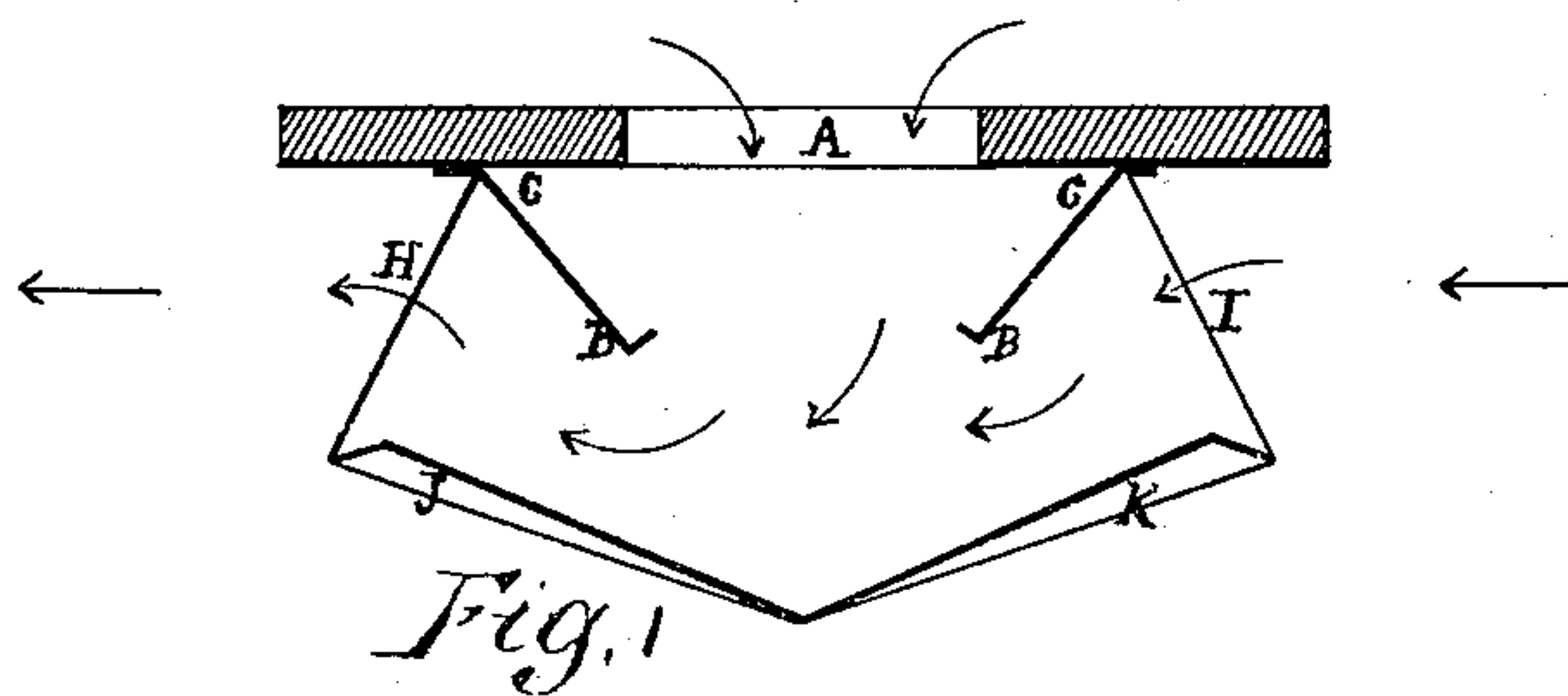
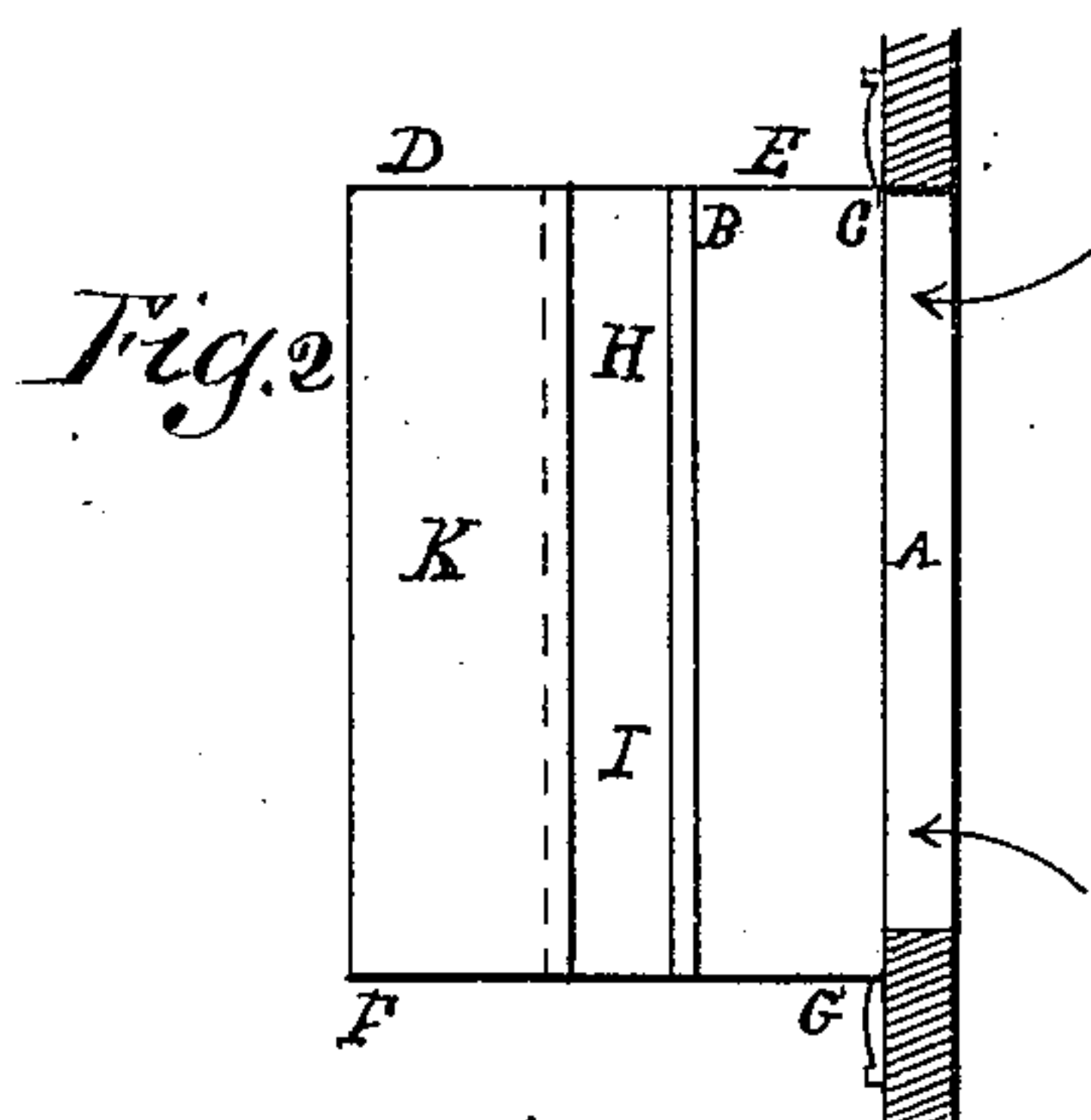
