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M. F. McNELLY.

GAS PURIFIER.

APPLICATION FILED OCT. 6, 1904.

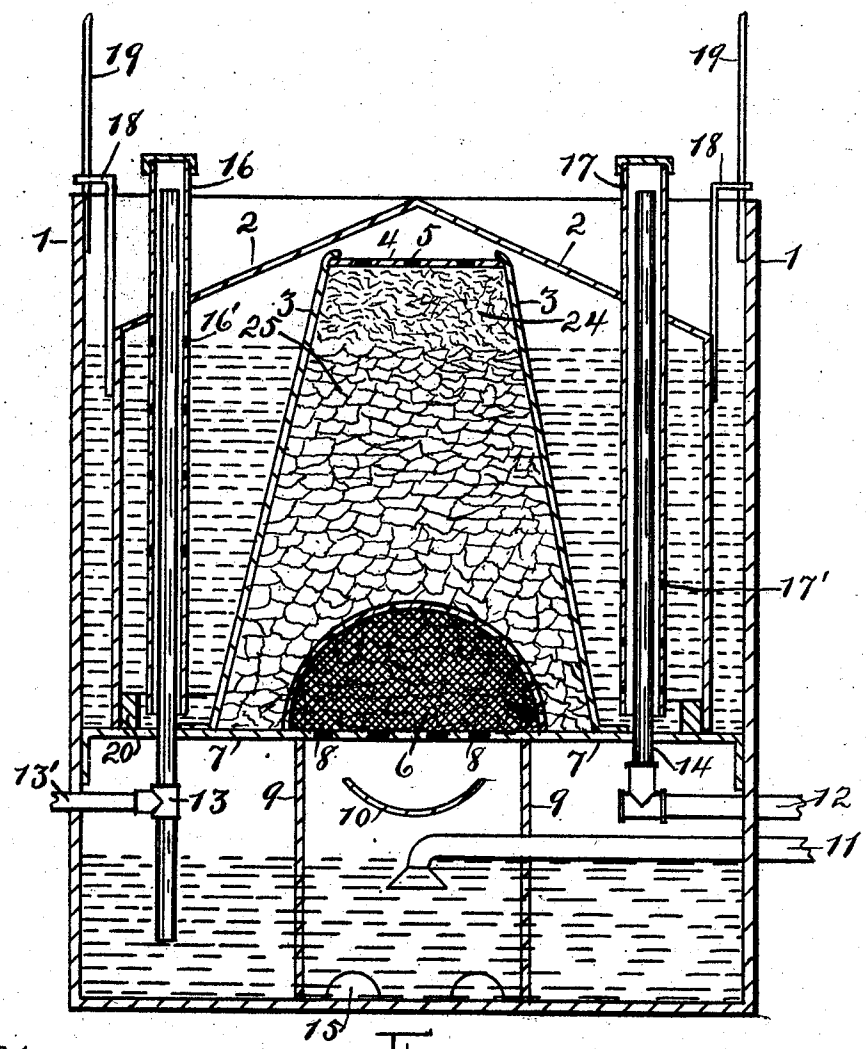

Fig: 1

Fig: 2

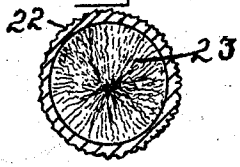

Fig: 3

Fig: 4

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UNITED STATES PATENT OFFICE.

MATHIAS FRANK McNELLY, OF CHICAGO, ILLINOIS.

GAS-PURIFIER.

No. 805,985. Specification of Letters Patent. Patented Nov. 28, 1905.

Application filed October 6, 1904. Serial No. 227,370.

To all whom it may concern:

Be it known that I, MATHIAS FRANK McNELLY, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Gas-Purifiers; and I do hereby 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.

The object of my invention is to produce a new and improved gas-purifier in which cobs or similar material is used for the gas to percolate through, and more especially as to the form and condition of the cob filling so used.

In the drawings, Figure 1 shows a vertical sectional view of a gasometer; Fig. 2, a side elevation of a cob broken or cut into one of its desired forms; Fig. 3, a cross-section of a cylinder of cob cut off a corncob, showing another form of preparing the pieces; and Fig. 4, an edge view of Fig. 3.

The numeral 1 shows the shell of the gasometer; 2, the rising and falling bell, closed at its top; 3, the purifying-chamber, having its top closed by the plate 4, having perforations 5 and a hemispherical wire-netting 6, resting on the tight partition 7, said partition having openings 8 to allow the gas to pass upward through the wire-netting and into the purifier 3.

The shell of the purifier 3 is fast and water-tight to the partition 7 and remains stationary and forms a dry or practically dry chamber, while the bell 2 rises and falls by the pressure of the gas.

