

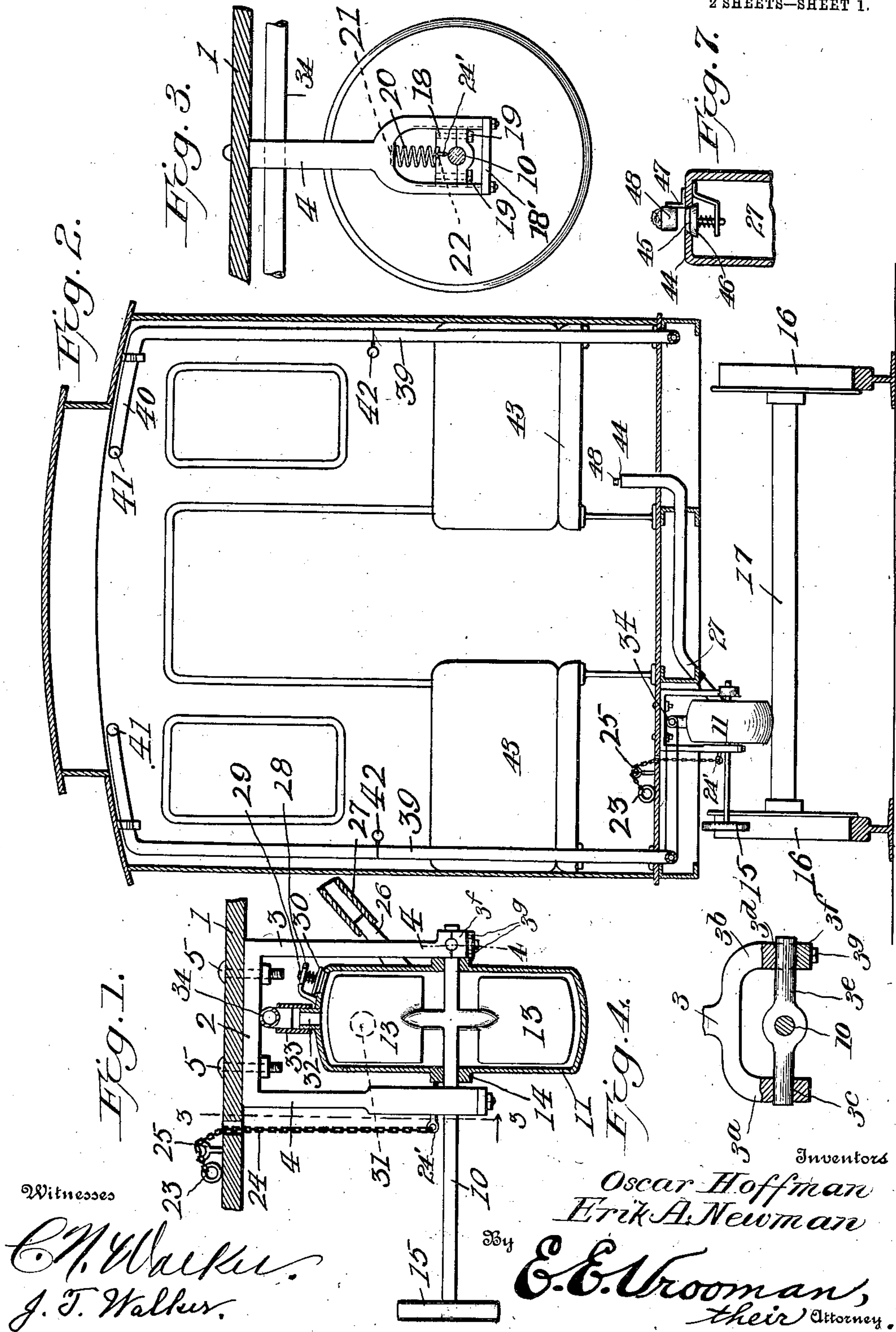
No. 873,862.

PATENTED DEC. 17, 1907.

O. HOFFMAN & E. A. NEWMAN.  
VENTILATING APPARATUS FOR PASSENGER CARS.

APPLICATION FILED AUG. 24, 1907.

