

(No Model.)

2 Sheets—Sheet 1.

O. H. TAYLOR.
CAR VENTILATOR.

No. 413,816.

Patented Oct. 29, 1889.

Fig 1.

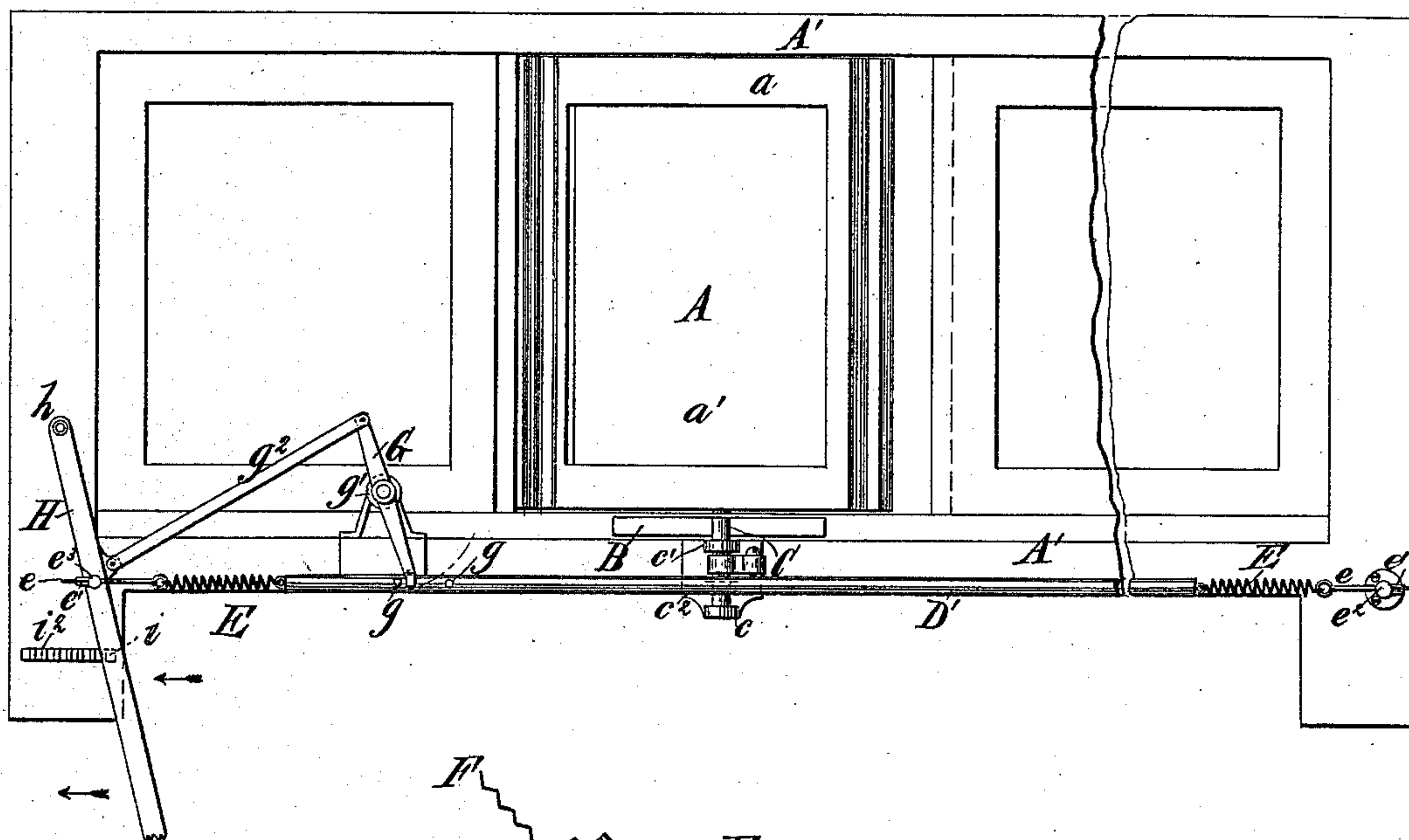


Fig 2.

