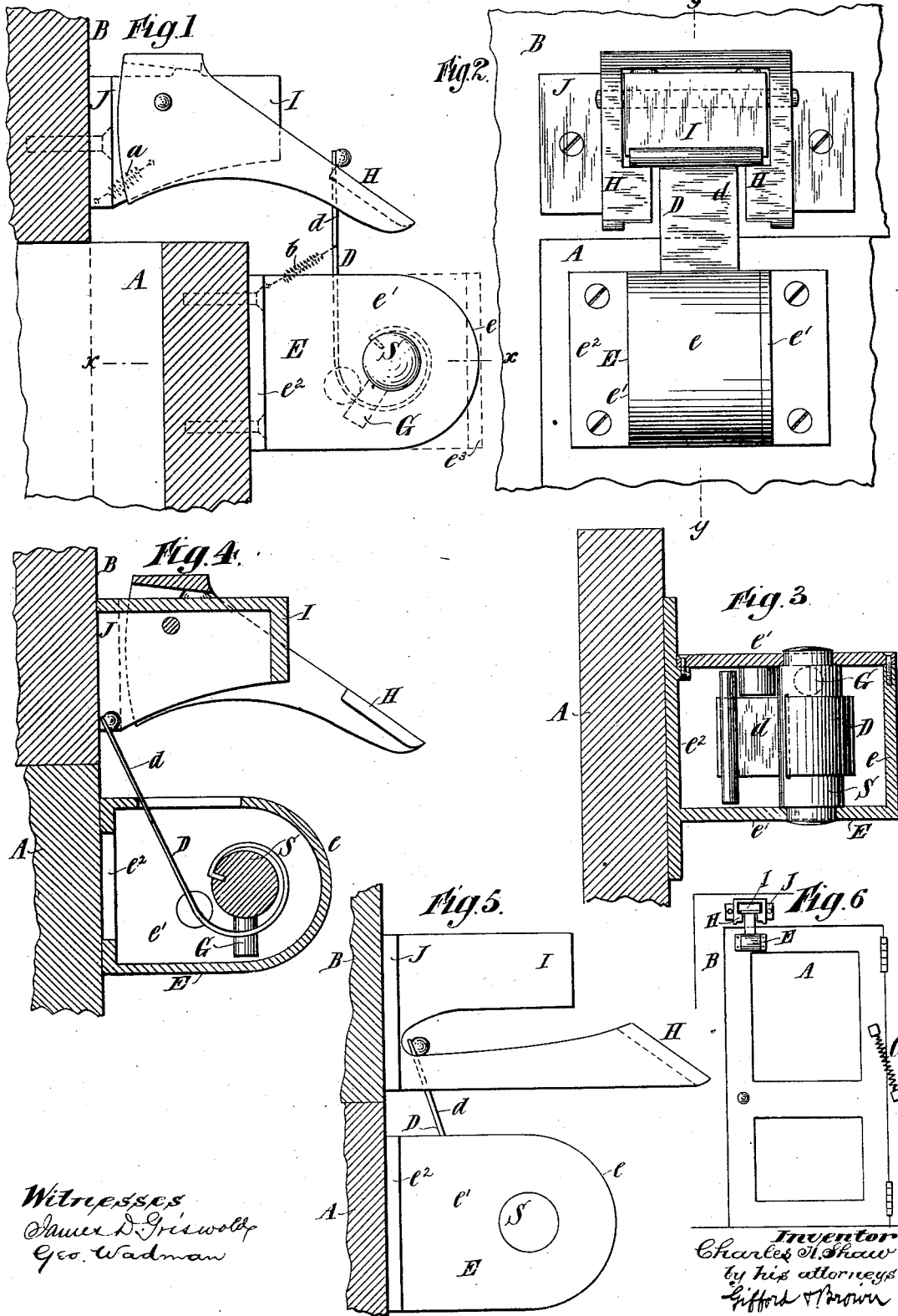


(No Model.)

C. H. SHAW.
DOOR CHECK.

No. 347,525.

Patented Aug. 17, 1886.



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DOOR-CHECK.

SPECIFICATION forming part of Letters Patent No. 347,525, dated August 17, 1886.

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To all whom it may concern:

Be it known that I, CHARLES H. SHAW, of Brooklyn, in Kings county, and the State of New York, have invented a certain new and useful Improvement in Door-Checks, of which the following is a specification.

The object of my improvement is to produce a simple and inexpensive article, whereby doors, including gates and the like, may be checked in closing and prevented from slamming.

I will describe a door-check embodying my improvement, and then point out the various novel features in the claim.

In the accompanying drawings, Figure 1 is a side view of a door-check embodying my improvement, composed of two separate parts attached one to a door and the other to a door-casing. Fig. 2 is a front view of the same. Fig. 3 is a transverse section of the part which is shown in the other figures as attached to the door, the section being taken at the plane of the dotted line *x x*, Fig. 1. Fig. 4 is a section of this part, taken at the plane of the dotted line *y y*, Fig. 2. Fig. 5 is a view illustrating a modification. Fig. 6 is a view of a door and door-casing having the door-check applied thereto.

Similar letters of reference designate corresponding parts in all the figures.

The door A and door-casing B may be of the usual construction, as my improvement does not in any way relate to them, but is solely embodied in the door-check. A door, when used with my door-check, will usually have combined with it a spring—such, for instance, as the spring C—for closing it.

