

A. WEST.
VENTILATING SYSTEM.
APPLICATION FILED OCT. 28, 1908.

929,738.

Patented Aug. 3, 1909

2 SHEETS—SHEET 1.

Fig. 1.

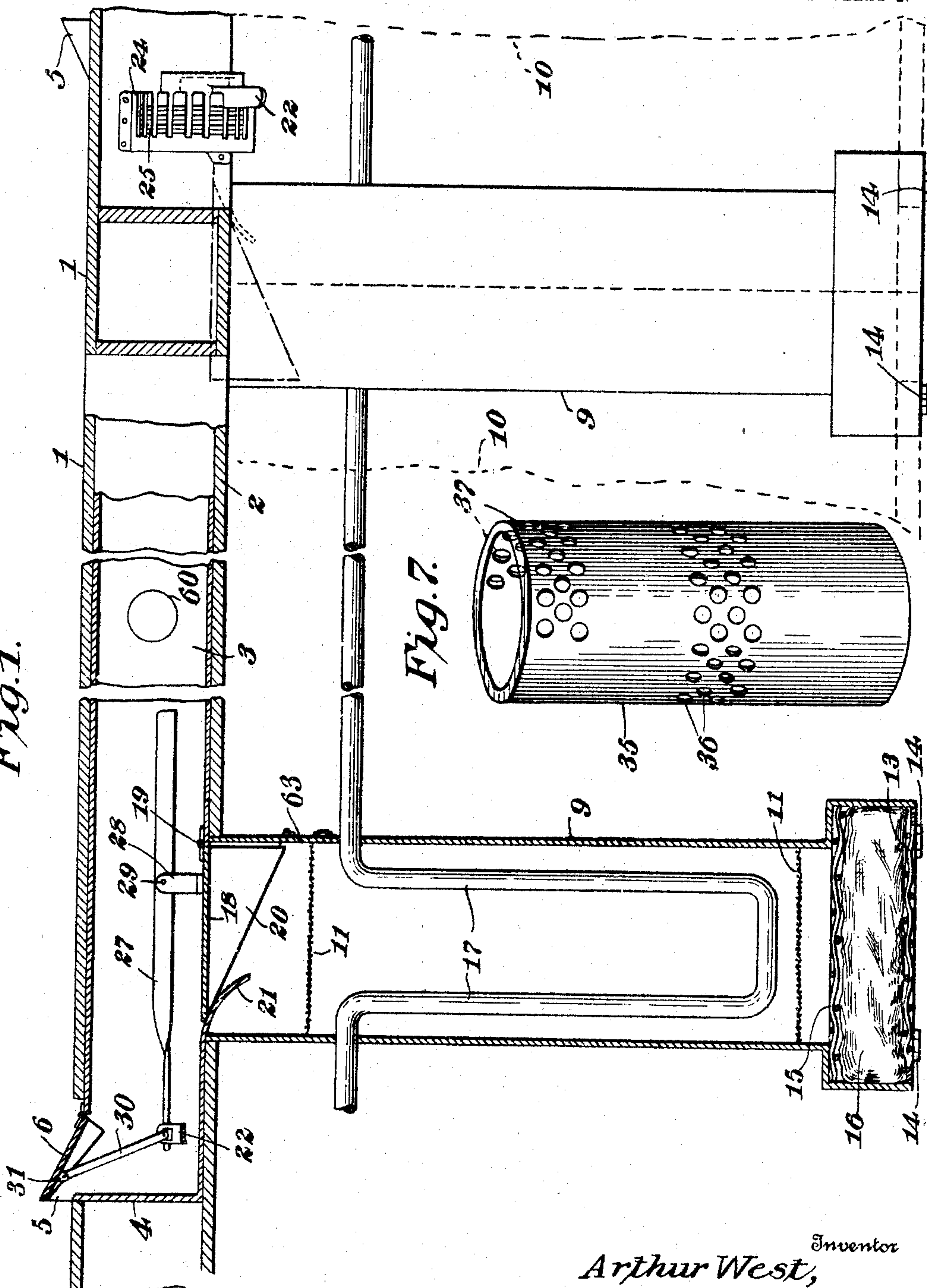
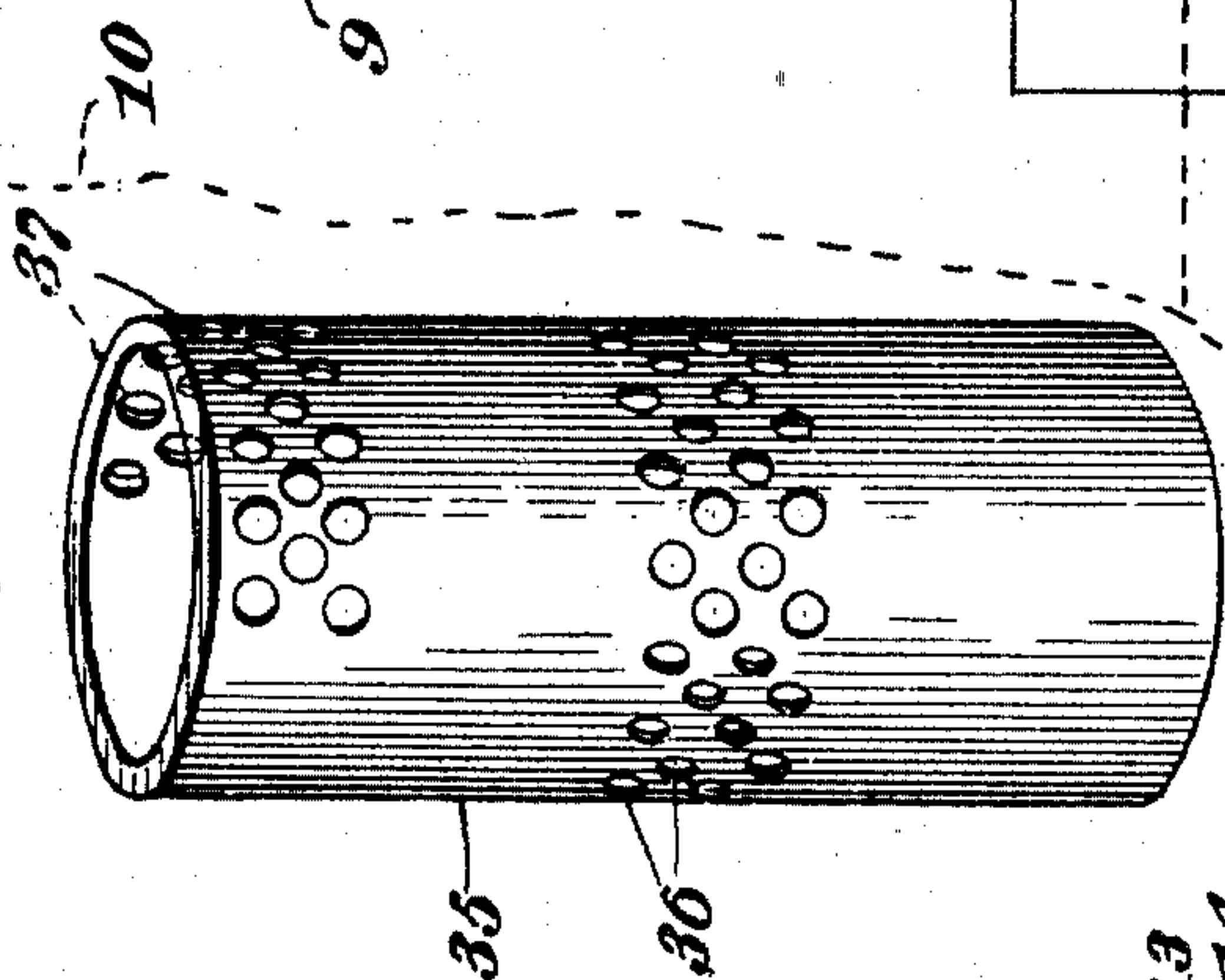


