(No Model.)

G. W. FERNALD.

SASH BALANCE.

No. 565,612. Patented Aug. 11, 1896.

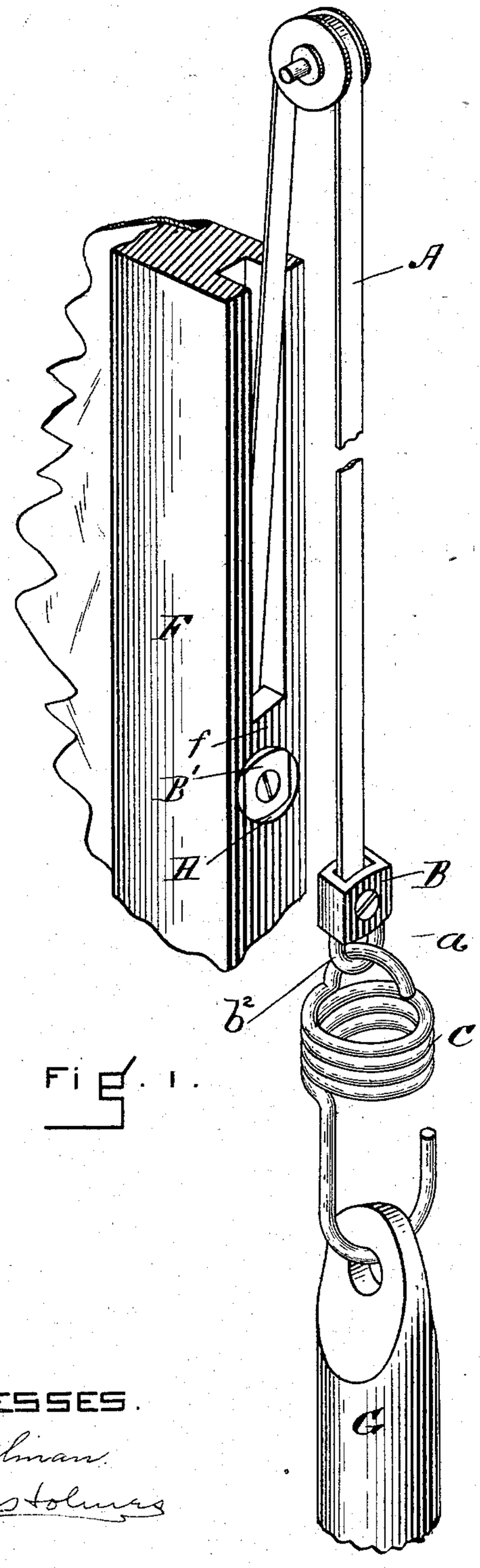

Fig. 1.

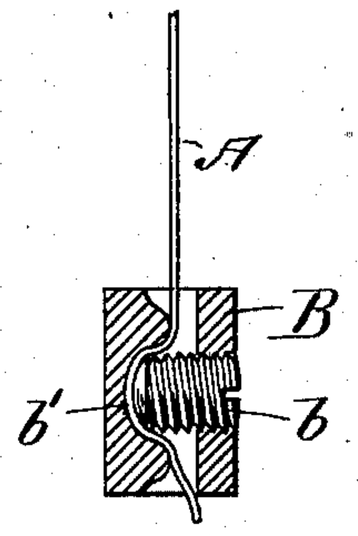

Fig. 2.

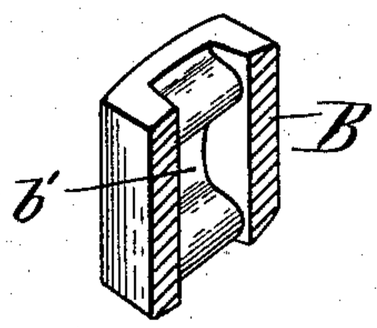

Fig. 3.

WITNESSES.

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UNITED STATES PATENT OFFICE.

GEORGE W. FERNALD, OF NEEDHAM, MASSACHUSETTS, ASSIGNOR TO AUSTIN & EDDY, OF BOSTON, MASSACHUSETTS.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 565,612, dated August 11, 1896.

Application filed December 7, 1893. Serial No. 493,001. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. FERNALD, a citizen of the United States, residing at Needham, in the county of Norfolk and Commonwealth of Massachusetts, have invented a new and useful Improvement in Sash-Balances, of which the following is a full specification.

Referring to the accompanying drawings, wherein like letters represent like parts, Figure 1 is a perspective view showing sash connected to balance-weight by means of a band provided with clips and a spring-hook. Fig. 2 is a section of clip, omitting the attaching-loop. Fig. 3 is a perspective view of a section of clip, omitting the attaching-loop.

My invention relates to the employment of a flat flexible metallic band for connecting the sash to the balance-weight; and it consists in certain improvements designed to render the end fastenings of the band efficient, durable, and easily adjustable.

In the drawings, A represents the flexible band running over a suitable pulley and connecting the sash F and balance-weight G. The ends of the band are connected to the sash and balance-weight by means of the clips B B′, one of which is clamped onto each end of the band by a set-screw *b*. These clips are preferably made, as shown in Figs. 2 and 3, cast in one piece and having a longitudinal aperture through which the band is passed. One of the walls of this aperture is plane and is pierced by a set-screw *b*, while the other walls are laterally corrugated, so that when the band is passed through the aperture it may be pressed into the depression *b′* of the corrugation by means of the set-screw *b*. The ridges of the corrugation bounding the depression are rounded, in order to prevent cutting or chafing the band, and the end of the screw is rounded, the profile curve of the depression being similar to that of the end of the set-screw. This is done in order to present a greater holding-surface to the band, and also to prevent cutting the band, which would be likely to occur were the end of the screw square. It will be seen that the clip can be thus simply and firmly clamped to the end of the band by tightening the set-screw.

The band is connected with the sash as shown in Fig. 1, a clip B′ being used. A slot the width of the flexible band is cut in the sash, at the end of which slot is bored a hole H large enough to receive the clip. The portion of the sash *f* is usually left over the slot next the hole in order to hold the clip and band in place. The band is pushed through the slot and out through the hole, a clip B′ is fastened on the end, the band is drawn back, and the clip pushed into the hole.

In connecting the band A to the balance-weight G a clip B is used, which has projecting downward from its lower side an eye b^2, formed of the same material as the clip and integral with it. A spring-hook C is interposed between the clip and the weight. On the lower end of this hook is hung the weight, while the upper end is hooked through the eye *b′* of the clip B, which is attached to the end of the band, as hereinbefore described.

The spring or elasticity is given to the hook by giving it a few spiral turns, as shown, between the upper and lower ends, and by this means it is possible to avoid shocks which occur when the sash is thrown violently up or down.

It will be seen that this device is really a spring with a hook on each end. In addition to the advantages already set forth arising from the use of this spring, this double hook makes a very neat, efficacious, and quickly-operated device for attaching the band to the balance-weight.

I claim—

The combination of a sash and its balance-weight, with a flat metal band, a clip connecting the band to the sash and a second clip having a longitudinal slot or groove through it, one of the walls of said slot having rounded corrugations and a screw with a rounded end for forcing the band between the corrugations inserted through a lateral opening in the clip which is provided with an eye at its lower end and connected with the weight with a double-ended spring-hook, substantially as described.

In witness whereof I have hereunto set my hand.

GEO. W. FERNALD.

Witnesses:

E. H. GILMAN,

GEO. A. HOLMES.