

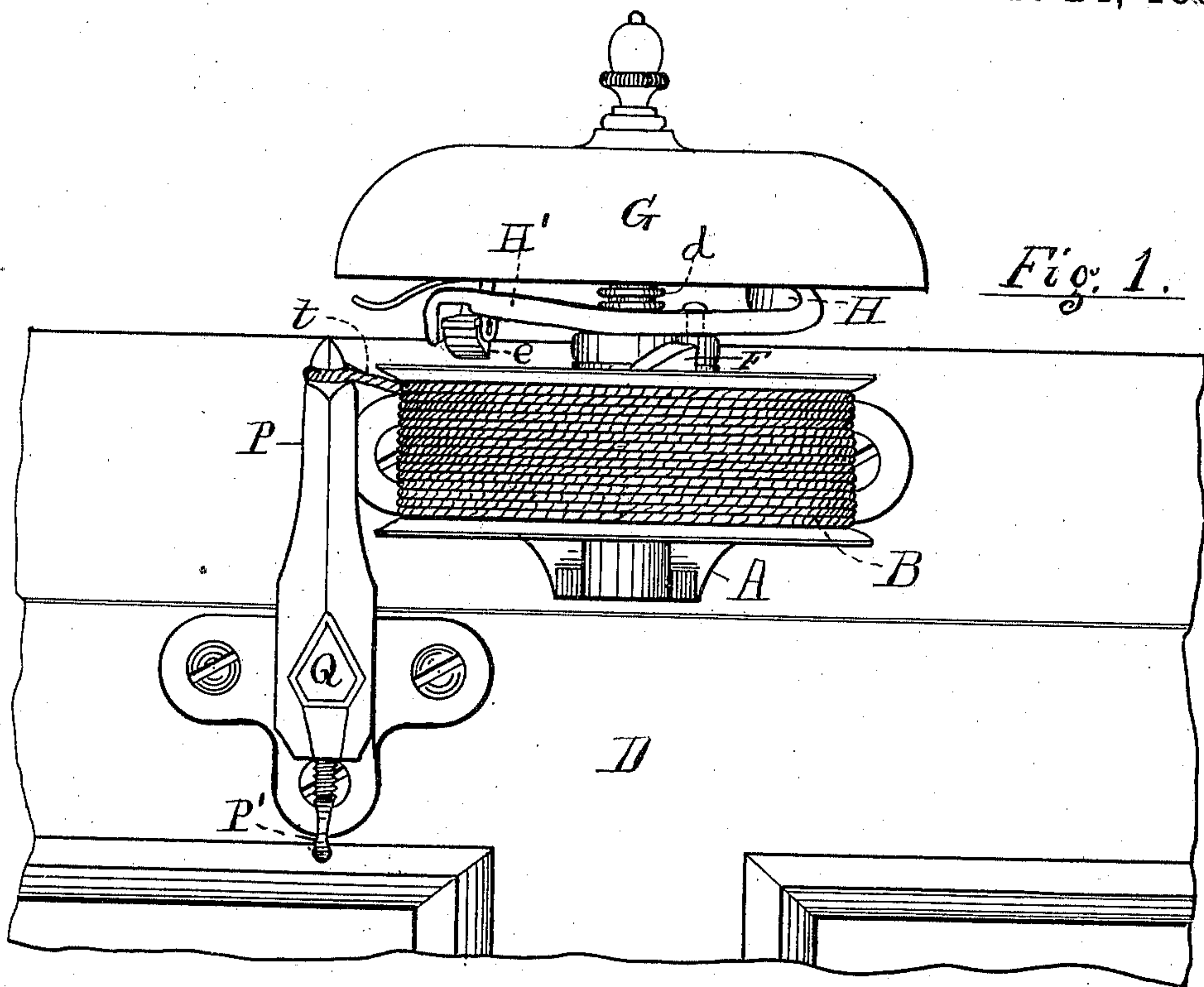
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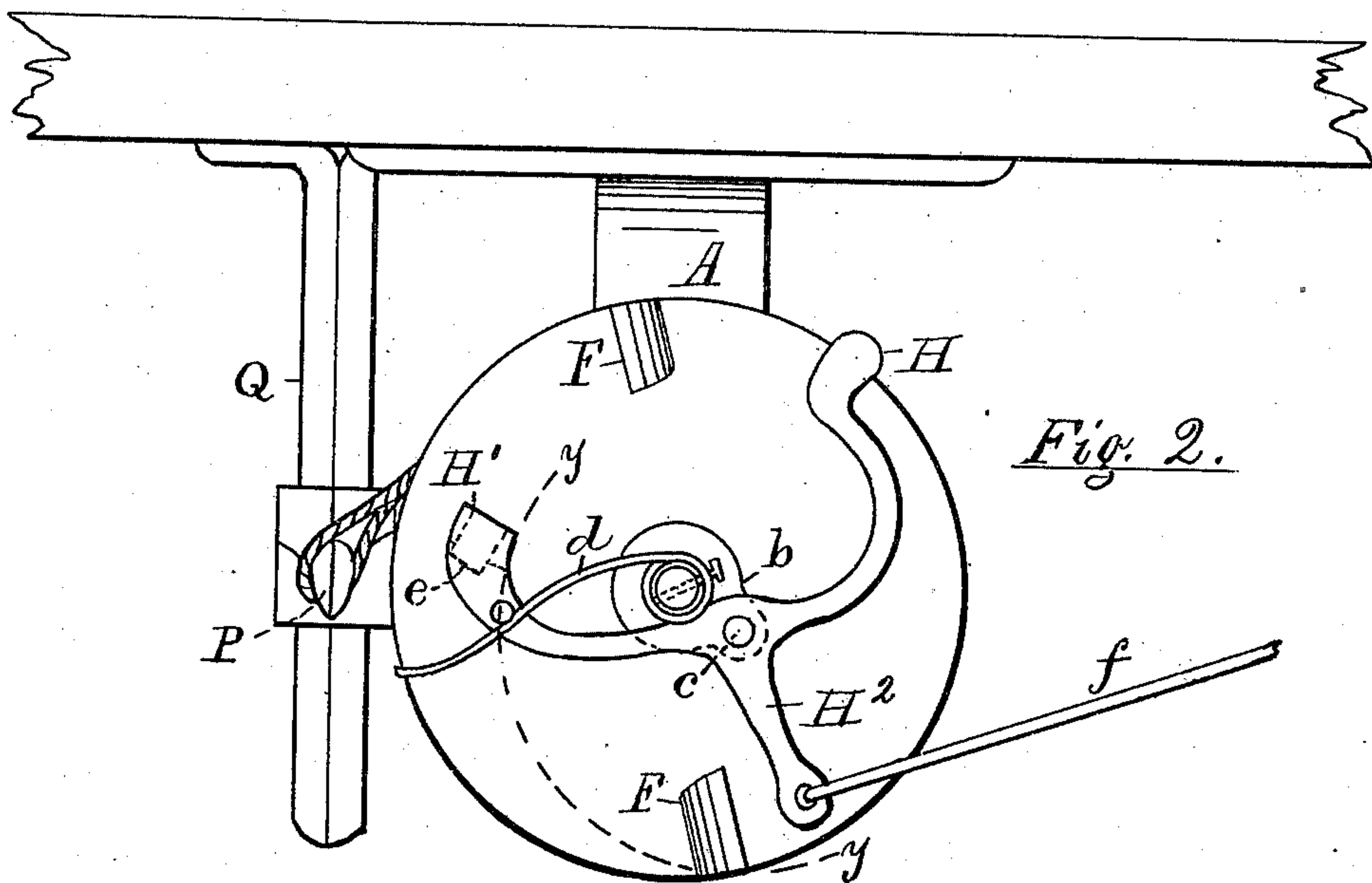
W. BRUEN & S. A. WALL.  
COMBINED DOOR SPRING AND BELL.

