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Patented Nov. 21, 1899.

M. BARBER & L. F. KRAMER.

SASH BALANCE.

(Application filed Mar. 1, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

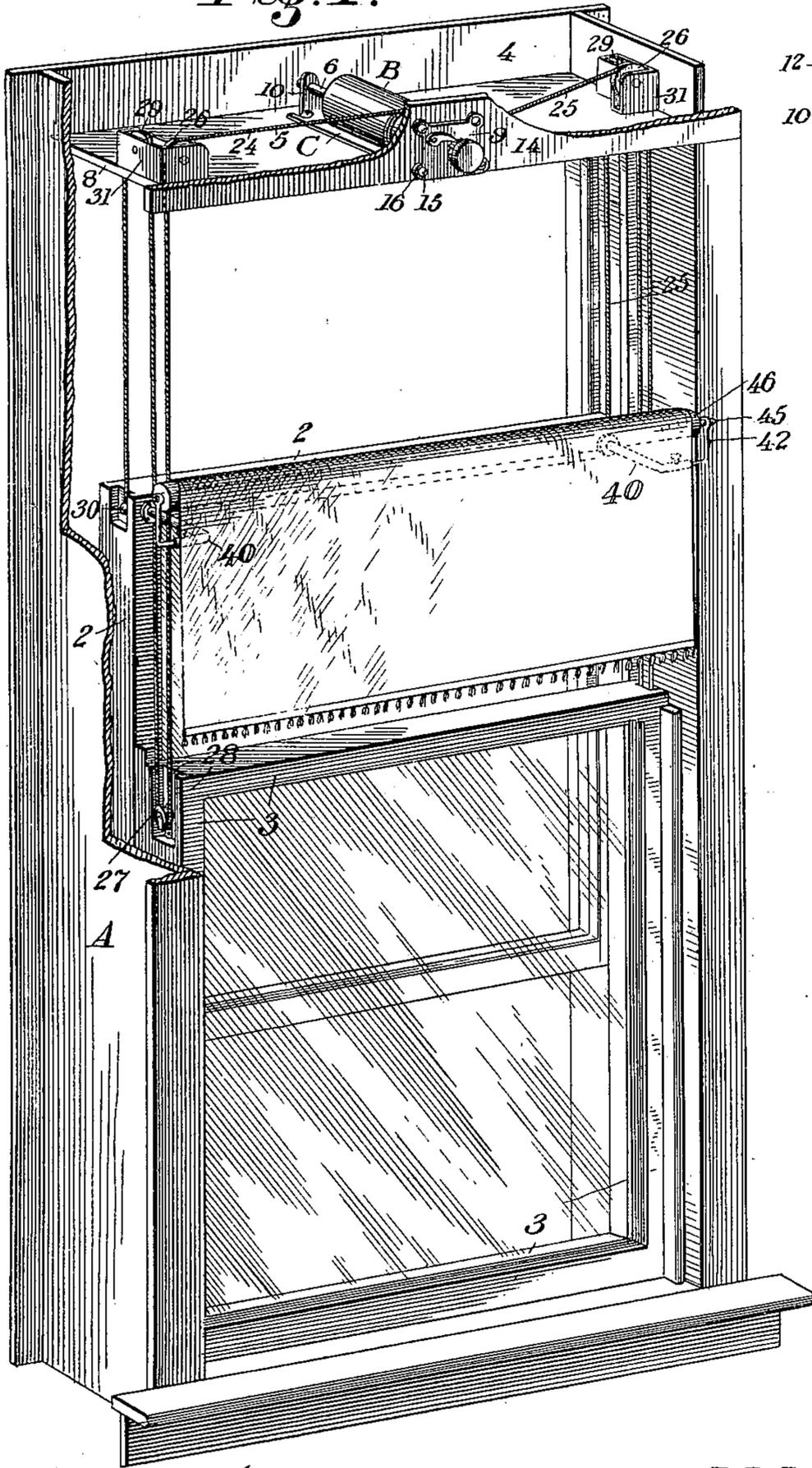
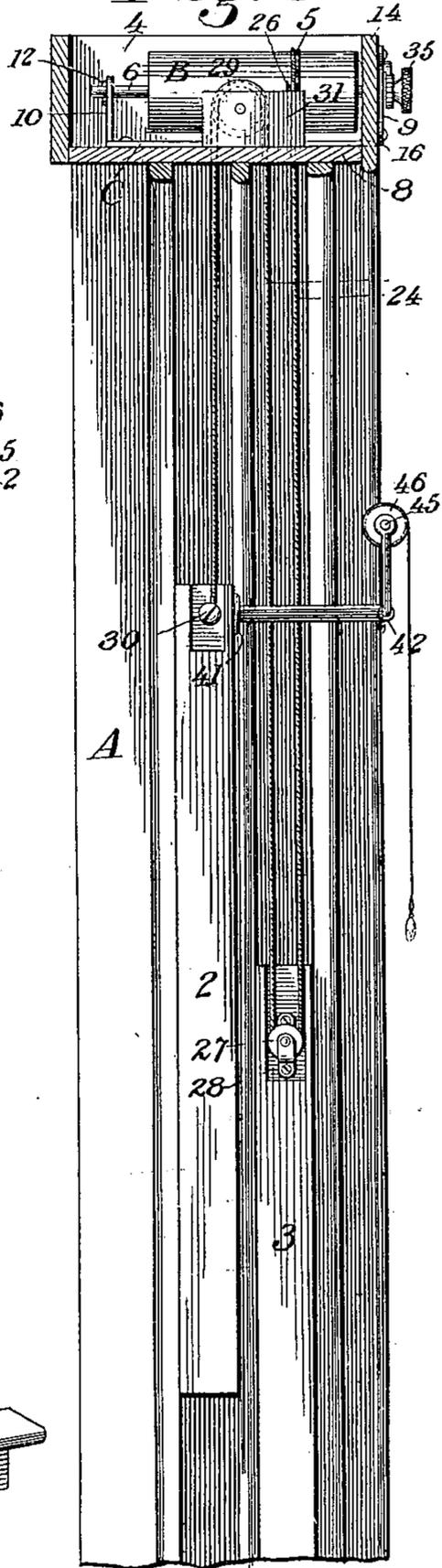


