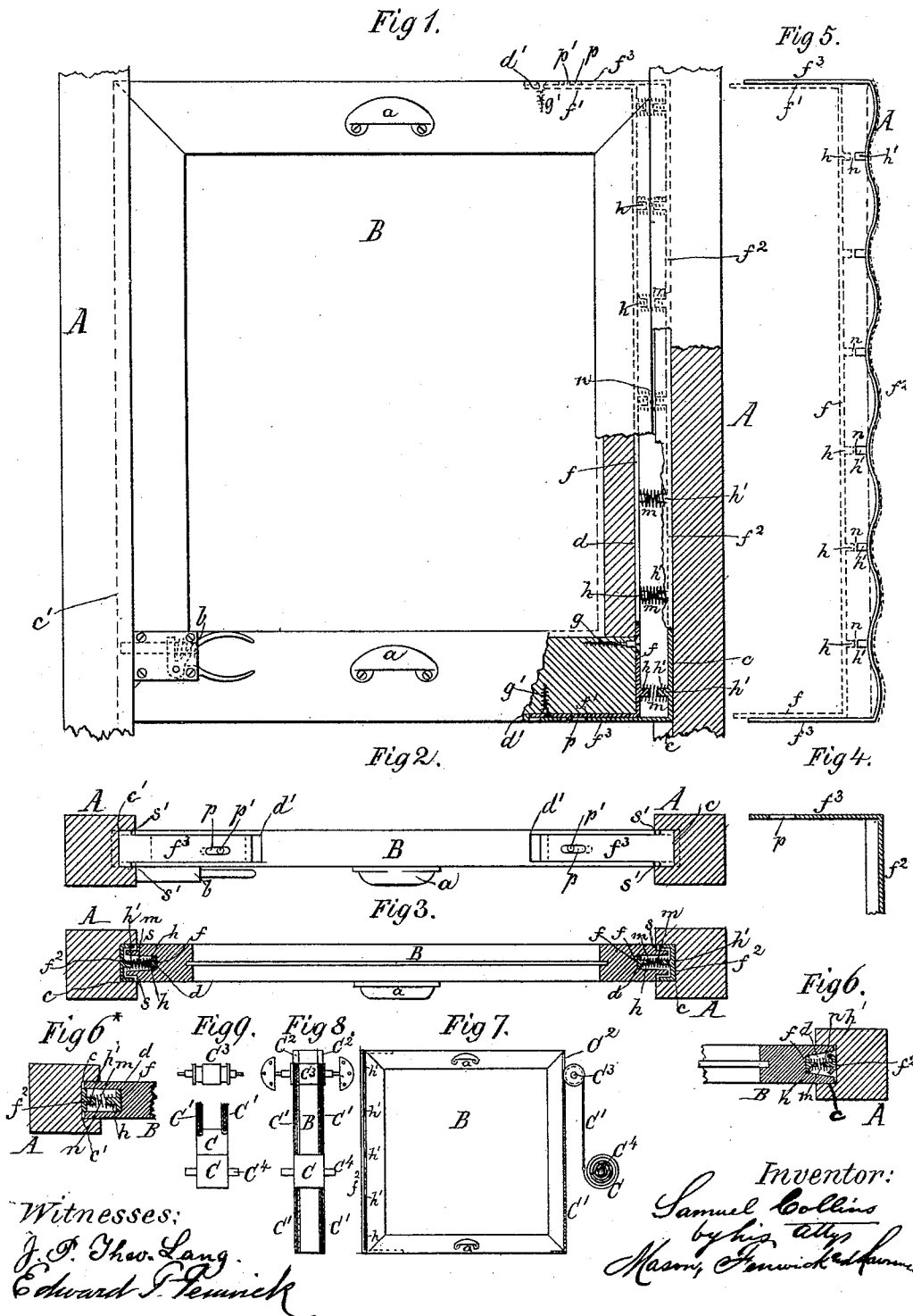


S. COLLINS.
RAILROAD CAR OR OTHER WINDOW SASH.

No. 452,098.

Patented May 12, 1891.



S. COLLINS.
RAILROAD CAR OR OTHER WINDOW SASH.

No. 452,098.

Patented May 12, 1891.

Fig 10.

Fig 11.

