(No Model.) 2 Sheets—Sheet 1.

G. R. ELLIOTT.

PNEUMATIC DOOR CHECK.

No. 265,921. Patented Oct. 10, 1882.

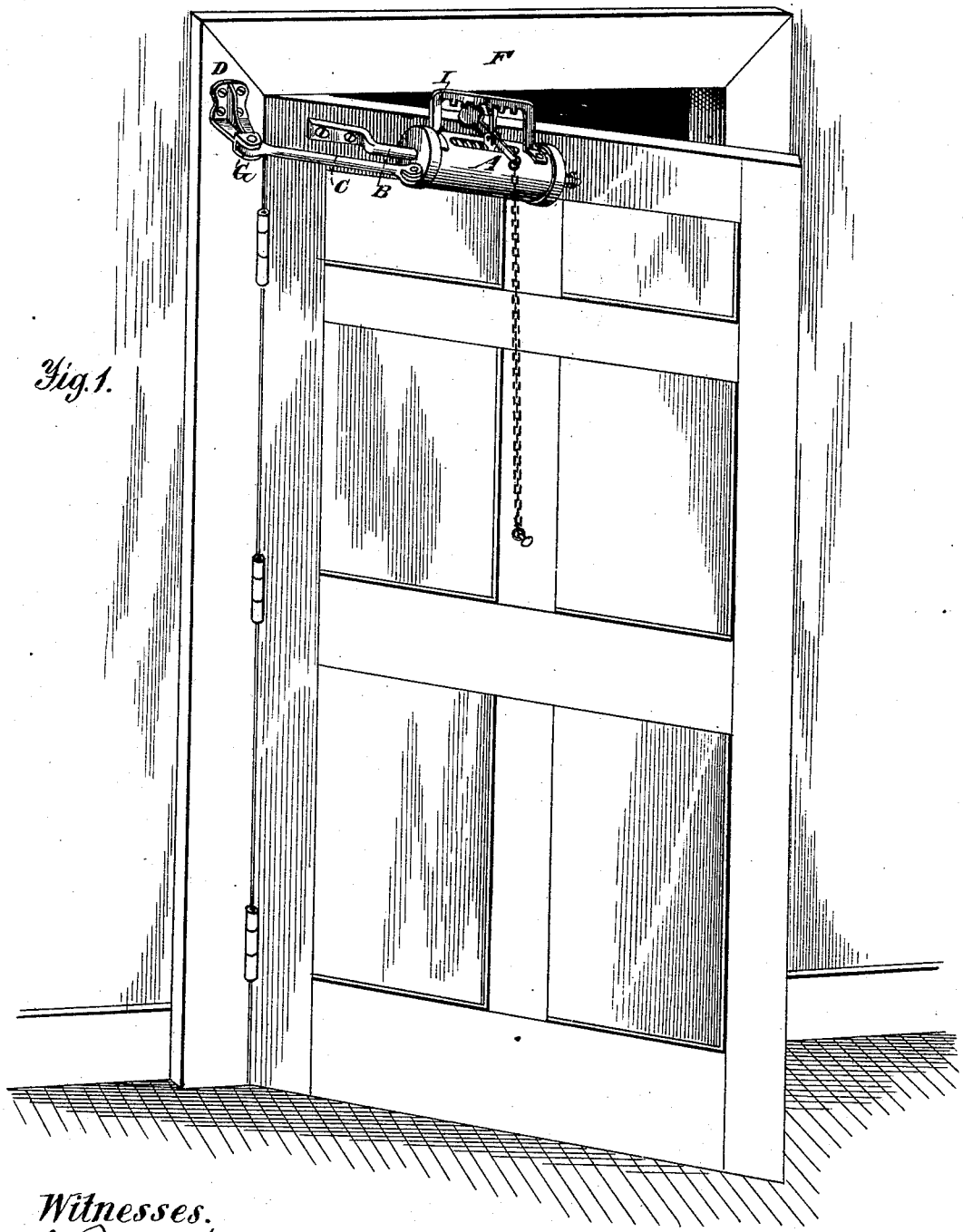

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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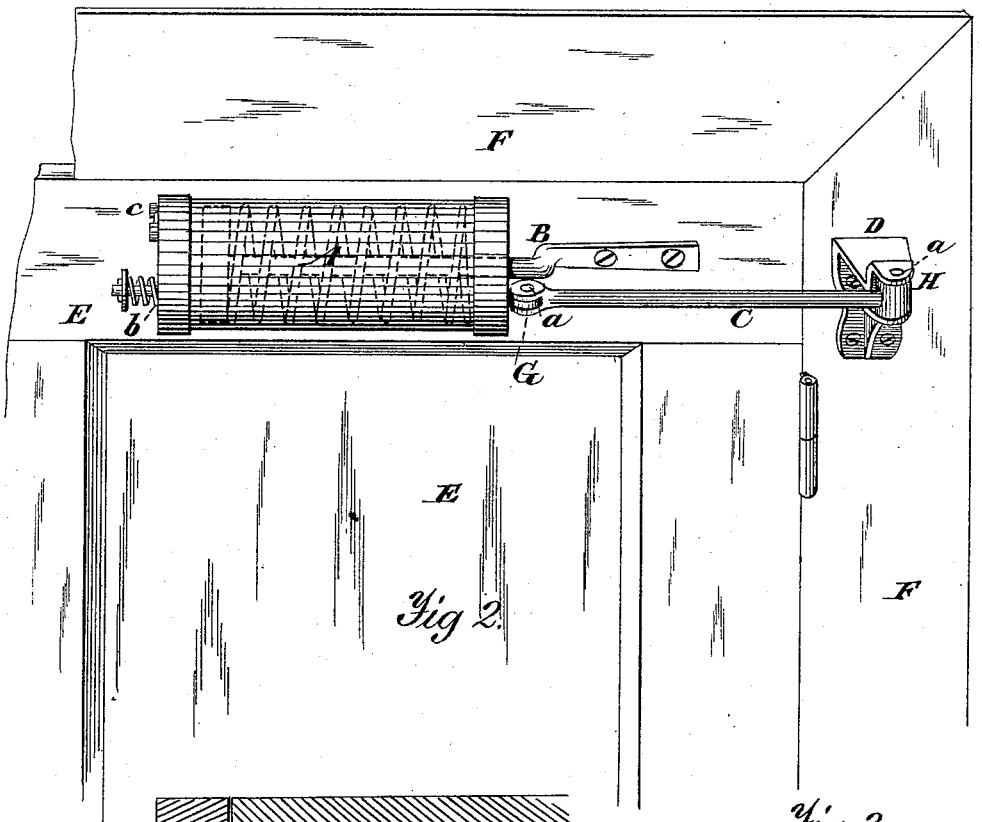


Fig 2.

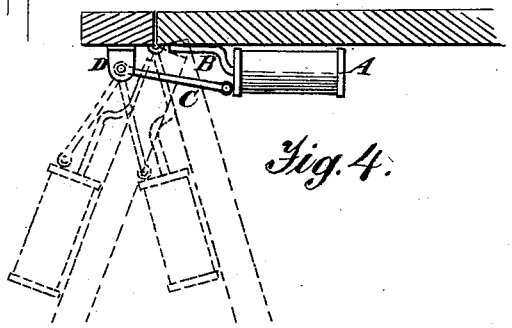
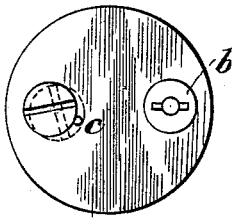


Fig. 4.

Fig. 3.



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UNITED STATES PATENT OFFICE.

GILBERT R. ELLIOTT, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE ELLIOTT PNEUMATIC DOOR CHECK COMPANY, OF NASHUA, NEW HAMPSHIRE.

PNEUMATIC DOOR-CHECK.

SPECIFICATION forming part of Letters Patent No. 265,921, dated October 10, 1882.

Application filed June 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, GILBERT R. ELLIOTT, a subject of the Queen of Great Britain, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Door-Checks; 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, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to a combined door-check and stop, and has for its object the prevention of noise and jar consequent upon the violent slamming of doors of buildings, railroad-cars, &c., and to also automatically retain the door in any desired open position.

The invention consists in the peculiar construction and arrangement of a pneumatic cylinder, its piston, and working parts, by means of which, when the door opens, the cylinder moves, while the piston is stationary and rigidly fixed to the door, all of which will be more fully hereinafter described, and pointed out in the claims.

The present invention is an improvement upon former applications now pending in the Patent Office, numbered respectively 58,599 and 59,510, and in which applications my principle of operation is set forth in a general way.

Referring more particularly to the drawings, Figure 1 represents a perspective view of a door and frame with my invention attached. Fig. 2 is an elevation of the apparatus, partly in perspective, the door being closed. Fig. 3 is an end view of the cylinder, clearly showing the induction and eduction valves; and Fig. 4, a plan view of a section of the door and frame with the device attached, the dotted line showing the position of the cylinder and piston when the door is opened at different angles.

