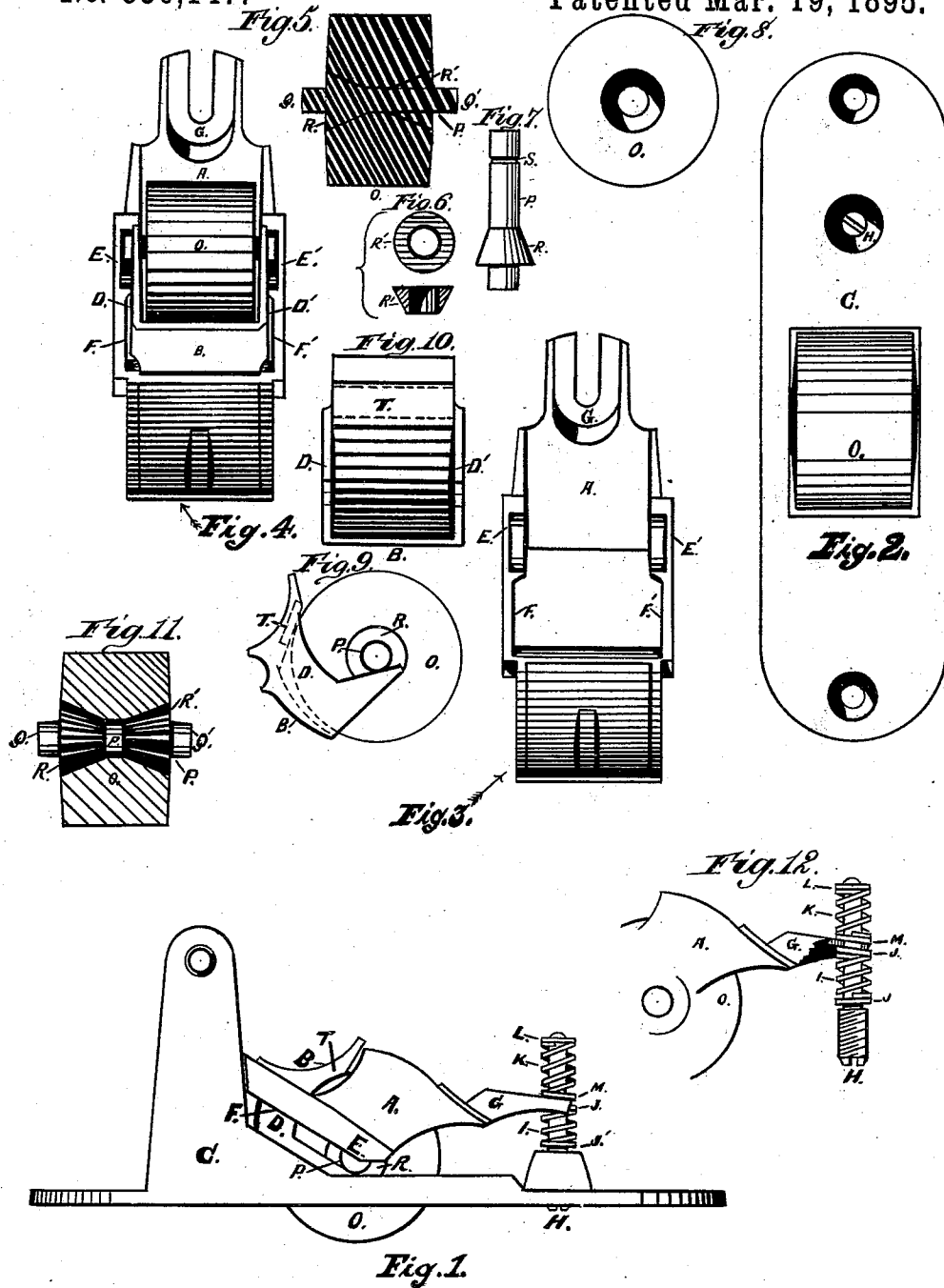


(No Model.)

R. B. HUGUNIN.
ROLLER SASH BALANCE.

No. 536,147.

Patented Mar. 19, 1895.



Witnesses:

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ROLLER SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 536,147, dated March 19, 1895.

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To all whom it may concern:

Be it known that I, ROBERT B. HUGUNIN, of the city and county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Roller Sash-Balances, of which the following is a specification.

First. This invention consists in the application and use on the lever A, of a roller sash balance, of the axle roller confining projections E, E', the object being to hold the body of the roller in the center of the roller opening in the lever; and, thus prevent its grinding on the sides of the lever, when the roller revolves in raising the sash. (See illustrations, Figures 1, 3, and 4.)

Second. The combination and use on a clamp used in a roller sash balance, of the side bearing and strengthening flanges D, D', the object being to strengthen, and confine the roller, and prevent entrance of debris, and furnish wider side bearings, against the sides of the clamp opening, on lever A. (See Figs. 1, 3, and 4.)

