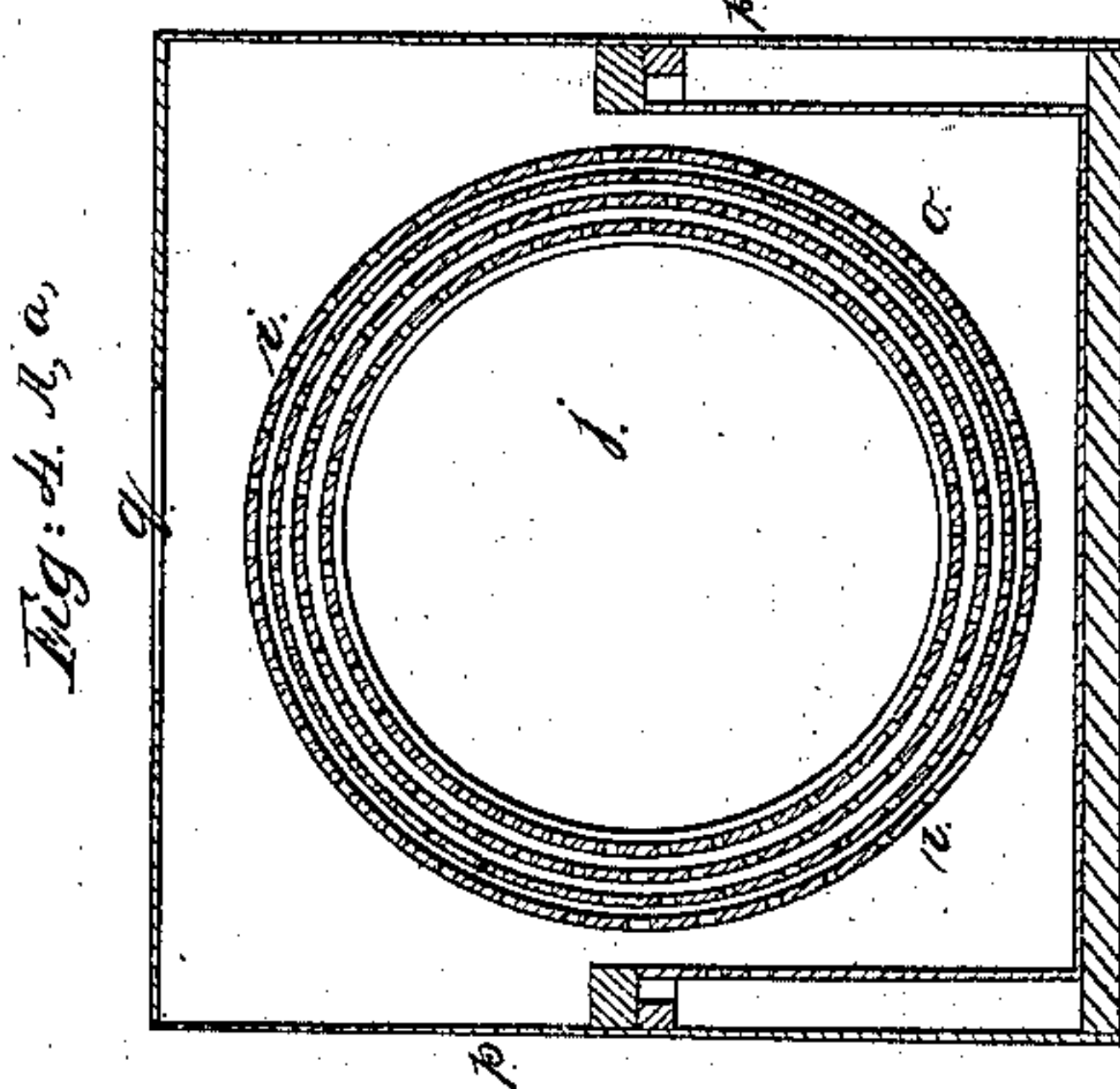