Fig. 3.



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2 Sheets—Sheet 2.

Fig. 2.

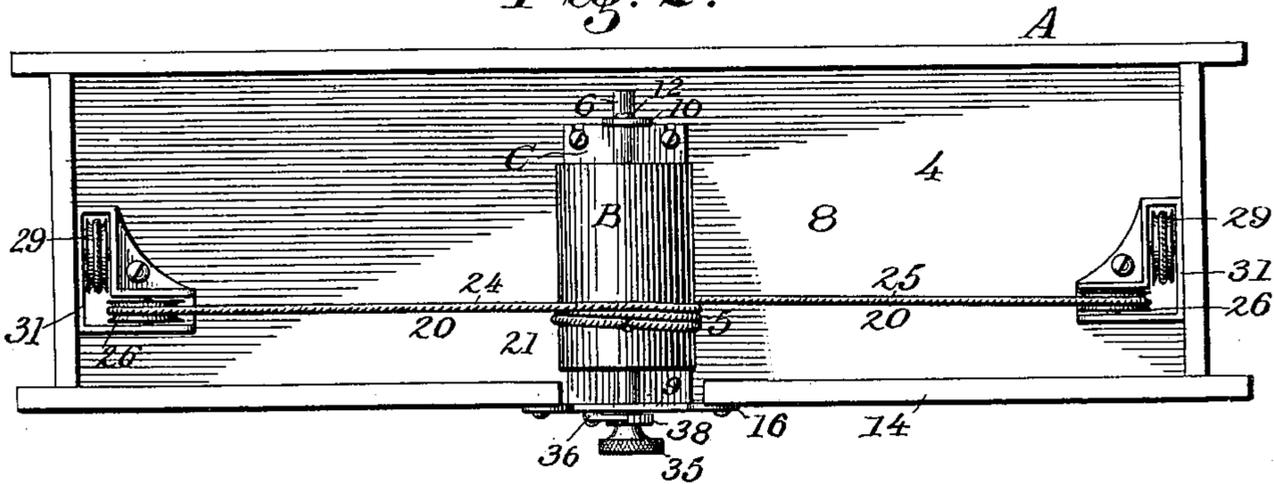


Fig. 4.

