No. 670,956. Patented Apr. 2, 1901.

P. P. HOUGHTON.

SASH LIFTER.

(Application filed Nov. 20, 1900.)

(No Model.)

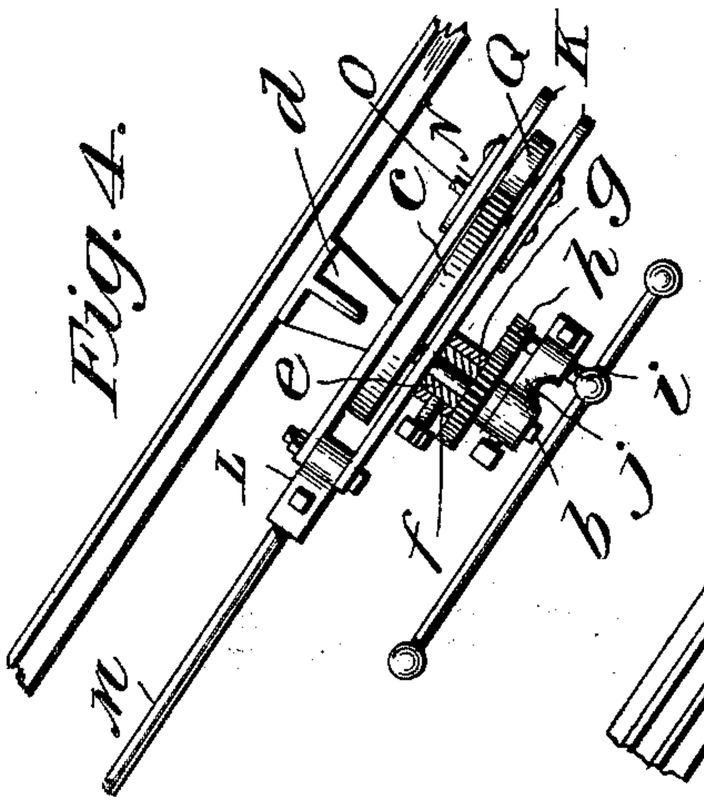


Fig. 4.

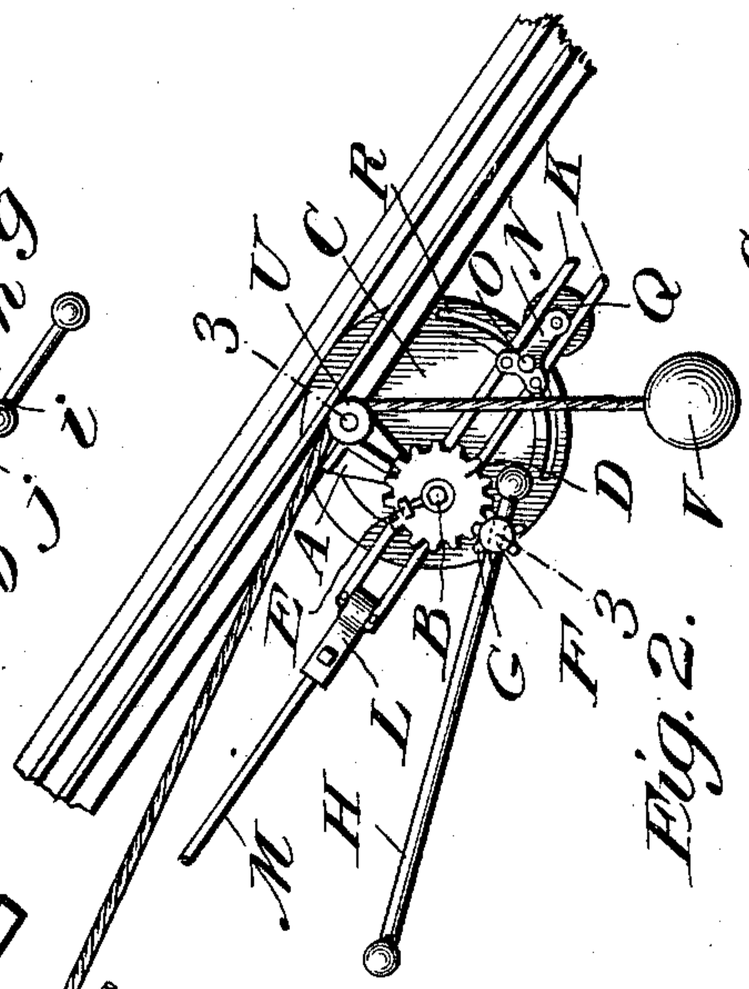
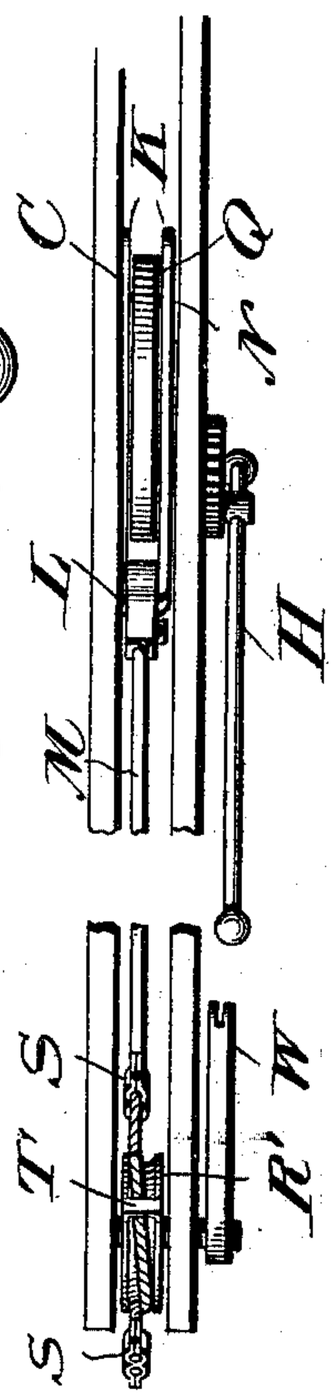


