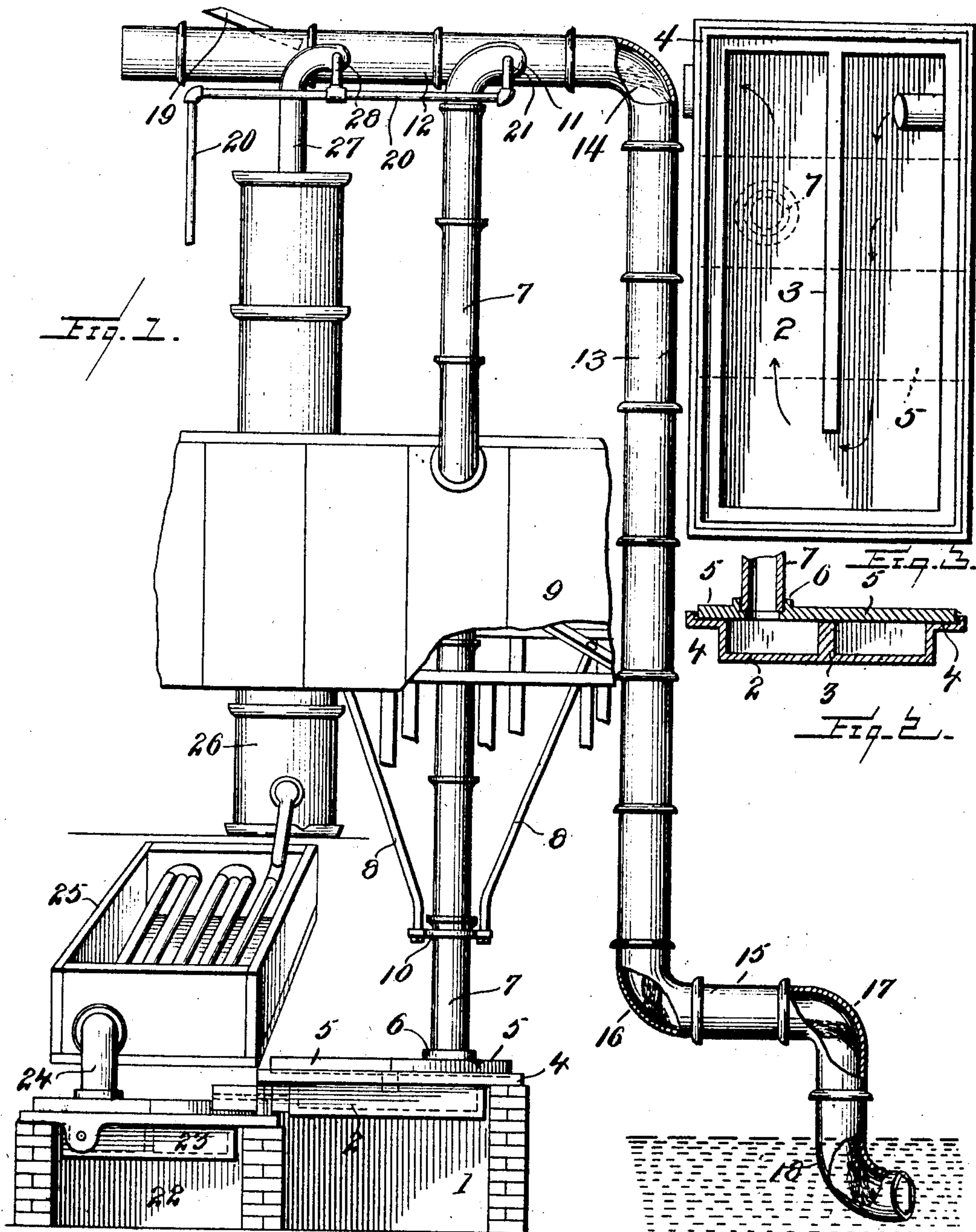


No. 871,749.

PATENTED NOV. 19, 1907.

H. AUCHU.
GAS CONDENSER.
APPLICATION FILED MAR. 19, 1907.



WITNESSES:

Wm. F. Hoyle
Alfred T. Page

INVENTOR

Henry Auchu
By *E. B. Stocking*
Attorney

UNITED STATES PATENT OFFICE.

HENRY AUCHU, OF EMPORIUM, PENNSYLVANIA

GAS-CONDENSER.

No. 871,749.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed March 19, 1907. Serial No. 363,252.

To all whom it may concern:

Be it known that I, HENRY AUCHU, citizen of the United States, residing at Emporium, in the county of Cameron, State of Pennsylvania, have invented certain new and useful Improvements in Gas-Condensers, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to a gas condenser, and particularly to an apparatus by which the obnoxious gases from industrial enterprises which tend to contaminate the atmosphere may be condensed and controlled.