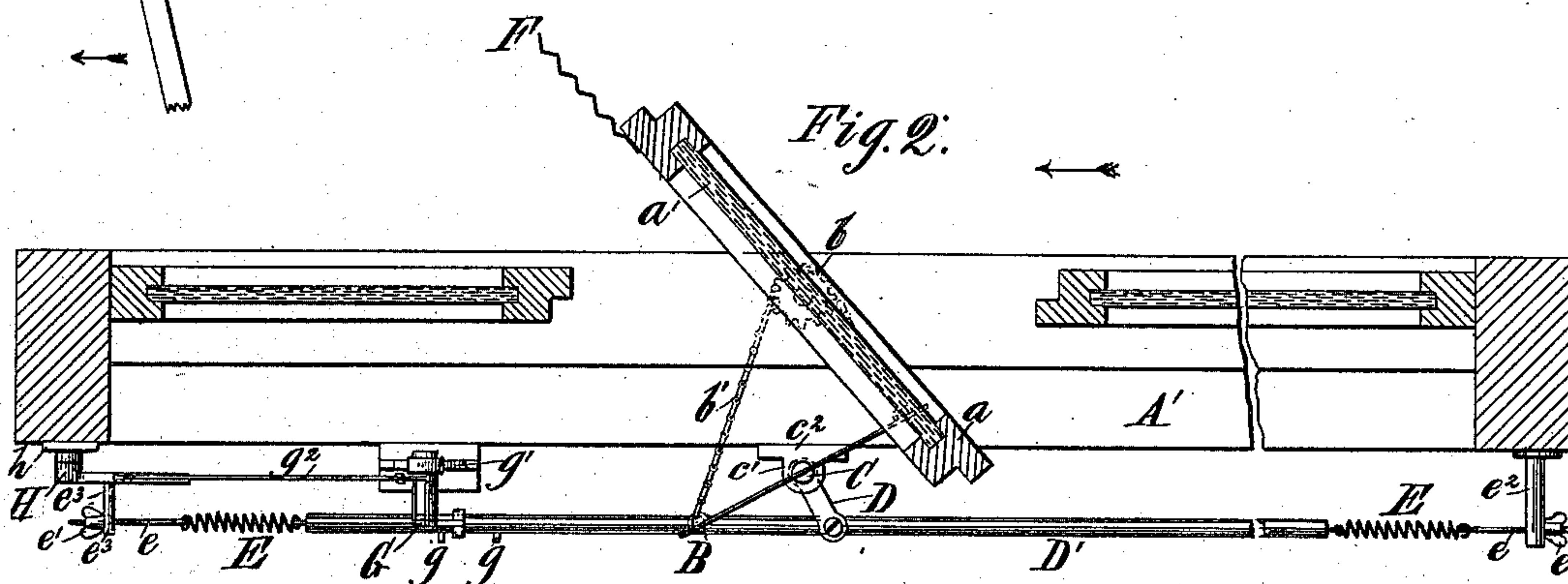
