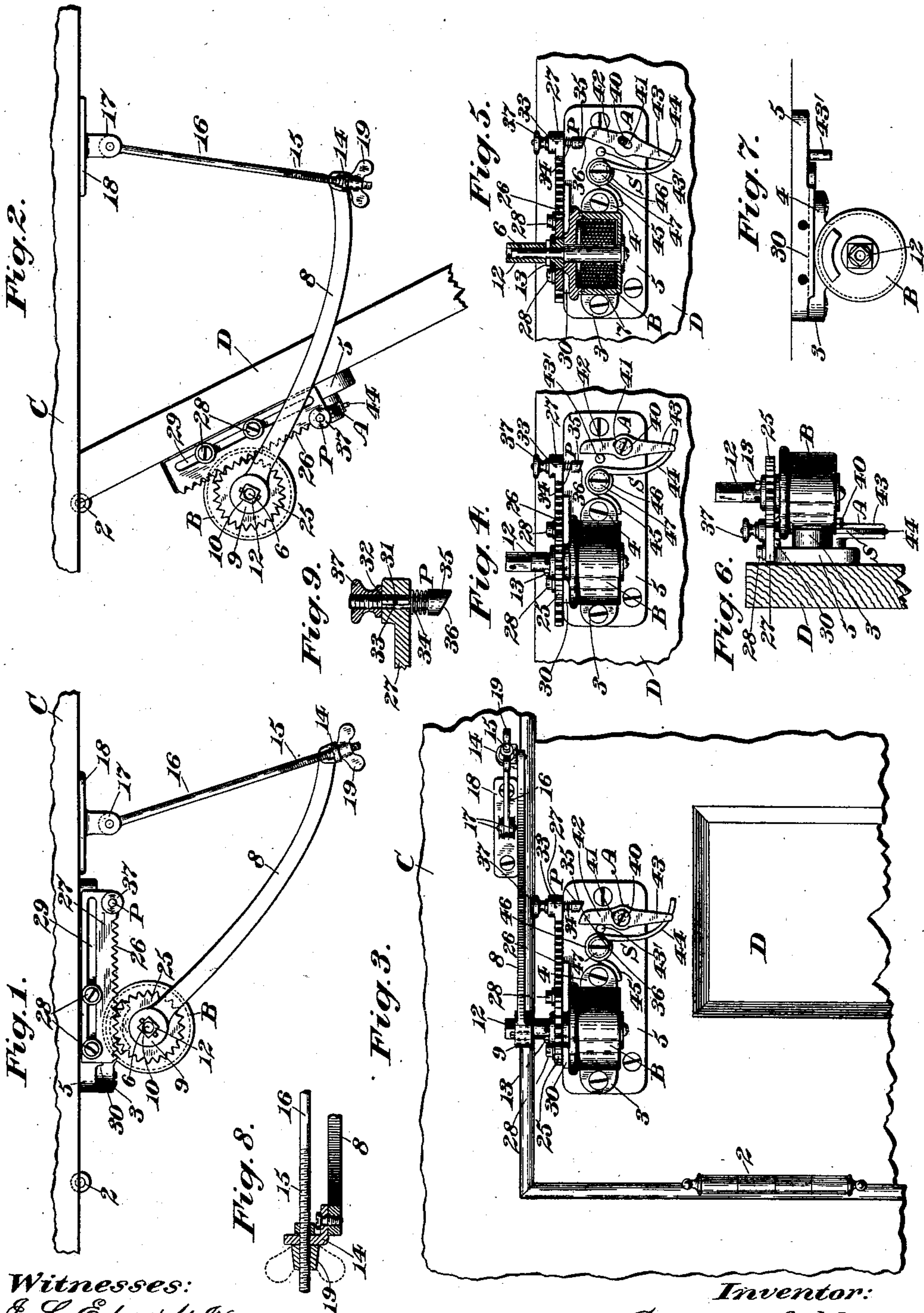


(No Model.)

G. ASHLEY.
COMBINED DOOR CLOSER AND CHECK.

No. 605,836.

Patented June 21, 1898.



Witnesses:
J. L. Edwards Jr.
Keith Lutherland

Inventor:
George Ashley,
By his Attorney,
F. A. Richards.

UNITED STATES PATENT OFFICE.

GEORGE ASHLEY, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR OF ONE-THIRD
TO GEORGE B. ASHLEY, JR., OF SAME PLACE.

COMBINED DOOR CLOSER AND CHECK.

SPECIFICATION forming part of Letters Patent No. 605,836, dated June 21, 1898.

Application filed August 23, 1897. Serial No. 649,140. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ASHLEY, a citizen of the United States, residing in New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in a Combined Door Closer and Check, of which the following is a specification.