Fig. 7.



Witnesses

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2 SHEETS—SHEET 2.

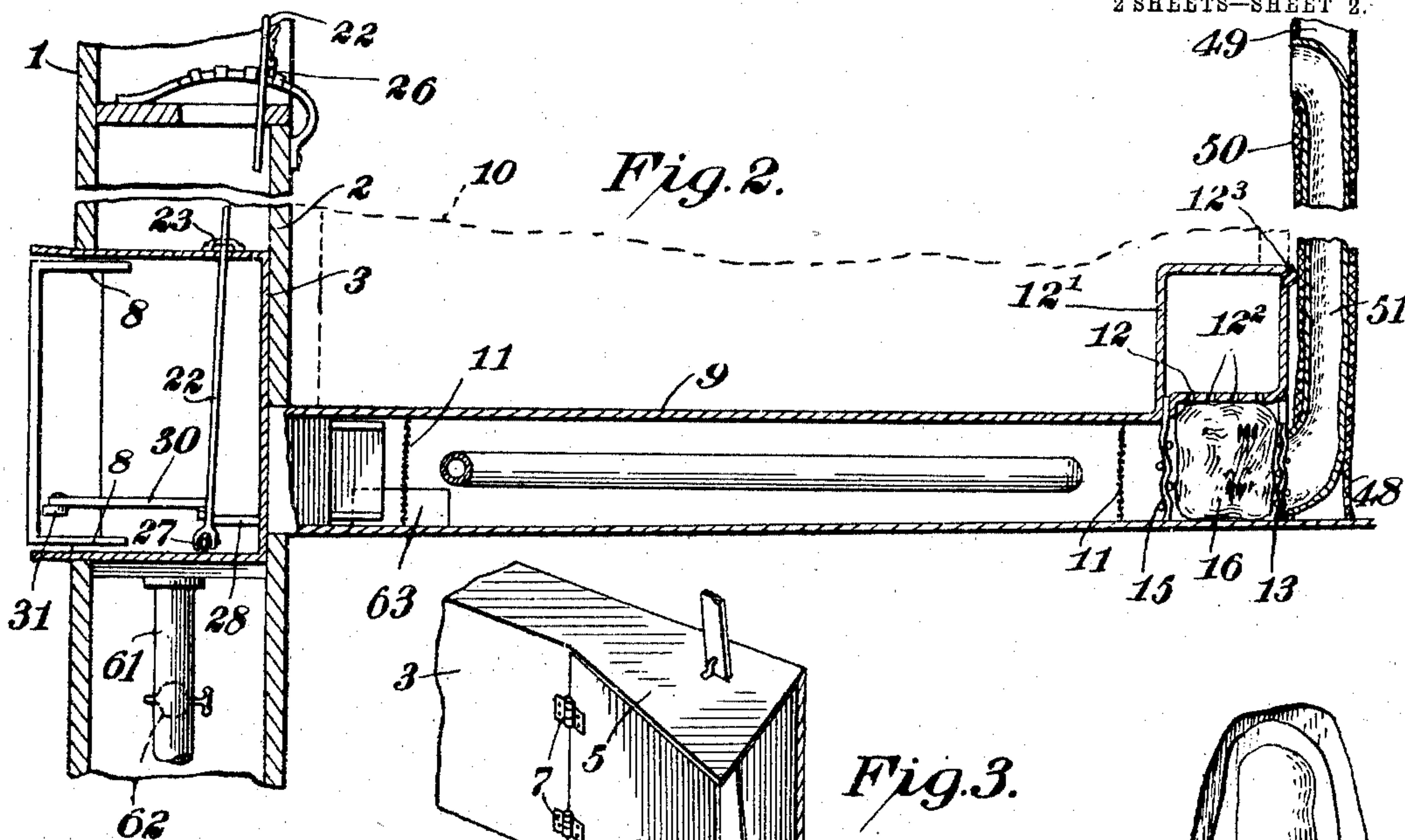


Fig. 3.

Fig. 4.

