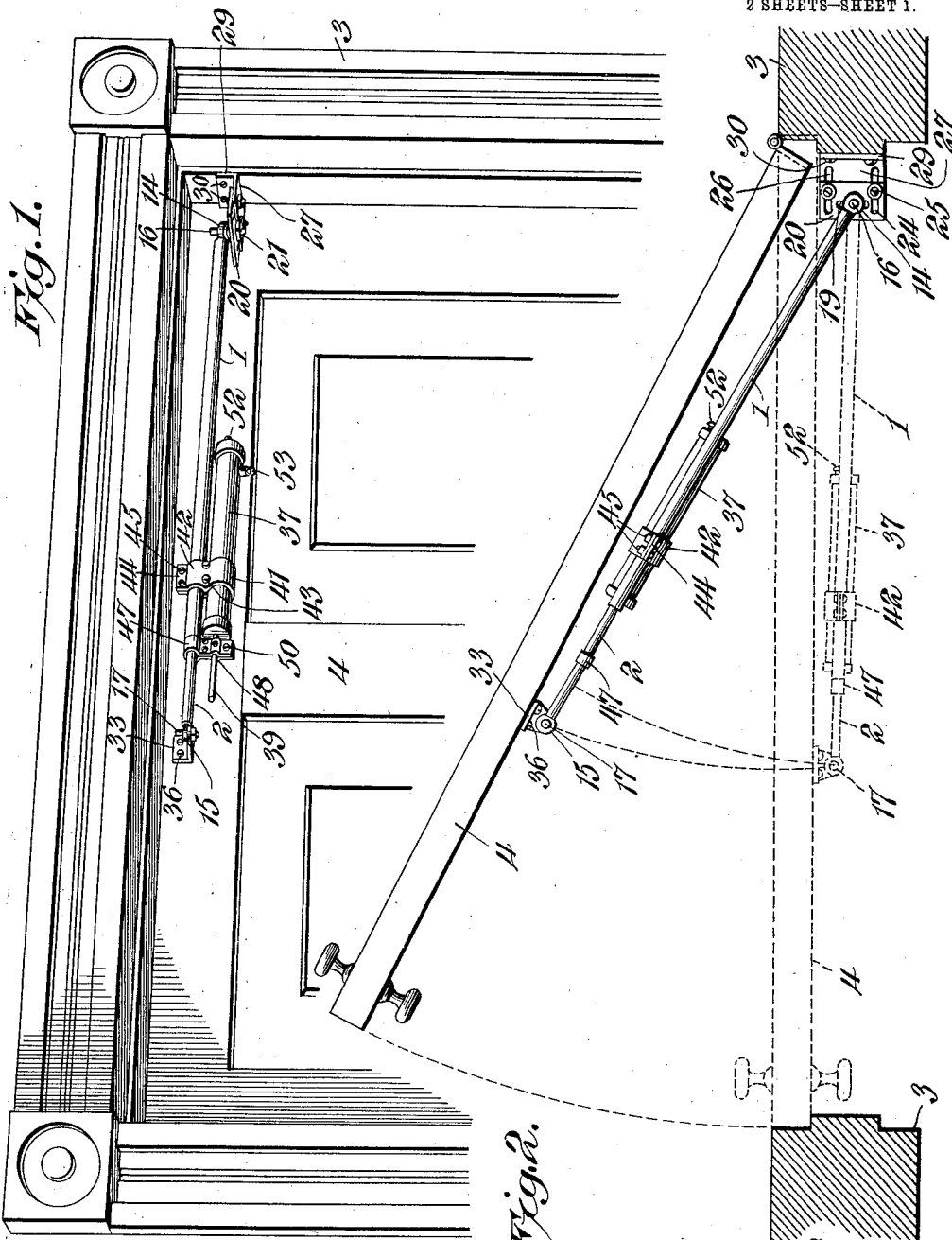


J. E. GIBBS.
 COMBINED DOOR CHECK AND SPRING.
 APPLICATION FILED SEPT. 13, 1911. RENEWED OCT. 24, 1912.

1,062,575.

Patented May 20, 1913.