This invention relates to a combined door closer and check, the object being to provide an efficient device of this character comprehending means for shutting the door properly when released and also acting to check it just before it reaches its closed position, thereby preventing slamming, and, consequently, the derangement of the different parts.

My improved device embodies, preferably, a spring mounted on the door and connected with the frame or casing thereof, a slide operative with the spring, said slide having a catch face or projection, and a spring-actuated detent disposed in the path of movement of said catch face or projection to momentarily stop the door.

In the form of the invention illustrated the slide to which reference has been made consists of a rack guided for reciprocatory movements on the door and moved back and forth as the door opens and shuts through the intervention of a suitable gear meshing therewith and operative with a spring case or chamber, the projection on the slide or rack being in the form of a by-pass device, which is adapted as the door opens to strike and pass by said spring-actuated detent. On the closure of the door and when it is nearly shut the by-pass projection will strike the spring-actuated detent, which momentarily arrests the progress of the door. The spring controlling the action of the door-stopping detent is weaker than the spring incased in the case or chamber to accomplish the result sought—that of temporarily arresting the closure of the door.

In the drawings accompanying and forming part of this specification, Figure 1 is a plan view of a door and casing furnished with my improved closer and check. Fig. 2 is a similar view, the door being open. Fig. 3 is a front elevation. Fig. 4 is a similar view of the device, the connections with the frame or casing being removed. Fig. 5 is a similar view, the

spring case or chamber being in section. Fig. 6 is a side elevation of the device as seen from the left in Fig. 4. Fig. 7 is a plan view with the slide or rack removed, and Figs. 8 and 9 are detail views hereinafter more particularly described.

Similar characters designate like parts in all the figures of the drawings.

The casing or frame for the door or other swinging structure is designated by C and the door by D, the latter being hinged to the former, as at 2, in the ordinary manner.

For convenience in describing my improved device I shall term the part D as a "door," although it is evident that said device can be applied equally as well to shutters, gates, &c.

The device comprehends as a part thereof a case for containing the spring which shuts the door, said case being of some suitable construction. The spring-case is designated by B, and it is furnished with oppositely-disposed flanges 3 and 4, fixed or secured to the base-plate 5, which in turn is attached in a suitable position to the door D. The spring-case B supports for rotative movement a shaft or spindle, as 6, which is surrounded or encircled by the door-shutting spring 7, secured at its opposite ends to said shaft and case, respectively, the spring being of the flat helical type. The shaft 6 is connected in some suitable manner with the casing C, so that when the door is opened said shaft will be caused to rotate, thereby putting the spring 7 under tension, whereby when the door is released the spring will promptly shut the same.

A relatively long crank-arm is shown at 8, connected, respectively, with the spring-actuated shaft 6 and the door-casing C. Said arm 8 is furnished at one end with the hub 9, having a square aperture 10, fitting over the correspondingly-shaped outer end of the sleeve 12, secured to one end of the shaft 6 by a pin 13 or other convenient device. The opposite end of the longitudinal crank-arm 8 is pivoted to one branch of the L or right-angular shaped connector or swivel 14, the other branch having a slot to receive the threaded end 15 of the link 16, whose opposite end is pivoted between the projecting lugs 17 on the bracket 18, secured to the door-casing. The threaded end 15 of the link 16

is engaged by a thumb-screw 19, by which the working length of said link can be regulated.

It will be apparent that on opening the door D in the usual manner the shaft 6, by reason of the described connections with the frame C, will be rotated, thereby compressing the spring, so that when the door is freed the spring will serve on relaxing to reversely or oppositely rotate said shaft to shut the door.

The shaft 6 carries at one end the spur-gear 25, meshing with the teeth 26 on the reciprocatory slide or rack 27, guided and supported for reciprocatory movement by the projecting stud 28, passing through the elongated slot 29 in said slide. The two studs 28 consist of screws seated in the flange 30 on the base-plate 5, the heads of which prevent the displacement of the slide. Said slide 27 has at one end the catch face or projection P, adapted to be engaged by a detent or buffer, as will hereinafter appear, operated by a spring whose strength is somewhat less than the door-closing spring 7, so that shutting of the door is momentarily arrested or impeded.

The projection P consists of a screw passing through the opening 31 near one corner of the slide and slotted, as at 32, to receive the guide-pin 33 on the slide (see Fig. 9) to prevent the screw P from turning. The lower end of the screw is embraced by a coiled spring 34, acting against the slide 27 and the head 35 of the pin, said head having a bevel or oblique under face 36 for a purpose that will hereinafter appear. The upper end of the screw P is embraced by the nut or collar 37, by turning which the tension of the spring 34 can be regulated.

