

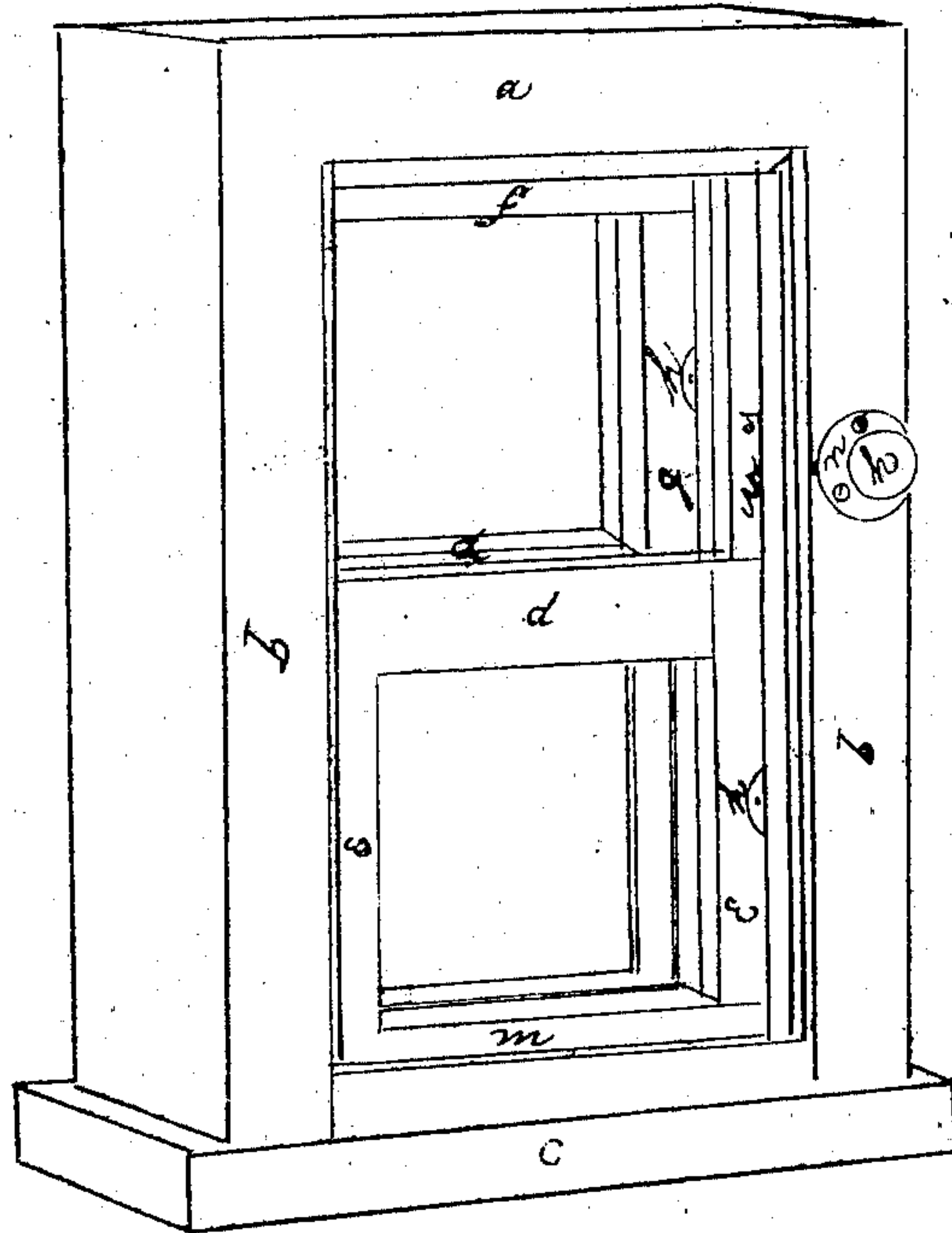
# Sash Poiser and Locker.

