

No. 768,369.

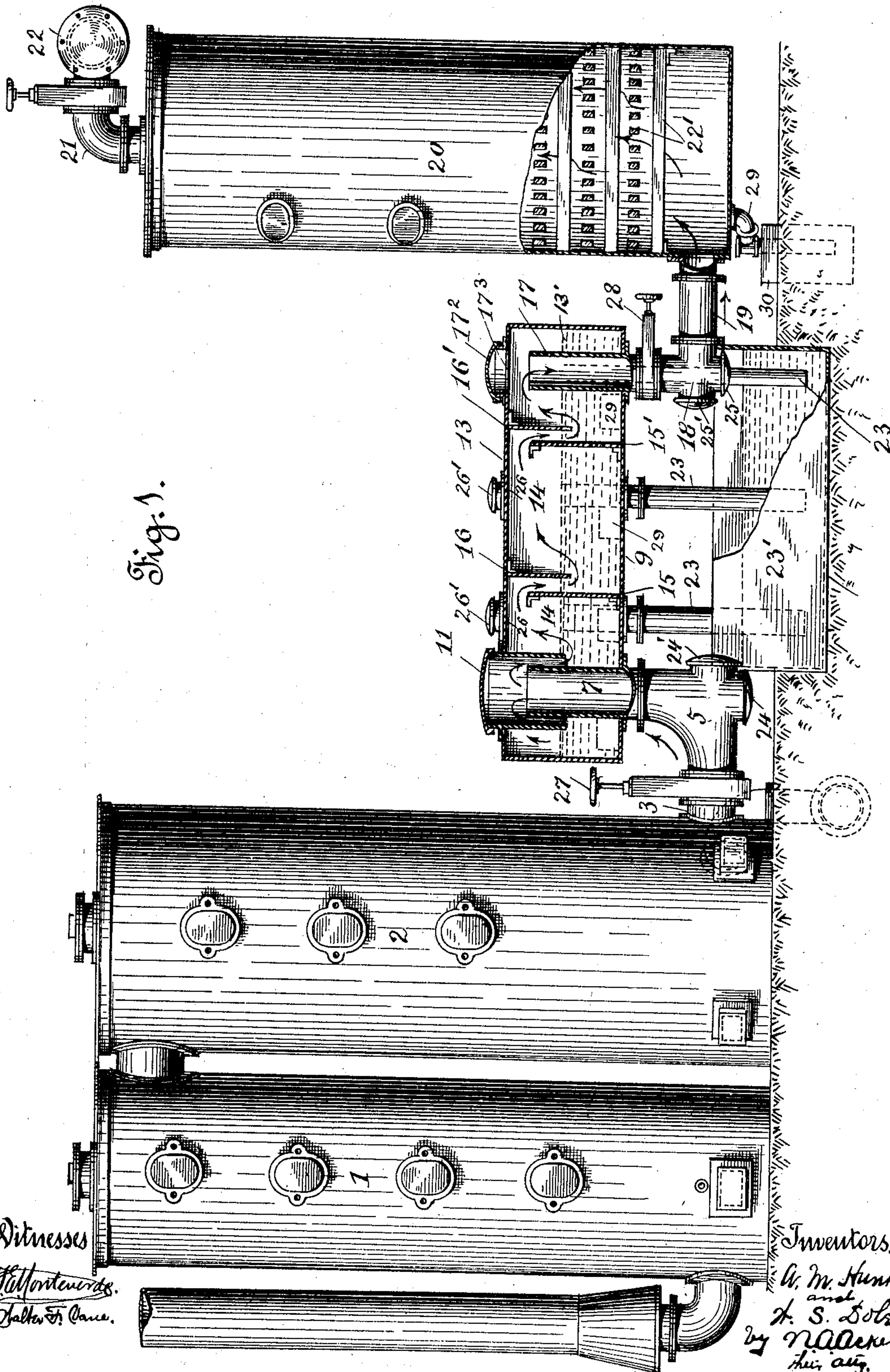
PATENTED AUG. 23, 1904.

