

No. 682,176.

Patented Sept. 10, 1901.

W. T. COTTIER.
CAR VENTILATION.

(Application filed Oct. 25, 1900.)

(No Model.)

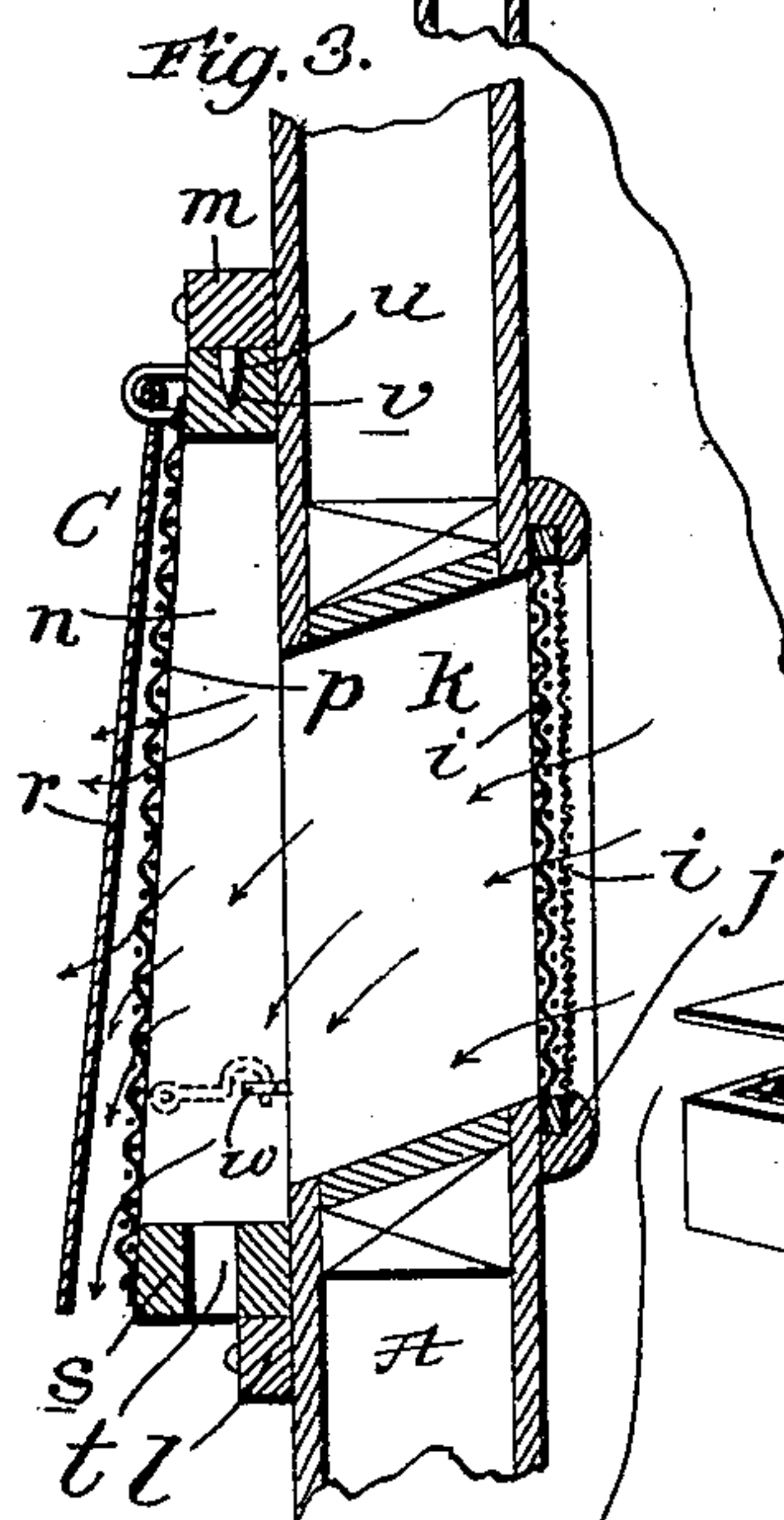
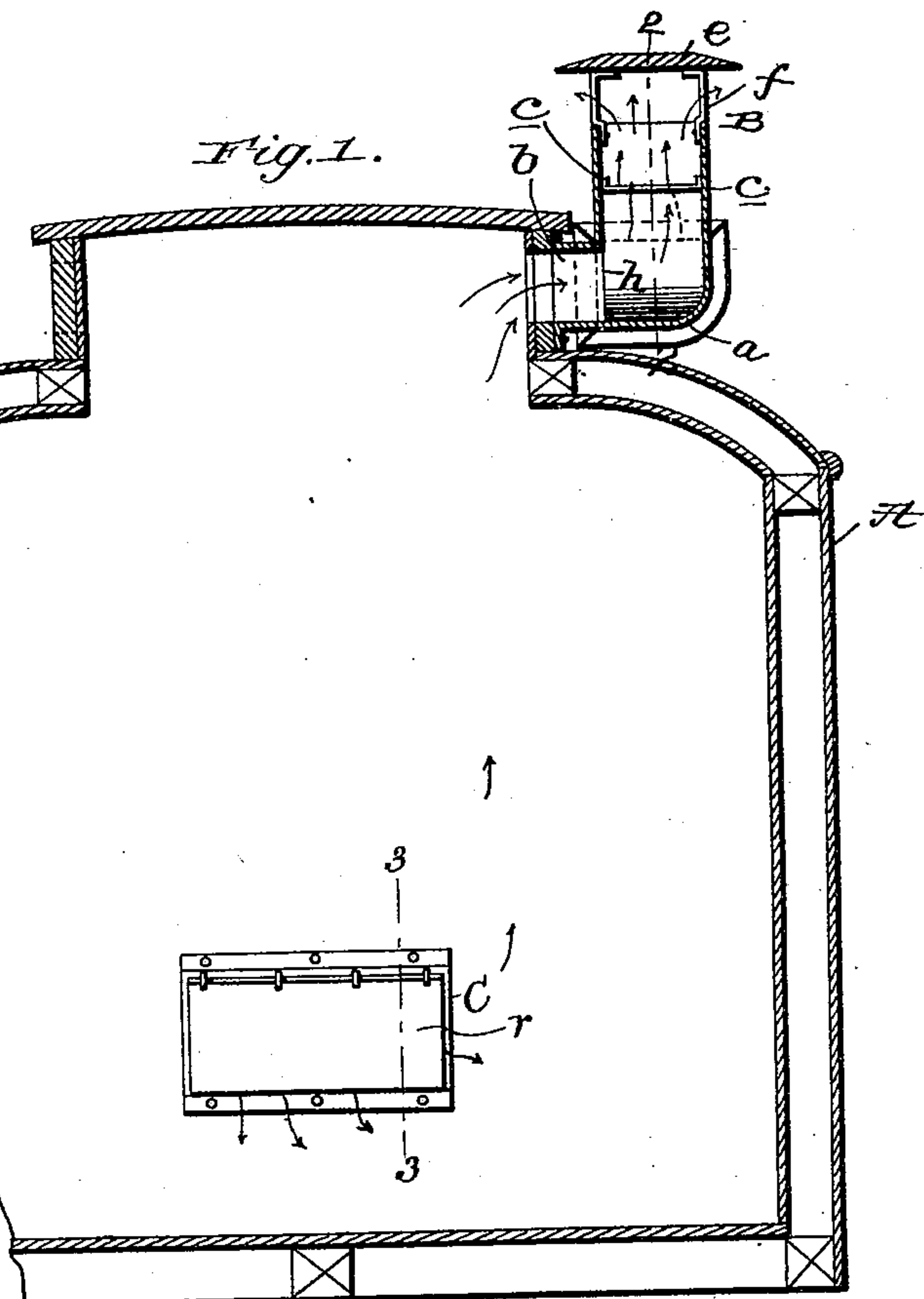
