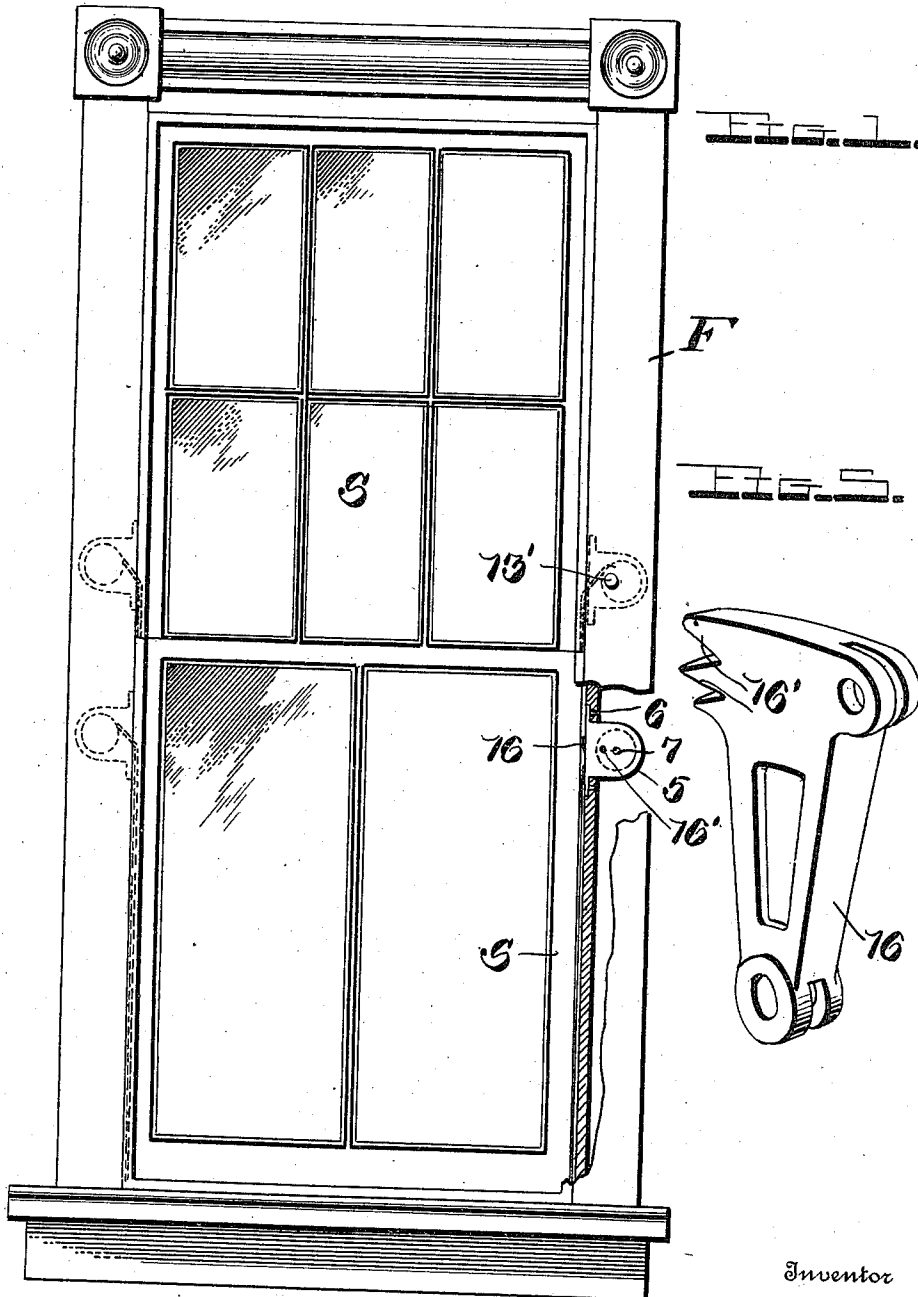


T. E. HUFFMAN.
SASH BALANCE AND LOCK.
APPLICATION FILED OCT. 31, 1910.

989,710.

