(No Model.) 3 Sheets—Sheet 1.

W. LIVINGSTONE.

SASH FASTENER.

No. 405,784. Patented June 25, 1889.

Fig. 2.

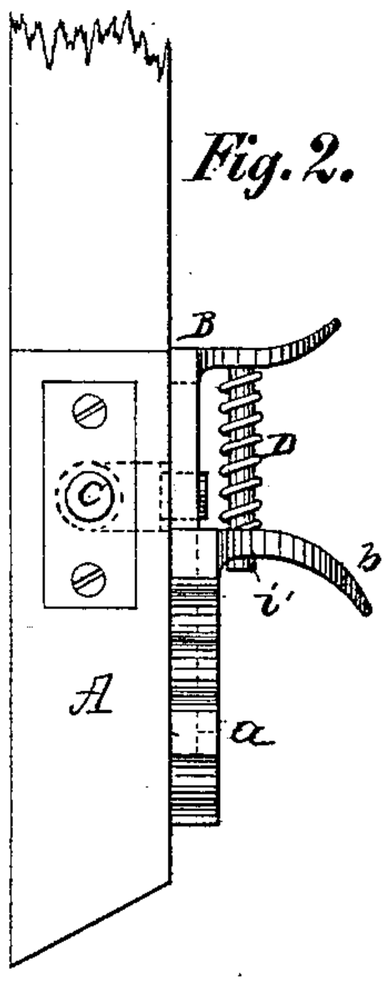


Fig. 1.

