

W. B. & E. M. GREEAR & D. COX.
WINDOW SASH BALANCE.

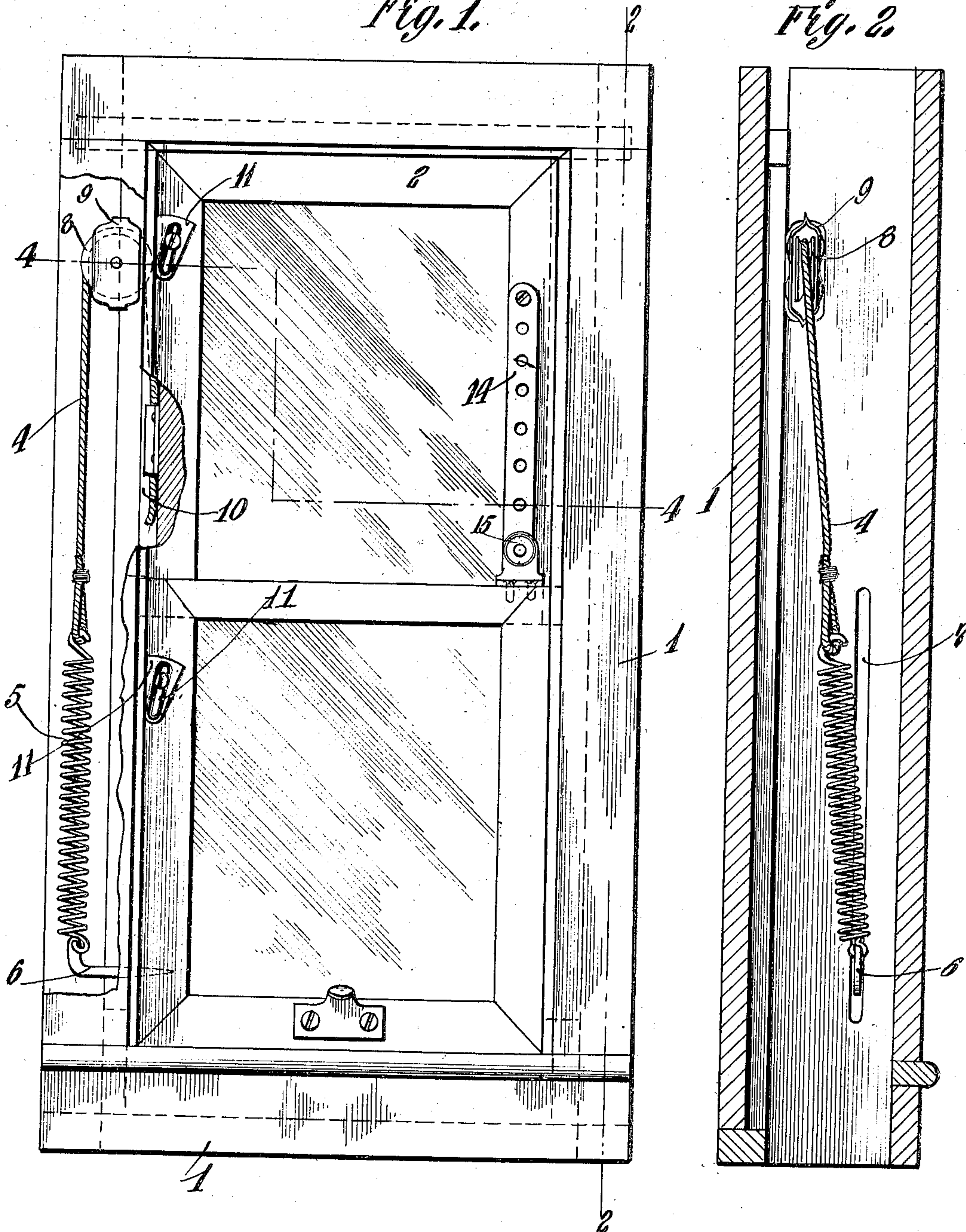
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Fig. 1.

Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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WINDOW-SASH BALANCE.

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To all whom it may concern:

Be it known that we, WILLIAM B. GREER, EUGENE M. GREER, and DAVID COX, citizens of the United States, residing at Honaker, in the county of Russell and State of Virginia, have invented certain new and useful Improvements in Window-Sash Balances, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in windows and more particularly to sash balancing devices.

The object of the invention is to provide an improved flexible and spring connection between the two sliding sashes of a window, whereby they will balance each other and be simultaneously moved in opposite directions, but may also be independently moved.

With the above and other objects in view, the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation with parts in section, of a window constructed in accordance with the invention; and Fig. 2 is a vertical sectional view taken on the plane indicated by the line 2—2 in Fig. 1.

In the drawings 1 denotes the frame or casing of a window in which upper and lower sliding sashes 2, 3 are arranged. These sashes are connected together for simultaneous movement and also for movement independent of each other by flexible connections consisting of cords or similar flexible elements 4 and coil springs 5. The cords and springs are connected together at one end and arranged within the portions of the frame 1, the lower ends of the springs being connected to outwardly projecting arms 6 secured to the sides of the lower sash adjacent its bottom and arranged for sliding movement in vertical slots 7 formed in the frame 1. The cords 4 extend over grooved guide pulleys 8 arranged in metal casings 9 secured in the upper portions of the sides of the frame 1, and said cords, after passing over the pulleys, extend downwardly into and are secured in vertical grooves 10 formed in the upper side edges of the upper sash 2. The length of the flexible and spring connections between the two sashes is such that when the lower sash is lowered to the bot-

tom of the frame, the upper sash will be held in a closed position in the top of the frame, the two sashes thereby balancing each other. These connections, therefore, not only connect the two sashes for simultaneous movement but permit either sash to be raised or lowered while the other is stationary, owing to the arrangement of the springs 5 in said connections.

For the purpose of locking the sashes at any adjusted position in the frame, a wedge-shaped locking plate 11 is pivotally mounted on each sash. For the purpose of locking the two sashes to each other, a ratchet member 14 is arranged upon the front face of the upper sash 2 and a co-acting pawl or dog 15 is arranged upon the top of the lower sash 3.

The operation of the invention is as follows: When all three of the locking devices are in inoperative positions and the lower sash is moved downwardly in the frame, the upper sash will be simultaneously elevated. When said lower sash is raised the upper sash will be lowered since they are connected together so as to balance and support each other. Should it be desired to have the top of the window frame open, the wedge-shaped locking plate 11 on the lower sash is turned to its locking position to hold the lower sash stationary and the upper sash may then be lowered any desired extent and locked either by the wedge-shaped locking plate 11 on said upper sash or by the locking pin or dog 15 and the co-acting ratchet 14. When it is desired to have only the bottom of the frame open, the upper sash may be locked by the wedge-shaped locking plate 11 upon it and the lower sash may then be raised and secured in adjusted position either by the wedge-shaped locking plate 11 upon said lower sash or by the locking pin 15 and co-acting ratchet 14. When it is desired to have the frame open both at its top and bottom, the lower sash is raised to the desired extent, whereupon the upper sash will be correspondingly lowered, and the two sashes may be locked together by means of the pin 15 and co-acting ratchet 14.

Having thus described the invention what is claimed is:

The combination of a window frame having its sides formed in their lower portions with vertical slots and in their upper portions with openings, upper and lower sliding

sashes in said frame, horizontally projecting arms arranged on the lower side portions of the lower sash to move in said slots, guide pulleys journaled in the openings in the upper portions of the sides of the frame, and flexible elastic elements, each comprising a cord and a coil spring, said elements being passed over the guide pulleys and having their upper ends connected to the lower portions of the upper sash and their lower ends connected to said arms, said springs being of such size as to permit either sash to be

moved from its full open to its full closed position without disturbing the other sash.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

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