

No. 842,521.

PATENTED JAN. 29, 1907.

W. H. BROTHERS.

DOOR CHECK.

APPLICATION FILED FEB. 8, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

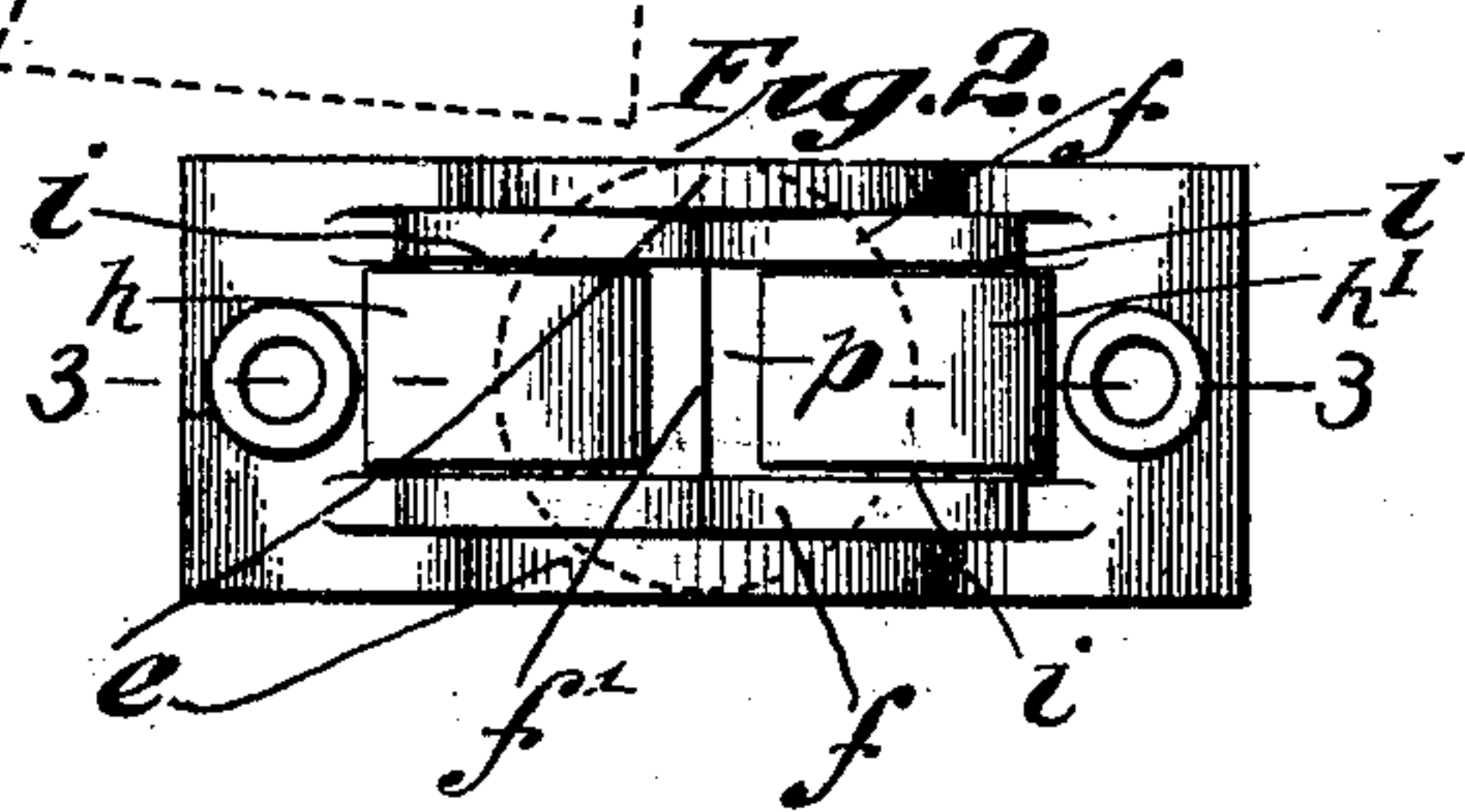
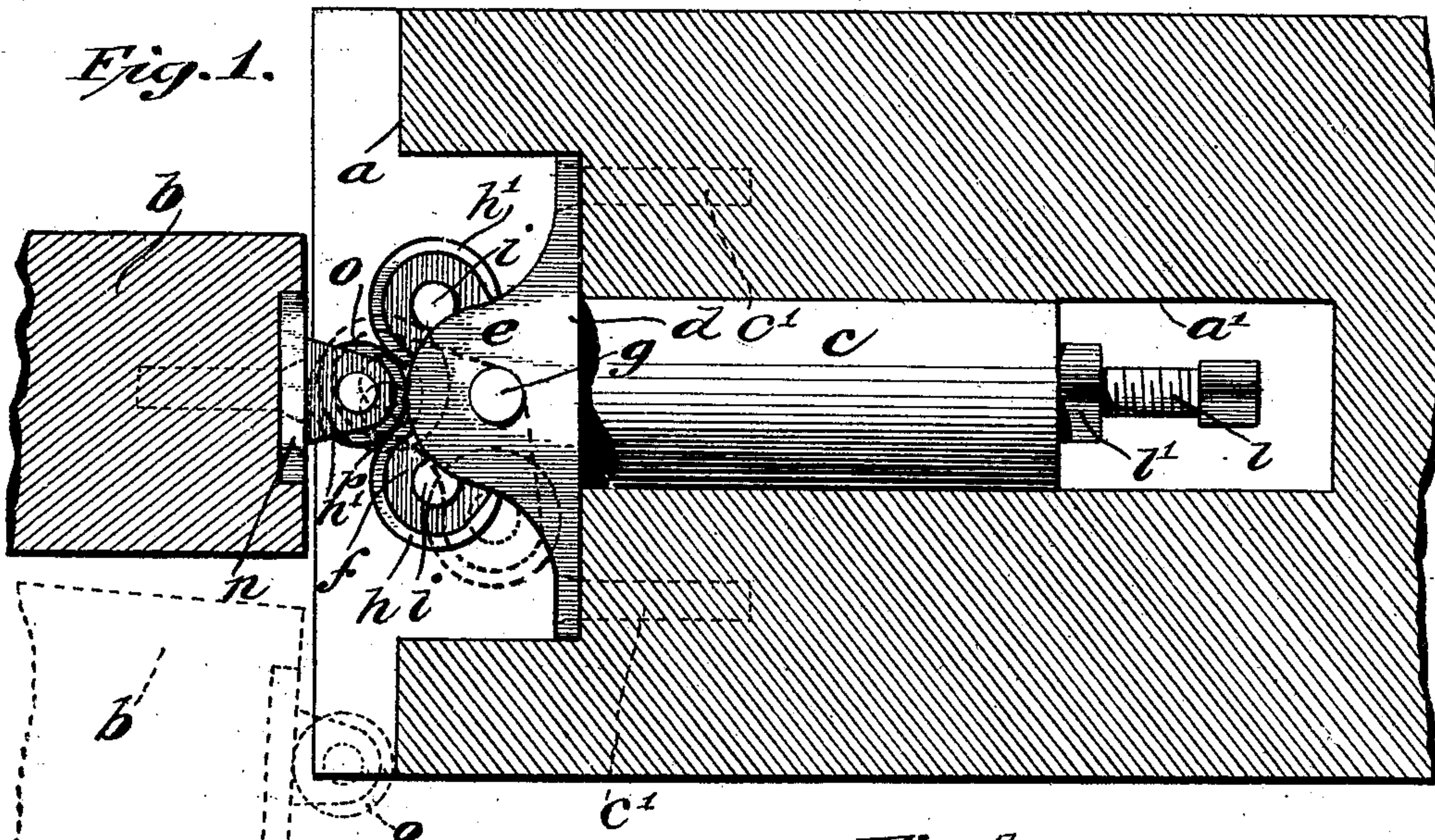