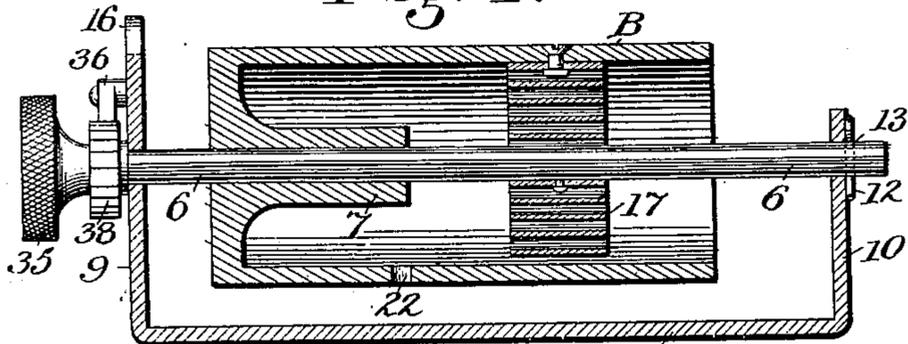


Fig. 5.

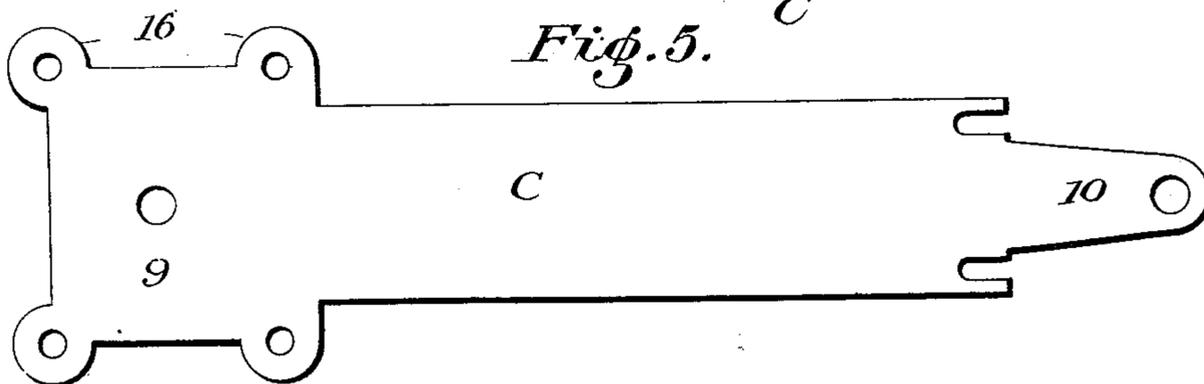


Fig. 6.

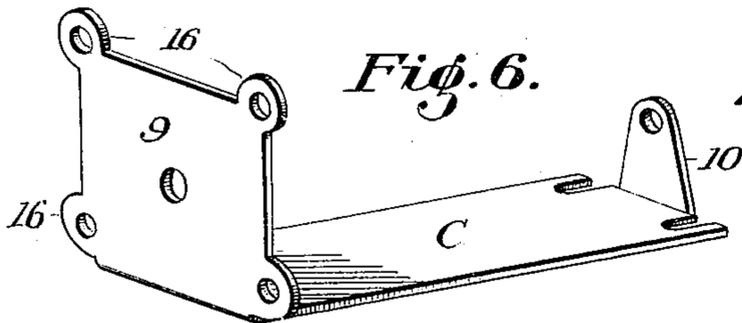
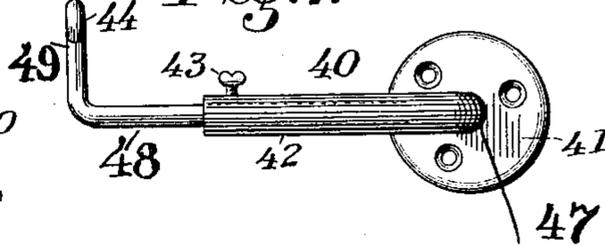


Fig. 7.



