M. W. MONTGOMERY.

Improvement in Sash-Elevators and Locks.

No. 126,733. Patented May 14, 1872.

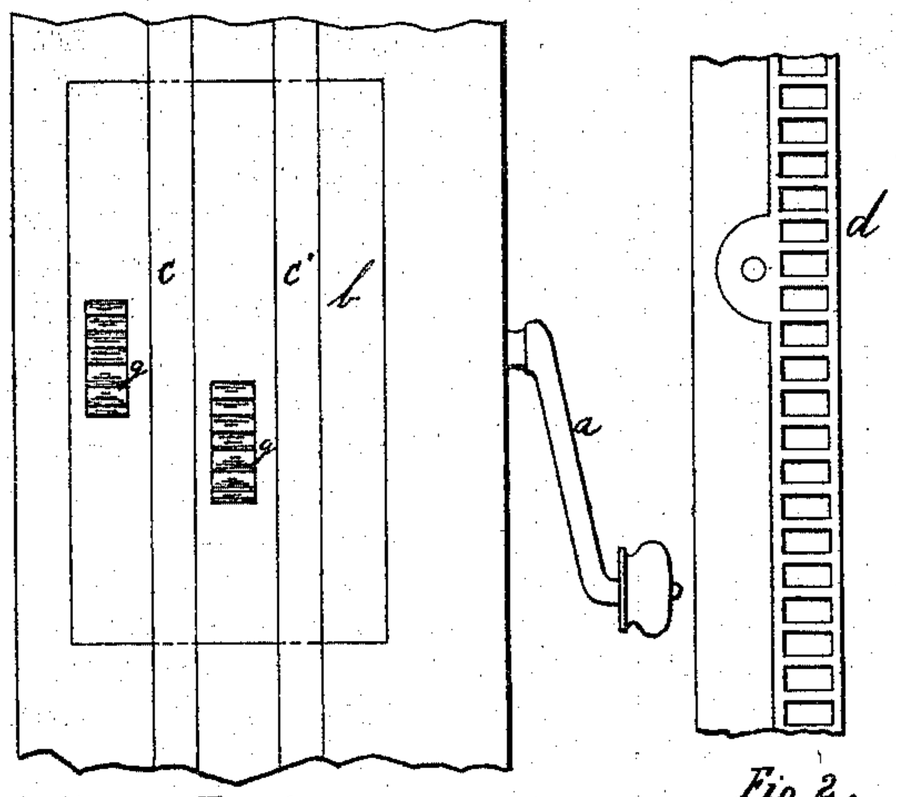


Fig 1.

Fig 2.

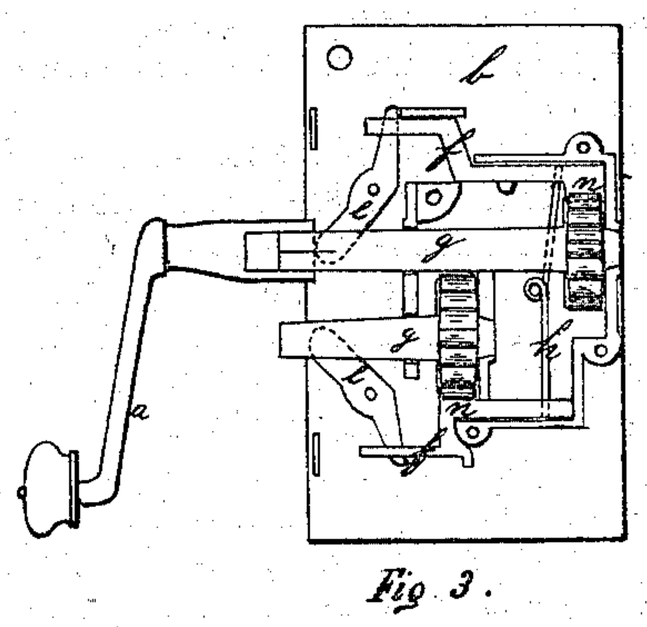


Fig 3.