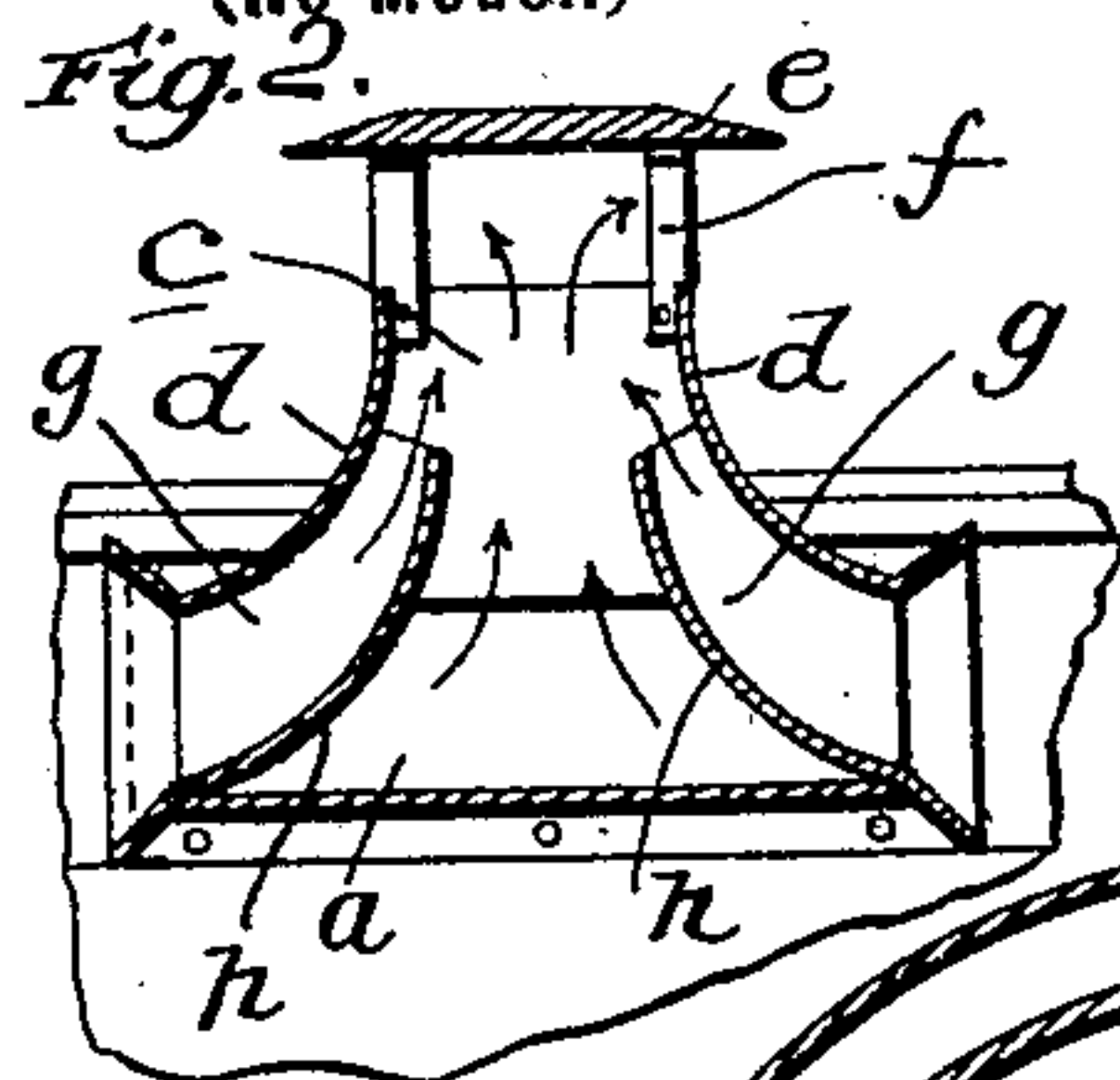
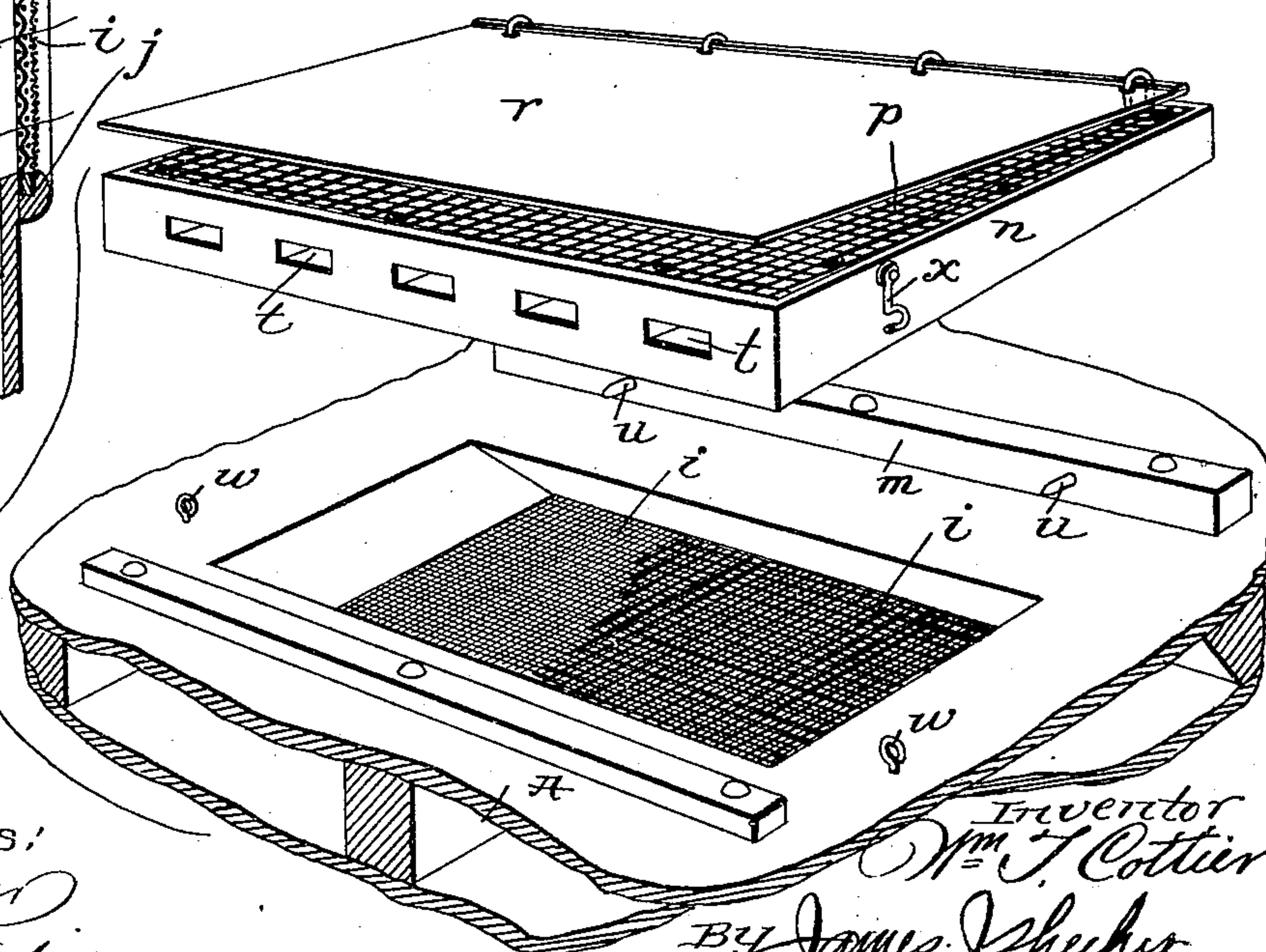


