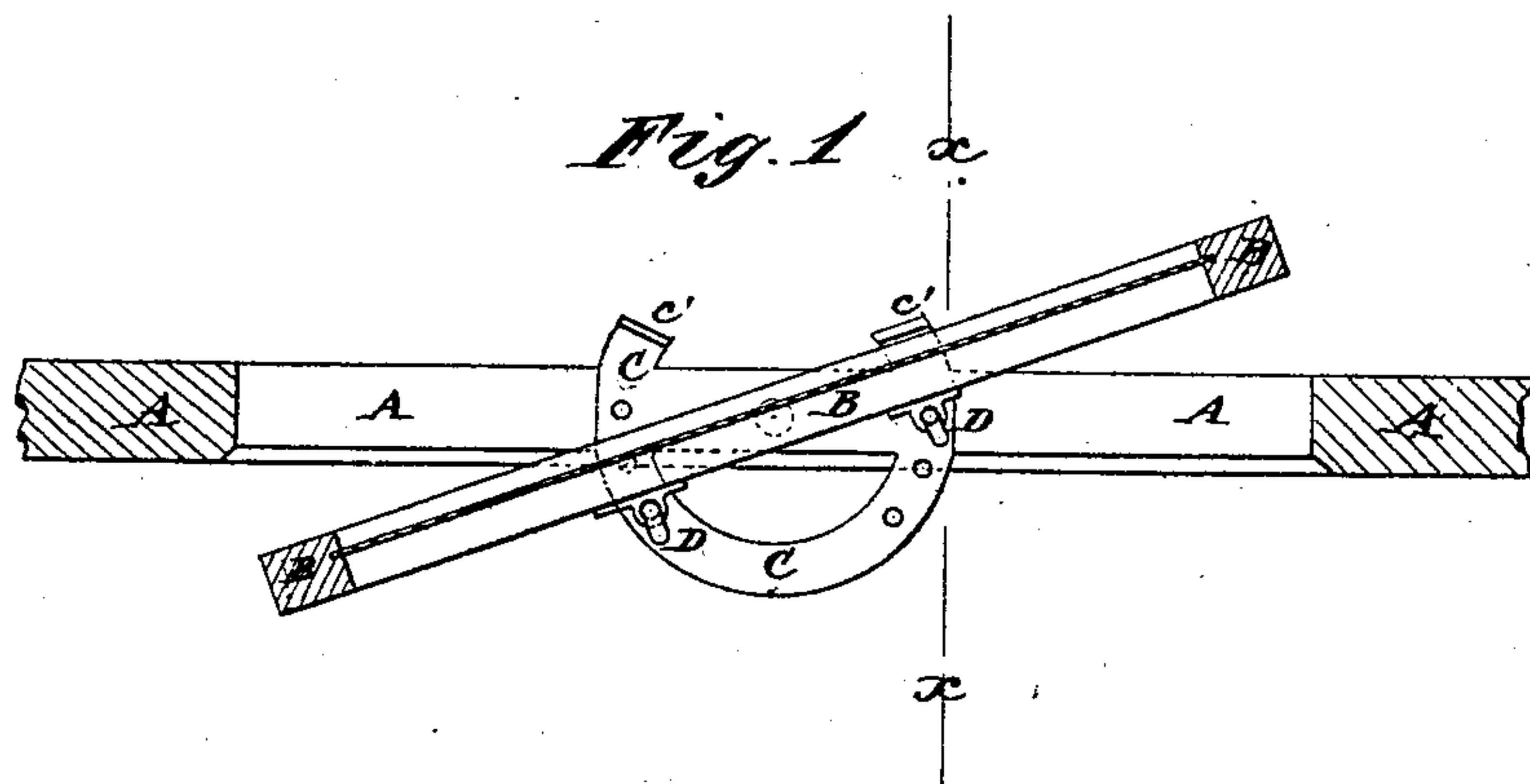


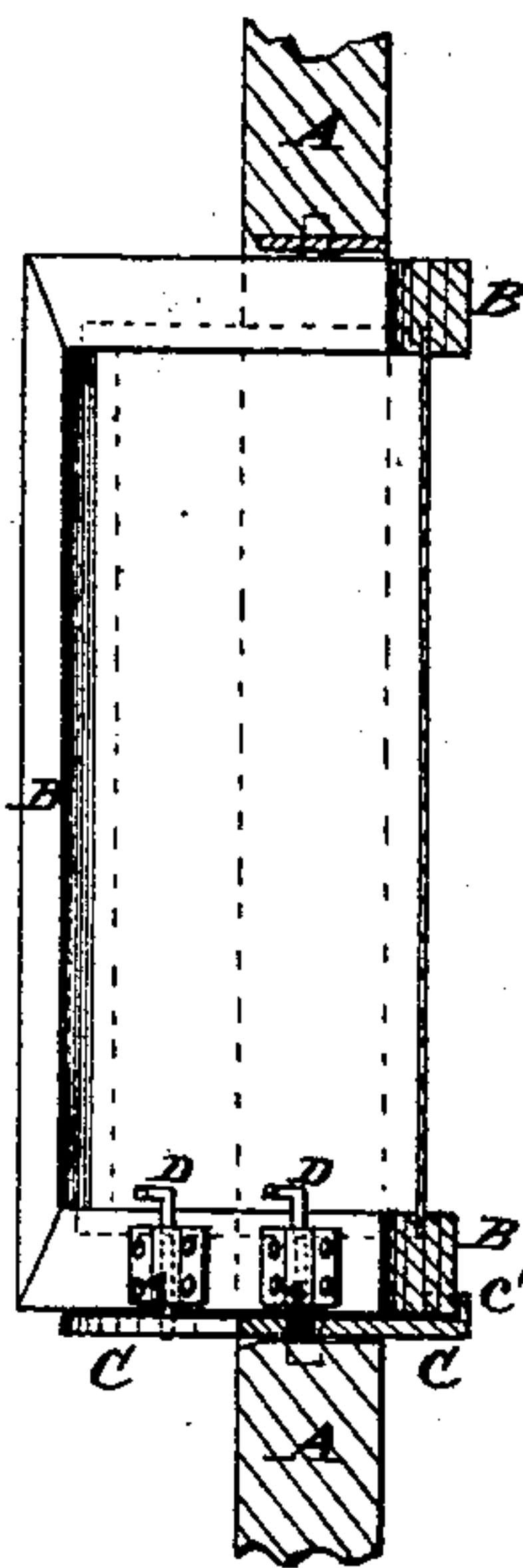
C. B. KNEVALS.  
Ventilating Car-Windows.

No. 145,805.

Patented Dec. 23, 1873.



*Fig. 2*



WITNESSES:

*A. W. Almquist*  
*Edgwick*

INVENTOR:

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# UNITED STATES PATENT OFFICE.

CHARLES B. KNEVALS, OF NEW YORK, N. Y. .

## IMPROVEMENT IN VENTILATING CAR-WINDOWS.

Specification forming part of Letters Patent No. **145,805**, dated December 23, 1873; application filed December 1, 1873.

*To all whom it may concern:*

Be it known that I, CHARLES B. KNEVALS, of the city, county, and State of New York, have invented a new and useful Improvement in Car-Windows, of which the following is a specification:

Figure 1 is a horizontal section of a car-window illustrating my invention. Fig. 2 is a vertical section of the same, taken through the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention has for its object to improve the construction of car-windows, so that they can be conveniently adjusted to admit air to ventilate the car, while excluding cinders and dust. The invention consists in the horseshoe-shaped plate provided with stop-flanges upon the ends of its arms and perforated, in combination with the casing and sash of a car-window, and with the bolts attached to said sash, as hereinafter fully described.

A represents the window-frame or casing of a car-window, and B represents the window-sash, which is pivoted at the center of its upper and lower sides to the frame or casing A. C is a plate made in the general form of a horseshoe, and which is secured to the lower part of the casing or frame A around the lower pivot of the sash B, and with its circular part inward and its ends