

No. 815,473.

PATENTED MAR. 20, 1906.

W. SASSE.

AIR FEEDING DEVICE.

APPLICATION FILED SEPT. 23, 1905.

Fig. 1.

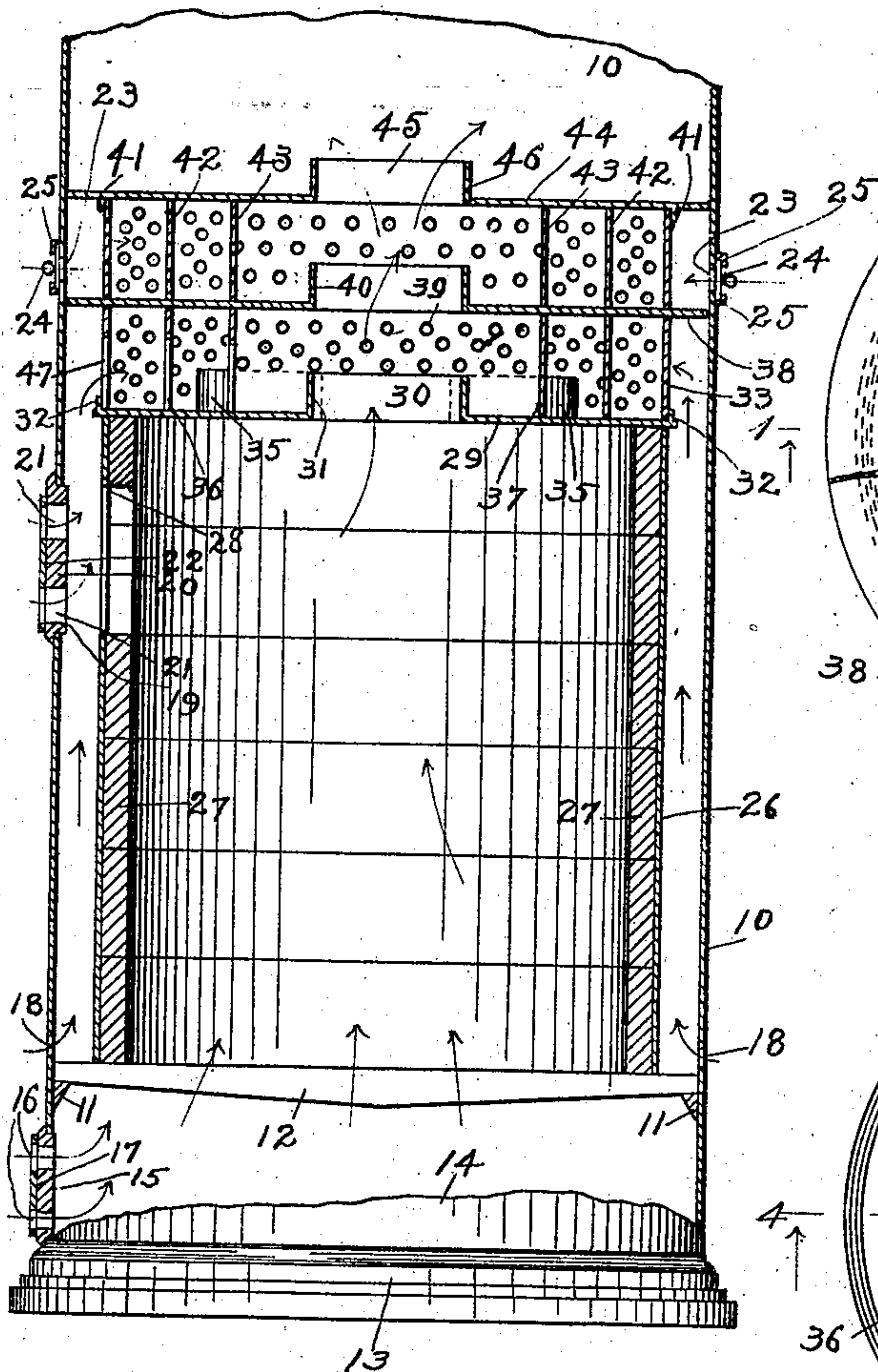


Fig. 2.

