No. 638,005. Patented Nov. 28, 1899.

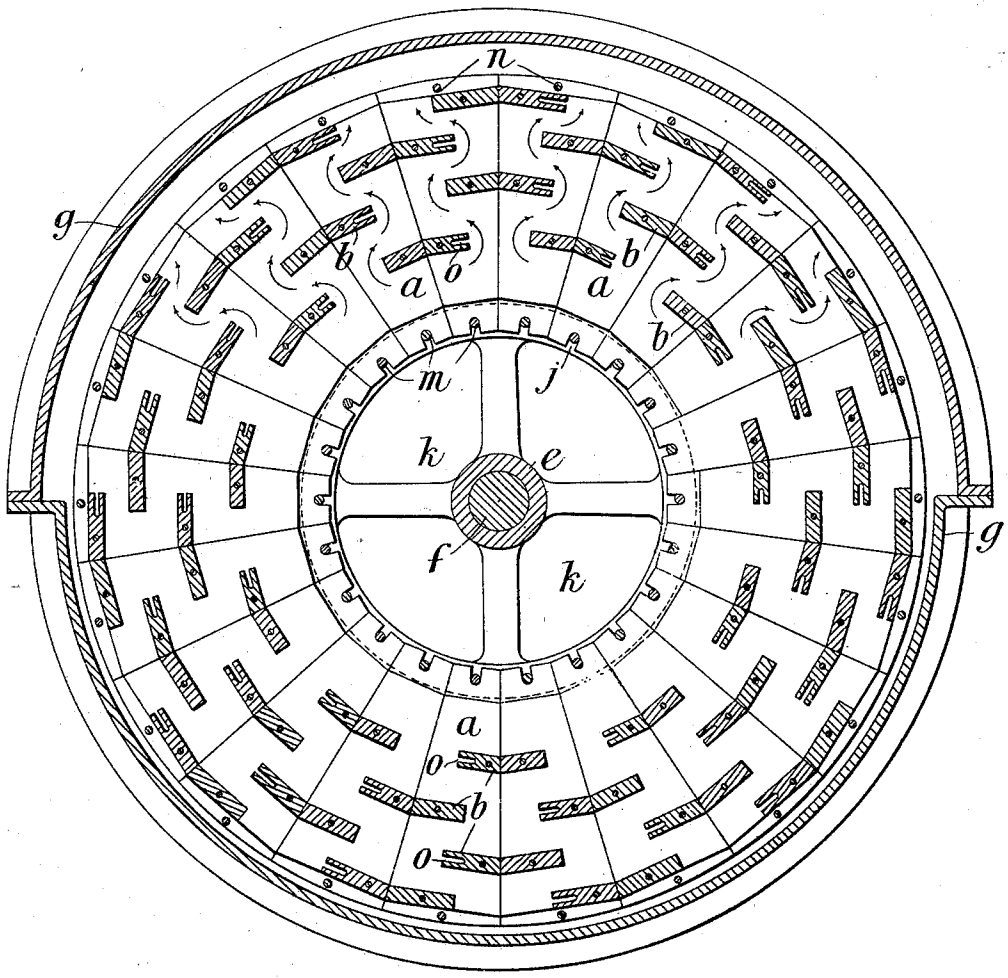
S. CHANDLER, JR. & J. CHANDLER.

APPARATUS FOR WASHING OR SCRUBBING GAS.

(Application filed Aug. 17, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

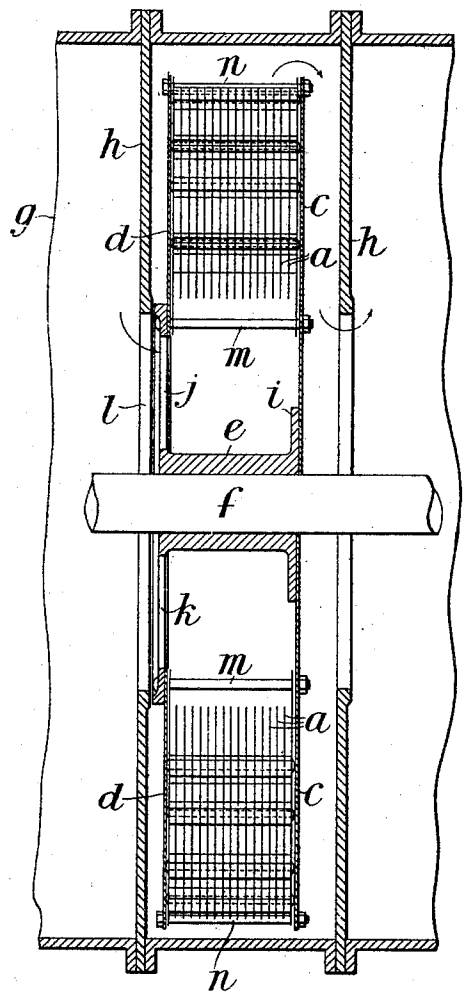


Fig. 4.

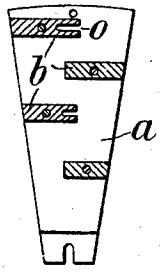
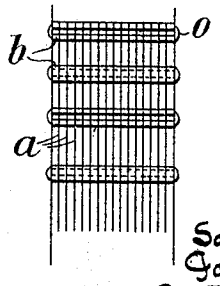


Fig. 3



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UNITED STATES PATENT OFFICE.

SAMUEL CHANDLER, JR., AND JOSIAH CHANDLER, OF LONDON, ENGLAND, ASSIGNORS TO THE KIRKHAM HULETT & CHANDLER, LIMITED, OF SAME PLACE.

APPARATUS FOR WASHING OR SCRUBBING GAS.

