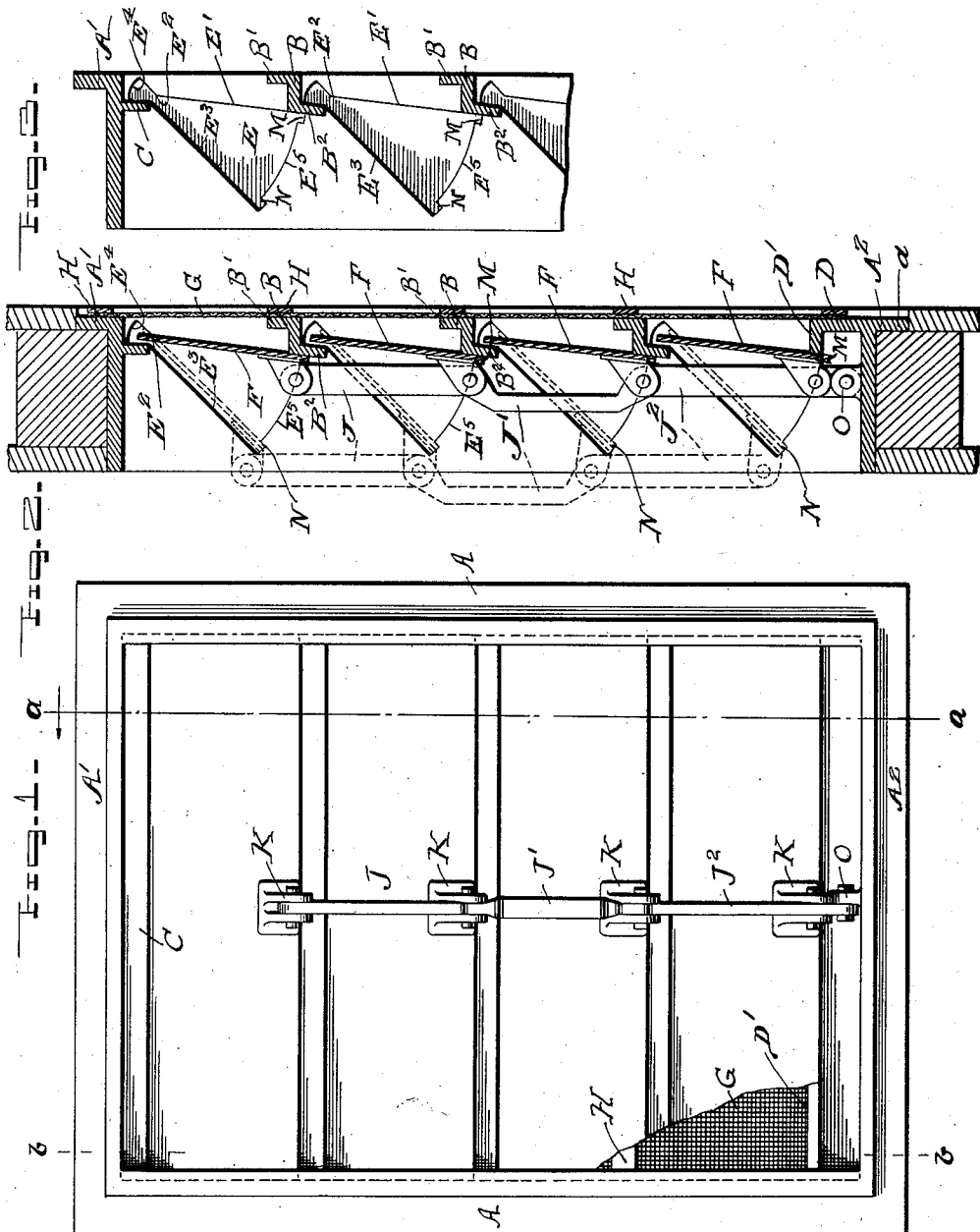


G. L. ALLEN,
 CAR VENTILATOR.
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Witnesses
W. H. Rockwell
Parker Cook

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Inventor
G. L. Allen
 Attorney
A. P. [Signature]

UNITED STATES PATENT OFFICE.

