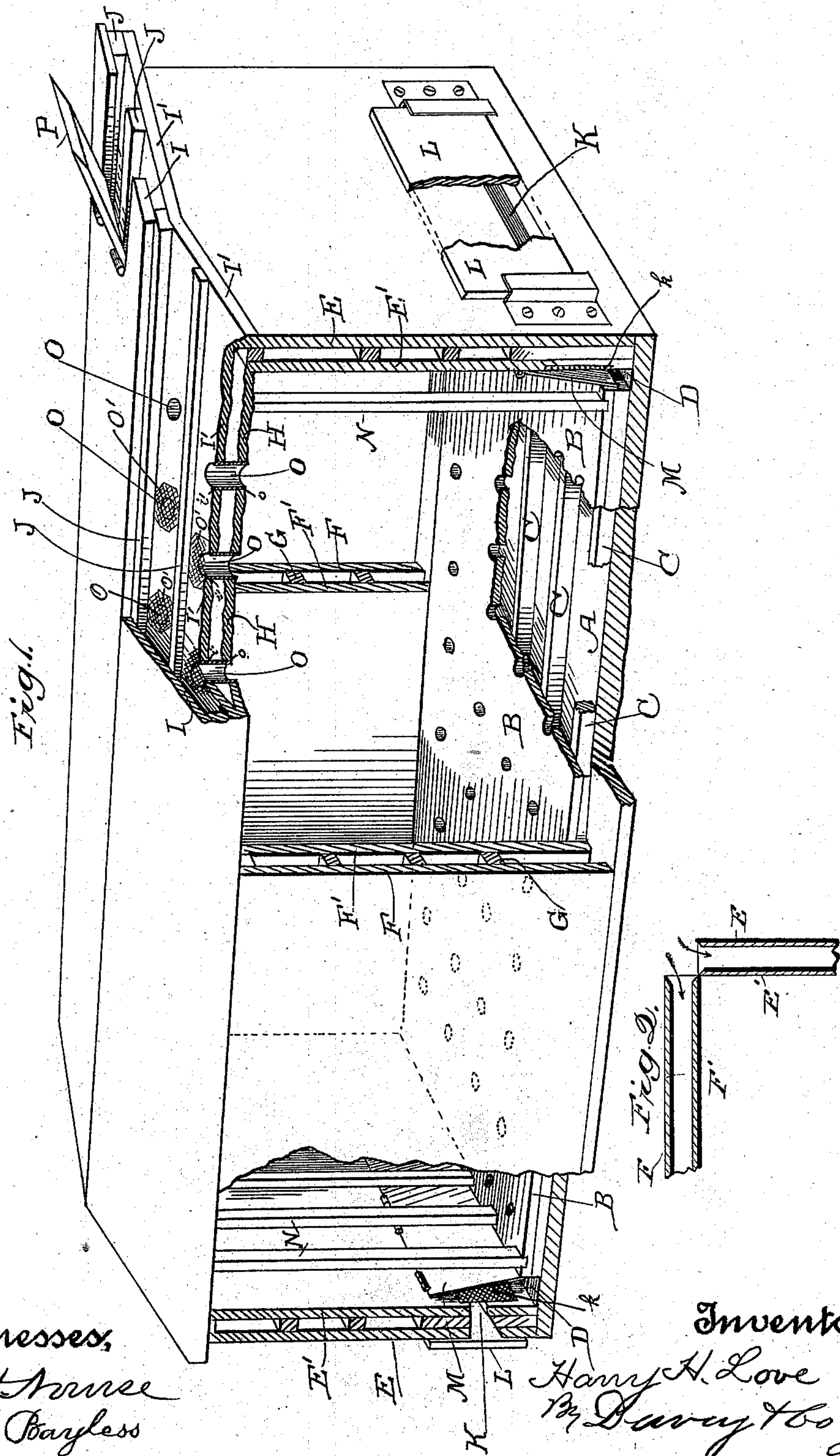


H. H. LOVE.
VENTILATOR CAR.

Patented Oct. 30, 1894.



