

No. 650,239.

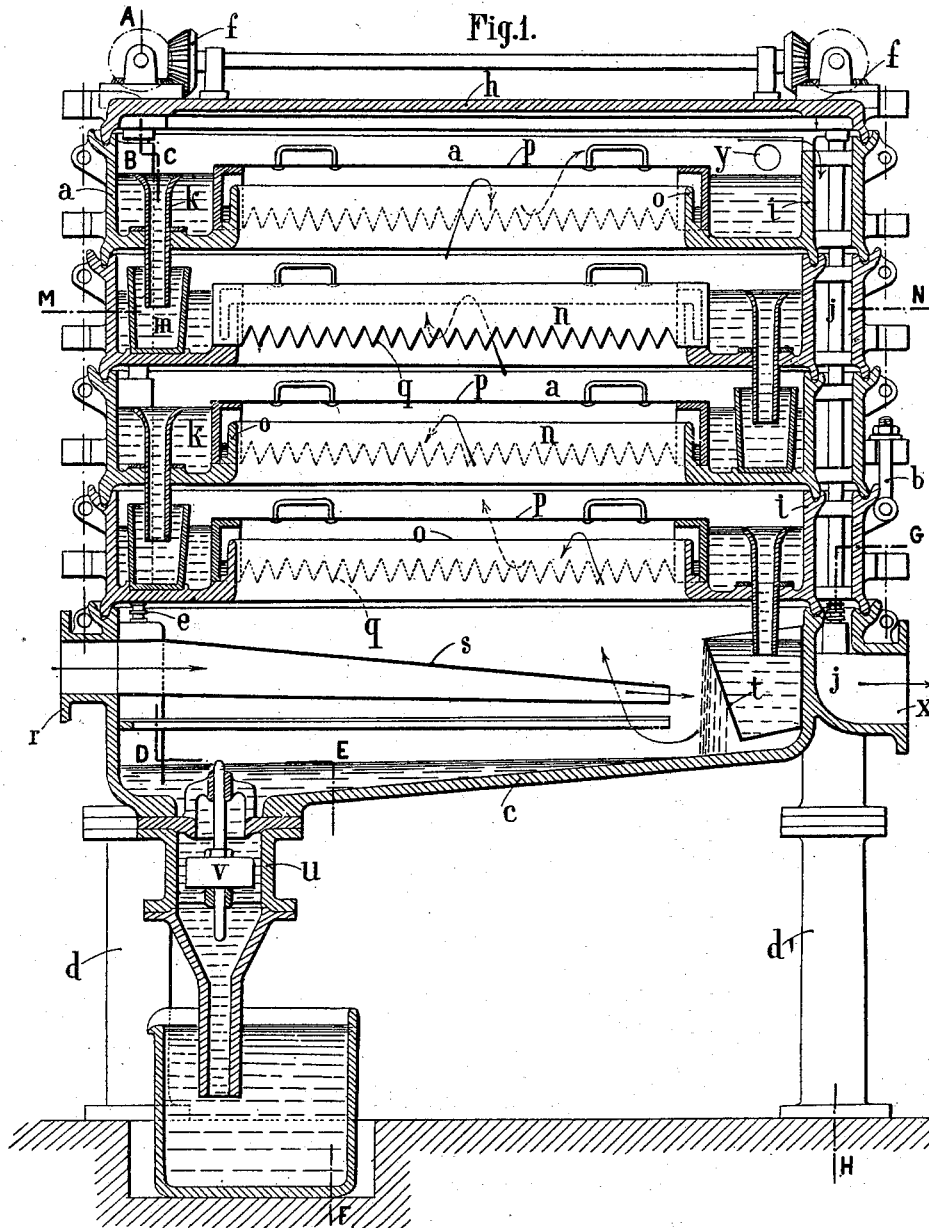
Patented May 22, 1900.

N. A. GUILLAUME.
APPARATUS FOR WASHING GAS.

(Application filed Dec. 27, 1899.)

(No Model.)

