

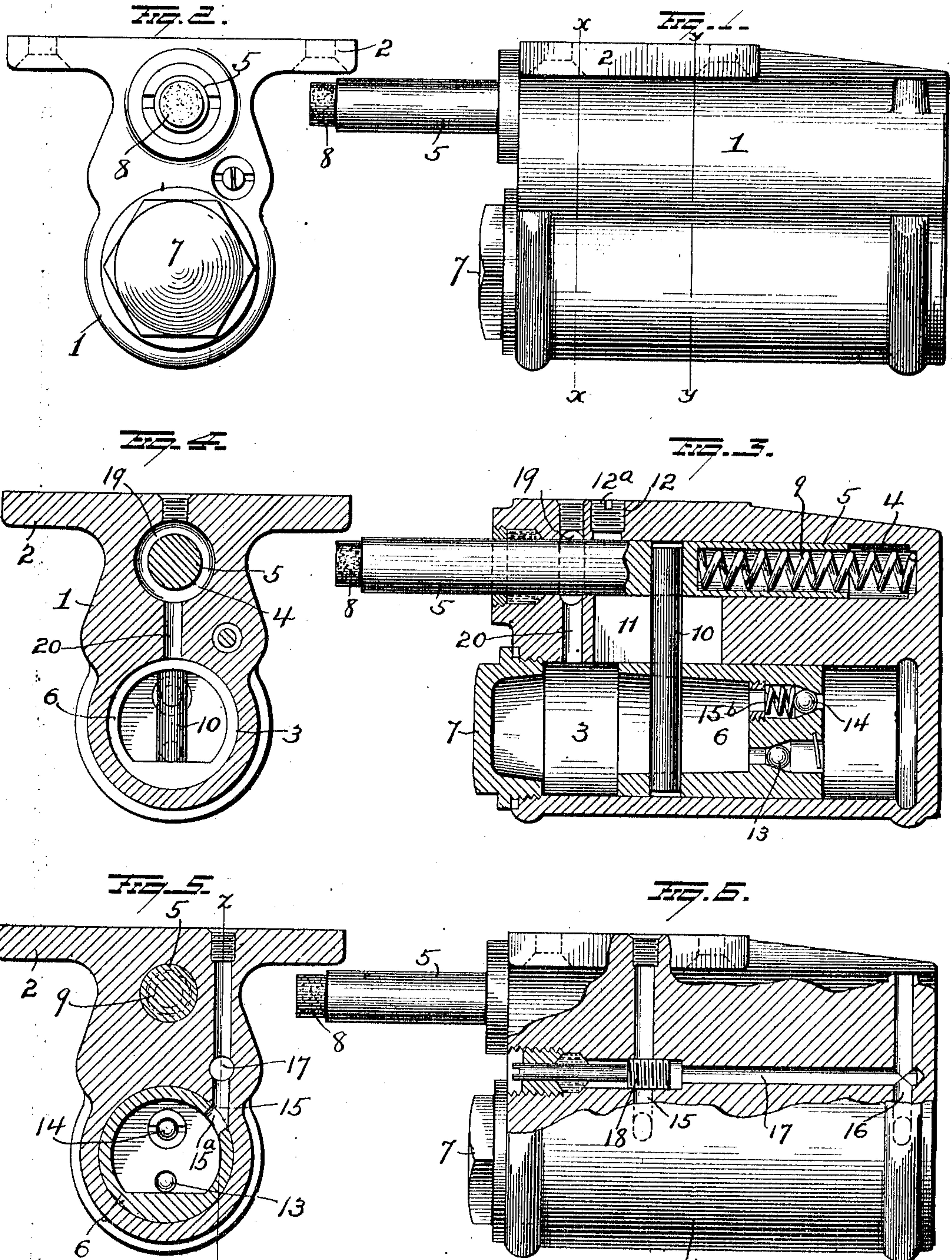
J. C. REGAN.

BUFFER.

APPLICATION FILED FEB. 23, 1911.

993,874.

Patented May 30, 1911.



WITNESSES
E. Nottingham
G. F. Downing

INVENTOR
J. C. Regan
By K. A. Seymour
Attorney

UNITED STATES PATENT OFFICE.

JOSEPH CHARLES REGAN, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE YALE & TOWNE MANUFACTURING COMPANY, OF STAMFORD, CONNECTICUT.

BUFFER.

993,874.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed February 23, 1911. Serial No. 610,430.

To all whom it may concern:

Be it known that I, JOSEPH C. REGAN, of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Buffers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in buffers, and is an improvement on the construction disclosed in Patent No. 967,674 granted to me August 16th, 1910. The buffer disclosed in said patent comprises a casing containing a checking liquid, and plunger projecting from the casing and connected to a piston, and the object of the present invention is to provide means for preventing leakage of the checking liquid around the plunger.

In the accompanying drawings, Figure 1 is a view in side elevation of my improved check; Fig. 2 is a view in end elevation; Fig. 3 is a view in longitudinal section of same, the plunger being shown partly in elevation; Fig. 4 is a view in transverse section on the line $x-x$ of Fig. 1; Fig. 5 is a section on the line $y-y$ of Fig. 1, and Fig. 6 is a view on the line $z-z$ of Fig. 5.

