

No. 681,866.

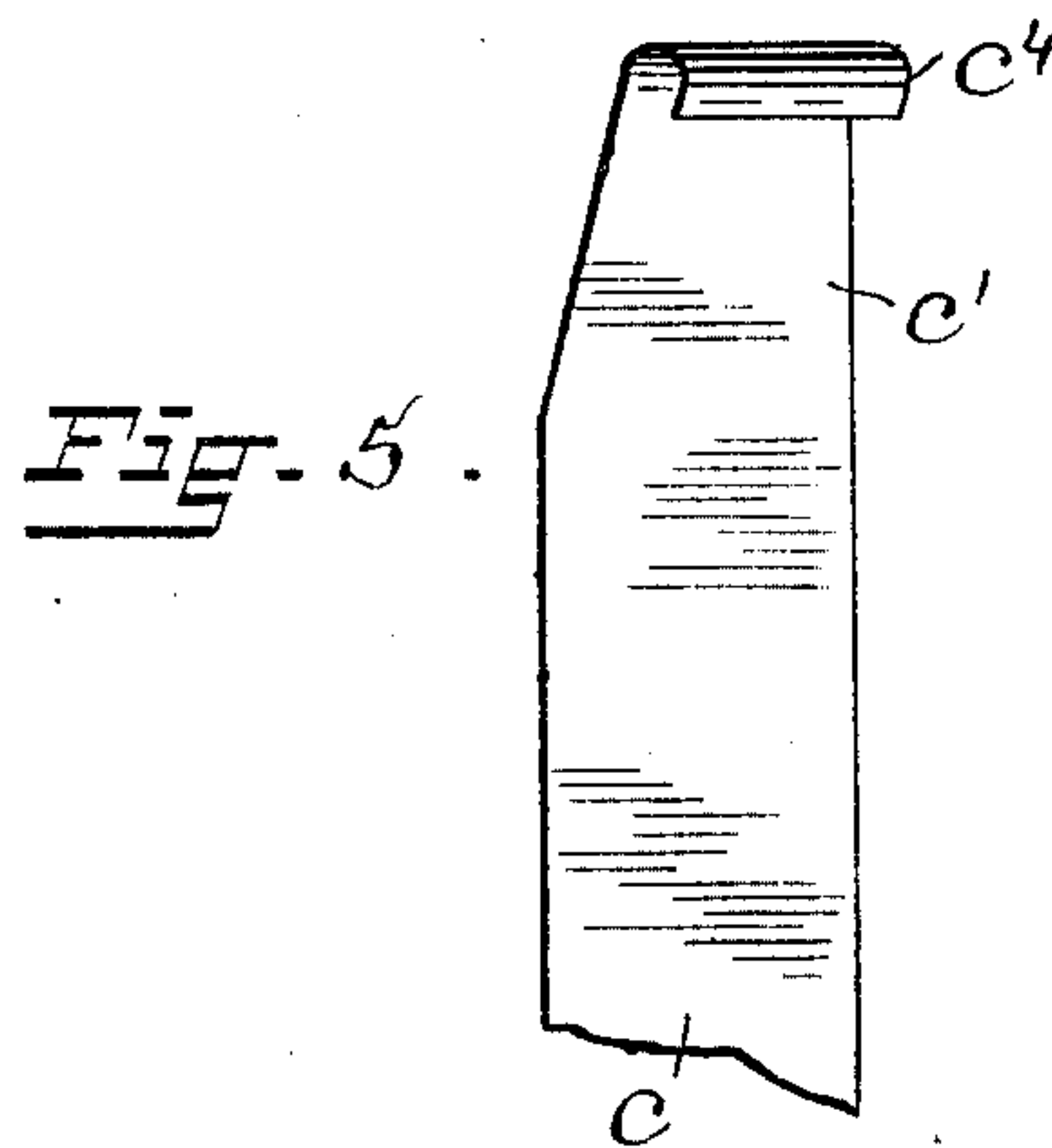
