G. S. Knapp,

Car Ventilator.

No. 98,981. Patented Jan. 18, 1870.

Fig. 4.

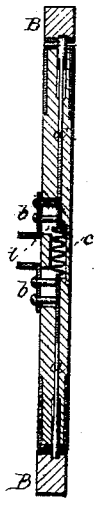


Fig. 1.

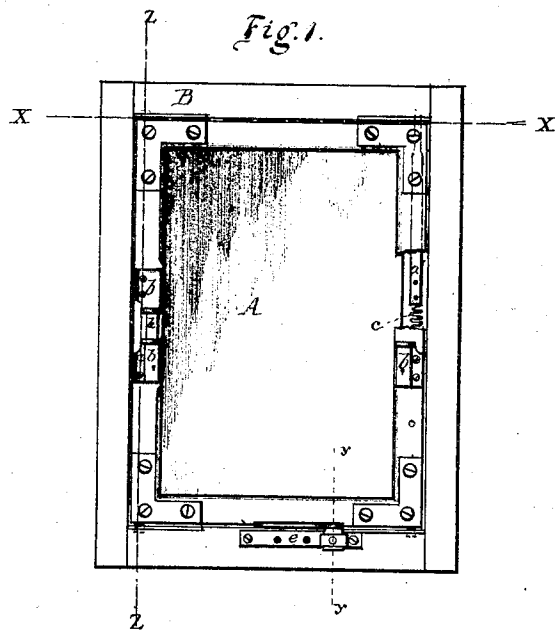


Fig. 5.

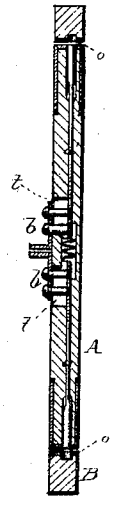


Fig. 2.

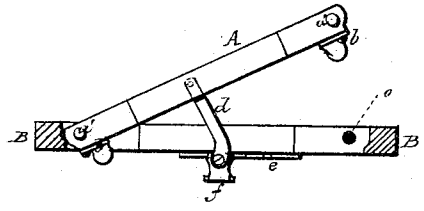


Fig. 6.

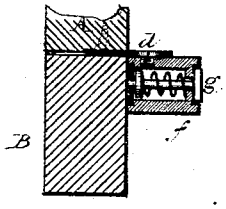


Fig. 3.

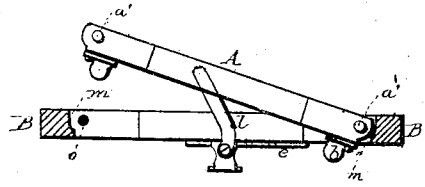
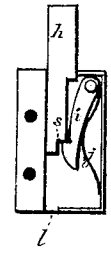


Fig. 7.



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United States Patent Office.

GEORGE S. KNAPP, OF WINONA, MINNESOTA.

Letters Patent No. 98,981, *dated January* 18, 1870.

RAILROAD-CAR WINDOW.

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, GEORGE S. KNAPP, of Winona, in the county of Winona, and State of Minnesota, have invented certain new and useful Improvements in Windows for Railroad-Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention relates to railroad-car windows; and

It consists in a novel manner of providing the sash with two pairs of adjustable pivots, so as to permit either side to be swung outward beyond the body of the car, as hereinafter described.

In the drawing—

Figure 1 is a front view of my window from the inside;

Figure 2 is a horizontal cross-section of the same, taken on the line *x x* of fig. 1, showing the right-hand side of the sash swung outward;

Figure 3, the same, with the sash reversed and the left-hand side swung out;

Figures 4 and 5 are vertical sections, through one pair of the pivots, taken on the line *z z* of fig. 1, showing, respectively, the pivots extended and withdrawn; and

Figures 6 and 7 are views of parts detached.

A is the window-sash, made of the usual form, and having holes made through the side rails from end to end.

Into each of these holes I insert two rods, *a* and *a'*, extending from the ends of the sash nearly to the middle, and having placed between their inner ends a spiral spring, *c*, to push them apart, and cause their ends to project beyond the top and bottom of the sash, as shown in figs. 1 and 4.

Though the side rails of the sash, I make mortises *t*, opening through to the inner ends of the rods *a a'*, and over each of these mortises I place a plate, *b*, having a thumb-piece on its front, and connect these plates, by screws or other suitable means, with the ends of their respective rods, as shown in figs. 4 and 5.

By taking hold of either pair of the thumb-pieces, and pressing them together, the two rods on that side of the sash are drawn inward, so that their ends come flush with the ends of the sash, as in fig. 5.

Upon releasing the thumb-pieces, the rods are again pushed apart by the spring, and their ends caused to protrude, as shown in figs. 1 and 4.

The sash A, thus arranged, I mount in the stationary frame B, which is provided with holes *o*, to receive the ends of the rods *a a'*, which, when entered in them, hold the sash securely in position, as shown in figs. 1 and 4.

By releasing either pair of rods, the remaining pair serves as pivots on which the sash may be turned, so that by releasing one or the other pair of rods, either side of the sash may be swung outward, as shown in figs. 2 and 3.

To provide for holding the sash open any distance, and to prevent it from swinging too far out, I pivot to its lower end, near the middle, an arm, *d*, having its opposite end pivoted to a thumb-piece, *f*, which slides on a bar, *e*, secured to the frame B.

This bar *c* is provided with a series of holes, and the thumb-piece with a spring-bolt, *g*, to engage into them, and thus lock the arm in any desired position.

When the car is in motion, the side of the window toward its rear is opened, thus causing a current of air outward through it, thoroughly ventilating the car, excluding dust, smoke, and cinders, and permitting a clear view of the surroundings.

Another great advantage of my window is, that as the draught is always outward, and never inward, passengers are not annoyed by the draught from their neighbors' open windows, as with the usual style of sash.

To prevent inexperienced persons from releasing both sides of the window at the same time, and thus allowing it to fall out, and also to prevent persons from opening the front side, and thus cause an inward current of air, to the annoyance of their fellow passengers, I provide one of the plates *b*, of each pair, with a suitable bolt or lock, *h*, which may be extended against the adjoining plate so as to prevent the two from being brought together, and, consequently, that side of the sash from being released.

This locking-device may be constructed in any suitable manner, to be operated by a key in the hands of the conductor or other officer, who will keep the front sides of all sashes locked.

Figure 7 shows one manner of constructing the lock. It consists of a case containing a sliding bolt, *h*, which has near its inner end a shoulder, *s*.

In one side of the case a hooked lever, *i*, is pivoted, and is pressed against the bolt by a spring, *j*.

Through the end of the case a hole, *l*, is made, for the insertion of the key or lever, for releasing the hook.

When the sash is to be locked, the key is inserted and the bolt pushed out, until the hook engages under its shoulder, as shown.

To open it, the key is inserted and the hook pushed back. The thumb-pieces being then pressed together, the bolt yields, and is pushed back.

The sash and the frame, I provide on their sides

with a shoulder, *m*, to prevent the sash from being swung inward, and to form a tight joint.

Having thus described my invention,

What I claim, is—

1. The sash or window A, provided with the sliding rods or bolts *a* and *a'*, arranged to operate either as pivots or as fastening-devices, substantially as set forth.

2. The arm *d*, pivoted to the sash, and secured at its opposite end to the bar *e*, substantially as herein described.

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Witnesses:

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