

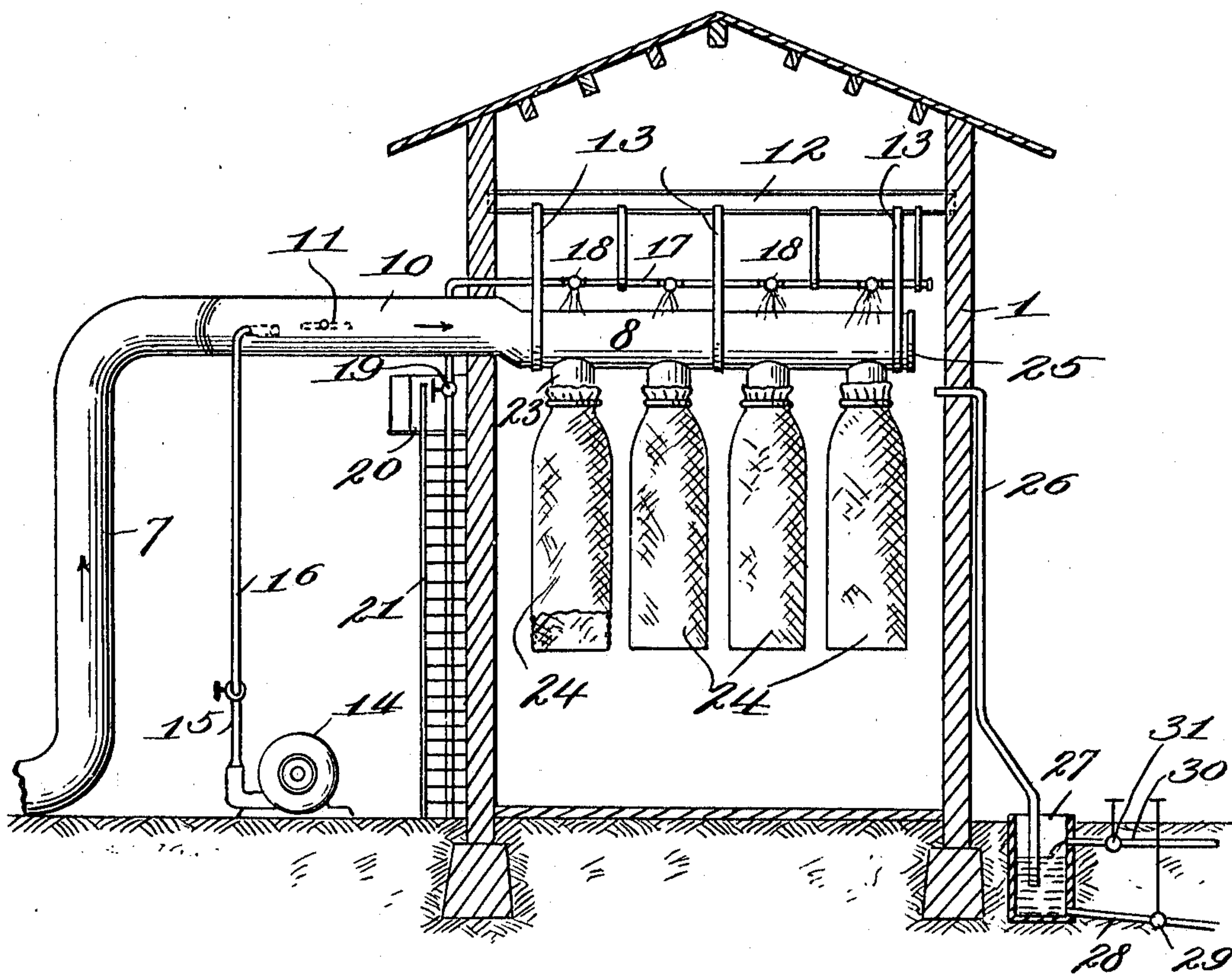
P. MARRON.  
SMOKE CONDENSING AND GAS OR FUME ABSORBER.  
APPLICATION FILED NOV. 18, 1909.