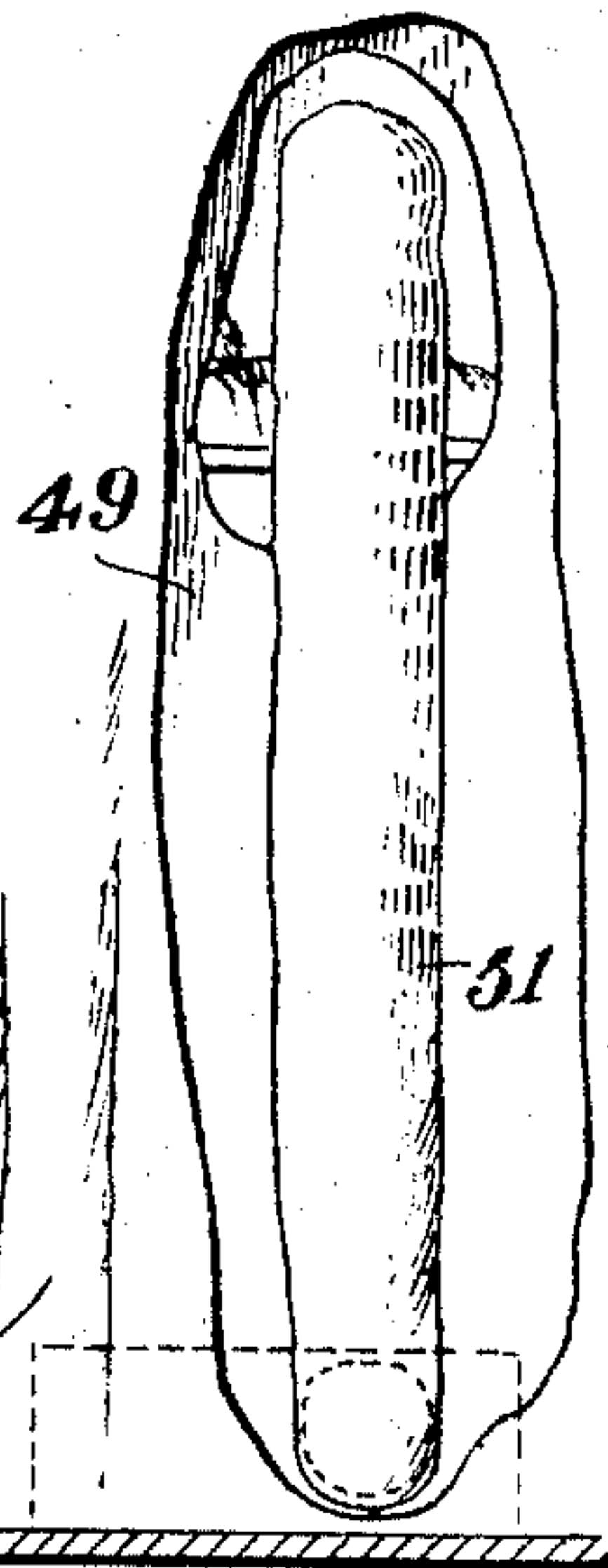