1 represents a casing, which in the present instance, is provided with brackets 2 for its attachment to a suitable support by screws, but which may be constructed to be concealed in the door jamb with the plunger projecting for engagement with the door. This casing is provided with a piston chamber 3 and a plunger or buffer chamber 4, the latter being separate and distinct from the piston chamber, but communicating therewith to permit the plunger or buffer 5 to be coupled up with the piston 6. Both chambers 3 and 4 are closed at their rear ends, and the forward end of the piston chamber is closed by the screw cap 7.

The buffer or plunger 5 projects beyond the casing and is provided at its outer end with a leather or other yielding tip 8 adapted to make contact with the door, and is hollowed out or chambered at its rear end for the reception of the spring 9, one end of which bears against the closed end of the buffer chamber 4, and the other end rests within the chambered end of the plunger, thus obviating the employment of a spring

receptacle projecting beyond the closed end of the casing 1.

The piston 6 is coupled to the buffer or plunger 5 by the pin 10, so that the two parts necessarily move in unison, the pin moving in the slot 11 connecting the two chambers. The pin 10 may be rigidly secured to either or both of said parts 5 or 6, but I prefer to have it rigid with the plunger 5, and loosely fitting in a hole in the piston 6, so as to permit of the necessary oscillation for the purpose of proper alinement of the parts. This pin is introduced through a hole 12 in the casing 1, which hole is closed by the screw plug 12^a as shown in Fig. 3. The piston 6 is provided with two ports closed by valves 13 and 14, one of which 13, opens by gravity when the plunger 5 and its connected piston 6 are being forced outwardly by the spring 9, while the other valve 14, which is an auxiliary release or pressure valve is held in place by a spring 15^b, and operates when there is undue pressure against the front face of the piston 6, as would be the case when a door is slammed or closed quickly, to compress its spring and permit part of the liquid in front of the piston to pass through the piston to the rear of the latter, and thus permit the piston to move more rapidly toward the closed end of the chamber.

The casing 1 is provided with ports 15 and 16, the port 16 communicating with the cylinder or chamber 3 near the closed end of the latter, and the port 15 communicating with said cylinder in rear of the head of the piston. The two ports 15 and 16 are connected by the passage 17 carrying the valve 18, the stem of which is exposed at the end of the casing through which the plunger projects. By adjusting this valve 18 the flow of liquid through the ports and passage can be regulated. The side of the piston adjacent the port 15 is cut away or grooved as at 15^a so as to permit the liquid forced through the passage 17 by the forward movement of the piston, to readily pass to the rear of the latter.

With the buffer thus far described, it has been found in practice, that when the plunger 5 is moved inwardly or in a direction to compress spring 9, the checking liquid which is forced to the rear of the piston, clings or adheres to the lower side of the plunger 5, and when the latter is forced out

to its normal position, a portion of the liquid is carried on or escapes around the plunger by capillary attraction or otherwise, and to prevent this waste or loss, I have provided the casing 1 with an annular cored air chamber or pocket 19 located in the end wall of the casing through which the plunger 5 passes. The plunger 5 passes centrally through this cored pocket, and the latter communicates with the piston chamber 3, through the back flow port 20. By locating an annular air chamber or pocket, within the end bearing for the plunger, the capillary attraction of the liquid is interrupted, and the liquid is free to leave the plunger and gravitate back to the liquid chamber 3 through the back flow port 20.

With the chamber 3 filled with a liquid, it will be seen that pressure against the plunger operates to move the piston against the liquid, and as the escape of the liquid from in front of the piston is limited and controlled through the by-pass by means of valve 18, the closing movement of the door will be checked by the buffer. If however the door be slammed or forced toward its closed position the extraordinary pressure will cause the auxiliary valve 14 to open and thus permit a larger volume of liquid to escape and thereby lessen the shock which would necessarily result if the escape of the liquid were limited to the by-pass. Instead of using a leather or rubber tip 8 on the exposed end of plunger 5, I may prefer to use a roller.

It is evident that I may use the air cham-

ber or pocket in connection with other forms of buffers or checks, hence I would have it understood that I do not confine myself to the particular construction of buffer herein shown and described, but consider myself at liberty to make such changes as fairly fall within the spirit and scope of my invention.

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

1. A buffer comprising a casing, a longitudinally moving plunger yieldingly held in projected position and liquid checking means coöperating with said plunger, the end wall of the casing being provided with an air pocket through which the plunger passes, and with a back flow port leading from said air pocket to the liquid chamber.

2. A buffer comprising a casing having a plunger chamber, a piston chamber, and an air pocket the latter being in one end of the casing, a plunger and spring in the plunger chamber, the plunger passing through the air pocket, a piston and checking liquid in the piston chamber, means connecting the plunger and piston whereby they move in unison and a back flow port leading from said air pocket to the piston chamber.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

JOSEPH CHARLES REGAN.

Witnesses:

SCHUYLER MERRITT,
WILLIAM H. BERTINE.