

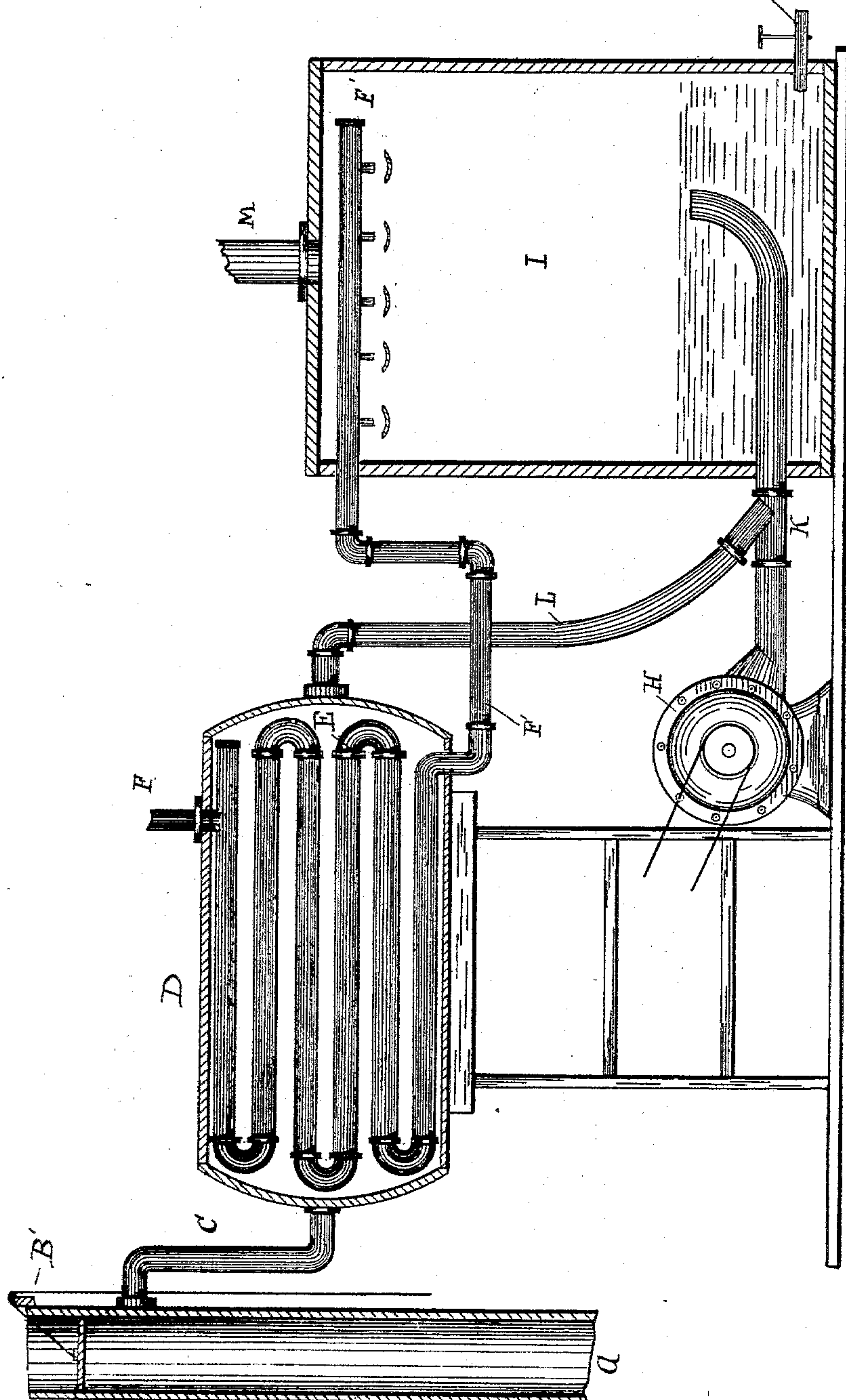
(No Model.)

A. E. GRIFFITHS.

APPARATUS FOR CONDENSING FUMES, VAPORS, &c.

No. 596,996.

Patented Jan. 11, 1898.



WITNESSES

C. K. Davies,

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# UNITED STATES PATENT OFFICE.