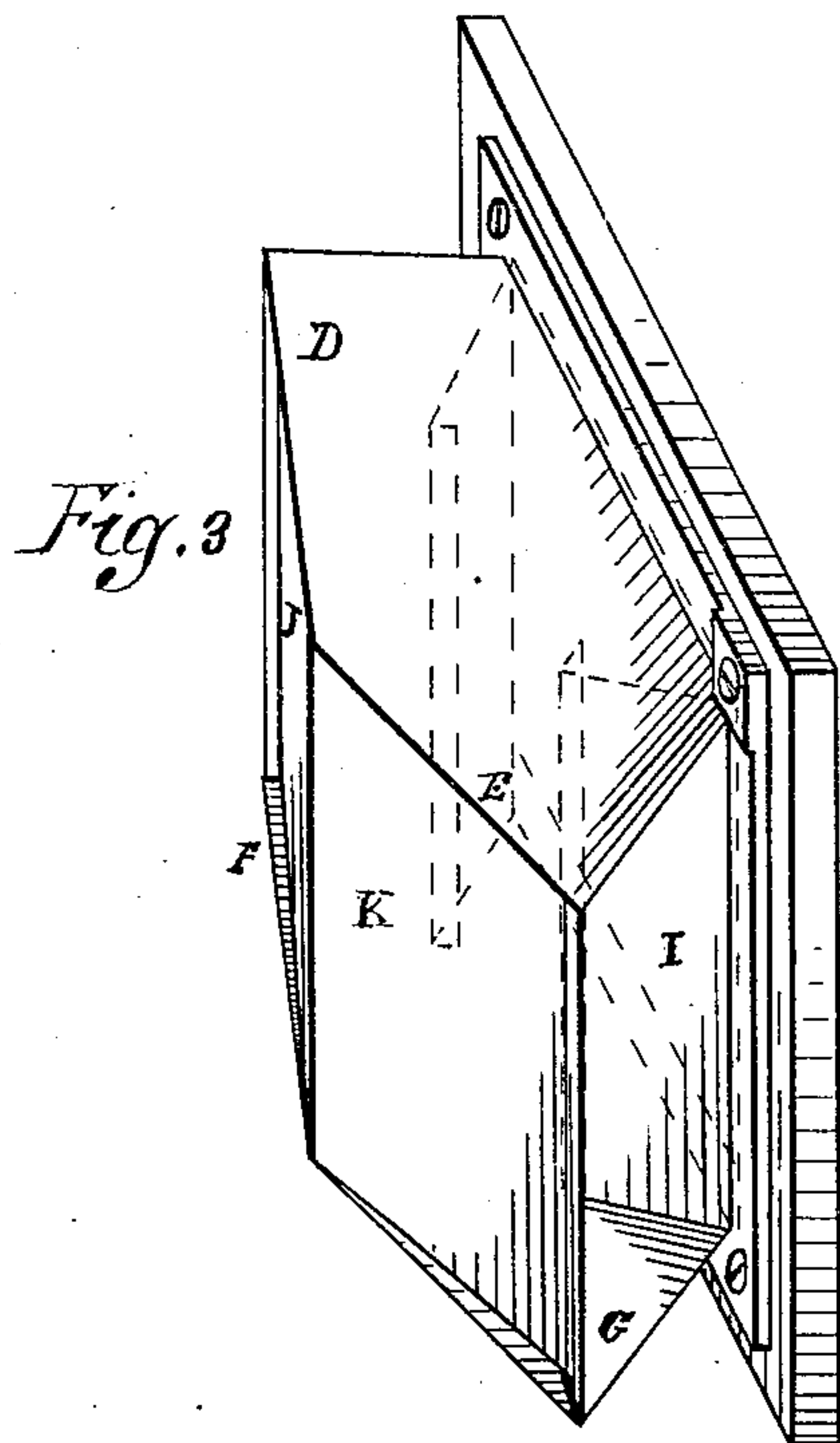


