

No. 841,460.

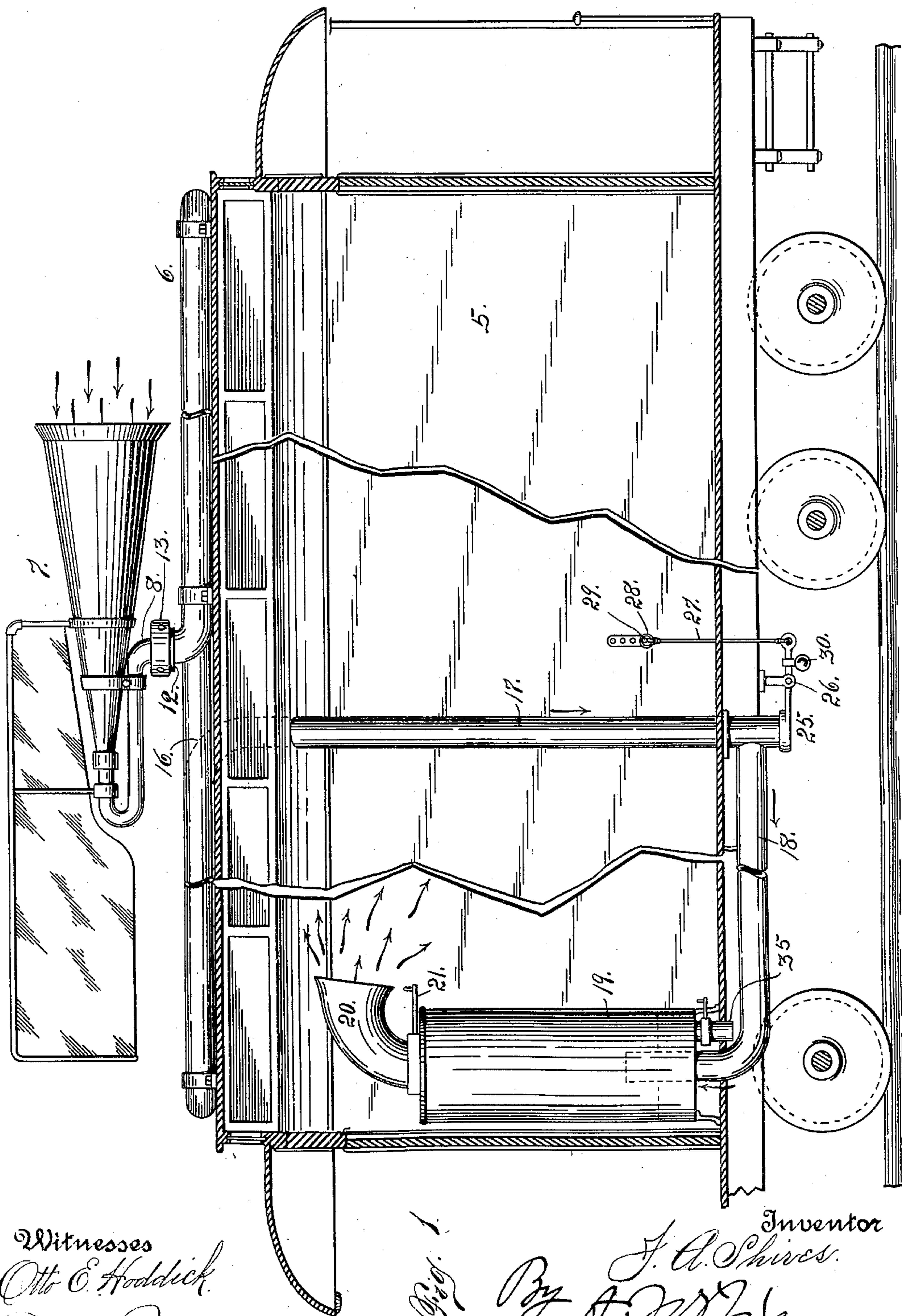
PATENTED JAN. 15, 1907.

J. A. SHIRES.

TRAIN VENTILATING APPARATUS.

APPLICATION FILED JULY 19, 1906.