Fig. 4.

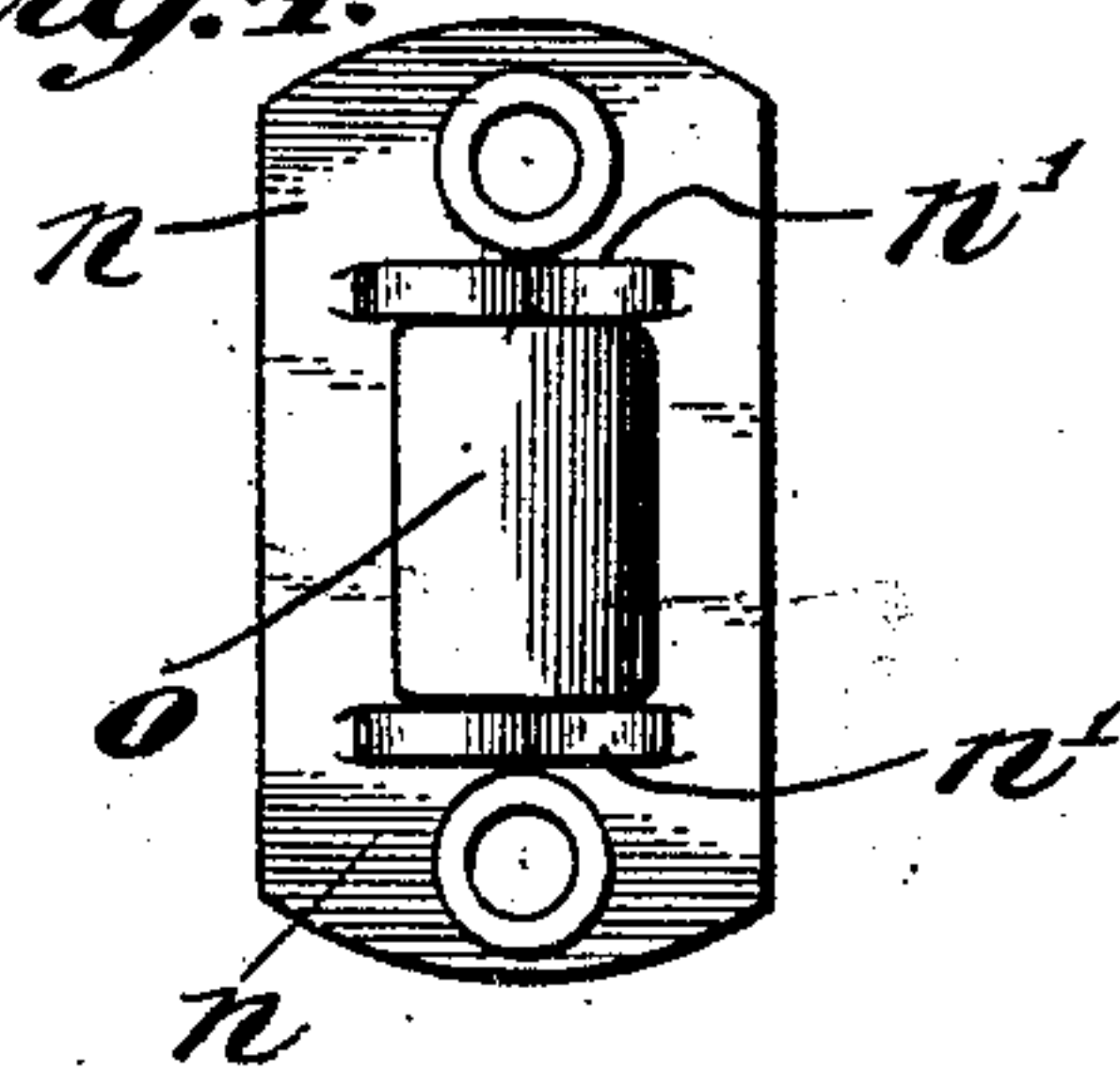