2 SHEETS—SHEET 1.



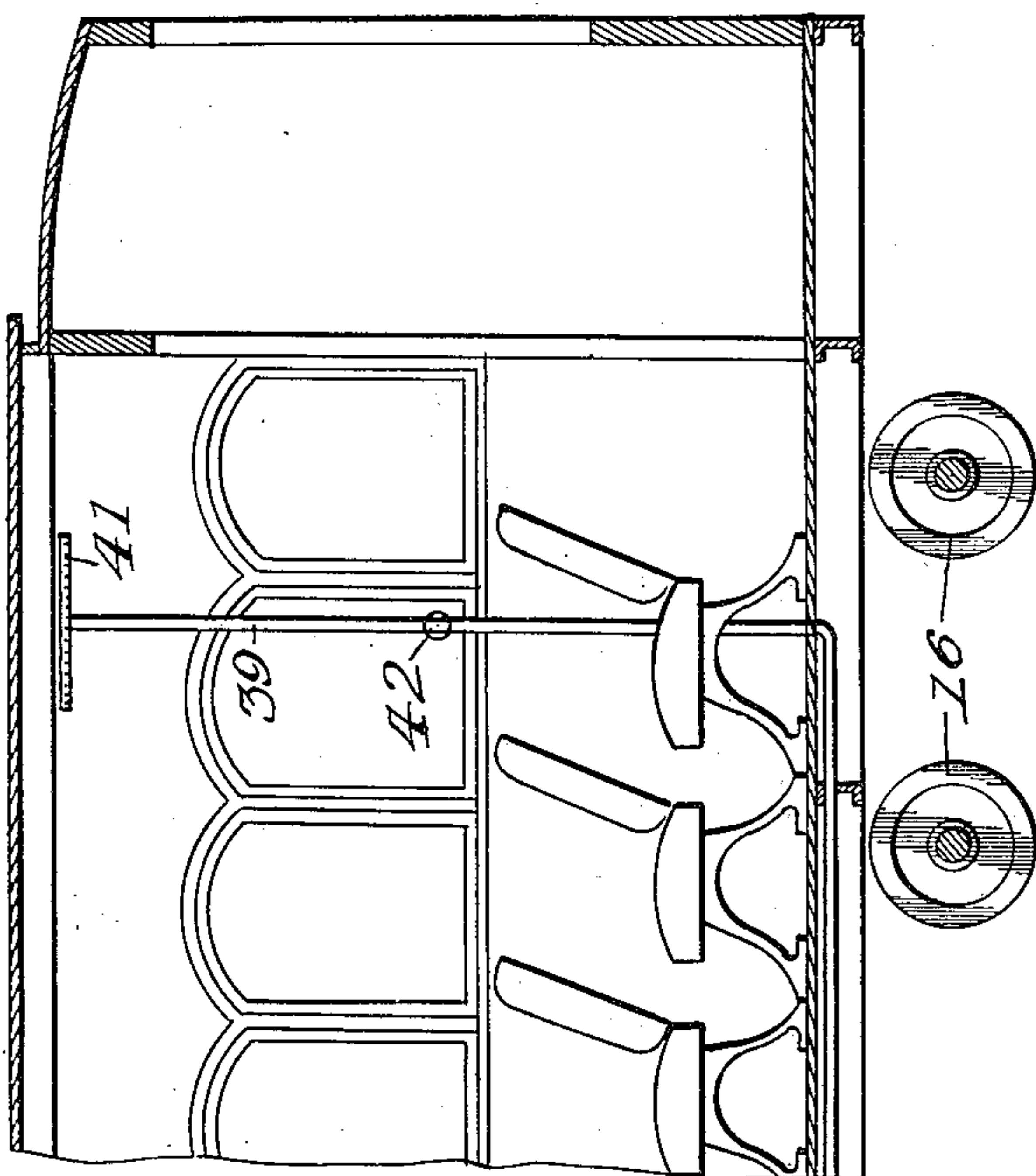
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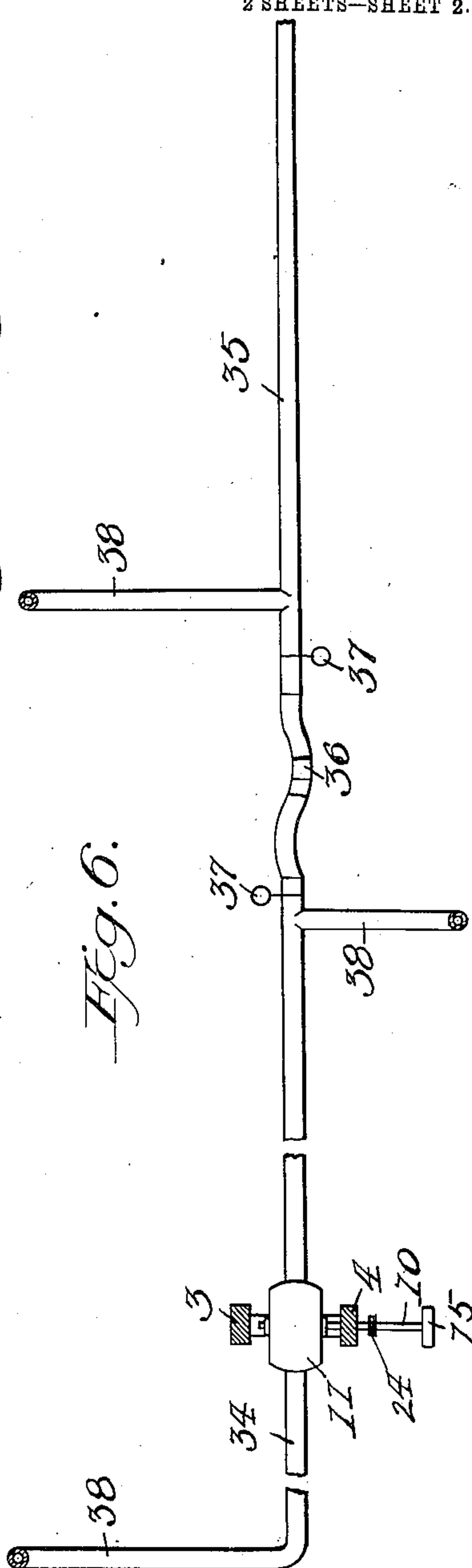
2 SHEETS—SHEET 2.