952,992.

Patented Mar. 22, 1910.

2 SHEETS—SHEET 1.

*Fig. 1.*



Witnesses:  
*Ed. Kessler*  
*W. D. Kessler*

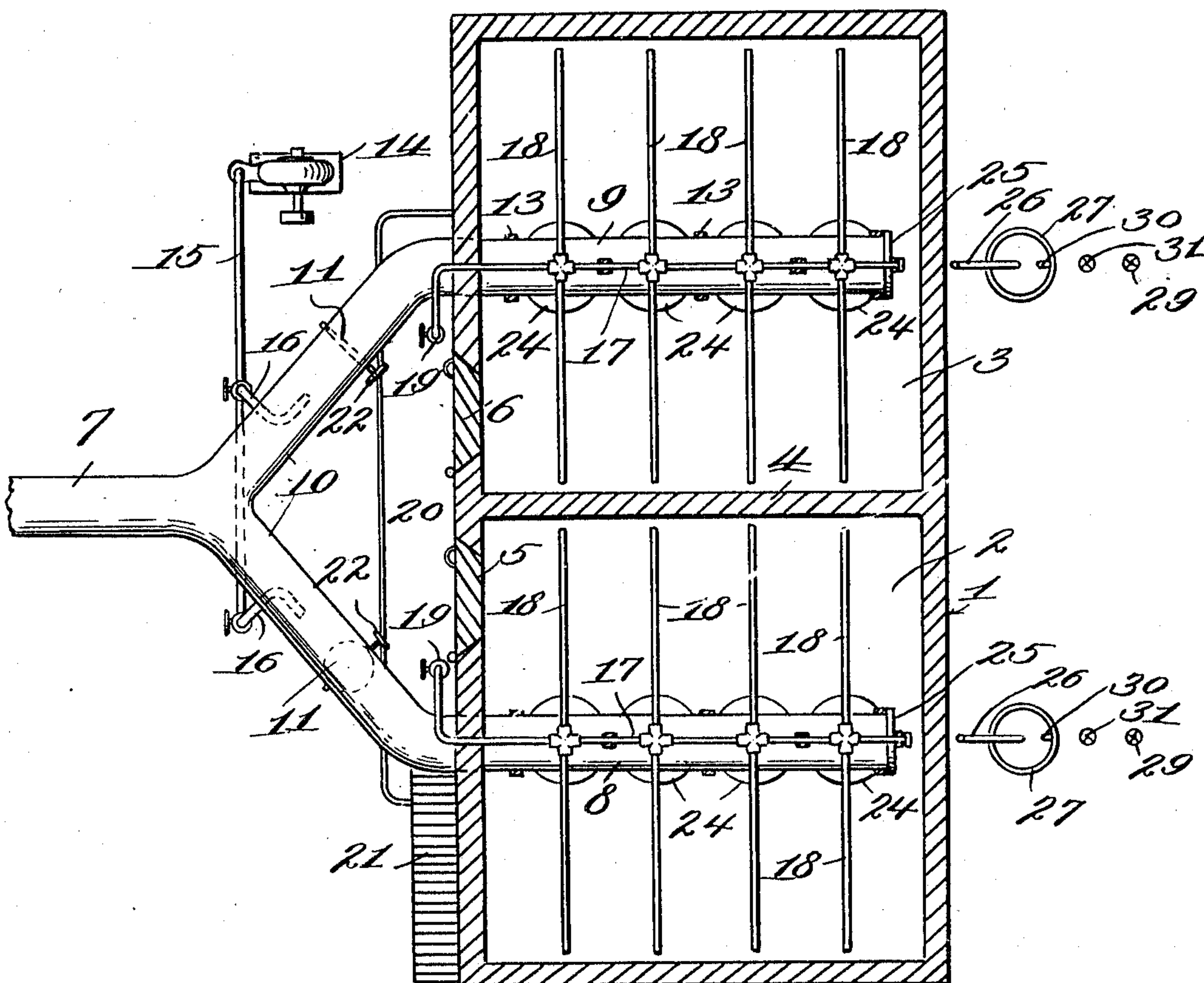
Inventor  
Peter Marron  
By *James L. Norris*

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2 SHEETS—SHEET 2.