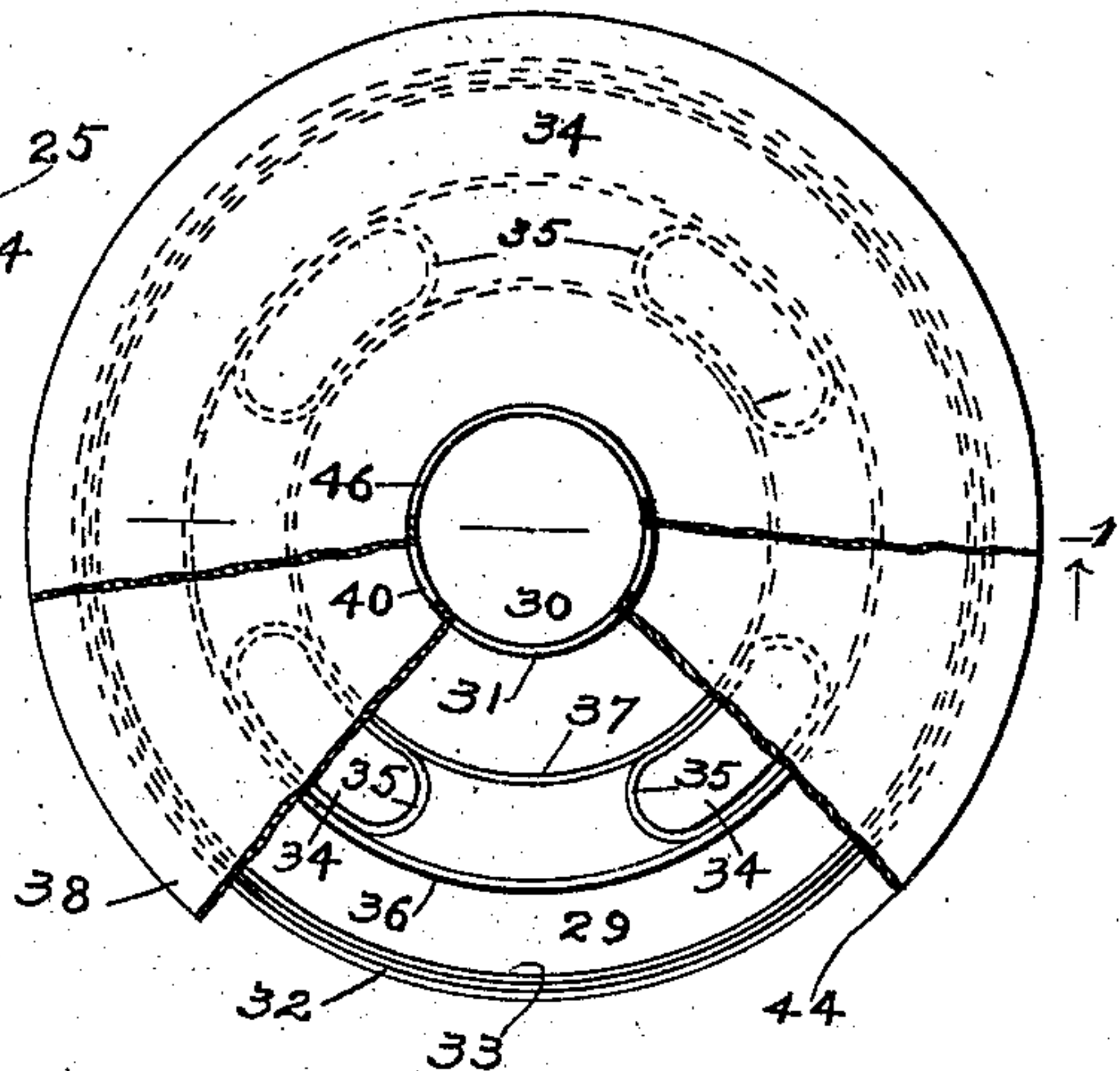


Fig. 3.