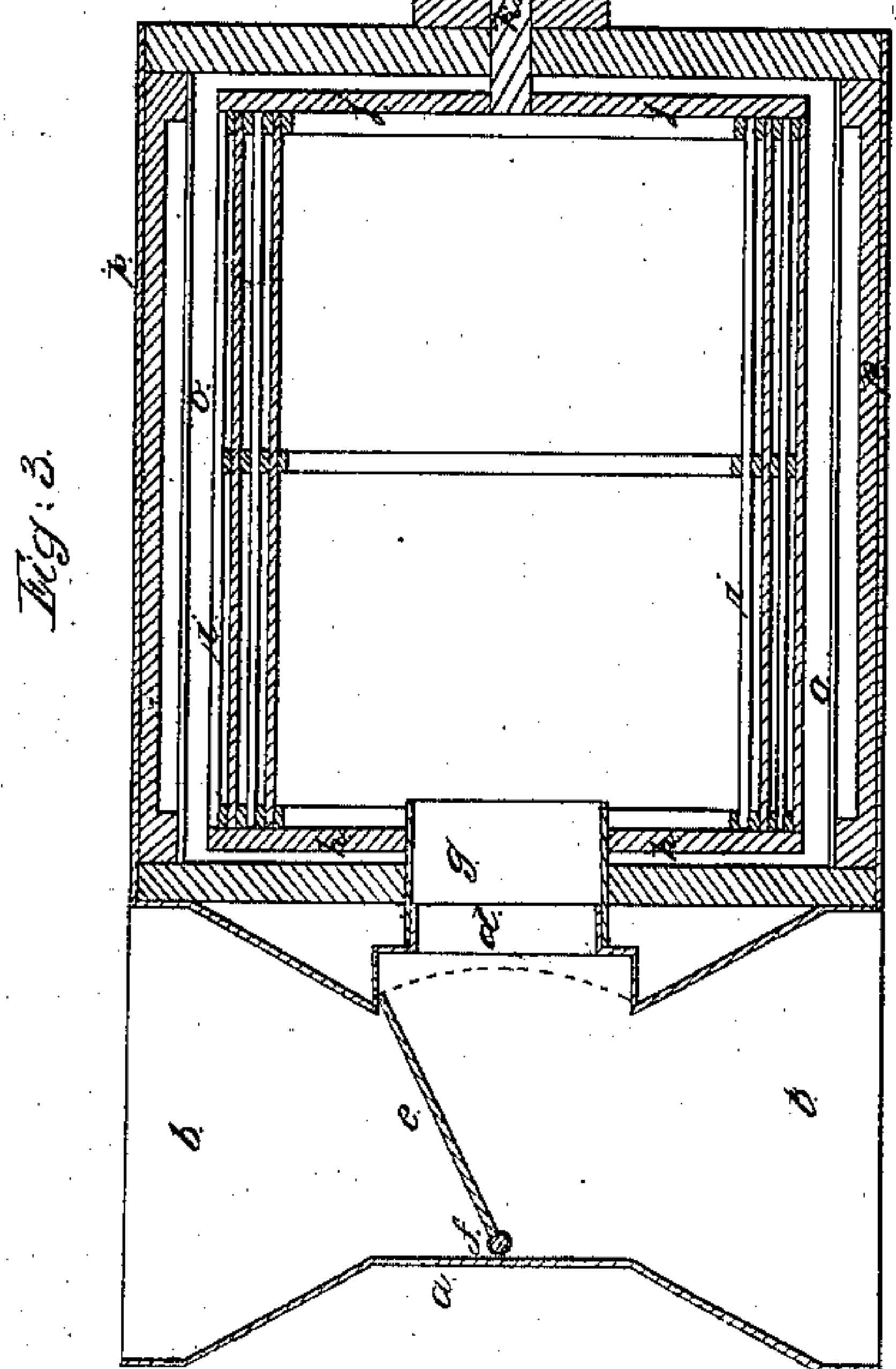