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UNITED STATES PATENT OFFICE.

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VENTILATOR-CAR.

SPECIFICATION forming part of Letters Patent No. 528,231, dated October 30, 1894.

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To all whom it may concern:

Be it known that I, HARRY H. LOVE, a citizen of the United States, residing at Sacramento, county of Sacramento, State of California, have invented an Improvement in Ventilator-Cars; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in cars.

It is especially designed for a more perfect ventilation of cars of all descriptions, and it consists in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of a car body, a portion of the roof, floor, and the end and side walls being broken away, showing its construction, and Fig. 2 is a horizontal section through one corner of the car.

The object of my invention is to provide a means for ventilating cars of all descriptions, such as are employed for transporting fruit, or other perishable products, and it is equally applicable to smoking, sleeping, and other passenger cars.

The car is constructed with double top, bottom and sides, and ends, with suitable air passages so arranged that the circulation of air is constantly promoted while the cars are in motion.

A is the main floor of the car, and B is a supplemental floor which is raised above the main floor and supported upon longitudinal strips or timbers C which form channels extending from one end of the car to the other. This supplemental floor is a little shorter than the car so as to leave open transverse channels D between it and the vertical ends of the car.

The ends of the car are made of double walls E E', suitably stayed or supported by transverse timbers between them, and these passages formed between the two walls are open from side to side to allow a free circulation of air through them, as shown in Fig. 2. The sides in like manner are made with double walls F F' with longitudinal intermediate timbers G and passages formed between these timbers. These side wall spaces are also open at both ends as shown in Fig. 2, so that when the car is in motion there will always be a

current of air passing between these walls, and if the car is exposed to the sun upon either side, this current of air will always protect the inner wall, and the contents of the car.

The top of the car consists of the inner ceiling H having openings o made through it, and an outer and inner top or roof I I' with longitudinal timbers J between them forming longitudinal channels between the two parts of the roof. The roof section I' is provided with openings i' registering with openings o.

The spaces between the inner ceiling H of the car, and the inner roof section I' are connected preferably at each end with the spaces at the ends of the car, so that there will be a circulation in this part also, and no confined air will remain in this space. Between the inner ceiling H and the inner roof section I', tubular passages O extend through the intermediate space with which they have no connection and connecting the openings o i', and the upper ends of these passages are covered with fine wire gauze or screen material O' which is flush and smooth with the top of the inner roof section I' so as to present no surface to arrest cinders or to stop the current of air which flows through the roof passages when the car is in motion.

At each end of the lower part of the car are openings K controlled by sliding gates L. These openings pass through the double end walls and are covered on the inside with fine wire gauze k. They have also doors M hinged at the upper edge and swinging freely at the bottom. The lower edges of these doors, when they are swung outwardly, will strike against the inner false bottom or floor B of the car, and thus practically close the direct passage between the opening K and the interior of the car, and this occurs at the front end of the car, as the current of air flowing in through the opening K will swing the door until its lower edge strikes against the bottom of the interior floor of the car. Beneath this floor are longitudinal channels or passages extending between the inner and outer floor of the car, and through these passages the air is directed by reason of the swinging door M at this end. The pressure of air caused by its flowing through these passages, is sufficient

to close the swinging door M at the opposite end and prevent the air escaping at that end, besides which, the controlling exterior sliding gate L may be closed at the rear end of the car to insure the air being retained within the car and not escaping at this point.

The inner floor of the car is provided with openings connecting with the longitudinal passages beneath it, and the air which has been received through the passage at the front end and delivered into the channels between the two floors will rise through these openings and be distributed through the car.

If the car carries fruit or perishable substances, the packages will be so arranged in the car as to allow free circulation and channels for the movement of the air.