The spring-actuated detent or buffer for intercepting the closure of the door when the latter has nearly reached its shut position will now be described. It is designated by A and consists of a short lever held in place on the base-plate 5 by the screw 40, passing through the longitudinal slot 41 at about the middle of the detent, so that a slight longitudinal movement of said detent is permitted, thereby correspondingly decreasing the oscillation thereof. The working arm 42 of the detent or buffer A bears against the stop 43' of the base-plate 5, the other arm 43 of said part having a slit or notch to receive the leg 44 of the detent-operating spring 8, the opposite leg or branch 45 preferably fitting against the flange 4 of the spring-case and the coil 46 of said spring encircling the projection or stud 47 of the base-plate.

In Figs. 1 and 3 the door is represented shut. When it is opened, the shaft, by reason of the intermediate connections with the door-frame, will be rotated to put the coiled door-operating spring 7 under tension. When the shaft 6 rotates, the gear 25 will be turned in a corresponding direction, thereby moving the rack 27 to what is illustrated as the "left."

When the rack has traveled a comparatively short distance, the beveled working face 36 of the head 35 on the projection P strikes the

working arm 42 of the detent A, and said arm being held against the pin 43 by the torsional spring 44 the pin P will be retracted and its operating-spring 34 compressed. On the continued movement of the rack 27 on the further opening of the door the spring 34 will return the pin P to its primary position as soon as the pin passes out of contact with the detent. When the door is released, the operating-spring 7 thereof will shut the same in the ordinary manner, thereby returning the slide to its primary position, and when the door is nearly shut the head 35 of the pin P will impinge against the working arm 42 of the detent A, the detent thereby acting to momentarily arrest the advance of the door. When the pin P strikes the upper end of the detent A, the latter will be moved therewith for a slight distance by reason of the greater strength of the door-operating spring 7, and at the same time by virtue of the mounting of the detent the latter will be retracted in the direction of its length for a short distance, as represented in Fig. 5, so that the working stroke of the detent and its period of resistance to the shutting of the door are reduced to a minimum. When the two parts are disengaged, the spring 34 will return the screw to its normal position.

Having described my invention, I claim—

1. The combination, with a frame and a door, of a spring mounted on the door and operatively connected with the frame; a slide on the door, operated by the spring and having a catch-face; and a spring-actuated detent disposed in the path of movement of said catch-face.

2. The combination, with a frame and a door, of a spring mounted on the door and operatively connected with the frame; a slide on the door, operated by the spring and having a catch-face; and a spring-actuated detent disposed in the path of movement of said catch-face and mounted for longitudinal movement.

3. The combination, with a frame and a door, of a spring-case carrying a shaft operatively connected with the frame; a spring fixed, respectively, to the case and to the shaft; a gear on said shaft; a sliding rack on the door, meshing with the gear and having a projection; and a detent disposed in the path of movement of said projection.

4. The combination, with a frame and a door, of a spring-case mounted on the door and carrying a shaft operatively connected with the frame; a spring fixed to the case and shaft, respectively; a slide on the door; means operated by said shaft for actuating the slide; a by-pass projection carried by the slide; and a detent disposed in the path of movement of said projection.

5. The combination, with a frame and a door, of a spring-case mounted on the door and having a shaft operatively connected with the frame; a spring fixed, respectively, to the case and the shaft; a longitudinally-

5 slotted rack on the door; a gear on said shaft, meshing with said rack; means extending through the slot for guiding the rack; a projection on the rack; and a detent disposed in the path of movement of said projection.

10 6. The combination, with a frame and a door, of a spring-case mounted on the door and having a shaft operatively connected with the frame; a spring fixed, respectively, to the case and to the shaft; a slide; means on the shaft for operating said slide; a detent having a slot; a pin passing through said slot; a spring acting against said detent; and a projection on the slide, adapted to be engaged
15 by said detent.

20 7. The combination, with a frame and a door, of a spring-case mounted on the door and having a shaft operatively connected with the frame; a spring fixed, respectively, to the case and to the shaft; a slide provided

with a projection; means on the shaft for operating said slide; a detent supported between its ends, one of the arms of said detent being disposed in the path of movement of said projection; a stop against which said arm
25 acts; and a spring bearing against the detent.

8. The combination, with a frame and a door, of a spring mounted on the door and operatively connected with the frame; a slide on the door, operated by the spring and having
30 a catch-face; a detent disposed in the path of movement of the catch-face and longitudinally slotted; a stud passing through the longitudinal slot; and a spring acting against said detent and of less strength than the door-
35 operating spring.

GEORGE ASHLEY.

Witnesses:

FRED. J. DOLE,

WM. H. BLODGETT.