W. G. CREAMER.  
Side-Wall Ventilator.

No. 164,636.

Patented June 22, 1875.



WITNESSES:

Gilbert C. Miles  
Thomas J. Samson

INVENTOR.

William G. Creamer

# UNITED STATES PATENT OFFICE.

WILLIAM G. CREAMER, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN SIDE-WALL VENTILATORS.

Specification forming part of Letters Patent No. 164,636, dated June 22, 1875; application filed November 17, 1874.

*To all whom it may concern:*

Be it known that I, WILLIAM G. CREAMER, of the city of Brooklyn, in the county of Kings and State of New York, have invented Improvements in Side-Wall Ventilators, of which the following is a specification:

The object of my improvement is to construct an effective form of ventilator, mainly for the sides of railroad-cars and boats, that shall be stationary in all its parts, and which, by the movement of the car or boat to which it may be attached, and the passage of a current of air through the aperture in either direction, or when the car is stationary and the wind blowing at right angles with the side of the car or boat, shall produce an outward current from the inside of the car or boat.

I invented and patented in 1861 an automatic ventilator for this purpose, the deflector of which was movable and changed its position by the change of movement in the train. This movable deflector is objected to by some, in consequence of the noise that it makes, and which I have been unable to stop entirely.

My present invention accomplishes the same results, and all its parts are stationary, and at the same time it does not obstruct the draft of the train at high speeds or against strong winds, as many of the ventilating-boxes do that have been attached to the sides of cars.

Figure 1, in the accompanying drawing, shows a horizontal plan of arrangement of inside deflectors B C and outside deflectors J K, with the opening A to inside of car. Fig. 2 shows a vertical end view. Fig. 3 shows an oblique perspective view, the letters of reference being the same in all views.

In Fig. 1, A is an opening in the side of the car. B C are stationary deflectors of sheet metal attached to the sides of the opening. These deflectors are covered with a casing of sheet metal at the top, bottom, and in part of the aperture, as shown at D E and F G. The ends of this covering H I are open, the air passing through with the utmost freedom, and

by deflection and induction causing an exhausting current from the inside of the car when it is in motion.

When the car is stationary, and the wind blowing at right angles, it strikes against the outer casing J K, glancing off each way, causing an outward current from the opening A.

If the car is stationary and there is no wind, the apertures being large, ventilation by natural expansion is not obstructed in the least.

No amount of wind or rain in any direction can go inward through the opening.

The advantages of this ventilation over any other are as follows: First, it is noiseless at all times. Second, with a side wind, the rain or wind will not blow in from the inclination of the roof, as is the case with some form of boxes attached to the sides of the raised roof and open at the bottom. Third, the angular plate J K, covering the deflectors, accomplishes two purposes—namely, when the wind is blowing at right angles it causes an outward current, and when the current is passing through and strikes the deflectors the angular shape inside, in addition to the deflection, produces an inducing current outward. Fourth, when the car is stationary and the ventilation produced only by natural expansion, the opening is so large that no obstruction prevents the free escape of air. Fifth, this form offers the least possible obstruction to the draft of the car by the air passing through freely. Sixth, placed in succession, (as they are,) and the air passing through freely, they are all equally effective. This is not the case with the boxes open at the bottom.

I claim as my invention—

The two side deflectors, with the covering-top and bottom, in connection with outer deflecting covering, substantially as shown.

WILLIAM G. CREAMER.

Witnesses:

GILBERT L. MILES,  
THOMAS J. SARRAR, Jr.