Fig. 2.



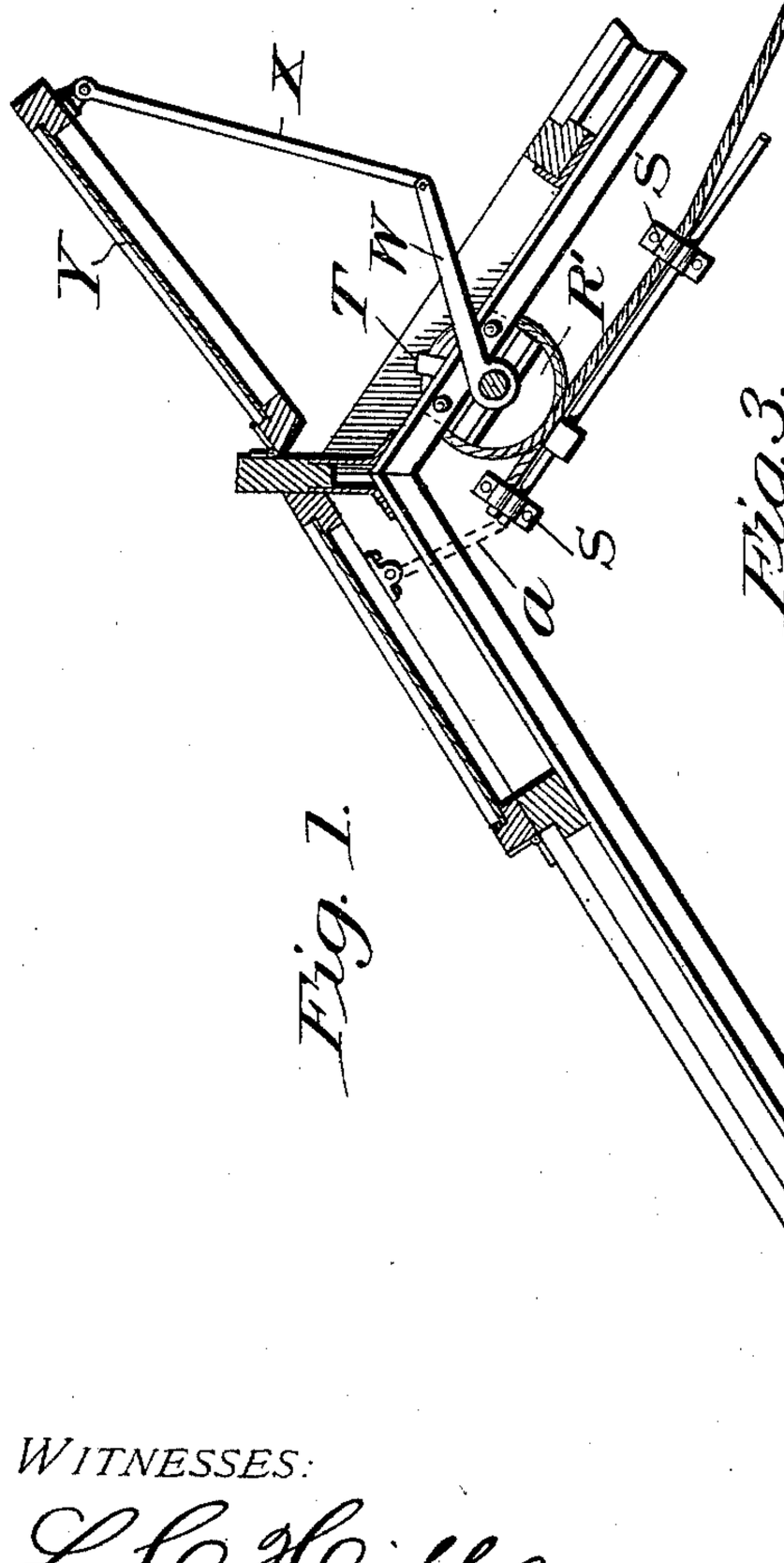


Fig. 1.