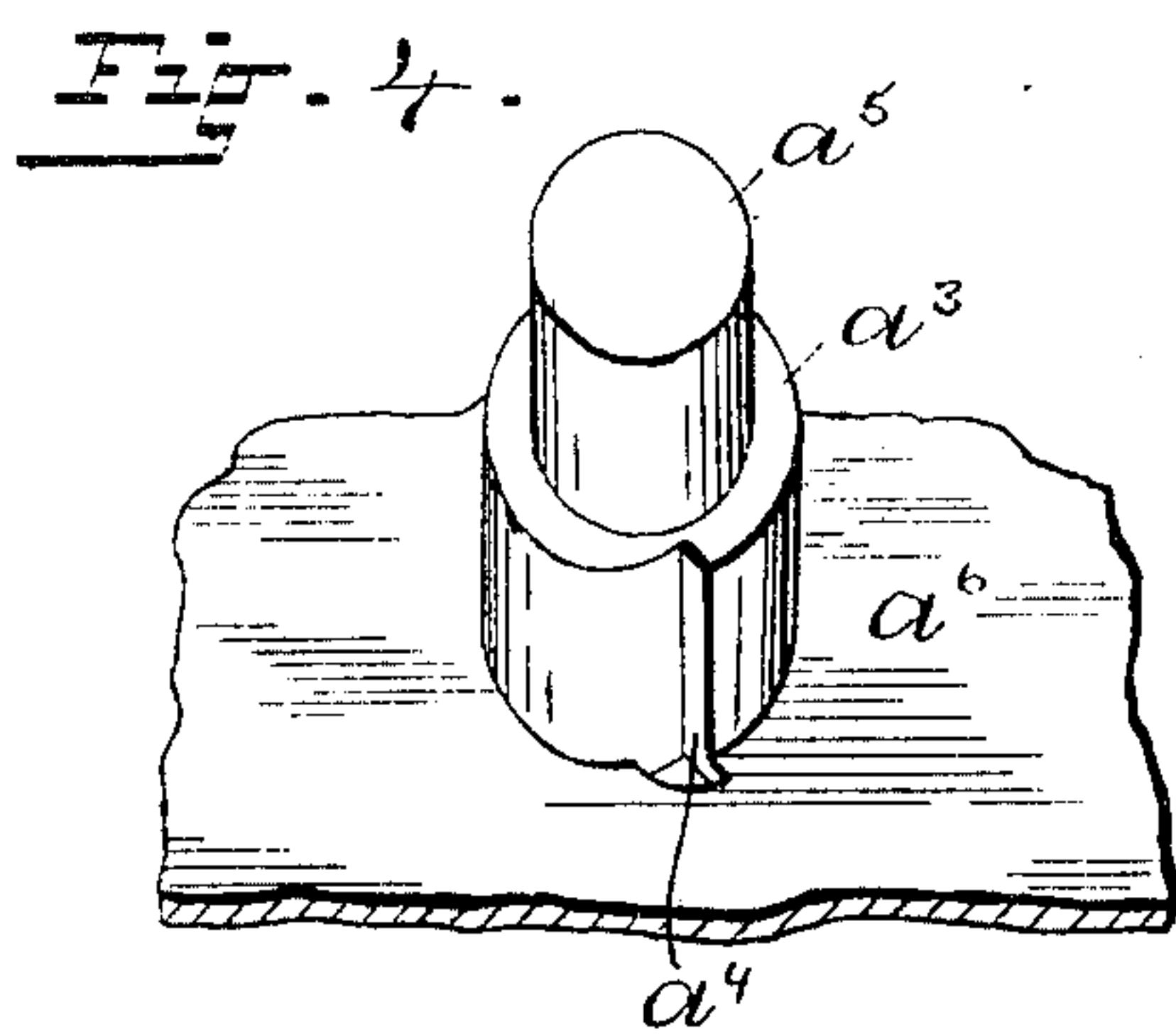