Patented Apr. 18, 1911.

2 SHEETS—SHEET 1.



Witnesses

Chas. L. Griebauer.
J. H. Pender.

Inventor

T. E. Huffman.

By

Watson E. Coleman.

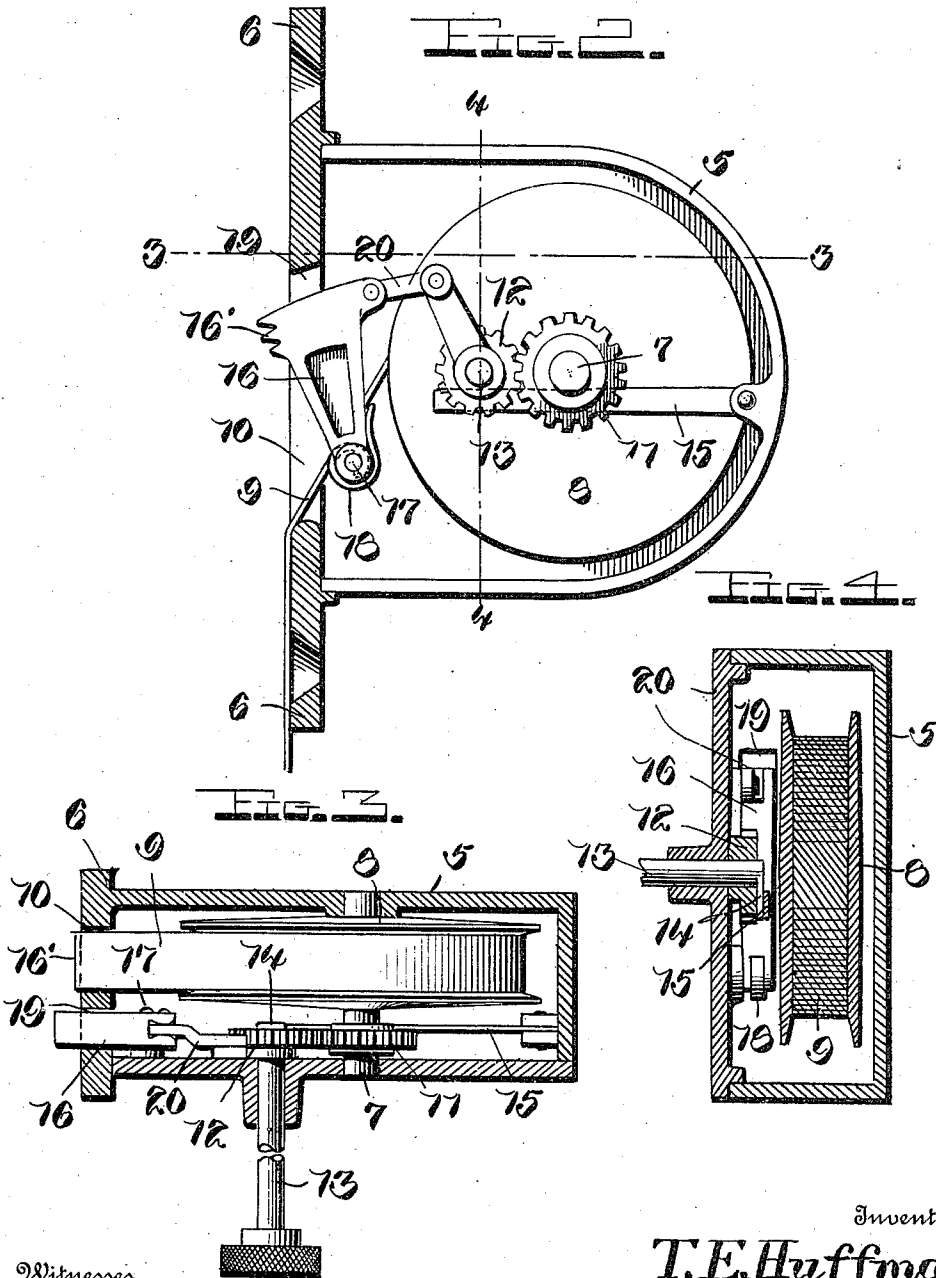
Attorney

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UNITED STATES PATENT OFFICE.