15 The invention has for an object to provide means for conveying the gases and fumes from acid liquid treating apparatus, and smoke or other deleterious gases arising from exhaust flues or chimneys to a conducting pipe through which a stream of water passes and by the deflection of the course of the liquid to thoroughly absorb the gases therein and to discharge them at a proper point to prevent their emerging into the atmosphere which is detrimental to animal life and vegetation and thereby relieving the surrounding air of all objectionable gases in the vicinity of industrial enterprises.

25 A further object of the invention is to provide an improved construction of a heating pan in connection with which the conducting stack is disposed.

30 Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

35 In the drawing:—Figure 1 is an elevation of the apparatus with parts of the conducting pipe in section; Fig. 2 is a detail section through the acid heating pan, and Fig. 3 is a plan of the pan with cover plates in dotted lines.

Like numerals refer to like parts in the several views of the drawing.

40 In the apparatus illustrated in Fig. 1 two forms of acid heating pan are shown, the one on the right comprising the furnace 1, of any desirable character, having disposed at its upper portion the pan 2 which is formed of heavy cast metal provided with the central support 3. At the edges of this pan the supporting flange 4 is provided upon which the outer edges of the tile covers 5 rest, the meeting edges of these covers being supported by the portion 3. One of these covers is provided with a seat 6 in which the lower end of

the stack 7 is disposed. This stack is formed of any desired material, preferably of heavy cast iron pipe sections tightly connected together, and the weight thereof may be supported by hangers 8 extending downwardly from the roof structure 9 of the building and connected to the lower pipe section as shown at 10. This stack and the cover tiles are suitably set in cement to effect a tight joint about the pan and prevent the escape of any acid fumes at that point.

60 The upper end of the stack 7 communicates at 11 with the conducting pipe 12, this pipe being disposed with the different portions thereof at an angle to each other, for instance, the section 13 connected by an elbow 14 with the section 12 and disposed at a right angle thereto, while the section 15 is connected by an elbow 16 with the lower end of the section 13, and also by an elbow 17 with the discharge section 18 partially or completely submerged as may be desirable. This conducting pipe is supplied with a stream of water from any desired source, for instance the nozzle 19 at the upper portion, which owing to the deflections of the pipe bring the water and gases into intimate contact thus absorbing the acid fumes in the body of liquid. Under some conditions it is desirable to produce a draft from the pan to assist in withdrawing the fumes through the stack, and this may be accomplished by means of the air or steam pipe 20 having the connection 21 at the upper portion of the stack 7.

75 In the form of the invention shown at the left of Fig. 1, the furnace 22 is provided with the pan 23 similar in construction to the pan 2 from which the conducting pipe 24 extends to the condenser 25 and from thence to the usual coke filled tower 26 which at its upper end is provided with the fume stack 27 communicating with the conducting pipe 12 and also with the draft pipe 20 by means of the connection 28.

80 This invention effectually frees the atmosphere from the slightest trace of escaping gases from an acid treating plant which in the case of such acids as nitric and sulfuric are absolutely destructive to both animal life and vegetation and very offensive when emerging into the atmosphere so that much expense and difficulty has been experienced in conducting such works in any populated locality. The condenser provides means to prevent the escape of hot acid fumes into the

open air and conducts these fumes to a pipe where they are brought into contact with a stream of water which rapidly absorbs the hot acid gases and discharges them into an adjacent creek, tank or at any other point at which the lower end of the pipe is submerged. The deflection of the conducting pipe forces the water passing therethrough to shoot across the internal diameter of the vertical sections thus exposing a greater surface area to the action of the fumes so that when discharged they are thoroughly absorbed by the water.

The apparatus is designed to condense and absorb those fumes which naturally escape into the atmosphere after all of the easily condensed gases are condensed and converted into their respective liquids, and is particularly adapted for use in boiling acid to remove the water therefrom. Under some conditions it is desirable to produce a draft or suction from the heating pans and to assist in forcing the fumes through the conducting pipe, and for this purpose a jet of steam or air is forced into either the stack or conducting pipe at any desired point.

It will be obvious that the invention is applicable to any form of acid treating apparatus and is particularly adapted for that herein illustrated and described.

Having described my invention and set forth its merits, what I claim and desire to secure by Letters Patent is:—

1. The combination with a gas discharging stack, of a conducting and absorbing

pipe located at and connected with the top of said stack and extended in straight lines laterally and vertically downward, the sections of said extension being united by curved connections, and a water supply connected to the upper portion of said absorbing pipe and having a capacity less than that of said pipe.

2. The combination with a gas discharging stack, of a conducting pipe located at and connected with the top of said stack and comprising straight sections connected at their intersections and extending laterally and vertically downward from said stack, the downward section of said pipe being of greater length than the lateral section thereof, and a water supply connected to the upper portion of said pipe and having a capacity less than that of the pipe.

3. The combination with a gas discharging stack, of a conducting and absorbing pipe located at and connected with the top of said stack, said pipe comprising straight sections connected at their intersections and disposed at an angle to each other, a water supply at the upper portion of said pipe and having a capacity less than the pipe, and a blast jet connected with the upper portion of said stack.

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

HENRY AUCHU

Witnesses.

GEO. P. JONES,

H. A. Cox.