No. 628,916. Patented July 18, 1899.

H. BITNER.

DOOR CHECK AND SPRING.

(Application filed Feb. 6, 1899.)

(No Model.)

Fig. 1.

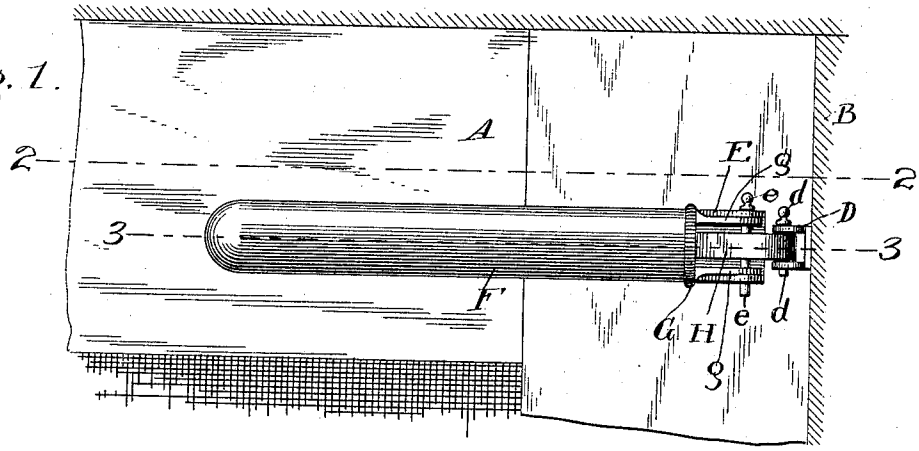
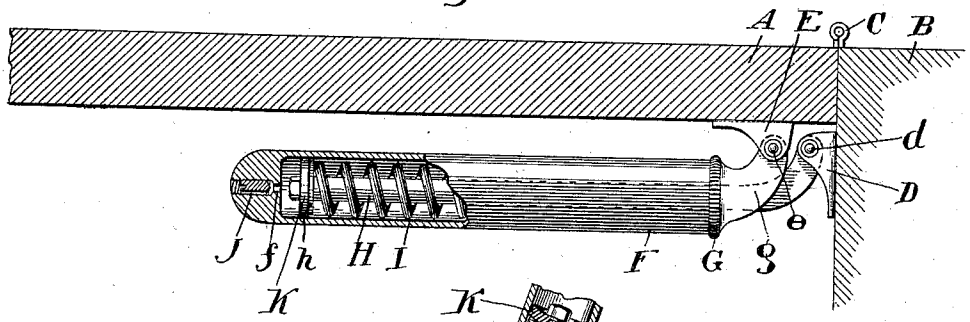


Fig. 2.



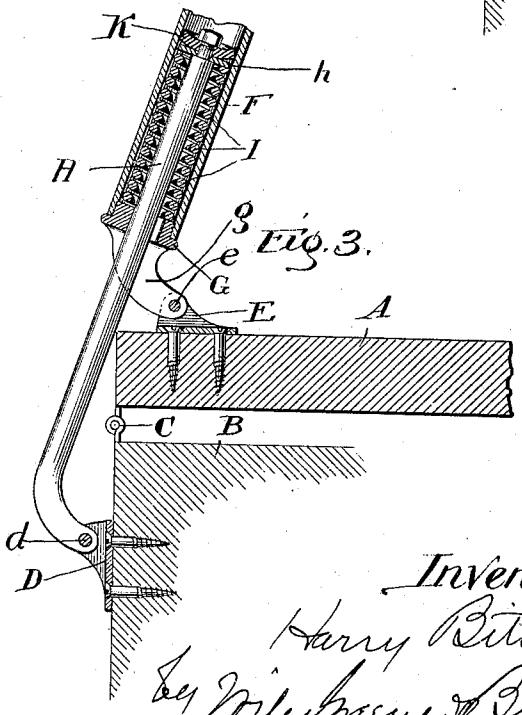


Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

HARRY BITNER, OF BERWYN, ILLINOIS, ASSIGNOR TO THE ARCADE MANUFACTURING COMPANY, OF FREEPORT, ILLINOIS.

DOOR CHECK AND SPRING.

SPECIFICATION forming part of Letters Patent No. 628,916, dated July 18, 1899.

Application filed February 6, 1899. Serial No. 704,643. (No model.)