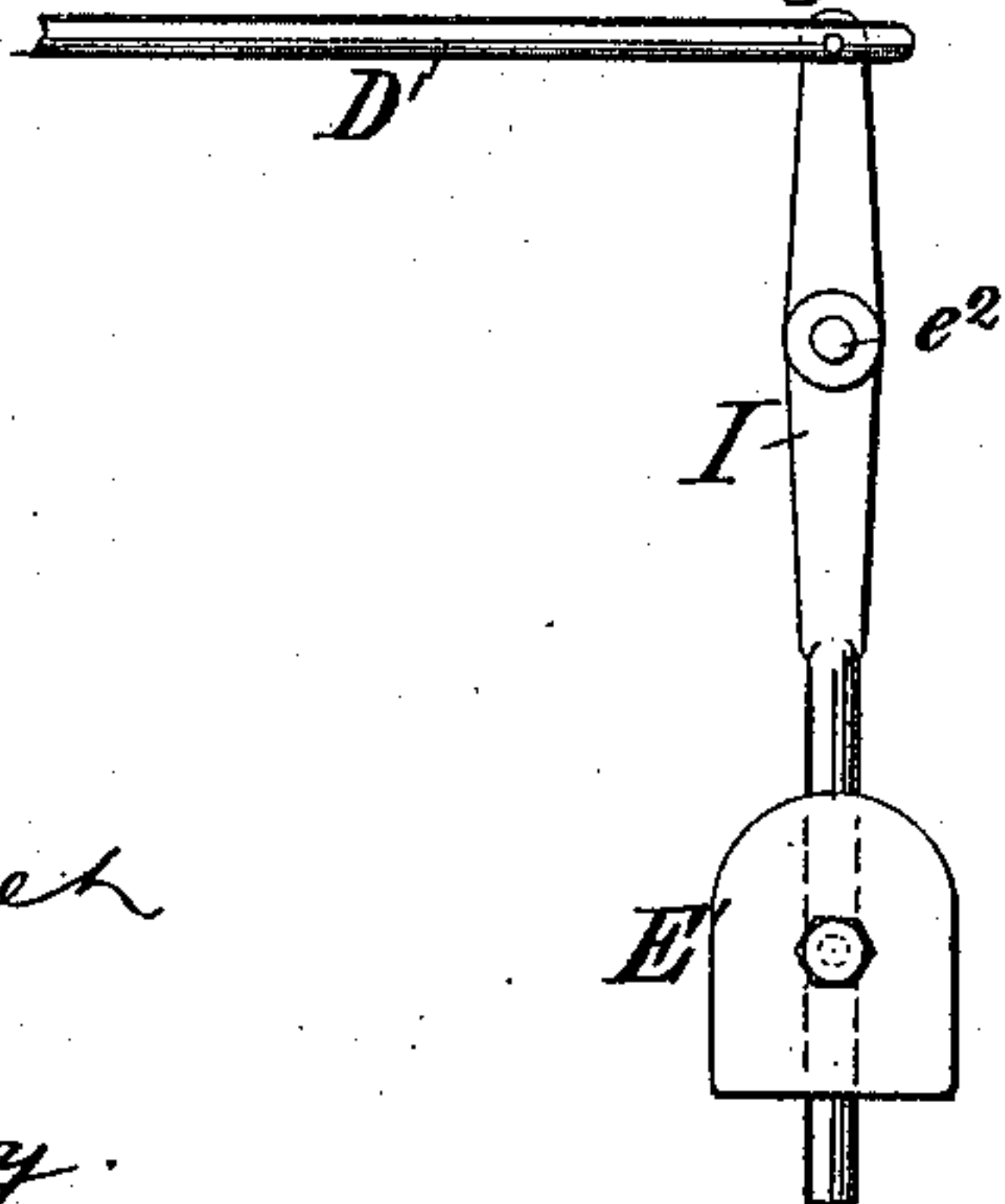