GEORGE L. ALLEN, OF WILMINGTON, NORTH CAROLINA.

CAR-VENTILATOR.

1,022,918.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE L. ALLEN, a citizen of the United States, residing at Wilmington, in the county of New Hanover, State of North Carolina, have invented certain new and useful Improvements in Car-Ventilators, of which the following is a description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to car ventilators and has for its object to provide a ventilator which may be readily opened or closed and which will be so retained in open or closed position that its vanes will not be displaced by the jarring to which the car is subjected in its travel upon a railway.

With this object in view my invention consists in the construction and combination of elements hereinafter described and claimed.

Referring to the drawings: Figure 1 is a front or outside view in elevation of the ventilator; Fig. 2 is a vertical sectional view on line *a-a* of Fig. 1; Fig. 3 is a partial vertical sectional view on line *b-b* of Fig. 1, with the vanes removed.

In the drawings, A, A', represent the frame of the ventilator which is here shown as formed of cast metal but may be built up of strips of metal or wood, if desired; and comprises sides A, top A' and bottom A². The sides A are connected at suitable intervals by bars B each having at its inner edge an upwardly extending flange B' parallel with the inner edges of the frame A, A' and each having at its outer edge a downwardly extending flange B². The top A' is provided with a downwardly extending flange C in line with the flanges B² of the bars B and the bottom A² is provided on its inner edge with an upwardly extending flange D having its upper end extended outward to form a bar D' having its outer edge in line with the flanges B² of the bars B.

In the inner faces of the sides A of the frame are formed recesses E in which the ends of the plates or vanes F are received. These recesses E have their inner walls E' on a line running from the outer face of the flange B² of one of the bars B, or, in case of the lowermost one, from the inner face of the bar D' to a point E² slightly below the plane of the lower inner edge of the flange C or the inner edge of the flange B², in case of all except the uppermost one, and separated therefrom by a space slightly

greater than the thickness of the plate or vane F. From this point E² the inner wall of the recess extends inward and upward nearly to the inner edge of the side A. The outer wall E³ of the recess extends from the under side of the bar B, or the top A in case of the uppermost recess, downward in line with the inner face of the flange B², or the flange C, and from the lower inner edge of the flange B², or the flange C, extends downward and outward to a point near the outer edge of the side A. The walls E' and E³ of the recess are of equal length and the upper and lower ends E⁴ and E⁵ of the recess are formed on arcs of circles having their centers between the point E² and the lower inner edge of the flange B², or flange C. At its inner end the lower end E⁵ is provided with a notch or recess M, and at its outer end has a corresponding notch N. The notches or recesses M and N are each of a width slightly greater than the thickness of the plates or vanes F and are sufficiently deep to retain the plates or vanes against displacement. To the inner face of the frame A, A' and the inner faces of the flanges B' of the bars B is secured a screen G held in place by bars H suitably secured to the frame and bars.

The vanes or plates F are, in horizontal dimension, of sufficient length to extend from the recess E of one side A to the opposite recess E in the other side A so that its ends will be retained within the opposite recesses. The vanes or plates, in vertical dimension, are of a width slightly less than the distance between the upper end E⁴ and lower end E⁵ of the recess. When the plates or vanes F are in closed position they will rest at their lower inner edges against the outer faces of the flanges B² of the bars B, or in case of the lowermost one, against the outer end of the bar D', and will at their lower edges extend into and be retained in position by the notches or recesses M. The inner edges of the ends of the plates or vanes will lie against the inner wall E' of the recess up to the points E² and from this point upward the outer edges of the ends will lie against the inner faces of the flanges B² of the bars B.