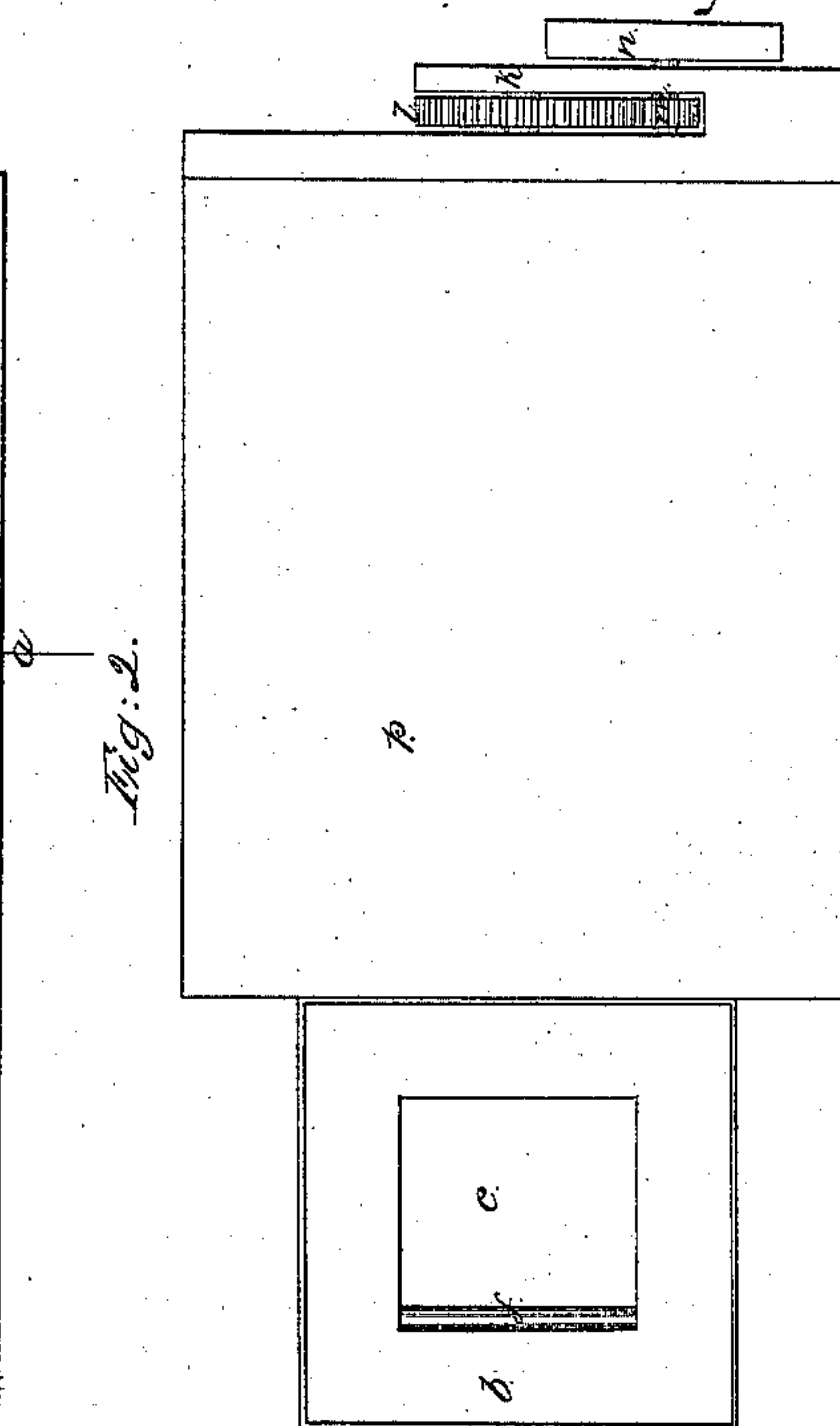