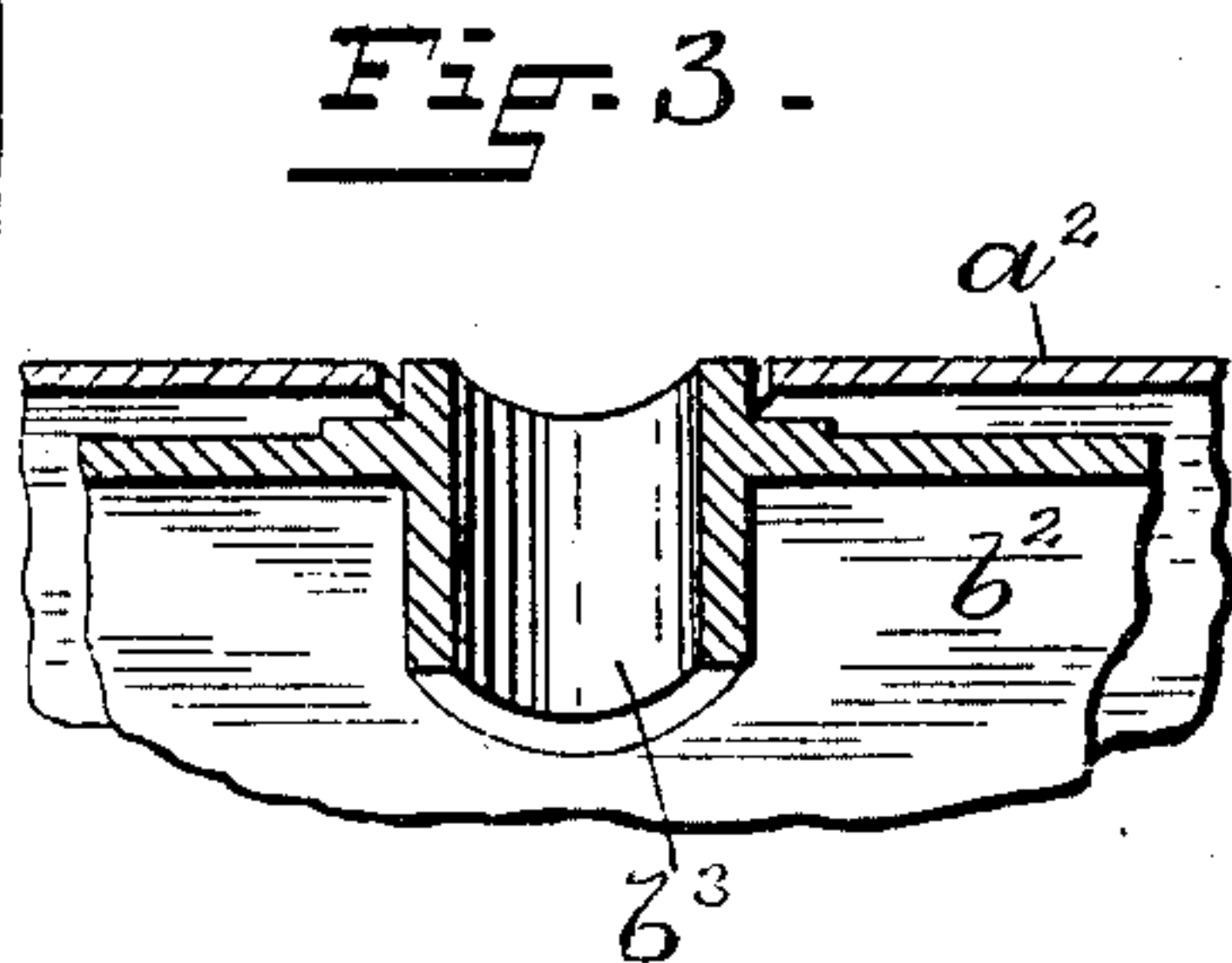