Witnesses

*C. N. Walker,*  
*J. T. Walker*

*Fig. 5.*



*Fig. 6.*

By

Inventors  
*Oscar Hoffman and*  
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*their* Attorney



# UNITED STATES PATENT OFFICE.

OSCAR HOFFMAN AND ERIK A. NEWMAN, OF BINGHAM CANYON, UTAH.

## VENTILATING APPARATUS FOR PASSENGER-CARS.

No. 873,862.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed August 24, 1907. Serial No. 390,074.

*To all whom it may concern:*

Be it known that we, OSCAR HOFFMAN, a citizen of the United States, and ERIK A. NEWMAN, a subject of the Czar of Russia, residing at Bingham Canyon, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Ventilating Apparatus for Passenger-Cars, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to an improvement in car ventilating apparatus, and has for its object the provision of means for facilitating the ventilation of a car, by means of a fan inclosed in a peculiarly-constructed and supporting casing; the fan being driven through the medium of a traction wheel.

With this and other objects in view, the invention consists of certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the drawings: Figure 1 is a vertical, sectional view of the fan-casing, and showing in side elevation, the fan and its cooperating parts. Fig. 2 is a transverse, sectional view of the car having attached thereto an apparatus constructed in accordance with the present invention. Fig. 3 is a sectional view taken on line 3, 3, Fig. 1, and looking in the direction of the arrow. Fig. 4 is a vertical, sectional view taken on line 4, 4, Fig. 1. Fig. 5 is a longitudinal, sectional view of a car body and showing our ventilating apparatus attached thereto. Fig. 6 is a plan view of the device for a plurality of cars or coaches, showing the fan-casing, friction-wheel, and shaft. Fig. 7 is a fragmentary, sectional view of the device.

Referring to the drawings by numerals, 1 designates the floor of an ordinary car or vehicle body, to which floor is secured an inverted substantially U-shaped bracket, which comprises a top portion 2 and side portions 3 and 4. The bracket is secured to the floor 1, by any suitable fastening means, as for instance, bolts 5, 5. The side 3 of the bracket is provided at its lower end with a bifurcated portion, which terminates in depending arms 3<sup>a</sup> and 3<sup>b</sup>; the arm 3<sup>a</sup> being provided with a bearing 3<sup>c</sup>, while the arm 3<sup>b</sup> is provided with a bearing 3<sup>d</sup>. Journaled in the bearings 3<sup>c</sup> and 3<sup>d</sup>, is a transverse shaft 3<sup>e</sup>, which is detachably secured in said bearing, by reason

