

A. B. Spencer,

Car Ventilator,

N^o 12,234.

Patented Apr. 5, 1864.

Fig. 1

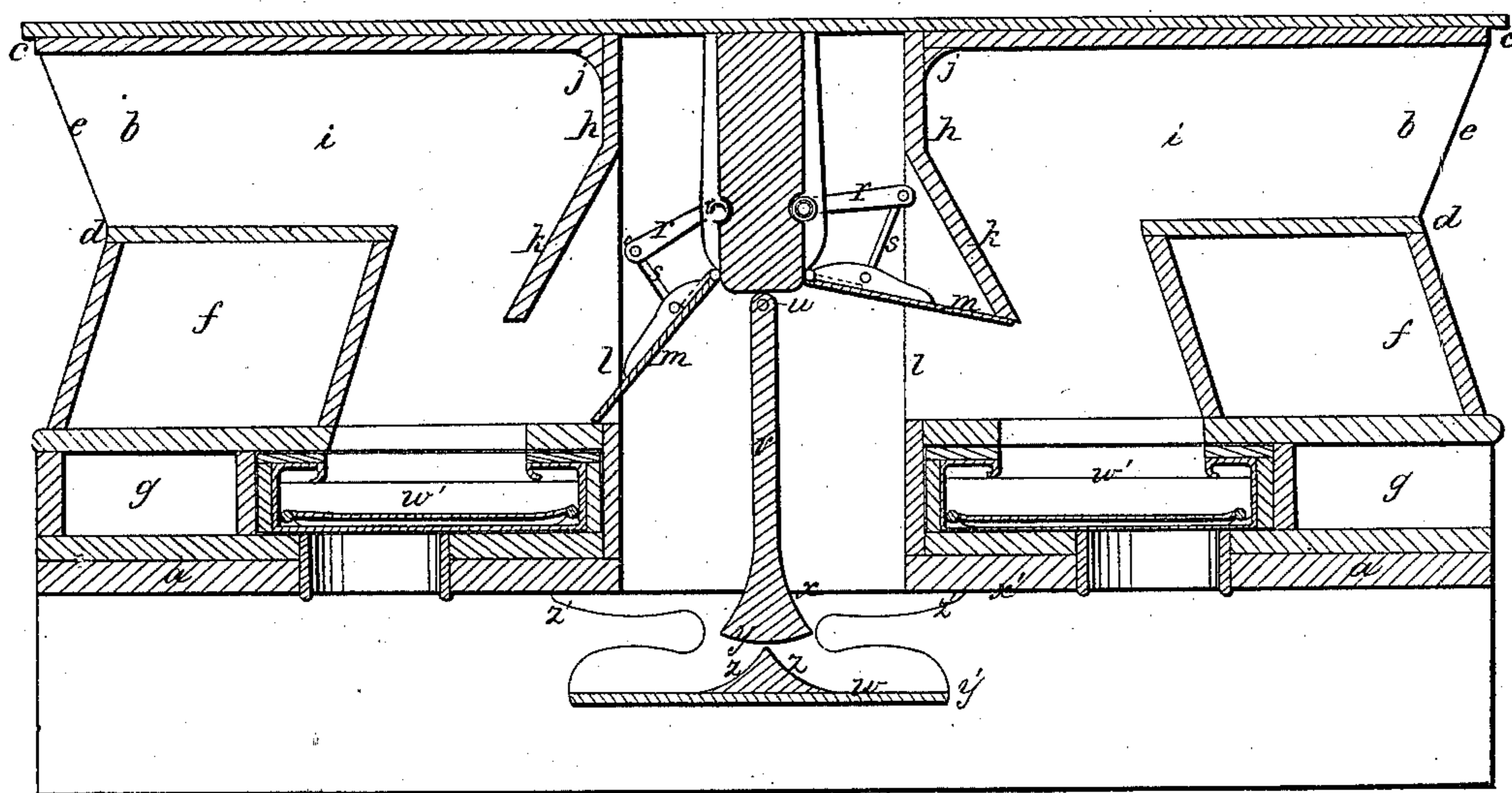


Fig. 2

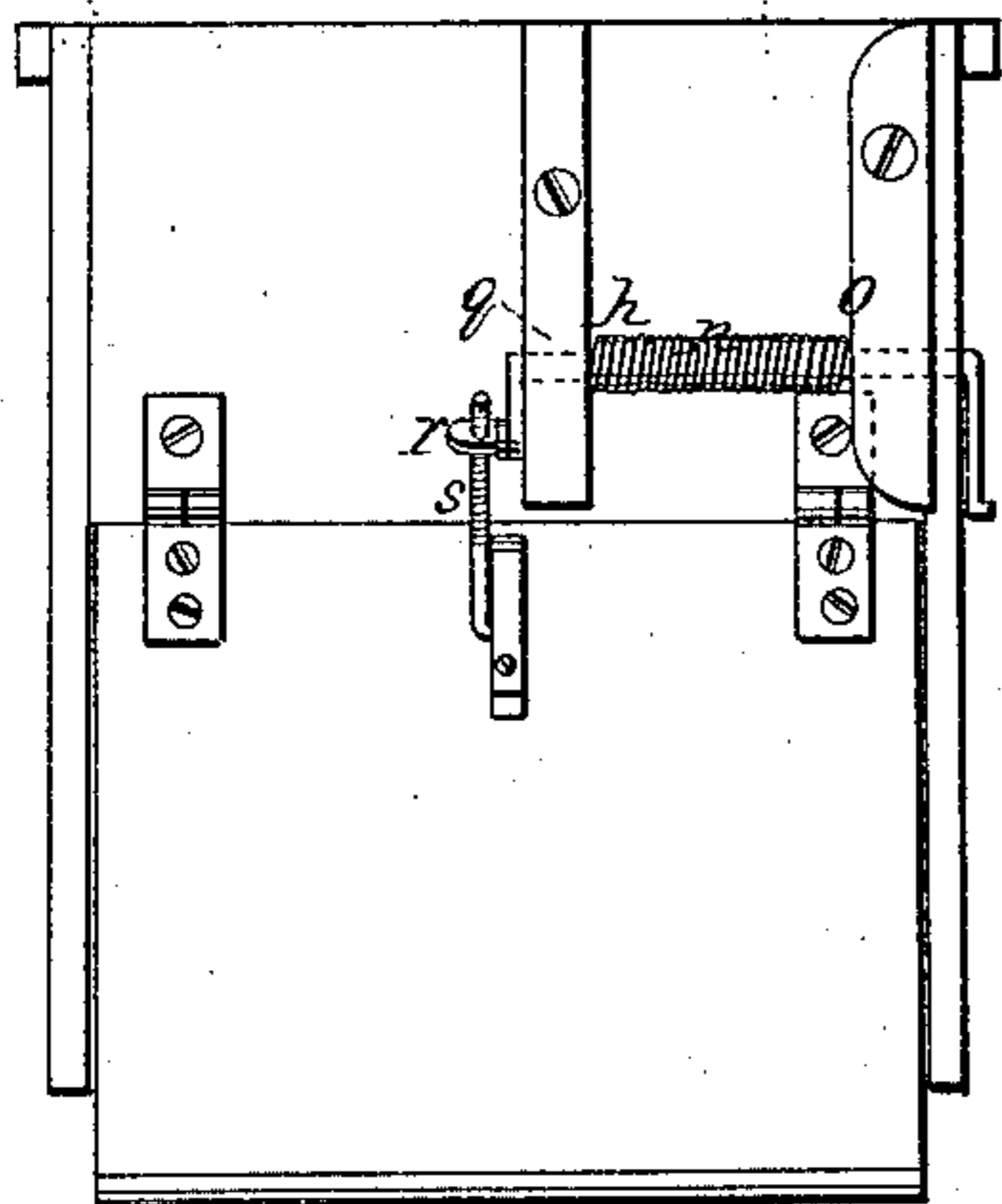


Fig. 3

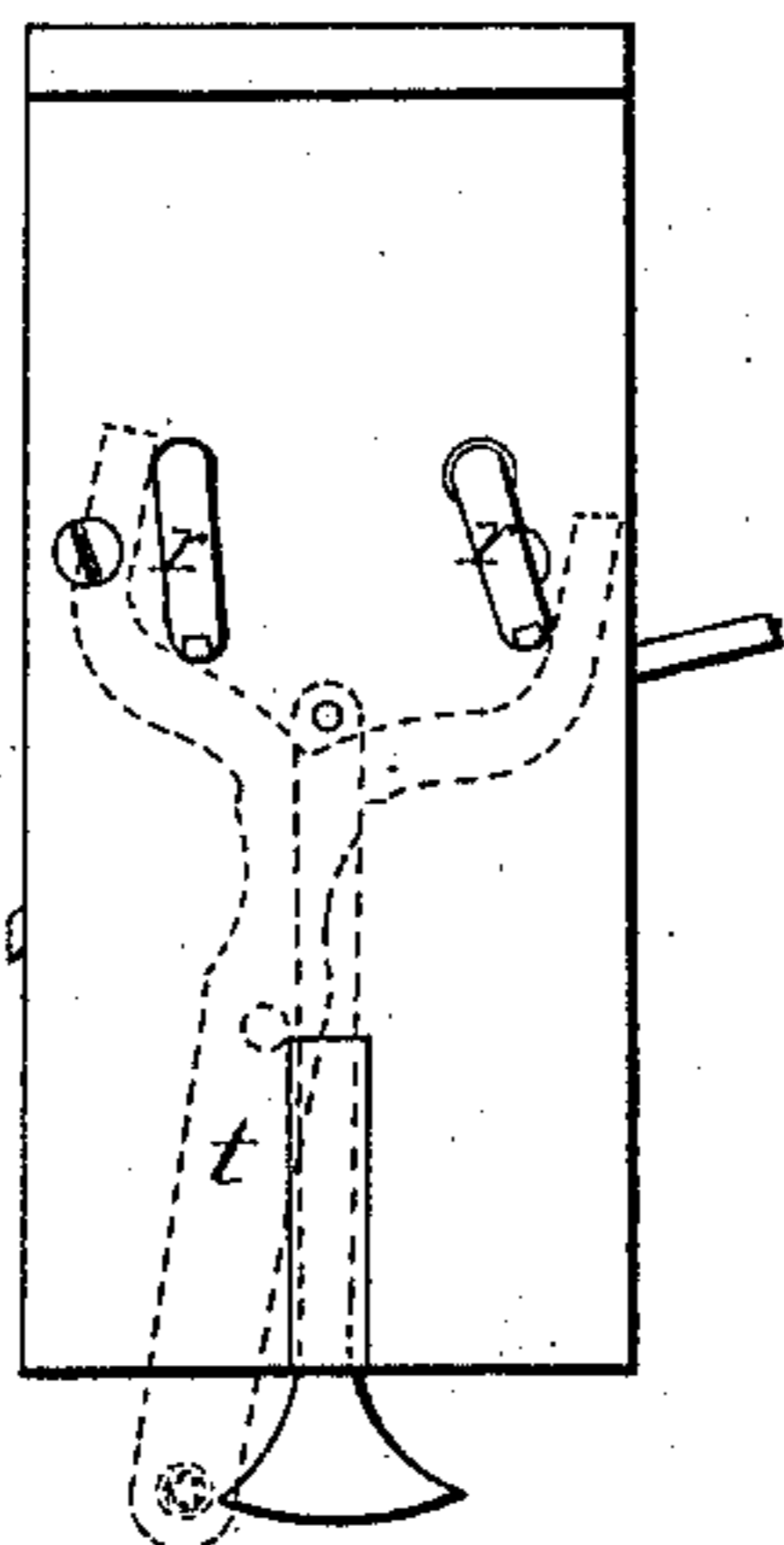
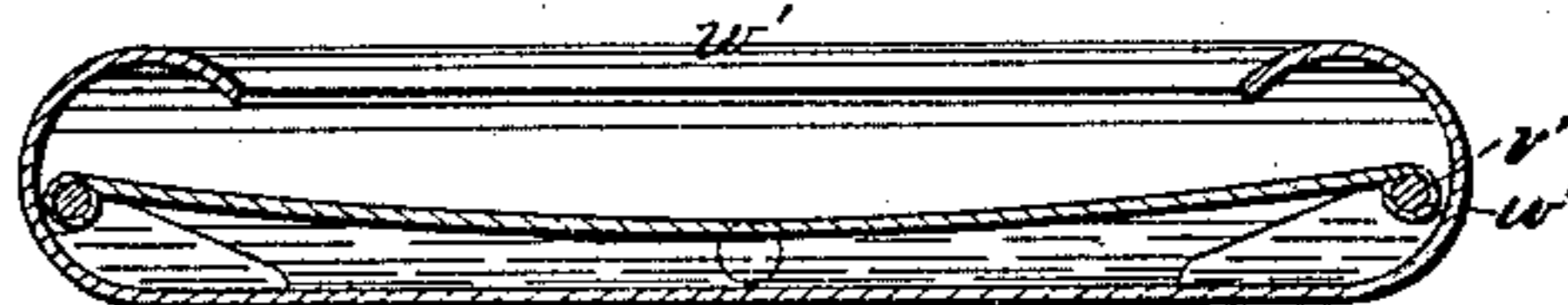


Fig. 4



Witnesses;
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN CAR-VENTILATORS.

Specification forming part of Letters Patent No. 42,234, dated April 5, 1864; antedated March 28, 1864.

To all whom it may concern:

Be it known that I, A. B. SPENCER, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Car-Ventilators; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters and marks thereon.

The drawings forming part of this specification show my improvement with the several parts thereof, Figure 1 representing the ventilator as affixed to the roof of a car at about the center, though the ventilator may be placed at such points or on such parts of the car or the roof thereof as may be preferred or regarded as best adapted to the particular car, and, as is evident, more than one ventilator may be used on a car, if required.