No. 312,806.

Patented Feb. 24, 1885.



*Fig. 1.*



*Fig. 2.*

*Attest.*

*H. J. Theberath*  
*L. Lee*

*Inventor.*

*S. A. Wall & W. Bruen*  
*per Thos. S. Crane, Atty.*

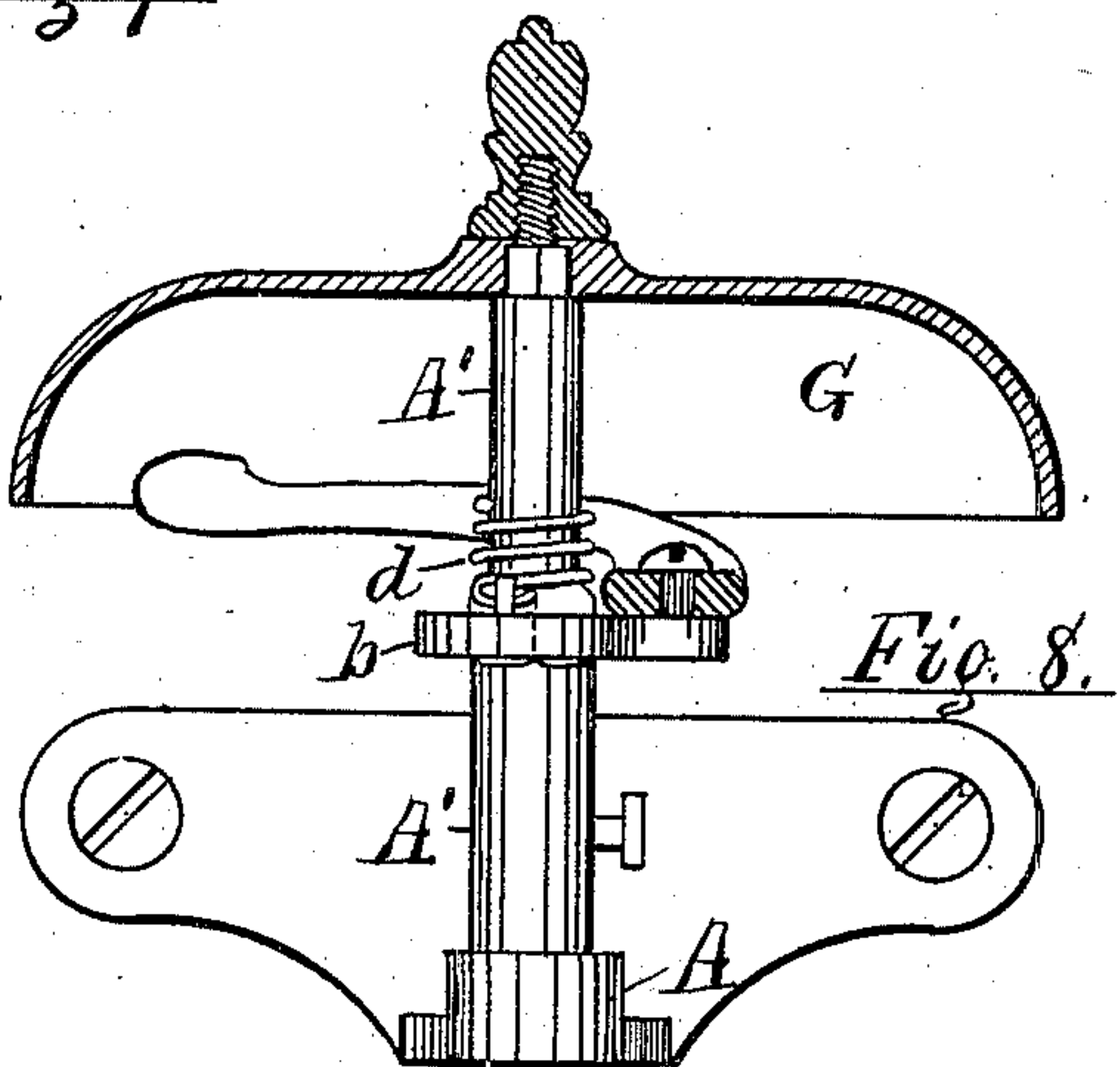
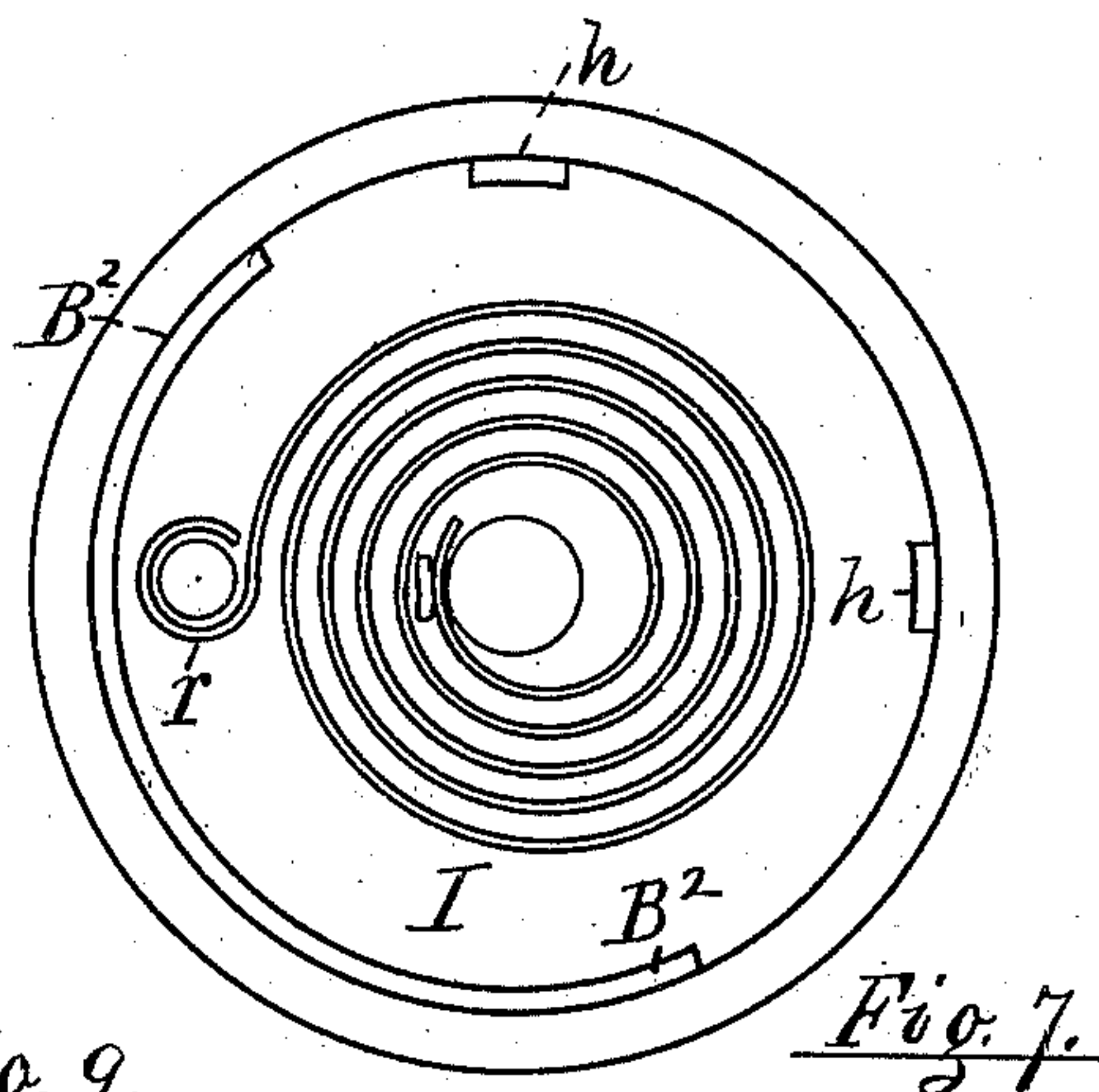
