

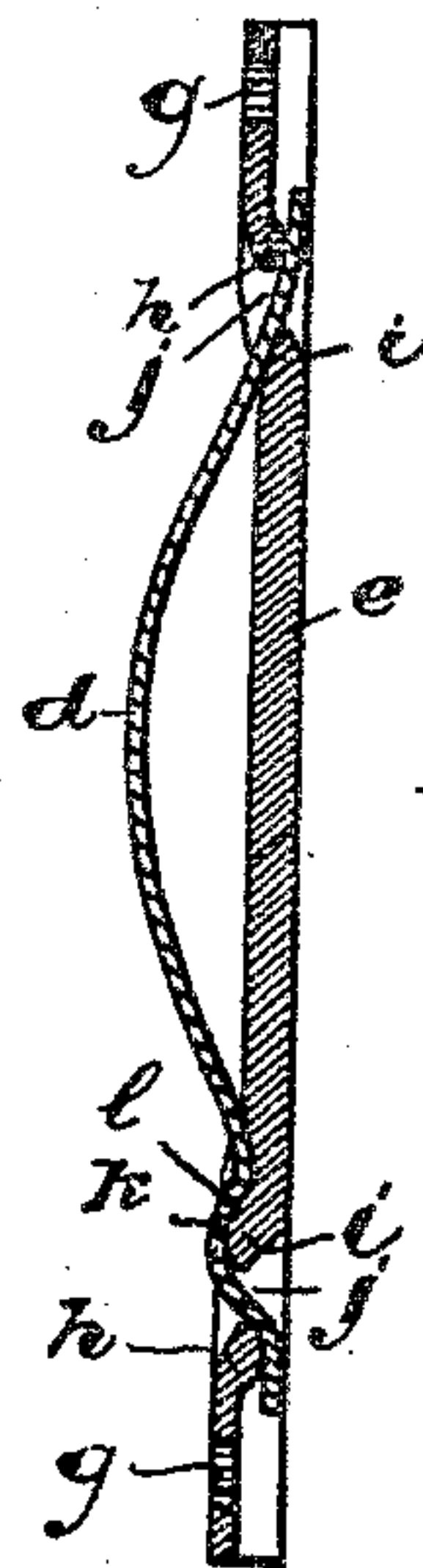
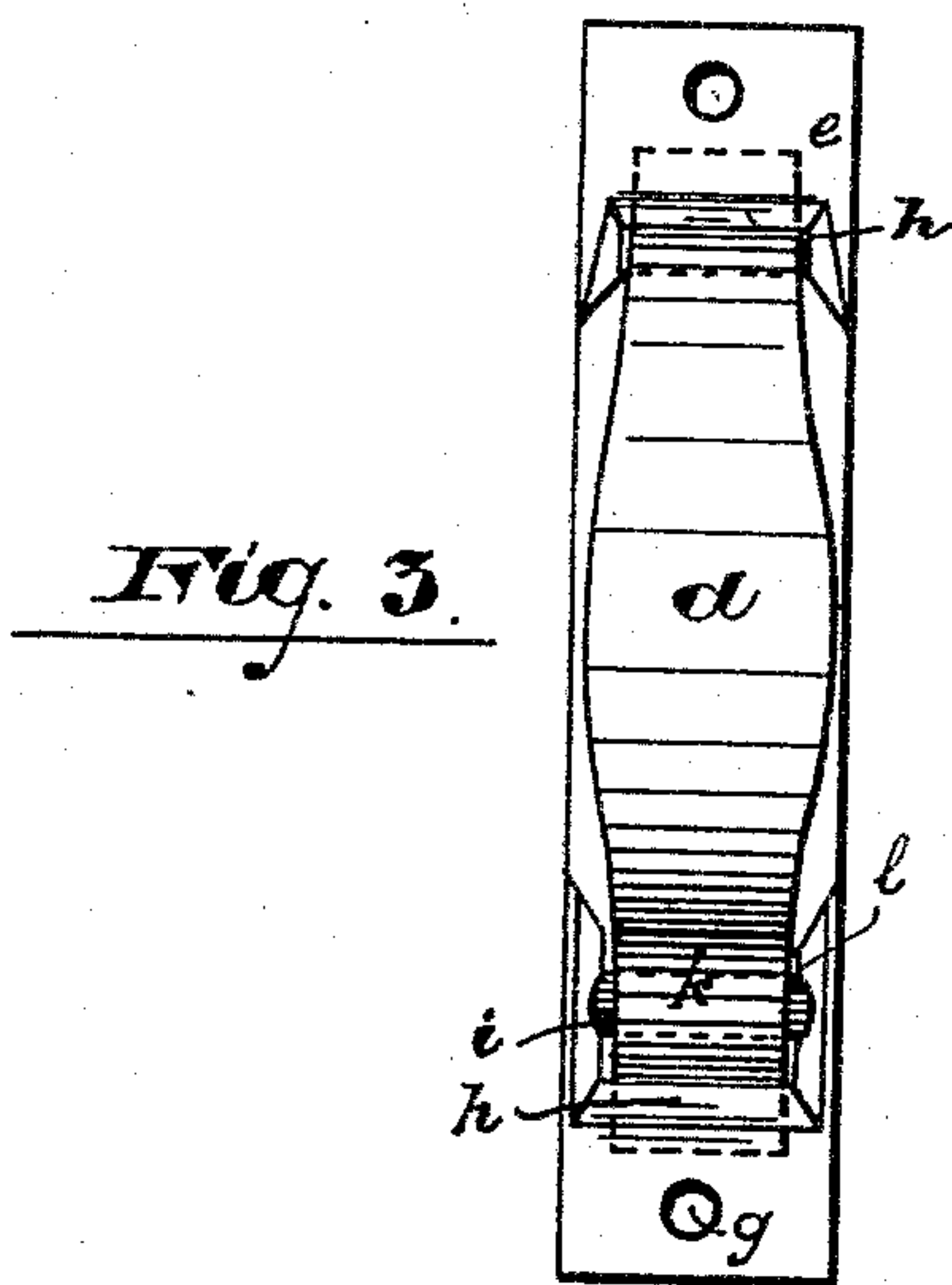