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UNITED STATES PATENT OFFICE.

MELVIN BARBER AND LOUIS F. KRAMER, OF OKLAHOMA, OKLAHOMA TERRITORY.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 637,545, dated November 21, 1899.

Application filed March 1, 1899. Serial No. 707,254. (No model.)

To all whom it may concern:

Be it known that we, MELVIN BARBER and LOUIS F. KRAMER, citizens of the United States, residing at Oklahoma, in the county of Oklahoma and Territory of Oklahoma, have invented a new and useful Sash-Balance, of which the following is a specification.

This invention relates to sash-balances of that class involving a rotary spring-actuated drum upon which a cord connected with a sash is wound, whereby any slack or looseness in the cord is taken up by the turning of the drum and in which the spring serves to firmly hold the sash in a raised position, and the invention is in the nature of an improvement upon the sash-balance described and claimed in Letters Patent No. 605,215, granted to Melvin Barber and J. P. Ashby June 7, 1898; and the objects are to materially simplify the construction as well as to reduce the cost of manufacture and the ease of assemblage of the parts, and the parts of the device are arranged in a very small space. Means are also provided for preventing one sash from passing the other, and to secure this advantage one of the sashes, preferably the upper one, is provided with one or more stops adapted to be engaged by the other or lower sash when said lower sash has reached a certain place in its vertical movement, thereby positively preventing the further raising of said lower sash, or vice versa.

With these ends in view the invention consists in the novel combination of elements and in the construction and arrangement of parts which will be hereinafter fully described and claimed.

To enable others to understand the invention, the preferred embodiment thereof is illustrated in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view, partly broken away and in section, of a spring sash-balance constructed in accordance with the invention. Fig. 2 is a top plan view of the window-casing with the improved sash-balancing mechanism applied to and disposed within the head of the casing. Fig. 3 is a sectional side elevation. Fig. 4 is a sectional side elevation of a portion of the winding mechanism.

Fig. 5 is a plan view of the blank from which the bracket supporting the roller-shaft is formed. Fig. 6 is a perspective view of the bracket. Fig. 7 is a front elevation of one of the roller-supporting brackets.

Like characters designate like parts in all the figures of the drawings.

In the drawings the casing of an ordinary window is shown at A, and it is provided with the upper sash 2 and the lower sash 3, which are guided and held therein by the usual detachable strips, and the window-casing is provided with a chamber, as 4, in the head thereof, in which the several parts of the balancing and cord winding and guiding mechanisms are disposed.

The sash-balancing mechanism includes in its organization a spring-operated drum, as B, and a winding cord or band 5, hereinafter more particularly described. The spring-drum B is disposed in a horizontal position crosswise of the chamber 4 and is carried, preferably, loosely upon the shaft or spindle 6, said cylinder having an inwardly-extending hub 7, adapted to surround and turn upon the shaft 6, near the outer end thereof. As a means for sustaining the shaft or spindle 6 the bracket C is provided, said bracket consisting, preferably, of a single-piece sheet-metal plate adapted to rest upon the floor of the chamber 4 and having at its opposite ends the upturned flanges 9 and 10, the front one of which is somewhat higher than the opposite flange, and these two flanges are bent at right angles to the main or horizontal portion of the bracket and constitute bearings for sustaining the drum-shaft 6, each being provided with an opening through which the shaft is passed. The shaft is held in place against longitudinal movement by the cotter-pin 12, extending through the aperture 13 in the end thereof, although it is apparent that other means can be provided for this purpose. The bracket extends through the front wall 14 of the head-chamber 4, and the portion 9 thereof is held in place against the exposed face of the case by a series of screws, as 15, passing through the ears or lugs 16 on the flange 9 and into the wall 15.

In connection with the drum B, which, it will be observed, consists of a hollow cylinder

closed at its forward end, and the shaft or spindle 6 a coiled spring, as 17, is provided, the opposite ends of said spring, which are disposed in the drum, being secured, respectively, to the shaft and to the inner face of said drum.