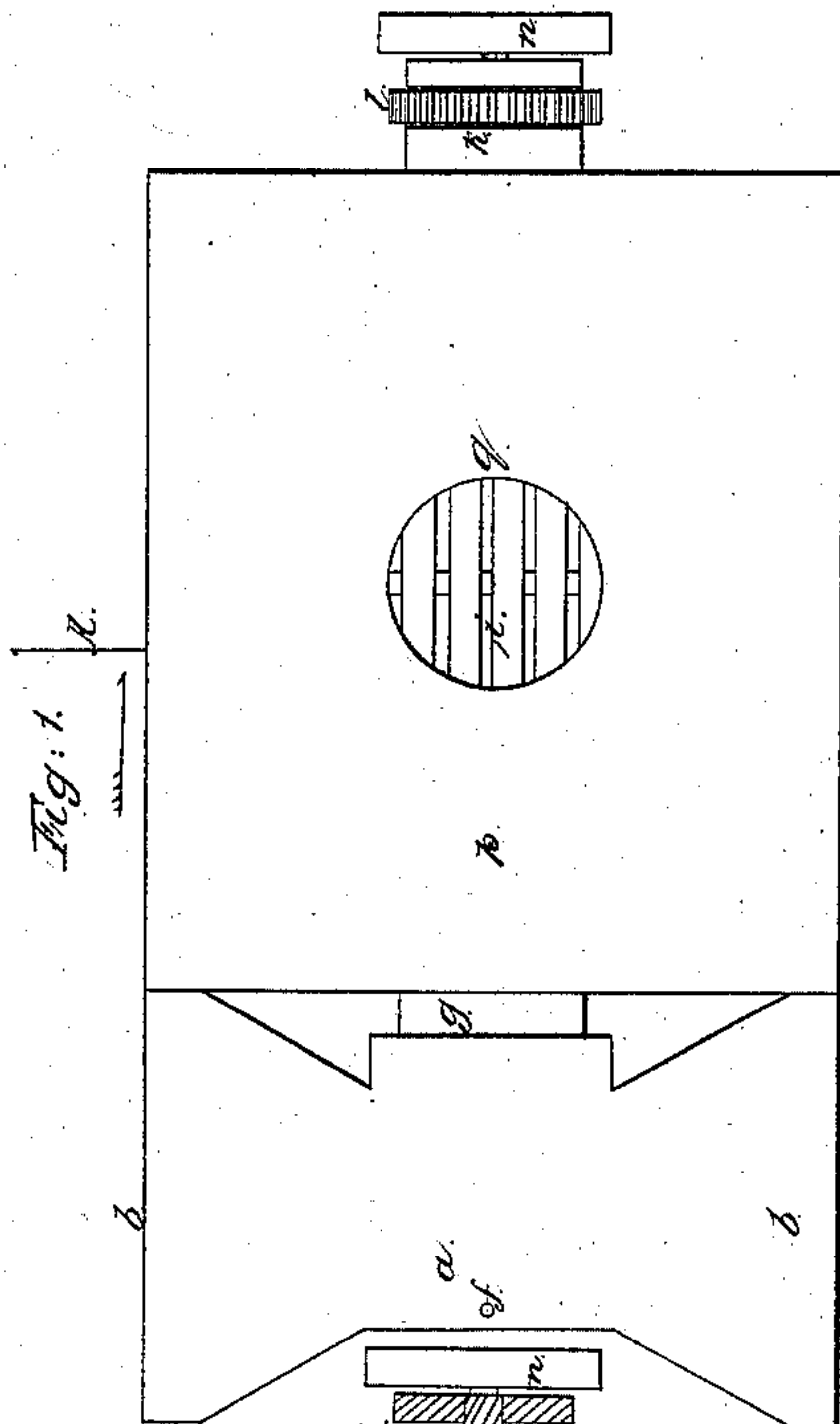