Third. The arrangement, combination and use in the lever of a roller sash balance of the clamp openings F, F', admitting clamp and flanges D, D', inside of lever A, the object being uniform width within the lever and clamp, with its flanges, for the admission and working of the roller, and to give the latter, through the clamp, more efficient side support. (See illustrations, Figs. 3 and 4.)

Fourth. The combination, on a roller sash balance, of the back extended, adjusting and spring admitting projection G, having an opening for the double spring adjusting screw H, the object being to furnish space for the use of a pressure resisting spring, used with screw H, between the projection G, and face plate C. (See Figs. 1, 3 and 4.)

Fifth. The arrangement, combination and use, with a roller sash balance, of the double spring adjusting screw H, having on its outer neck end a fast washer L, coiled spring K, interposed between it and the loose washer M; combined with a loose washer J, coiled spring I, interposed between it and the washer J', resting on the shoulder of the screw, the adjusting end of the lever A, being held between the springs K and I, through their washers M, and J, the object being to limit the mechanical holding power of the device to the weight

of the sash to be held; and the spring of the roller against the sash, by one adjustment of the screw. (See illustration Fig. 1.)

Sixth. The combination and use in a roller sash balance of an unglazed china or porcelain roller O, the object being durability. (See illustrations Figs. 3, and 4.)

Seventh. The combination and use in a sash balance of the unglazed china or porcelain roller O, having an axle opening, through its center, terminating, at each end, in concave openings; by means of which, and convex washers the axle is firmly secured, in the center of the roller, the object being to fasten the axle in the center of the roller. (See side illustrations, Figs. 3, and 4.)

Eighth. The construction and use on the holding friction surface of clamp B, used in a roller sash balance, of the enamel surface T, the object being to prevent the grinding of the unglazed china roller on the friction surface of the clamp, when revolving in raising the sash. (See side illustrations, Figs. 3 and 4.)

Fig. 1, is an elevation plan showing the features and application of my invention, to wit: The axle roller confining projections E, E', side flanges D, D', on clamp B, the clamp openings F, F', in lever A, the adjusting projection G, the dual adjusting screw H, having two springs, K and I, the unglazed china or porcelain roller O, and a side illustration of adjusting projection G, broken away showing washers, and coiled springs, working on the neck of the screws on either side of projection G, as in use. Fig. 2 is a plan view showing the front of Fig. 1. Fig. 3 is an inner side plan view of the lever A, with working parts removed, and shown in side illustrations. The lever shows the axle roller confining projections E, E', clamp openings F, F', beyond the width of the roller opening; and, the back extended projection G, the china roller O, and clamp B, having the side flanges D, D'. Fig. 4 is the same view as Fig. 3, only, having the clamp and roller in place, as in use. Fig. 5 is a sectional view of the roller and its axle. Fig. 6 is a view showing the axle bushings in plan and section. Fig. 7 is an elevation of the axle. Fig. 8 is an end view of the roller. Figs. 9 and 10 are, respectively, a side and front elevation of the roller and the

clamp B arranged in their relative operative positions. Fig. 11 is a view showing the roller in section and the axle in elevation, and Fig. 12 is a detail view showing the manner of connecting the projection G of the lever A with the adjusting screw.

A is a lever having an opening for the roller O, clamp B, working bearings for the roller axles, holding bearing for the clamp; and the axle roller confining projections, E, E', side extended clamp openings F, F', back, extended, adjusting projection G, having a slot opening for the neck of the dual, adjusting screw H, and, a neck, by which the lever is hinged to the face plate C.

B, is a roller holding clamp, having the flanges D, D', enamel friction surface T, for preventing the grinding of the roller, in revolving.

C, is a face plate to which lever A is hinged.

D, D', are side bearing flanges, constructed on each side of clamp B, strengthening it; through its transverse center, where it is weakened by the concave hinge bearing,—in holding the roller from turning while carrying the weight of the sash. These side flanges by more closely confining the roller within the working parts of the balance protect it from falling debris, when in the sash frame, and furnish to it wider, and more efficient side bearings against the lever.

E, E', are side projections on outside of roller axle bearings on lever A, to confine the roller, through the ends of its axle, to the center of the roller opening in the lever; enabling it to roll freely, without grinding on the sides of the lever; F, F', clamp openings, extended on each side of lever roller opening, to admit the clamp B, and its flanges D, D', inside the opening in the lever; giving through the wider side bearings on the clamp, steadiness, and more efficient support to the roller under the weight of the sash; and, better adapting the balance for use on narrow sash, by avoiding the otherwise greater width of lever to admit the working parts of the device.

G, is a narrowed, back extending, adjusting projection, on lever A, having an opening, or slot, to admit the neck of the dual working, double spring, adjusting screw H, with seats for washers on the front and rear sides of the projection, along the line of the opening for the screw H; and, a power limiting coiled spring interposed between the projection, and the plate C.

