

J. KOCH, JR.
DOOR CHECK.

APPLICATION FILED JAN. 13, 1912.

Patented Sept. 3, 1912.

2 SHEETS—SHEET 1.

1,037,641.

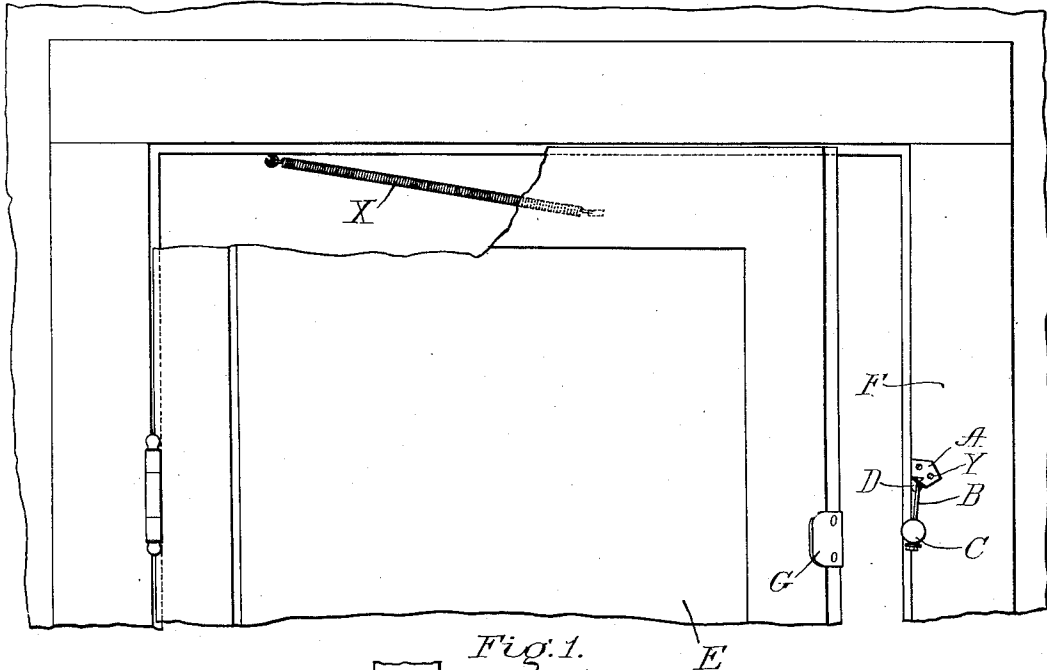


Fig. 1.

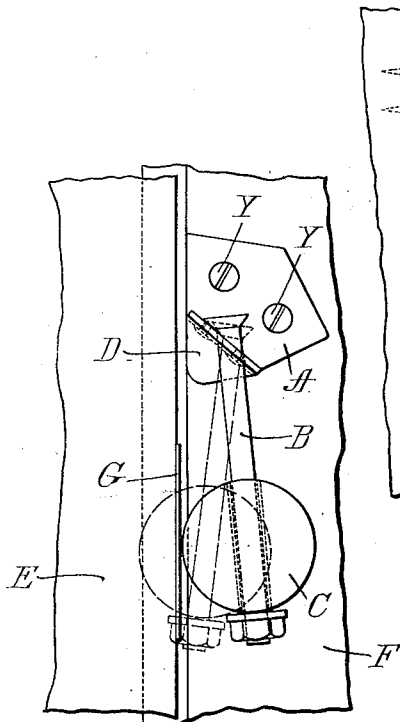


Fig. 2.

Witnesses.

Carroll L. Perkins
Elmer L. Briggs

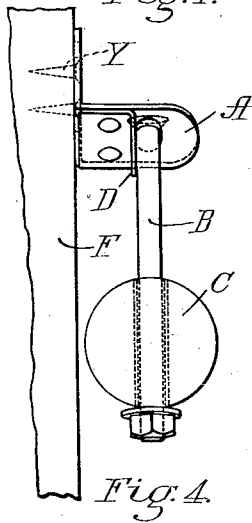


Fig. 4.