THADEUS E. HUFFMAN, OF ROYSTON, TEXAS.

SASH BALANCE AND LOCK.

989,710.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed October 31, 1910. Serial No. 589,932.

To all whom it may concern:

Be it known that I, THADEUS E. HUFFMAN, a citizen of the United States, residing at Royston, in the county of Fisher and State of Texas, have invented certain new and useful Improvements in Sash Balances and Locks, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to a combined sash balance and lock and has for its object to provide a very simple and efficient device of this character whereby the provision of cords and weights as a balance means for window sashes is eliminated.

Another object of the invention is to provide a spring balance for window sashes which is arranged in the window frame and will perfectly balance the sashes in any position.

A further object of the invention is to provide improved means for absolutely locking the sash against vertical movement at any point, said locking means and the balance spring being coöperatively associated so that said spring and the locking means may be controlled by a single operating element to release the sashes.

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

Figure 1 is a side elevation partly in section of a window, illustrating the preferred embodiment of my invention; Fig. 2 is an enlarged vertical section of the balance and lock removed from the window frame; Fig. 3 is a section taken on the line 3—3 of Fig. 2; Fig. 4 is a section taken on the line 4—4 of Fig. 2; and Fig. 5 is a detail perspective view of the locking dog.

Referring more particularly to the drawings F indicates the window frame and S the sashes which are mounted for vertical sliding movement in said frame. These sashes may be of any desired form or construction. In each of the vertical frame bars my improved sash balance and locking devices are arranged. A pair of these devices are arranged in the frame for each of the sashes. They comprise a casing 5 which is integrally formed with an attaching plate 6 which is adapted to be secured by suitable screws or other analogous fastening means

to the inner vertical face of the side bar of the sash frame. The casing 5 is preferably formed of sheet metal and is of substantially rectangular form. A short shaft or axle 7 is mounted in the opposite sides of the casing 5 and upon this axle a drum 8 is fixed. One end of a resilient steel tape 9 is secured to the drum 8, said tape passing through a slot 10 in the attaching plate 6 and having its other end secured to the sash frame. This spring it will be understood is of the proper temper according to the weight of the sashes to balance the same in the window frame at any point to which they may be moved.

Upon the drum shaft 7 a gear 11 is rigidly secured. The teeth of this gear are adapted to co-act with a gear or pinion 12 which is secured upon the inner end of a longitudinally movable releasing rod 13 whereby the drum shaft is locked against rotative movement. Upon the rod 13 adjacent to the pinion 12 a lug 14 is formed, said lug engaging with the end of a leaf spring 15, the other end of which is rigidly secured to the wall of the casing 5. This spring acts to normally lock the gear 11 and pinion 12 together.

As above described the sashes would be yieldingly held in the frame F by means of the springs 9, said springs being spirally coiled between the opposite sides of the drum 8. In order to securely lock the sashes against any movement whatever in the frame, I provide a locking mechanism which is actuated upon the sliding movement of the rod 13. This mechanism comprises a locking dog 16 which is pivotally mounted within the casing 5 and is of substantially triangular form. Upon one corner of this dog spur teeth 16' are formed which are adapted to bite into the window sash and effectually prevent its vertical movement. The pivot stud 17 of the locking dog has one end of a spring 18 secured thereto, the other end of said spring being secured to the dog. This spring acts to normally force the locking dog outwardly through a vertical slot 19 in the attaching plate 6, and to engage the spur teeth 16' with the window sashes. Pivotaly connected links 20 connect the pinion 12 on the end of the rod 13 with the locking dog 16 for a purpose which will more fully hereinafter appear.