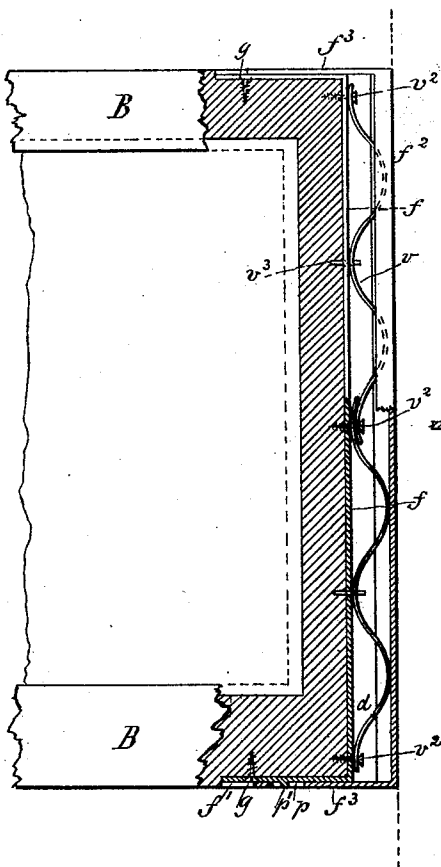
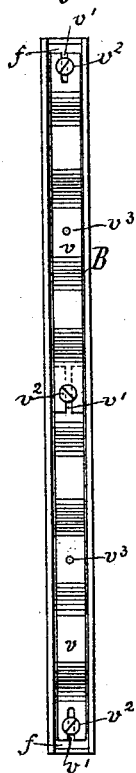
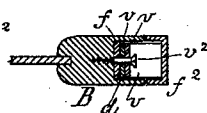


Fig 12.



Witnesses:

J. P. Theo. Lang.
Edward S. Fenwick

Inventor:

Samuel Collins
by his Attys
Mason, Fenwick & Lawrence

UNITED STATES PATENT OFFICE.

SAMUEL COLLINS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JOHN B. LOVE AND S. ARTHUR LOVE.

RAILROAD-CAR OR OTHER WINDOW-SASH.

SPECIFICATION forming part of Letters Patent No. 452,098, dated May 12, 1891.

Application filed October 25, 1889. Serial No. 328,141. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL COLLINS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Railroad-Car and other Window-Sashes; 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 specially to sliding window-sashes of railroad-cars, but is applicable to sliding window-sashes of dwellings and other buildings.

Its object is to avoid the liability of such sashes binding in their frames, and thereby becoming very inconvenient of manipulation, or of being raised and lowered by passengers on the cars or persons in dwellings and other buildings; and its nature consists in certain novel constructions, combinations, and arrangements of mechanical relief or easing and assisting appliances in connection with sliding window-sashes, as will be hereinafter described, and specifically claimed.

In the drawings, Figure 1 is a view, partly in elevation and partly in section, of a car-window sash and a portion of its frame with some of my improvements. Fig. 2 is a top view of the sash and a horizontal section of its frame. Fig. 3 is a horizontal section of the sash and its frame complete. Fig. 4 is a broken detail view of one of the relieving or easing metal bars employed by me. Fig. 5 is an edge view of said bar made with a wavy instead of a straight or flat bearing-surface, the dotted lines in this view indicating a fellow-bar which is employed, and also the inner edge of the window-frame, the parts being in the relation they bear to one another when the sash to which the said bars are to be attached is in place within the frame. Fig. 6 is a broken horizontal section showing a preferable form of the relief or easing device for use in dwellings or other buildings. Fig. 6* is a broken horizontal section showing the relief-bar made of flat metal instead of channeled metal, as in the other figures. Fig. 7 is an elevation of the sash as provided with a spring, pulley, and chain mechanism,

whereby the labor of raising the sash is lessened. Fig. 8 is an edge view of the sash shown in Fig. 7; and Fig. 9 is an elevation of the spring, chains, and chain-pulley, the chains being partly broken away to show the grooves of the pulley. Figs. 10, 11, and 12 show a two-part serpentine spring for use in connection with the angular channeled metal relief and easing bars, the said spring being substituted for the pintles and spiral springs shown in the other views.