of the fact that the section 3<sup>f</sup> is detachably secured to the arm 3<sup>b</sup> by any suitable fastening means, as for instance, bolts 3<sup>g</sup>. The shaft 3<sup>e</sup> is provided with a central bearing in which shaft 10 is journaled. As the fan-casing, hereinafter described, is supported entirely upon shaft 10, the same is bodily lifted, when shaft 10 is lifted. It will be noted that owing to the lifting of shaft 10, the transverse shaft or pivotal bearing 3<sup>e</sup> has a slight rotary movement upon the bifurcated end of side 3. Furthermore, the pivotal bearing 3<sup>e</sup> can be quickly detached by removing the bolts 3<sup>g</sup> and section 3<sup>f</sup>. A friction-roller or wheel 15 is fixedly secured to shaft 10, and is adapted to engage the periphery of a traction-wheel 16. The traction-wheels 16 are secured to the axles 17, which support the car-body.

The side 4 of the primary bracket is provided, at its lower end, with a bifurcated portion, within which is slidably mounted a bearing composed of a pair of sections 18. The shaft 10 is journaled in this sectional bearing, and the sections are secured together, by any suitable fastening means, as for instance, screws or threaded bolts 19. A yieldable member, preferably, a coil spring 20, has its upper end seated within a socket 21 of the side 4, and the lower end of said spring 20 is seated in a socket 22, Fig. 3, of the upper section of the bearing. The sectional bearing is slidably mounted or guided within the bifurcated portion of the side 4, so that when the operator grasps the ring 23, attached to the upper end of chain 24, and pulls upwardly thereon, the shaft 10 will be slightly lifted for removing the friction-wheel or roller 15 off of the traction-wheel 16. The chain 24 is secured to a hook 24', which hook is fastened to one of the sections 18. However, immediately upon the operator releasing ring 23, the spring 20 and the weight of the fan-casing will force the friction-roller 15 against, preferably, the periphery of the traction-wheel, and if the car is in motion, the fan will be operated. The downward sliding movement of the sectional bearing 18 will be limited by means of a detachable plate or bar 18', provided the friction-wheel 15 does not come in contact with a traction-wheel 16.

It will be obvious that owing to the journaling of shaft 10 in the pivotal bearing 18,



within the side 3, a slight pivotal movement of the shaft 10 will be permitted, and as the sectional bearing carried by the bifurcated end of side 4 will also permit the shaft 10 to have a vertical movement, the movement of the shaft is sufficient for removing the friction-wheel or roller from the traction-wheel.

When it is desired to lift the fan, to prevent it from rotating within the casing 11, this may be accomplished by passing a chain over the notched standard 25, and the chain will be securely fastened, thereby retaining the shaft 10 in a raised position. It will be noted that we have provided means for elevating the shaft 10, and also locking or fastening means for retaining the shaft and the friction-wheel in an elevated or inoperative position.

If the fan-casing is inclosed entirely by a structure, air may be supplied to the fan-casing, through the medium of pipe 26, which pipe 26 is provided with, preferably, a flexible, valved tubing 27, hereinafter described.

Secured at one end to the upper portion of the casing 11, and slidable in its bracket, is a stem 29, to which stem is secured a valve 30, and interposed between the stem 29 and valve 30, is yieldable means, as for instance, a coil spring, which normally exerts pressure upon the valve 30, for holding the same in a closed position. The tension of the spring is such as to permit the valve 30 to be lifted when the pressure in the casing 11 becomes too great.

The casing 11 may be provided with one or more side-openings or apertures 31, whereby a plurality of cars may be attached by tubings to the fan-casing, so that said cars may be ventilated by supplying air from the fan-casing to the same.

The fan-casing is provided, preferably, at its top with a cylindrical extension 32, upon which is mounted a flexible tubing 33, whereby the casing is placed in communication with a horizontal pipe 34. The pipe 34 may be connected to another pipe 35, by means of a flexible coupling 36. Each pipe 35 is provided with an ordinary constructed valve 37, by means of which the flow of compressed air through the same, is controlled. Communicating with the horizontal pipes 34 and 35 are laterally-extending or auxiliary pipes 38. Secured to the outer ends of each one of the auxiliary pipes 38, is a vertical pipe 39. The pipe 39 is, preferably, positioned contiguous to the side of the car body, and terminates at its upper end in a substantially horizontal extension 40, extending toward the center of the car. The extension 40 is provided at its upper or outer end with an apertured tube or pipe 41, which is constructed for permitting compressed air to be discharged into the compartment or car. Each pipe 39 is, preferably, provided with an ordinary valve, at

42, whereby the amount of air passing through the pipe may be controlled, or the passage thereof entirely prevented.