Fig. 4.



Witnesses:

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CAR VENTILATION.

SPECIFICATION forming part of Letters Patent No. 682,176, dated September 10, 1901.

Application filed October 25, 1900. Serial No. 34,315. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. COTTIER, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented new and useful Improvements in Car Ventilation, of which the following is a specification.

My invention relates to ventilated cars; and it consists in peculiar means for ventilating passenger, express, and other cars, the novelty and material advantages of which will be fully understood from the following description and claims when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a transverse broken section of a railway-car equipped with my improved ventilating devices. Fig. 2 is a detail section taken in the plane indicated by the broken line 2 2 of Fig. 1 and illustrating one of the suction devices for creating a vacuum or partial vacuum inside the car. Fig. 3 is an enlarged section taken in the plane indicated by the broken line 3 3 of Fig. 1 and illustrating one of my improved fresh-air-induction devices for admitting air to the interior of the car at intervals incident to the creation of partial vacuums therein. Fig. 4 comprises enlarged disconnected perspective views of the portions of my improved fresh-air-induction device.

In the said drawings similar letters of reference designate corresponding parts in all of the views, referring to which—

A is a car-body, which in general may be of the ordinary or any approved construction.

B is a suction device for creating a partial vacuum in the interior of the car-body, and C is a fresh-air-induction device for admitting air to the interior of the car at intervals, as will be presently described. Any suitable number of the suction devices B and induction devices C may be employed, although I prefer to use six of the former and connect three to each deck-sash at intervals in the length of the car, and also to employ two of the latter and arrange them in opposite end walls of the car-body at about the proportional height illustrated. The suction devices B are similar in construction, and therefore a detailed description of the one shown in Figs. 2 and 3 will suffice to impart an un-

derstanding of all. Said suction device comprises a longitudinally-disposed body *a*, arranged parallel to the deck-sash of the car-body, and having a lateral branch *b*, which extends through the deck-sash and communicates with the interior of the body, and also having side walls *c* and end walls *d*, forming a chimney, a cap *e*, arranged about the proportional distance illustrated above the chimney and mounted on supports *f*, rising from the same, and inductors *g*. The end walls *d* of the body *a* are curved upwardly and inwardly, as shown, and serve, in conjunction with the side walls *c* and interior-curved walls *h*, to form the said inductors *g*, which have flared mouths, and are gradually reduced in size toward their inner ends, as shown, with a view of increasing the draft.

