

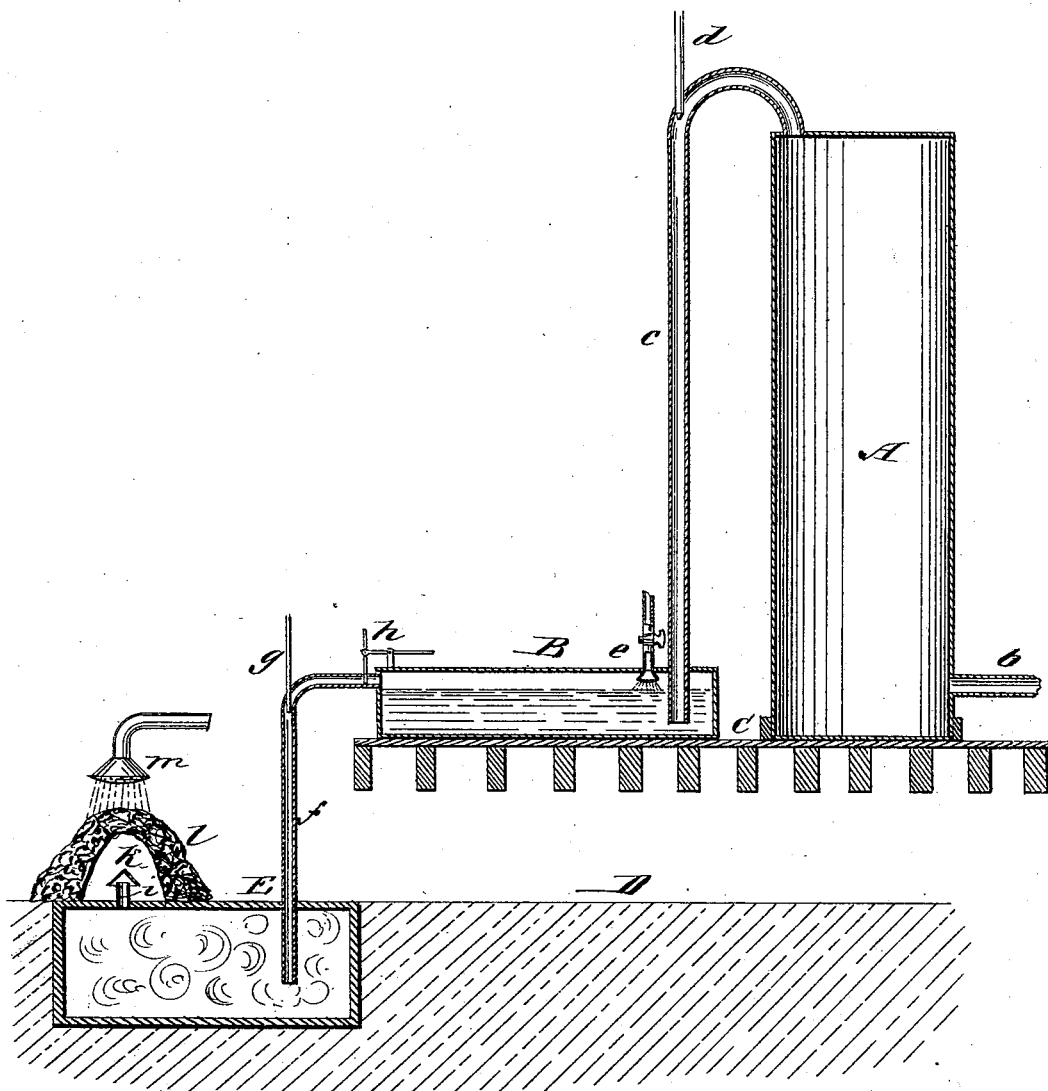
(No Model.)

T. D. DOTTERER.

MANUFACTURE OF SULPHURIC ACID.

No. 270.763.

Patented Jan. 16, 1883.



WITNESSES:

*Francis McArdle.*  
*C. Sedgwick*

INVENTOR:

*T. D. Dotterer*

BY

*Munn & Co*

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

THOMAS D. DOTTERER, OF CHARLESTON, SOUTH CAROLINA.

## MANUFACTURE OF SULPHURIC ACID.

SPECIFICATION forming part of Letters Patent No. 270,763, dated January 16, 1883.

Application filed September 12, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS D. DOTTERER, of Charleston, in the county of Charleston and State of South Carolina, have invented a new and useful Improvement in the Manufacture of Sulphuric Acid, of which the following is a full, clear, and exact description.