It will be noted that we have provided a plurality of communicating pipes or tubings, supplied with air from a single fan, which tubings are connected to the different cars, whereby the compressed air may be distributed in one or all of the connected cars or vehicles. Furthermore, if the pressure in casing 11 and the pipe should become too great, the relief valve 30 will be actuated for relieving the casing and pipes or tubings of the extra strain. The passage of air in any one of the pipes or tubings is controlled by valve means, and if it is desired, the discharge of air through any one of the sprayers 41, may be prevented, while the discharge of air through the other sprayer or sprayers is permitted.

The tubing 27 is, preferably, extended into the car beneath one of the seats 43. The inner or upper end 44 of the tubing 27 is provided with an inlet port or opening 45, Fig. 7, which is normally closed by a spring-pressed valve 46 similarly constructed to valve 30. The valve 46 is positioned in the tubing 27 and adapted to permit air to be sucked in and supplied to the valve casing 11. By reason of this valved structure of the outer or upper end of tubing 27, atmosphere is drawn into the fan-casing 11 from the bottom of the car, and as the air is discharged downward from the top of the car, it will be noted that there is a current or circulation created throughout the entire car.

Supported by any suitable means, as for instance, bracket 47, contiguous to the port 46, is a cup or receptacle 48, within which liquid or any compound may be placed, the odor of which will commingle with the air passing through the port 45 into the tubing 27, and which odor will subsequently pass through the sprayers 41 into the car.

It is to be noted that we have provided a tilting shaft, which is capable of being swung upward at one end for placing the fan out of operation, and, furthermore, we have provided a casing adapted to be tilted, whereby when said casing is tilted, the fan therein will be placed out of operation. The tilting of the casing necessitates the flexible connection or tubing 33 between the car or train-pipes 34, as will be obvious upon considering the foregoing description.

What we claim is:

1. In a ventilating apparatus, the combination with a car body and a truck provided with a traction wheel, of an inverted, substantially U-shaped bracket secured to said car body, a fan-casing positioned between the sides of said bracket, a shaft extending through said fan-casing and said bracket, a fan secured to said shaft within said casing, a friction-wheel fixedly secured to said shaft



and being adapted to engage said traction-wheel for imparting rotary movement to said fan, means for elevating said shaft and friction-wheel, and means for securing said shaft and friction-wheel in an elevated position.

2. In a ventilating apparatus, the combination with a car body and a traction-wheel, of a bracket secured to said body, a fan-casing positioned within said bracket, a vertically-adjustable shaft extending through said fan-casing and supported upon said bracket, a fan positioned within said fan-casing and secured to said shaft, a friction-wheel secured to said shaft and adapted to engage said traction-wheel, and means for vertically adjusting said shaft for controlling the operation of said fan.

3. In a ventilating device, the combination with a support, of an inverted, substantially U-shaped bracket carried by said support, said bracket provided with a pair of sides, one of said sides provided at its lower end with a detachable section, said lower end and section provided with a socket, a pivotal bearing seated within said socket, the other side provided with a lower, bifurcated end, a sectional, vertically-movable bearing mounted within the bifurcated end, a spring interposed between the upper portion of said bifurcated end and said sectional bearing, a fan-casing mounted between said sides, a shaft journaled in said pivotal bearing and said sectional bearing, a fan positioned within said casing and secured to said shaft, means for rotating said shaft and thereby imparting movement to said fan, and means for lifting said shaft for placing the same out of operation.

4. In a ventilating apparatus, the combination with a support, a fan-casing carried by said support, of a bodily-movable fan positioned within said fan-casing, driving means for rotating said fan, a notched standard secured to said support, and means attached to said driving means and adapted to engage said notched standard for holding said driving means in an adjusted position, and thereby preventing rotation of said fan.

5. In a ventilating apparatus, the combination with a support, a fan-casing carried by said support, a bodily-movable fan positioned within said casing, a notched standard secured to said support, driving means for rotating said fan, and means adapted to engage the notch of said standard for holding said driving means in an inoperative position.