By virtue of the construction of the suction device as described it will be seen that air passing through the inductors *g* and thence out through the upper end of the chimney will operate to create a partial vacuum in the suction device and also in the interior of the car-body and thoroughly exhaust impure air from the latter. It will also be observed that this operation will take place when the car is standing still as well as when it is in motion.

As before stated, two fresh-air-induction devices are preferably employed; but as these are similar in construction a detailed description of the one shown in Figs. 3 and 4 will suffice to impart an understanding of both. The said induction device comprises a screen *i*, arranged in a suitable frame *j* at the outer side of the end wall of the car-body and over or coincident with an opening *k* in said end wall, horizontal bars *l m*, arranged below and above the opening *k* and connected to the inner side of the end wall, a rectangular open frame *n*, interposed between the bars *l m*, a screen *p*, connected to the inner face of said frame—that is, the face toward the interior of the car-body—and an imperforate flap *r*, connected in a hinged manner to the upper horizontal bar of the frame *n* and arranged to normally rest over the screen *p*, at the inner side thereof. The lower wall of the opening *k* in the end wall is preferably inclined downwardly and inwardly, as best shown in Fig. 3, and the lower horizontal bar *s* of the frame *n* is disposed below the lowermost point

of said lower wall and is wider than the lower support *l* and apertured, as indicated by *t*. By virtue of this it will be observed that any dust that may find its way through the screen *i* will fall upon the bottom bar *s* of the frame *n* and pass through the openings *t* therein to the floor of the car-body. This obviously prevents the dust being carried with the draft of air through the car-body and deposited on the fruit therein and is an important and material advantage for such reason.

The frame *n* is by preference detachably secured between the bars *l m* and against the inner side of the end wall in order that it may be readily removed when it is desired to clear the screen *p* of dust and other sediment that has collected thereon. To effect such connection, I prefer to employ dowel-pins *u* on the upper bar *m* and sockets *v* in the upper bar or frame *n* to receive the same, eyes *w* on the inner side of the end wall of the car-body, and complementary hooks *x* on the vertical bars of frame *n*. From this it follows that in order to remove the said frame *n* it is simply necessary to disengage the hooks *x* from their complementary eyes and then move the lower portion of the frame inwardly and draw it downwardly out of engagement with the dowel-pins *u*. To replace the frame after the screen *p* has been cleared, the operation described is reversed.

By virtue of the employment of the suction devices B and induction devices C in conjunction with a car it will be seen that when a vacuum or partial vacuum is created in the car through the medium of the suction devices the flap *r* of the induction device is lifted by the atmospheric pressure to the vacuum in the interior of the body, and when vacuum is occupied by fresh air the flap immediately falls or closes of its own weight. This insures the supply of an ample quantity of fresh air to the interior of the car and precludes a constant rush or draft of air there-through, which is objectionable because it causes evaporation or drying up of any fruit or other perishable goods contained in the car and also because it is liable to cover the fruit or other goods to a greater or less extent with fine dust.

Inasmuch as the air is exhausted from the interior of the car through the medium of the suction device when the car is standing still

as well as when it is in motion it will be observed that fresh air will be admitted at intervals to the interior of the car through the induction device at all times, and consequently a pure and wholesome atmosphere will be continuously maintained in the interior of the car.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a car having an opening *k* in one of its walls, the lower wall of which is inclined downwardly and inwardly; of a rectangular open frame arranged at and connected to the inner side of said end wall, and having openings *t* in its lower bar for the discharge of dust and dirt, a screen attached to the inner face or face of the frame that is presented to the interior of the car, and an imperforate flap connected in a hinged manner to the upper bar of the frame and arranged to normally rest over the screen carried by said frame, substantially as specified.

2. The combination of a car having an opening in one of its vertical walls, the lower wall of which is inclined downwardly and inwardly, a bar *l* connected to the inner side of said wall below the opening, a bar *m* connected to the inner side of the wall above the opening, and having depending dowel-pins, the rectangular frame interposed between the bars *l* and *m*, and having the lower bar of a greater width than the bar *l*, and provided with apertures *t*, and the upper bar provided with sockets to receive the dowel-pins, the screen connected to the inner face of the rectangular frame, an imperforate flap connected in a hinged manner to the upper bar of the rectangular frame, and adapted to normally rest over the screen, a detachable connection between the rectangular frame and the wall of the car, and one or more suitable suction devices connected to and communicating with the interior of the upper portion of the car.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM T. COTTIER.

Witnesses:

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JOHN PILGER.