AMOS E. GRIFFITHS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE UNITED SMOKE AND VAPOR CONDENSING COMPANY, OF NEW JERSEY.

## APPARATUS FOR CONDENSING FUMES, VAPORS, &c.

SPECIFICATION forming part of Letters Patent No. 596,996, dated January 11, 1898.

Application filed November 18, 1896. Renewed June 18, 1897. Serial No. 641,386. (No model.)

*To all whom it may concern:*

Be it known that I, AMOS E. GRIFFITHS, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Condensing Fumes, Vapors, &c., of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to apparatus for condensing fumes, vapors, and the like, and is an improvement on the apparatus described in my Patent No. 235,148, of December 7, 1880.

15 The object of the invention is to produce an apparatus by which the gases of combustion or distillation, noxious fumes from metallurgic or other furnaces, and vapors, &c., can be condensed, purified, or concentrated at a minimum of cost.

20 The figure is a longitudinal vertical section, with parts in elevation, of the essential elements of my improved machine.

25 A indicates a chimney, flue, or stack or other receptacle or passage for noxious or other vapors. B indicates a valve in said stack, which may be closed or opened or partly opened by a connection B'.

30 C is a pipe from the flue or stack, below valve B, to the precipitating chamber, drum, or receptacle D.

35 The precipitating chamber or drum D is preferably a metallic shell, in which the water-pipe E is coiled or arranged in zigzags, so as to present a large radiating-surface. This coil or zigzag receives its water from the supply-pipe F, and after passing through the coils the pipe F' enters the upper part of chamber I and the water escapes in sprays or showers from suitable openings in the pipe 40 or pipes within said chamber. The passage of the water through the coils E has the effect of lowering the temperature of hot gases within drum D, and of course correspondingly heats the water passing through the coils.

45 The hot gases, fumes, or vapors are taken from the shell or drum D and conducted to the condensing-chamber I by means about to be described.

50 The fan-blower or other air-motor H connects to a pipe K, which extends into the

lower part of chamber I and then turns upward. The pipe L leads from the drum D into the pipe K and joins the latter, preferably at an acute angle. The fan-blower H is driven by any suitable power and propels air 55 or gas from any suitable source of supply through the pipe K. The gases or vapors from drum D are drawn into the pipe K and injected into the lower portion of the condensing-chamber I. Water or a liquid solution is 60 carried in the bottom of chamber I, preferably above the upturned mouth of pipe K, and the air and gases injected into said chamber rise through the liquid and are met by the falling showers from pipe F'. The gases or 65 vapors other than air are almost wholly condensed, and if there are valuable properties in the gases the same can be extracted from the water. The air escapes from pipe M practically pure and free from noxious odors and 70 vapors. There may be an outlet-pipe P provided with a cock.

The illustration is merely a diagram intended to guide the skilled mechanic and is in no way intended to illustrate the relative 75 proportions of the apparatus.

The liquid can be withdrawn from chamber I in any suitable way, as by outlet P, and the elements absorbed or condensed therein can be recovered by suitable mechanical or chemical means. 80

What I claim is—

1. The precipitating-drum and means for propelling the gases or fumes therein, the coiled pipe within said drum connections for 85 conducting liquid to said coil, and from said coil to the sprayer within the condensing-chamber, the condensing-chamber having a liquid within its lower portion, and a gas-pipe leading from the drum to the lower part of 90 the condensing-chamber, all combined substantially as described.

2. In a vapor-condenser, the precipitating-drum having a supply-pipe leading from the source of vapor-supply, a pipe leading from 95 said drum and having an air-motor connected thereto, said pipe leading to the condensing-chamber, and the liquid-supply pipe leading through the said drum and terminating in a sprayer in the upper part of said condensing- 100



chamber, all combined substantially as described.

3. In a vapor-condenser, the precipitating-drum and means for propelling gases or fumes  
5 therethrough and into the condensing-chamber, the condensing-chamber and liquid therein, and the liquid-supply pipe conducted as a coil through the precipitating-drum and ter-

minating in the condensing-chamber, all combined substantially as described. 10

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

AMOS E. GRIFFITHS.

Witnesses:

F. VAN GUNTEN,

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