

G. S. PERKINS.  
Door-Check.

No. 212,260.

Patented Feb. 11, 1879.

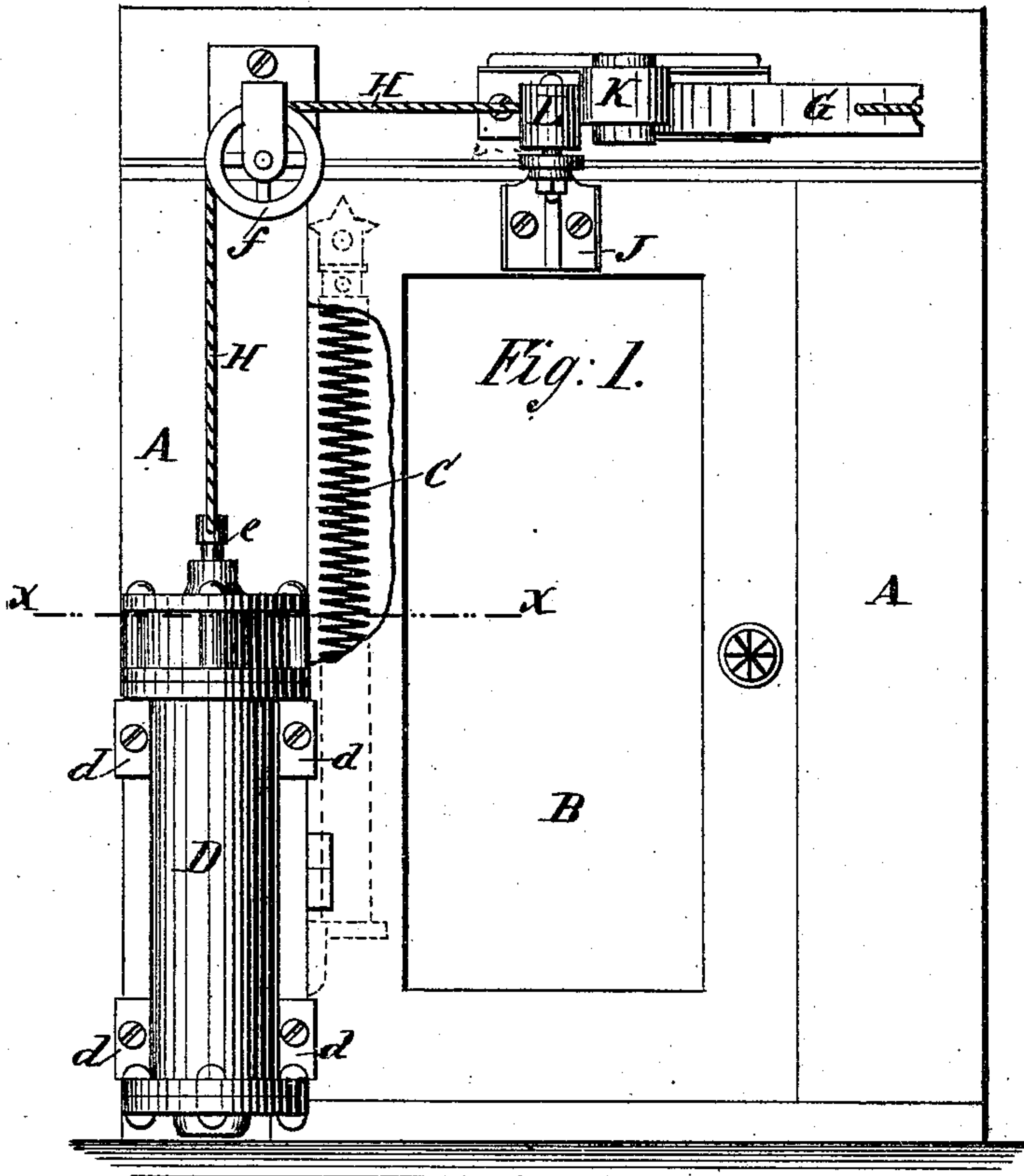


Fig. 2.