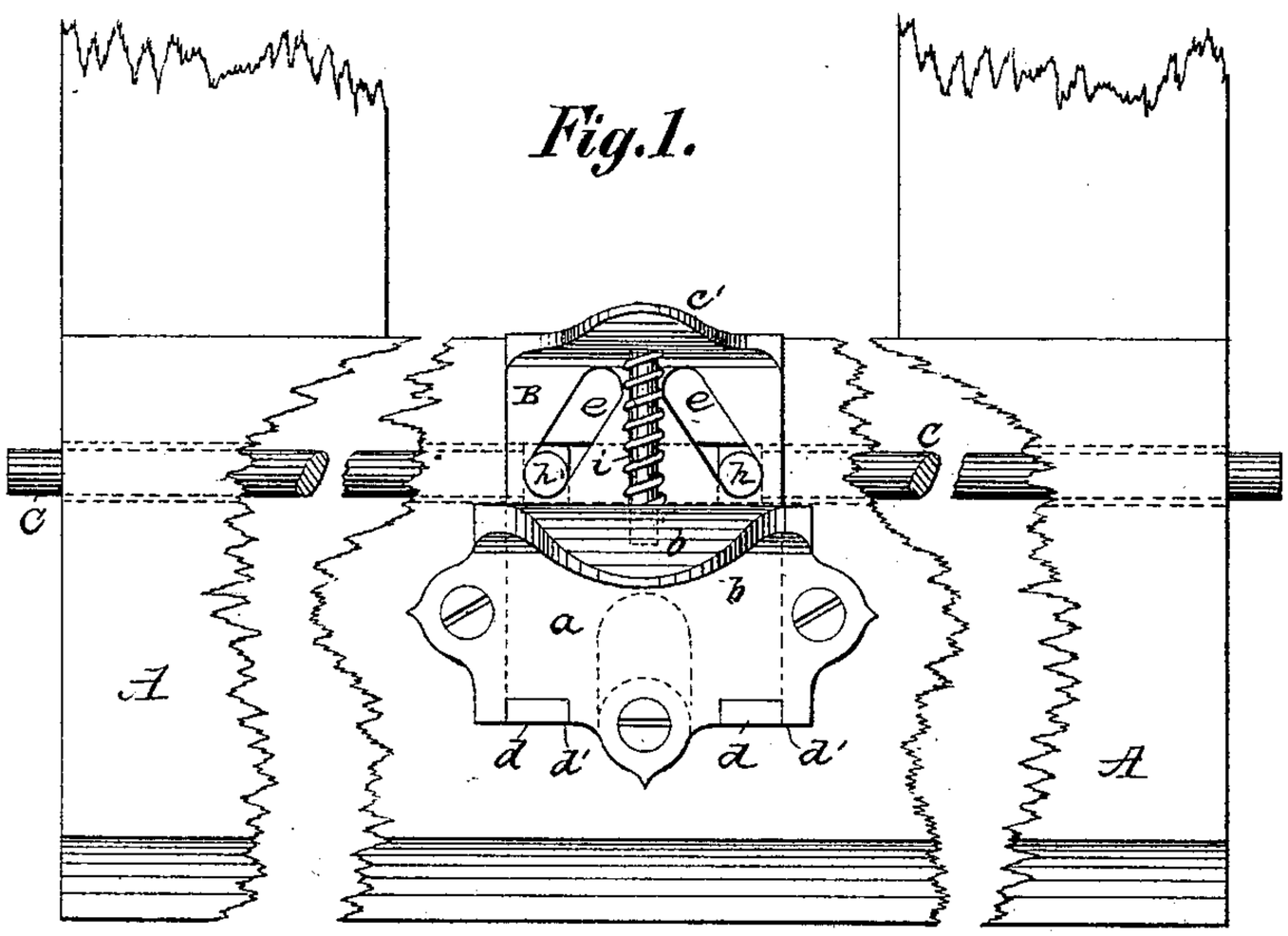


Fig. 4.

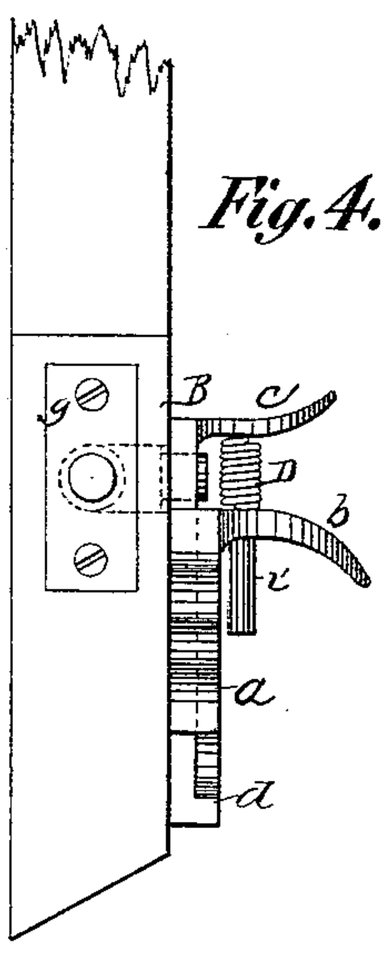


Fig. 3.