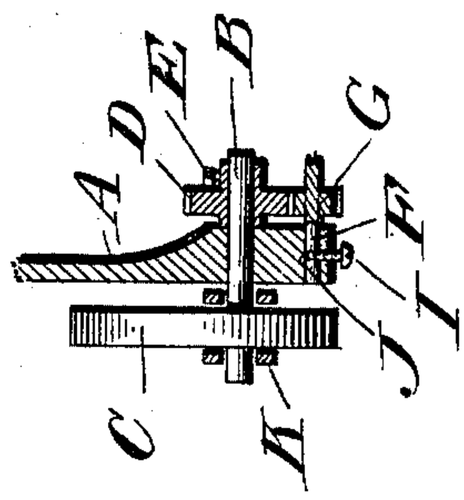


Fig. 3.

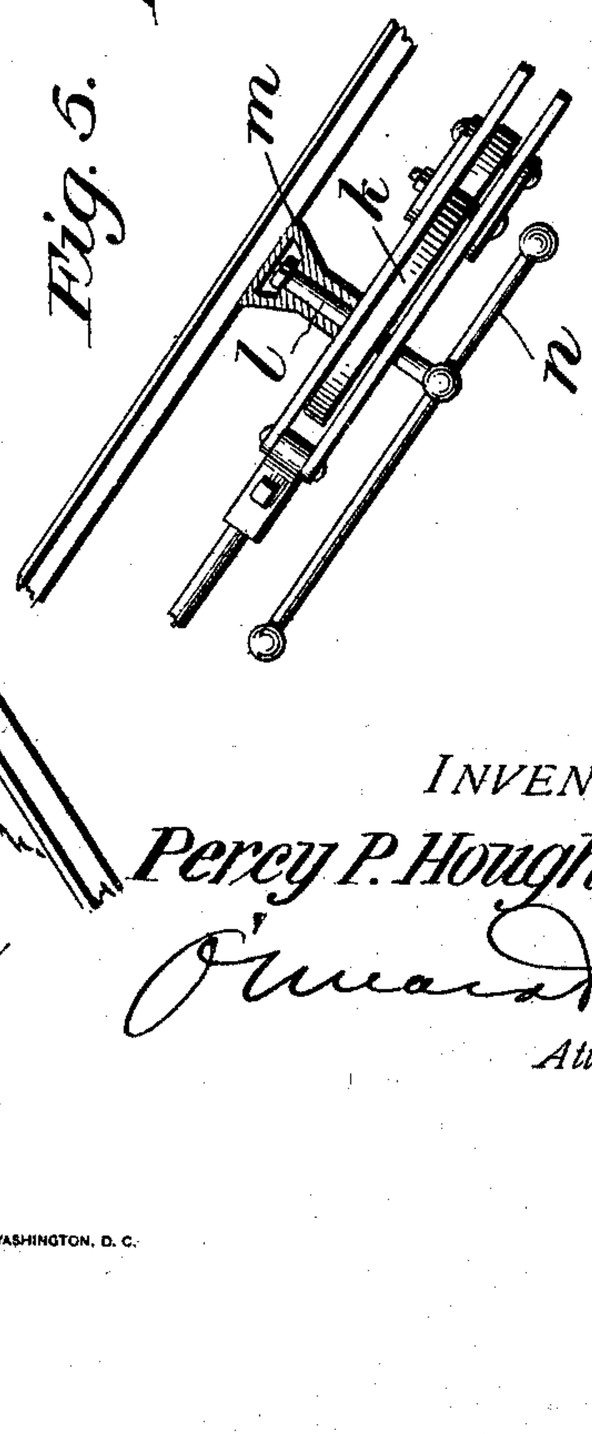


Fig. 5.

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SASH-LIFTER.

SPECIFICATION forming part of Letters Patent No. 670,956, dated April 2, 1901.

Application filed November 20, 1900. Serial No. 37,120. (No model.)

To all whom it may concern:

Be it known that I, PERCY PETER HOUGHTON, a citizen of the United States, residing at Seabright, in the county of Monmouth and State of New Jersey, have invented a new and useful Sash-Lifter, of which the following is a specification.

This invention relates to improvements in devices for operating window-sashes; and the object is to provide a simple and improved construction by means of which window-sashes or ventilators may be quickly and conveniently opened or closed.