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GAS WASHING MECHANISM.

APPLICATION FILED APR. 27, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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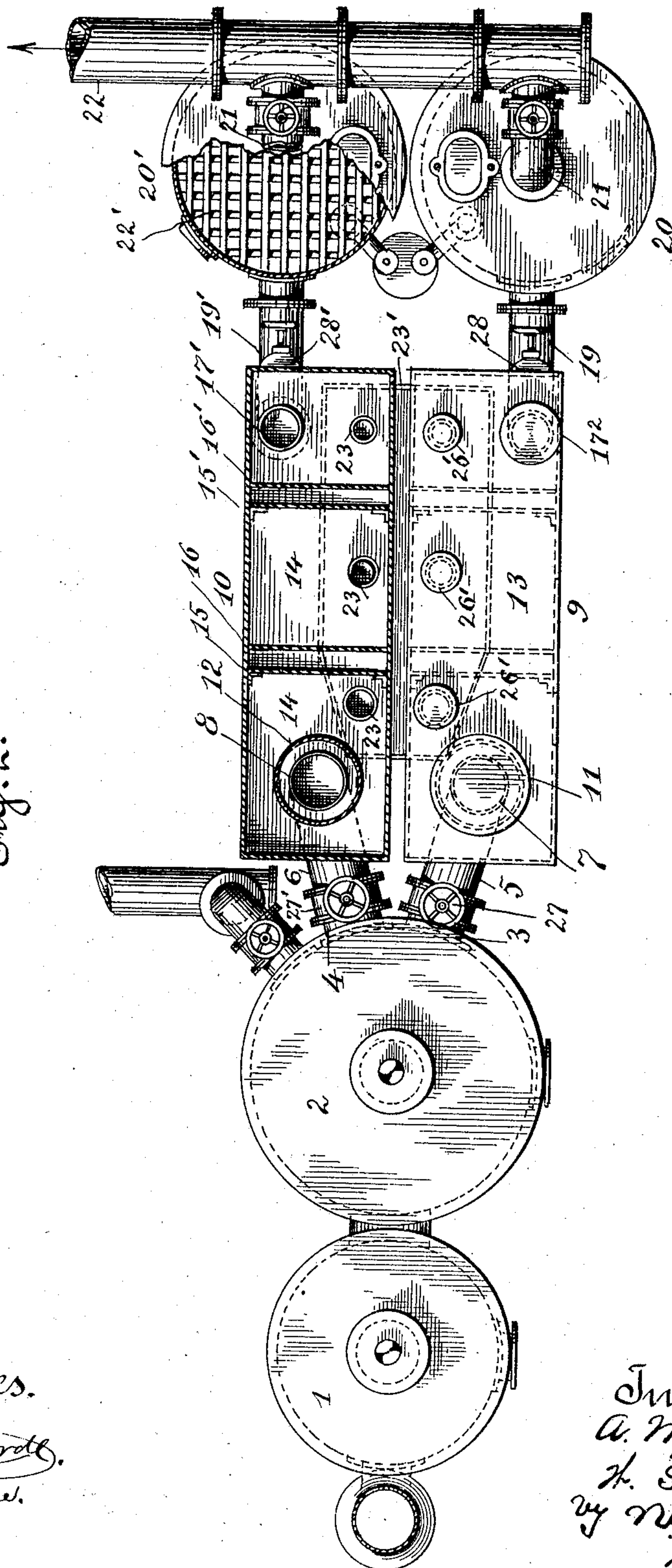
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2 SHEETS—SHEET 2.

Fig. 2.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## GAS-WASHING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 768,369, dated August 23, 1904.

Application filed April 27, 1903; Serial No. 154,542. (No model.)

*To all whom it may concern:*

Be it known that we, ANDREW M. HUNT and WALTER S. DOLE, citizens of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Gas-Washing Mechanism; and we do hereby declare the following to be a full, clear, and exact description of the same.