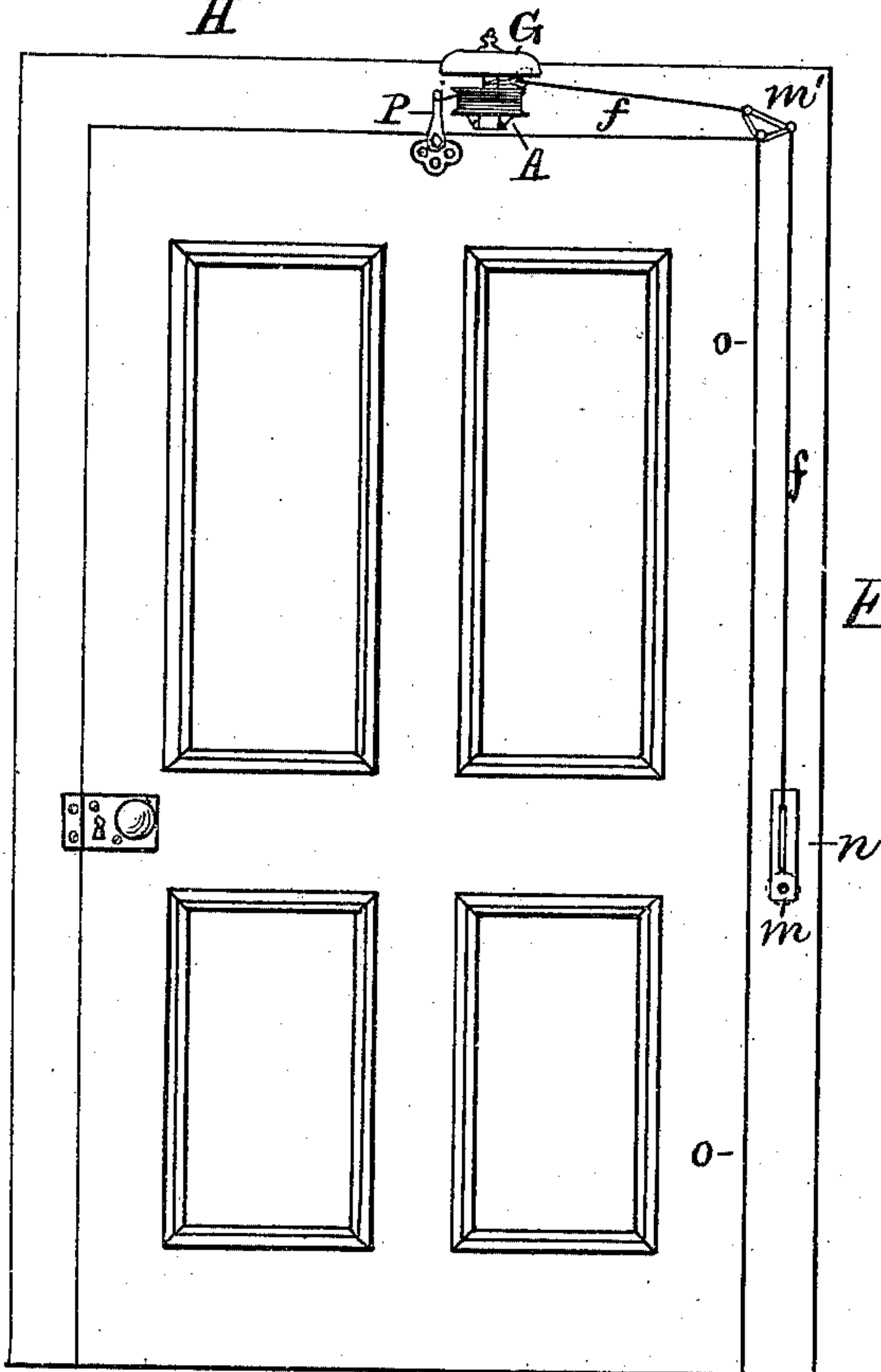
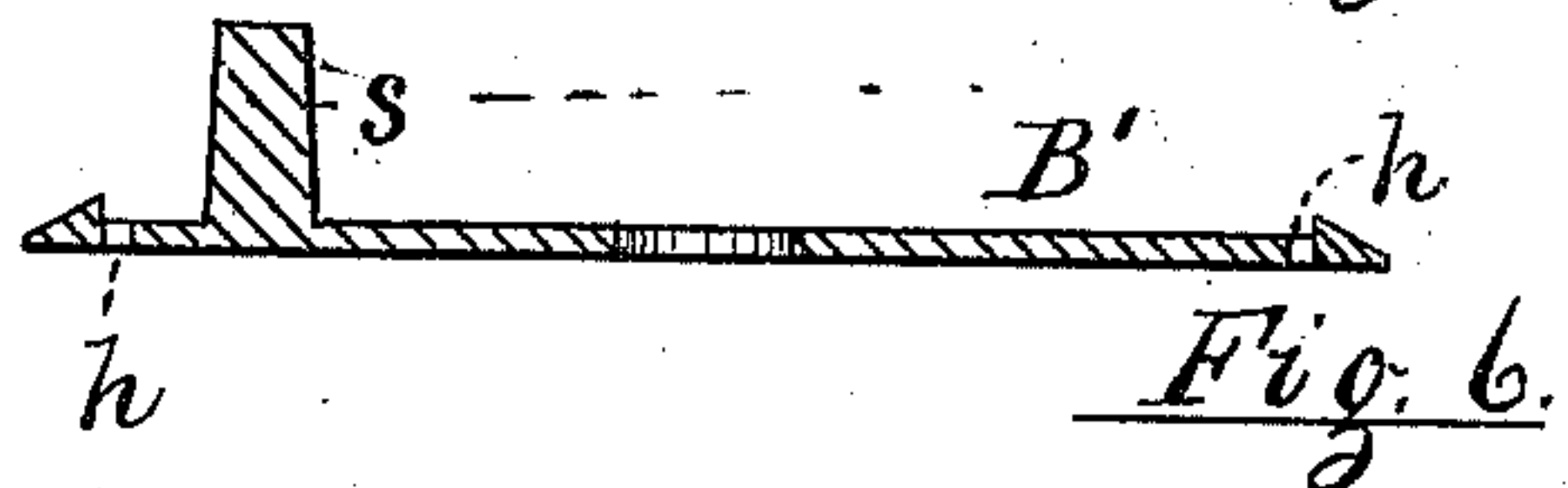
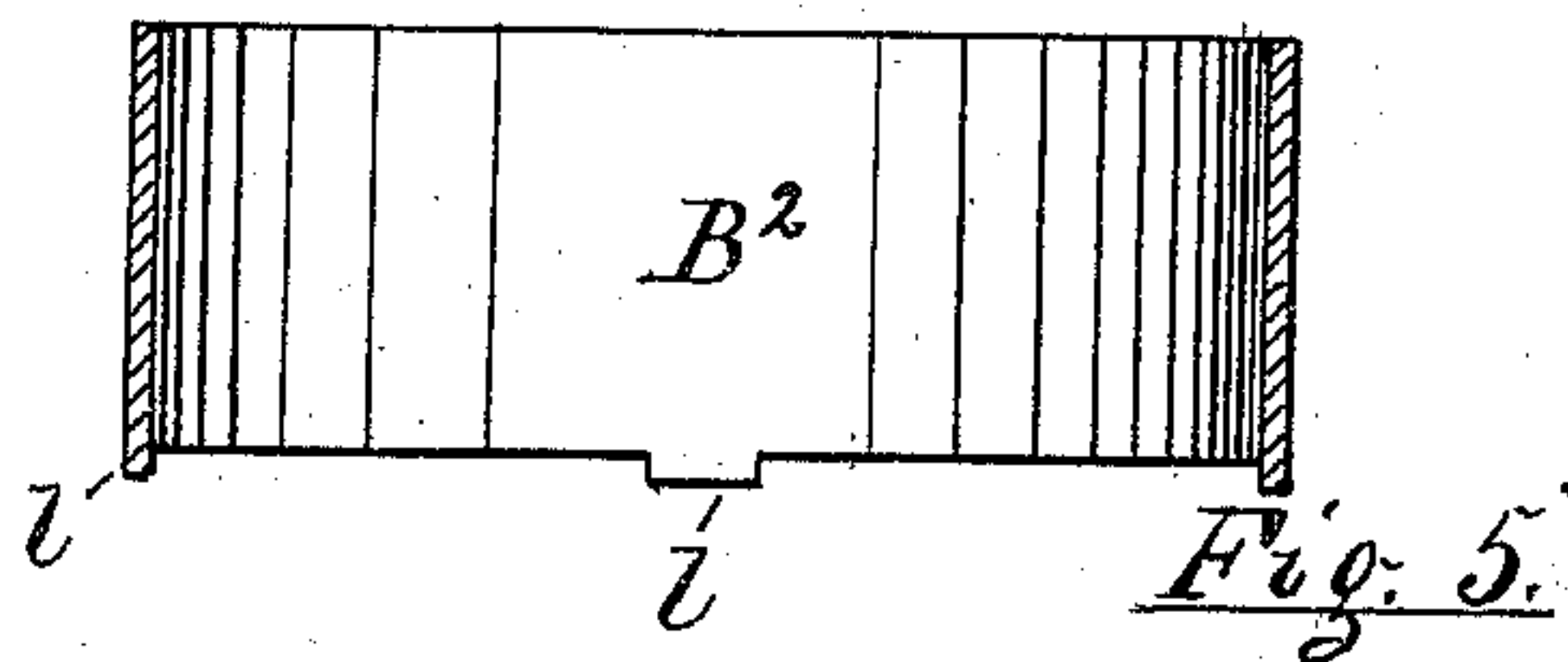