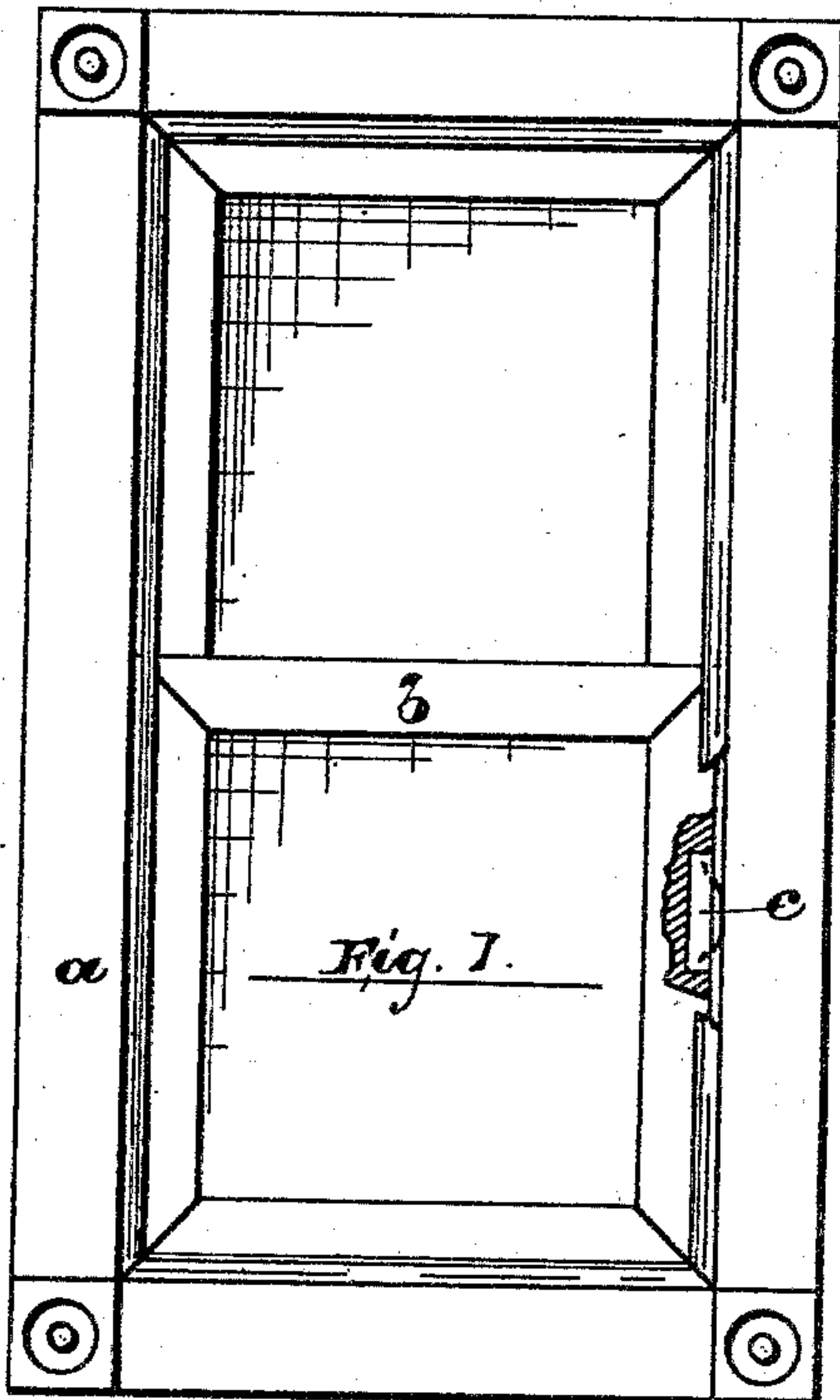
(No Model.)