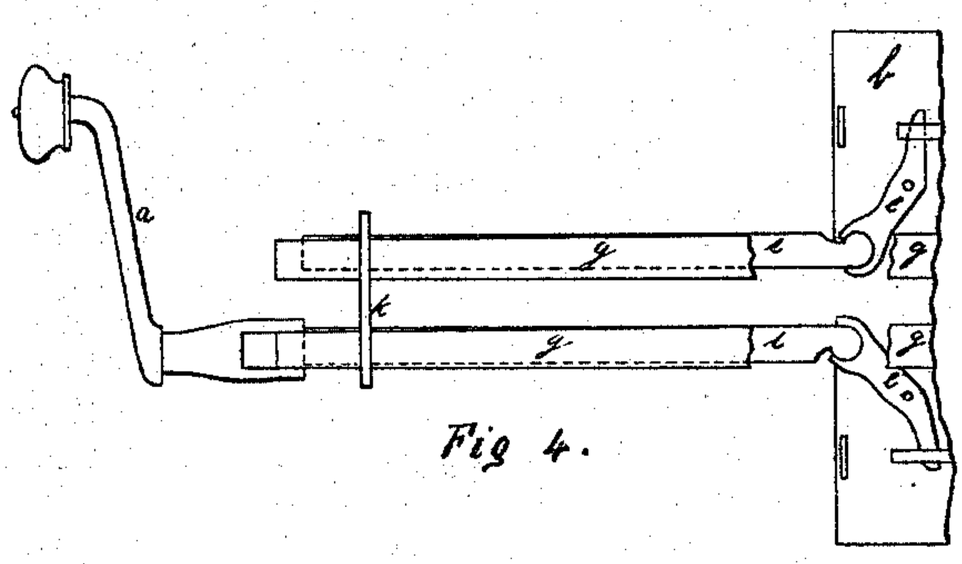


Fig 4.

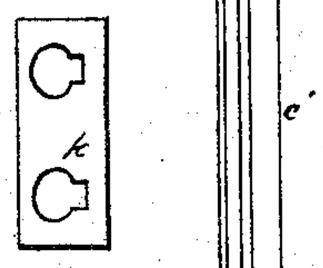


Fig 5.

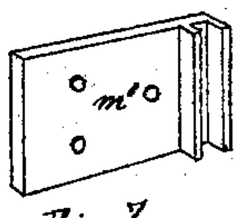
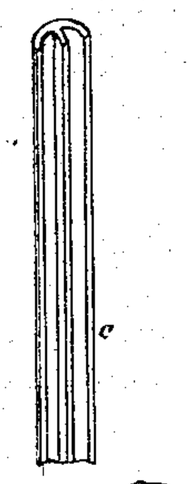


Fig 7.



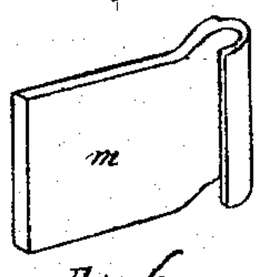


Fig 6

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IMPROVEMENT IN SASH-ELEVATORS AND LOCKS.

Specification forming part of Letters Patent No. 126,733, dated May 14, 1872.

Specification describing certain Improvements in Sash-Elevators and Locks, invented by MARCUS W. MONTGOMERY, of the city of Cleveland, county of Cuyahoga, and State of Ohio.

My invention relates to a sash-elevator and lock; and consists in such an arrangement of the parts as shall enable the operator, while elevating or lowering either sash by turning the key, to securely lock them at any point, by mere cessation of pressure upon the key, and to adapt this device to window-frames of various depths.

Figure 1 is a side view of a section of a window-frame, showing the sash-lock in position, the key *a*, and the check-rail *c* and *c'*, pinions *g g*, and lock-plate *b*. Fig. 2 is an edge view of the sash, showing the rack-bar *d* attached. Fig. 3 is a back view of the lock with the cover removed, showing the key *a*, levers *e e*, bolts *f f*, spring *h*, the pinions and their shafts *g g*, and the lock-plate *b*. Fig. 4 is a back view of a portion of the lock, showing the extended pinion-shafts *g g*, extension-rods *i i*, guide *k*, and key *a* all in position, illustrating the manner of extending the levers *e e*, so as to adapt this lock to window-frames of any depth. Fig. 5 is a separate view of the guide *k*. Fig. 6 is a view of the double-grooved check-rail *c* and the sash-hook *m*. Fig. 7 is a view of the rabbeted check-rail *c'* and the sash-hook *m'*.

