



# UNITED STATES PATENT OFFICE.

WALTER C. CLARK, OF AUBURNDALE, AND EDWARD W. GILLON, OF BOSTON,  
MASSACHUSETTS, ASSIGNORS TO P. H. DRAKE, OF NEW YORK, N. Y.

## DOOR-SPRING AND PNEUMATIC DOOR-CHECK.

SPECIFICATION forming part of Letters Patent No. 262,005, dated August 1, 1882.

Application filed June 23, 1882. (No model.)

*To all whom it may concern:*

Be it known that we, WALTER C. CLARK and EDWARD W. GILLON, citizens of the United States, residing respectively at Auburndale, in the county of Middlesex, and at Boston, in the county of Suffolk, both of the State of Massachusetts, have invented certain new and useful Improvements in Door-Springs, of which the following is a specification.

Our invention relates to that class of door-springs in which a pneumatic piston and cylinder is used to prevent a sudden closing or slamming of the door; and it consists in a peculiar construction and arrangement, which may be best understood by reference to the drawings and specification.

We have illustrated our invention by the accompanying drawings, in which Figure 1 is a perspective view, showing the upper part of a doorway with our invention applied. Fig. 2 is a horizontal section, representing the door partly open, and Fig. 3 is a detail in section, showing the valves in the cylinder.

In the drawings, B represents a door-casing and A the door.

D, Figs. 1 and 2, is a block, securely fastened to the door-frame B, which serves as a base-piece for connecting the other parts of our apparatus.

C' C' C<sup>2</sup> is a forked lever, hinged to the block B at *c c*, Figs. 1 and 2. S, Fig. 1, is a spiral spring, connected to the axle D' of the forked lever C' C' C<sup>2</sup>, and being so arranged with the tension-ratchet D<sup>2</sup> that its tendency is to throw the lever C' C' C<sup>2</sup> in the proper direction for closing the door. The outer end of the lever C' C' C<sup>2</sup> is provided with a slot, C<sup>3</sup>, in which a post, A<sup>2</sup>, connected to the door A by means of a bracket, A', plays, so that the movement of the door is controlled by the spring S acting through the forked lever C' C' C<sup>2</sup>, post A, and bracket A'.

To regulate the action of the above-described part of our device we connect the following apparatus, in which E represents a cylinder having a piston-rod, E<sup>2</sup>, piston, E<sup>3</sup>, and valve E<sup>4</sup>. (See Figs. 2 and 3.) The piston-rod E<sup>2</sup> is connected to the lever C' C' C<sup>2</sup> by means of the bail-link E', Figs. 1 and 2, the cylinder E being attached to the block D by

means of trunnions D<sup>3</sup>, about which it can swing. The piston E<sup>3</sup> (see Fig. 3) is provided with a large flat valve, E<sup>4</sup>, the motion of which is limited by the screws H H, so that as the piston E<sup>3</sup> is drawn out the valve E<sup>4</sup> will leave its seat sufficiently to allow the air to flow in the direction of the arrow, thus allowing a free motion of the piston in its outward stroke, which takes place upon the opening of the door; but in the action caused by the closing of the door, the piston E<sup>3</sup> moving inward, the valve E<sup>4</sup> takes its seat and prevents any passage of air.

The piston is packed by the following device: A disk, H' H', made as shown in Fig. 3, is coupled with the part E<sup>2</sup> of the piston and held in place by the screws H<sup>2</sup> H<sup>2</sup>. Between the two parts E<sup>3</sup> and H' of the piston we insert an expanding ring, K. This ring K is cut in one place, so as to allow it to expand when it is forced toward the part H'. This expansion of the ring K, acting on the packing K', forces it outward and makes it fit the cylinder accurately.

The outlet-opening V', Fig. 3, can be partially or wholly cut off by turning the valve V, it (the valve) being provided with a finger-knob, M<sup>2</sup>, for the purpose of turning it. T is a spring, which serves to keep the valve V down to its seat. When the opening V<sup>2</sup> in the valve V exactly coincides with the opening V' in the seat then there will be comparatively a free outlet for the air. By turning the valve V the opening may be restricted or entirely cut off.

We claim—

1. The combination of the forked lever C' C' C<sup>2</sup>, provided with the spring S, axle D', and base D, with the bail-link E', piston-rod E<sup>2</sup>, piston E<sup>3</sup>, and cylinder E, all operating together with the post A<sup>2</sup> and bracket A', substantially as described, and for the purpose set forth.

2. The combination of the cylinder E, piston E<sup>3</sup>, and valve E<sup>4</sup> with the valve V, all operating together, substantially as described, and for the purpose set forth.

WALTER C. CLARK.  
EDWARD W. GILLON.

Witnesses:

CHAS. SPAULDING,  
FRANK G. PARKER.