2 SHEETS—SHEET 1.



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Fig. 2.
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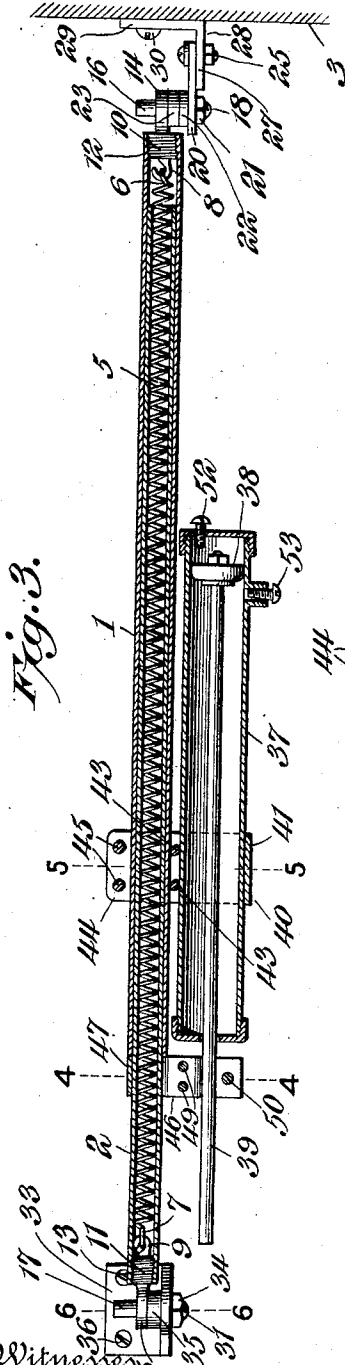


Fig. 3.

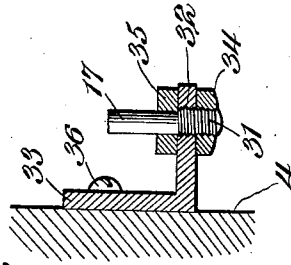


Fig. 6.

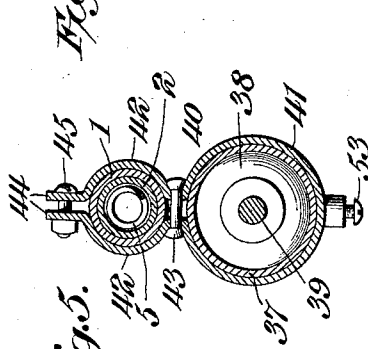


Fig. 5.

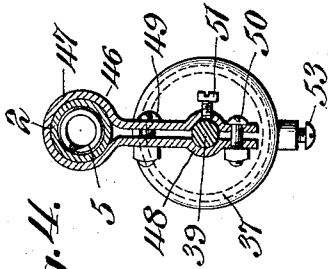


Fig. 4.

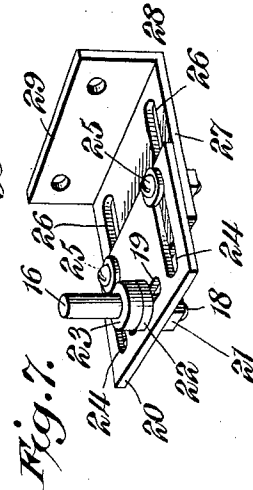


Fig. 7.

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UNITED STATES PATENT OFFICE.

JAMES E. GIBBS, OF COVINGTON, KENTUCKY.

COMBINED DOOR CHECK AND SPRING.

1,062,575.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed September 13, 1911, Serial No. 649,167. Renewed October 24, 1912. Serial No. 727,624.

To all whom it may concern:

Be it known that I, JAMES E. GIBBS, a citizen of the United States, residing at Covington, in the county of Kenton and State of Kentucky, have invented a new and useful Combined Door Check and Spring, of which the following is a specification.

The invention relates to improvements in combined door checks and springs.

The object of the present invention is to improve the construction of door checks and springs, and to provide a simple, efficient and inexpensive device of this character, designed for use on screen, storm and other doors, and adapted to be readily applied to the same either at the top or center rail of the door, and capable of being readily detached or disconnected from the door or casing and of adjustment to enable it to exert the desired pull on the door.