The slack-take-up mechanism includes a winding-cord 20, of suitable material, preferably in one continuous piece, bent upon itself near the middle, as at 21, and this bent end is passed through the opening 22 in the drum and knotted, as shown at 22', or provided with any other stop, as at 23, to prevent the withdrawal of the folded end of the string or cord. The cord thus formed then consists of two sections 24 and 25, respectively, of substantially the same length, which are oppositely wound upon the drum and are operatively connected with the upper and lower sashes 2 and 3, respectively, whereby when either of the sashes is raised the slack will be instantly taken up by the drum, which is caused to rotate by the spring 17, and said spring serves to maintain either of the sashes in the desired position. The section 24 of the cord travels against the periphery of the grooved pulley or roller 26 and from thence passes under a similar pulley or roller 27, suitably mounted in a recess 28 in the lower sash, and then extends upward and over the grooved pulley 29 and from thence downward to the upper sash 3, where it is secured, as at 30, and the opposite section 25 of the winding-cord is similarly disposed, and the similar parts are designated by the same characters. The grooved pulleys 26 and 27, located, respectively, at opposite sides of the chamber 4, are rotatively supported by angular brackets, as 31, suitably secured within the said chamber. Means are provided for regulating the tension of the coiled spring 17, and for this purpose we have illustrated the thumb-piece or disk 35, having a milled periphery and secured to the outer end of the shaft, and by turning which the tension of the spring can be easily adjusted. When the spring is regulated, the shaft will be held in proper position by a gravity-pawl, as at 36, pivoted on the flange 9 on the outside of the casing and adapted to engage the ratchet 38, secured to the shaft 6 at a point near the thumb-piece 35.

In connection with the sashes we provide one or more stops carried by one of them and which serve to prevent said sashes passing each other when either or both are being raised or lowered, and in the present case we prefer to utilize the curtain-brackets 40 as such stops, said brackets being secured to the upper outer sides of the upper sash 2 and being adapted to be engaged by the upper side of the lower sash, and thereby positively preventing the two passing each other. Each of the brackets 40 comprises a disk-shaped portion provided with suitable openings for

fastenings, whereby it may be secured to the upper sash, adjacent to one of the upper corners thereof. Extending outwardly from the base 41 is an L-shaped angular and tubular arm 42, in which is fitted a telescopic rod 48, adjustable in a plane parallel to the sash, the said rod sliding into the arm 42 and being held when adjusted by means of a set-screw 43, passing through the end portion of the arm 42. The end portion of the rod 48 is bent at an angle and normally extends upward, as shown at 49, being provided at its extremities with an eye-bearing 44 for the reception of one of the studs or gudgeons 45 of a shade-roller 46. By arranging two of said brackets at opposite sides of the sash and properly adjusting the rods 48 curtain shade-rollers of different lengths may be accommodated and securely mounted upon the sash.

Changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. In a sash-balance, a bracket consisting of an oblong plate having one end enlarged and both ends bent perpendicularly to the body portion to form end flanges of different sizes, the flanges being provided with bearing-openings, in combination with a shaft mounted in said openings, a spring-actuated drum on the shaft, and a sash-balance cord wound on the drum, the outer flange of the bracket being of greater superficial area than the cross-sectional extent of the parts carried by the bracket, and also having openings to receive fasteners whereby the device is secured to the window-frame, substantially as described.

2. The combination with a bracket having end flanges of different sizes, of a shaft journaled in the flanges, a hollow drum on the shaft, an interiorly-arranged drum-actuating spring, a cord connected intermediate its ends to the drum, and adapted to have its extremities attached to the sash, a ratchet-wheel on one end of the shaft, and a pawl pivotally mounted on the larger flange of the bracket for engaging said ratchet-wheel, the outer flange of the bracket being of greater superficial area than the cross-sectional extent of the parts carried by the bracket, and also having openings to receive fasteners whereby the device is secured to the window-frame, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

MELVIN BARBER.
LOUIS F. KRAMER.

Witnesses:

J. H. LIEVSAY,
B. L. WOODWORTH.