10 The present invention relates to certain means for the washing or purifying of the gas as conveyed from the gas-generators to the scrubbers, the object of the invention being to so arrange or construct the washing  
15 mechanism that the flow of gas toward the scrubbers is not required to be cut off during the operation of cleaning the said washing mechanism, which cleaning is occasioned by the pipes entering the washers and leading  
20 therefrom becoming clogged or fouled by reason of the settlement therein of the impurities separated from the flowing body of gas conveyed therethrough.

To comprehend the invention, reference  
25 should be had to the accompanying sheets of drawings, wherein—

Figure 1, is a side view in elevation, disclosing the gas-generators, a scrubber, and the washing means in longitudinal section inter-  
30 posed between the gas-generators and the scrubbers, the scrubber being partly broken away; and Fig. 2 is a top plan view of the mechanism disclosed by Fig. 1 of the drawings, one of the scrubbers being partly broken  
35 away.

The numerals 1 and 2 are used to indicate any suitable form of connected gas-generators, the latter of which is provided near its bottom with the outlet-pipes 3 4. These pipes  
40 connect, respectively, with the couplings or unions 5 6, which couplings or unions in turn are connected to the stand-pipes 7 8. Said stand-pipes extend, respectively, into the wash-troughs 9 10, terminating within the re-  
45 movable downwardly-extending hoods 11 12, depending from the cover-plates 13 for the

troughs. Each trough or wash-basin is filled with water to within a short distance of the free end of the stand-pipes 7 8, below the level of which water the lower end of the  
50 hoods 11 12 extend. A water seal is thus effected between the stand-pipe and the gas-circulating space 14 of each wash trough or basin.

From the bottom of each wash trough or  
55 basin upwardly project the baffle-plates 15 15', while from the cover-plate 13 thereof downwardly project the baffle-plates 16 16'. The baffle-plates 15 15' extend a slight distance above the water-level 13', while the baffle-  
60 plates 16 16' project a slight distance below the water-level. By this arrangement a water seal in each wash trough or basin is provided between the baffle-plates 15 16 and 15' 16'.

Into the wash troughs or basins, respec-  
65 tively, near the inner end thereof, extend a slight distance above the water-level the stand-pipes 17 17', which pipes connect with the couplings or unions 18 18'. These couplings or unions connect in turn with the pipes 19  
70 19', communicating with the scrubbers 20 20'. In the present case two scrubbers are employed, each of which at its top connects by pipes 21 with the main pipe 22. It is obvi-  
75 ous that in lieu of two scrubbers a single scrubber may be utilized. When a single scrubber is employed, each pipe 19 19' connects therewith.

The scrubbers employed are of the usual form, each comprising a vertical casing hav-  
80 ing its interior divided by a series of spaced cross slats or bars 22'. Each layer of spaced cross slats or bars is arranged crosswise of the layer immediately below, thereby present-  
85 ing a series of interrupted passage-ways throughout the height of each scrubber-cylinder. This is the usual construction of gas-scrubbers.

Through each washing trough or basin extends a series of overflow-pipes 23, the upper  
90 open end of each pipe being flush with the level of the water therein. The lower end of



each pipe is submerged within a body of water contained within a settler 23', located directly beneath the washing troughs or basins.

Each coupling or union 5 6 is provided with the removable plugs 24 24', the object of which is to enable access to be had to the interior of the couplings or unions for the purpose of cleaning the same of sediment from the gas flowing therethrough. The same arrangement is made as to the couplings or unions 18 18' for cleaning purposes—that is, each coupling or union is provided with the removable plugs 25 25'.

A series of openings 26 is formed in the cover-plate 13 of the washing troughs or basins 9 10 immediately above the open end of the overflow pipes 23, each opening being closed by a removable cap 26'. To clean the overflow-pipes of the impurities washed from the gas during its travel through the washing troughs or basins, it is only necessary to remove the caps 26', when free access may be had to the said overflow-pipes.