2 SHEETS—SHEET 1.



Witnesses  
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Dena Nelson,

Fig. 1

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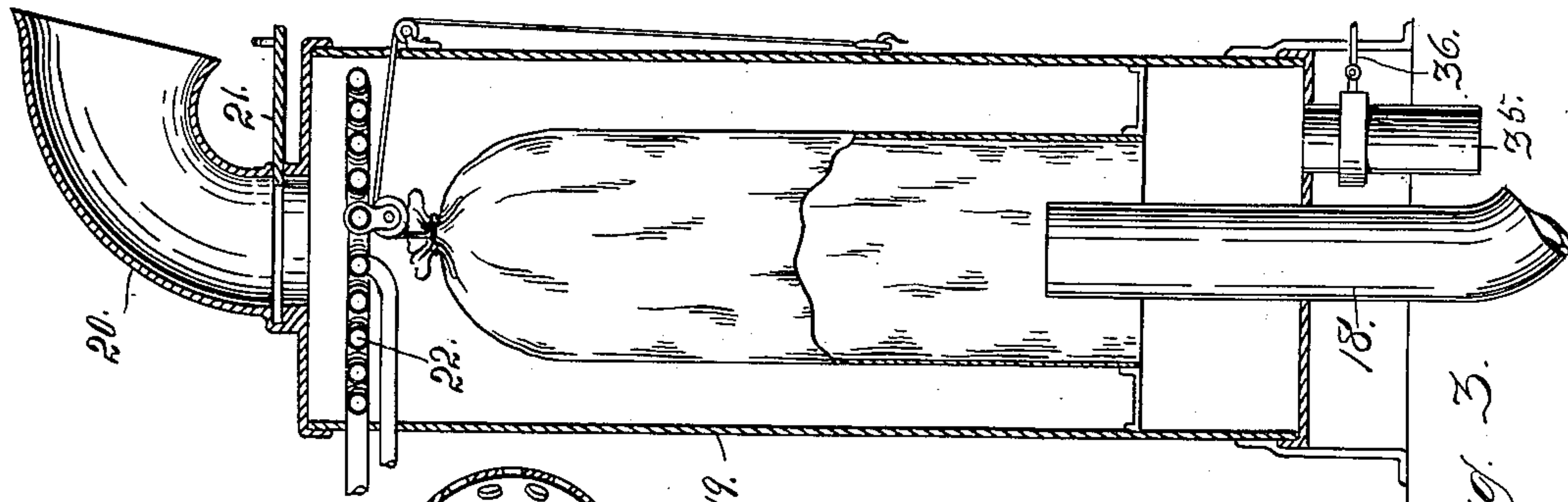


Fig. 3.