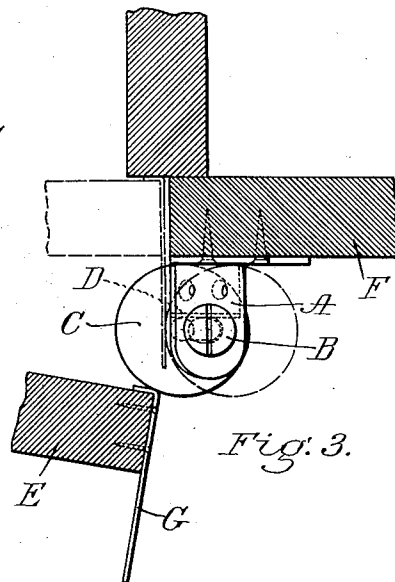


Fig. 3.

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John Koch Jr.
by Chas. T. Perkins

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2 SHEETS—SHEET 2.

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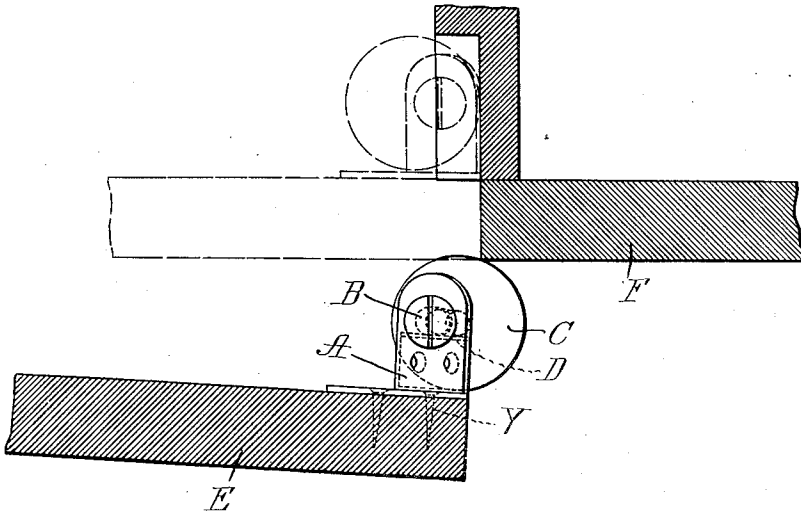


Fig. 5.