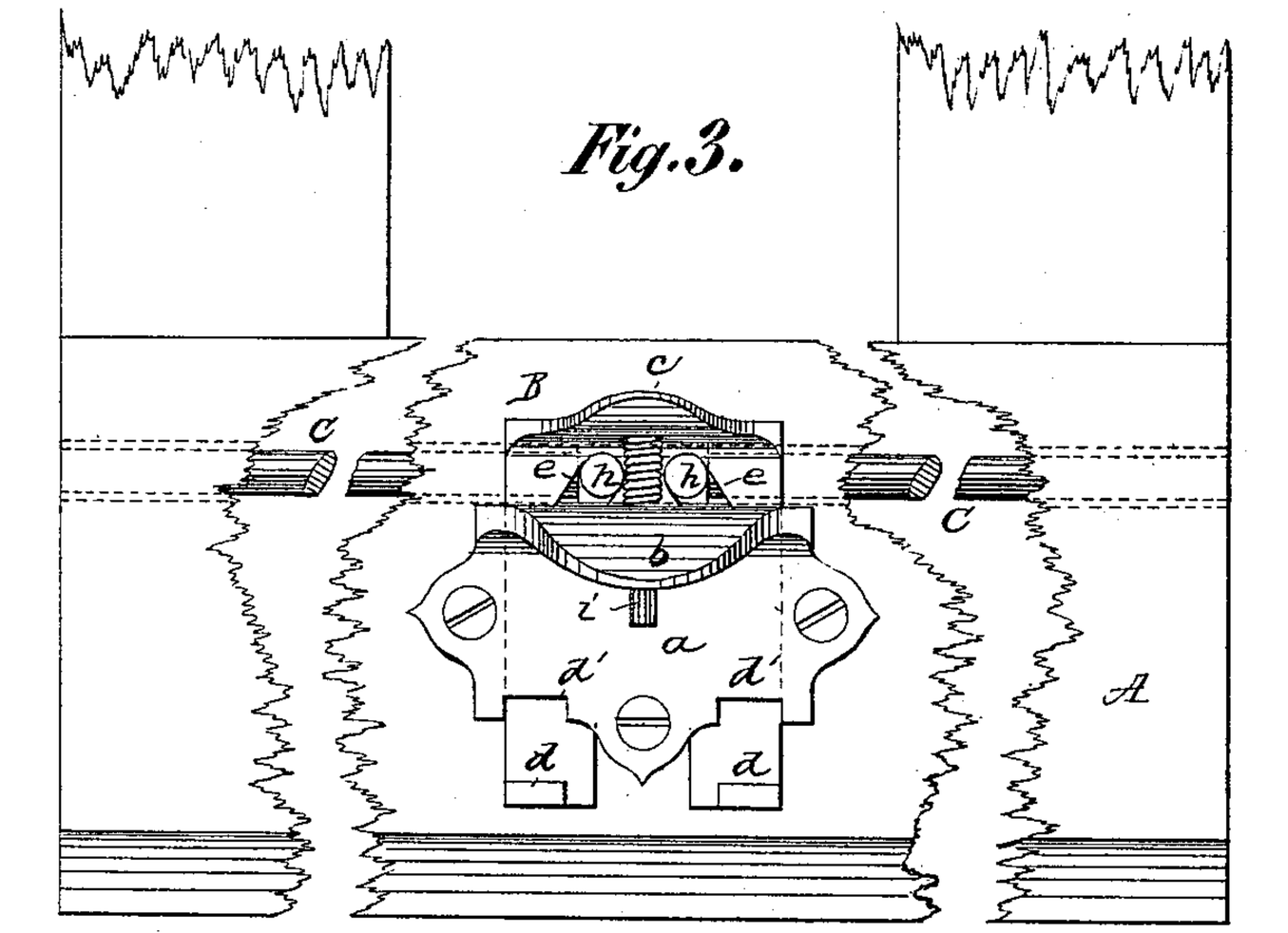
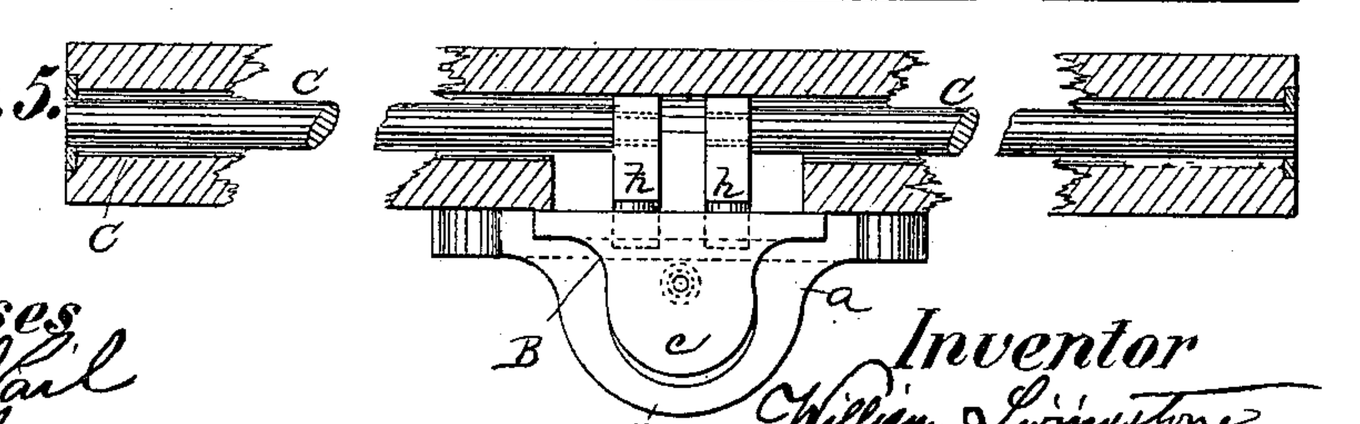


Fig. 5.