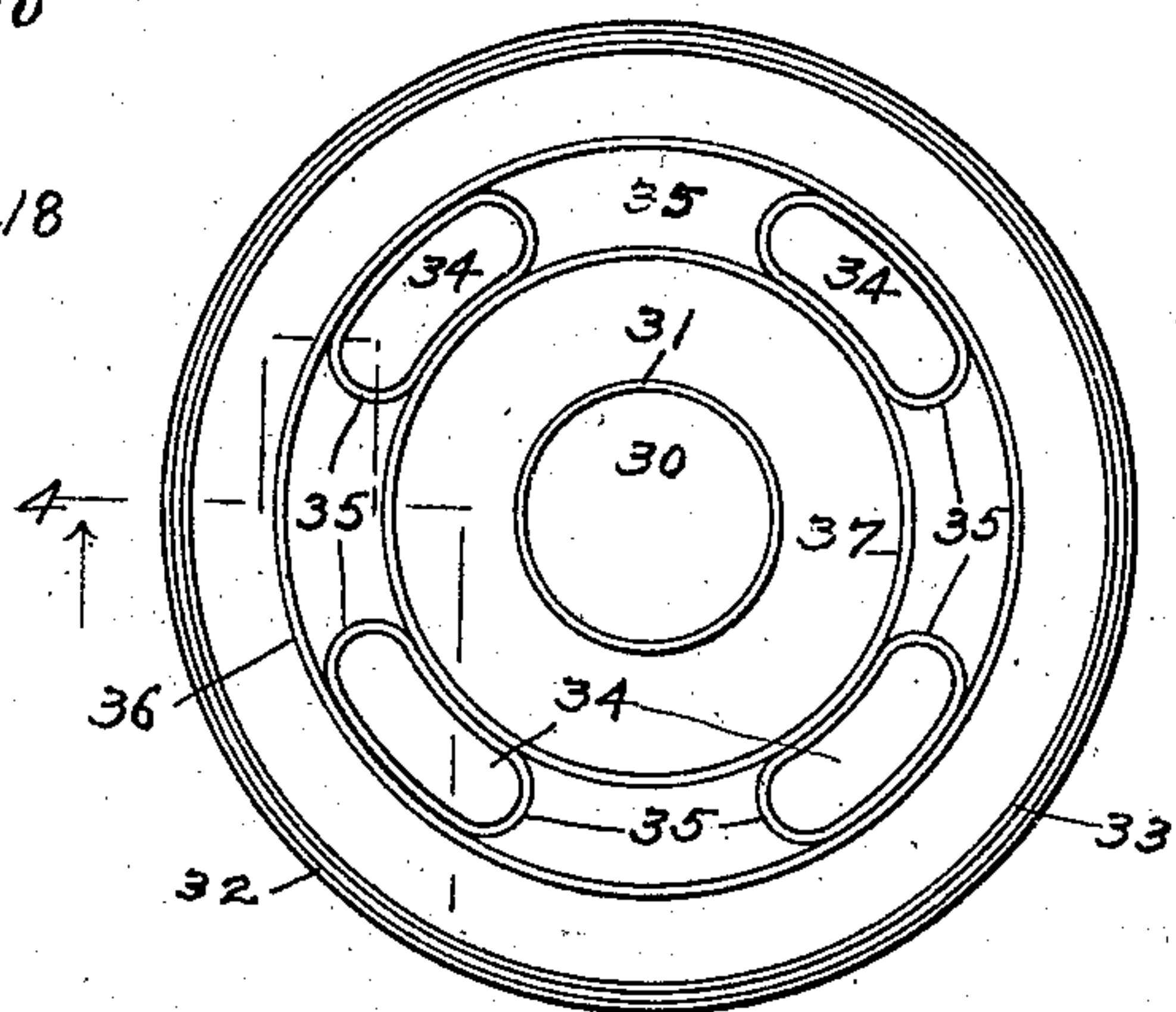