9 shows a partition underneath the partition 7, having openings 15 for the passage of water, the chamber communicating with the purifier 3 through openings 8, the openings 8 being made through the floor 7 and leading into a chamber formed by a wire-netting 6, preferably semicircular in configuration, from which it escapes through the netting into the dry purification-chamber proper, this chamber formed by the wire-netting acting to distribute the rising gas well over the bottom of the filling 25 and also forming an initial gas-chamber equalizing the gas-pressure as it enters the filling, the chamber formed by the walls 9 being always partly filled with water and having openings 15 therein to maintain the proper depth of water, and it is preferably circular in form and consists, preferably, of a cylinder made fast at top and bottom and water-tight except at the openings 15.

10 shows a semicircular plate to spread the gas as it issues from under the inverted bell on intake-pipe 11.

The bell 2 has two sleeve-pipes 16 and 17 fastened to it and which rise and fall with it, sleeve-pipe 16 having escape-openings 16′, by which the gas escapes into outlet-pipe 13 and pipe 13′, while sleeve-pipe 17 also has openings 17′, which serve as overflow-orifices when the bell rises to its designed height and allows the gas to escape down pipe 14 and out of pipe 12 to the open air.

19 shows guide-rods, and 18 sliding rods attached to bell 2, up and down which the rods 18 slide by means of 19 passing through holes in the ends of 18, and compel bell 2 to rise vertically and prevent its tipping.

20 shows a heavy ring inside the bell, giving greater weight to it, so it will sink in the water readily when the gas is drawn out of it.

Having thus briefly described the gasometer so those skilled in the art may be able to understand its workings, I now proceed to describe the filling material of the purifier 3. I break corncobs into pieces, as represented in Fig. 2 at 21, showing the pitted or indented surface of the shell-like exterior, and at 23 the pith or soft inside portion of the cob. Instead of corncobs I make use of split and broken pieces of rough-bark alder, which has an interior pith practically similar to the pith of corncobs, and its outside rough bark furnishes the necessary roughness desired, and any other material having such an outer-surface roughness and a pith-like interior. When this form of broken or cut pieces of cob are used, the dry purifier-chamber 3 is first packed with these pieces, as seen at 25, and on top of these cobs is laid a layer of mineral wool 24 or other loose and fibrous material, and the plate 4 is then placed in position, so that in shipping the gasometer the filling cannot escape. I also provide another form of cob filling by sawing or chopping the cobs crosswise, as seen in Fig. 3 at 22, into rings, with the rough pitted shell outside and the pith 23 remaining inside the ring. The purifier is then packed with these rings and on top of them is packed the fibrous material 24. It will be understood that the cobs are never comminuted or reduced to anything like a powder, as that would destroy the rough pitted and hatchel-like outer surface of the cob, such

rough surface being the thing most desired for my purposes; nor do I comminute the pith-like inside of the cob, as that would reduce it to a pasty mass unfit for the uses I put it to; nor do I destroy or in any way change the said rough hatchel-like outer surfaces of the broken or cut pieces of cob, as any crushing or mashing of the pieces would destroy said rough surfaces; nor do I char or burn them, for the same reason. The object of my invention is to make use of the outer rough and impervious shell of the cob over which to pass the gas and tear or hatchel it and at the same time have it come in contact with and pass through the pith-like interior surface of the pieces of cob, the rough surfaces catching any of the rougher dirt or refuse, while the pith portion absorbs the dampness readily and also catches the fine dust refuse and leaves the gas thoroughly cleaned. I do not confine myself to the configuration of the pieces, as they may be made to assume any configuration desired so long as the rough exterior of the cob is not destroyed and the integrity of the pith-like portion is not changed.

Having described my invention, so that those skilled in the art may know how to make and use the same, what I desire to secure by Letters Patent and what I claim is—

1. A gas-purifier consisting of a plurality of chambers in operative connection, one of said chambers being arranged to contain a liquid and to receive the flow of the gas; a dry chamber in operative connection with a recess or pocket having foraminated walls arranged to receive the gas from the chamber containing the liquid and allow it to escape into the dry chamber, said dry chamber being charged with pieces of material having a pitted face or surface around and over which the gas passes, and also a pith-like surface over and through which the gas passes on its way to the point of consumption substantially as described.

2. A gas-purifier consisting of a practically dry chamber arranged to receive the gas; a charge for said chamber consisting of pieces of material having pitted and rough surfaces over which, and also pith-like surface through which the gas is forced to pass and means for conveying the gas to and away from said dry chamber substantially as described.

3. In a gas-purifier a practically dry chamber; circular or cylindrical-like bodies having their outer surfaces pitted and other portions pith-like, suitably packed therein and arranged so that the gas may be forced to pass among said packing and means for conveying the gas to said chamber and away therefrom after it has passed among the packing substantially as described.

4. In a gas-purifier a practically dry chamber; a charge for said chamber consisting of material having a pitted surface and a material pith-like in substance arranged so that the gas may be forced to pass among the charge and be cleaned substantially as described.

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

MATHIAS FRANK McNELLY.

Witnesses:
W. M. Brown,
Jas. M. Brown.