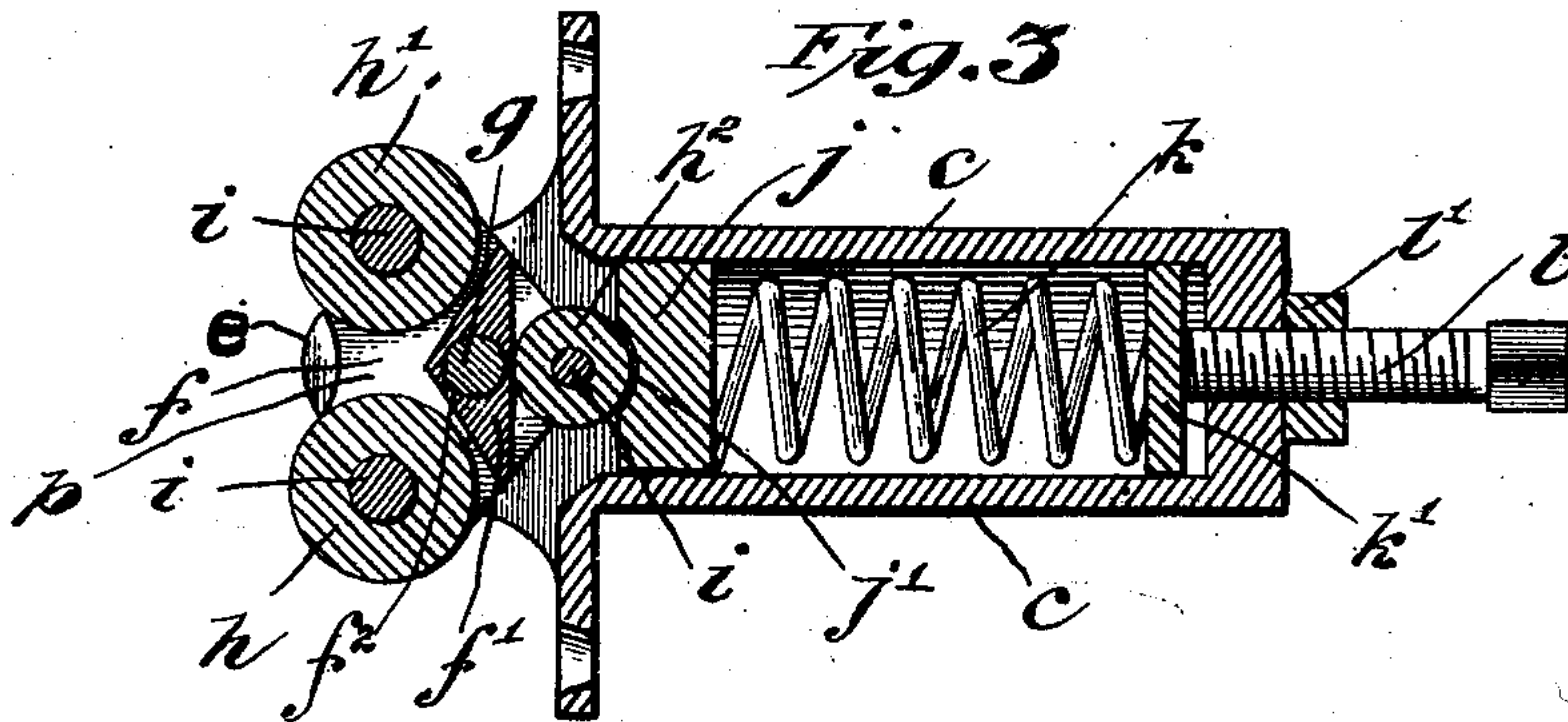