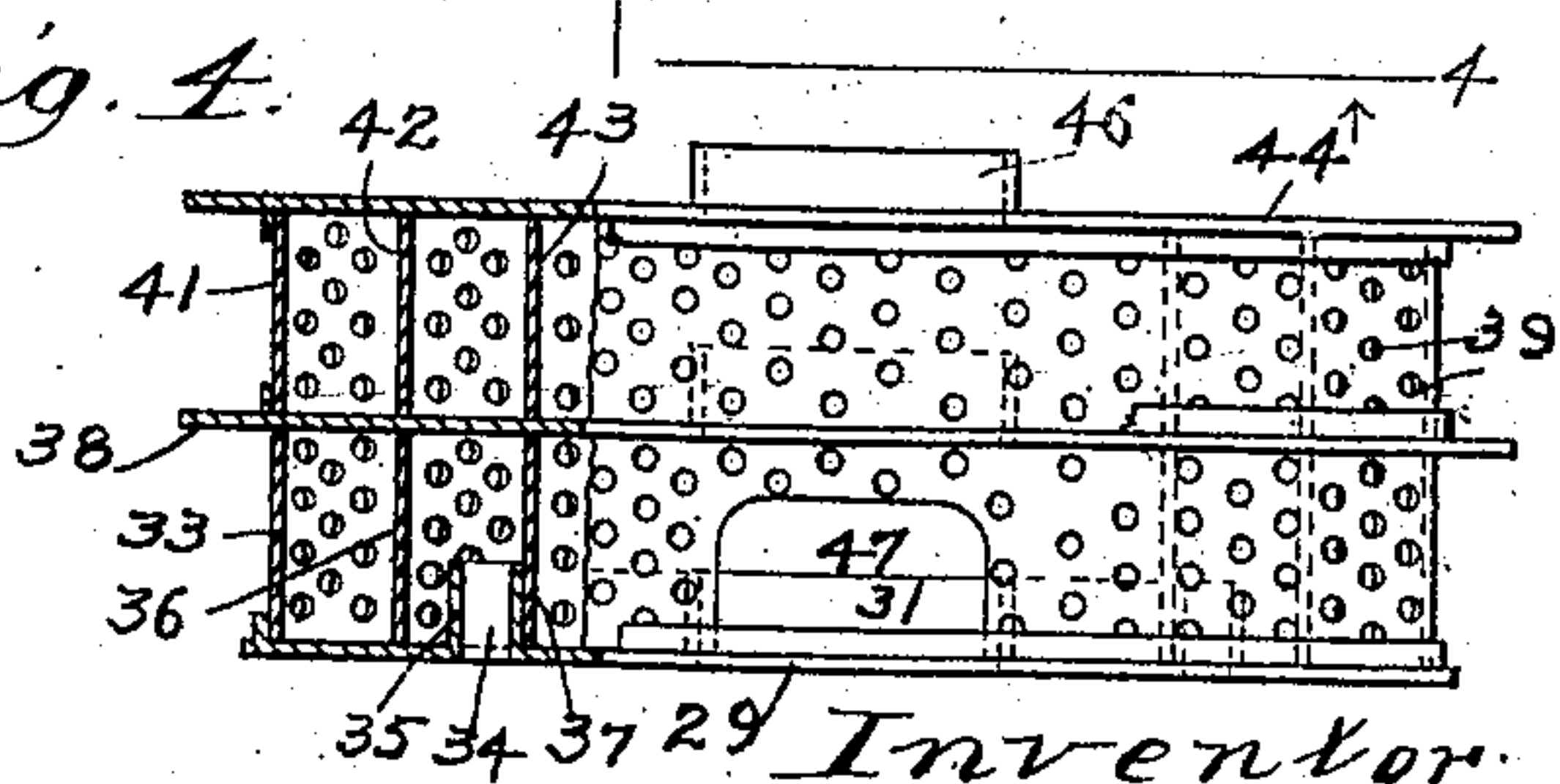


