

(No Model.)

J. H. BANE.
SASH BALANCE.

No. 557,940.

Patented Apr. 7, 1896.

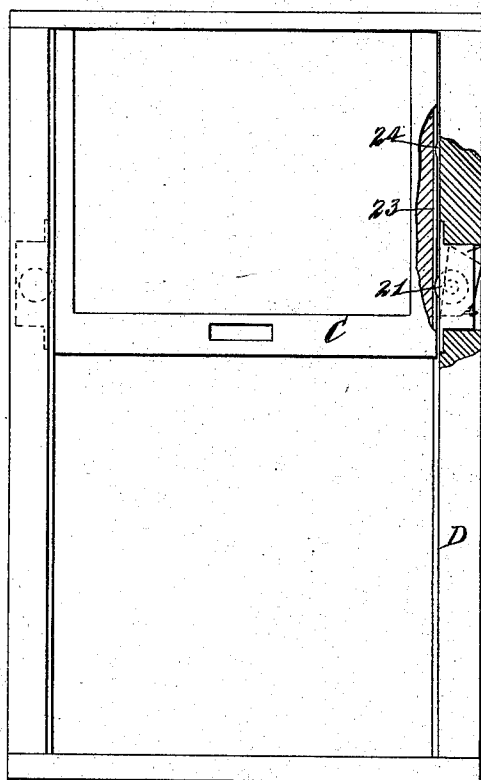


Fig 1

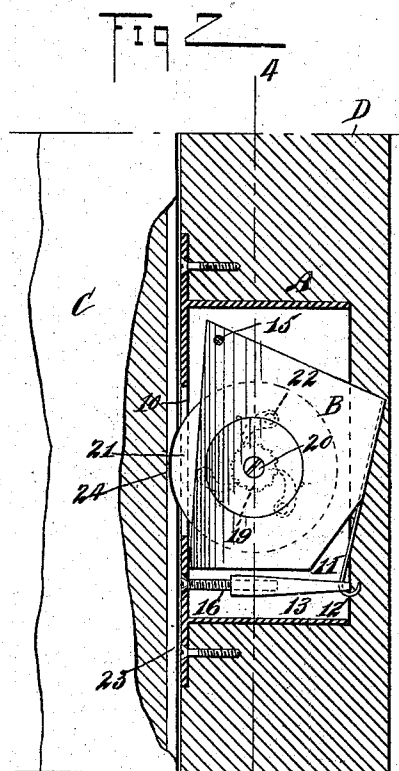


Fig 2

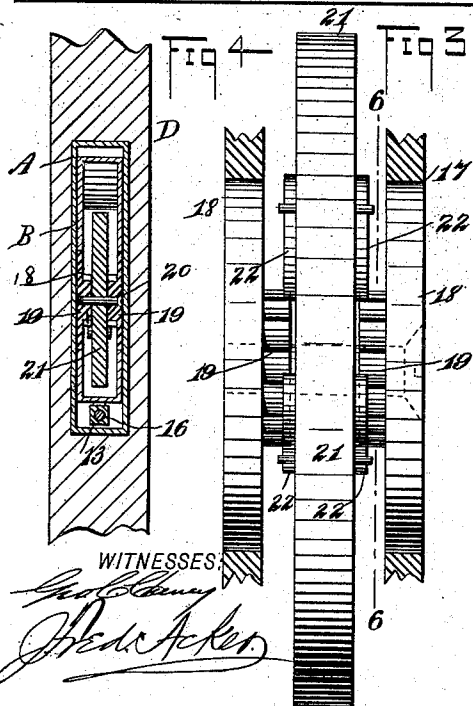


Fig 4

Fig 3

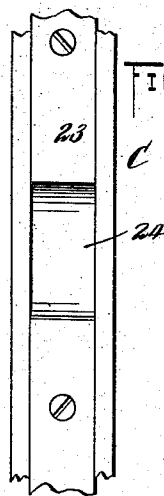


Fig 5

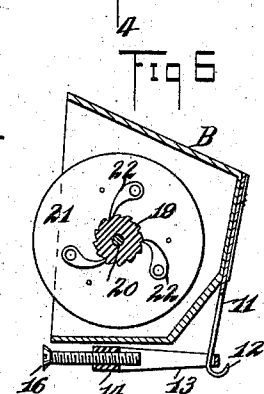


Fig 6

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UNITED STATES PATENT OFFICE.

JOSEPH HENRY BANE, OF BARRE, MASSACHUSETTS.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 557,940, dated April 7, 1896.

Application filed July 29, 1895. Serial No. 557,477. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HENRY BANE, of Barre, in the county of Worcester and State of Massachusetts, have invented a new and Improved Sash-Balance, of which the following is a full, clear, and exact description.

My invention relates to an improvement in sash-balances; and it has for its object to provide a device of that character capable of being introduced expeditiously, conveniently, and economically into any window-frame; and a further object of the invention is to provide a balance which will be exceedingly simple, durable, and economic, and in which a weight will not be employed, the balance being so constructed that it can be readily adjusted to counterbalance any window-sash that may be placed in the frame.