3 Sheets—Sheet 1.



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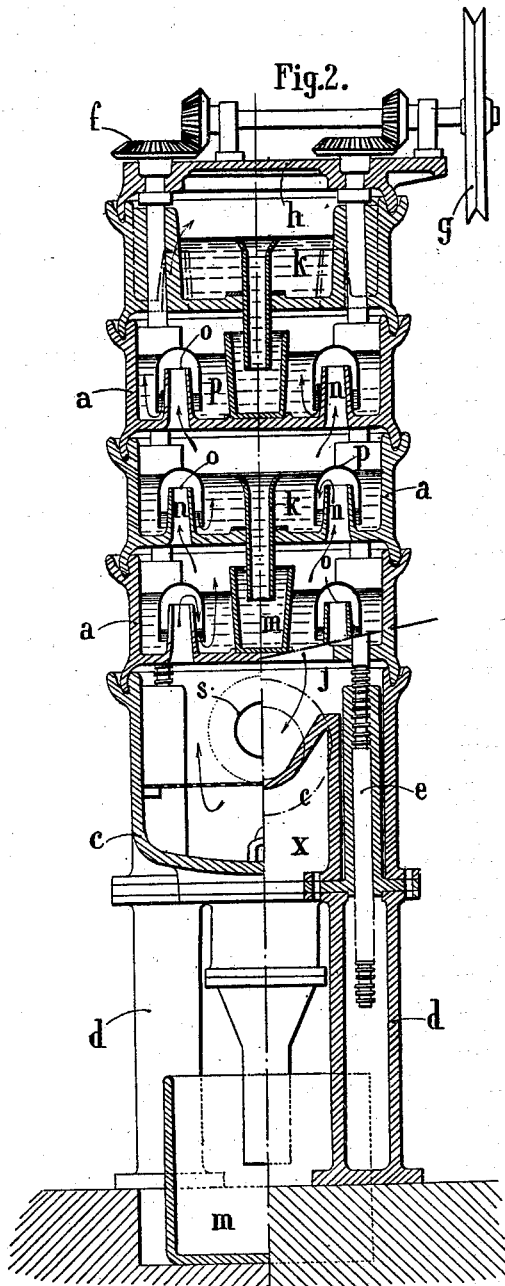
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3 Sheets—Sheet 2.



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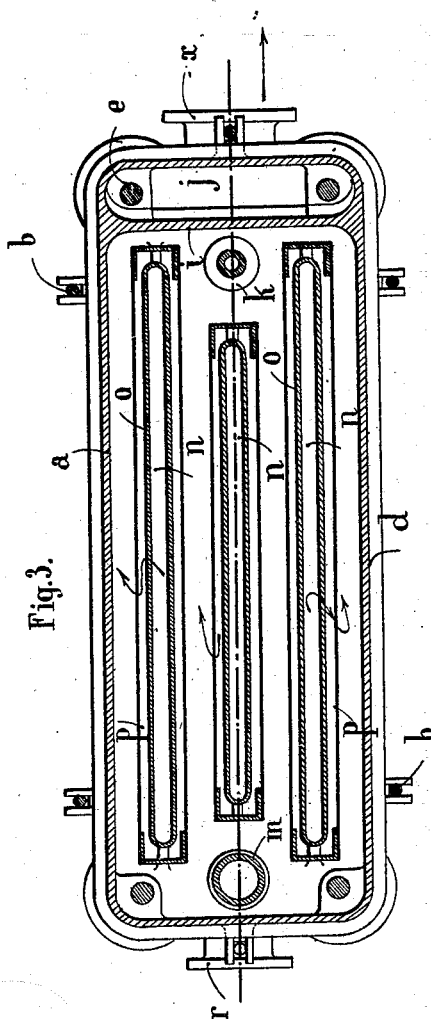
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

NARCISSE ALEXANDRE GUILLAUME, OF PARIS, FRANCE.

APPARATUS FOR WASHING GAS.

SPECIFICATION forming part of Letters Patent No. 650,239, dated May 22, 1900.

Application filed December 27, 1899. Serial No. 741,751. (No model.)

To all whom it may concern:

Be it known that I, NARCISSE ALEXANDRE GUILLAUME, a citizen of France, residing at 15 Rue du Louvre, Paris, France, have invented certain new and useful Improvements in Apparatus for Washing Gas, of which the following is a specification.

This invention is more especially applicable to apparatus working under suction. The gas enters in the form of a thin sheet in proximity to water falling as it is about to leave the apparatus, the gas subsequently rising and traversing the apparatus down through which the water flows, the gas being directed into contact with the water by means of serrated hoods dipping into the water in troughs, so that the gas is repeatedly washed as it passes upward by water which passes downward.

In order that my invention may be clearly understood, I will describe the same with reference to the accompanying drawings, in which—

Figure 1 is a longitudinal section of my apparatus. Fig. 2 is a transverse section thereof, part on the line A B C D E F and part on the line G H of Fig. 1. Fig. 3 is a horizontal section thereof on line M N of Fig. 1.

