

(No Model.)

J. McARTHUR.
SASH BALANCE.

No. 462,725.

Patented Nov. 10, 1891.

Fig. 3.

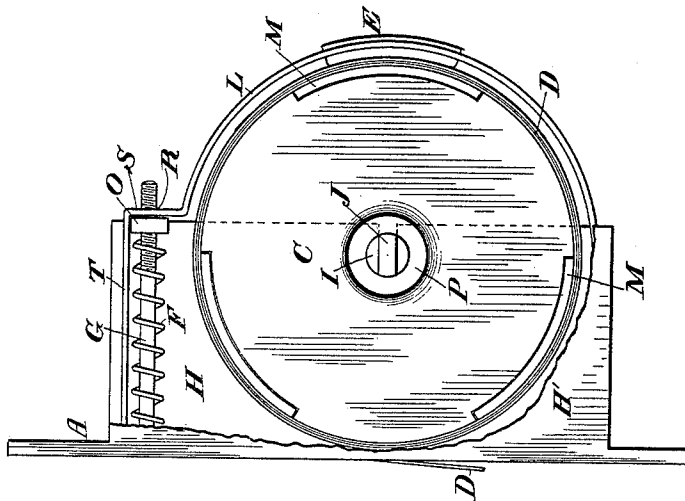


Fig. 2.

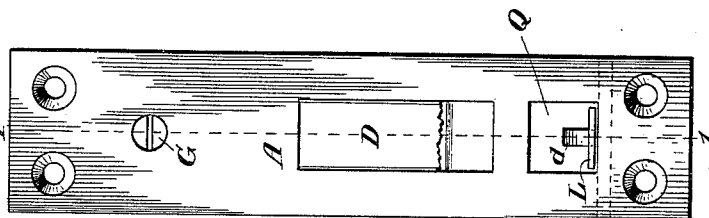
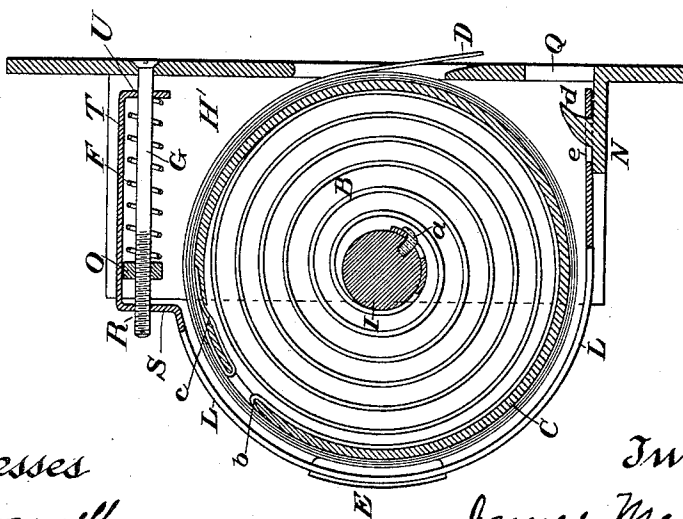


Fig. 4.



Fig. 1.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES MCARTHUR, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE PULLMAN SASH-BALANCE COMPANY, OF SAME PLACE.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 462,725, dated November 10, 1891.

Application filed November 28, 1890. Serial No. 372,970. (No model.)

To all whom it may concern:

Be it known that I, JAMES MCARTHUR, of the city of Rochester, in the county of Monroe, in the State of New York, have invented certain Improvements in Sash-Balances, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to certain improvements in spring sash-balances, having for their object to render such devices simpler in construction and more durable in operation.

My improvements are fully described and illustrated in the following specification and the accompanying drawings, and the novel features specified in the claim annexed to the said specification.

In the accompanying drawings, representing my improvements in sash-balances, Figure 1 is a longitudinal section on the line 1 1, Fig. 2. Fig. 2 is a front or face view. Fig. 3 is a side elevation, a portion of the case being broken away, so as to show the drum. Fig. 4 is a transverse section through the brake, showing the manner of attaching it to the brake-strap.

My improvements relate to sash-balances of the type in which the sash is supported by tapes wound about spring-drums, which are provided with brakes, by which the power of the springs is adjusted within certain limits to the size or weight of the sash.

In the accompanying drawings, A represents the face-plate of an improved sash-balance embodying my invention; B, the spring; C, the drum; D, the tape or sash-suspending band; E, the brake, and F the spring which regulates the tension of the brake.