# Reed & Mould, Car Ventilator.

No 11,494.

Patented Aug. 8, 1854.



Witnesses:  
H. B. Everett  
Ben H. Linn

Inventors:  
C. Reed  
R. Mould



# UNITED STATES PATENT OFFICE.

C. REED AND B. K. MOULD, OF CHICAGO, ILLINOIS.

## VENTILATING RAILROAD-CARS.

Specification of Letters Patent No. 11,494, dated August 8, 1854.

*To all whom it may concern:*

Be it known that we, CHEENEY REED and BROOKS K. MOULD, both of Chicago, Illinois, have invented certain new and useful Improvements in the Apparatus for Ventilating Railroad-Cars and Intercepting the Dust, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, is a plan of the apparatus; Fig. 2, an end elevation applied to a railroad car; Fig. 3, a horizontal section of the apparatus; Fig. 4, a vertical section taken at the line A, *a*, of Fig. 1.

The same letters indicate like parts in all the figures.

The object of our invention is to force a current or currents of air into each car, through the bottom thereof, by means of the motion of the car, and separating the dust and other impurities from the air before it enters the car.

Our invention consists in the employment of a double funnel shaped spout to catch and concentrate a current of air, as the car is in motion, and conducting it through to the inside of the car, when this is combined with a self acting valve interposed, to open the front funnel and close the rear one when the car is moving in one direction, and vice versa when the car is started in the opposite direction. And our invention also consists in combining with a spout, or spouts, for receiving and conducting air to the inside of a railroad car, an apparatus which we denominate the dust interceptor, which consists of a rotating or moving cylinder, or a series of cylinders, or other form, one within the other, with apertures for the passage of air, the inner surface of such cylinder or cylinders, or any equivalent therefor, being kept in a moist state by passing in water, by means of which the particles of dust, impinging on the said moistened surfaces, will be intercepted and retained, while the cleansed air will pass through the apertures to the inside of the car for the ventilation thereof.

The mode of construction which we have tried with success is as follows—viz:

In the accompanying drawings, *a*, represents a short pipe with two funnel shaped parts *f*, *f*, at each end. This is so placed and attached to the bottom or any other part of the car that one spout will be toward each

end of the car. At one side this pipe *a*, communicates with another or branch pipe *d*, leading to the inside of the dust interceptor, and the aperture leading to this branch pipe is governed by a flap valve *e*, which works on a vertical hinge at *f*, just opposite the branch pipe. From this it will be seen that when a car is moving in the direction of the arrow the force of the current of air entering the spout on that side, will force and keep the valve in the position represented in the drawings and thus shut the passage to the other spout, and direct the current into the branch pipe. And when the car moves in the opposite direction the valve will be reversed.

The branch pipe *d*, is embraced by a large tubular journal *g*, on one head *h* of a hollow cylinder *i*, the other head *j* of which has a short shaft *k*, that carries a cog wheel *l*, engaged by a pinion *m*, on the short arbor of a driving pulley *n*, to receive motion by a band from one of the axles of the car. This cylinder *i*, is formed of a series of slots with narrow openings between them extending from end to end, or it may be formed by cutting apertures through a sheet iron, wood, or other hollow cylinder. And within this cylinder of slats are arranged one, two, three or more cylinders made in the same manner, but successively of less diameter; the apertures of the second being opposite the slats of the first, the apertures of the third opposite the slats of the second, and so on. The lower part of this cylinder runs in a vessel *o*, containing water, and the whole is surrounded by a casing *p*, to be attached to the bottom of a car, and provided with an aperture *q*, (or apertures) in the top, communicating with a corresponding aperture in the bottom of the car.