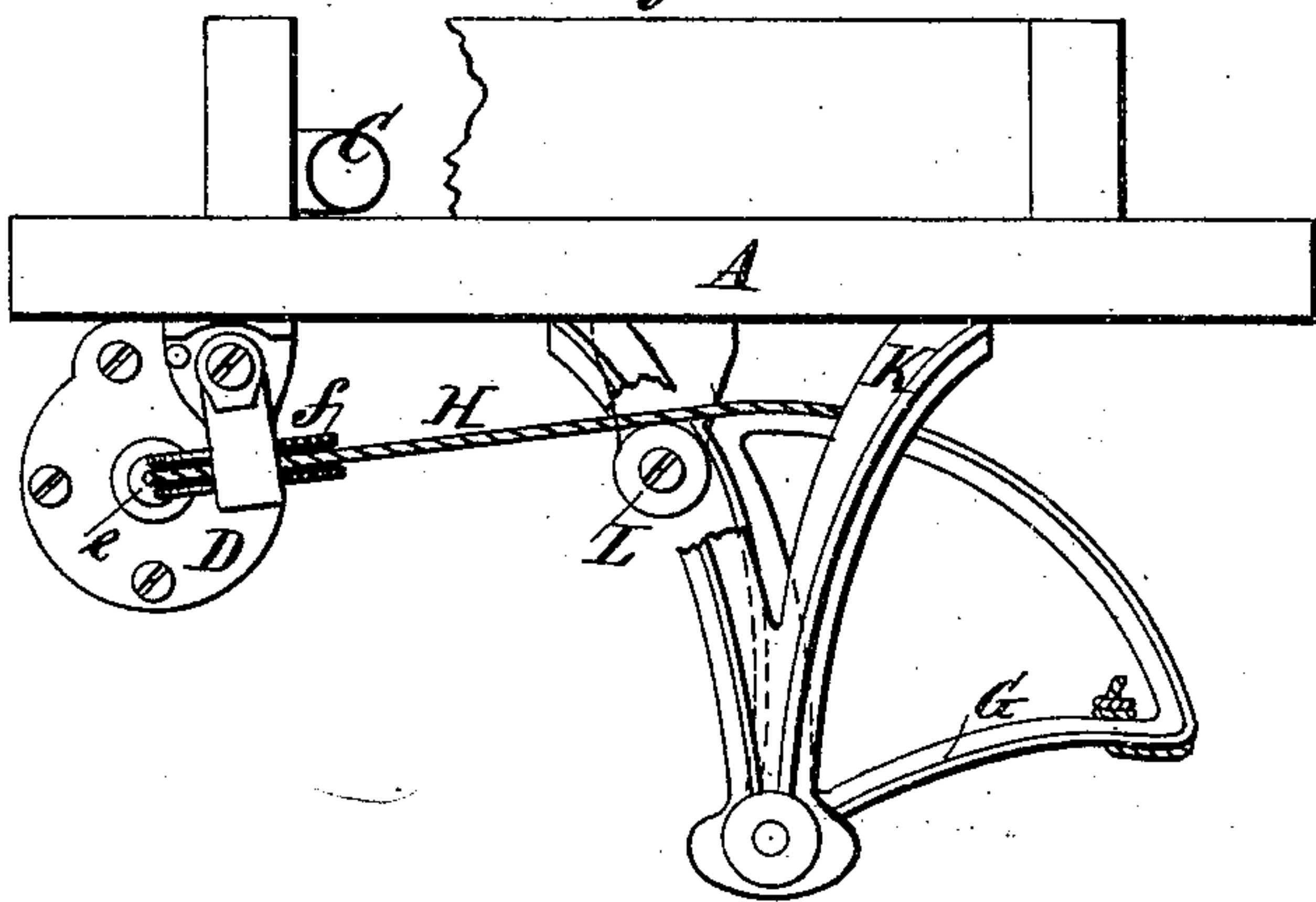
