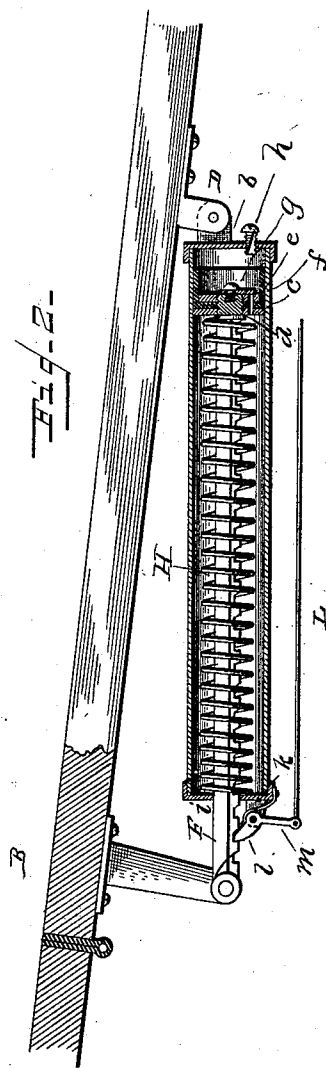
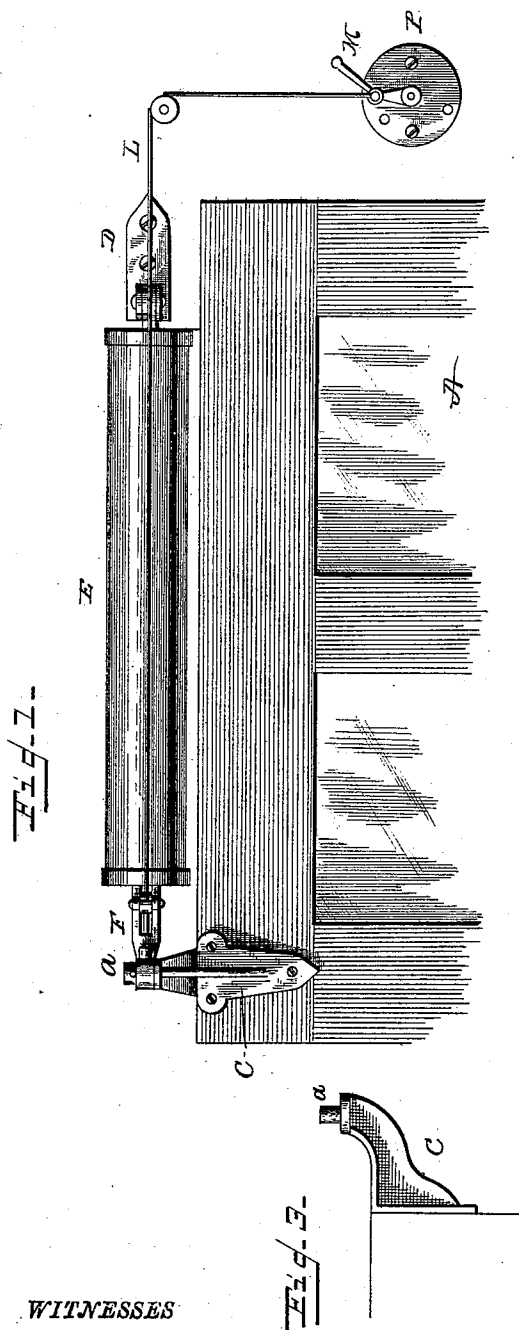


(No Model.)

J. MERREDITH.  
DOOR CHECK.

No. 340,143.

Patented Apr. 20, 1886.



WITNESSES  
Edwin L. Yewell,  
Edna J. Sheehy.

INVENTOR  
John Merredith.  
by Frank Sheehy  
Attorney

# UNITED STATES PATENT OFFICE.

JOHN MERREDITH, OF DAYTON, OHIO, ASSIGNOR OF ONE-HALF TO GEORGE P. WEED, OF SAME PLACE.

## DOOR-CHECK.

SPECIFICATION forming part of Letters Patent No. 340,143, dated April 20, 1886.

Application filed December 22, 1885. Serial No. 186,455. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN MERREDITH, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Door-Checks; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention has relation to improvements in door-operating devices; and it consists in the construction, novel arrangement, and adaptation of parts, as will be hereinafter more fully set forth and claimed.

The object of the invention is to provide a cheap and simple means for automatically closing a door or gate, and to lessen the jar or harsh movement of the same in approaching and engaging the jamb or post.