From the foregoing it will be seen that when a car is in motion, a current of air will enter the front spout, which, by its funnel or trumpet shape, will concentrate the current: that the force of the current will force back the valve to close the other spout and direct the current to the branch pipe, thence into the cylinder, and through the apertures in its periphery to the inside of the car; but as the cylinder revolves in water contained in the vessel below, the several series of slats will be kept in a moist state, so that the current of air impinging on the inner surface of the inner series of slats will de-



posit most of the dust held in suspense, and being thus purified will pass through the apertures between the first series of slats and impinge on the next series of slats, (also wet) there deposit a portion of the remaining dust, and pass out through the spaces between this series of slats and impinge on the third series, and so on, until it passes through between the last or outer series, and thence through the surrounding case, and to the car, which will thereby be ventilated with air thoroughly free from dust. As the cylinder rotates, the slats in succession pass through the water, by which the accumulated dust is washed off, and a fresh supply of water taken up by capillary attraction to catch more dust. The rotation of this cylinder will aid the force of the current by centrifugal force. As a current of fresh air—separated from the dust—is forced into the car, the pressure inside will be greater than outside, and hence the tendency of the currents will be outward through all the apertures at the doors and windows which will effectually prevent the entrance of dust.

We do not wish to limit ourselves to the special arrangement herein specified, but claim the right of modification, so long as the same result is obtained by substantially the same means, or by the mere substitution of equivalents. We have contemplated, for instance, placing one trumpet mouthed spout at each end of the case surrounding the cylinder for cleansing the dust, and in a line with the axis of rotation, each being made to communicate with its appropriate end of the cylinder by a hollow journal. And instead of having a flap or wing valve, a disk valve may be substituted and adapted to slide on a central shaft, so that when the current of air enters at one end it will force back the disk valve to the other end, to close the outlet at the other end, and compel the current to pass through the slots or apertures in the periphery of the cylinder and thence to the car. And instead of making the dust interceptor in the form of a cylinder with longitudinal slots, it may be made in any other form, which will admit of passing through water to keep the surface exposed to the air wet, and to wash off the accumulated dust, whether one or more such perforated surfaces be employed, although a series of such surfaces will produce a better effect.

We are aware that it has been essayed to ventilate rail road cars by means of an apparatus placed above the car and provided

with a trumpet mouth, or spout at each end leading to a reservoir communicating with the inside of the car and provided with a flap valve to form the communication between either one of the spouts and the inside of the car, and to close the aperture to the other, and vice versa:—and we are also aware that such an apparatus has been provided with vessels containing water and with series of fixed partitions consisting of slats covered with sponge or other substance partly immersed in water, that they may be kept in a moist state by capillary attraction with the view to intercept dust and permit the cleansed air to pass through to the inside of the car—and we are also aware that it has been attempted to separate sparks and other impurities from the smoke of locomotive engine chimneys by means of rotating fans which draw the smoke from the smoke box and force it into a chamber or chambers containing a wheel or wheels rotated by the force of such current and partly immersed in water to cause the smoke to pass through the water on its way to the escape chimney to separate the sparks therefrom—and therefore we wish it to be understood that we claim none of these devices as of our invention, as none of them accomplish the purpose of our invention.

What we do claim as our invention and desire to secure by Letters Patent, is—

The method, substantially, as herein described, of ventilating rail road cars by combining with a vessel or apparatus which receives a current of air through a spout or spouts by the motion of the train, or any equivalent therefor, and discharges it into the car, substantially as specified, a hollow rotating cylinder composed of one or more series of slats or other open work or the equivalent therefor, and partly immersed and rotating in water, substantially as specified, so that as the air passes through the said cylinder, or its equivalent on its way to the inside of the car, the dust shall be separated therefrom, by impinging on the moistened surfaces, while the rotation of the said cylinder in water has the effect to wash off the accumulated dust and to keep the surfaces presented to the passage of the air constantly in a moistened state, substantially as specified.

C. REED.

B. K. MOULD.

Witnesses:

R. B. EVERETT,

BENJ. H. CURRIER.