The goods within the car are not packed closely against the ends, but an intermediate space is made at each end by vertical stanchions N as shown.

The air rising up through and around the contents of the car will escape through the tubular passages O in the ceiling, and by reason of the current of air passing through the longitudinal roof passages, a considerable draft is produced which constantly draws the air out of the interior of the car, delivering it through the rear end of the roof passages, and this assists in the circulation caused by the air entering the passage K at the front and lower side. In order to increase the current of air flowing through the longitudinal passages in the roof, I have shown hinged ends P which are adapted to be raised so as to present enlarged or funnel shaped openings in the direction toward which the car is moving.

By reason of the double walls, the interior of the car is surrounded by a layer of air, which in itself acts to protect it from great heat, and by reason of the open longitudinal passages, a constant circulation of air is maintained which acts to keep the whole interior of the car cool.

If desired the inner walls of the car may be packed with any suitable non-conducting substance which will further protect the contents from great changes of temperature. In addition to this, the circulating and draft passages constantly renew the air within the car and prevent any heating and sweating of the contents by reason of an accumulation of heated air therein.

The arrangement of the passages and swinging doors is such that they operate automatically, and the car may be run in either direction.

It will be manifest that a similar arrangement of draft passages in the upper part of the car may be employed in either smoking, sleeping or other forms of cars, and will provide a very perfect ventilation therein.

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

1. A car having double floors and double

roof sections with longitudinal passages extending therethrough, end openings having directing gates; through which openings air is delivered from the front of the car into the passages beneath the inner floor, openings from said passages directly into the body of the car, and openings leading from the upper part of the car into the horizontal roof passages; whereby a draft and circulation are produced through the passages and interior of the car, substantially as set forth.

2. A car having double floors with horizontal longitudinal passages extending between them, openings at the end of the car with interior hinged automatically swinging doors whereby the air admitted into the end openings is directed into the spaces beneath the inner floor of the car from the receiving end, and acts to close the hinged door at the opposite end, passages through which the air thus received is diverted into the interior of the car, together with escape passages whereby circulation is produced.

3. A car having a double bottom, longitudinal passages between the two, openings in the lower part of the opposite ends with protecting screens and hinged automatically operating doors whereby the pressure of the air entering at the receiving end will open the door upon that end and will act to close the door upon the opposite end, passages through which the air is diverted by the open door into the channels beneath the inner floor of the car, openings through which the air is admitted through and beyond said floor into the body of the car, a double roof having longitudinal channels open at opposite ends whereby a current of air passes through said channels when the car is in motion, passages opening through the ceiling of the car into the longitudinal roof passages, through which a draft is established by the currents therein, whereby the air admitted through the lower passages is constantly drawn out through the roof passages and the circulation maintained.

4. A car provided with double side and end walls, the spaces between which open at their ends through the corners of the car into the outer air, double floors and double roof sections with longitudinal passages extending therethrough, end openings having directing gates; air being delivered through said end openings from the front of the car into the passages beneath the car floor, openings leading from said passages directly into the body of the car, and tubular passages leading from the upper part of the car body into the horizontal roof passages, substantially as set forth.

5. A car having a double bottom, a passage or passages through which air is admitted from the exterior into the channels or spaces formed between the two bottoms, openings whereby air is admitted from these channels into the interior of the car, a double roof having corresponding longitudinal channels extending through, and open at opposite ends,

said passages having hinged covers at the
ends adapted to be raised so as to produce
flaring or funnel shaped mouths in the direc-
tion toward which the car is moving, whereby
5 a current of air is driven through said pas-
sages, and openings through the ceiling and
inner roof with gauze protecting covers flush
with the inner surface of the passage in the

roof whereby a circulation of air is estab-
lished through the interior of the car. 10

In witness whereof I have hereunto set my
hand.

HARRY H. LOVE.

Witnesses:

ELLWOOD VARNEY,
H. A. FAIRBANK.