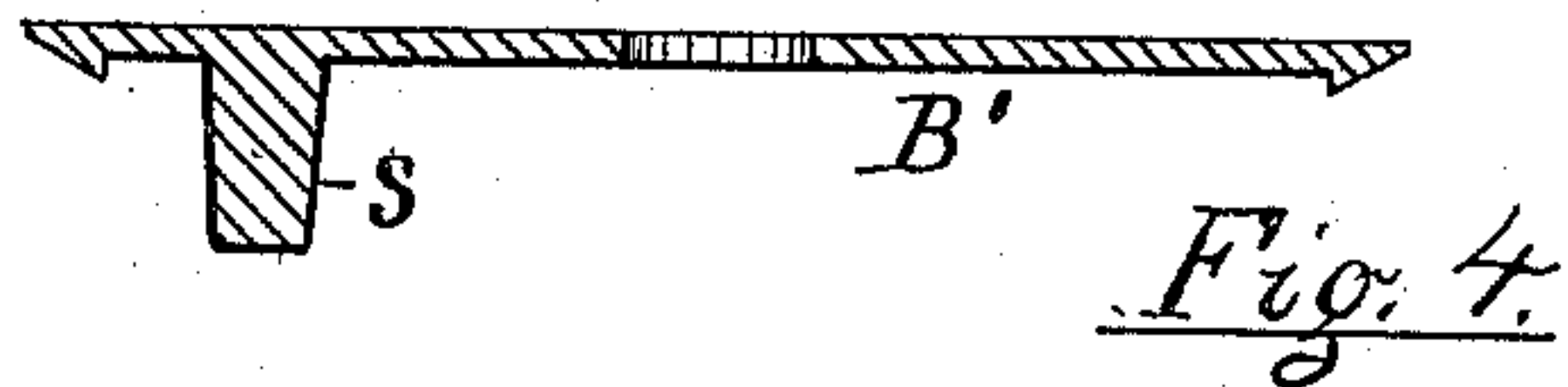
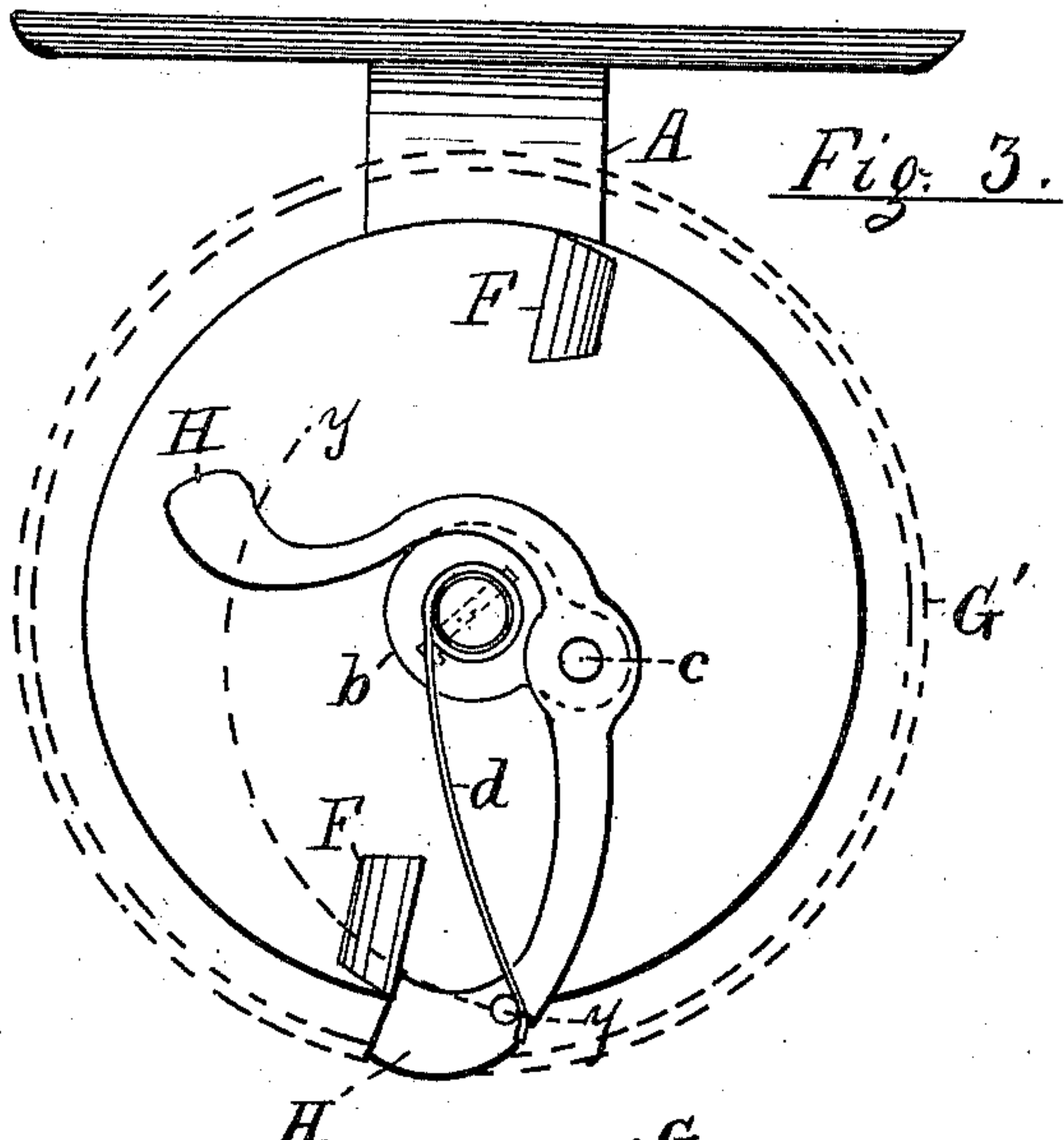
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W. BRUEN & S. A. WALL.  
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per Thos. S. Crane, Atty.