With the above object in view the invention consists in the novel features of construction hereinafter fully described, particularly pointed out in the claims, and clearly illustrated by the accompanying drawings, in which—

Figure 1 is a side elevation of a device embodying my invention; Fig. 2, a top plan view, partly in section; Fig. 3, a transverse section on the line 3 3 of Fig. 1; Fig. 4, a sectional view of a modification, and Fig. 5 a similar view of another modification.

Referring now more particularly to the accompanying drawings, A designates a hanger secured at some convenient point adjacent to the window-sash or ventilator to be operated. Mounted in said hanger and extending transversely thereof is a shaft B, having fixed thereon on one side of the hanger an eccentric C, and a gear D secured thereon by a set-screw E on the opposite side of said hanger. Mounted in said hanger is a short shaft F, having a gear G, meshing with gear D and provided at its outer end with a sliding handle H. This shaft is rotatably retained in said hanger by set-screw I, engaging in an annular groove J, formed therein.

K designates four guide-rails so spaced as to receive the eccentric and its shaft therebetween, the eccentric extending longitudinally and the shaft transversely thereof, the guide-rails being freely movable back and forth. Said rails are secured together and spaced the proper distance at their forward ends by a block L, in which the inner end of an operating-rod M is threaded. At their opposite ends the rails are secured together and spaced by plates N. These plates are connected centrally by a pin O, which pin extends through an eccentric slot, formed in the eccentric. Mounted between the guide-rails at their rear ends is a pulley Q, in contact with the periphery of the eccentric and having its axis supported by plates N.

Suitably mounted adjacent to the sash to be operated is a pulley R, around which a wire cable is passed, the cable being crossed and at its ends extended in opposite directions and secured to the operating-rod by clamps S. The cable is also secured to the pulley by a grip T, countersunk into the face of the pulley. The inner end of the cable passes over a pulley U, mounted adjacent to the hanger, and carries a counterweight V. Secured to the shaft of the pulley R is an arm or lever W. Pivoted to the outer end of said lever is an arm X, which is attached to the ventilator or sash Y. The operating-rod might be directly connected with the sash by an arm *a*, as illustrated by dotted lines in Fig. 1.

The operation of my invention will be readily understood, it being sufficient to state that by moving the eccentric upon its axis through the medium of the handle and gear the operating-rod is moved in either direction, according to the direction of the rotation of the eccentric, and the sash opened or closed. The eccentric is locked in position holding the sash open or closed by frictional contact with the pulley.

In the modification illustrated in Fig. 4 the axis *b* of the eccentric *c* is formed as a part of the hanger *d*, the eccentric being provided with a hub *e*, to which the hub *f* of a gear *g* is secured, said gear meshing with a gear *h* on the inner end of a shaft *i*, mounted in an arm *j*, secured to the axis formed upon the hanger.

In the modification illustrated in Fig. 5 the gears are dispensed with and the eccentric *k* mounted upon a shaft *l*, supported by a hanger *m* and having on its outer end a sliding handle *n*.

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

1. In a device of the character described, the combination with a reciprocable operating-rod having a projection and provided with a rotatably-mounted disk, of an eccentric

mounted independently of the rod, and formed with a slot receiving said projection and having its periphery in contact with said disk, and means for operating the eccentric, substantially as described.

2. In a device of the character described, the combination with a reciprocable operating-rod carrying a projection, of an eccentric mounted independently of the operating-rod and formed with a slot receiving said projection, a gear carried by the axis of said eccentric, a short shaft mounted adjacent to said eccentric and carrying a gear meshing with said first-mentioned gear, and a handle carried by said short shaft, substantially as described.

3. In a device of the character described, the combination with a reciprocable operating-rod carrying spaced guide-rails, of an eccentric mounted independently of said rod and movable between said rails and formed with a slot, means for rocking said eccentric, a pin carried by the guide-rails and projecting into said slot of the eccentric, and a disk mounted between the guide-rails and normally engaging the periphery of the eccentric, substantially as described.

4. The combination with a swinging sash, of a reciprocable operating-rod, a pulley mounted independently of said rod, a cable passing around said pulley and secured to said rod, an operative connection between the shaft of said pulley and the sash, and means for reciprocating the rod, substantially as described.

5. The combination with a swinging sash, of a reciprocable rod, a pulley mounted independently of said rod, a cable passing around said pulley and having its ends crossed and its oppositely-extending portions secured to said rod, a balance-weight carried by one end of said cable, an operative connection between the shaft of said pulley and the sash, and means for reciprocating said rod, substantially as described.

6. The combination with a swinging sash, of a reciprocable rod, an eccentric mounted independently of the rod and reciprocating the same, means for rocking the eccentric, a pulley mounted independently of the rod, a cable passed around said pulley with its ends extending in opposite directions with the oppositely-extending portions secured to the rod, and an operative connection between the shaft of said pulley and the sash, substantially as described.

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