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(No Model.) 3 Sheets—Sheet 2.

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SASH FASTENER.

No. 405,784. Patented June 25, 1889.

Fig. 7.

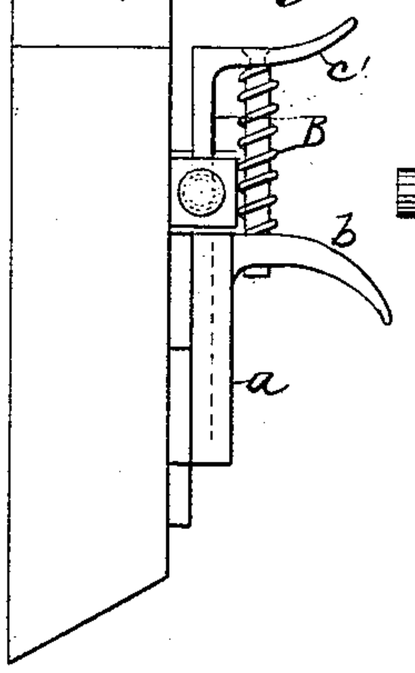


Fig. 6.

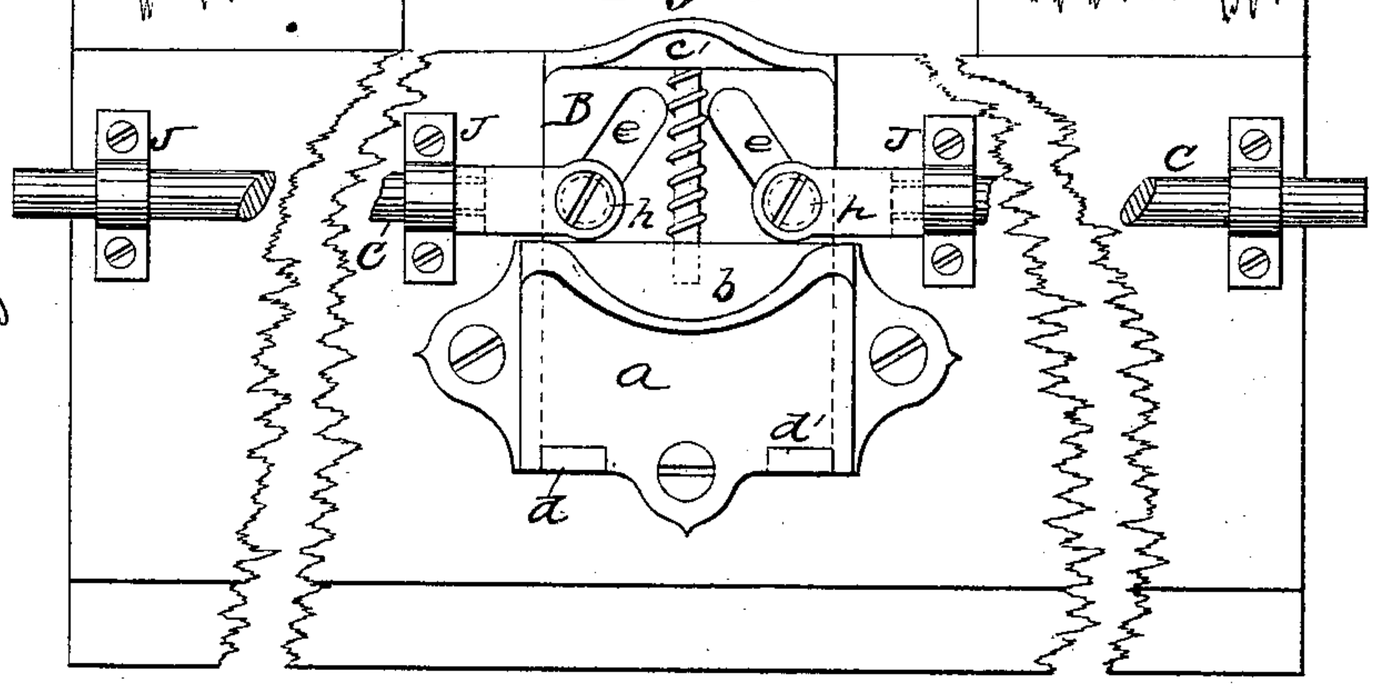


Fig. 9.