# UNITED STATES PATENT OFFICE.

WILLIAM BRUEN AND STEPHEN A. WALL, OF NEWARK, NEW JERSEY.

## COMBINED DOOR SPRING AND BELL.

SPECIFICATION forming part of Letters Patent No. 312,806, dated February 24, 1885.

Application filed March 10, 1884. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM BRUEN and STEPHEN A. WALL, citizens of the United States, residing in Newark, Essex county, New Jersey, have invented certain new and useful Improvements in a combined Door Spring and Bell, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention consists in the combination, with the cylindrical box of a door-spring and a flexible connection from the door thereto, of an alarm-bell and hammer mounted upon the spindle of the spring-box, and actuated, when

15 the door is opened, by tappets rotating with the spring-box.

It also consists in the construction of the spring-box and the means for attaching the spring thereto; and, fourthly, in the combination, with the door spring and bell mounted upon the same spindle, of a bell-pull actuated by a knob outside of the door. The construction will be understood by reference to the annexed drawings, in which—

25 Figure 1 is a front view of part of a door and frame having my combined door-spring and alarm attached thereto. Fig. 2 is a plan of the same with the bell removed, the latter being shown in Fig. 1 as a gong secured at the top of the spring-box spindle, which box is thus exposed by the removal of the gong. Fig. 3 is a plan of the spring-box and bell-hammer when the latter is retracted by the rotation of the former. Figs. 4, 5, and 6 are

35 sectional views, taken at their center line, of the three parts composing the spring-box. Fig. 7 is a plan of the lower head and part of the spring-box cylinder. Fig. 8 is a front view of the parts shown in Fig. 3, with a section of the bell applied to the spindle of the spring-box; and Fig. 9 is an elevation of a door and frame provided with the combined door-spring and alarm, and a bell-pull for actuating the alarm from the outside of the

40 door, the inner end only of the bell-pull being shown.

In the drawings the door-spring represented consists in a flat spiral spring mounted, with its inclosing-box, upon a bracket, A, secured

50 to the door-frame, and actuated by a cord at-

tached to a holder upon the door. Upon the spindle of the spring-box, above the spring, are mounted a gong, G, and a hammer, H, and the latter is actuated by tappets F, attached to the spring-box and operating to en-

55 gage the hammer-arm as the spring-box is rotated by the opening of the door D.