The whole device is designed to be let into the side of the window-casing with the face-plate flush with the surface thereof, while the tension of the brake may be regulated from the outside without removing the balance by means of the screw G.

My improved sash-balances are designed to be used in pairs, one on each side of the window.

The face-plate A is provided on its opposite edges with the inwardly-projecting cheeks H H', which sustain the spindle or axis I of the drum. The spindle is provided on its ends

with flat projecting lugs J, Fig. 3, which fit corresponding notches in the cheeks and prevent the axis from turning while sustaining it in place. The inner end of the spring B is attached to the axis inside the drum by a pin or lug, as indicated at a, Fig. 1. The outer end of the spring is secured to the circular wall of the drum by being bent and hooked over the edge of a notch or opening therein, as represented at b, Fig. 1. The end of the tape or suspending-band D is secured to the circular wall of the drum by being inserted through an opening therein and then being passed outward through another opening, its extremity being held against the drum by the inner surface of the first coil of the tape about the drum, as represented at c, Fig. 2. The drum is made in two parts, the one being a circular plate fitting the axis, so as to revolve thereon, and provided with a circular rim or flange to which the spring and tape are attached. The other part of the drum consists of a circular plate having notches, into which the projecting portions M, Fig. 3, of the circular flange project, so as to cause the two parts of the drum to revolve together on the axis. The plates of the drum are provided with a projecting ring P, Fig. 3, surrounding the axis. The outer end of the suspending-band D is attached to the sash by a staple or other suitable device.

The brake E is supported by the brake-strap L, which is approximately semicircular in form, being attached at one end to the wall N, Fig. 1, connecting the cheeks H H', by means of the hook d, and at the other end being adjustably secured to the face-plate by the screw G, nut O, and spring F. The opening Q is formed in the face-plate A opposite the hook, by which arrangement I am enabled to cast the hook d in one piece with the plate and cheeks without using a core. The parting line of the sand comes on the outer edge of the hook, the sand of the cope projecting inward through the opening Q. In this way I am enabled to reduce the cost of construction. At the other end of the brake-strap the screw G passes through an opening R in the outwardly-bent portion S of the strap. The nut O slides along the straight portion T of

the strap when the screw is turned. At its extremity the strap is given another sharp bend, as shown at U, Fig. 1, and the screw passes through an opening in this part of the strap also. By this arrangement the screw and the strap mutually support each other, and the strap guides the nut and prevents its turning with the screw, while the construction is exceedingly cheap, very durable, and capable of being put together by unskilled labor. The opening in the face-plate for the screw is also cast, so that the construction of my improved sash-balance requires no lathe-work or drilling.

The brake E consists of a piece or pad of felt or other suitable material arranged on the inside of the brake-strap and having its side edges projecting through longitudinal slits V V punched or cut through the brake-strap along its edges. This manner of attaching the brake or friction-pad to the strap is very simple and efficient, the edges of the slits in the strap holding the brake firmly in place.

I do not claim herein anything shown or described in my prior patent, No. 354,162, dated December 14, 1886.

In Patent No. 429,941, heretofore granted me, is described a brake-pad applied to a strap by narrow transverse projections formed on its ends, held against teeth formed in said strap by spring-tongues. Said projections are partially cut by the teeth. They also have their smallest dimensions in the line of the strain upon the brake and their largest di-

mension is considerably less than the width of the strap. My present improvement dispenses with the teeth and provides that each edge of the brake-pad through its whole extent shall be passed through slits in the strap, these edges resisting the strain on the pad in their largest dimension, which is equal to the largest dimension of the pad. In said patent is described a brake-strap secured at one end by being bent around a fixed pin. In the present construction I provide a hook and a strap adapted to be readily slipped thereon without the necessity of using a tool, and I provide an opening in the face-plate which facilitates the manufacture.

I claim—

The combination, in a sash-balance, of the cast frame consisting of the face-plate A, having opening Q, the drum-supporting cheeks H H', and the transverse wall N, having hook d integral therewith, and the spring-drum C, tape or suspending-band D, and a brake-strap carrying a brake and partially surrounding the drum and attached to the frame at one end by the hook d and at the other by a spring and an adjusting-screw, said strap being provided with an opening to engage said hook, whereby it may be connected and disconnected without the use of a tool, substantially as described.

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Witnesses:

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