Fig 4



Witnesses
John Bicker
Geo. Barry.

Inventor
Oliver H. Taylor
by attorney
Brown & Griswold

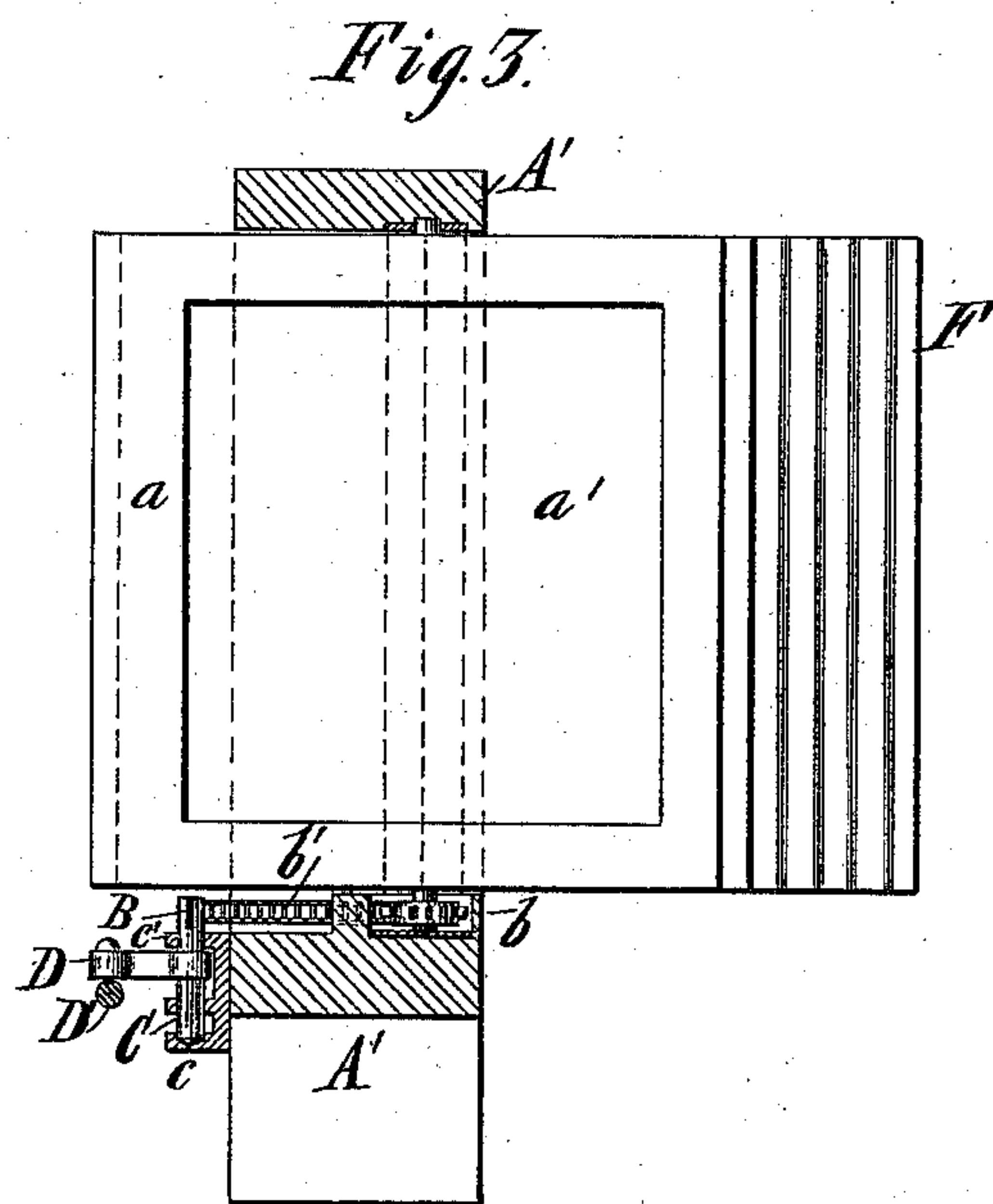
(No Model.)

2 Sheets—Sheet 2.

O. H. TAYLOR.
CAR VENTILATOR.

No. 413,816.

Patented Oct. 29, 1889.



Witnesses;
John Bicket
Geo. Barry

Inventor;
Oliver H. Taylor
By attorneys
Pronk & Griswold

UNITED STATES PATENT OFFICE.

OLIVER H. TAYLOR, OF BROOKLYN, NEW YORK.

CAR-VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 413,816, dated October 29, 1889.

Application filed June 7, 1889. Serial No. 313,428. (No model.)