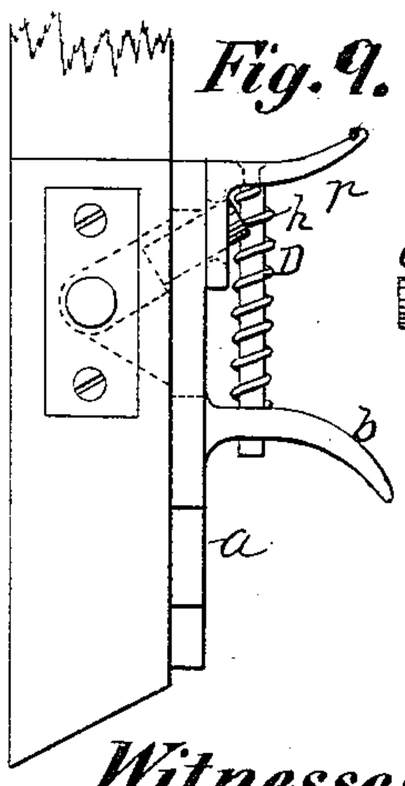
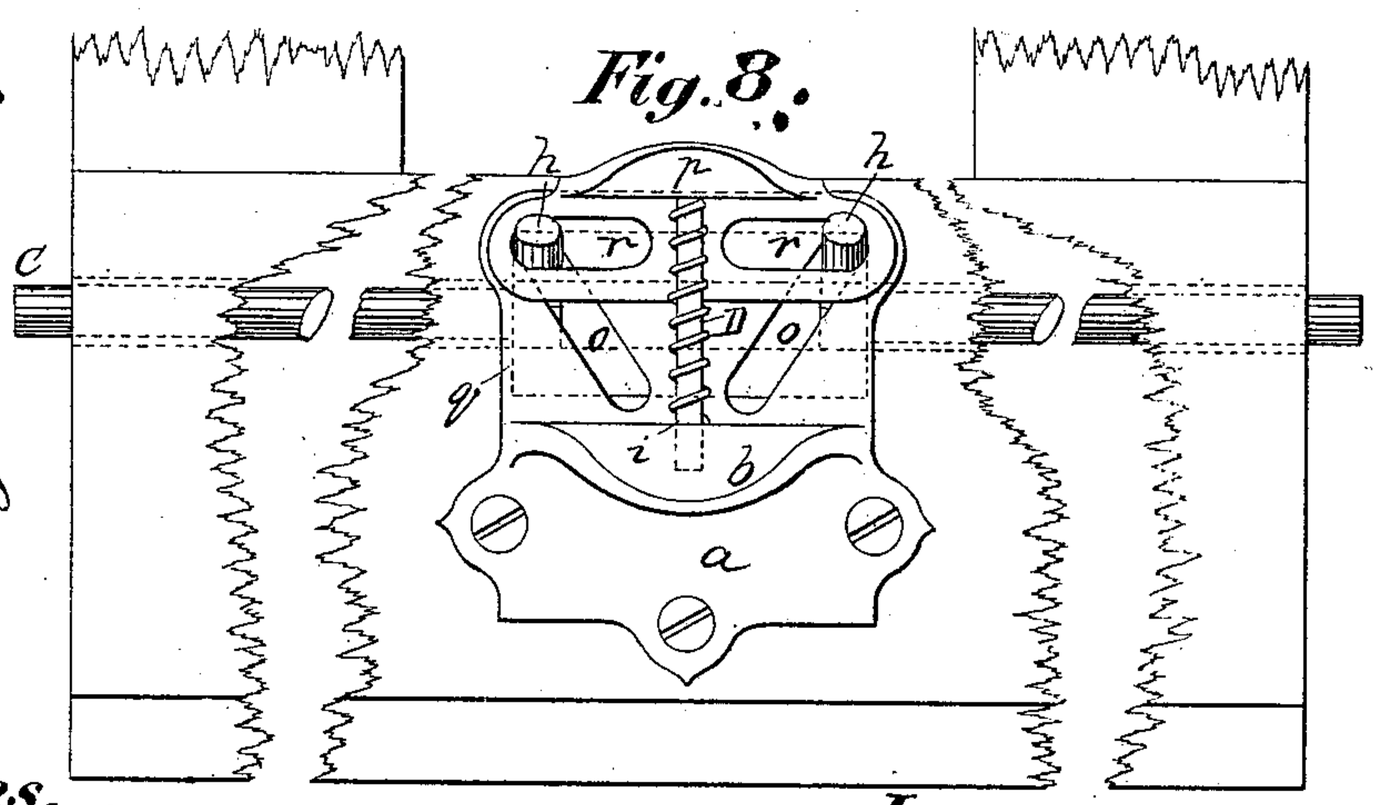