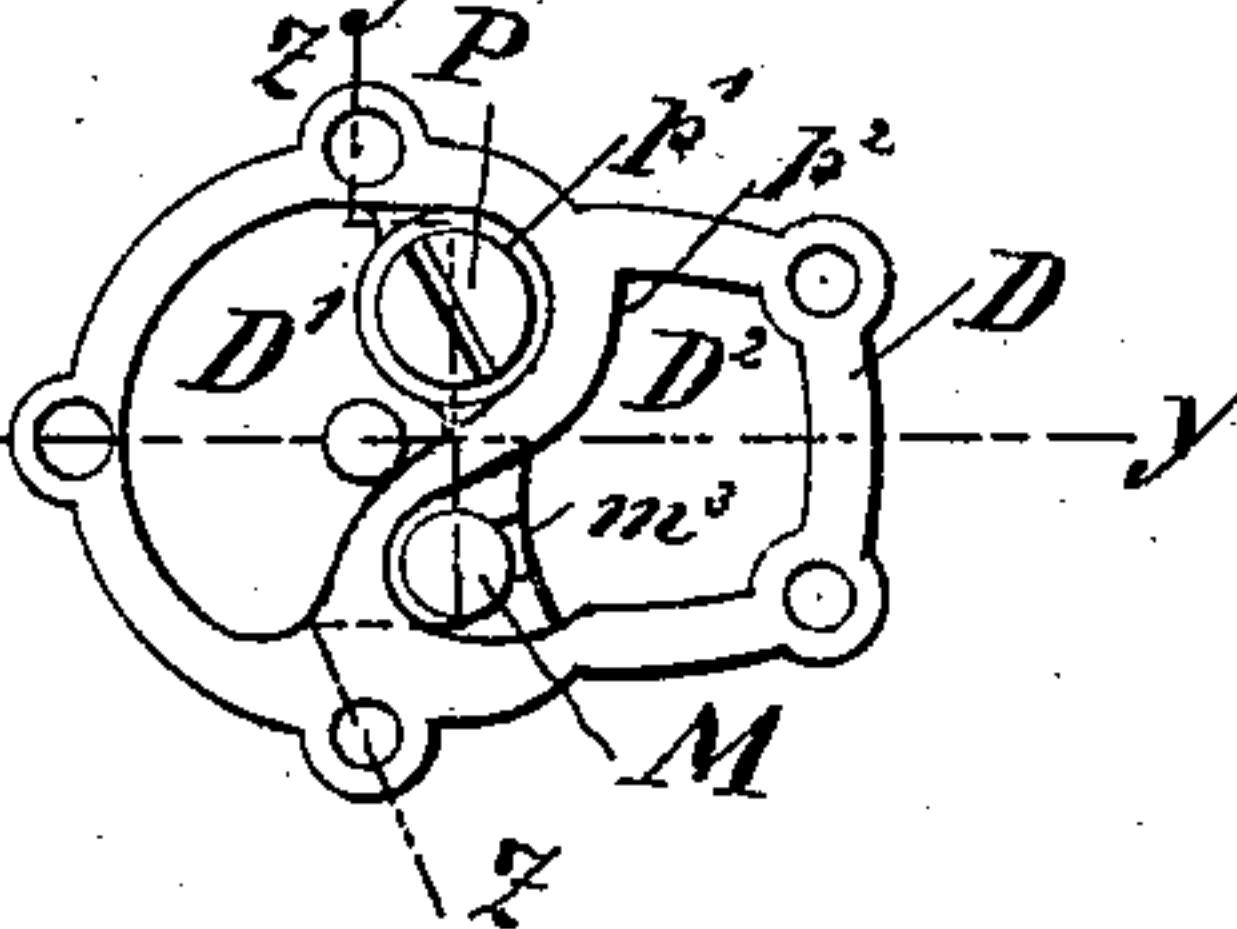