D designates a tappet, which is arranged upon the door. As here shown, it consists of a resilient strip of metal, preferably steel, partly coiled in convolute form and having a tangential end portion, *d*. The convolute portion extends around a shaft, S, which is sustained by a support, E. This shaft may be solid or hollow, and it may be combined with the support E, so as to rotate or so as to be stationary. If made to rotate, the convolute portion of the tappet may be attached directly to it. If, however, the shaft is supported in such manner as to be stationary, then a collar will be mounted loosely upon it, and the con-

volute portion of the tappet will be secured to this collar, the object being in either case to provide for a limited rocking motion of the tappet.

The support E may advantageously be made of cast malleable iron. It consists, essentially, of a semi-cylindrical portion, *e*, containing the convolute portion of the tappet D, and two side portions, *e'*, extending from its periphery to an intermediate plate-like portion, *e''*. The semi-cylindric portion *e* may be made in sections in any desirable manner to provide for the introduction of the shaft S, and the convolute portion of the tappet D or one of the side portions may be made removable. One of two portions extending tangentially from the semi-cylindric portion *e* of the support E has in its circumference a slot, through which the straight end *d* of the tappet extends, and along which this portion of the tappet plays when the tappet is rocked, and also when it is deflected or bent in its operation.

The rotation of the shaft S or the collar mounted thereon is limited in one direction by the straight portion *d* of the tappet coming in contact with one end of the slot, through which it extends, and in the other direction by the contact with a projection in the support E of a stop or arm G, which is affixed to the rotary shaft or collar.

The support E is shown as secured to the door A near the upper edge of the latter by means of screws passing through holes in the plate-like portion *e''* and entering the door.

H designates a cam, and I designates an abutment, which are united to a common support. They may be made advantageously of malleable cast-iron. The cam consists of an inclined plate. The abutment is rearward of the upper end of the cam; but there is a considerable space between the cam and the abutment in the present example of my improvement. The cam and abutment are both connected to a support consisting of a plate, J, which is secured to the door-casing in such position that when the door closes the support E will be below it. The means employed to secure the plate J to the door-casing consists of a screw or screws passing through it and entering the door-casing.

In this example of my improvement the cam

H is pivotally secured in place, so that it may rise when necessary or desirable. As the door swings to in closing, a pin or lateral extension provided at the extremity of the straight end portion, *d*, of the tappet comes in contact with the cam H, whereupon it rides up along said cam, the shaft S or the collar arranged thereon rocking to permit of this action of the tappet. It will be understood that this motion of the straight end portion, *d*, of the tappet D will be in the direction of its length; or, in other words, a longitudinal movement. During this movement of the tappet it is not intended to bend or be deflected. If the door in closing happens to be moving so slowly that the extremity of the tappet will have time to drop down below the abutment I while moving through the space which intervenes between the cam H and the abutment, then the door will close without being appreciably deterred by the door-check. If, however, the movement of the door in closing should be too quick to permit the extremity of the tappet to descend below the abutment I while moving through the space which is intermediate of the abutment and cam, the extremity of the tappet will come in contact with the abutment, and, as by this time the shaft S or the collar mounted thereon will have had its rotary motion arrested by means of the stop G, the tappet can only yield by deflection or bending. This, therefore, happens and results in the checking of the door. At this time the tappet acts as a spring, and when acting as such it has neutralized the force of the door in the closing movement, and hence it straightens out again, swinging the door slightly open, and when it has moved the door in this way sufficiently to enable it to resume its normal condition it drops down through the space which is intermediate of the abutment and the cam, whereupon the door will be closed quickly by the action of the spring C. Should the door be swung to very violently, the tappet after being deflected by contact with the abutment I may swing the door open again with such a rapid movement that the tappet will pass the cam. In such case the spring C will close the door again, and the tappet will act in conjunction with the cam and abutment, as before explained, according to the force with which the door happens then to be closing. The cam H, owing to its being pivotally connected to its support, is free to rise when the door is open to permit the tappet to pass by it.

It may be found advantageous to arrange a second cam H upon the same support as the one already described. In such case the cams

would be in line and there would be between them a space sufficient for the passage of the straight portion *d* of the tappet D. A lateral extension or pin would then be provided at each side of the extremity of the tappet. The advantage of using a second cam will be so that the door-check may be used with a door hinged either at the right or the left hand edge.

Obviously, if a plate, *e*², such as I have illustrated in dotted outline, should be provided, the support E might be fastened to the door-casing in an inverted position, and the support J might be fastened with the cam H and abutment I in correspondingly-inverted positions to the door. In this case, however, a spring would need to be employed to maintain the cam in the position in which gravity serves to maintain it when it occupies the position shown in the drawings, and a spring would also need to be employed for maintaining the tappet D normally in the position in which it is normally maintained by gravity when the support E occupies the position shown in the drawings. Obviously, if these two supplemental springs should be employed for maintaining the cam H and the tappet E normally in the positions which they should occupy, the support E could be arranged with the shaft S in a vertical position, and the cam H and abutment I in corresponding positions, so that one of the parts of the door-check should be arranged upon the side edge of a door and the other part upon a corresponding side of the door-casing. I have shown in dotted outline a spring, *a*, combined with the cam H in the manner suggested, and a spring, *b*, combined with the tappet D in the manner mentioned.

In Fig. 5 I have shown a cam of modified form, part of which extends under an abutment, I. The pin or lateral extension at the extremity of the straight portion *d* of the tappet never gets below this cam, and as the door opens the tappet rides back over the cam.

What I claim as my invention, and desire to secure by Letters Patent, is—

A resilient tappet, a rock-shaft forming a support for the tappet, a stop for limiting the rocking of the said shaft, a cam for moving the tappet, and an abutment secured to a support, one of the supports being intended and adapted to be on a door and the other on a door-casing to act in combination, substantially as specified.

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Witnesses:

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