A further object of the invention is to provide a combined door check and spring in which the latter will be concealed and protected and at the same time readily accessible so that it may be easily renewed when necessary.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a perspective view of a combined door check and spring, constructed in accordance with this invention, and shown applied to a door. Fig. 2 is a plan view of the same, the door frame or casing being in section. Fig. 3 is a longitudinal sectional view of the combined door check and spring. Fig. 4 is a vertical sectional view on the line 4—4 of Fig. 3. Fig. 5 is a similar view on the line 5—5 of Fig. 3. Fig. 6 is a vertical sectional view on the line 6—6 of Fig. 3. Fig. 7 is a detail perspective view of the adjustable bracket and the vertical pivot of the door frame or casing.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

In the accompanying drawings in which is illustrated the preferred embodiment of the invention, 1 and 2 designate telescoping tubes connected, respectively, with a door frame or casing 3 and a door 4 and incasing a coiled spring 5, arranged within the smaller tube 2, which slides or telescopes within the larger tube 1. The coiled spring 5 is provided with small loops 6 and 7, which engage hooks 8 and 9 of threaded plugs 10 and 11. The plugs 10 and 11 engage interior threads 12 and 13 of the outer ends of the tubes 1 and 2, and they are provided at their inner ends with integral hooks 8 and 9 and at their outer ends with integral ears 14 and 15, which are arranged on vertical pivots 16 and 17, mounted, respectively, on the door frame or casing and on the door, whereby when the door is opened, the spring will be distended and will exert its force to close the door when the latter is free to move. The threaded plugs 10 and 11 are readily removable from the vertical pivots 16 and 17 and also from the tubes 1 and 2, and they afford ready access to the coiled spring 5, which may be readily renewed when necessary. Also the detachability of the ears 14 and 15 from the vertical pivots 16 and 17 enables the device to be readily disconnected from either the door or the door frame when it is not required, it being preferably disconnected from the door for this purpose.

The vertical pivot 16 is provided with a threaded lower portion 18, passing through a slot 19 of an adjustable plate 20 and receiving a nut 21, which engages the lower face of the bearing plate. The pivot is provided at the upper terminal of the threaded portion with a collar 22 to engage the upper face of the adjustable plate 20, and a washer 23 is preferably arranged upon the collar to receive the eye 14 of the plug 10. The slot 19 is disposed transversely with relation to the position of the device when the door is closed, and it permits an adjustment across the plate 20, the pivot being secured in its adjustment by the nut 18. The plate 20 is provided with spaced longitudinal slots 24 for the reception of bolts 25, which also pass through longitudinal slots 26 in a horizontal supporting flange or portion 27 of an approximately L-shaped bracket 28, having an upwardly extending attaching flange or portion 29, fitting against the door frame or casing. The bracket is secured to the door

frame or casing by screws 30, or other suitable fastening devices, piercing the attaching portion or flange 29 of the bracket 28 and embedded in the door frame or casing. The slots 24 and 26 are arranged longitudinally with respect to the position of the device when the door is closed, and they permit an adjustment of the plate 20 in a direction longitudinally of the device, so that the vertical pivot 16 may be arranged different distances from the supporting portion of the door frame or casing, so as to permit of ready and delicate adjustment of the spring tension.

The vertical pivot 17 has a threaded lower portion 31 engaging a threaded perforation 32 in a horizontal supporting flange or portion of an L-shaped bracket 33 and engaged by a nut 34, which bears against the lower face of the horizontal supporting flange of the bracket. The pivot may be mounted on the bracket 33 in any other desired manner, and a washer 35 is arranged on the vertical pivot 17 to receive the eye 15 of the plug 11. The L-shaped bracket 33, which has a vertical attaching portion, is secured to the door by screws 36, or other suitable fastening devices, which pierce the bracket and are embedded in the door.

The checking means comprises a cylinder 37, which is connected with the tube 1 and a piston 38, operating within the cylinder and provided with a piston rod 39, which is connected with the tube 2. The cylinder, which is arranged in parallelism with the tube 1, is preferably located beneath the same, and it is suspended from the tube 1 by means of a clip 40, constructed of sheet metal or other suitable material, which is bent intermediate of its ends to provide a cylindrical loop or portion 41 to embrace the cylinder. The sides of the clip are extended upwardly from the cylinder and are oppositely bowed at 42 to embrace and engage the tube

1. The sides of the clip are connected between the cylinder and the tube 1 by means of transverse bolts or rivets 43, and the terminals 44 of the sides of the clip 40 are extended upwardly beyond the tube 1 and are pierced by adjusting bolts 45, which cause the sides of the clip to adjustably clamp the tube 1. By this construction the cylinder is adjustably connected with the tube 1.