A in the drawings designates a portion of a car-window frame, and B a car or other window sash adapted to slide up and down in the same. The sash may have the lift-handles *a* and a fastening bolt or device, as *b*, and it may descend below the sash-recess or rise above the same, as is common on street and steam cars.

As shown in Figs. 1 and 3, the sash B is made somewhat narrower than the space between the recessed portions *c c'* of the frame A, and a vertical channel *d*, extending from top to bottom, is cut in one or both of its edges, and upon the back wall of each channel a stiff metal bar *f* is fastened by means of screws *g*. The respective bars are provided with horizontal or right-angular branch portions *f'*, which lap over the top and bottom of the sash at the corners thereof for a considerable distance, being fitted in channels *d'* thereof, and fastened by screws *g'*. On the outer vertical faces of these bars suitably-spaced short pintles *h* for the reception and retention of spiral springs *m* are provided.

In connection with the bars *f f'* similar angular bars *f² f³* and pintles *h'* are employed, being arranged so as to leave a space *n* between the pintles *h h'* and have their angular branch portions *f³* lap upon the branch portions *f'* and bear snugly upon the same and yet be free to slide thereon in a truly horizontal line. The branch portions *f³* are slotted, as at *p*, and through the slots vertical pintles *p'*, formed on or fastened in the branch portions, project so as to couple the angular bars *f² f³* to the sash, and yet allow them to play horizontally away from and toward the bars *f f'*.

On the pintles *h h'* spiral springs *m* are

placed, said springs being strong enough to give the bars $f^2 f^3$ a binding force sufficient to hold up the sash under ordinary circumstances after it has been raised. This force, however, is so slight that it does not interfere with the easy sliding up of the sash when the force of the hand is applied to it.

Instead of the pintles and spiral springs, it is contemplated to interpose a serpentine spring v between the bars, as illustrated in Figs. 10, 11, and 12. Each part of the serpentine spring v is slotted at top and bottom, as indicated at v' , in order to be capable of lengthening or shortening, as occasion requires, to the extent necessary. The confining-screws v^2 of the parts of the spring v are passed through the spring at the points where the slots are formed, and at other points holding-pins v^3 may be provided. I do not regard this spring as the full equivalent of the pintles and spiral springs; but it will answer a good purpose in connection with the angular channeled metal bars, and in this connection it, with said bars, constitutes a novel contrivance. The vertical portions of the bars $f^2 f^3$ are kept perfectly vertical by the upper and lower angular or horizontal branch portions f^3 , and this being so there cannot be any undue bind from top to bottom of the sash in the frame A , and therefore the great annoyance experienced from the binding of car and other window-sashes is avoided.

By providing smoothly-planed or nickel-plated bars with their horizontal branches working in contact with one another there will not be that liability of the bind which is due to shrinkage of wood surfaces working in contact with each other. Furthermore, the construction and arrangement of the stiff angular bars so as to retain always a truly parallel position from top to bottom of the sash, and yet be capable of yielding bodily when the hand is applied to the sash for the purpose of lowering or raising it, render its manipulation by even a child practicable.

In carrying out the invention it is contemplated to employ bars made from channeled metal, celluloid, or other hard material, as in Figs. 1, 2, 3, 4, 5, and 6, or flat plate metal, as in Fig. 6*. When channeled metal is employed the edges of the sash are rabbetted, as at s , and by this means the passage of wind and cinders or dust at the points s' will be arrested and prevented from entering the car. It is also contemplated to adopt either a bar $f^2 f^3$, having a continuous flat bearing-surface, as in Fig. 1, or one with a slightly-waved bearing-surface, as in Fig. 5, and thereby render more certain the retention of the sash in its raised position by spring frictional bind. The matching corrugations on the frame (shown by dotted lines) and bars act as stops to prevent a casual descent of the window sash when violently jarred. By this means it is believed the auxiliary bolts or latches b can be dispensed with.

For dwelling-houses and other buildings,

where two sashes are arranged in one recess one above the other, as commonly, the preferred form and arrangement of relief devices therefor would be such as appear in Fig. 6.