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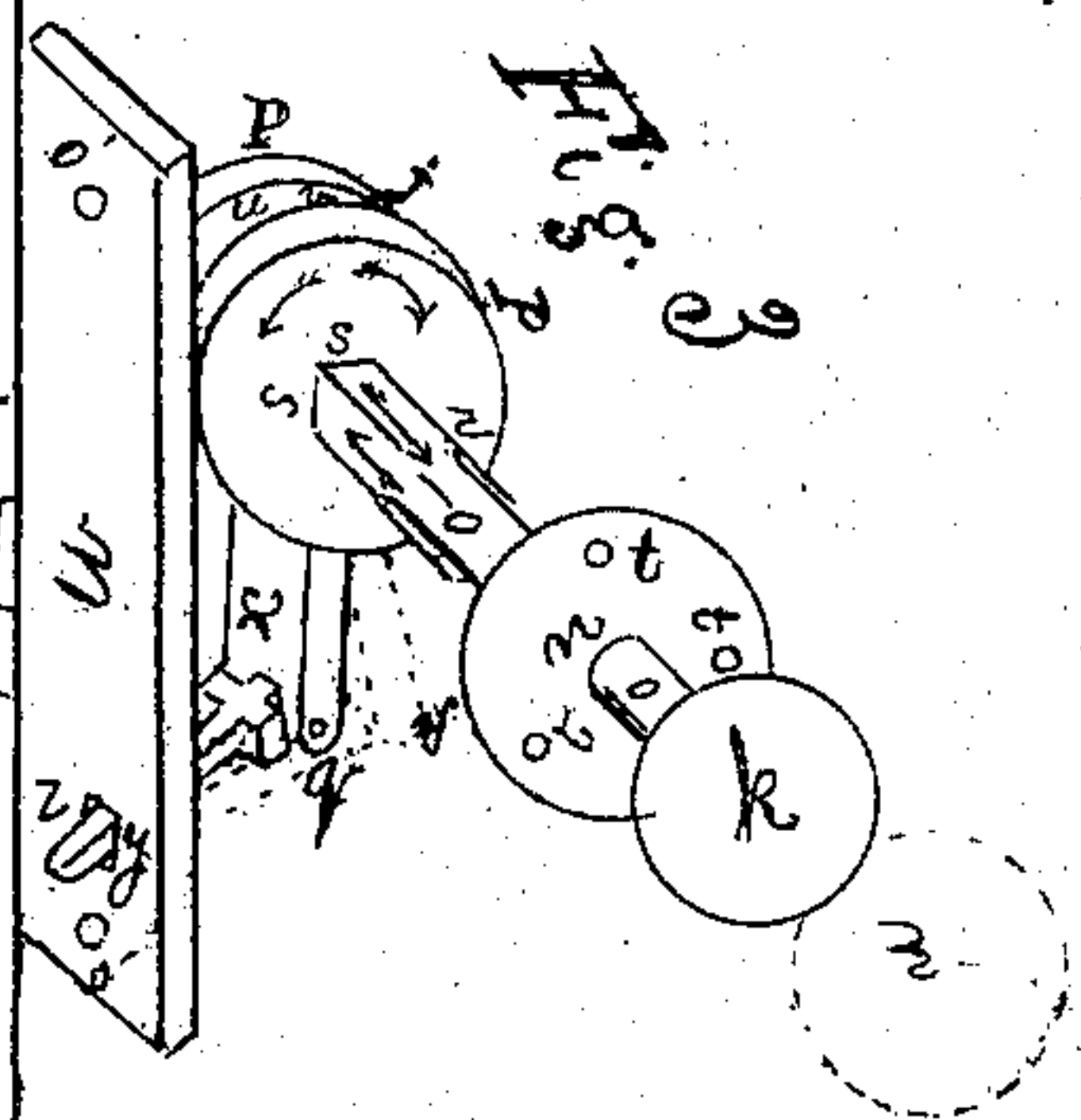
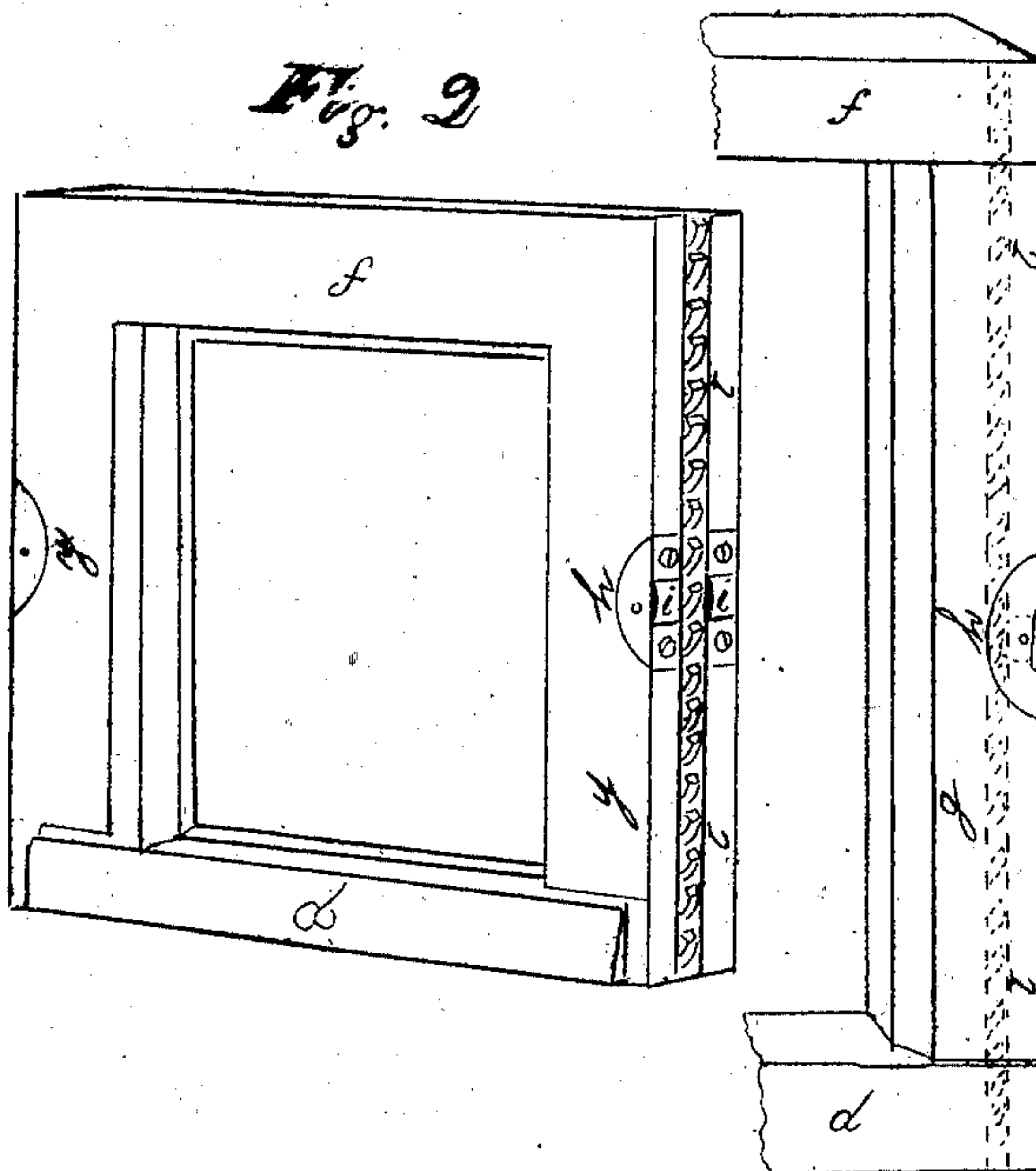
Fig. 1