Fig. 4.



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AIR-FEEDING DEVICE.

No. 815,473.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed September 23, 1905. Serial No. 279,768.

To all whom it may concern:

Be it known that I, WILLIAM SASSE, 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 Air-Feeding Devices, of which the following is a specification.

My present invention relates to improvements in air-feeding devices to be used in stoves, furnaces, and the like; and the objects thereof are substantially the same as those set forth in Letters Patent No. 711,681, issued to me on the 21st day of October, 1902—namely, to provide an air-feeding device which shall be simple and inexpensive in construction, strong, durable, and easily applied to a stove or furnace and by means of which more perfect combustion will be obtained, thereby economizing in the amount of fuel used.

A further object of the invention is to so construct the device that it may be placed within the stove or furnace in such a manner that a space for the circulation or passage of air will be afforded entirely around the fire-box, thus providing means for the admission of an augmented supply of fresh air to the upper portion of the fire chamber or box, where by means of certain parts of my invention it will be caused to commingle with the gases and carbonaceous matter evolved from the burning fuel before they pass into the flue or chimney, or, in other words, to effect their combustion at a point with respect to the stove or furnace where it will produce the best effects in generating heat.

A still further object of the invention is to so construct and arrange the parts that currents of air of a lower temperature than the products of combustion may be supplied thereto so as to commingle therewith and by means of such commingling create an inflammable gas to be consumed within the furnace and in its consumption destroy the offensive gases, soot, and heavy smoke.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a vertical sectional view taken on line 1 1 of Fig. 2 through a stove, showing an air-feeding device embodying my inven-

tion located therein and ready for operation. Fig. 2 is a plan view of the upper portion of the device, showing a part of the upper plates thereof broken away to disclose the concentric rings or bands on the lower plate and the openings therein for the passage of smoke. Fig. 3 is a plan view of the lower plate of the feeding device; and Fig. 4 is a view, partly in section and partly in elevation, taken on line 4 4 of Fig. 3 looking in the direction indicated by the arrows, but showing the upper and intermediate plates in position on the lower plate.

Like numerals of reference refer to corresponding parts throughout the different views of the drawings.

The reference-numeral 10 designates the outer wall or jacket of a stove, which in the present instance is shown as being made of sheet metal and cylindrical in form, but which may be constructed of any suitable material and in any desired shape. Horizontally supported in the lower portion of the stove wall or jacket on suitable lugs or brackets 11, secured to the inner surface thereof, is a grate 12 of the ordinary or any preferred construction. As shown, this grate is located some distance above the bottom or base 13 of the stove to form an ash pit or box 14, access to which may be had for the removal of ashes through a doorway 15, the door of which is preferably provided with openings 16 for the passage of air, which openings may be closed or partially closed by means of a sliding plate 17 on the door. Just above the grate 12 the wall or jacket of the stove is provided with a series of openings 18 for the admission of air, which openings are arranged at suitable distances apart in the wall of the stove or furnace. At a suitable distance above the grate the wall or jacket 10 is provided with a doorway 19, through which fuel may be passed to the fire-box of the stove or furnace and which doorway may be closed by means of a door 20, having openings 21 for the passage of air, which openings may be closed by means of a sliding plate 22 when it is desired to shut off the air at said point. At a suitable distance above the doorway 19 the wall 10 is provided with another series of openings 23, which are arranged in a horizontal line around the wall and may be closed by means of sliding plates 24, which are supported on horizontal ribs or cleats 25, secured to the outer surface of the stove or furnace wall.

Located within the wall or jacket 10 and resting at its lower end on the upper surface of the grate 12 is an inner drum 26, preferably of sheet metal, which is internally lined with fire-brick 27 to form the fire-box of the stove or furnace. As is clearly shown in Fig. 1 of the drawings, the drum 26 is of less size than the wall or jacket 10 and is so located therein as to form an air-space entirely around the drum, through which the air admitted through the openings 18 may pass upwardly. The upper portion of the drum or fire-box 26 is formed with an opening 28 to register with the doorway 19, so that the coal or fuel may be passed through said doorway and opening into the lined drum 26 and to rest on the grate. As shown in Fig. 1, the upper end of the drum 26 is located a slight distance above the doorway 19 in the wall or jacket of the stove and has horizontally mounted on its upper end a plate or disk 29, which is provided with a central opening 30, around which is formed or located an annular flange 31, which extends upwardly a short distance. The plate 29 is provided at its outer periphery with an upturned annular flange 32 to the inner surface of which the lower portion of a perforated band 33 is secured. About midway between the inner flange 31 and outer flange 32 on the plate 29 said plate is provided with a series of elongated openings 34, each of which is surrounded by a flange 35, which extends upwardly, so as to be about level with the upper end of the flange 31 around the central opening in said plate. Located on the outer surfaces of the flanges 35 and surrounding the same is a perforated circular band 36, and located so as to rest against the outer surface of the inner portions of the flanges 35 is another perforated circular band 37, which, as well as the bands 33 and 36, extend upwardly some distance above the upper ends of the flanges 31 and 35 and terminate at a uniform height. By reference to Fig. 1 it will be seen that the plate 29 rests on the top of the drum 26 and lining therefor, but projects a slight distance only from said drum, while the intermediate plate 38, which rests on the upper edges of the bands 33, 36, and 37, extends to the inner surface of the wall 10 just below the openings 23 therein, thus closing the air-space between the wall 10 and drum 26 of the stove. This plate 38 has a central opening 39, which is surrounded by a flange 40, which extends upwardly a slight distance. Located on the upper surface of the plate 38 and usually in alinement with the bands 33, 36, and 37 thereon, are perforated bands 41, 42, and 43, which extend upwardly to a uniform height above the openings 23 in the wall of the stove and have located on their upper edges a top plate 44, which is provided with a central opening 45, having around it a flange 46, which extends upwardly a slight distance, as