Fig. 3.



WITNESSES:

Achilles Schehl.  
J. W. Carborough.

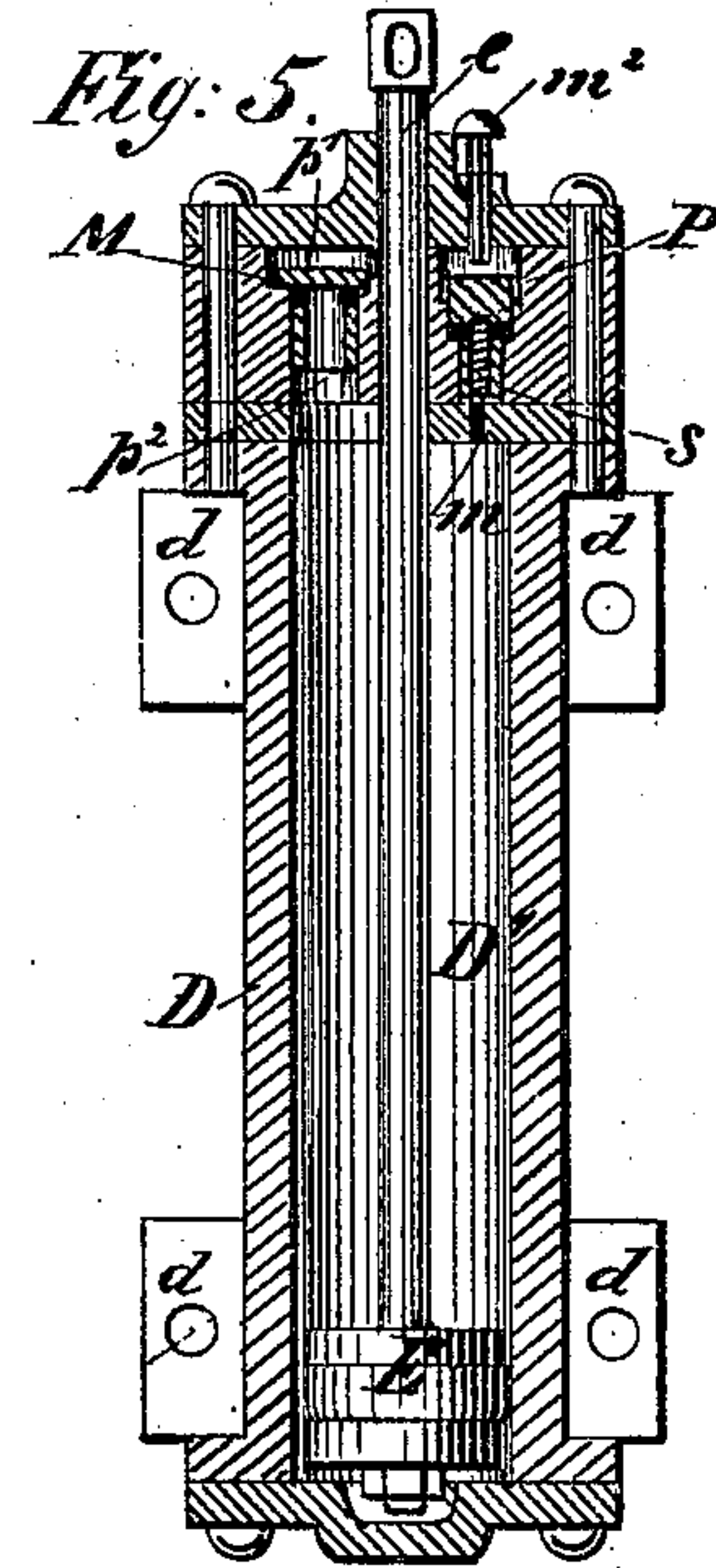
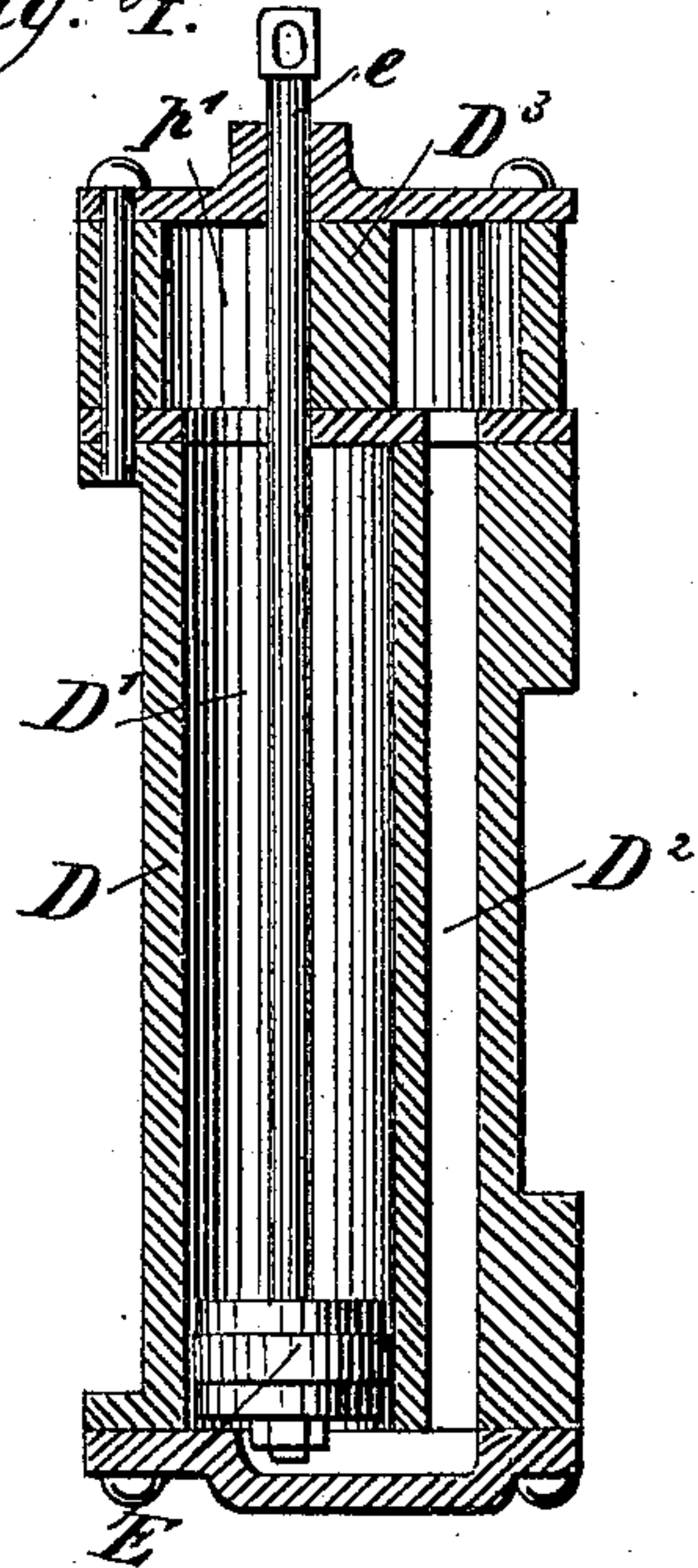