PATENTED

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Fig. 2



Witnesses  
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# United States Patent Office.

WILLIAM H. SUTHERLAND, OF SEVEN MILE, OHIO.

*Letters Patent No. 74,446, dated February 11, 1868.*

## IMPROVED SASH-STOP.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM H. SUTHERLAND, of Seven Mile, in the county of Butler, in the State of Ohio, have invented a new and improved Mode of Poising and Locking Window-Sash; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is an elevation in perspective of the window-frame, and the upper and lower flights of sash in position and closed.

Figure 2 is a perspective elevation of the upper flight of sash with rollers and rack attached; and

Figure 3 is a perspective view of the locker, and a section of the sash to which it is adapted.

The nature of my invention consists in providing, by means of a locker, with inclined tongue and rack, with inclined cogs, for the poising and locking, at any elevation or depression, of either or both flights of sash, and this without weights, pulleys, cords, or springs of any kind. The arrangement is eminently adapted to the sash and blinds of railroad-car windows.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I construct my window-frame in the usual manner, but without boxes, as shown at fig. 1, in which *b b* represent the jams, *a* the head, and *c* the sill of the frame. The sash are also constructed in the usual manner, as seen in same figure, in which *f*, *g*, and *d*, respectively, represent the top rail, stile, and meeting-rail of the upper flight, and *d*, *e e*, and *m* the meeting-rail, stiles, and bottom rail of the lower flight. In same figure *h h* show the flanges of the friction-rollers, to be hereafter explained; *w*, the locker-plate; *n*, the escutcheon; and *k*, the knob of the locker-shaft.

In fig. 2, *f*, *g*, and *d*, respectively, represent the upper rail, stile, and meeting-rail of the upper flight of sash. The stile *g* is grooved on its edge to the depth of three-eighths or four-eighths of an inch. In this groove is inserted and screwed the metallic rack, whose cogs incline upward, from base to point, at an angle of from fifteen to twenty degrees. This rack is seen at same figure at *l l*. *i i* are metallic friction-rollers, inserted in the edge of the stile *g*, at or near the middle of its length, and on each side of rack *l l*, so that the apex of the roller shall project outwardly about one-sixteenth of an inch beyond the edge of stile *g*, and the points of the cogs of rack *l l*, which are fair with the edge of the stile. The flanges *h h* of the rollers *i i*, and in which their axles play, extend over the face of the stile *g* from three-eighths to four-eighths of an inch, and are about one-sixteenth of an inch thick upon the face of the stile, at the point of the axles, tapering therefrom in every direction, so as to present but one point of impact with the bead of the frame. These flanges appear on both sides of the stile. Rack *l l* is similarly inserted in the right-hand edges of the stiles of both the lower and upper flights, and rollers *i i* are similarly inserted in both the right and left edges of the stiles of the lower and upper flights.

In fig. 3, *P P* represent an eccentric about one-half inch thick and three-quarters inch in diameter. In the centre of its thickness, and around its circumference, there is a groove about seven-eighths inch deep and about one-quarter inch wide, with flanges on each side of about one-eighth inch wide. In this groove is fitted the band *j*, and firmly riveted at its united ends to the plate *w*, so as to support eccentric *P P*, and within and about which band the latter moves through a small segment of the circle formed by the band *j*. The alternate and circular motion of this eccentric is indicated on its disk by circular arrows, and the length of the movement by a slot in band *j*, extending from *u* to *v*, at the latter of which is a stout pin inserted in eccentric *P P*, and which operates as a stop to its motion, preventing tongue *z* from being drawn through plate *w* at *y*. *x* is an eccentric-arm, firmly fastened to eccentric *P P* at its under circumference. In the centre of the upper end of this arm is a notch, through which band *j* passes and moves. At the lower end of arm *x* is also a notch to receive the tenon of tongue *z*, which tenon is securely fastened to the arm *x* by the rivet *q*, and yet so as to allow a free motion of the tenon in the notch. Tongue *z* is metallic, attached as already described, and adapted to pass freely through mortise *y* of plate *w*, and to enter between the cogs of rack *l l*, which is shown transparently in same figure in stile *g*, in a section of sash *f g d*. In the eccentric *P P* is a square mortise, as shown at *s s*, extending quite through its thickness. *o o* is a metallic shaft, which, near the centre of its length, is, for a distance varying according to thickness of the sash and beads, four-square, as shown at *r*. The further end, not shown in