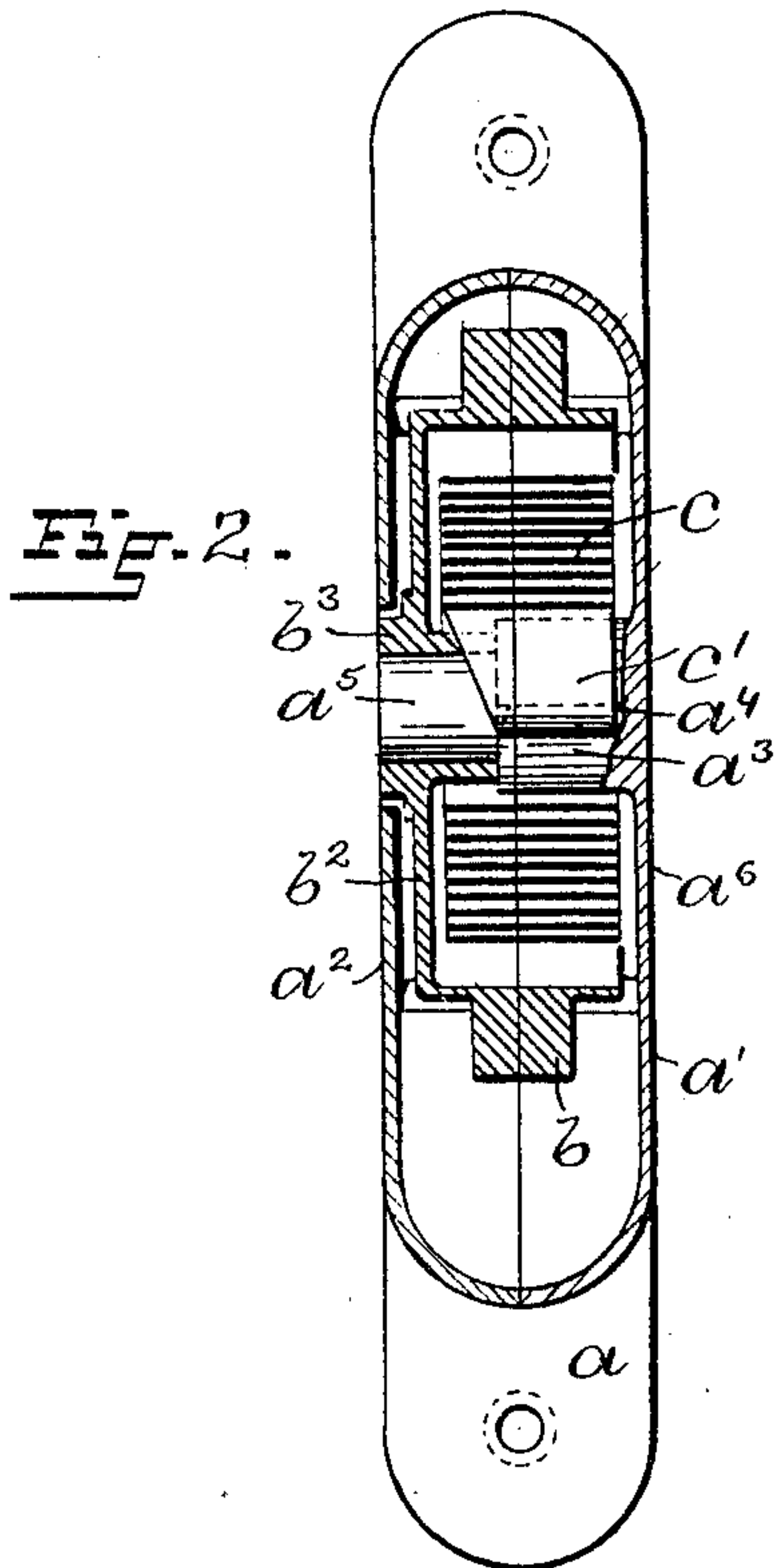
