J. P. FARMER.

PURIFIER.

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1,083,485. Patented Jan. 6, 1914.

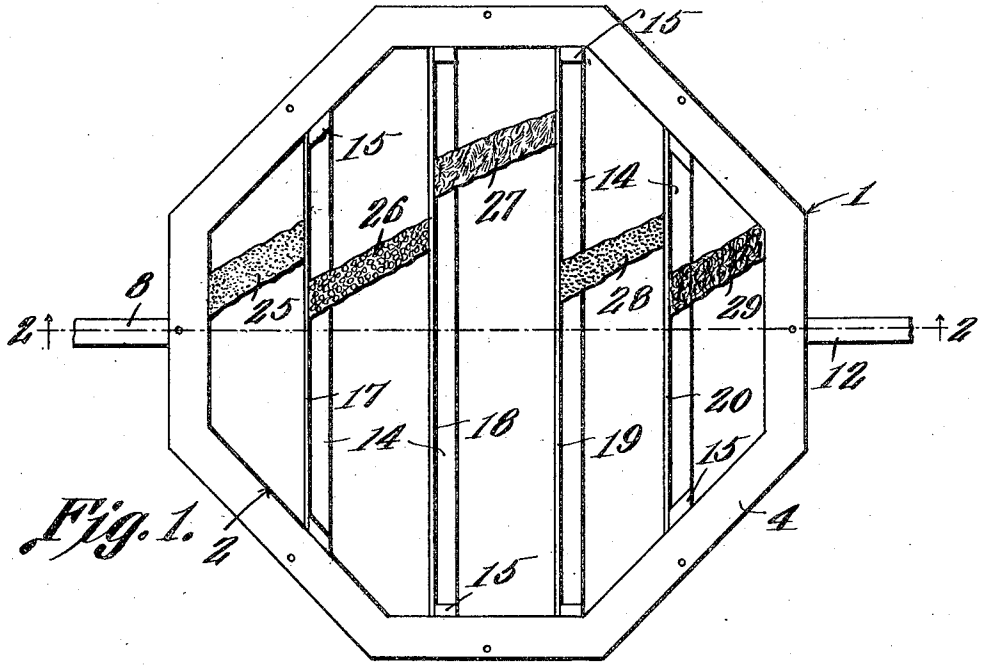


Fig. 1.

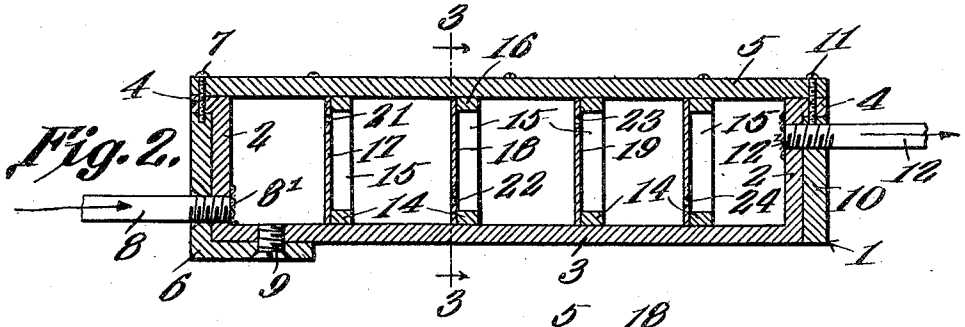


Fig. 2.

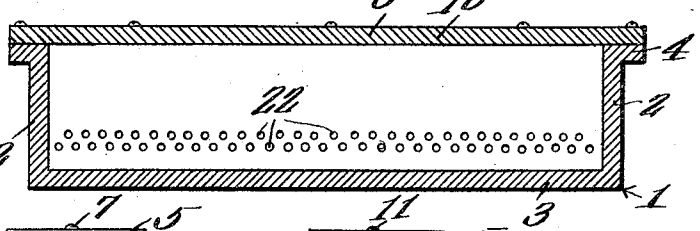


Fig. 3.

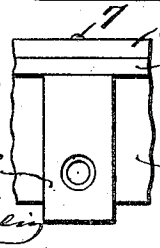


Fig. 4.