drawing, is round. The near end is also round, as seen at *o o*, with a small shoulder behind escutcheon *n*, to prevent shaft from being drawn out too far. *n* is the escutcheon, with its screws *t t t*, by which it is secured to the window-frame, as seen in fig. 1. *k* is a metallic knob, either circular or of other shape, attached to shaft *o o*, by which it is pulled out or shut up, or turned laterally right or left. *n'* is a transparent showing of the position of knob *k*, when the shaft is fully drawn out. *o' o'* represent the screws which secure plate *w* to the window-frame, as seen in fig. 1. It is to be observed that tongue *z* inclines at an angle corresponding with that of cogs in rack *l l*, and that the locker, as seen at fig. 3, is duplicated by another similar in every respect, except that shaft *o o*, escutcheon *n*, and knob *k* are common to both.

The lockers are inserted in window-frame as seen at *w*, fig. 1. Its duplicate is directly opposite, under the right-hand edge of stile *g*, of upper flight of sash. They are exactly in range with each other, so that tongue *z* of each shall enter racks *l l* at a point directly in the centre of both meeting-rails of the upper and lower flights of sash, and mortise *s s* of each eccentric be also in range, so that the four-square section of shaft *o o* shall meet no impediment in passing from one eccentric to the other.

To operate the sash-poiser and locker, suppose both flights of sash in position in window-frame, and closed and locked, as seen at fig. 1. Now, pull out knob *k* as far as it will come; this brings the locking-arrangement in connection with lower flight of sash *d e e m*; turn knob laterally, so that its lower circumference shall move away from the sash. This moves eccentric-arm *x*, fig. 3, from *q* to *g*, thus withdrawing tongue *z* through mortise *y* of plate *w*, so that the extreme point of the tongue is fair with the plate. At the same time pin *v*, in eccentric *P P*, moves along the slot in band *j* to shoulder *u*, where the motion of the eccentric is arrested, and tongue *z* prevented from being drawn entirely through plate *w*. The lower flight of sash is now unlocked, and can be elevated or depressed by the hand to any point, and poised and locked there, by simply turning the lower circumference of knob *k* toward the sash. This moves eccentric *x* from *g* to *q*, protrudes tongue *z* through mortise *y* of plate *w*, and inserts it between the cogs of rack *l l* at the same inclination with the cogs, so that the sash is poised and locked, and on account of the inclination of the cogs and tongue, the sash is held so firmly, without springs, by the force of gravity, that any amount of shaking or jostling the sash, so far from loosening it, only makes it tighter.

To operate the upper flight, push in knob *k* to escutcheon *n*, as seen at fig. 1. This leaves the lower flight of sash locked at any point, and connects the four-square section of shaft *o o*, fig. 3, with the other eccentric, which is connected with the upper flight of sash by means of its own arm and tongue. Now, turn knob *k* laterally to the right or left, as before, to unlock or lock the sash, at the same time with the hand depressing or elevating it to any desired point. It is to be observed that when the four-square section of shaft *o o* is in one eccentric, the round part of the shaft is in the other eccentric; so that one can be operated without moving the other, and either one or other or both of the flights of sash can be locked or unlocked at the same time.

What I claim as my invention, and desire to secure by Letters Patent, is the following:

1. The arrangement of the rack *l l*, in fig. 2, with inclined cogs, in connection with an inclined tongue, *z*, in fig. 3.
2. The combination and arrangement of the locker, as seen at fig. 3, viz, the eccentric *P P*, with its pin *v*, its arm *x*, its square mortise *s s*, and its groove for the reception of band *j*; the band *j*, with its slot *u v*, and combination of said band with plate *w*; the tongue *z*, and its combination with arm *x* and plate *w*, through mortise *y*.
3. I also claim the peculiar arrangement of the four-square section *r* of shaft *o o*, in connection with its circular ends, as seen at fig. 3.

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Witnesses:

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