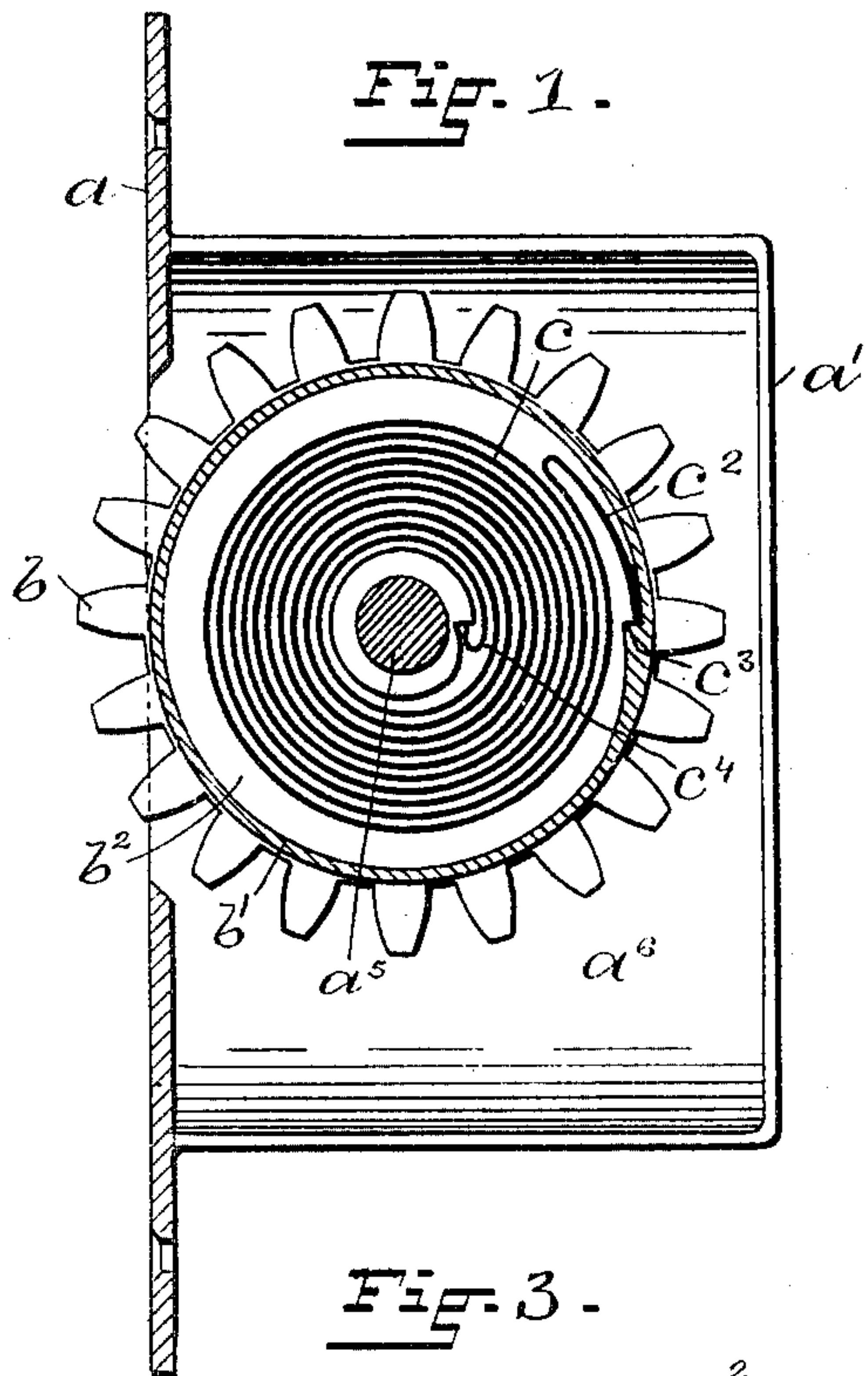
Patented Sept. 3, 1901.