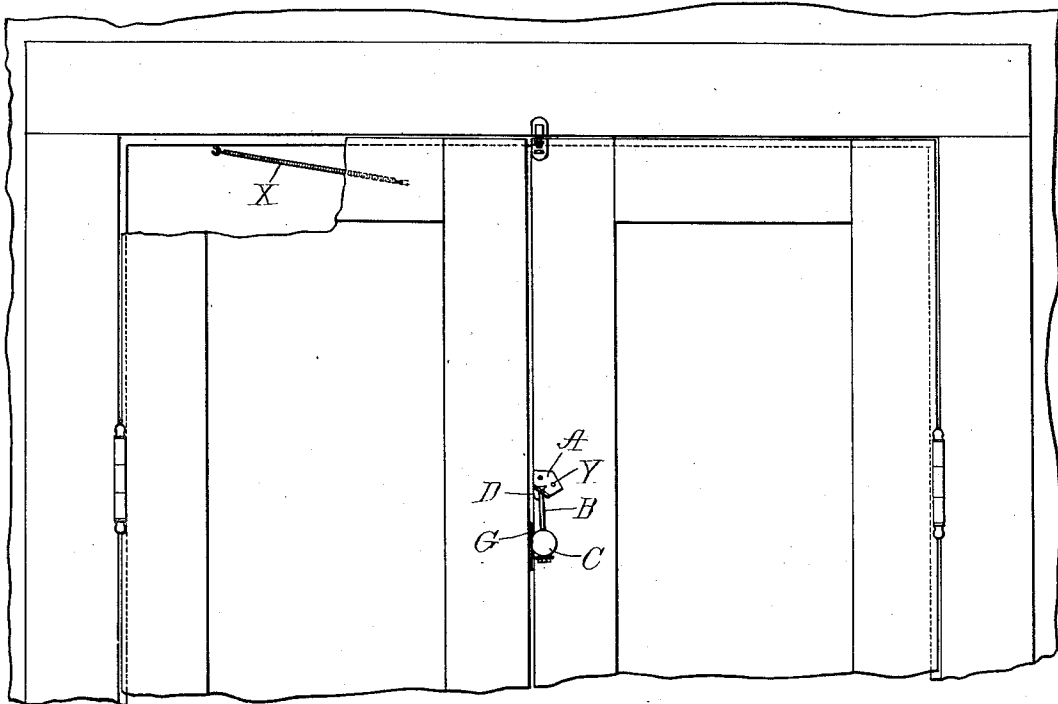


Fig. 6.

Witnesses.

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Elmer S. Driggs

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UNITED STATES PATENT OFFICE.

JOHN KOCH, JR., OF BROOKLINE, MASSACHUSETTS.

DOOR-CHECK.

1,037,641.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed January 13, 1912. Serial No. 671,047.

To all whom it may concern:

Be it known that I, JOHN KOCH, JR., a citizen of the United States, residing at Brookline, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Door-Checks, of which the following is a specification.

This invention relates to door checks of a simple and inexpensive construction designed primarily for use on all types of fly screen doors and inside solid wood doors.

The annoyance caused by the repeated slamming of doors is a matter of common knowledge, and it is the purpose of my invention to provide at a moderate cost a check which will at all times be positive in its operation.

The device consists of the combination of a bracket, a pin hung loosely therein and thus permitted a limited lateral movement as well as free revolution to an unrestricted degree, a rubber ball or other resilient body suspended by axial penetration from the lower end of said pin and free to revolve thereon, and a flat spring so disposed as to restrict the lateral movement of the pin in the direction of the bracket and cause the pin to re-bounce on impact with the spring.

Generally it will be found preferable to attach the device to the frame of the door, but when desired, it may be attached to the door, or to one of a pair of double doors. When attached to the door frame, I find it advisable to secure a guard to the edge of the door in such a position that the ball is prevented from swinging in behind the door as the latter closes. While not essential to the successful operation of my device, this guard eliminates all possibility that the door when suddenly opened will catch the ball or suspending pin and tear the device from its frame or weaken its fastenings. When the device is attached to one of a pair of double doors the guard will be fastened to the other of the pair.

In the accompanying drawing illustrating my invention, Figure 1 is a front elevation of the upper portion of a door frame showing my new device attached thereto and the door partially open. Fig. 2 is a front elevation of a portion of a closed door and door frame showing my device attached to the latter. Fig. 3 is a plan view of my device attached to the door frame showing the door and door frame in section. Fig. 4 is a side elevation of my device attached to the door

frame, as viewed from the left of Fig. 3. Fig. 5 is a plan view of my device attached to the door showing the door and door frame in section. Fig. 6 is a front elevation of the upper portion of a pair of double doors showing my device attached to one of the same.

Similar letters of reference indicate corresponding parts in the several figures of the drawing.

In the drawing, A represents the bracket, B the pin, C the ball, and D the flat spring. E is the door and F the door frame.

G is the guard.

X is the helical spring which operates to close the door.

Y Y are the screws which secure the bracket A to the door or door frame, as the case may be.

In Fig. 1 the device is shown attached to the frame F of the door E by fastening the bracket A thereto by means of the screws Y Y in such a position that the periphery of the ball C projects about one-half of an inch into the pathway of the door.

