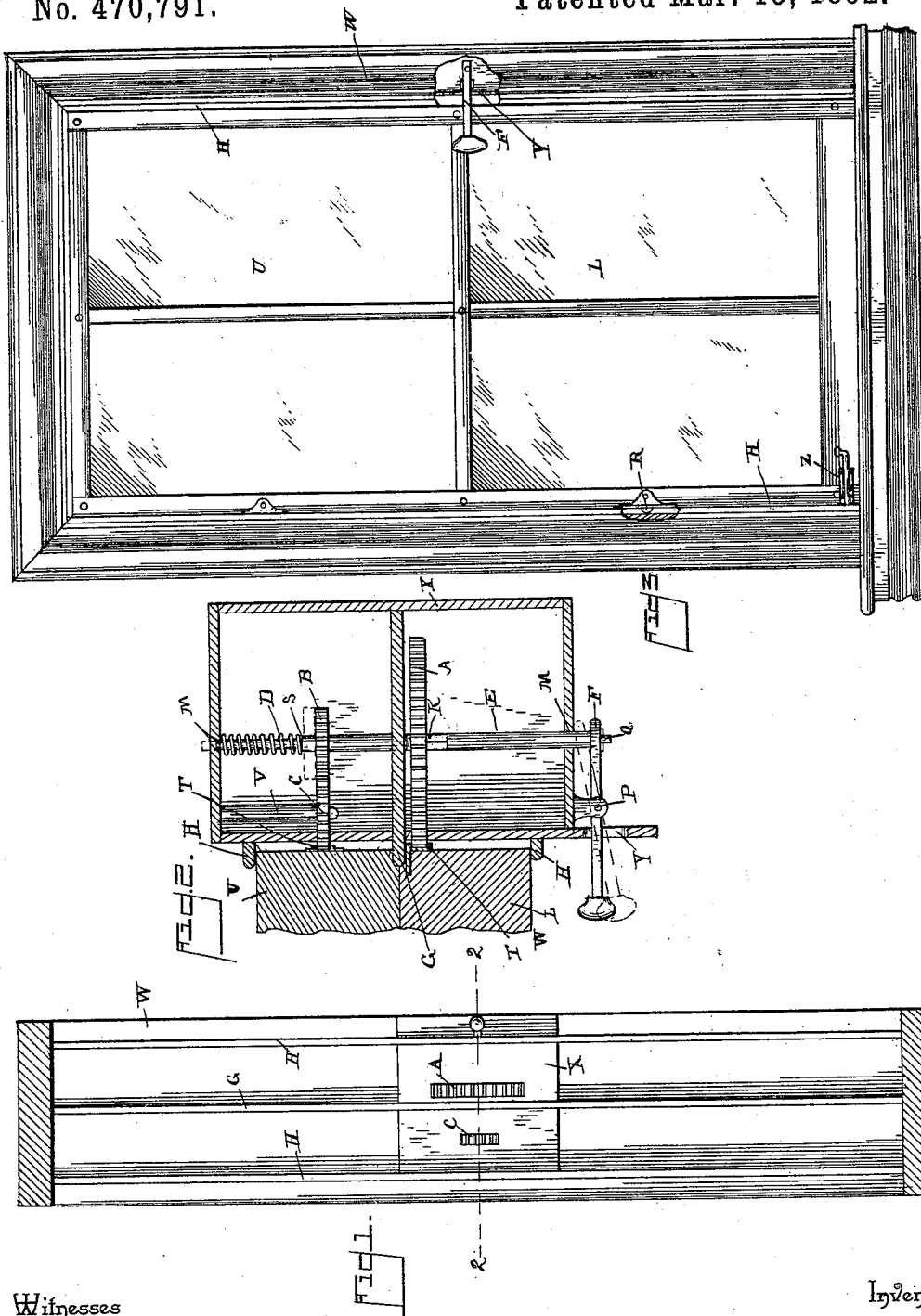


(No Model.)

M. B. REYNOLDS.
SASH FASTENER.

No. 470,791.

Patented Mar. 15, 1892.



Witnesses

Chas. A. Ford.

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UNITED STATES PATENT OFFICE.

MILTON B. REYNOLDS, OF JERICO, MISSOURI.

SASH-FASTENER.

SPECIFICATION forming part of Letters Patent No. 470,791, dated March 15, 1892.

Application filed May 12, 1891. Serial No. 392,444. (No model.)

To all whom it may concern:

Be it known that I, MILTON B. REYNOLDS, a citizen of the United States, residing at Jerico, in the county of Cedar and State of Missouri, have invented a new and useful Sash-Balance, of which the following is a specification.

This invention relates to that class of builders' hardware known as "sash-balances," and the object of the same is to effect certain improvements in devices of this character.