The apparatus, as shown, is constructed of a series of superposed rectangular troughs *a*, fitting into each other by ribs on the one engaging with grooves on the other and secured together by means of vertical bolts *b* or otherwise by joints giving a sufficiently-tight closure. The lowermost trough *c* is mounted on column *d*, supporting the apparatus, and extending up through each trough at the corners thereof and also down into the columns are threaded rods *e*, the movement of which is controlled by bevel-wheels *f* and pulley *g* at the top *h* of the apparatus. By means of this device the several troughs can be lifted or lowered, so as to secure a uniform tightening of the joints.

Each trough *a* is divided by a partition *i* into two compartments, the one of which, *j*, is small, these small compartments when the troughs are superposed constituting a vertical conduit for the outlet of the washed gases and the larger compartments constituting the troughs in which the washing takes place. The troughs have each a splayed tube *k*, passing through the bottom of the said trough,

and a cup *m*, both being so arranged that the lower end of the tube *k* is immersed in the water contained in the cup *m* of the trough beneath. The gas enters each washing-trough by several long and narrow openings *n* at bottom, Fig. 3, with sides *o* rising into the trough, and over these hoods *p* are placed, which hoods have serrated lower edges and are supported at their ends, so that serrations dip into the water in the troughs and offer a gradual increase of the area for the passage of the gas when the water-level in the hoods fall.

The lowermost trough is provided with a tubular entrance-conduit *r* for the gas, the said conduit extending into the lowest trough *c* and being flattened out toward its end, so that the gas passes from this conduit in the form of a horizontal sheet to meet the water which has served for washing the gas and which overflows in a thin sheet from a box *t*, situated before the incoming stream of gas. The said lowermost trough has a sloping bottom *c*, and the washing-water passes off at the lowest part through an outlet *u*, provided with a float-valve *v*. When the suction by which the gas is drawn in becomes too strong, the float-valve *v* closes. Gas leaves the apparatus by a conduit *x*, which is placed at the lower part of the channel. The water enters through a pipe *y* in the upper trough, this pipe being flexible in order not to loosen the joint, and the entrance for water may be controlled by a float. In each compartment the water rises till it overflows the splayed tube *k* aforesaid, and it flows through this tube into the cup, in beneath which it overflows and passes into the next trough, and so flows down from trough to trough till it overflows the box in the lowermost trough in front of the incoming gas, as aforesaid, which gas impinges against this water and then passes through the openings in the trough and under the hood and between the serrations and through the water that surrounds the hood and which retains the impurities contained in the gas. The gas thus successively passes through the water in each trough and then descends in a washed condition through the vertical conduit formed by the aforesaid smaller compartments *j*, constituting the gas-outlet, leaving the apparatus at *x*, formed in the lowermost trough *c*.

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

- 5 1. In an apparatus for washing gas, the combination with a series of superposed troughs each having longitudinal openings in its bottom forming communicating passages between the troughs and each passage being
10 surrounded by an endless vertical wall, a dome or pan seated over and inclosing each passage, water-overflow pipes or passages communicating with the several troughs, a water-tank arranged in the lowermost trough
15 and located below the water-passage in the trough above it, the water overflowing from said tank in a thin sheet, and a gas-inlet pipe opening into said lowermost trough and having its discharge end located adjacent to the
20 said water-tank so that the inflowing gas will be discharged into direct contact with the sheet of water overflowing from the tank, substantially as described.
2. In an apparatus for washing gas, the
25 combination with a plurality of superposed troughs forming a closed column with communicating passages between the troughs, threaded rods passing through said troughs and in threaded engagement therewith, gear-
30 wheels upon the upper ends of said rods, and corresponding gears meshing with the gears on the rods to operate the latter, substantially as and for the purpose specified.
3. In an apparatus for washing gas, the
35 combination with a series of superposed

troughs having longitudinal communicating passages and water-overflow passages, an end compartment in each trough, said compartments communicating when the troughs are in position, to provide a gas-outlet passage, 40 and a gas-inlet pipe leading into the lowermost trough, substantially as described.

4. In an apparatus for washing gas, the combination with a series of superposed troughs forming a closed column with communicating passages between them for the 45 flow of gas, and a water-overflow pipe in each trough communicating with the trough below, an end compartment in each trough, said compartments communicating when the 50 troughs are in position one upon the other to provide a continuous gas-outlet passage leading from within the top trough and discharging into an outlet-pipe in the bottom trough, a water-tank arranged in the lower- 55 most trough below the water-pipe, the water overflowing from said tank in sheet form, and a gas-inlet pipe opening into the lowermost trough in position to direct the inflow- 60 ing gas into direct contact with the overflowing sheet of water from the aforesaid tank, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

NARCISSE ALEXANDRE GUILLAUME.

Witnesses:

EDWARD P. MACLEAN,
HIPPOLYTE JOSSE.