A is the cylinder, containing a spring; B, the piston-rod rigidly fixed to the door; C, the connecting-rod connecting the bracket D with the cylinder A, each end of which works in what may be termed a "knuckle-joint." F shows the door frame or jamb, and E the door. G is an eyebolt provided with a connecting journal-bearing adapted to receive the end of the connecting-rod, and H is a journal framed on the bracket D for the other end of the connecting-rod. These journals are provided with pintles *a a* for fastening the connecting-rods to the said journal-bearings. The piston rod at one of its ends is flattened and provided with screw-holes (or other means) for fastening it to the door.

b is the air-induction valve, provided with a staying device and a spiral spring to retain the valve in position.

c is the air-eduction valve for the gradual escape of air. This valve works eccentrically upon its seat, so that by turning it more or less the valve is more or less opened.

Mounted upon the cylinder A is a stop or staying device, provided with a rack or a series of slots, into which a lever or rods fit when desired to hold the door open. The lever is provided with a weight at one end and a chain at the other. The object of the chain is to lock or unlock the lever from the rack, and the weight to keep it unlocked when not in use. This rack or staying device is similar to those shown and described in the before-mentioned applications.

It is evident that the staying device may be fastened by any well-known means in such manner as to retain the door at any desired open position. When the door is closed the staying or locking device may be used as a lock or bolt to prevent the door from being opened from the opposite side. This entire device is capable of being applied to any of the ordinary styles of doors.

It is well known that the violent slamming and banging of doors, and particularly of church-doors, is very annoying on account of the noise they make when brought in contact with the door frames and jambs, as well as producing injurious effects of jarring the building and loosening the joints of the door, and otherwise producing evil effects when it happens to be a glass door.

The operation of my apparatus, whereby the evils above enumerated are avoided, is as fol-

lows: The apparatus being in position, the door is opened against the tension of the spring. Should it be required to have the door stand open, the chain is pulled, when the upward-projecting tooth meshes into the rack, and thus holds it in position, and when required to release the door to close it the chain is again pulled, which releases the tooth in the rack. The weight on the opposite side of the lever weighs it down and retains the lever out of the way of the rack, while the cylinder moves back and forward upon the stationary piston. Again, when the door is opened the cylinder moves upon the piston and draws in air through the air-valve to such an extent as to form a cushion, so that when the spring forces the door to the air becomes compressed at nearly the closing point of the door, so that the door is prevented from slamming against the frame or jamb, and gradually and gently eases itself to its position without noise.

It is obvious that any door in the house may be provided with these checks, so that in time of sickness, or when quiet is needed, there is no noisy slamming of doors, &c., as is usually the case where these devices are not used.

This door-check apparatus having two pivoted joints—*i. e.*, the bracket-joint and the door-hinge—the connecting-rod and the movable cylinder will adjust themselves to the varied action of the pivots by the double joints of the connecting-rods and the action of the cylinder upon the fixed connecting-rod, so that the working of the apparatus is smooth and easy when in use.

The advantages of this door-check as compared with many of those heretofore patented are that the parts rest against and are parallel with the door. By arranging the device in this position I avoid the unsightly outwardly-projecting cylinder, which is cumbersome and clumsy looking. The parts in mine are less numerous, and therefore the device is cheaper, less liable to get out of order, and easier to repair, and is more simple in operation. It works smoothly, closes the door with less force than those arranged at right angles with the door, it is neat and compact in form, is pleasing to the eye, and generally lends an æsthetic appearance to the surrounding structure, all of which will be readily understood from the foregoing description.

Having thus described my invention and the manner of carrying the same into effect, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a pneumatic door-check, of the movable cylinder and stationary piston-rod with the connecting-rod C, adapted to connect said cylinder to a bracket fixed to a part other than the door, the parts being arranged to close the door with less force than when at right angles to the jamb, as set forth and described.

2. A door-check consisting of a movable cylinder and a fixed piston-rod, the latter being fixed to the door and the former to a part other than the door, the rod having a piston-head and the cylinder provided with air-valves, whereby the door, when being closed, is cushioned by means of air controlled by said devices in the manner set forth.

3. A pneumatic door-check the cylinder of which is adapted to move upon a fixed piston-rod, the cylinder also having on one of its ends a pintle-bearing moving with said cylinder and connected to a bracket by a suitable connecting-rod, all operating in the manner set forth and described.

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

GILBERT R. ELLIOTT.

Witnesses:
THOMAS E. CLARY,
MILTON CLARK.