outward, as shown in Fig. 1. Upon the ends of the arms or bars of the plate C are formed upwardly-projecting flanges *c'*, to serve as stops to limit the movement of the window B upon its pivots. The stops *c'* are inclined, so that the lower bar of the sash B may rest squarely against them. The parts of the arms or bars of the

plate C that rest upon the casing A are connected by a cross-bar, through which pass the screws that secure the said plate to the said casing. With this construction, the forward side of the sash B, whichever end of the car be forward, is swung inward, as shown in Figs. 1 and 2, so as to form front and rear openings between the side bars of the said sash B and the frame or casing A. The inclination of the window not only ventilates the car by causing a movement in the air, but the window serves also as a shield to prevent cinders and dust from entering the car, which cinders and dust strike against the inclined surface of the window and are projected outward. D are small bolts, which are secured to the bottom bar of the sash B upon the opposite sides of its pivot, and in such positions that their lower ends may enter holes in the side bars of the plate C, and thus lock the sash in place when adjusted. At least three holes are formed in each of the side bars of the plate C to receive the bolts D, so that the window may be locked when fully closed and when inclined in either direction.

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

The horseshoe-shaped plate C, provided with stop-flanges upon the ends of its arms, in combination with the case and sash of a car-window, and with the bolts D, substantially as herein shown and set forth.

CHARLES B. KNEVALS.

Witnesses:

T. B. MOSHER,  
ALEX. F. ROBERTS,