In Figs. 7, 8, and 9 is shown an arrangement of a spring-balancing mechanism which it is contemplated to use in connection with a sash provided with the friction relief or easing device on one of its edges, as illustrated in Fig. 7. This consists of a coiled barrel or clock spring C , set into the car or other frame-work near one edge of the sash and connected by flat chains C' to the lower end of the sash B , said chains being fitted into corner rabbets C^2 in one edge of the sash and passed over a grooved barrel pulley C^3 , also attached to said frame-work, as shown. By pulling down the sash the spring is coiled more tightly upon its hub or shaft C^4 , to which it is attached, and thus an accumulation of power is secured which will aid in raising the sash when hand force is applied to its lifter a . The same contrivance might be applied to sashes which are first raised instead of lowered. It will not be necessary to have the power of the spring very great, inasmuch as the relief or easing device on the opposite edge of the sash, reduces the resistance to about the minimum.

In practice it is contemplated to employ the relief mechanism on either one or both edges of a sash, whether the spring-balancing mechanism be employed or not.

One of the leading features of my invention is the providing of continuously-bearing, relief, and easing thin metal bars between the window-frame and the sash, and holding the movable one of said bars, from top to bottom, parallel, and in uninterrupted contact with the edges of the sash and bearing-surface of the window-frame, and having said bar yielding; and another leading feature is the construction of the relief and easing thin metal bars with horizontal branches at top and bottom; and another important feature is making the bars with guiding-pintles for the reception of spiral springs, and guiding the movable one of said bars by pins and stops as it moves back and forth horizontally; and another important feature is the making of the movable bar of one piece or all of its portions of homogeneous thin metal; and another important feature is the providing of a metal bearing-surface for the horizontal branches of the movable bar to slide upon, such surface being smooth, and preventing binding and much friction; and another important feature is the construction of the movable bar of channeled metal, whereby lightness, stiffness, and strength are secured, and in combination therewith the arrangement and construction of the other parts, so that when all are fitted together dust and cinders will be prevented from passing into the car or structure to which the invention is applied, and, finally, the whole combination of means shown, by which the sash is eased and re-

lieved and the labor of raising it lessened is a useful and important improvement.

What I claim as my invention, and desire to secure by Letters Patent, is—

5 1. The combination, with a sash and window frame, of two thin angular metal bars extending from top to bottom of the sash and formed with unchanneled horizontal portions and horizontally lapping one another along
10 the top and bottom edges of the rails of the sash, the inner bar being fitted fast to the sash and the outer bar being of channeled iron between the lapping portions and fitted loosely on the inner bar by means of slots and
15 pintles and its branch portions sliding on the branch portions of the fast bar, and the vertical portions of said bars being set apart and having a spring or springs applied between them, and the vertical portion of the movable
20 bar having an unbroken or continuous bearing-contact against the window-frame, substantially as described.

2. The combination, with the stiff stationary metal bar having projecting pintles on its
25 outer face and applied to the sash, of the movable bar connected to the stationary bar and having pintles on its inner face and spiral springs applied upon the two rows of pintles, substantially as described.

30 3. The combination of the stiff channeled metal movable bar with the channeled sash, the metal bar at the bottom of the channel of the sash, and a spring between the bars, substantially as described.

35 4. The combination of the stiff channeled metal movable bar with the channeled and

rabbeted sash, metal bar at the bottom of the channel of the sash, and a spring between the bars, substantially as described.

5. The channeled metal window-sash bar 40 comprising a stiff vertical portion f^2 and a slotted horizontal branch portion f^3 , and provided with pintles for holding springs, substantially as described.

6. The horizontally-sliding thin flat metal 45 window-sash bar of a relief or easing mechanism, comprising a stiff vertical channeled-iron portion f , an unchanneled horizontal branch portion f' , and provided with projecting pintles for holding springs, said bar bearing 50 continuously from top to bottom of the window-sash against the window-frame, substantially as described.

7. The movable stiff angular channeled-iron bar $f^2 f^3$ of a window-sash relief or easing 55 mechanism having its bearing-surface made with a wavy form, in combination with the window-frame having a corresponding wavy-formed bearing-surface, and with the sash provided with angular bar f , substan- 60 tially as described.

8. The combination of the sash B, the bars $f f' f^2 f^3$, springs m between the bars, the balancing-spring c , pulley c^3 , and chains c' , substan- 65 tially as described.

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

SAMUEL COLLINS.

Witnesses:

H. GOLDEY,

R. M. GREINER.