The piston rod is adjustably connected with the tube 2 by means of a clip 46, constructed of sheet metal or other suitable material, which is doubled to form a loop 47 to embrace the smaller tube 2. The sides of the clip are extended downwardly from the tube 2 and are bowed at an intermediate point at 48 to fit the piston rod 39, and they are connected above and below the same by bolts 49 and 50, and the clip is equipped at one of the bolt portions 48 with a clamping screw 51 for engaging the piston rod. By

means of the adjustment afforded by the clip 46 and by the plate 20, the coiled spring when it weakens may be placed under greater tension by loosening the bolts 49 and 50 and the screw 51 and drawing the smaller tube 2 and the spring outwardly by means of the plate 20, thereby stretching the spring. After the spring has been placed under the proper tension, the bolts 49 and 50 and the screw 51 are tightened to clamp the clip on the piston rod in a newly adjusted position. This adjustment may also be utilized for increasing the tension of the spring to adapt the device to the size or weight of the door to be closed and checked. The checking movement is controlled by means of vent screws 52 and 53, arranged at the inner or rear end of the cylinder and at a point adjacent to the same. The double venting of the air being employed to enable a relatively rapid closing movement to be obtained until the door is nearly closed, and to cause the final closing movement to be slow to avoid noise and to prevent rebound of the door. When the piston is in advance of the vent screw 53, the air escapes from both vents, but after passing the vent screw 53, the only escape of the air is at the vent screw 52, which may be adjusted to check the door to the desired extent.

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

1. A device of the class described comprising two telescoping tubes, a coiled spring arranged within one of the tubes and connected with each of the said tubes, a checking device arranged alongside the tubes and consisting of a cylinder and a piston, means for connecting the piston to one tube and the cylinder to the other tube, and means for connecting one tube to the door and the other tube to the door frame or casing.

2. A device of the class described including two telescoping tubes, a coiled spring arranged within the smaller tube and connected with each of the said tubes, a checking device consisting of a cylinder and piston, means for adjustably connecting the piston and the cylinder with the said tubes and means for connecting the tubes with a door and its frame or casing.

3. A device of the class described including two telescoping tubes, a coiled spring arranged within the smaller tube and connected with each of the said tubes, a cylinder arranged in parallelism with and carried by the larger tube, a piston operating within the cylinder and having a piston rod, a clip embracing the smaller tube and the piston rod and adjustably connecting the same, and means for adjustably connecting the tubes with a door and its frame or casing.

4. A device of the class described includ-

ing two telescoping tubes, a coiled spring arranged within the smaller tube and connected with each of the said tubes, a cylinder arranged in parallelism with the larger tube, a piston operating within the cylinder and provided with a piston rod, clips embracing the tubes and connecting the same with the cylinder and the piston rod, and means for connecting the tubes with a door and its frame or casing.

5. A device of the class described including two telescoping tubes, a coiled spring arranged within the smaller tube and connected with each of the said tubes, a checking device composed of a cylinder and a piston adjustably connected one to each of the tubes, a bracket arranged to be secured to a door frame or casing, a plate adjustably secured to the bracket and provided with a pivot receiving and pivoting one of the tubes, and means for connecting the other tube with a door.

6. A device of the class described including two telescoping tubes, a coiled spring arranged within the smaller tube and connected with each of the said tubes, a checking device composed of a cylinder and a piston adjustably connected one to each of

the tubes, a bracket arranged to be secured to the door casing, a plate mounted on the bracket for adjustment longitudinally and laterally thereof, a pivotal connection between the plate and one of the tubes, and means for connecting the other tube with a door.

7. A device of the class described including telescoping tubes having interiorly threaded outer terminals, threaded plugs engaging the threads of the tubes and provided at their inner ends with hooks and having eyes at their outer ends, a coiled spring located within the smaller tube and detachably connected to the said hooks, a checking device composed of a cylinder and a piston arranged alongside of and connected, respectively, with the said tubes, and pivots receiving the said eyes on the ends of the tubes and designed to be mounted on a door and its frame or casing.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES E. GIBBS.

Witnesses:

IONI E. GIBBS,

G. B. GROESBECK.