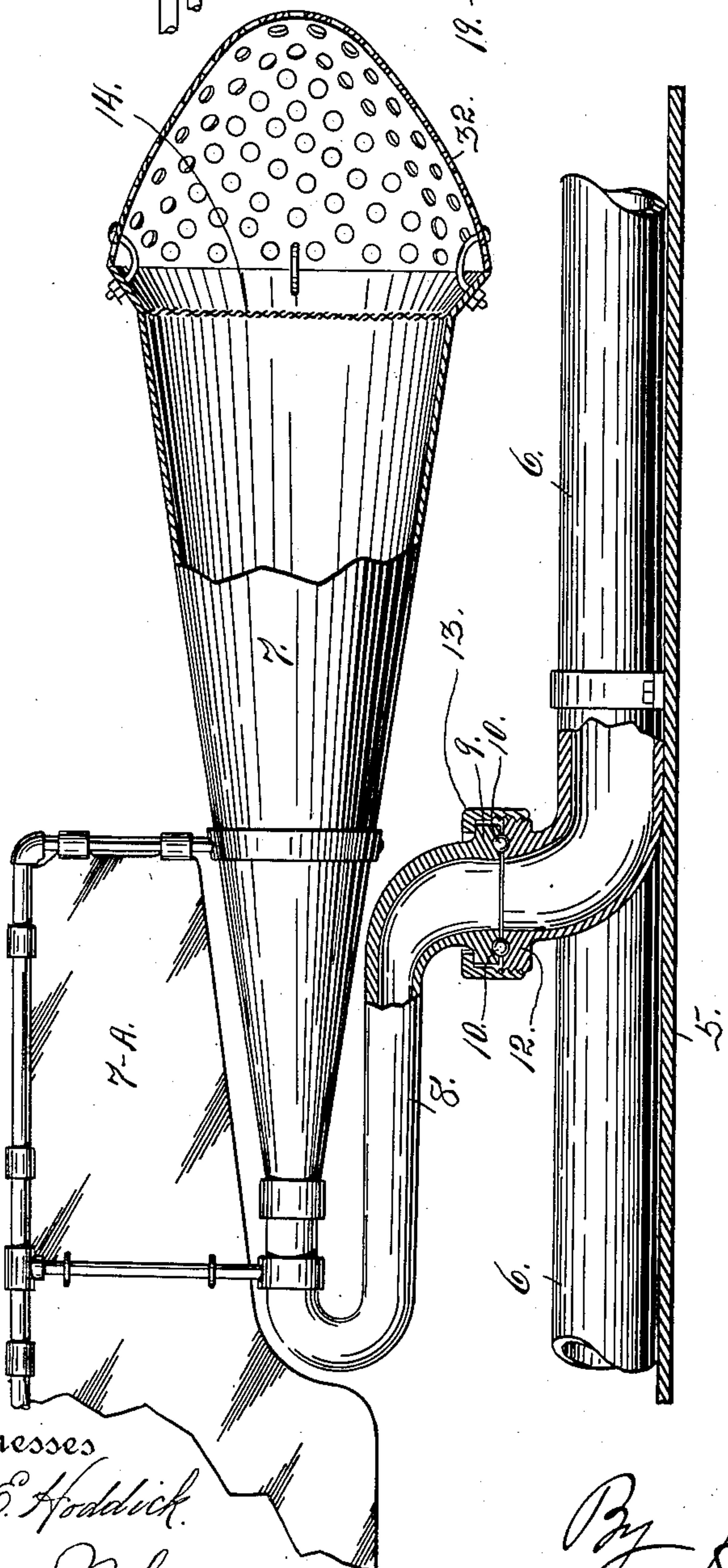


Fig. 2.

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# UNITED STATES PATENT OFFICE.

JOSEPH A. SHIRES, OF DENVER, COLORADO.

## TRAIN-VENTILATING APPARATUS.

No. 841,460.

Specification of Letters Patent.

Patented Jan. 15, 1907.

Application filed July 19, 1906. Serial No. 326,804.

*To all whom it may concern:*

Be it known that I, JOSEPH A. SHIRES, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Train-Ventilating Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in train-ventilating apparatus, and while more especially intended for use in ventilating railway-cars it may of course be employed for the ventilation of any vehicles or other moving structure where the necessity for pure air is a desideratum.

My improved construction as illustrated in the drawings is more especially adapted for use in ventilating individual cars. In other words, its successful use does not necessitate that there shall be a number of cars in the train, since a train having but one car may be as successfully ventilated as where a number of cars are connected.

My special object is to relieve the air of the dirt, cinders, &c., with which under ordinary circumstances the air is laden when it enters the cars.

My improved apparatus includes means for cooling the air as well as means for filtering it, whereby the dust and other foreign substances are removed.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a vertical longitudinal section taken through a railway-car equipped with my improvements. Fig. 2 is a detail view, partly in section, illustrating the apparatus connected with the top of the car. Fig. 3 is a sectional view of the filter-tank, the filtering-bag being shown partly in elevation.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a railway-car to the top of which is secured a conduit 6, which is passed back and forth a number of

times in order to cause the air to travel a considerable distance before it finally enters the car. The pipe 6 should be wrapped with canvas or other suitable material, which is kept saturated with water for the purpose of cooling the air as it passes therethrough. To one extremity of the pipe 6 is swiveled or movably connected a funnel 7, provided with a weather-vane 7<sup>A</sup>, whereby the mouth or larger extremity of the funnel is kept continually pointed in the direction from which the wind is blowing. The swiveled connection between the funnel and the pipe is shown in detail in Fig. 2. The pipe member 8, directly connected with the smaller extremity of the funnel, is provided with a bearing member 9, having a circular groove forming a half ball-race for bearing-balls 10, the other half-race being formed in the member 12 of the conduit 6. The two parts 9 and 12 are retained in operative relation by a coupling-sleeve 13. The larger extremity of the funnel is provided with a screen, as shown at 14, whereby the larger or coarser particles are prevented from entering the funnel.

The extremity of the pipe 6 opposite that connected with the funnel is curved downwardly, as shown at 16, and is provided with a vertical member 17, passing through the car and communicating at its lower extremity with a conduit member 18, which after passing underneath the car a certain distance passes upwardly through the bottom of the car and enters a filter-tank 19, located in the car, and in which is located a filter-bag 32, into which the air is delivered from the open extremity of the conduit 18. To the upper extremity of the filter-tank 19 is connected an elbow-shaped air-delivery conduit 20, through which the filtered air passes from the filter-tank into the car. This elbow-shaped structure is provided with a slide-valve 21, whereby the passage of air there-through into the car may be controlled or entirely cut off, as may be desired. At the upper part of the filter-tank is also located a coil of pipe 22, through which steam or other heating or tempering agent may be passed for the purpose of regulating the temperature of the air before it escapes from the filter-tank into the car.