The method of operation is as follows:—As the door E, actuated by the force of the helical spring X, swings shut, its progress is checked by contact with the ball C. The force of this impact drives the pin B against the face of the flat spring D, thus bringing this spring into action. The combined resiliency of the ball C and spring D causes the door to re-bounce and the ball C to resume its normal position in the pathway of the door. The continued pressure of the helical spring X gradually overcomes the momentum imparted by the shock of the rebound and once more throws the door against the ball C, but with less force than before. Again the joint resiliency of the ball C and flat spring D causes the door to re-bounce, but this time with lessened force and consequently to a diminished distance. This operation is repeated until the door is nearly closed. At each successive repetition, the force of the impact and, consequently, the length of the re-bounce are diminished until the former has become so slight that no re-bounce results and but little resistance is offered by the ball C to the insistent pressure of the helical spring X. Actuated by this pressure, the door now gradually pushes the ball C aside and quietly closes. This step in the operation is rendered possible by the lateral play allowed the pin B in the

bracket A, and facilitated by the rotation of the ball C on the pin B, and of the pin B in the bracket A.

Though embodied in the preferred form of my device as above described, it is to be noted that I do not limit my invention to the employment of a yielding feature in the part D, but claim that any stop or detent constructed and located substantially like the part D, whether the same be flexible or rigid, is within the scope of my invention.

All prior devices of this type have been fatally defective in that they lacked certainty of operation. This failure to operate on occasions generally assumed one of two forms. At times, the resistance offered by the ball or block, in the position in which it lay, would prove insufficient, and the door would rapidly drive it aside and close with a slam. At others, when for any reason the impact was slight, the ball would not be driven or pushed out of the way, but would be hugged between the door and the casing, and the door thus prevented from closing. This last was particularly apt to occur when the door was but partially opened or thrown slightly ajar by currents of air. Both of these difficulties have been obviated and eliminated in the use of my device, which is positive and never-failing in its operation under all conditions.

Having thus described my invention and the operation thereof, what I claim as new, and desire to secure by Letters Patent is:—

1. In a door check, the combination of a bracket, a pin rotatably supported and free to swing therein, a stop secured to said pin, and a detent adapted to limit the lateral movement of said pin.

2. In a door check the combination of a support, a stop, means for suspending the stop from said support, and a spring formed independently of said means for suspending the stop and adapted to limit the lateral movement thereof.

3. In a door check the combination of a supporting member, a pin hung therein, a stop suspended upon said pin, and a spring formed independently of said pin and adapted to limit lateral movements of said pin.

4. In a door check the combination of a supporting member, a pin resting loosely

therein, a resilient body suspended upon said pin, and a spring resting in contact with said pin and adapted to restrict its lateral movement.

5. In a door check, the combination of a bracket, a pin loosely supported therein and free to revolve and swing laterally therein, a stop secured to said pin and free to revolve axially on said pin and a spring adapted to limit the lateral movement of said stop.

6. In a door check, the combination of a bracket, a pin loosely supported therein and free to revolve and swing laterally therein, a stop secured to said pin and free to revolve axially on said pin and a detent adapted to limit the lateral movement of said pin.

7. In a door check the combination of a bracket, a pin loosely supported therein and free to revolve and swing laterally therein, a stop secured to said pin and free to revolve axially on said pin, and a spring formed independently of said pin and adapted to limit the lateral movement of said stop.

8. In a door check the combination of a bracket secured to the door casing, a pin hung loosely therein, a stop suspended on said pin and free to revolve axially, and a flat spring attached to the under side of said bracket and normally resting in contact with said pin and adapted to restrict the lateral movement of said pin and to prevent contact of said stop with the door casing.

9. In a door check the combination of a stop, means for suspending the stop, a spring formed independently of said means for suspending the stop and adapted to limit its motion, and a guard attached to the door and adapted to limit lateral movement of the stop.

10. In a door check, the combination of a stop for the door suspended from a supporting member and normally resting in the path of the edge of the door, an independent spring adapted to restrict the lateral movement of the stop, and a guard attached to the door and adapted to limit lateral movement of the stop.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses, this eighth day of January 1912.

JOHN KOCH, Jr.

Witnesses:

CARROLL L. PERKINS,
HAROLD C. HASKELL.