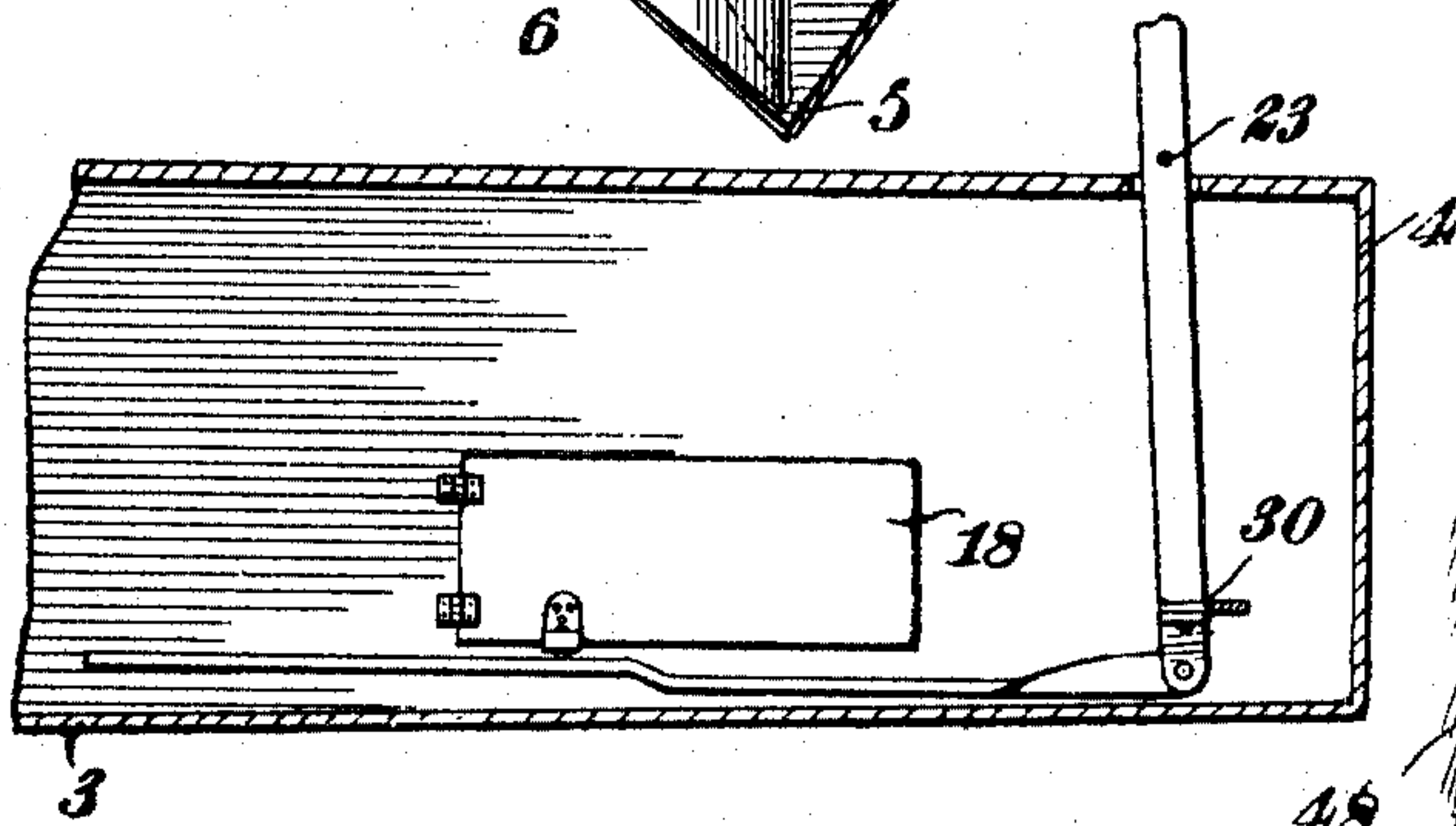