When the ventilator is to be opened it is only necessary to raise the vane or plate F until it is disengaged from the notches or recesses M and swing its lower edge outward along the curve of the lower end E⁵

of the recess until it is against the outer wall E³ of the recess when the lower edges of its ends will drop into the notches or recesses N by which the plate or vane will be retained in open position. When in this open position the vane or plate F will rest with the outer edges of its ends against the outer walls E³ of the recess up to the inner lower edge of the flange B², or in case of the uppermost one, the lower inner edge of the flange C, and from this point upward the inner edges of the ends of the vane or plate will rest against the portion of the inner wall E' above the point E².

The outer faces of the flanges B² are preferably inclined outward and downward and these flanges serve to cover and protect the upper edges of the vanes or plates and prevent the possibility of the entrance of rain or other foreign substance. While any convenient means may be employed for lifting the vanes or plates F to disengage them from the notches or recesses M and N and swinging them from open to closed position or from closed to open, I prefer to make use of the mechanism herein shown and described by which the vanes or plates are all lifted and swung simultaneously. This mechanism comprises lugs K secured to the lower outer edge of the several plates or vanes midway between their ends, and a bar J, J' and J² each portion of which connects the lugs K of adjacent vanes or plates F. The portions of the bar are pivotally connected to the lugs and the portion J' is preferably formed as shown to be conveniently grasped by the hand.

The lowermost portion J² of the bar is preferably extended at its lower end to reach the bottom A² and the bottom is provided with an upwardly extending lug O. The lower end of the portion J² and the lug O are perforated so that when the ventilator is closed the hasp of a padlock or other convenient locking means may be passed through the perforations and thus lock the ventilator in closed position. In the drawings a pin P is shown passing through the perforations. This of course must be removed to permit the bar to be swung to the position shown in dotted lines in Fig. 2.

While the invention has been described as a car ventilator and is particularly adapted for use in connection with box cars for perishable or other freight it may be used in connection with other constructions than freight cars or constructions other than cars, particularly such structures as are subjected to shaking or jarring. It will also be understood that the drawings herewith are illustrative merely and are not intended to limit the invention to the particular construction or number or arrangement of parts shown.

Having thus described my invention and

explained the operation thereof, what I claim and desire to secure by Letters Patent is:

1. In a ventilator, a frame having oppositely arranged sides, a plate extending from one side to the other the sides being provided between their edges with means inclosing and supporting the ends of the plate but adapted to permit the plate to be moved from closed to open position.

2. In a ventilator, a frame having recesses in the opposite faces of its sides between their edges and a plate having its ends in said recesses, the recesses being adapted to support the plate and to permit it to be moved from closed to open position within them.

3. In a ventilator, a frame having recesses in opposite faces of its sides between their edges and a plate having its ends in said recesses, the recesses being adapted to support the plate and to permit it to be moved from closed to open position within them, and means for retaining the plates in open or closed position.

4. In a ventilator, a frame having recesses in the opposite faces of its sides, the walls of the recesses diverging from opposite points near the upper end of the recesses, and plates having their ends in opposite recesses and extending upward therein past the points from which the side walls diverge.

5. In a ventilator, a frame having recesses in the opposite faces of its sides, the walls of the recesses diverging from opposite points near the upper end of the recesses and the lower end of the recesses being formed on the arc of a circle and plates having their ends in opposite recesses and extending upward therein past the points from which the side walls diverge.

6. In a ventilator, a frame having recesses in the opposite faces of its sides, the walls of the recesses diverging from opposite points near the upper end of the recesses and the lower end of the recesses being formed on the arc of a circle and plates having their ends in opposite recesses and extending upward therein past the points from which the side walls diverge, the lower ends of the recesses being provided at their ends with notches adapted to receive and retain the plates in open and in closed position.