Fig. 2.



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*Peter Marron*  
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# UNITED STATES PATENT OFFICE.

PETER MARRON, OF BUTTE, MONTANA.

SMOKE-CONDENSING AND GAS OR FUME ABSORBER.

952,992.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed November 18, 1909. Serial No. 528,795.

*To all whom it may concern:*

Be it known that I, PETER MARRON, a citizen of the United States, residing at Butte, in the county of Silverbow and State of Montana, have invented new and useful Improvements in Smoke-Condensing and Gas or Fume Absorbers, of which the following is a specification.

This invention relates to smoke condensers and fume absorbers particularly adapted for coöperation with the smoke stacks of smelters.

The essential object of the invention is to provide means to avoid the trouble and annoyance incident to the dissemination of smoke and fumes or gases in the vicinity of smelters and also to avoid the injury that usually results to vegetation and live stock by broadcast liberation of the smoke and gases from a smelter, and further to recover valuable metals or other substances carried off with the smoke from a smelter and which in ordinary smelters become lost.

The invention consists in the construction and arrangement of the several parts which will be more fully hereinafter specified.

In the drawings: Figure 1 is a transverse vertical section through a portion of a smoke condenser and fume or gas absorber embodying the features of the invention. Fig. 2 is a horizontal section of the same.

Similar characters of reference are employed to indicate corresponding parts in the views.

The numeral 1 designates a building or inclosure constructed of any suitable material and rendered perfectly air-tight at all points, and as shown by Fig. 2 this building or inclosure is preferably divided into two compartments 2 and 3 by a central partition 4. Access may be gained to the compartments 2 and 3 by tight-fitting doors 5 and 6, one to each compartment as shown.

The stack 7 from a smelter or analogous furnace is projected away from the latter any suitable distance and merges into two branches 8 and 9 respectively terminating within the compartments 2 and 3 and connected to the stack by a Y-pipe 10 having dampers 11 therein to cut off the branch pipes 8 and 9 from the projected or extended stack 7 and so that either one or both of the said branch pipes may operate as a means for conveying smoke and fumes or gases into their respective compartments for the purposes of condensation and absorp-

tion, as will be more fully hereinafter explained. Each branch pipe within the compartments 2 and 3 is supported from a beam 12 by hangers 13 secured to the beam and embracing the branch pipe below, as clearly shown by Fig. 1. A blower 14 is provided and has a pipe or conduit 15 connected thereto and extending upwardly to the Y-pipe 10. Valved injectors 16 consisting of suitable bent pipe lengths are connected to the pipe 15 and projected into the branches of the Y-pipe 10, the outlet extremities of these injectors being directed toward the branch pipes 8 and 9 so as to inject a blast of air simultaneously in both branch pipes or in one of the latter in accordance with the open or closed condition of the valves of the injectors. Over each branch pipe 8 and 9 a water-spraying means is disposed and consists of a main supply pipe 17 extending transversely of the compartment above the longitudinal center of the branch pipe below and having a plurality of longitudinal distributing arms 18 extending therefrom, the under portions of the supply pipe 17 and distributing arm 18 being perforated at intervals to provide spraying apertures which practically cover the entire horizontal area of the compartment. The supply pipes 18 extend outwardly through the front of the inclosing structure 1 and have cut-off valves 19 accessible from a metal gallery 20 disposed at a suitable elevation along the front portion of the inclosing structure 1, the said gallery being reached from the ground surface through the medium of a stairway or ladder 21 at one end thereof. The operating knobs or handles 22 of the dampers 11 are also accessible from the gallery as shown by Fig. 2. The supply pipes 17 continue downward through the gallery and may be connected to a suitable main or other water source.

