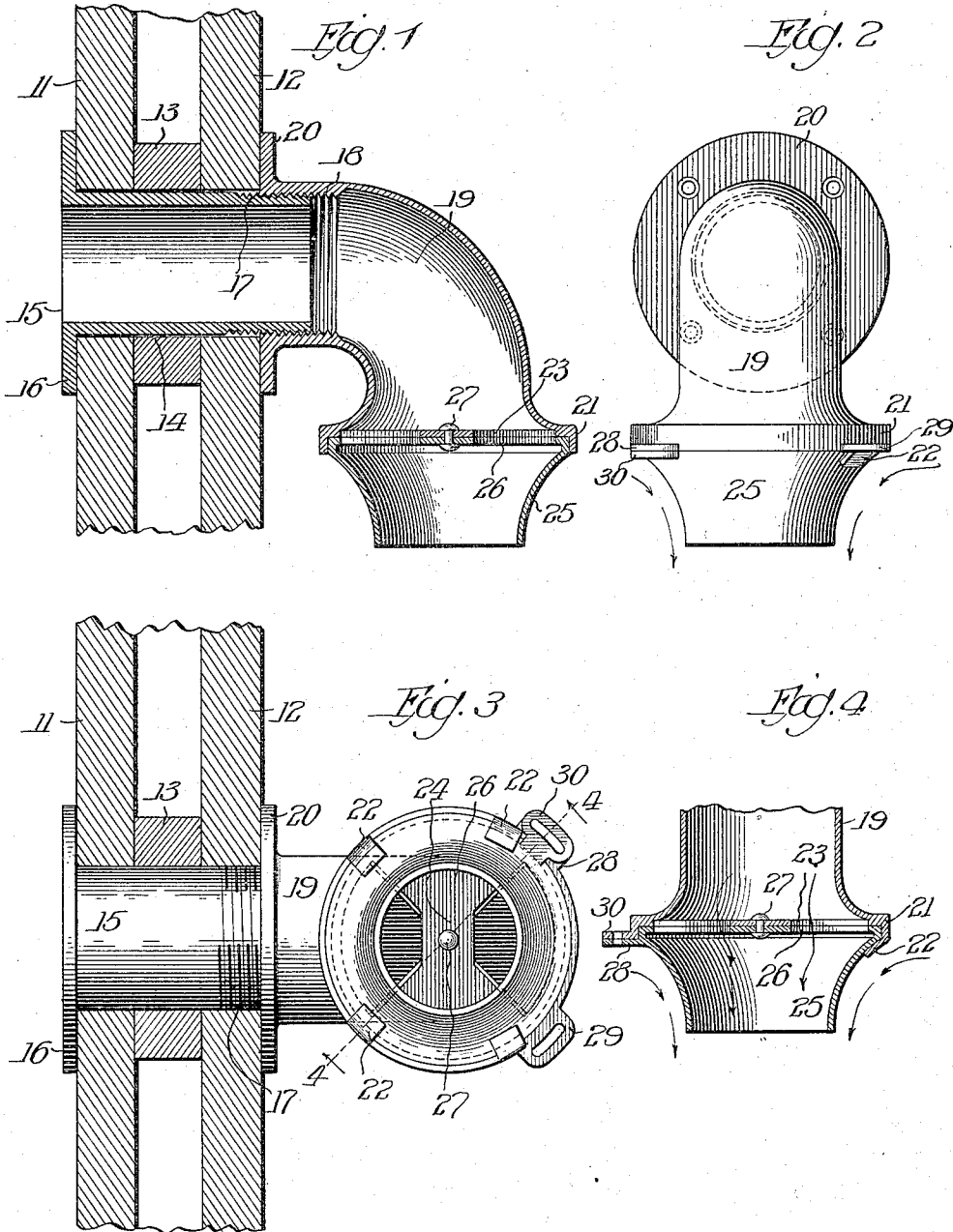


G. F. LAUGHLIN.
 ADJUSTABLE EXHAUST OR RESPIRATOR FOR CARS.
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UNITED STATES PATENT OFFICE.

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ADJUSTABLE EXHAUST OR RESPIRATOR FOR CARS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE F. LAUGHLIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Adjustable Exhausts or Respirators for Cars, of which the following is a specification.

My invention relates to the ventilation of closed apartments and particularly to the exhausting of foul air and gases given off in the so called respiration of fruits, vegetables and the like while undergoing storage or transportation.

While not so limited, the invention is particularly applicable to use in connection with and as an adjunct to refrigerator and fruit cars of known construction wherein the interior of the car is practically sealed against atmospheric interchange with the exterior and is subject to temperature modification by refrigeration or heating. Under such conditions, as is well known to those familiar to the transportation of fruits and vegetables, the lading gives off as by a respiratory process certain gases which, if not exhausted from the car, contaminate the atmosphere therein and bring about a deterioration of the lading and even causing an excess of pressure within the car if the latter is hermetically sealed. Currents of air within a car as from a ventilator of ordinary construction are oftentimes injurious to the lading, it being, however, desirable that a quiet gradual interchange of air be brought about without draft.

By my invention I provide for the exhausting of the gases from the car and their gradual replacement by pure air from the exterior through leakage into the car induced by the sub-atmospheric pressure therein, the exhausting of the gases from the car being obtained by an injector action under the influence of the exterior air currents due to prevailing winds or to the motion of the car, my improved respirator serving to establish a communication between the car interior and exterior and having its outer terminal portion of such a contour as to receive the horizontal air currents coming

from all directions and deflect the same longitudinally of the respirator or parallel to the axis of the open mouth of the same whereby to induce a suction therein.