Fig. 6.

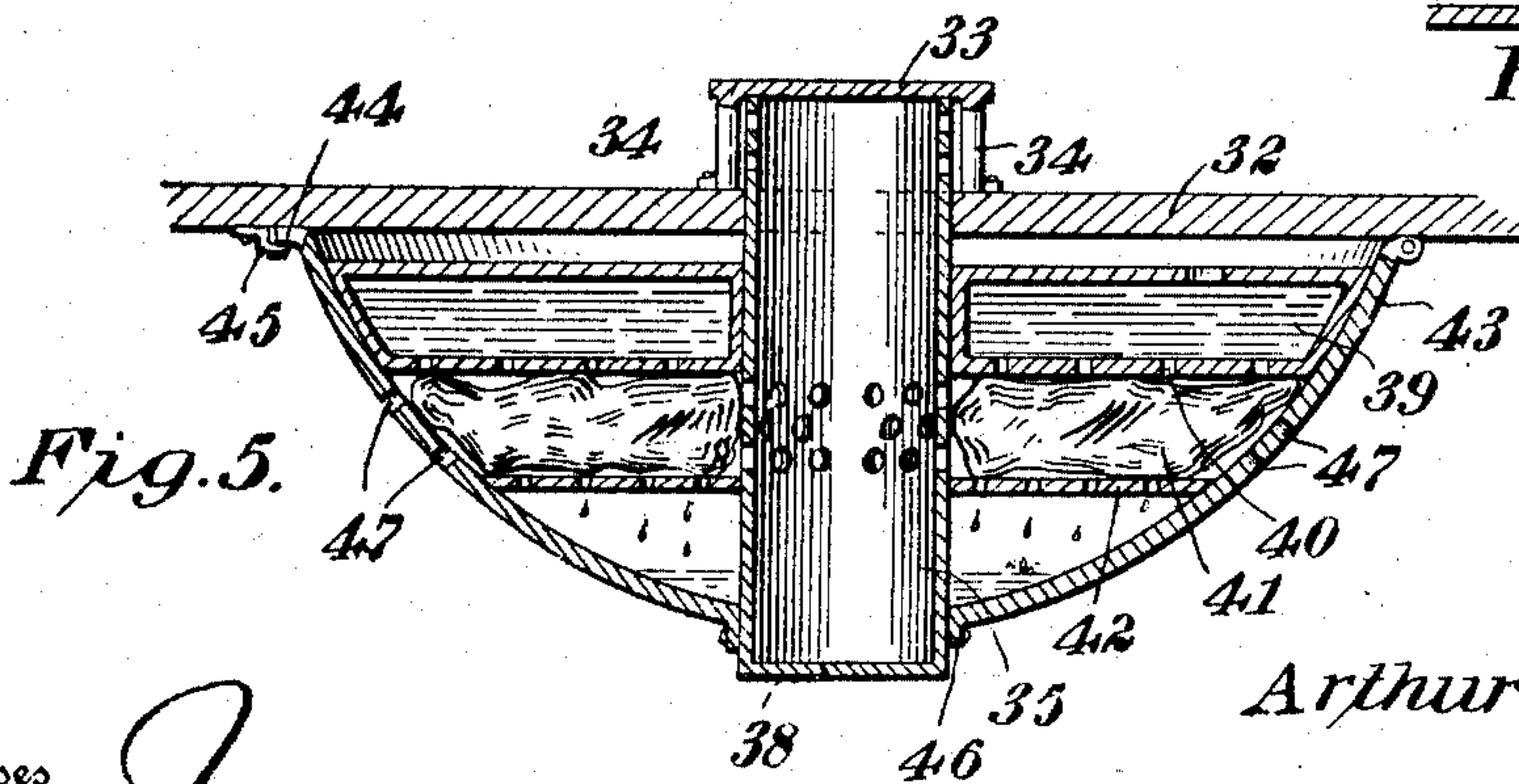


Fig. 5.

Witnesses

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ARTHUR WEST, OF CHICAGO, ILLINOIS.

VENTILATING SYSTEM.

No. 929,738.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed October 28, 1908. Serial No. 459,835.

To all whom it may concern:

Be it known that I, ARTHUR WEST, 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 Ventilating Systems, of which the following is a specification.

My invention relates to certain new and useful improvements in ventilating systems for railway cars, and the object thereof is to provide a system which will be simple in construction, not liable to get out of order, capable of being installed in cars now constructed and which will effect the following desirable results: first, a constant, even and regulable supply of fresh air and an exhaust of air without danger of draft; second, a perfect supply of pure air from which all dust and other impurities have been removed; third, in cold weather a warmed atmosphere of pure air, and fourth, a supply of pure air to the upper berths of a sleeping car when the same are made up.

With these and other objects in view the invention consists in certain constructions, combinations, and arrangements of parts the preferred form of which will be first described in connection with the accompanying drawings and then the invention particularly pointed out in the appended claims.

Referring to the drawings wherein the same part is designated by the same reference numeral wherever it occurs Figure 1 is a diagrammatic view, with parts broken away, partly in section and partly in elevation; Fig. 2 is a central section through one of the supply boxes which run beneath each pair of seats, also showing the means for supplying fresh air to the upper berth. Fig. 3 is a detail perspective view of the air intake. Fig. 4 is a detail sectional view of a portion of the boxing which runs longitudinally of the car. Fig. 5 is a central sectional view of the means for exhausting the air from the car which is located at the top thereof. Fig. 6 is a front view partly broken away of the berth curtain, showing the means for supplying air to the upper berth, and Fig. 7 is a detail perspective view of the cylinder which forms a portion of the air exhaust device shown in Fig. 5.

The particular form of construction which I have chosen to illustrate my invention shows it as particularly adapted for a sleeping car construction and in the following description I will particularly describe this

form of my invention. It is to be understood however that my invention is not limited to such use, but that by properly modifying the details my system of ventilation may be used on any form of car or in any other relation that may be found desirable.

1 designates the outer wall of a car and 2 the inner wall or sheathing between which I locate the boxing 3 which extends the length of the car and preferably at about the height of the floor. The boxing is closed at each end, as shown at 4, and adjacent the ends I cut an opening through the side of the boxing and the outer wall of the car. The upper and lower sides of the boxing at the opening are preferably provided with the triangular extensions 5 which extend out beyond the outer wall 1 of the car as shown in Fig. 1.

6 is a door hinged at 7 to the edge of each opening, the doors of the two openings each being hinged to the edge of the opening away from the adjacent end of the car, whereby the door at the front end of the car when the car is running will always be in position to scoop air into the boxing 3. In order to increase this scooping action I preferably provide the sides of the door with the triangular extensions 8 which are similar to and lie parallel with the extensions 5.