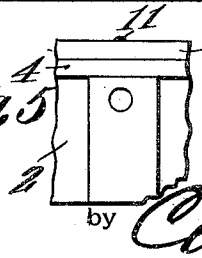


Fig. 5.

Witnesses

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PURIFIER.

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To all whom it may concern:

Be it known that I, JOHN P. FARMER, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Purifier, of which the following is a specification.

It is the object of the present invention to provide, in a simple, merchantable, and inexpensive form, a filter box, adapted primarily although not exclusively, to be employed for domestic purposes, in the cleansing of illuminating and fuel gas.

The invention aims, specifically, to provide a novel means for assembling the constituent parts of the filter box.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings, Figure 1 shows the case in top plan; Fig. 2 is a section upon the line 2—2 of Fig. 1; Fig. 3 is a section upon the line 3—3 of Fig. 2; Fig. 4 is an elevation of the inlet side of the case; and Fig. 5 is an elevation of the outlet side of the case, Figs. 4 and 5 being fragmental in their showings.

In carrying out the invention there is provided a case 1, which may be of any form. Preferably, however, the case 1 is octagonal in outline, and comprises a series of side walls 2 and a bottom 3, the side walls 2 being equipped at their upper edges with an outstanding flange 4, upon which rests a lid 5.

To one side of the case 1 an angle member 6 is applied, one flange of the angle member 6 being extended part way across the bottom 3 of the case. In the other flange of the angle member, and in the corresponding side wall 2 of the case 1 there are alined openings, adapted to receive the inlet pipe 8, the same being provided at its inner end with a screen 8′. One of the securing elements 7 which serves to unite the lid 5 with the flange 4, may be extended through the flange 4 into the upper end of one flange in the angle member 6, as clearly shown in Fig. 2. In the flange of the angle member 6 which extends part way across the bottom 3, and in the bottom 3, there are alined openings, adapted to receive a screw plug 9 which is threaded into the bottom 3. The screw plug 9 and the securing element 7 serve, together with the pipe 8, to hold the angle member 6 upon the case 1. If desired, the screw plug 9 may be removed, and the inlet pipe 8 may be passed into the case 1 through its bottom portion. Under such circumstances, the screw plug 9 may be inserted into the opening in the side wall of the case, from which opening the inlet pipe 8 has been removed.

Disposed opposite to the angle member 6, and applied to the outer face of the case 1, is a reinforcing plate 10. One of the securing elements 11 which unite the lid 5 with the case 1 may be extended through the flange 4, to enter the upper end of the reinforcing plate 10. Into the reinforcing plate 10 and into the corresponding side wall 2 of the case 1 is inserted the outlet pipe 12. If desired, the securing element 11 may be of sufficient length to engage with the outlet pipe 12, thus to hold the outlet pipe 12 in place. The outlet pipe 12 is provided at its inner end with a screen 12′. It may be noted at this point that the inlet pipe enters the case 1, adjacent the bottom of the case, while the outlet pipe 12 enters the case adjacent the upper edge of the case.

Secured to the bottom 3 of the case 1 are ribs 14, alined with ribs 15 secured to the side walls 2 of the case, the ribs 14 and 15 being alined with other ribs 16 which are secured to the lower face of the lid 5. The several sets of ribs hereinbefore described are preferably spaced at equal distances apart, the sets of ribs ordinarily being located at right angles to the axes of the pipes 8 and 12.

Resting against the several sets of ribs are baffle plates 17, 18, 19 and 20. These plates are pierced, each, by a series of openings. The openings 21 in the plate 17 are adjacent the upper edge of the plate, the openings 22 in the plate 18 are adjacent the

lower edge of the plate, the openings 23 in the plate 19 are adjacent the upper edge of the plate, and the openings 24 in the plate 20 are adjacent the lower edge of the plate.

The spaces between the several baffle plates may be filled with masses of filtering material denoted in Fig. 1 by the numerals 25, 26, 27, 28 and 29. Any desired filtering material may be employed. The case 1 is filled entirely with filtering material, the filtering material being shown as broken away in Fig. 1, in order that the drawings may not be needlessly confused by the showing of this material. If desired different sorts of filtering material may be employed in the several compartments.