Another object of the invention is to provide a balance of the frictional type, under the influence of which the sash may be readily raised with comparatively little exertion, but wherein in lowering the sash more exertion will be required, and, furthermore, to provide a means whereby the sash may be held at predetermined points in its travel and practically locked at said points.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the window frame and sash, parts of both being broken away to disclose the improved balance applied thereto. Fig. 2 is a vertical section taken through a portion of the window-frame and a portion of the sash held to slide therein. Fig. 3 is an enlarged view of the balance, a portion of the housing or casing being broken away. Fig. 4 is a section taken substantially on the line 4 4 of Fig. 2. Fig. 5 is a face view of the side edge of the window-sash; and Fig. 6 is a vertical section through the balance, being taken practically on the line 6 6 of Fig. 3.

In carrying out the invention a casing A is employed, which is preferably of rectangular shape, and is introduced into a suitable recess made in the hanging-stile of a window-frame,

and the face-plate of the casing is provided with a longitudinal opening 10. The balance comprises a jacket or housing B, which, as shown in Figs. 2 and 6, is ordinarily made with a top inclined downward in direction of the rear, the rear wall at the bottom having a forward and downward inclination while the front of the housing or jacket is open.

A spring 11 is secured to the upper or straight portion of the back of the housing and extends downward below the rear lower inclined portion, as is also shown in Figs. 2 and 6, terminating preferably at its lower end in a hook 12, and a link 13 is attached to the lower or hook end of the said spring, extending outwardly substantially parallel with the bottom of the housing and terminating at its forward end in a sleeve 14, interiorly threaded.

The housing is located in the fixed casing A, which is preferably open at the back, and is pivotally secured therein by passing a pin 15 through its upper forward or outer edge portion, as illustrated in Fig. 2, and the housing is adjusted to and from the face-plate of the casing by means of an adjusting-screw 16, which is passed through the said face-plate and is made to enter the sleeve 14 of the link 13.

The housing is provided in each side with a circular opening 17, and in each of these openings a disk 18 is snugly fitted, yet is capable of rotary movement, and each disk has integral with or attached to its inner face a ratchet-wheel 19. A spindle 20 is passed through the two disks 18, and the said spindle is in the nature of a screw having one of its ends secured to one of the said disks, as illustrated in Fig. 4.

A large friction-wheel 21 is mounted to turn loosely on the said spindle 20, between the ratchet-wheels 19, and the said friction-wheel extends outward through the opening 10 in the face-plate a predetermined distance, or sufficiently to engage with the side edge of the sash C, held to slide in engagement with the hanging-stiles of the window-frame D, as shown in Fig. 2, and a series of pawls 22 is located upon each side of the friction-wheel 21, adapted for engagement with the ratchet-wheels 19. The vertical side edges of the window-sash C have preferably a metal strip 23 countersunk therein, and these strips, as

shown in Fig. 5, are provided with recesses 24, into which the friction-wheel enters to hold the sash in substantially a locked position at predetermined heights.

5 The friction-wheels 21 may be made to bear more or less strongly upon the strips 23 of the sashes by adjusting the screws 16, connected with the balance, either inward or outward, and in operation when the window-sash is
10 lifted the friction-wheel only revolves, the tension exerted by the said friction-wheel on the window-sash being sufficient to balance the same. Therefore but little exertion will be required in raising the sash. The sash
15 will stop at any point where it is released, but will be practically locked wherever the friction-wheel enters a recess 24 in the sash.

A little more exertion is required in lowering the sash, since in raising it the pawls 22
20 slip over the ratchet-wheels 19; but in lowering the sash the pawls are in locking engagement with the friction-wheels, and consequently the disks 18 are revolved in addition to the friction-wheels 21, and therefore more
25 resistance is offered to the manipulation of the sash.

As heretofore stated, the device is simple, economic, and durable, and is applicable to
30 a window-frame of any description, and the device takes the place of the ordinary weight or its equivalent and also serves as a stop or locking device for the sash.

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

1. In a window-sash balance, a pivotal housing, a spring carried thereby, an adjusting device connected with the spring and adapted for engagement with a fixed support, a friction-wheel mounted to revolve within
35 the said housing and adapted for engagement with a sash, disks mounted to revolve in the said housing and provided with ratchet-wheels, and pawls carried by the friction-wheel and engaging with the said ratchets,
40 as and for the purpose set forth.

2. In a window-sash balance, a casing adapted to be introduced in the hanging-stile of the sash and provided with an opening in its face-plate, a housing pivoted in the said
50 casing, a spring extending below the pivot of the housing, an adjusting device carried by the casing and connected with the said spring, a friction-wheel mounted to revolve in the housing and extending through the
55 opening in the face-plate of the casing, and friction-disks controlled by the friction-wheel when said wheel is turned in a predetermined direction, as and for the purpose specified.

JOSEPH HENRY BANE.

Witnesses:

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JOHN S. RICE.