that my invention may be fully understood, I will now proceed to describe the same with reference to the accompanying drawings, and afterward particularly point out the novelty in the annexed claims.

Figure 1 is a vertical sectional view of my improved door check and closer, taken on the line 11 of Figs. 2 and 3. Fig. 2 is a transverse

horizontal section taken on the line 2 2 of Figs. 1 and 3. Fig. 3 is an end elevation of the same. Fig. 4 is a vertical sectional view of a slightly-modified form of my improved door check and closer, showing the liquid-chamber entirely exterior to the spring and piston chambers.

Referring first to Figs. 1, 2, and 3, 1 is the spring-casing, 2 the piston chamber, and 5 the customary spiral door-closing spring, having its outer end suitably attached to the spring-casing and its inner end engaging the vertical groove (not shown) in the sleeve 8, which is formed with the customary ratchet-rim 9.

10 is a circular plate formed with a central shaft-opening and secured in place by screws 11 to form the bottom of the chamber.

12 is the cover to the spring-casing, having a central opening in which the sleeve 8 is supported and journaled.

15 is the piston working in the piston-chamber 2 and formed with a solid head and an integral projecting guide-ring 17.

18 is a crank-wheel supported in the circular bearing 19, formed between the piston-chamber 2 and spring-chamber 1.

20 is a crank-pin projecting from the crank-wheel 18 and connected to the piston 15 through the pitman 21 and pin 22.

23 is a spring-shaft passing loosely through the sleeve 8 and plate 10, having a squared or flattened lower end which fits in the socket 24 of the crank-wheel 18. The squared upper end of the spring-shaft 23 is adapted to engage the customary crank-arm, (not shown,) which is provided with a dog for engaging the ratchet-rim 9 of the sleeve 8.

25 is a diaphragm or partition formed in the end of the piston-receiving pocket of the chamber 2, said diaphragm having one or more valve-passages 26, which are covered by a flexible disk 27, secured to the diaphragm at the center and forming check-valves. These check-valves permit the liquid to flow through the openings 26 toward the piston when the piston is withdrawn, but preventing the flow of liquid back through the same openings.

30 is a free liquid-opening leading from the space between the diaphragm 25 and solid head of the piston into the passage 31, which communicates between the chamber 32 at the



end of the piston-casing and contiguous to the diaphragm 25 and the semicircular chamber 33, which partly surrounds the bearing 19 and is distinctly separated from the piston-chamber and spring-chamber by the radial walls 34 and plate 10. The chambers 32 and 33 and the communicating passages 31 constitute the liquid-chamber, which is separate and distinct from the spring-chamber and piston-chamber, and has communication with the piston-receiving pocket, as has already been explained. 35 is an adjustable screw-plug adapted to act as a relief-valve for regulating the flow of liquid through the passage 30.

The casing and spring-shaft are connected to the door and lintel in any preferred manner, so that the opening of the door will rotate the shaft and wind the spring in readiness to act in closing the door when released. The closing action of the door is checked, as will presently be explained, by the action of the piston in its pocket.

In Fig. 4 I have shown a slight modification in which the liquid-chamber is formed entirely exterior to the spring-chamber and piston-chamber, the passage 31 and chamber 33 of the principal form of the invention being omitted. In this modification the passage 30, for allowing the liquid to return from the piston-pocket to the liquid-chamber, communicates directly with the liquid-chamber. The structure is in the main the same as described in the previous form, similar letters of reference referring to similar parts. 36 is a valve communicating between chamber 32 and outside.

The liquid-chamber is supplied with the proper amount of oil or other liquid. The parts are shown in the position they assume when the door is in closed position. When the door is opened, the piston is withdrawn, causing the liquid to flow after it through the valve-passages 26 and partly down through the passage 30 until it finds its level. When the door closes by reason of the spring, the piston will be forced forward, and as the liquid cannot escape through the passages 26,

it will have to escape through the obstructed passage 30, the rapidity of the flow being regulated by the controlling screw-plug.

It is obvious that the separate liquid-chamber may be changed, either as to form or as to its position, without departing from the spirit of the invention. For example, the liquid-chamber might be inserted between the spring-chamber and the piston-chamber.

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

1. In a door-check, the combination of a piston-chamber, the piston supported therein and caused to reciprocate by any suitable means, a separate and distinct liquid-chamber, and suitable valved communications between the piston-chamber and liquid-chamber whereby the flow of liquid from one chamber to the other is controlled when the piston is reciprocated, substantially as set forth.

2. In a door-check, the combination of a piston-chamber, a separate and distinct liquid-chamber, suitable passages forming a communication between the liquid-chamber and piston-chamber, an adjustable valve controlling one of the passages and a check-valve controlling the remaining of said passages, a solid-headed piston working in the piston-chamber, and suitable means for reciprocating the piston substantially as herein set forth.

3. In a door check and closer, the combination of the spring-chamber, the spring mounted therein, the piston-chamber, the piston working therein and suitably connected to the spring, a separate liquid-chamber formed exteriorly to the spring and piston chambers, passages between the liquid-chamber and the piston-chamber formed in the partition-wall separating the liquid-chamber from the piston-chamber, and a check and relief valve controlling said passages, substantially as described.

WARREN H. TAYLOR.

Witnesses:

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