In practical operation, the gas will enter through the inlet pipe 8 and pass upwardly through the filtering material 25, thence through the openings 21 in the plate 17, then downwardly through the filtering material 26 and through the openings 22 in the baffle plate 18 and thence upwardly through the filtering material 27 and through the openings 23 in the plate 19, thence downwardly through the filtering material 28 and through the openings 24 in the plate 20, and thence upwardly, through the filtering material 29, and out of the outlet pipe 12.

From the foregoing it will be seen that the gas, in passing through the filter, is compelled to travel in a sinuous passage. Owing to this fact, the gas, in its passage through the device, is distributed equally throughout the several masses of filtering material, and a thorough cleansing of the gas is thereby effected.

In devices of this type, considerable difficulty has been experienced heretofore, by reason of the fact that the gas, instead of passing through the openings 21, 22, 23 and 24, in the several respective baffle plates, tends to pass directly across the device, along the lid 5, or along the bottom 3. Under such circumstances, the filtering material soon becomes clogged, adjacent the bottom 3 and adjacent the lid 5, the central layer of the filtering material remaining relatively clean. To avoid this difficulty, it is necessary that the gas be forced to travel in a sinuous path through the structure. To effect this end, the ribs 14, 15 and 16 are provided, it being noted that these ribs prevent the gas from passing around the edges of the several baffle plates, the gas being compelled to travel a sinuous path, through the openings 21, 22, 23 and 24. Thus, owing to the presence of the ribs 14, 15 and 16, the entire mass of filtering material is made effective.

The angle member 6 which is applied to one side of the casing, serves to reinforce the casing, to receive the inlet pipe 8. The element 10, applied to the opposite side of the case, has a similar function with respect to the outlet pipe 12. It is to be noted, referring particularly to Fig. 2, that the inlet pipe 8 may enter one side wall of the case 2, or it may enter the bottom of the case, the closure plug 9 being interchangeable with the pipe 8. The angle member 6 is securely held against the case by the elements 7 and 9, and by the inlet pipe 8. The reinforcing plate 10 serves to hold the outlet pipe 12 in place, and the securing element 11 serves to hold the lid 5 upon the case 1, to hold the reinforcing plate 10 upon the case 1, and if desired, to hold the pipe 12 against rotation in the reinforcing plate 10 and in the side wall 2 of the case.

The device herein disclosed is of simple construction and embraces few parts. It may be fashioned at trifling expense, and when installed, will effect a thorough cleansing of illuminating and fuel gas.

Having thus described the invention, what is claimed is:—

1. A device of the class described comprising a case having an outstanding flange; a lid adapted to rest upon the flange; a reinforcing element applied to the outer face of the case, beneath the flange; and a securing element extended through the lid, and through the flange, into engagement with the reinforcing element; the reinforcing element and the case having alined openings adapted to receive a pipe.

2. A device of the class described comprising a case having an outstanding flange; a lid adapted to rest upon the flange; a reinforcing element applied to the outer face of the case, beneath the flange; a securing member extended through the reinforcing element, and through the case; and a securing member extended through the lid and through the flange and into the reinforcing element, to engage with the pipe.

3. A device of the class described comprising a case; an angle member applied to the side wall of the case and extended beneath the bottom of the case, there being a set of alined openings through the side wall of the case and through one flange of the angle member, there being also a set of alined openings through the bottom of the case and through the other flange of the angle member; and securing elements interchangeably mounted in the sets of openings.

4. A device of the class described comprising a case provided with an outstanding flange; a lid adapted to rest upon the flange; an angle member applied to the side wall of the case, beneath the flange, and extended beneath the bottom of the case, there being a set of alined openings through the side wall of the case and through one arm of the angle member, there being also a set of alined openings through the bottom of the

case and through the other arm of the angle member; securing elements interchangeably mounted in the sets of openings; and a securing element extended through the lid and through the flange of the case, into engagement with the angle member.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN P. FARMER.

Witnesses:
E. F. ALLSHAW,
J. S. FERGUSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."