H, is a dual working adjusting screw, having an extended neck and washer secured on outer end of same; and, a washer resting against the shoulder of the screw; combined, with two coiled springs, and two loose washers interposed between them; all working on the neck of the screw, the threaded part of the screw passing from the rear through a female screw thread in rear of screw cavity on plate C; and, reached from the face of the plate, in adjusting. The projecting end G, of lever A, passes between the central, and loose, washers;

and, is held by the coiled spring pressure, acting from each side, ready to be moved, back and forth, by the screw; regulating by one adjustment, the spring pressure of the roller against the sash; and, yieldingly limiting the mechanical holding power, of the device, to the weight of the sash; the yielding resisting spring enabling the holding power to accommodate itself to any ordinary irregularities in the width, or straightness, of the sash, without hitch, or stoppage of the sash.

I is an inner coiled spring on the neck of screw H; J, J', washers, between which, the coiled spring I, is interposed; K, outer coiled spring, on the neck of the screw H; L, secured washer, or head, on outer end of screw H; M, loose washer, between which and L, the coiled spring K, is interposed.

O is an unglazed china or porcelain roller, having an axle opening through its center terminating, at each end, in concave openings, the ends of the roller being made slightly convex from the circumference of the concave openings to the outside circumference edges. They are made unglazed to obtain the natural grit of the material, to hold the sash; which, while having considerable cutting power, when in contact with metal, has little or no grinding effect on the edge of the sash, in working.

P is a metal axle used with china roller O. Owing to the process of making the rollers O, the axle openings, made with them, through their centers, will vary in size; and, as the rollers after baking become so hard as to be unworkable the axles have to be made smaller than the openings, calculated upon—which I overcome in the construction of the axle, by making and using with it convex washers, which are secured, in the concave openings, on each end of the roller; Q, Q', roller axle bearings; R, R', convex washers, used in securing the axle P, within the stone roller O, by compression. One of the washers R, is preferably made directly upon the axle; and, R', of a softer metal, is compressed over the bearing Q', into the concave opening on the end of the roller; S, groove, or notch, made on the opposite end of the axle P, from that occupied by the solid convex washer R, into which the soft metal fastening washer is compressed, and upset, holding the axle securely within; and, in the center of the roller; T, an enameled surface made on the roller holding friction end, of clamp B, to prevent the grinding wear of the roller on the clamp in revolving, when raising the sash; the roller being in constant close contact with this surface, whether rolling or at rest; by the limited incline of roller bearings on the lever A, which prevents any otherwise dropping back of the roller, and consequent sagging of the sash after raising same.

What I claim as my invention is—

1. In a roller sash-balance, the combination with the face plate C, of the pivoted lever A provided with side projections E, E, the roller

O arranged in an aperture in the face plate and having the ends of its journal confined between said side projections to prevent end thrust of the roller, a pivotal clamp B for supporting said roller in place upon said lever, and means for yieldingly adjusting the pressure of said lever upon the roller journals, substantially as described.

2. In a roller sash-balance, the combination with the face plate and the roller O arranged in an aperture therein, of the pivoted lever A, and the clamp B pivotally secured to said lever, said clamp being provided at one end with a bearing surface for the roller and at its opposite end with axle supporting arms, and vertical side flanges D, D', connecting said bearing surface and axle supporting arms to brace said clamp transversely, substantially as described.

3. In a roller sash-balance, the combination of the pivoted lever A provided with a central aperture having its opposite sides recessed, the roller O, the clamp B provided at one end with a bearing surface for said roller and at its opposite end with axle supporting arms, vertical side flanges D, D', connecting said bearing surface and axle supporting arms to embrace said clamp transversely, the flanges D, D', of said clamp being arranged in said recesses in the lever A and said clamp pivotally connected to the latter, substantially as described.

4. In a roller sash-balance, the combination with the face-plate C and the roller O arranged in an aperture therein, of the pivoted lever A provided with a bifurcated extension G embracing the adjusting screw, the adjusting screw H provided at its inner end with a

fixed washer I, the coiled springs K and I arranged upon the adjusting screw upon opposite sides of the extension G, the loose washers M and J arranged between said springs and the washer J' arranged beneath the spring I, substantially as described.

5. In a roller sash-balance, the combination of the face plate, the roller O arranged in an aperture therein, the pivoted lever A, and a roller clamp carried by said lever and operating to brake upon the roller O, said roller being formed of unglazed porcelain, substantially as described.

6. In a roller-sash-balance, the roller O having central cone-shaped openings for the admission of axle P, said axle being provided at one end with a cone-shaped enlargement R and near its opposite end with an annular groove S, and the cone-shaped washer R' compressed about the grooved end of the axle, substantially as described.

7. In a roller sash-balance, the combination of the face plate, the roller O arranged in an aperture therein, the pivoted lever A, the clamp B pivotally secured to said lever and provided with an enameled porcelain seat T adapted to brake upon the roller A, said roller being formed of unglazed porcelain, substantially as described.

8. In a roller sash-balance the friction and anti-friction unglazed china roller O having a central opening and metal axle secured therein, for the purposes specified.

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Witnesses:

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