Fig. 8.



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(No Model.) 3 Sheets—Sheet 3.

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SASH FASTENER.

No. 405,784. Patented June 25, 1889.

Fig. 10.

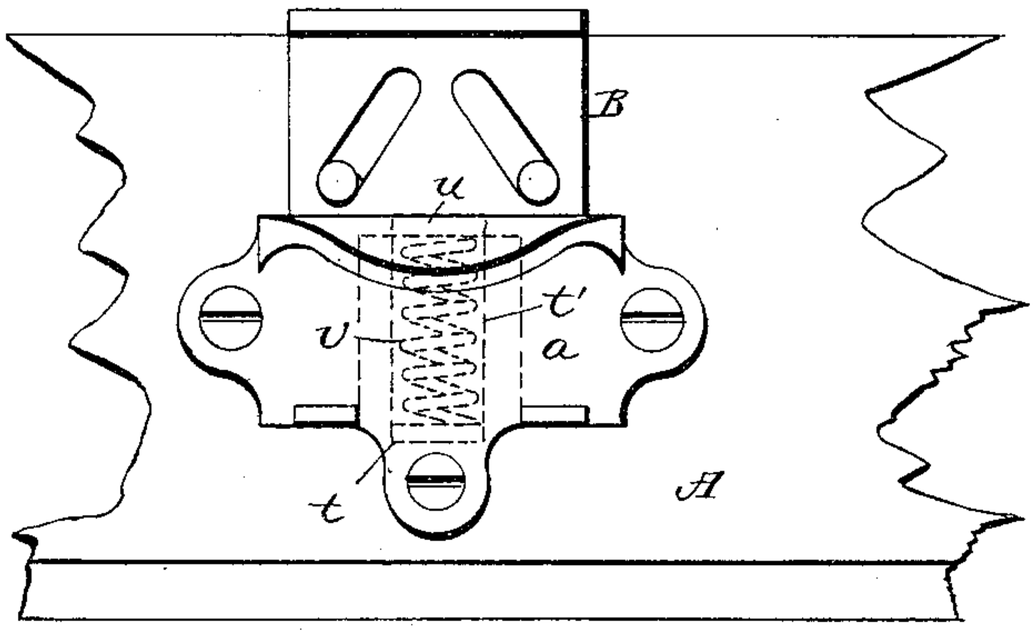


Fig. 11.

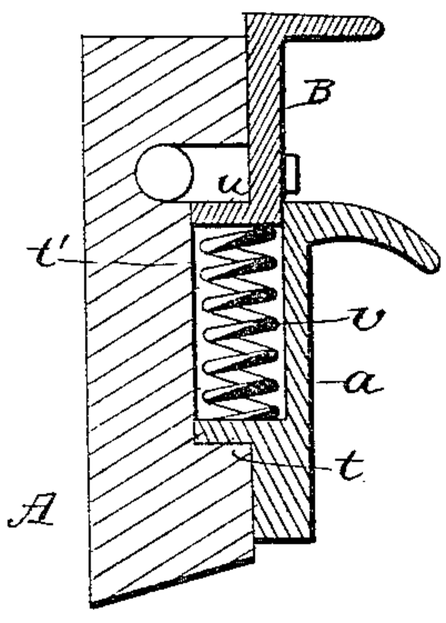
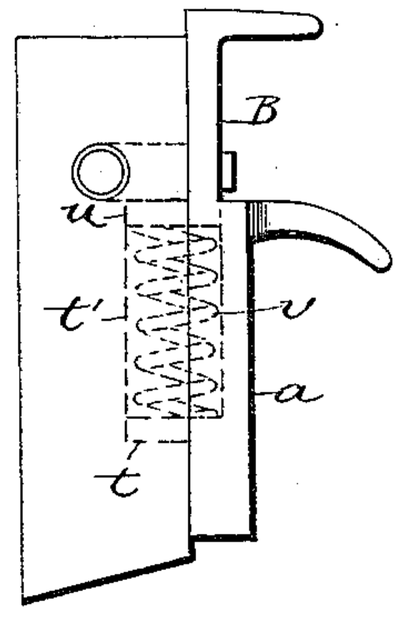