SPECIFICATION forming part of Letters Patent No. 638,005, dated November 28, 1899.

Application filed August 17, 1899. Serial No. 727,555. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL CHANDLER, Jr., and JOSIAH CHANDLER, subjects of the Queen of Great Britain, residing at Central Works, Kennington Oval, London, England, have invented new and useful Improvements in Apparatus for Washing or Scrubbing Gas, of which the following is a specification.

Our invention relates to gas washers and scrubbers of the kind wherein a series of plates, sheets, or boards or of clusters of the same is arranged upon a rotating shaft or axle and partially immersed in the washing liquid in such a manner that as the plates are rotated all parts thereof will be successively immersed in the washing liquid and so maintained in a wet condition.

The object of our invention is to provide improved means for maintaining the spaces or channels between the plates, sheets, or boards and causing the gases which pass between the same to travel much farther before leaving them than heretofore, whereby the gas is more effectually purified, and for providing carriers of any shape or number to distribute liquor over the surfaces employed.

According to our invention the plates, boards, or the like are separated by distance-pieces of a breadth corresponding with the space which is to be preserved between adjacent plates, the said distance-pieces being either straight or curved or otherwise suitably shaped and being preferably arranged in a series of concentric circles around the axis of the washer, spaces being left between the distance-pieces of each circle, while the distance-pieces of one circle are arranged opposite to the spaces between the distance-pieces of adjacent circles, so that the gas in passing from the center of the drum to the exterior will have to flow in a zigzag or circuitous passage. It will thus be understood that the gas in passing through the apparatus is subjected to a large amount of wetted surface and is more thoroughly broken up than heretofore. The said distance-pieces are formed with hollows or recesses which raise the liquid as the apparatus rotates and allow it to drop again through and in contact with the gases flowing through the apparatus.

Our invention will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is a transverse section of apparatus constructed according to our invention, and Fig. 2 is a longitudinal section of the same. Figs. 3 and 4 are respectively an edge view and a section of one of the clusters of plates detached.

a a are the plates, sheets, or boards, and *b b* are the distance-pieces arranged between the same, a series of the said plates *a a*, with the distance-pieces between them, being secured between the side plates *c d*, secured to a boss *e*, mounted upon a shaft *f*, carried in suitable bearings in the ends of a casing *g*, which incloses the plates. This casing *g* is divided by partitions *h h* into bays, in each of which a series of plates is adapted to rotate and which at the bottom is adapted to be provided with the washing liquid, which as the plates are rotated keeps them constantly wet.

It will be noticed that the boss *e* has two flanges *i j*, to which the side plates *c d* are respectively connected, and that the flange *j* is provided with a series of openings *k k* and has its face running in close proximity to the margin of an opening *l*, formed in the adjacent partition *h*, while the side plate *c* extends right down to the flange *i*. This arrangement is provided in order that the gas to be purified as it flows from one bay to the next through the opening *l* shall pass to the interior of the cluster of plates, thence between the same, and thence to the next bay, as indicated by the arrows in Fig. 2.

The plates *a a* of each series of plates may be formed out of a single sheet of material or in a series of sections. As shown in the drawings, the latter construction is adopted, each section being of segmental shape, as shown in Figs. 3 and 4, and at its inner end resting on a bolt *m*, extending through the side plates *c* and *d* and also through the flange *j*, as shown in Figs. 1 and 2, while the said segment is confined in position by another bolt *n*, extending through the side plates *c d*.

The distance-pieces *b b*, as hereinbefore stated, are arranged in a series of concentric circles, as shown in Fig. 1, and so that the

halves of each distance-piece are carried by adjacent segments, this arrangement being provided in order that the apparatus can be readily erected and transported, and that in case of necessity any cluster of segments can be removed for cleaning or repairs without disturbing any of the other segments.

In Fig. 1 each distance-piece *b* is represented as being provided at one end with a notch or recess *o*. These notches or recesses serve as the apparatus is rotated for lifting the washing liquid and dropping it onto the adjacent distance-pieces, so as to insure a most intimate contact of the gas to be purified with the liquid.

With the construction hereinbefore described it will be understood that the gas which passes from the center of each group of plates and between the said plates to the periphery of the group will be caused to pass in a zigzag direction in the manner indicated by the arrows in Fig. 1.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

1. In apparatus for washing or scrubbing gas wherein a series of circular plates, sheets or boards are carried upon an axle or shaft separating the said plates, sheets or boards by a series of distance-pieces arranged in circles or rows with spaces between them in such a manner that the distance-pieces of one row or circle are opposite to the spaces between the distance-pieces of the adjacent row or circle so that the gas in passing from the center of the apparatus to the periphery will be caused to flow in a zigzag or circuitous course, substantially as described.

2. In an apparatus for washing and scrubbing gas, the combination with the inclosing casing, of a rotating device comprising a series of circular plates mounted upon a supporting-shaft and separated by distance-pieces arranged in concentric rows with spaces between those of each row, the distance-pieces of each row being opposite the spaces between the distance-pieces of the adjacent rows, each distance-piece being provided on one edge with a liquid-recess, substantially as described.

3. In an apparatus for washing and scrubbing gas, the combination with the inclosing casing provided with a series of partitions each having a circular central recess, said partitions dividing the casing into compartments, of a rotary device in each compartment comprising the side plates one of which is provided with a central aperture registering with and closely adjacent to the aperture in one of said partitions, a series of plates between said side plates and a series of distance-pieces interposed between said latter plates arranged in concentric rows, the distance-pieces of each row being separated by spaces and the distance-pieces of each row being in line with the spaces between the distance-pieces of adjacent rows, substantially as described.

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