Fig. 3.



Attest:

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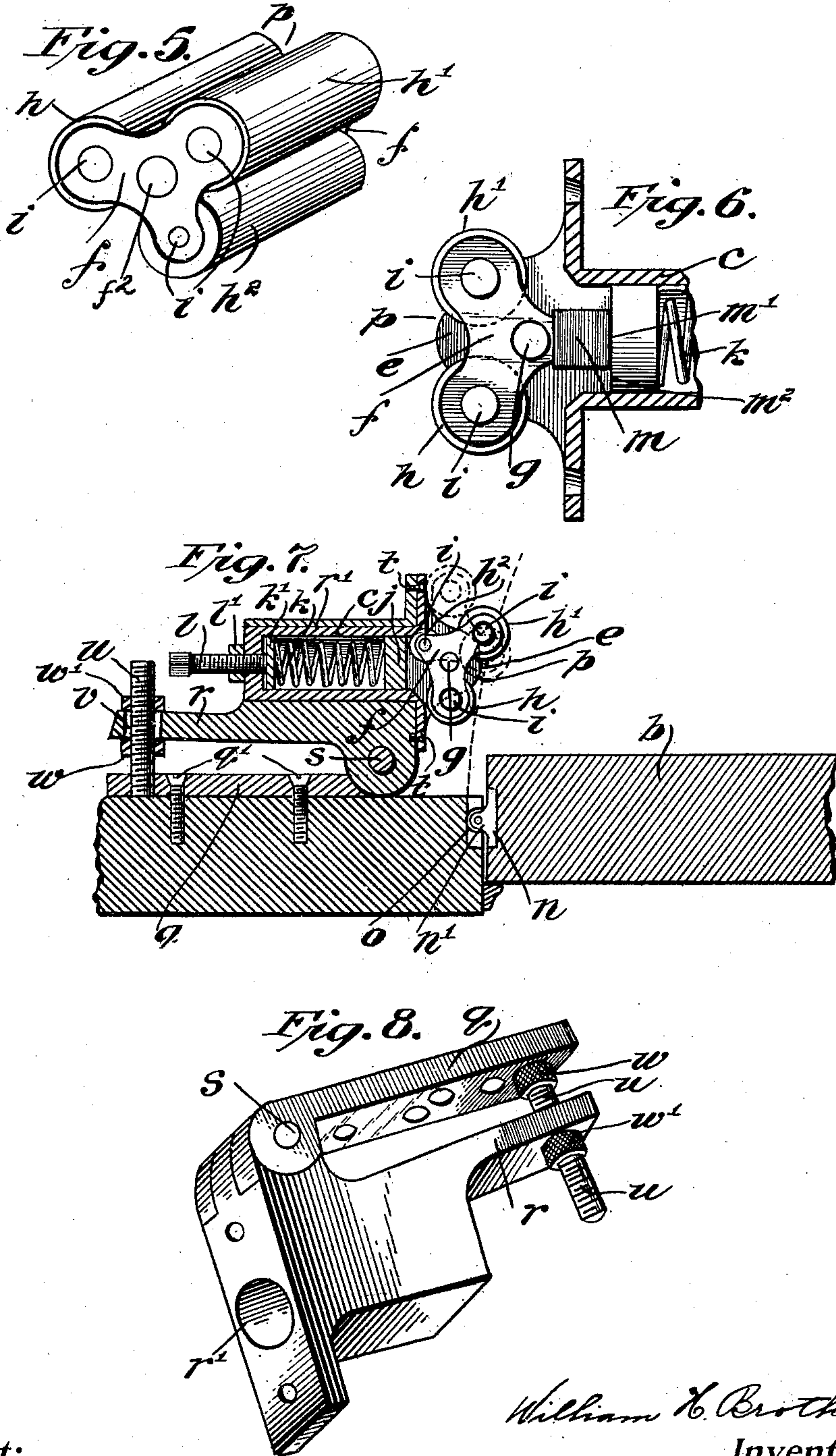
PATENTED JAN. 29, 1907.

W. H. BROTHERS.

DOOR CHECK.

APPLICATION FILED FEB. 6, 1906.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLIAM H. BROTHERS, OF CLEVELAND, OHIO, ASSIGNOR TO THE COLUMBIAN HARDWARE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

DOOR-CHECK.

No. 842,521.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed February 6, 1906. Serial No. 299,705.

To all whom it may concern:

Be it known that I, WILLIAM H. BROTHERS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Door-Checks, of which the following is a specification.

This invention relates to door-checks of the automatic variety; and the objects are to provide a door-check, whether for single or double acting doors, which is simple and efficient and which by the act of opening the door is set or shifted so as to afford a check or obstacle to the closing of the door.

With these and other objects in view my invention consists of certain features of construction and combinations of parts, to be hereinafter described and then particularly pointed out in the claims.