B is the spring-box, constructed of two heads, B', and cylindrical shell B<sup>2</sup>, the latter being constructed with lugs l, to engage holes h, formed in one of the heads, and the heads being provided with round studs s, to enter the eye r, usually formed in the outer end of such coiled springs as are shown at I in Fig. 7. The bracket A is provided with a foot to

65 secure it to the door or frame, as may be preferred, and is constructed with a vertically-projecting spindle A', the spring-box being fitted to its lower part, the hammer just above it, and the gong at the top. The spring is secured to the spindle by its inner eye, Fig. 7,

70 and to the spring-box by the studs s, formed upon the heads B', and the cord t being attached to the box-shell B<sup>2</sup> in any convenient manner by one end, and to the door or frame

75 by the other end, the spring is wound up when the door is opened, as in many previous constructions.

For attaching the cord to the door or frame we have devised an adjustable holder consisting in an arm or post, P, fitted to a bracket-bar, Q, which is provided with a foot for attaching it where required. The bar Q is of triangular form, or formed with an acute upper edge, so that the post P may slide freely upon and be

85 clamped firmly thereto by a set-screw, P', applied to the bar at the side opposite the acute upper edge. The cord t, being attached to the head of the movable piece P, may be drawn more or less tightly by adjusting the post upon

90 the bar Q. The hammer H is sustained above the box B, and vibrated by means of tappets F F, attached to the upper head of the box. As such tappets must automatically release the hammer if propelled by a spring against the

95 gong, as shown in the drawings, I mount the hammer upon a pivot located eccentrically to the spring-box, so that the path of the tappets may intersect the hammer-arm for only a given distance. The fulcrum of the hammer is there-

100



fore preferably mounted upon a crank, *b*, secured rigidly to the spindle *B*, the latter being squared at such point, as well as inside the gong, to prevent both from turning, as shown in Figs. 3 and 8. The hammer is fitted loosely to the fulcrum-pin *c*, and is provided with a tail-piece, *H'*, which projects upon the opposite side of the fulcrum, and extends across the path of the tappets *F*. The tail of the hammer thus moves in the arc indicated by the dotted line *yy* in Figs. 2 and 3, and slips off of the tappets after moving the required distance. A spring, *d*, is secured to the spindle above the crank *b*, and operates to throw the hammer against the gong, the latter being indicated by the dotted curves *yy* in Figs. 2 and 3. The tappets are shown as two projections formed on the top of the spring-box, near its periphery, and shaped with sloping face at one side to clear the tail *H'* when rotating backward, the tail *H'* being provided with a hinged latch, *e*, at its extremity, as is usual with the hammers of such alarm-bells, to allow the actuator to pass when retracted.

By the construction described the hammer is actuated twice for each rotation of the spring-box, and a much more effective alarm produced than by the use of a single-acting trip-gong.

To utilize the gong to sound an alarm before the door may be opened, the hammer may be provided with a tail-piece, *H''*, and a bell-pull attached to the door or frame in the usual manner may be readily connected therewith by means of a guide-pulley or bell-crank located over the hinges of the door, as shown in Fig. 9. The tail-piece *H''* is shown in Fig. 2, and the wire connected with it is shown at *f* in Figs. 2 and 9. In the latter figure, *m* represents the bell-crank frame, usually provided at the inner end of a door-frame bell-pull, the knob *n* being merely indicated by dotted lines as being upon the opposite side of the frame, and *m'* represents a bell-crank arranged on a line with the door-hinges *o o*, so that the tension of the wires *f* is not changed by the opening of the door. The wires *f* being slack until pulled, the connection described does not interfere with the action of the hammer when operated by the tappets. The gong *G* may thus be made to serve as an alarm in two different capacities, being operated either by

hand or by the door-spring movement, as may be required.

We are aware that a spring-box and gong have been combined in burglar-alarms, and do not therefore claim such a combination broadly; but we are not aware that any hammer has been pivoted upon a spring-spindle in the same manner as ours, or that the combined spring-box and gong have ever been applied to a door, so as to operate automatically with two distinct functions—namely, to sound an alarm when the door is opened, and to close the door when released by the person entering; and our invention therefore accomplishes what no previous construction has effected.

We are also aware that alarm-bells actuated by a tripping-piece upon a moving door are not new, and do not therefore claim the same, except in combination, broadly, with a rotating spring-box to actuate the hammer, substantially as set forth herein.

We claim—

1. The combination, with the spindle carrying the gong and rotating spring-box, of the hammer pivoted eccentrically to the gong, and the tappet upon the spring-box to operate the hammer, substantially as and for the purpose set forth.

2. The spring-box consisting of the cylindrical shell constructed with lugs to fit holes in one of the heads, and the heads provided with the holes for the cylinder-lugs, and with studs to fit the outer eye of the spring, substantially as herein shown and described.

3. The combination, with a door-spring bracket, of a spindle carrying a rotating spring-box adapted to close the door by means of suitable connections, a bell or gong mounted upon said spindle, a hammer actuated by tappets upon the spring-box when the latter is rotated, and a connection between the hammer and a bell-pull upon the door or frame, substantially as and for the purpose set forth.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

WILLIAM BRUEN.  
STEPHEN A. WALL.

Witnesses:

C. C. HERRICK,  
THOS. S. CRANE.