A further object of the invention is to provide means for accelerating or retarding the movements of a door, so as to adapt the same to doors of various sizes and weights; and a further object of the invention is to provide means for holding a door or gate open at any desired position.

These objects are accomplished by the devices shown in the accompanying drawings, in which Figure 1 is a face view of a portion of a door, showing my improvements applied. Fig. 2 is a longitudinal sectional view of the interior operating mechanism, and the same applied to a casing and door, the latter being partly sectioned; and Fig. 3 is a side view of one of the hinge-brackets.

Referring by letter to the said drawings, A indicates a portion of an ordinary door, and B a portion of the door-frame.

C is a bracket having a vertical pintle, *a*, and is secured to the inner or outer side of the door, near the hinge-edge thereof, and extends a sufficient distance from the surface of the door for the reception and operation of the cylinder and rack or toothed rod.

D indicates a bracket, which is secured to

the door-frame above the door and on a plane horizontal, or nearly so, with the bracket C.

E indicates a cylinder, which is closed at one end and provided with a perforated lug, *b*, which is pivotally connected with the said bracket D. Arranged in this cylinder E is a plunger composed of a disk, *c*, abutting a shoulder, *d*, on one end of the rack bar or rod F. A smaller cylinder, *e*, having a central threaded aperture to screw on the threaded end of the said rod, and an interposed disk of rubber or other flexible material, *f*, which is of greater diameter than the disks *e* and *c* and extends over the periphery of the latter disk, is shown.

I do not wish to confine myself to the precise form of plunger, as it is obvious that the construction may be varied, according to the dictation or fancy of the mechanic.

The plunger is provided with a transverse aperture closed by a leather or other suitable valve, which is held in position by means of a screw, *g*, passing into the end of the rack-bar, the object of which will be presently explained. The cap G is also provided with a threaded aperture, in which is placed a set-screw, *h*, which is cut away, tapering longitudinally from its head, so as to diminish the diameter of the said aperture as it is screwed inwardly and increase the diameter when screwed outwardly, thereby regulating the inlet and outlet of air to the cylinder. The opposite end of the rack-bar projects from the cylinder, and is provided with an eye to receive the pintle of the bracket C, thereby forming a hinge-joint with the said bracket. The rack-bar is surrounded by a spiral spring, as H, which presses at opposite ends against the plunger and the cap *i* of the cylinder. By this construction it will be seen that when the door is opened the spring will be contracted, and when the operator releases his hold of the door the force of action of the spring in expanding will close the door. The same movement that causes the spring to contract also causes the rack-bar to move outwardly in the cylinder and the plunger to follow, consequently drawing air into the said cylinder through the screw-valve aperture. Thus when the door takes a closing movement by the action of the spring, the air which has been drawn into the

cylinder will cushion the plunger and retard the movement of the door, thereby obviating a slam or harsh noise in closing.

At the end *i* of the cylinder is a pawl-bearing, *k*, in which is pivoted a spring-actuated pawl, *l*, adapted to engage the teeth of the rack-bar, and this pawl is provided with an arm, *m*, which is connected with an operating-cord, *L*. This cord extends horizontally to a pulley secured to the door-frame, and then vertically to within convenient reach of a person opening the door, where it is attached to a pivoted hand-lever, *M*. This hand-lever is pivoted on a disk or plate, as *P*, having an annular series of recesses, and may be perforated to receive a lock-pin to enter the desired recess and hold the handle thereto.

Thus it will be seen that when the rack has been drawn out of the cylinder and the door opened at any suitable distance, then by releasing the lock-pin from the hand-lever and perforation or recess in the said plate, the pawl will engage the rack and hold the door in such position, and by manipulating the said lever, as before described, the parts may be free to act and the door opened and closed without interruption.

Having described this invention, what I claim is—

1. A pneumatic door-check consisting of a cylinder hinged at one end to the door, a rack-bar or toothed plunger hinged at its outer end to the door-frame, a pawl adapted to engage the toothed plunger, a spring surrounding the plunger, and means for operating the pawl, substantially as specified.

2. A pneumatic door-check having a toothed plunger operating in a cylinder and adapted to be engaged and held by a pawl having a manipulating cord or wire, substantially as specified.

3. The combination, with a door, of a cylinder hinged to the door-frame, a rack-bar working therein and having a spring surrounding the said bar, the said bar being hinged to the door, a pawl adapted to engage the rack-bar, and an operating-cord connected to a hand-lever, whereby the said pawl may be made to engage and disengage the said rack, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN MERREDITH.

Witnesses:

JAMES A. WEED,  
CHARLES H. KUMLER.