Fig. 12.



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UNITED STATES PATENT OFFICE.

WILLIAM LIVINGSTONE, OF JERSEY CITY, NEW JERSEY.

SASH-FASTENER.

SPECIFICATION forming part of Letters Patent No. 405,784, dated June 25, 1889.

Application filed August 4, 1888. Renewed May 28, 1889. Serial No. 312,435. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LIVINGSTONE, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Sash-Fasteners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in sash-fasteners, and more particularly to such as are used in car-windows.

Prior to my present invention sash-fasteners for car-windows have been constructed so as to lock the same on one side only, while the device for raising and lowering the sash was fixed at the center of the sash, thereby necessitating the use of both hands to operate the sash. The sash, being locked on one side, (usually the lower right-hand corner,) will rest upon that point as a fulcrum, and if there is any play between the sides of the sash and the window-frame the former will tend to sag and settle on the side opposite the lock, thereby rendering the operation of the sash difficult even with both hands. This is especially true with persons unacquainted with such devices.

The object of my present invention is to correct these objectionable features in prior devices and to provide a sash-fastener which can be operated at the center of the sash to unlock and raise the same with one hand and at a single operation.

A further object is to provide a simple, cheap, durable, and easily-manipulated sash-fastener and lifting device combined, to be worked with one hand and simultaneously, at the center of the lower cross-bar of the sash, to move said sash in perfect equilibrium by exerting the power in the direction of the vertical axis of the sash.

With these objects in view my invention consists in certain novel features of construction and peculiar combinations and arrangements of parts, as will be hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of a portion of a window-sash, showing the lifting hook or lip in its permanent and the sash-fastener in its normal position. Fig. 2 is a side elevation of the same. Fig. 3 is a front elevation of a portion of a window-sash, showing my improved device in unlocked position. Fig. 4 is a side elevation of the same. Fig. 5 is a horizontal section of the lower window-bar, showing a plan view of the lifting hook or lip and locking-rods and the method of their connection with the sliding plate. Figs. 6, 7, 8, 9, 10, 11, and 12 are views of modifications.

A indicates the lower connecting-bar of a window-sash of the usual construction, having secured at the center thereof a bracket *a*. This bracket is furnished at its top with an integral lip or hook *b*, which provides means whereby the window may be raised and lowered, as hereinafter explained. The bracket *a* is furnished on its inner face with a recess *c*, for the reception of a reciprocating plate B, having a thumb-piece *c'*, made integral with its upper end, by which to manipulate said plate. The plate B is furnished at its lower extremity with laterally-projecting lugs or projections *d*, adapted to fit into notches *d'*, made in the bottom of the bracket *a*, and thus limit the upward movement of the plate B. The plate B is further provided with two diagonal slots *e e*, which start at points near the center of said plate immediately beneath the thumb-piece *c'* and diverge outwardly and downwardly to points at or near the center of length of the plate, these slots being for a purpose presently explained.

The bar A of the sash is preferably furnished with a longitudinal perforation *f*, extending the entire length of said bar and immediately above the bracket *a*. The perforation *f* is for the reception of two sliding rods or bolts C C, which are guided at the ends of the perforation by perforated plates *g*, secured to the bar A. The rods or bolts C are furnished at their inner extremities with lugs or pins *h*, extending therefrom at right angles and into the slots *e* of the plate B.