Heretofore in making sulphuric acid a large amount of the sulphuric-acid gas, which is generated in the acid-chambers, has been permitted to pass out into the atmosphere, generally by a tower such as that of Glover or Guy Lussac, and at a considerable elevation. This gas is blown off by the wind, and often has a very injurious effect upon various crops and vegetation generally. Under such provision, too, for the escape of the gas it has been very difficult to regulate the draft of the sulphur-burning furnaces. These objections I overcome by stopping off the gases on top of the chamber or tower into which they escape from the acid-chambers and drawing or forcing them down into a condenser or receiver, into which water is admitted, and from thence through a vapor bath supplied by steam and water jets, the whole giving a uniform pressure and draft, and the apparatus constituting what I term a "gas inspirator and condenser," the office of which is to regulate the draft of the acid-chamber and to condense the fumes at or near the surface of the ground, thereby placing them entirely under the control of the party having charge of the acid-chambers, or "acid-manager," as he is sometimes called.

Reference is to be had to the accompanying drawing, forming part of this specification, in which the figure represents a sectional elevation of an apparatus embodying my invention.

A in the drawing indicates the tower or chamber, into which the sulphurous gases from the acid-chambers are admitted below by one or more pipes, *b*. Instead of allowing said gases a free escape into the atmosphere by an elevated exit-pipe from the top of said chamber, as heretofore has been the case, I siphon or draw the same downward from the upper portion of the chamber A by a pipe, *c*, and steam-jet pipe, *d*, into a condenser, B. This condenser, which should be of considerable

length, is represented as arranged upon the first floor, C, of the building immediately above the ground-floor D, and is intended to be kept about three-fourths, more or less, full of water, which is introduced to it in a fine spray by a spray pipe or device, *e*. The pipe *c*, by which the gas is conveyed into the condenser, projects down below the surface of the water therein. From the condenser B the sulphurous gas or gases are passed by a pipe, *f*, and steam-jet pipe *g*, down into a vapor bath, E, which may be made of wood or other material, and be buried in the ground to receive all the gases before they are permitted to escape. A damper, *h*, which may be arranged near the outlet end of the condenser B, serves to regulate the pressure of the gases, and, combined with the steam-jet pipe *g*, or pipes *g* and *d*, controls the speed of the gases and draft of the acid-chambers.

The vapor bath E, into which the gases are drawn or forced by the pipe *f* and steam-jet pipe *g*, may have some little water settle in its bottom, but is generally charged with steam and gas, which pass off by an outlet-pipe, *i*. This pipe *i*, which is covered by a bonnet, *k*, is arranged to project up within a hollow mound, *l*, of coke or other suitable material that will hold moisture, and upon which a water-spray, by a spray-pipe or distributor *m*, is caused to play, the water percolating through the mound, and as it comes in contact with the hot gases, creating a fog or mist about the mound. I preferably build up the mound of coke over the exit-hole upon a frame-work of iron, wood, or other material, so that the vapor issuing from pipe *h* may be met with a spray of water. In this way or by these means the gases are condensed, purified, and deprived of most of all of their noxious properties, and the draft of the sulphur-burning furnaces is controlled.

The steam-jet pipes *d* *g*, as also the gas suction or draft pipes *c* *f*, and the water-spraying pipes or devices, may each or any of them be provided with suitable regulating cocks or valves.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In apparatus for manufacturing sulphuric acid, the combination, with the tower or cham-

55

60

65

70

75

80

85

90

95

100

ber A, through which the gases pass from the acid-chambers, of the downdraft or suction pipe *c* and steam-jet pipe *d*, the condenser B, the spray pipe or device *e*, the lower draft or suction pipe *f*, the steam-jet pipe *g*, and the vapor bath or receiver E, essentially as described.

2. In apparatus for manufacturing sulphuric acid, the bath E, into which the escaping gases are admitted conjointly with steam, and covered outlet *i*, in combination with the hollow mound of coke or other moisture-holding substance through which the escaping gases are free to percolate, and the water-spraying device *m*, substantially as specified.

3. In apparatus for manufacturing sulphuric acid, the combination, with the tower or chamber A, of the downdraft gas-pipe *c*, the steam-jet pipe *d*, the condenser B, provided with a water-spraying device, the vapor-bath E, with its outlet *i*, the downdraft pipe *f*, with its steam-jet pipe *g*, the damper *h*, the hollow mound *l*, and the spraying device *m*, essentially as and for the purposes herein set forth.

THOMAS D. DOTTERER.

Witnesses:

THAD S. EASON,  
S. G. HORSEY.