To all whom it may concern:

Be it known that I, OLIVER H. TAYLOR, of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Car-Ventilators, of which the following is a specification.

My improvement relates to car-ventilators which are placed in the roof portion of the car, but which stand vertically, being arranged between the main side portions of the roof and an elevated central portion.

I will describe a car-ventilator embodying my improvement in detail, and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a side elevation of a ventilator and portions of a car embodying my improvement. Fig. 2 is a longitudinal horizontal section thereof, taken on the plane of the line xx , Fig. 1. Fig. 3 is a vertical transverse section thereof, taken on the plane of the line yy , Fig. 1. Fig. 4 is a detail illustrating a slight modification.

Similar letters of reference designate corresponding parts in all the figures.

The ventilators consist, essentially, of swinging windows A , which windows are pivoted at top and bottom in the framing A' of the car. Said framing extends, as previously stated, between the main side portions of the roof of the car and an elevated central portion. Said portions of the roof are not shown. Although I have shown but one of the swinging ventilators, it is to be understood that I may use a row of them, comprising any desired number, arranged upon each side in the roof of the car, said rows extending in the direction of the length of the car. Each of these ventilators comprises a frame a , in which may be set a pane of glass a' .

In conjunction with the swinging ventilators I employ automatically-operating openers, a convenient form of which I will now proceed to describe.

Upon the lower pivot of each of the ventilators in this example of my improvement is fixed a sprocket-wheel b . Each of these sprocket-wheels has geared with it a sprocket-chain b' , which sprocket-chain extends about the wheel and is secured at its ends to a lever B . The lever B is fulcrumed at about mid-way in its length upon a rock-shaft C . The rock-shaft C extends vertically and is stepped

at its end in a step-bearing c and journaled near its upper end in a bearing c' , which bearing is on a plate c^2 , which is secured upon the frame A' .

Rigidly secured upon the rock-shaft C is an arm D , which arm is pivotally connected near its outer end to a longitudinally-movable part, here shown as a rod D' , but which might be a cord or chain. The rod D' is of such length that all the ventilators A employed upon the adjacent side of the car may be connected with it in the manner described. In conjunction with said rod I employ a resistance device or resistance devices, the tendency of which is to normally maintain said rod at a certain position and to resist a force tending to move it from such position.

In Figs. 1 and 2 I have shown such resistance devices as consisting of springs E , which springs are connected to the said rod near the ends of the latter. These springs, as shown, are coil-springs, and at their other ends they are connected with tension devices comprising screws e and adjusting-nuts e' . The screws e extend through suitable apertures in supports $e^2 e^3$. The support e^2 extends from the frame of the car, but the support e^3 extends from and forms a part of a lever H . By rotating the nuts e' the tension of the springs E , and consequently the resistance offered by the springs, may be varied as desired.

It is intended in practice that the tension of the springs E shall be about equal, and this tension is such that if a car should be standing still and little or no wind blowing the rod D' will be maintained in such a position as to cause the ventilators A to be held wholly open, or, in other words, to stand in a position at approximate right angles to the frame A' , as shown more clearly in Fig. 3. If, however, the car is in motion or the wind should be blowing, the ventilators A will be swung upon their pivots in the direction in which the wind is blowing. Thus if the wind should be in the direction of the arrow shown in Fig. 2 the ventilators would be swung more or less in the direction indicated in Fig. 2, dependent on the force of the wind.

I have shown a vane F upon the outer edge of the ventilator-frame a , which assists in the movement of the ventilator by the wind.

This vane may be made of corrugated metal, and constitutes in effect a portion of the ventilator. The width of the ventilator, therefore, is greater upon one side of its pivots 5 than it is upon the other, and it is therefore eccentrically journaled. The movement of the ventilator to bring it into a position at right angles to the frame A' is accomplished automatically by the rod D' acting through 10 its connections with the ventilator, the sprocket-chains b' operating upon the sprocket-wheels b when the former is moved by the lever B. When the ventilator is swung by the force of the wind in either direction, it 15 operates to cause a longitudinal movement of the rod D', which movement is of course against the resistance of one of the springs E, the other of said springs being in the meantime slackened.