Fig. 4.



INVENTOR:

G. S. Perkins.

BY

Munn Co.

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

GUSTAVUS S. PERKINS, OF HARTFORD, CONNECTICUT.

## IMPROVEMENT IN DOOR-CHECKS.

Specification forming part of Letters Patent No. **212,260**, dated February 11, 1879; application filed August 5, 1878.

*To all whom it may concern:*

Be it known that I, GUSTAVUS S. PERKINS, of Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Door-Holders, of which the following is a specification:

My invention relates to a means for preventing the violent shutting and slamming of doors; and it is particularly intended for use in connection with doors which are frequently opened and closed, but is also applicable to rolling shutters, hatchway-covers, and other devices.

The invention consists in the combination of case, piston, rod, cord, sector, pulley, and bracket, as hereinafter described.

The accompanying drawings represent the construction and a mode of application of my invention.

Figure 1 is a side view showing the apparatus applied to a door provided with a spring for closing it. Fig. 2 is a top view of the same. Fig. 3 is a transverse section taken in the line *xx* of Fig. 1. Fig. 4 is a longitudinal vertical section taken in the line *yy* of Fig. 3. Fig. 5 is a longitudinal vertical section taken in the line *zz* of Fig. 3.

Similar letters of reference indicate corresponding parts.

A represents a door-frame, and B a door hinged thereto, and provided with an ordinary door-closing spring, C. These parts are of the usual or any other suitable description.

D is a casing provided with perforated lugs *d* for attaching it to the door-frame A by means of screws.

E is a leather-packed piston working in a cylinder, *D*<sup>1</sup>, in the casing D, and provided with a piston-rod, *e*, working through a stuffing-box in the upper end of the casing.