In the operation of the device, when it is desired to adjust the sashes in the window

frame, the rod 13 which is provided with a suitable button 13' on its outer end is pushed inwardly to disengage the teeth of the pinion 12 from the gear 11, such inward movement of the rod 13 placing the leaf spring 15 under tension and after the gear teeth have thus been disengaged, the drum shaft will be released for rotative movement. The locking dog 16 is now moved inwardly out of engagement with the sash by rotating the rod 13 to move the links 20 and thus disengage the spur teeth 16' from the sash. This movement of the locking dog places the spring 18 under tension. It will be obvious that upon the release of pressure on the rod 13, the spring 15 will force said rod outwardly and again engage the teeth of the gear 11 and pinion 12. The release of the pressure on the rod also permits the spring 20 to again force the locking dog 16 outwardly into engagement with the sash. It will of course be understood that one of the links 20 is rigidly secured to the pinion 12, the other link being pivoted thereto and to the dog 16. Thus the device may be quickly operated to release the sash, and after the sash has been properly adjusted in the window frame, the parts are automatically returned to their locking positions to absolutely prevent any sliding movement of the sash.

It will of course be understood that the sash locking mechanism is provided on only one side of the window frame for each sash, the other devices arranged on the opposite side of the frame having simply the casing with the drum and movable tape housed therein.

From the foregoing it is believed that the construction and operation of my improved window sash balance and locking device will be readily understood. It is extremely simple, may be easily and quickly arranged in the ordinary window frame after the removal of the balance cords and weights, and is furthermore easily and quickly operated. The device may also be constructed at a very small cost and is extremely durable and highly efficient in practical use.

While I have shown and described the preferred construction and arrangement of the various parts, it will be understood that the device is susceptible of considerable modification without departing from the essential feature or sacrificing any of the advantages of the invention.

Having thus described the invention what is claimed is:—

1. In a device of the character described, a rotatably mounted drum, a pivoted locking dog adapted for engagement with a win-

dow sash, means operatively connected to the dog and normally preventing rotation of the drum, a resilient tape on said drum connected to the window sash, and means for actuating said means to release the drum and the locking dog from engagement with the sash.

2. In a device of the character described, a rotatably mounted drum, a spring actuated locking dog adapted for locking engagement with a window sash, a spring tape on said drum connected to the sash, yieldingly held means normally preventing rotation of the drum, and means operatively connecting said means and the locking dog whereby the drum may be released and the locking dog disengaged from the sash.

3. A device of the character described comprising an axle, a gear on the axle, a pivoted locking dog, a spring normally holding said dog in locking engagement with a window sash, a pinion, means for yieldingly holding the pinion in engagement with the gear on said axle, means connecting said pinion and the locking dog, and means for disengaging said pinion and gear and rotating the pinion to move the locking dog out of engagement with the window sash.

4. In a device of the character described, a rotatably mounted axle, a gear secured on said axle, a longitudinally movable rod and a pinion on said rod, a spring yieldingly holding said pinion and gear in engagement, a pivoted locking dog to engage a window sash, and a link connection between said dog and pinion, said pinion being adapted to be disengaged from the gear on the axle and rotated to move the locking dog out of locking engagement with the window sash.

5. In a device of the character described, a rotatably mounted axle, a gear on the axle, a spring actuated locking dog having teeth formed thereon to engage a window sash, a longitudinally movable rod, a pinion on one end of said rod to engage the gear on the axle, a lug formed on the rod, a leaf spring engaging said lug to normally hold the pinion in engagement with the gear, a link rigidly secured to the pinion, and a second link pivotally connecting said locking dog with the first named link, said rod being adapted for longitudinal movement to disengage the pinion and gear and to be rotated to move the locking dog out of locking engagement with the window sash.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

THADEUS E. HUFFMAN.

Witnesses:

L. C. MILLER,

P. D. KIRKSEY.