Fig. 1 of these drawings is a view of the ventilator by longitudinal section through the center thereof, Fig. 2 being a front view of one of the regulating valves with its attachments, Fig. 3 being a view of a forked or double-armed lever for operating the valves, and Fig. 4 being a sectional view of the dust-pan or cinder-collector.

In each of these figures, where like parts are shown, like marks and letters are used to indicate the parts.

The ventilator can be attached to the roof *a* of the car by any suitable means. I prefer that the mouth *b* of the ventilator be of rectangular form, having ascertained that this form is better than the usual expanded or funnel-shaped mouth, and generally the rectangular-shaped mouth can be made stronger and cheaper. The roof *c* of the mouth projects beyond the floor *d*, thus protecting it more fully than if the two were of the same extent. The sides *e* of the mouth are, therefore, inclined. The body *f* of the ventilator and its base *g* underneath the mouth I prefer to have wedge-shaped, or of inclined sides, so that the resistance in passing through the air will be less than if these surfaces were in lines of a plane or vertical and of rectangular form. This shaped body and base under the mouth will be stronger and more durable than other forms, as they will brace the structure generally. The back *h* of the air-passage *i* is curved

at *j* and inclined at *k* for giving direction to the current of air.

The description thus far has applied to the ventilator as having but one part. As is shown by Fig. 1, it consists of two parts, they being in all respects the same, and hence the description of the one part will apply to the other. The air-passage at *l* is controlled by a valve, *m*. Fig. 1 shows one of these valves opened fully and the other closed. A spring, *n*, properly affixed at one end to the side piece, *o*, and at the other end, *p*, to the rod *q*, around which it is coiled, through the medium of the arm *r* and rod *s*, operates to hold the valve open. A forked lever, *t*, is shown as the means for closing the valves; but each valve may be controlled by an independent lever, or by any other suitable device, and such device may be so arranged as to allow of the holding of the one or both valves at any position desirable, and be operated from within the car or outside, as may be preferred. From a central point, *u*, a deflecting or equilibrium plate, *v*, is suspended over a fixed deflecting plate, *w*. The equilibrium-plate *v* may be weighted at its lower end to any desired degree. Its lower surface is curved at *x*, as is also its end *y*. The center of the plate *w* is elevated and has curved surfaces *z*, there being between the end *y* of plate *v* and the elevated point of plate *w* just space sufficient to allow of the play of plate *v*. Plate *w* is secured at its ends *z'* to the roof of the car. Between its edges *y'* and the roof at *x'* is a free passage for the current of air.

The dust-pan or cinder collector *w'* is in the shape of a drawer of rectangular form, so that it may readily be taken out and cleaned whenever required. Its sides (see Fig. 4) are rounded and terminate in a curved form, thus producing a deflecting or guiding surface. This pan will contain water, about as indicated by the blue coloring, and at about the point shown above the water will have stretched across it a cloth, the cloth being sustained by rods *v'*, which are jointed and rest in recesses *u*, of small plates attached to the sides of the pan. Between the sides and ends of the cloth and the sides of the pan there will be sufficient space for the flopping up and over of the water by the motion of the car. The jointed

rods will allow of the ready removal of the cloth whenever required. A pipe and faucet at any convenient point of the pan will permit the contents to be drawn off and the pan cleaned, as required.

From this description of the construction of my ventilator its operation can be fully and clearly understood. The car being in motion, the air will rush in the mouth, which will in that case be the front one, and, passing against the surfaces marked *h j k*, will be deflected downward, depositing the dust and cinders upon the cloth of the dust pan, from which they will be swept off and into the water below by the washing over the cloth of the water. The air thus purified will pass on through the channel *l* against the plate *v*, and being deflected by it forward will pass into the car through the space between *y'* and *x'*, save such portion as may for the time pass between *y* and *z*. If the doors and windows of the car be closed, and the valves properly regulated, the air in the car will be compressed, and will become of the same pressure on each side of

the plate *v*, so that it will be in a vertical or nearly vertical position. The air will then pass into the forward part of the car and circulate through the car, while the vitiated air will find its way out through the back channel and mouth.

It will readily be seen that in using this ventilator the air passing out of the car may be passed through one or more of the windows or the rear door, the rear valve then being closed.

What I claim as my invention, and desire to secure by Letters Patent, as an improvement in car-ventilators, is—

1. The dust-pan or cinder-collector, constructed and operated as shown by Fig. 4, and herein described.

2. The arrangement of the rectangular mouth *b*, with the deflecting-surfaces *f* and *g*, as described.

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Witnesses:

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