In the accompanying drawings, showing desirable forms of door-checks embodying my invention, Figure 1 is a sectional view of a portion of a double-acting door and its door-frame, the check being shown in plan, full lines showing the position of the parts when the door is closed and the dotted lines the position of the parts when the door is about to be shut. Fig. 2 is an end view of the door-check proper. Fig. 3 is a longitudinal section on the line 3-3, Fig. 2. Fig. 4 is a front elevation of the tappet to be mounted on the door for actuating the check proper. Fig. 5 is a perspective view of the rocking check member. Fig. 6 is a modification of the device. Fig. 7 is a transverse section of a modified form of the device for single-acting doors, the door and door frame or casing being also in section; and Fig. 8 is a perspective view of the mount for supporting the door-check when used in connection with single-acting doors.

Referring to Figs. 1-5, inclusive, the door frame or casing *a* and the double-acting door *b* are provided with my improvements. For the purpose of mounting the door-check proper in a suitable mortise *a'* in the door-frame, if desired, and for properly supporting the parts it is provided with a housing or casing *c*, preferably of cylindrical shape. At the front end of the said housing is a head or plate *d*, which is provided with a pair of ears *e*, between which the rocking member of the door-check (shown clearly in Fig. 5) is mounted. Said rocking member comprises

side pieces *f*, which are of suitable shape, preferably trifurcated, and which are connected by means of a cross-piece *f'*. The said cross-piece with the side pieces are centrally bored or perforated to provide an opening *f²*, to receive a pin *g*, on which the rocking member rocks, said pin being driven fast into openings in the ears *e*. In the arms of the side pieces *f* suitable rolls *h h' h²* are preferably supported, said rolls turning on fixed pins *i*, carried by the side pieces *f*. The said rolls will be hereinafter designated as a "back roll" *h²* and "strike-rolls" *h h'*, said strike-rolls corresponding in a sense with the strike-plate of a door-frame. The said strike-rolls are arranged at the front portion of the door-check, one at each side of the longitudinal axis of the housing *c* and, with the frame composed of the parts *f f'*, may be rocked from the full-line position shown in Fig. 1 to the dotted-line position there shown, or to a corresponding dotted-line position at the other side of the full-line position. The reason of this will be hereinafter stated. The said back roll *h²* bears constantly upon the plunger *j*, which is guided within the housing *c* and which is pressed constantly forward by a suitable spring *k*, located behind it. The tension of the spring *k* may be varied by means of a tension-block *k'*, guided in said housing back of the spring, and which is adjusted by means of a set-screw *l*, held firmly in position by a jam-nut *l'*. The tension of the spring *k* is adjusted, preferably, before the door-check is applied to the door-frame; but it is obvious that it may be adjusted afterward through a suitable side opening cut in the door-frame to enable access to the set-screw and jam-nut. The tension of the spring may be varied on account of shrinkage in the door-frame or for varying the resistance of the rocking member. Said plunger *j* is preferably provided with a centering groove or recess *j'*, into which the back roll *h²* seats for centering the rocking member into the full-line position, this being the position when the door is closed. Such groove also tends to prevent rattling or vibration of the parts and door.

In place of the back roll *h²* may be substituted a contact-block *m*, (shown in Fig. 6,) said block having a flat face *m'* and the plunger having a corresponding flat face *m²*, so that when the rocking member is in the

full-line position said flat faces will bear directly against each other, tending to hold the parts centrally.

For the purpose of actuating the door-check the door *b* preferably carries an actuating device comprising a base-plate *n*, provided with lugs *n'*, between which is mounted the tappet-roll *o*. This actuating device and the door-check proper are mounted in any convenient position upon the door and door-frame, and they are set relatively to each other, so as to attain the best results and the most workmanlike appearance. The door-check proper should be sunk a suitable distance within the door-frame held by suitable screws *c'*, so that a small portion of each strike-roll *h h'* projects beyond the frame in the path of the actuating device or tappet on the door. This will assure that portions of said strike-rolls will project beyond the door-frame when the rocking check member is in centralized position, as shown by full lines in Fig. 1. In this position the tappet-roll *o* takes or sets into the gap *p* between the strike-rolls. Now when the double-acting door is in shut position, Fig. 1, and the door is opened the tappet-roll strikes against the strike-roll *h* and rocks the check member to dotted-line position, where it is held by the spring-actuated plunger *j*. When the door has passed the strike-roll *h*, the door can be opened as desired. In this dotted-line position of the parts the opposite strike-roll *h'* will be projected considerably beyond its normal position and will be directly in the path of the tappet-roll *o* when the door is shut again. Upon shutting the door the said tappet-roll will strike the roll *h'*, and if sufficient force, as by slamming the door shut, has been exerted the check member will be rocked entirely over to the opposite side and the door will pass the strike-roll *h'*. On the rebound, however, which will be with less force, the tappet-roll will strike the now-projected roll *h* and will rock the check member to the full-line position, Fig. 1, and the door will then be held in centralized and shut position. It is obvious that whether the double-acting door be opened in one or the opposite direction the door-check will always act the same, depending upon the degree of force exerted upon the door.