In order that the invention and the manner of its use may be readily understood I have in the accompanying drawings illustrated a preferred embodiment of the same and in the following detailed description based thereon have set forth fully the manner of its operation, it being understood that such drawing and description of the invention are to be taken as illustrative only and not in any limiting sense as the invention is susceptible of embodiment in constructions of modified form and operation.

In these drawings, Figure 1 represents in vertical section the respirator in connection with a fragment of a car side; Fig. 2 is a front elevation of the device; Fig. 3 is a bottom plan view of Fig. 1 showing the car side in section; and Fig. 4 is a fragmentary section taken on the line 4-4 of Fig. 3.

Having reference to the drawings, the inner and outer walls of the car are designated by the numerals 11 and 12 respectively, a spacing member 13 being interposed between the two walls. Seated within an opening 14 which extends laterally through the two walls and the spacing member is a thimble 15 having its inner end flanged to provide the abutment plate 16 while the outer end of the thimble is exteriorly threaded as shown at 17 for coöperation with the threads 18 formed upon the inner end of the angular member 19 which is provided with a terminal flange 20 adapted to seat against the outer side of the car as shown. The member 19 is advantageously downturned at a right angle and has its lower terminal portion outwardly flared and provided with a marginal flange 21 provided at intervals with lips 22. Spanning the mouth of the member 19 is a web 23 which may be advantageously formed integral therewith said web being substantially of hour glass shape having its restricted neck portion 24 coincident with the axis of the mouth. A downwardly tapering draft-inducing nozzle member 25 has its

upper end seated within the flange 21 of the member 19 and has formed integral therewith a web 26 spanning its upper end, the webs 23 and 26 being of substantially the same shape and pivotally connected together at their central portion by the rivet 27 whereby the one may turn upon the other. As an additional means of securing the draft-inducing nozzle 25 to the member 19 the lips 22 are adapted to be bent inwardly so as to engage the tapering face of the member 25 and prevent its withdrawal from the flange 21.

It will be noted that when mounted as described the two webs 23 and 26 coact as valve members when brought into and out of register to open and close communication through said members and to establish and disestablish the communication by way of the respirator between the interior of the car and the exterior air. The flanged portion 21 of the member 19 is provided with two ears 28 and 29, and the member 25 is provided with a single ear 30 adapted in the open position of the valve to register with the ear 28 and in the closed position of the same to register with the ear 29, each of the three ears having an opening therethrough within which the ribbon of a seal may be passed in order to lock the members in an open or closed position.

The operation of the device is as follows: When the respirator is mounted upon the upper portion of the side of a car such as a refrigerator, heater, fruit or vegetable car wherein is provided a closed circulation of modified air for the preservation during transportation of fruits, vegetables and the like, communication is established there-through between the upper area of the car interior and the outside atmosphere. The outer terminal portion of the respirator being downturned, rain is prevented from entering the respirator and a natural draft through the same is prevented. If the car is moving the rearwardly traveling air currents along the side of the train impinge against an outer frusto conical face of the member 25 and are downwardly deflected in a direction parallel to the axis of the open mouth of the respirator and by an injector action a suction is induced within the respirator by which the gases are drawn off from the car interior. If the car is at a standstill atmospheric air currents due to prevailing winds coming from any direction similarly impinge upon the inclined face of the member 25 and set up a suction within the respirator. The degree of suction within the device may be regulated at will by the turning of the nozzle member 25 upon the pivot 27 to suit the conditions of weather, kind of lading, etc., the action of the device being capable of regulation

from an entirely open position, as shown in the drawing, to one in which communication is cut off entirely through said device, leaving the interior of the car entirely out of communication with the outside air.

What I claim is:

1. A respirator device for temperature modified cars, comprising a pipe communicating horizontally between the interior upper area of a car and the exterior of the car, said pipe having an outer terminal portion opening downwardly and provided with a web partially closing the open end of the same, a nozzle member formed as a downwardly tapering truncated cone and having at its upper end a web adapted to cooperate with the first named web to form a valve, means to secure the nozzle member rotatably within the lower end of the pipe, the said nozzle member having concave exterior side faces arranged to receive horizontal atmospheric currents and deflect the same downwardly parallel to the axis of said member and adjacent the lower mouth of the same whereby to induce a suction through said nozzle and pipe, substantially as described.

2. A respirator device for temperature modified cars, comprising a pipe communicating horizontally between the interior upper area of a car and the exterior of the car, said pipe having an outer terminal portion opening downwardly and provided with a web partially closing the open end of the same, a nozzle member formed as a downwardly tapering truncated cone and having at its upper end a web adapted to cooperate with the first named web to form a valve, lips depending from the periphery of the pipe and inwardly bent into engagement with the nozzle member whereby to mount the latter within the open end of the pipe for rotary movement, the nozzle member having concave exterior side faces arranged to receive horizontal atmospheric air currents and deflect the same downwardly parallel to the axis of said member and adjacent the lower mouth of the same whereby to induce a suction through said nozzle and pipe, substantially as described.

3. In a temperature modified car, means to provide for respiration of the car interior comprising a pair of pipes establishing communication horizontally between the upper interior area of the car and the exterior on the two sides thereof, each of the pipes having an outer terminal portion opening downwardly and provided with a web partially closing the open end of the same, a nozzle member formed as a downwardly tapering truncated cone and having at its upper end a web adapted to cooperate with the first named web to form a

valve, means to secure the nozzle member rotatably within the lower end of the pipe, the said nozzle member having concave exterior side faces arranged to receive horizontal atmospheric currents and deflect the same downwardly parallel to the axis of said member and adjacent the lower mouth of the same whereby to induce a suction through said nozzle and pipe, substantially as described.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."