The flow of gas from the generator into the washing troughs or basins 9 10 is controlled, respectively, by means of the regulating-valves 27 27', while the communication between the said trough or basins and the scrubbing means is controlled by the valves 28 28'.

After the manufacture of the gas the same is conveyed from the generator toward the scrubbers through the troughs or basins 9 10. The gas as it escapes from the hood 11 12 into the circulating-space of the troughs or basins is compelled to pass through the water seal formed thereby. As it flows toward the scrubbers it is intercepted by the baffle-plates 16 17 and 16 16. The same is forced through the water seals formed thereby. The travel of the gas through the water seals washes or frees the gas of approximately all impurities contained therein, the impurities thus freed floating on the surface of the water until gradually forced by the circulation of the water into the open end of the overflow-pipes 23. These overflow-pipes deliver the impurities into the settling-tank 23'. Some of the foreign substances freed from the gas will settle to the bottom of the troughs or basins, and for the purpose of removing same each trough or basin is provided, in the outer side wall thereof, with one or more closed outlet-openings 29. The gas, approximately freed of all impurities, finally escapes from the wash troughs or basins into the scrubbers through the stand-pipe connections 17 17'. As the gas works its way through the scrubber mechanism toward the main pipe 22 the same is subjected to the usual operation for freeing same of any impurities which may be contained therein. Such impurities as freed are conveyed toward the bottom of the scrubbers and escape through outlets 29' into the collector 30.

It is obvious that sooner or later during the manufacture and delivery of the gas to the

scrubber that the washing means will become "fouled" or "clogged," so to speak, with accumulated impurities, which must be freed therefrom. In the case of only a single washing device being employed it would be required that the flow of gas be stopped or cut off while such cleaning of the washing device is performed. However, by providing a series of such washing devices the manufacture and supply of the gas to the scrubbers is not interfered with, inasmuch as while one device is being cleaned the remaining washer is permitted to continue its work until the cleaning of its companion washer is accomplished. To clean one of the washers, it is only required to close the valve between the generator 2 and the desired washing trough or basin and the valve interposed between the said trough or basin and its connected scrubber. The covers and plugs of the various parts are then removed from the cut-out trough or basin to permit of access thereto for the cleaning thereof. The cutting out of one of the troughs or basins does not interfere with the manufacture and delivery of gas to the scrubber means, inasmuch as the companion washer is maintained in operation during the cleaning process. After one washing device has been cleaned it is placed into operation and the companion washer, if required, cut out and cleaned. By this arrangement it is not required to cut off the supply of gas during the cleaning of the washing means.

Access is had to the stand-pipes 17 17' by removing the caps 17<sup>2</sup>, which close the opening 17<sup>3</sup> in the cover-plates 13 immediately above the upper open end of said stand-pipes.

Having thus described the invention, what is claimed as new, and desired to be protected by Letters Patent, is—

1. In a gas plant, the combination with a generator, of scrubbers, a plurality of washing-receptacles arranged intermediate the same and slightly above the lower ends thereof, conduits extending inwardly and upwardly from the lower portion of the generator and communicating at their upper ends with the upper portion of the respective washing-receptacles, an outlet in the bottom of said inwardly-extended portion of the conduit adjacent the upwardly-extended portion, means whereby the passage through any of said conduits may be closed at will, and communication between the washing-receptacles and the scrubbers.

2. In a gas plant, the combination with a generator, of a scrubber, a plurality of washing-receptacles arranged intermediate the same, conduits extending inwardly and upwardly from the lower portion of the generator and communicating at the upper ends with the upper portion of the respective washing-receptacles, an outlet in the inwardly-extended portions of the conduits adjacent said up-



wardly-extended portions, a normally closed  
opening in the washing-receptacles immedi-  
ately above said upwardly-extended portions,  
means whereby the passage through any of  
5 said conduits may be closed at will, and com-  
munication between the washing-receptacles  
and the scrubber.

In witness whereof we have hereunto set our  
hands.

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Witnesses:

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