To all whom it may concern:

Be it known that I, HARRY BITNER, a citizen of the United States of America, residing at Berwyn, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Door Checks and Springs, of which the following is a specification.

My invention relates to certain improvements in door checks and springs, the object of the same being to provide means for attaching an inclosed spring to the inside of a door and the adjacent casing, and in addition thereto to combine therewith a convenient check to retard the action of the spring beyond a certain predetermined maximum.

To such end the invention consists in certain novel characteristics, the preferred embodiment of which will be specifically described, and the essential features thereof pointed out in the claims.

The drawings show, in Figure 1, an inside view of the upper hinged corner of a screen-door and the adjacent portions of the casing, the latter being in section and the combined door and check being shown in its preferred operative position upon the door when the latter is closed. Fig. 2 is a horizontal section in plane 2 2 of Fig. 1, looking downward; and Fig. 3 is a horizontal section in line 3 3 of Fig. 1, also looking downward and showing the door open to its fullest extent.

In the drawings the door is lettered A and the adjacent portion of the casing, to which the door is hinged, B. The door is supported upon ordinary hinges C, which may be of any well-known construction, and swings to the outer side of the door-casing in the manner of the ordinary screen-door. A bracket D is secured to the casing adjacent to the inner side of the door, and a second bracket E is secured to the door in close proximity thereto. A cylinder F is provided at its open or front end with a cap G, which is extended outward and preferably laterally in the form of a tongue *g*, pivoted to the bracket E by means of a pin *e*. The cylinder is provided with a sliding rod H, which extends outward through the perforation in the cap G and is pivoted at its outer end to the bracket D and is also preferably turned toward the door at that end in order to limit or reduce the range of separation between the two pivotal points in the opening of the door. The rod H is pivoted to the bracket D by means of a pin *d*, both said pin and the pin *e* being preferably removable to enable the cylinder and its accompanying devices to be quickly taken from the door. Upon the inner end of the rod H is a washer *h*, between which and the cap G is confined a coiled spring I, tending to draw the rod H into the cylinder and the pins *e d* together, thereby tending to hold the door closed and to close it when opened to the extent necessary in passing through the same. When the door is opened to its fullest extent, however, as shown in Fig. 3, the line connecting the pins *e d* passes the hinge-line of the door, and the drawing of the pins together tends to hold the door open. The rear end of the cylinder is preferably closed with the exception of a small vent-opening *f*, and as a means of adjusting the size of this opening a screw J is threaded in an outer enlarged portion of said vent, so that it may be screwed down upon the latter to close it to whatever extent may be desired. A leather washer K is shown upon the end of the rod H beyond the washer *h*. This washer is intended to prevent passage of air from the rear to the forward end of the cylinder and to permit of a free passage in the opposite direction. Any other of the well-known devices for this purpose can of course be substituted for this construction. When the screw J is adjusted so as to bring the vent to the proper size, the passage of the air from the rear end of the piston will be made gradual and the closing of the door retarded thereby. The opening in the cap G, through which the rod H passes, should be of sufficient size or a suitable opening should be provided elsewhere to allow air to enter the forward end of the cylinder freely during the opening of the door.

I claim as new and desire to secure by Letters Patent—

1. The combination with a door and its casing, of a cylinder arranged to lie substantially parallel with the door, a rod guided therein and extending from the forward end thereof, means for pivoting the outer end of the rod to the door-casing adjacent to the inside of the hinged edge of the door, an arm upon the

forward end of the cylinder extending laterally toward the door, means for pivoting the said arm to the inside of the door near its hinged edge and means interposed between the cylinder and the rod for controlling the movements of the door; substantially as described.

2. The combination with a casing and a door hinged thereto, of a cylinder arranged to lie substantially parallel with the inside of the door, an arm extending laterally from the forward end thereof toward the door, provided with means for pivoting it to the inside of the hinged edge of the door, a rod guided in the cylinder and extending from the forward end thereof, an arm extending laterally from the outer end of the rod toward the door, means for pivoting the end of said arm to the casing adjacent to the inner side of the hinged edge of the door and means interposed between the rod and the cylinder to control the movement of the door; substantially as described.

In witness whereof I have hereunto set my hand, at Chicago, in the county of Cook and State of Illinois, this 31st day of January, A. D. 1899.

HARRY BITNER.

Witnesses:
CHAS. O. SHERVEY,
S. BLISS.