For single-acting doors the door-check is preferably mounted as shown in Figs. 7 and 8. The same parts are used for this purpose as are used for double-acting doors; but an additional device is employed for setting the door-check into proper relative position to the tappet-roll and the plane of the closed door when first applied and also for setting the same after the woodwork has warped or shrunk. For this purpose a base-plate is mounted directly upon the side of the door frame or casing, or it is set in a mortise with the other parts and is suitably fixed by

means of screws *q'*. An adjusting member *r* is connected with one end of the base *q* by means of a hinge-pin *s*. This adjusting member *r* is provided with a socket *r'* to receive the housing *c* of the door-check, which is suitably secured to said adjusting member, as by screws *t*. To adjust the inclination of the adjusting member *r*, as also that of the door-check proper, relative to the tappet-roll, a screw spindle or stem *u* is fixed to and projects from that end of the base-plate opposite the hinge *s*. This screw-spindle *u* passes through an enlarged opening *v* in the adjusting member *r*, and the latter is adjusted and set in position by means of nuts *w w'*, screwed onto the screw-spindle at opposite ends of said opening *v*.

The invention is obviously not limited to the parts constructed and arranged as described, as various modifications other than those mentioned will suggest themselves to skilled mechanics without departing from the scope and spirit thereof.

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

1. In a door-check, a rocking check member provided with strike-rolls spaced apart to be struck alternately during the opening and closing of a door.

2. In a door-check, a rocking check member provided with strike-rolls suitably spaced apart and a tappet to strike said rolls alternately during the opening and closing of a door.

3. In a door-check, a rocking check member provided with strike-rolls, and a tappet-roll, said check member and tappet-roll being adapted to be mounted for coöperation, one of them on a door-frame and the other on the door.

4. In a door-check, a spring-influenced rocking check member provided with strike-rolls, one on each side of a given point, and separated by a door-centering gap.

5. In a door-check, a rocking check member having a door-centering gap and rolling contact-surfaces on both sides of a given point of said member and on each side of said gap.

6. In a door-check, the combination of a suitably-supported rocking check member, a spring-actuated plunger acting on the member, and means for adjusting the tension of the spring.

7. In a door-check, a rocking check member comprising a frame and three angularly-arranged rolls carried by the same.

8. In a door-check, a rocking check member having two strike-rolls arranged one on each side of a given point and a back roll, in combination with a spring-actuated plunger bearing on the back roll.

9. In a door-check, a rocking check member having two strike-rolls arranged one on

each side of a given point and a back roll, in combination with a spring-actuated plunger, and means for adjusting the tension of the spring.

5 10. In a door-check, a pivoted check member, in combination with a spring-actuated plunger bearing upon the same at a point back of its pivot.

10 11. In a door-check, the combination of a rocking member having rolling contact or checking surfaces on both sides of a given point of said member, and a tappet to be carried by the door for alternately striking said surfaces during the opening and closing of
15 the door.

12. In a door-check, the combination of a base-plate, a member pivoted at one end to

said plate and having a socket in said end, a door-check proper at said socketed end of the base-plate, the same consisting of a rock- 20 ing member arranged to momentarily obstruct or interfere with the closing movement of the door, spring-pressure means in said socket acting on said door-check proper, and adjusting devices acting on the pivoted 25 member to adjust the door-check proper relatively to the path of movement of the door.

Signed at Cleveland, Ohio, this 27th day of January, 1906.

WILLIAM H. BROTHERS.

Witnesses:

THOMAS BIGGERSTAFF,
GUSTAV F. LAMP.