The lock is set into the right side of the window-frame at the point where the sash meets, the lock-plate *b* being flush with the frame. The rack-bar *d*, into the teeth of which the pinion-cogs work, is placed upon the edge of each sash; the same key operates either sash, according as it is applied to the upper or lower pinion-shaft. Through an opening in the inside casing the key *a* is applied to the pinion-shaft *g*, Fig. 3, where it meets the lever *e*, which is so arranged with reference to the bolt *f* that gentle pressure upon the key *a* throws the bolt *f* out of the pinion-cogs at the point *n*. The sash is thus unlocked, and if the key be turned (the pressure being continued) to the right or left the sash will move respectively up or down. Whenever the pressure upon the key ceases, which occurs involuntarily when the sash has reached any desired point, the rebound of the spring *h* immediately throws the bolt *f* into the pinion-cogs, and thus locks the sash, at the same time pushing the key *a* back to its original position, thus making this sash-elevator and lock instantly self-locking at any point, and also so that it may be unlocked and the sash elevated and lowered by merely pressing upon the key while turning it, using only one hand, and not applying either hand to the sash.

I do not confine myself to any particular form of lever, bolt, or spring. The end of the lever which connects with the bolt may enter the cogs, thus dispensing with the bolt *f* as a separate piece; or the key may meet the end of the bolt directly, and thus dispense with the lever *e*, this latter plan being practicable when the sash are not heavy, in which case lever power is not necessary, the essential point of this part of my invention being that the lever and bolt (either one of them alone or both together) shall be so arranged that pressure applied to either or both of them, through the key, shall unlock the pinion-cogs, and thus unlock the sash, and a mere cessation of this pressure shall leave the spring free to again lock the cogs at any point.

The important advantage of the lever appears most clearly when heavy sash are used; since the lever-power acquired by its use allows the bolt to be thrown out of the cogs with much less pressure upon the key than would be necessary in case a bolt only were used.

The spring *h* may be secured in any desirable manner. The levers *e e*, as shown in Fig. 3, are adapted only for window-frames of shallow depth. In order to extend these levers so as to adapt them to frames of any depth is the object of the device, shown in Figs. 4 and 5. The pinion-shafts *g g* are elongated to reach the inside casings of any window, and the levers *e e* are lengthened correspondingly to meet the key by using the extension rods *i i*, which are jointed to the levers *e e* in any suitable manner. These extension rods are held in position near the extremity of the pinion-shafts by the guide *k*, which also serves as a bearing for the lengthened shafts.

When the turning of the key begins to elevate the sash the latter bind against the opposite side of the window-frame, thus retarding the upward movement of the sash. To obviate this difficulty is the object of the devices shown in Fig. 7. The check-rail *c'*, Fig. 7, is rabbet-

ed at one corner, and is secured to the window-frame at the right edge of the sash. One or more of the metal sash hooks, *m'*, Fig. 7, are secured to the right side of the sash, and slide in the rabbeted groove in the check-rail *c'*, and thus hold the sash securely in their proper position, avoiding entirely the binding against the opposite side, and securing an easy movement up or down.

In Fig. 6 is shown a double-grooved check-rail, *c*, and a sash-hook, *m*, which may be used instead of the rail *c'* and sash-hook *m'* upon some windows. This rail *c* is placed between the sash, and takes the place of the usual wooden parting strips.

In the accompanying model the lower sash is guided by the rail *c'* and hook *m'*, which I much prefer, and the upper sash is guided by the rail *c* and hook *m*.

The hooks *m'* and *m* may be a part of the rack-bar *d*, if preferred. They may each have a guide which is placed at the edge of the sash to make the distance which the hook projects always uniform.

I claim as my invention—

1. The combination of the key *a*, lever *e*, bolt *f*, spring *h*, pinion *g*, and rack-bar *d*, substantially as and for the purpose set forth above.

2. The extension rod *i* and guide *k*, in combination with the key *a*, lever *e*, bolt *f*, spring *h*, pinion *g*, and rack-bar *d*, substantially as and for the purpose hereinbefore set forth.

3. The rabbeted check-rail *c'* and sash-hook *m'*, in combination with the rack-bar *d*, pinion *g*, spring *h*, bolt *f*, lever *e*, and key *a*, substantially as and for the purpose hereinbefore set forth.

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Witnesses:
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