To the upper end of the piston-rod is attached one end of a cord, H, which passes over a pulley, *f*, attached to the door-frame, and has its other end attached to a sector, G. This sector is pivoted in a bracket, K, attached to the door-frame in such a position as to allow it to oscillate in a horizontal plane with its face toward the door-frame.

The cord H is attached to the sector G at the end of its face farthest from the pulley *f*, so as to work in a groove in said face.

To the upper portion of the door B is attached a bracket, J, provided with a vertical spindle, *i*, which forms the axis for a roller, L, preferably of rubber or faced with rubber or other suitable material.

The bracket J is so arranged with relation to the sector G that the roller L bears against the radial side of the sector which is toward the pulley *f*, and runs along thereon when the door is being opened or closed and the sector is being oscillated.

When the door is opened the piston E descends in the cylinder-*D*<sup>1</sup>, pulling downward on the rope H and sector G, and causing said sector to preserve its contact with the roller L. When the door is released, so as to allow the spring C to close it, instead of shutting violently and suddenly, its motion is arrested by the roller L bearing against the sector G and causing it to pull on the cord H and raise the piston E in the cylinder *D*<sup>1</sup>. As the piston rises in the cylinder the resistance of the air therein retards the motion of the piston just sufficiently to cause the door to close gradually and slowly, and without any slamming or violent noise.

The operation above described is the result of the peculiar construction of the casing D, which is as follows: At the bottom of the cylinder is a passage which connects it with a channel, *D*<sup>2</sup>, the upper end of which terminates in a valve-chest, *D*<sup>3</sup>. In this valve-chest are arranged two valves, M P.

The valve M works in a seat which communicates directly with the top of the cylinder *D*<sup>1</sup> by means of an orifice, *m*. This valve is formed with a solid head and a tubular stem having orifices in its sides, and in said tubular stem is a spiral spring, *s*, the lower end of which rests over the orifice *m*, and the upper end bears against the head of the valve with a tendency to raise it. A screw, *m*<sup>2</sup>, passes through the top of the casing D, and has its point bearing on the top of the head of the valve M. By turning the screw *m*<sup>2</sup> in one direction or the other, the valve M is raised or lowered, so as to allow the orifices in its hollow stem to rise above or fall below the shoulder of the valve-seat and present more or less obstruction to the passage of air through the valve and its seat.



The valve P is of the puppet-valve order, being arranged to work freely and loosely in its seat in a vertical direction.

The valve M has a tubular stem with orifices therein, which communicate, when above the shoulder of the valve-seat, with a passage,  $p^1$ , leading to the top of the cylinder D<sup>1</sup>. Below the shoulder of the valve-seat the hollow stem and orifices communicate with a passage,  $p^2$ , leading to the channel D<sup>2</sup>.

The piston E is sufficiently heavy to descend of its own weight when the door B is opened and the pressure of the roller L is removed from the sector G. As said piston so descends the air below it in the cylinder passes up the channel D<sup>2</sup>, through the passage  $p^2$ , to the hollow stem of the valve P, lifting said valve until the orifices in its stem are above the shoulder of the valve-seat, thence through said orifices to the passage  $p^1$  and into the cylinder D<sup>1</sup> above the piston.

As the piston rises the air above it passes through the orifice  $m$  to the valve M and through the orifices in the valve-stem to a

passage,  $m^3$ , leading to the channel D<sup>2</sup>. (See Fig. 3.) As the air must pass through the valve M and its orifices before escaping from the cylinder, the resistance to the piston is sufficient to retard its motion, as before described. This resistance may be increased or diminished by means of the screw  $m^2$ , as also before described.

I am aware that it is not new to use a cylinder filled with liquid whose piston is valved and connected with a lever operated by the door, or a vibrating lever having socket-bearings and a drum that incases a coiled spring, a chain being automatically wound on lever.

What I claim is—

A door-holder consisting of the case D, the piston and rod E *e*, the cord H, running over pulley *f*, and the sector G, pivoted in a bracket, K, as shown and described.

GUSTAVUS S. PERKINS.

Witnesses:

P. J. FLATLEY,  
G. W. BYRNES.