shown. The top plate 44 extends to the inner surface of the wall or jacket 10, thus forming a vertically-closed chamber between the plates 38 and 44, to which the openings 23 in the wall of the stove lead.

While I have shown the bottom plate 29 provided with four of the openings 34 and have also illustrated three circular bands located on the plate 29 and the same number on the intermediate plate 38, yet it is obvious that I may employ any number of the openings 34 or a greater or less number of the said bands and that the same may be circular or of other shape when other than a cylindrical stove or furnace is used.

From the foregoing and by reference to the drawings, it will be seen and clearly understood that as the smoke or unconsumed particles of carbon rises from the fire on the grate within the inner drum it will pass through the openings 30 and 34 in the lower plate and will be slightly retarded, especially that portion which passes through the openings 34, by the intermediate plate 38 and the flange 37, in its passage from between said plates and through the opening 39 in the intermediate plate, will be thoroughly mixed with the air admitted through the openings 18 in the jacket 10, as well as that admitted through the openings 21 in the door of said jacket, thus affording a new and plentiful supply of oxygen, thereby causing more perfect combustion. As the smoke, gases, and unconsumed particles of carbon pass through the openings 39 and 45 in the plates 38 and 44, respectively, a further quantity of air admitted through the openings 23 and passing through the perforations of the bands 41, 42, and 43, will be caused to mingle therewith, thus further accelerating combustion and rendering it more perfect. By placing the drum 26 at a distance from the jacket 10, as shown and above described, it is apparent that the air admitted through the openings 18 will become somewhat heated and will mingle with the carbonaceous gases in the chambers formed by the bands or partitions below the intermediate plate 38, and that as the gases and unconsumed particles pass up through the opening 39 in the intermediate plate a supply of air at a lower temperature than the gases and said particles will be furnished through the openings 23 to commingle therewith, and thereby affording a fresh supply of oxygen.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an air-feeding device for stoves and the like, the combination of a jacket or wall having in its lower portion openings for the admission of air, of a grate horizontally mounted in the lower portion of the jacket or wall, a drum located within the jacket at a distance therefrom and resting at its lower

end on said grate, a plate located on the top of the drum and having a central opening and a number of openings between said central opening and the outer edge of the plate, 5 upwardly-extending flanges around the intermediate openings, a series of bands located on the upper surface of said plate and having openings for the passage of air, an intermediate plate located on the top of said 10 bands and provided with a central opening, a series of bands located on the upper surface of the intermediate plate and having perforations for the passage of air, and a top plate located on the top of the bands on the inter- 15 mediate plate and having a central opening, substantially as described.

2. In an air-feeding device for stoves and the like, the combination with an inner drum, of a jacket surrounding the same at a dis- 20 tance therefrom and provided in its upper and lower portions with openings for the admission of air, a plate located on the upper

end of the drum and having a central opening and a number of openings provided with up- 25 wardly-extending flanges located between said central opening and the edge of the plate, a series of perforated bands located on the upper surface of said plate at distances apart, an intermediate plate located on the upper 30 edge of said band and having a central opening, a series of perforated bands located on the upper surface of the intermediate plate at distances apart and a top plate located on the 35 upper edge of said bands and having a central opening, the intermediate plate and top plate being extended to the inner surface of the jacket and embracing the openings in the upper portion thereof, substantially as de- scribed.

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Witnesses:

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