To this end the invention consists in the details of construction hereinafter more fully described and claimed, and as illustrated on the sheet of drawings, wherein—

Figure 1 is a central vertical section through a window-frame provided with my improvements, the sashes being removed. Fig. 2 is a horizontal section through the casing and part of the sashes, taken on the line 2 2 of Fig. 1, with the sashes in place, and showing in dotted lines the manner in which the lever is operated to lower the upper sash. Fig. 3 is an elevation of the window-frame from the inside, one sash being partly broken away to show the anti-friction roller and the frame being broken away to show the lever.

Referring to the said drawings, the letter W designates the window-frame, in which move the upper and lower sashes U and L between outer beads H and an intermediate bead G, all in the usual manner, except that the sashes have no cords and weights. Secured to one edge of each sash is a longitudinal toothed rack T, that on the lower sash L engaging a large gear A and that on the upper sash engaging a small gear C, mounted on a stub-shaft V within a metallic casing X, secured in one side of the window-frame W.

The letter E designates a shaft mounted loosely in bearings M in the box X, in which it may turn and slide, and D is a coiled spring surrounding this shaft between the rear side of the box X and a shoulder S on the shaft and pressing the latter normally forward. The said shaft is squared at K, where it passes through a square hole at the center of the large gear A, and on the shaft is secured a small pinion B, which intermeshes with the small gear C when the shaft is in its normal position, as seen in full lines in Fig. 2, but which

may be thrown out of mesh therewith by moving the shaft to the rear, as seen in dotted lines. The large gear engages the rack T on the lower sash L and the small gear C engages that on the upper sash, and hence if the sashes are closed and the lower one is raised it will cause the upper sash to move simultaneously downward, although to a less extent, owing to the difference in the size of the gears. Moreover, if the sashes are closed and it is desired to lower the upper sash without raising the lower, the shaft E is moved to the rear to disengage the pinion B from the small gear C, when the sash U will fall by its own weight until these wheels are again permitted to engage. The fact that the upper sash moves to a much less extent than the lower when they are connected and move simultaneously effects two functions: First, if it be desired to raise the lower sash, it may be done without lowering the upper sash to an equal extent, which results in opening a small crack at the top of the window to allow the escape of foul air from the room, although it will not prevent a person from reaching or looking out the window below the two sashes; second, the difference in the size of the gearing gives the lower sash greater power, although it may be equal in weight with the upper, and hence the automatic descent of the upper sash and rise of the lower will be prevented.

I may employ any suitable means for moving the shaft E longitudinally in the bearings M, but I prefer the following devices for this purpose. The front end of the shaft E is reduced, as at O, where it passes loosely through a hole in the inner end of a lever F, as seen in Fig. 3, and this lever is pivoted between its ends, as at P in the casing X, and the front end projects through a slot Y in the casing and may have a knob at its free end. By moving this knob in the proper direction the shaft E will be moved longitudinally, as will be clear. The opposite edge of the sash is preferably provided with a roller R, which travels against that side of the window-frame, as seen in Fig. 3, and the function of this roller is to prevent lateral movement of the sash and to keep the rack T in engagement with its gear. In large or heavy windows there

may be a similar sash-balancing device at the other side of the frame; but this is not usually necessary. If one of the sashes be provided with a sash-lock, as Z, it is obvious that when
5 this sash is locked the other sash will be also locked if the sashes are connected through my improved sash-balance.

Various changes in the specific details of construction may be made without departing
10 from the spirit of my invention.

What is claimed as new is—

1. In a sash-balance, the combination, with the two sashes moving between beads in a widow-frame and a toothed rack on the edge
15 of each sash, of a casing in said frame, a shaft therein squared for a portion of its length and movable longitudinally in its bearings, a large gear having a square hole mounted on the squared portion of said shaft and engag-
20 ing the rack on the lower sash, a small gear mounted on a stub-shaft and engaging the rack of the upper sash, a pinion on said shaft normally engaging the small gear, and a lever pivoted in the casing, connected loosely at one
25 end to said shaft and projecting at its other end through the window-frame, substantially as described.

2. In a sash-balance, the combination, with the two sashes moving between beads in the window-frame and a toothed rack on the edge
30 of each sash, of a casing in said frame, a shaft therein squared for a portion of its length and movable longitudinally in its bearings, a large gear having a square hole mounted on the squared portion of said shaft and engag-
35 ing the rack on the lower sash, a small gear mounted on a stub-shaft and engaging the rack of the upper sash, a pinion on said shaft engaging the small gear, the shaft having the
40 shoulder near its rear end, an expansive spring coiled on its shaft between said shoulder and the casing and holding said pinion and small gear in normal engagement, and a
45 lever pivoted in the casing, connected to said shaft and projecting through the window-frame, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

MILTON B. REYNOLDS.

Witnesses:

F. W. WOODRUFF,
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