In the form by which I have illustrated my invention 9 are a series of boxings which extend from the inner side of the boxing 3 under the car seats (indicated by the dotted lines 10 in Figs. 1 and 2) to the aisle of the car. In a sleeping car construction one of these boxings extends under each pair of seats which are back to back. Located in each of these boxings are two screens 11—11 by means of which cinders and the like carried by the air will be stopped. Preferably I form the end of each boxing 9 into an enlarged structure 12, closed at its open end by a screen door 13 hinged to the box at 14. Between the box and the pipe 9 I interpose a screen 15 and between the screens 13 and 15 I place a sponge or like filtering medium 16. I prefer to use a sponge for this medium, as it may be moistened from time to time which not only assists in catching the very fine dust which may be carried by the air, but also prevents the air in the car from becoming too dry. In order to provide a water supply for the sponge I have shown a tank 12' provided with a minutely perforated or porous bottom 12², whereby water may seep from the tank onto the sponge.

12³ is an opening whereby the tank may be filled. The sponge may also be saturated with a disinfecting solution if desired.

17 designates the steam heating pipe whereby when the steam is turned onto the car the air will be partly heated before passing into the car. This is effected by having the pipe form a U in each of the boxings which acts to partly warm the air as it enters the car, the heating being completed by the portion of the pipes which extends between the boxings. It will thus be seen that the temperature of the car is obtained by both what is known as the direct and indirect heating systems.

At the inlet end of each of the boxings 9 from the boxing 3 I preferably provide a door 18 hinged at one side at 19 and opening into the boxing 3. Preferably and as shown these doors are made scoop-like by providing them with the triangular extensions 20. The edge of the opening opposite the hinges 19 is preferably turned inwardly as indicated at 21. Preferably these doors are arranged so that half the doors open one way and half the other, the doors opening one way alternating with those which open in the opposite direction, whereby no matter which way the car is running one-half the boxings 9 will receive air, and the other half will exhaust air from the car by the passage of the air through the boxing 3.

22, 22 are a pair of levers one located adjacent each end of the boxing 3 and substantially opposite the doors 6. These levers pass loosely through the boxing 3 and are loosely pivoted on the pivots 23 whereby the lower ends of the levers may be moved both longitudinally and transversely of the boxing 3. Located in position to be engaged by the upper ends of the levers 22 are the sectors 24, one for each lever. The sectors are provided with the series of slots 25 with any one of which the lever may be engaged. The upper surface of the sectors between the slots 25 is preferably corrugated so that when the lever is moved back and forth in any slot it will be held in any desired position by the projecting tongue 26 engaging one of the corrugations. Loosely pivoted in the lower end of each lever is a bar 27. These bars extend from their lever practically the length of the boxing 3 and each bar is connected to alternate doors 18 by means of the lugs 28 which are secured to the doors and pivoted to the levers at 29. Pivoted to the side of each lever 22 is an arm 30, which at its other end is pivoted in a lug 31 secured to the inner side of the adjacent door 6.

From the above described construction it will be seen that by moving a lever 22 into the various slots in its sector 24 the position of the door 6 will be controlled. After the lever has been placed in the proper slot to give the desired opening to the door 6, the

amount of opening of the doors 18 which are connected to the lever can be adjusted by moving the lever back and forth in the slot.

In order to provide for the removal of the cinders and dust which will accumulate in the boxing 3, I preferably incline the floor of the boxing from each end toward the middle thereof, as indicated in Figs. 2 and 4, and the floor at its lowest point is provided with an opening 60 from which depends a pipe 61 preferably provided with a damper 62, whereby as cinders and dust accumulate in the pipe it can from time to time be dumped from the pipe. I also preferably incline the floor of the boxings 9 toward the boxing 3, as shown in Fig. 2, and adjacent the boxing 3 in each of the boxings 9 I provide a door 63 which may be opened from time to time to permit of the removal of the accumulations of dust and cinders from the boxings.

In order to permit of the escape of air from the roof of the car I preferably provide in the roof one or more devices of the character shown in Figs. 5 and 7. Referring to said figures, 32 indicates a portion of the roof of the car and 33 a cap supported by pillars 34 extending up from the roof and surrounding an opening in the roof through which extends the tube 35 provided with an encircling band of perforations 36 located near the central portion thereof and a band of perforations 37 which, however, extend only partly around the tube. The tube is of a size to snugly fit the opening in the roof and the band of perforations 37 are so located that when the end of the tube rests against the under side of the plate 33 they will project above the roof. By having the perforations 37 extend only partly around the tube the tube can be turned so that the perforations will be on the side of the tube toward the rear of the car when the car is running, consequently causing an up-draft through the perforations 36, as it will be noted that both ends of the tube are closed by the heads 38.