Fixed to the under side of the thumb-piece *c'* is a rod *i*, which extends downwardly through a perforation *i'* in the lip *b*, in which it has a reciprocating movement. In order to maintain the sliding rods or bolts C projected beyond the ends of the bar A of the sash and into suitable sockets made therefor in the window-frame, it is necessary that the

plate B should be kept at its upper limit of movement, so that the pins or lugs *h* will be at the bottom of the slots *e e*. To accomplish this, a spring D is coiled about the rod *i*, and made to bear at its lower end against the lip *b* and at its upper end against the thumb-piece *c'*, thereby maintaining the plate B in its upper limit of movement. By this construction it will be seen that to raise the sash it is simply necessary to grasp the thumb-piece *c'* and the lip *b* and press them together and at the same time raise the window. By this operation the plate B is lowered against the action of the spring D, and the pins *h*, sliding in the slots *e*, will cause the sliding bolts C to approach each other and be withdrawn from their engagement with the window-frame. When the sash is raised to the desired height, it is only necessary to release the thumb-piece, and the bolts will be again projected into sockets in the window-frame and the sash locked.

The bolts C may be located in a perforation in the bottom connecting-piece of the sash, as previously explained, or they may be mounted in brackets *j*, secured to the surface of said bar, as shown in Figs. 6 and 7. In such case the pins *h* will be made to project into the slots *e* in the opposite direction from that shown in Figs. 1 and 3, and the reciprocating plate B will be made to slide in the bracket *a* independently of the bar A, as shown in Fig. 7.

In the modification shown in Figs. 8 and 9 the bracket *a* is extended upwardly, and the inclined slots *o* made therein to extend from points near the center of the bracket above the lip *b* in an upward and outward direction. A rod *i* is fixed to the lip *p* of a plate *q*, said rod being extended downwardly and passed through the lip *b* of the bracket *a*. The plate *q* is placed on the bracket *a* and maintained in normal upward position by a spring D, encircling the rod *i* and bearing at its ends against the lips of the bracket *a* and plate *q*, respectively. The plate *q* is also furnished with two aligned horizontal slots *r*, for the reception of the pins *h* of the locking-rods C, said pins also extending through the diagonal slots *o* of the bracket.

The locking-rods are inserted within a perforation in the cross-bar of the sash, and in order to permit a rocking movement, as presently explained, recesses *s* are cut in the cross-bar A and made to communicate with the perforation at its center. Now as the plate *q* is depressed it will cause the pins *h* and their rods to rock and make a part revolution. At the same time it will force said pins downwardly in the inclined slots *o*, and thus cause the pins and their rods to approach each other, and thereby withdraw said locking-rods from their engagement with the window-frame.

If desired, the modified form of construction shown in Figs. 10, 11, and 12 may be adopted. In this form of the invention the bracket *a* is provided with a rearwardly-projecting flange *t*, set into a recess *t'* made in the sash-bar A. The upper plate B is also furnished with a rearwardly-projecting flange or projection *u*, projected into the recess *t'*. In lieu of providing a guide-rod *i* and spring to encircle it above the bracket *a*, as previously explained, in this construction a spring *v* is placed in the recess *t'* and made to maintain the plate B in its normal upward position from beneath, the spring being entirely out of sight and well protected.

Other slight changes might be made in the constructive details of my invention without departing from the spirit thereof or limiting its scope; hence I do not wish to limit myself to the precise details of construction herein described; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a window-sash, of a lifting-lip rigidly secured to said sash, a plate having two inclined slots, and two bolts provided with pins or lugs resting in said slots, the said bolts adapted to be moved longitudinally by contact of the pins or lugs with the inclined walls of the slots, substantially as set forth.

2. The combination, with a window-sash, of a bracket rigidly secured thereto and provided with a lifting-lip, a sliding plate mounted in said bracket and having oblique slots, a spring to maintain the sliding plate in a normal upward position, two bolts mounted in the sash, and lugs or pins projecting from said bolts into the oblique slots of the sliding plate, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM LIVINGSTONE.

Witnesses:
F. S. EMMONS,
THOS. H. SPEIR.