20 Instead of using a resistance device for the automatic opener consisting of a spring or springs, I might use a weight. I have illustrated such an arrangement in Fig. 4. The weight E' is arranged upon the lower arm of a lever I, which latter is fulcrumed upon the 25 support e². The rod D' is connected to the upper arm of the lever. The weight normally exerts no resistance, but when the lever I is swung by the movement of the rod 30 D' offers resistance to such movement, and this irrespective of the direction in which the rod is moved. When the weight occupies a normal position, it has moved the rod D' into its normal position, or, in other words, into 35 a position to cause the full opening of the ventilator.

When the ventilator is swung by the wind, the latter operates by suction to draw the air from the interior of the car in a well-known 40 manner, and thus ventilate the car.

On most occasions it is desirable to have the ventilators open, and in order to prevent their being wholly closed by the force of the wind I provide stops. The stops in this instance 45 limit the range of movement of the rod D' and consist of pins g upon said rod. These stop-pins are adapted to contact, when longitudinal movement is imparted to the rod D', with one arm of a lever G, which lever is fulcrumed upon a suitable support g', mounted 50 upon the frame A', thereby limiting the movement of said rod, and consequently the degree to which the ventilators may be closed by the wind. Pivotaly connected near one 55 of its ends to the lever G is a connecting-rod g², which connecting-rod is also pivotaly connected near its other end to the lever H, which latter is fulcrumed, as at h, to the frame of the car. The lever H extends down- 60 wardly into a position where it may be reached to be swung by hand.

When the lever is swung in the direction indicated by the arrow, Fig. 1, the lever G will be moved out from between the stop- 65 pins g and the rod D' will be moved longi-

tudinally through its connection by means of the spring E with the lever H. Such movement of the rod will operate to close all the ventilators; or it may be desired to partially close them and maintain them permanently 70 in said partially-closed condition. In either case, when the rod D' has been moved to the proper extent, the lever H is locked, so as to maintain the ventilators in proper position.

I have shown means whereby the lever may 75 be locked in a desired position, consisting of a tooth i upon the lever, adapted to be engaged with teeth i² upon a rack-bar secured upon the frame of the car.

It will be seen that by my improvement I 80 provide means for automatically adjusting the ventilators when the same are moving in either direction and so adjusting them that they will be opened more or less, dependent 85 upon the strength of the external air-currents, and there will therefore be a substantially uniform withdrawal of the air from the interior of the car. I also provide means whereby the complete closing of the ventila- 90 tors may be prevented when the car is moving in either direction.

I therefore do not wish to be understood as limiting myself to the exact construction and arrangement of parts shown and de- 95 scribed, as many other mechanical equivalents for securing these results might readily be devised which would still be within the spirit of my invention.

What I claim as my invention, and desire 100 to secure by Letters Patent, is—

1. In car-ventilating apparatus, the combination, with a swinging ventilator, of an automatically-operating opener acting to al- 105 ways swing said ventilator in a direction to open it, said opener consisting of a reciprocating part connected to said ventilator, and a resistance device, substantially such as described, acting on said reciprocating part, said ventilator being moved in a direction to 110 close it by exterior currents of air against the resistance offered by said resistance device, substantially as specified.

2. In car-ventilating apparatus, the combination, with a swinging ventilator, of an automatically-operating opener acting to al- 115 ways swing said ventilator in a direction to open it, said opener consisting of a reciprocating part connected to said ventilator, a resistance device, substantially such as described, acting on said reciprocating part, 120 and a stop for said opener, said ventilator being moved in a direction to close it by exterior currents of air and against the resistance offered by said resistance device, substantially as specified.

OLIVER H. TAYLOR.

Witnesses:

FREDK. HAYNES,
JOHN BICKET.