Surrounding the tube 35 is a circular water tank 39 having minute perforations 40 in its bottom to permit water to pass down onto a mass of sponge or other absorbent material 41, supported on a circular plate 42 which is centrally perforated and in which the tube 35 snugly fits, with its band of perforations 36 just above the plate 42 and surrounded by the mass of absorbent material 41.

43 is a hemispherically shaped cover provided with a flange in which are cut the pair of oppositely disposed notches 44 through which the ends of the hooks 45, secured to the under side of the roof, can pass when by slightly rotating the cover it will be held in position by the hooks engaging the flange. The cover is also provided with the central

perforation 46 in which the lower end of the tube is secured. The cover is also provided with a band of perforations 47 in line with the absorbent material 41.

5 In Figs. 2 and 6 I have shown my preferred form of means for ventilating the upper berths, and, as there shown, consists in providing the ordinary form of berth curtain 48 with a pocket 49 by securing to the inside
10 of the curtain a strip 50 of the same material. In this pocket is secured a pipe 51 of canvas or similar material which is formed with an elbow at each end which extends through the strip 50. These elbows are so arranged
15 that the lower one will rest in front of a ventilator opening 13 while the upper end is above the mattress of the upper berth, as best shown in Fig. 6.

I realize that considerable variation is possible in the details of construction and arrangement of parts without departing from the spirit of my invention, and I therefore do not intend to limit myself to the specific form shown and described.

25 What I claim as new and desire to secure by Letters Patent is—

1. A ventilating system for cars and the like comprising a boxing located in the side of the car adjacent the floor line and extending
30 longitudinally thereof, said boxing being provided with an opening extending outside the car adjacent each end thereof, means for regulating the size of the openings and deflecting air into the boxing, said boxing being also
35 provided with openings extending into the car.

2. A ventilating system for cars and the like comprising a boxing located in the side of the car and extending longitudinally thereof,
40 said boxing being provided with an opening extending outside the car adjacent each end thereof, means for regulating the size of the openings and deflecting the air into the boxing, said boxing being also provided with
45 openings extending into the car, the floor of said boxing inclining from its ends toward the middle, and a pipe extending downwardly from the floor of the middle portion.

3. A ventilating system for cars and the like comprising a boxing located in the side of the car and extending longitudinally thereof,
50 said boxing being provided with an opening extending outside the car adjacent each end thereof, means for regulating the size of the openings and deflecting air into the boxing, said boxing being also provided with
55 openings extending into the car and means for regulating the air admitted to the car through said last mentioned openings.

60 4. A ventilating system for cars and the like comprising a boxing located in the side of

the car adjacent the floor line and extending longitudinally thereof, said boxing being provided with an opening extending outside the car adjacent each end thereof, a scoop adapted to open and close each opening to deflect
65 air into said boxing, said boxing being also provided with openings extending into the car.

5. A ventilating system for cars and the like comprising a boxing located in the side of the car and extending longitudinally thereof, said boxing being provided with an opening extending outside the car adjacent each
70 end thereof, a scoop adapted to open and close each opening to deflect air into said boxing, said boxing being also provided with openings extending into the car, doors for regulating the flow of air admitted to the car through said last mentioned openings, and
75 means common to a portion of the doors and one of the scoops for operating them.

6. A ventilating system for cars and the like comprising a boxing located in the side of the car adjacent the floor line and extending longitudinally thereof, said boxing
80 being provided with an opening extending outside the car adjacent each end thereof, means for regulating the size of the openings and deflecting air into the boxing, boxings extending from said longitudinal
85 boxing under the seats of the car and means located in said boxings for freeing the air from dust and cinders.

7. A ventilating system for cars and the like comprising a boxing located in the side of the car and extending longitudinally thereof, said boxing being provided with an opening
90 extending outside the car adjacent each end thereof, means for regulating the size of the openings and deflecting air into the boxing, boxings extending from said longitudinal boxing under the seats of the car, the floor
95 of said last mentioned boxings being inclined toward the first mentioned boxing, and means located in said boxings for freeing the air from dust and cinders.

8. A means for supplying air to the berth of a sleeping car, comprising means for delivering air from the outside of the car below
100 the berth, a berth curtain which covers said delivery point, a pipe in said berth curtain, one end of said pipe being adapted to be opposite the air delivery point and the other
105 end above the berth.

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

ARTHUR WEST.

Witnesses:

GUSTAV NOTHDURFT,
F. RYAN.