J. H. WALLACE & A. G. HILTON.

SASH BALANCE.

(Application filed June 7, 1900.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES H. WALLACE AND ARTHUR G. HILTON, OF PROVIDENCE, RHODE ISLAND, ASSIGNORS TO THE INTERNATIONAL BURGLAR PROOF SASH-BALANCE AND LOCK COMPANY, INCORPORATED, OF SAME PLACE.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 681,866, dated September 3, 1901.

Application filed June 7, 1900. Serial No. 19,405. (No model.)

To all whom it may concern:

Be it known that we, JAMES H. WALLACE and ARTHUR G. HILTON, citizens of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Sash-Balances, of which the following is a specification.

In a sash-balance the weight of the sash is supported usually on the helically-wound steel spring. The strength of the spring to support and balance the weight of the sash depends, all other conditions being equal, primarily on the width of the blade of the coiled spring. In such window-sash balances the width of the casing is limited practically by the width of the sash, for the case containing the sash-balance is required to be placed usually into the sash-groove of the window-frame. This sash-balance case is inserted into a recess, into which it snugly fits, and all the parts of the mechanism must be contained within the width or thickness of the case.

To secure a spring of the widest possible blade and a substantial bearing for the spring-case within the narrowest possible case is the object of this invention.

The invention consists in the peculiar and novel construction whereby a substantial bearing for the gear and spring-case and the widest possible coiled spring are secured within the case of the sash-balance, as will be more fully set forth hereinafter.

Figure 1 is a sectional view of the sash-balance. Fig. 2 is a transverse sectional view of the case inclosing the sash-balance containing our improvement. Fig. 3 is a sectional view of part of the case and part of the spring-gear, showing our improvement. Fig. 4 is a perspective view of the post secured to one side of the box containing the spring-gear. Fig. 5 is a perspective view of the end of the coiled spring engaging with the post.

In the drawings, a indicates the face-plate, a' the part of the casing inclosing the sash-balance, which is cast integral with the face-plate, and a^2 the detachable part of the casing. The post a^3 , having the abutment a^4 and the journal-bearing a^5 , is secured to or

preferably cast in one piece with the side wall a^6 of the part a' of the casing. The gear-wheel b has a hollow central body inclosed around the periphery by the wall b' and at one side by the plate b^2 , the opposite side being open for the insertion of the coiled spring. The plate b^2 of the gear-wheel has the sleeve b^3 , projecting inward into the central space of the gear b and outward through an opening in the part a^2 to the outer face of the casing. The sleeve b^3 is cast integral with the plate b^2 . When assembled, the sleeve b^3 extends over and is journaled on the journal-bearing a^5 , so that the gear-wheel is journaled on and rotates around the post.

The helically-coiled spring c is formed of a blade of steel of practically the full width of the central space in the gear-wheel b , only such clearance as is required to secure the free operation of the spring being allowed. The outer end of the coiled spring is secured to the gear-wheel b , preferably by means of a turned-back arm c^2 , engaging with an abutting seat c^3 , as is shown in Fig. 1. The blade c' of the spring is beveled to about half the width of the remaining portion of the blade of the spring c and the end is provided with a hook c^4 , adapted to engage with the abutment a^4 on the post a^3 . By this construction a substantial journal-bearing for the gear-wheel and a spring of considerable width are secured without any part projecting beyond the casing.

The sash-balance may be made to tightly fit the recess into which it is secured, thereby making a clean job.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a sash-balance, in combination with the inclosing case having a post extending from one side, of a spring-actuated spring-case having a sleeve extending inward from the side of the spring-case journaled on part of the post, and a spring the inner end of which is contracted in width and engages with the part of the post beyond the journal-bearing of the spring-case, as described.

2. In a sash-balance, the combination with

the case inclosing the spring-actuated gear; a post projecting from one side of the casing and across the width of the casing, an abutment on the base of the post, and a journal-
5 bearing extending beyond the base, of a gear-wheel having a central space for the reception of the helically-coiled spring, a sleeve extending from the outside and the inside of the side plate of the gear, and a helically-wound
10 spring having the width of the plate near the inner end contracted to the width of the base of the post and formed into a hook and the outer end bent backward to form an arm; whereby a wide spring may be used in a com-
15 paratively narrow case, as described.

3. In a sash-balance, in combination with

the two-part casing inclosing the actuating-gear, of the post a^3 , the journal-bearing a^5 of less diameter than the base of the post, the gear b , the spring-cavity in the gear, the sleeve b^3 projecting from the two sides of the plate b^2 of the gear, and a helically-wound spring having one end engaging with the base of the post, substantially as described.

In testimony whereof we have signed our
names to this specification in the presence of
two subscribing witnesses.

JAMES H. WALLACE.
ARTHUR G. HILTON.

Witnesses:

B. M. SIMMS,
J. A. MILLER, Jr.