Each of the branch pipes has a plurality of depending outlet funnels or members 23 upon which are secured suitable textile tubes 24, canvas being preferably employed for this purpose. These textile tubes have open bottoms and operate to carry the fumes downwardly toward the floor of each compartment so that the water spray will cool the said fumes before they rise toward the roof. The tubes are removably applied to the funnels or outlet members 23 and may be separated from the latter if desired. The free extremity of each branch pipe is fully



closed as at 25 by a suitable cap or head and the only escape, therefore, of the products of combustion and gases or fumes from either of the branch pipes is into the several tubes, the gases or fumes being driven through the tubes by the air blast coming into the Y-pipe 10, as hereinbefore explained.

Each compartment is also provided with a gas or fume escape means, consisting of a pipe 26 opening into the upper portion of the compartment at a point slightly below the position of the branch pipe from which the tubes are suspended. This outlet pipe 26 extends downwardly exteriorly of the inclosure or building 1 and has its lower end disposed in a water trap or receptacle 27 supplied with a bottom outlet 28 having a valve 29 and also provided with an inflow pipe 30 extending through the upper portion thereof and valved as at 31. The lower extremity or end of the pipe 26 is submerged far enough in the water in the trap or receptacle 27 to effect a thorough absorption of the gases or fumes conveyed from the compartment with which the pipe 26 communicates, each of the compartments 2 and 3 being equipped with a similar gas or fume escape and absorbing means.

The operation of the smoke condenser and gas or fume absorber will be readily understood from the foregoing description. It will also be appreciated that either one or both compartments 2 and 3 may operate individually or simultaneously, and the water spray in each compartment operates to condense the gases to a certain extent and also to precipitate substances or products of combustion forced through the tubes so that only the gases resisting condensation and the fumes or obnoxious odors will escape from the compartments into the water traps where they are absorbed.

The improved apparatus will be found exceptionally proficient in performing the functions for which it has been devised and can be installed at a comparatively small cost. It is also obvious that changes in the proportions, dimensions, number of compartments and equipments for the latter as well as the minor details of construction may be adopted without departing from the spirit of the invention.

Having thus fully described the invention, what is claimed as new, is:

1. In an apparatus of the class specified, the combination of an inclosure having a tight compartment, a smoke and gas or fume

conveying means horizontally projected into said compartment and provided with a plurality of depending outlets, textile tubes removably applied over the said outlets and terminating at a distance above the bottom of the compartment, a water spraying means above said conveying means and textile tubes, and an escape means consisting of an exterior pipe communicating with the upper portion of the compartment and having its lower extremity immersed in a quantity of liquid.

2. In an apparatus of the class specified, an inclosure having a tight compartment, a smoke and gas or fume conveying means horizontally projected into the upper portion of said compartment, an air injector communicating with said conveying means exteriorly of the compartment, a plurality of textile tubes suspended from the lower portion of the conveying means within the compartment and terminating above the bottom of the latter, a water spraying means above the conveying means and textile tubes, and an escape pipe communicating with the upper portion of the compartment and extending downwardly exteriorly of the inclosure and having its lower extremity immersed in liquid.

3. In an apparatus of the class specified, the combination of an inclosure provided with tight compartments, a projected smoke stack having branches horizontally extending into the compartments and provided with controlling dampers whereby the material passing through the stack may be caused to enter either one or both of the branches, a plurality of textile tubes removably applied to and suspended from the lower portions of the branches and communicating with the latter, the tubes terminating above the bottoms of the compartments, water spraying means disposed above the branches within the compartments, and escape means consisting of pipes communicating with the upper portions of the compartments and extending exteriorly of the inclosure and having their lower extremities submerged in a quantity of liquid.

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

PETER MARRON.

Witnesses:

ALEXANDER COLLINS,  
HARRY H. HART.