

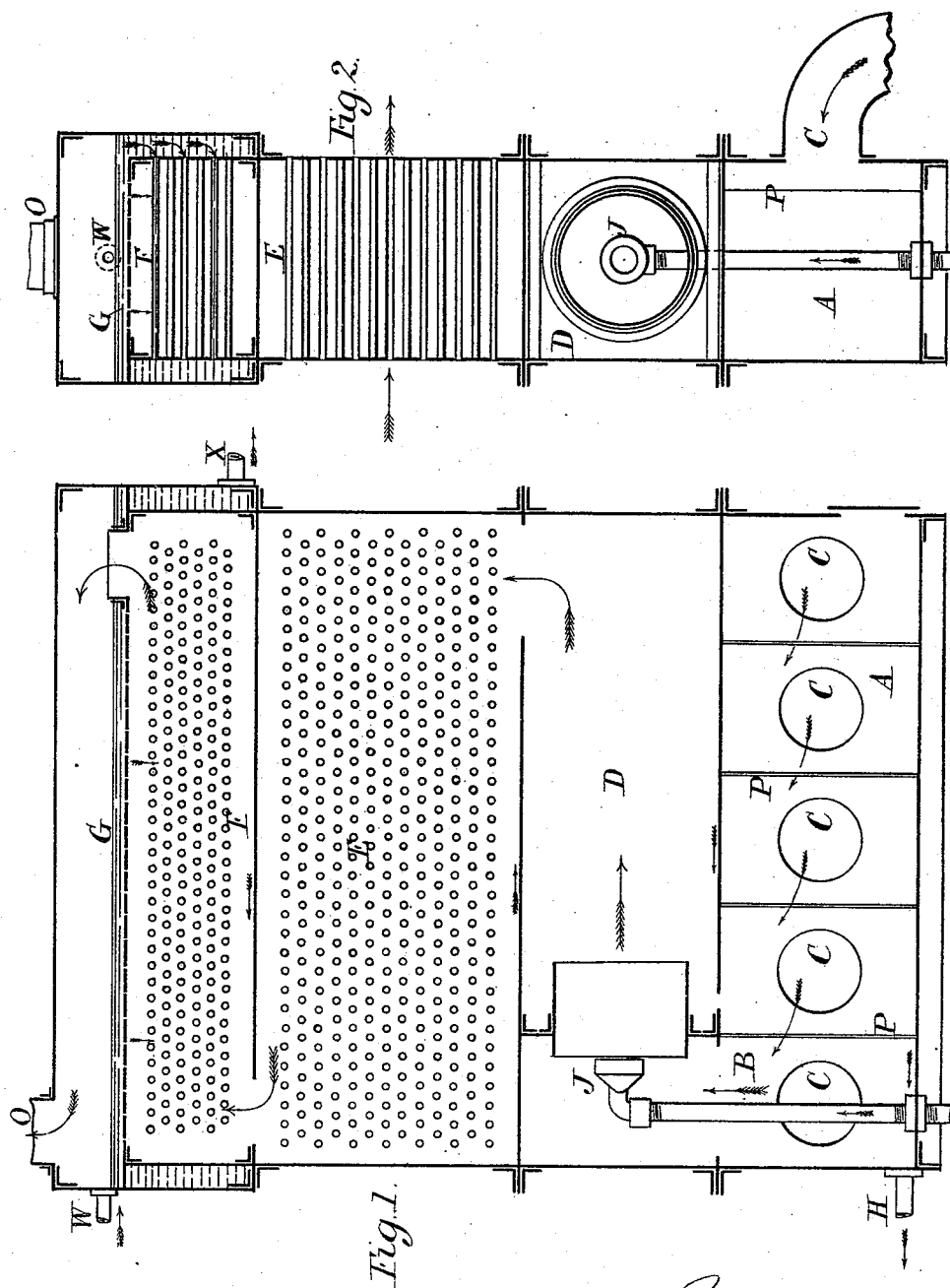
(No Model.)

E. E. DULIER.

APPARATUS FOR REMOVING IMPURITIES FROM SMOKE.

No. 490,550.

Patented Jan. 24, 1893.



Witness:  
J. A. Rutherford.  
Robert Cornett.

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# UNITED STATES PATENT OFFICE.

EDWARD E. DULIER, OF LONDON, ENGLAND.

## APPARATUS FOR REMOVING IMPURITIES FROM SMOKE.

SPECIFICATION forming part of Letters Patent No. 490,550, dated January 24, 1893.

Application filed November 11, 1891. Serial No. 411,564. (No model.) Patented in England April 6, 1891, No. 5,908; in France November 2, 1891, No. 217,159; in Belgium November 3, 1891, No. 97,052; in New South Wales December 7, 1891, No. 3,454, and in Victoria December 21, 1891, No. 9,286.

*To all whom it may concern:*

Be it known that I, EDWARD EUGENE DULIER, a citizen of Belgium, residing at No. 27 Sloane Gardens, Chelsea, London, England, have invented new and useful Improvements in Apparatus for Removing Impurities from Smoke, (for which I have obtained Letters Patent in Great Britain, dated April 6, 1891, No. 5,908; in France, dated November 2, 1891, No. 217,159; in Belgium, dated November 3, 1891, No. 97,052; in Victoria, dated December 21, 1891, No. 9,286, and in New South Wales, dated December 7, 1891, No. 3,454,) of which the following is a specification.

My invention relates to apparatus for removing the impurities from smoke which issues from chimneys of houses, factories or other establishments, and it consists in the combination and arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1, is a longitudinal vertical section of my improved apparatus, and Fig. 2, is a transverse section thereof.

In said drawings the reference letter A, designates a chamber into which open the chimneys C, C. Between each pair of chimneys a narrow plate P projects into the chamber these plates acting as checks to prevent the smoke which issues from the chimneys from turning abruptly toward the outlet B at the end of the chamber.

D is a section chamber having a circular inlet provided with multiple jets J constituting a steam ejector. The steam issuing from these jets creates a draft drawing the smoke from the chimneys C and mingles with the smoke in the chamber D. From this chamber, the mixture of smoke and steam passes into a third chamber E around and between a number of tubes open at both ends—so that wind can pass through them keeping them cool. By these cool tubes the steam is more

or less condensed, and the smoke mixture which may still contain a proportion of uncondensed steam passes finally through a fourth chamber F around and between a number of tubes through which water passes. This water is admitted by a pipe W to form a layer on the cover plate G of the chamber F whence it descends at the one side to pass through the tubes in F and flows away by a pipe X. I prefer to provide in the plate G perforations through which a portion of the water can descend trickling on the tubes in F. This water, and such additional water as results from the condensation of the steam descends through the chambers E, D and A and finally passes away by a pipe H entrapping and carrying with it the solid impurities of the smoke while the colorless gases pass away by the outlet O at the top of the apparatus.

Having thus described my invention what I claim is:

In an apparatus for removing the impurities from smoke, the combination of a chamber A, having communication with source of smoke, a chamber D communicating therewith, a steam injector for injecting steam into said chamber D, and chambers E and F, having communication with the chamber D, said chambers E and F, provided with cooling surfaces, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 29th day of October, A. D. 1891.

EDWARD E. DULIER.

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