I. H. MULFORD.

SASH HOLDER.

No. 412,285.

Patented Oct. 8, 1889.



WITNESSES:

INVENTOR:

E. L. Sherman  
Th. Sykes

*Ichabod H. Mulford,*

BY *Doan & Co.* ATTY'S.



# UNITED STATES PATENT OFFICE.

ICHABOD H. MULFORD, OF EAST ORANGE, ASSIGNOR OF ONE-HALF TO GEORGE M. BALLARD, OF NEWARK, NEW JERSEY.

## SASH-HOLDER.

SPECIFICATION forming part of Letters Patent No. 412,285, dated October 8, 1889.

Application filed January 31, 1889. Serial No. 298,233. (No model.)

*To all whom it may concern:*

Be it known that I, ICHABOD H. MULFORD, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Sash-Balances; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to reduce the expense involved in balancing window-sashes and to provide an improved spring sash-holder, such as will be durable and reduce cost in manufacture.

The invention consists in the improved sash-holder and in the arrangements and combinations of parts, substantially as set forth, and finally embodied in the claim.

Referring to the accompanying drawings, in which like letters indicate corresponding parts in each of the figures, Figure 1 is an elevation of a window sash and frame having my improvements thereon. Fig. 2 is a detail elevation showing the improved holder. Fig. 3 is an elevation of the holder in enlarged detail, and Fig. 4 is a central longitudinal section of the same.

In said drawings, *a* indicates the window-frame, *b* the sash, and *c* the holder secured on the edge of said sash and movable therewith, the spring *d* of said holder bearing on the window-frame and counterbalancing the weight of the sash by friction, so that said sash, on being raised or lowered by the hands, will remain in the desired position.

The detail construction of the holder is illustrated more clearly in Figs. 3 and 4, in which *e* is a metal casting providing screw-holes *g g* at the opposite ends thereof, through which the said casting may be screwed or otherwise secured to the edge of the sash. Near said ends the said casting is provided with bearings *h h i i* for the spring, the said

bearings *h h i i* being formed on opposite sides of slots *j j*, as will be understood.

The spring *d* is larger at the center and smaller at or toward the extremities, where it extends through the slots *j j* and engages the bearings, the bearings *i i* engaging the under side of the spring and the bearings *h h* the upper side.

The spring is normally bowed, as indicated in Figs. 1 and 4, and the pressure by which the sash is held in position is attained by flattening the spring against the sash.

To hold the sash permanently in position on the plate *a* when the holder is in the market or disconnected from the sash, I have formed a corrugation *k* at one end, as indicated in Fig. 4, which forms a bearing on the spring adapted to engage an abutment *l*. Said abutment extends up into the recess formed by the corrugation, so that longitudinal movement of the spring is prevented at this end and the spring is held securely in place without the use of rivets. The spring is free at its opposite end to slide on the bearings *h i*, where the pressure is brought to bear on the spring, flattening or tending to flatten the same.

By the construction thus described I have provided a spring entirely devoid of rivet or other holes, which tend to weaken said spring.

The bearings *h h* are made to project slightly toward the rear of the bed-plate *e*, so that friction on the spring is reduced and an easier action obtained. By making the spring wider at the center, as indicated in Fig. 3, I secure a greater proportionate frictional surface.

The holder is arranged either at the center of the sash, as indicated, or two holders may be provided for each sash, one near the top and one near the bottom, thus preventing the sash from binding. The springs not only hold the sash, but prevent its rattling, as will be understood.

Having thus described the invention, what I claim as new is—

The improved sash-holder herein described,

combining therein a bed-plate *e*, having bearings *h h i i* and an abutment *l*, and a spring *d*, bowed and corrugated and arranged in engagement with the bearings and corruga-  
5 tion, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I

have hereunto set my hand this 22d day of January, 1889.

ICHABOD H. MULFORD.

Witnesses:

OLIVER DRAKE,

CHARLES H. PELL.