The lower extremity of the pipe 17 extends below the bottom of the car and is closed by a lever-like valve 25, fulcrumed at 26. To one arm of this device is attached a flexible



device 27, as a cord or chain, whose upper extremity is provided with a ring 28, adapted to engage a pin 29, whereby the operating chain or cord is in convenient position for use. This valve 25 is held normally closed by a weight 30, located between the fulcrum 26 and the outer extremity of the lever-like device. The air which passes through the pipe 17 may deposit foreign matter therein. This foreign substance will naturally drop downwardly in the pipe and engage the valve 25 and when of sufficient weight will open the said valve automatically and allow the material to escape, or the lever-like valve may be opened by pulling upwardly on the flexible device 27 whenever it is desired to relieve the stand-pipe 17 from the accumulation of foreign substance.

From the foregoing description the use and operation of my improved apparatus will be readily understood. Assuming that a car is equipped with the apparatus, the larger extremity of the funnel will be held in the direction from which the wind is blowing by virtue of the vane connected therewith, as heretofore explained. As the wind changes the direction of the mouth of the funnel will change by virtue of its swiveled connection with the conduit 6, mounted on top of the car. The air after entering the funnel is driven by the necessary pressure through the conduit 6, wherein the air is cooled to a considerable extent. It then passes downwardly through the stand-pipe 17 and thence through the pipe 18, extending underneath the car, and thence upwardly into the filtering-bag of the funnel, where it is deprived of any dirt and cinders that it may contain.

Extending downwardly from the bottom of the filter-tank is a discharge-pipe 35, containing a valve 36, adapted to be opened when it is desired to clean out the filter-tank. In case the valve 21 is closed, whereby the escape of the air from the top of the filter-tank is prevented, this air may be used to drive out the dirt or accumulation of foreign substance within the filter-tank by simply opening the valve 36, in which event the accumulated substance may be driven out of the tank through the depending discharge-pipe 35.

A removable perforated cap 32 is secured to the mouth of the funnel to prevent the latter from being clogged with sleet and snow during a snow or hail storm.

My improved apparatus may be employed in ventilating structures other than cars whenever practicable.

Having thus described my invention, what I claim is—

1. In apparatus for ventilating cars, the combination with the car, of a conduit mounted thereon exteriorly and extending longitudinally thereof, a filtering device located in the car, a connection between the

conduit and the filtering device, and a funnel-shaped receiver mounted on the car and provided with a weather-vane, whereby the open end of the receiver is automatically caused to point in the direction from which the wind blows, the said receiver being connected with the conduit for the purpose set forth.

2. In train-ventilating apparatus, the combination of a conduit mounted on top of the car and extending longitudinally thereof, a pipe member passing downwardly through the car and communicating with the conduit above, an additional pipe member extending underneath the car and projecting upwardly thereinto, an air-filter into which the last-named conduit projects, an outlet communicating with the filter and opening into the car whereby the filtered air is delivered thereto, an open-ended receiver having a swiveled connection with the conduit on top of the car, and means connected with the said receiver whereby its open end is automatically directed toward the wind.

3. In a system for ventilating cars, the combination with a conduit having one extremity exposed outside of the car while its opposite extremity communicates with the interior of the car, the conduit being located entirely outside of the car whereby it is exposed to the atmosphere between its intake and discharge extremities, an open-ended receiver having a swiveled connection with the outer extremity of the conduit, and means for causing the open end of the receiver to point in the direction from which the wind is blowing for the purpose set forth.

4. In means for ventilating cars, the combination with the car, of a conduit mounted on top thereof and having a number of lengths extending longitudinally of the car, an open-ended receiver connected with one end of said conduit and swiveled thereon, the said receiver having a vane connection whereby its open end is automatically caused to point in the direction from which the wind blows, and a suitable connection between the conduit on the outside of the car and the interior of the car for the purpose set forth.

5. In means for ventilating cars, the combination of a conduit located on top of the car and wrapped with absorbent material adapted to be saturated with water for air-cooling purposes, an air-receiver having a swiveled connection with the conduit and provided with a weather-vane whereby the open end of the receiver is pointed in the direction from which the wind is blowing, a filtering device located inside the car, a suitable connection between the outside conduit and the filtering device, and means for conducting the air after leaving the filtering device into the interior of the car for the purpose set forth.



6. In a system for ventilating cars or  
other structures, the combination of a con-  
duit mounted on the structure exteriorly and  
having an intake extremity for receiving at-  
5 mospheric air, and a discharge extremity for  
delivering air to the car or other structure,  
the conduit being of such length as to cause  
the air to travel therethrough a considerable

distance outside of the car while passing  
from the intake to the discharge extremity. 10

In testimony whereof I affix my signature  
in presence of two witnesses.

JOSEPH A. SHIRES.

Witnesses:

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A. J. O'BRIEN.