7. In a ventilator, a frame having a series of recesses in opposite faces of its sides, bars extending across the frame having flanges arranged to have their outer faces in line with a portion of the inner wall of an upper recess and their inner faces in line with a portion of the outer wall of a lower recess and plates having their ends movable in said recesses.

8. In a ventilator, a frame having a series of recesses in opposite faces of its sides, bars extending across the frame having flanges

arranged to have their outer faces in line with a portion of the inner wall of an upper recess and their inner faces in line with a portion of the outer wall of a lower recess, said bars having also inner flanges having their inner faces in line with the inner edges of the frame, a screen secured to said inner flanges, and plates having their ends movable in said recesses.

9. In a ventilator, a frame, a series of bars extending across the frame having downwardly extending flanges on their outer edges, recesses in the faces of the sides of the frame above and below each bar, the inner wall of the upper recess being in line with and extending below the upper edge of the outer face of the flange on the bar and the upper portion of the outer wall of the lower recess being in line with and extending upward beyond the lower edge of the inner face of the flange, the outer wall of the recess diverging downward, and plates having their ends within opposite recesses and arranged when in closed position to rest with lower portions of their inner faces against the outer face of the flange of a lower bar, and the upper portion of their outer faces against the inner face of an upper bar.

10. In a ventilator, a frame having a series of oppositely arranged recesses in the opposite faces of its sides between their edges, a series of plates extending from one side to the other each having its ends in and supported by one of said recesses, a rod pivotally connected to the lower edges of the plates and adapted to swing the plates simultaneously into open or closed position.

11. In a ventilator, a frame having a series of oppositely arranged recesses in opposite faces of its sides, the front and rear walls of the recesses diverging from opposite points near their upper ends, a series of plates having their ends in opposite recesses and extending upward past the points from which the front and rear walls diverge, the lower end of the recesses having at each end a notch adapted to receive and retain the lower edge of a plate, and means for simultaneously raising the plates from engagement with the notches at one end of the lower ends of the recesses, and swinging their lower edges to the other end of the lower ends of the recesses.

12. In a ventilator, a frame having a series of oppositely arranged recesses in opposite faces of its sides, the front and rear walls of the recesses diverging from opposite points near their upper ends, a series

of plates having their ends in opposite recesses and extending upward past the points from which the front and rear walls diverge, the lower end of the recesses having at each end a notch adapted to receive and retain the lower edge of a plate, and means for simultaneously raising the plates from engagement with the notches at one end of the lower ends of the recesses, and swinging their lower edges to the other end of the lower ends of the recesses, said means comprising a rod pivotally connected to the lower edges of the plates.

13. In a ventilator, a frame having a series of oppositely arranged recesses in opposite faces of its sides, the front and rear walls of the recesses diverging from opposite points near their upper ends, a series of plates having their ends in opposite recesses and extending upward past the points from which the front and rear walls diverge, the lower end of the recesses having at each end a notch adapted to receive and retain the lower edge of a plate, and means for simultaneously raising the plates from engagement with the notches at one end of the lower ends of the recesses, and swinging their lower edges to the other end of the lower ends of the recesses, said means comprising a rod pivotally connected to the lower edges of the plates a portion of said rod being adapted to serve as a handle.

14. In a ventilator, a frame having a series of oppositely arranged recesses in opposite faces of its sides, the front and rear walls of the recesses diverging from opposite points near their upper ends, a series of plates having their ends in opposite recesses and extending upward past the points from which the front and rear walls diverge, the lower end of the recesses having at each end a notch adapted to receive and retain the lower edge of a plate, and means for simultaneously raising the plates from engagement with the notches at one end of the lower ends of the recesses, and swinging their lower edges to the other end of the lower ends of the recesses, said means comprising a rod pivotally connected to the lower edges of the plates and means for locking the rod to retain the plates in closed position.

This specification signed and witnessed this third day of February A. D. 1911.

GEORGE L. ALLEN.

In the presence of—

W. E. WINE,
GEO. G. LYNCH.