6. In an apparatus of the class described, the combination with a car, of a depending bracket secured to said car, a bodily movable fan casing positioned between the sides of said bracket, a fan rotatably mounted within said casing, said casing provided at its top with a hollow, tubular extension, a tubing positioned contiguous to said fan-casing and extending into said car, a flexible tubing

connecting said first-mentioned tubing to the hollow-extension of said casing, and a sprayer positioned within said car and secured to said tubing.

7. In an apparatus of the class described, the combination with a support, of a fan-casing carried by said support, said fan-casing provided upon opposite sides with apertures, a pivotal bearing positioned contiguous to one of said apertures, a sectional bearing positioned contiguous to the other aperture, a shaft extending through said bearings and positioned within the apertures of said fan-casing, a fan positioned within said casing and secured to said shaft, means for rotating said shaft and thereby imparting movement to said fan, and means for adjusting said shaft for preventing rotary movement of said fan.

8. In an apparatus of the class described, the combination with a car, of a depending bracket secured to said car, said bracket provided with a pair of sides, each side provided with a lower, bifurcated end, a vertically-sliding bearing positioned within one of the bifurcated ends, a pivotal bearing positioned within the other bifurcated end, a shaft journaled in said pivotal and vertically-sliding bearings, a fan-casing supported entirely upon said shaft, a fan within said casing and secured to said shaft, means for rotating said shaft and fan, and means for lifting said shaft and placing the fan out of operation.

9. In a ventilating apparatus, the combination with a support, of a bracket carried by said support, movable bearings carried by said bracket, a shaft journaled in said bearings and adapted to be swung bodily upward, a casing surrounding a portion of said shaft, and a fan positioned within said casing and secured to said shaft.

10. In an apparatus of the class described, the combination with a support, a bracket provided with depending sides, carried by said support, of a tilting casing positioned between the sides of said brackets, a fan positioned within said casing, means for rotating said fan and adapted to be thrown out of operation when said casing is tilted, a tubing carried by said support, and a yieldable connection between said tubing and said casing.

11. In an apparatus of the class described, the combination with a support, of a pivotal bearing and a vertically-movable bearing carried by said support, a shaft journaled upon said bearings and being capable of bodily and rotatable movements, a fan casing contiguous to said shaft, and a fan positioned within said casing and secured to said shaft.

12. In an apparatus of the class described, the combination with a support, of a fan casing carried by said support, a fan within said casing, said casing provided with a tubing, said tubing provided with a port, a bracket



within said tubing and contiguous to said port, a spring-pressed valve carried by said bracket within said tubing and normally closing said port, and means positioned contiguous to said port and being capable of supporting a fumigant.

13. In an apparatus of the class described, the combination with a support, of a pair of movable bearings carried by said support, a shaft journaled in said bearings, a casing mounted entirely upon said shaft, a fan within said casing and secured to said shaft, means for rotating said shaft, and said means adapted to be placed out of operation when said shaft is lifted.

14. In an apparatus of the class described, the combination with a support, of adjustable bearings carried by said support, means attached to one of said bearings and adapted to be engaged by an operator for moving said bearing, a shaft journaled in said bearings, a casing positioned contiguous to said shaft, a fan positioned within said casing and fixedly secured to said shaft, and means for rotating said shaft and being adapted to be placed out of operation when said bearing is moved in one direction.

15. In an apparatus of the class described, the combination with a bracket, of a rotatable bearing carried by said bracket, a slidable bearing carried by said bracket, a shaft journaled in said bearings, a fan secured to said

shaft, and means for rotating said shaft and fan and adapted to be placed out of operation when said shaft and bearings are adjusted in one direction.

16. In an apparatus of the class described, the combination with a support, of a bracket provided with depending sides, carried by said support, a bodily movable casing positioned between the sides of said bracket, tubings extending from opposite sides of said casing, flexible means connecting said tubings to said casing, a fan within said casing, and means for rotating said fan.

17. In a ventilating apparatus, the combination with a support, of a bracket carried by said support, a bodily-movable casing positioned contiguous to said bracket, means for supporting said casing upon said bracket, means for moving said casing upon said bracket, a fan in said casing, and means for imparting rotary movement to said fan.

In testimony whereof we hereunto affix our signatures in presence of two witnesses.

OSCAR HOFFMAN.  
ERIK A. NEWMAN.

Witnesses to Oscar Hoffman's signature:

ERIK SMITH,  
JOHN BERGMAN.

Witnesses to Erik Newman's signature:

E. E. VROOMAN,  
G. A. COTTER.