

Specification of Henry James Ditmars : apparatus for consuming smoke.

Contributors

Ditmars, Henry James.

Publication/Creation

London : Great Seal Patent Office, 1868 (London : George E. Eyre and William Spottiswoode)

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A.D. 1868, 7th APRIL. N^o 1166.

SPECIFICATION

OF

HENRY JAMES DITMARS.

APPARATUS FOR CONSUMING SMOKE.

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

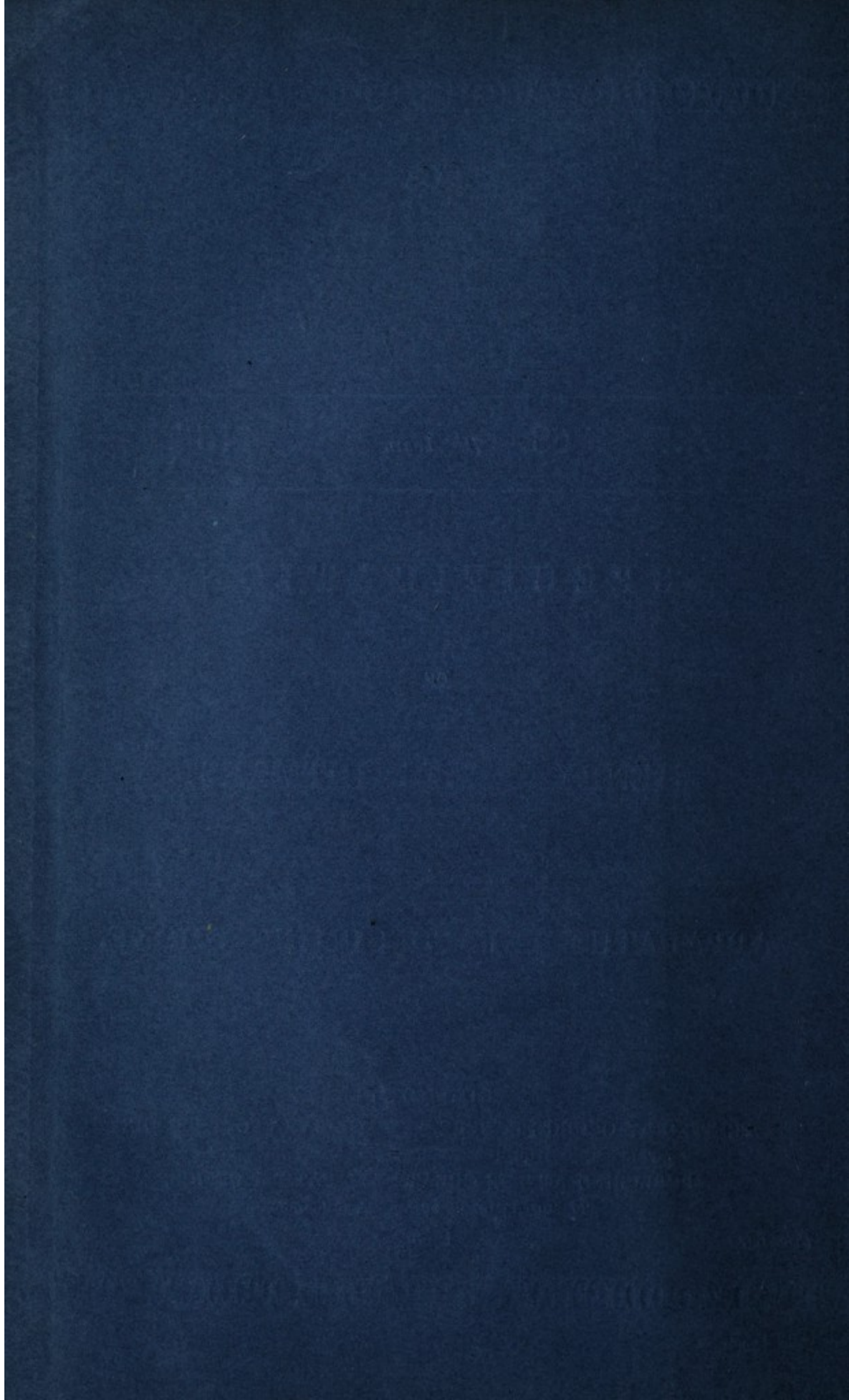
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1868.





A.D. 1868, 7th APRIL. N° 1166.

Apparatus for Consuming Smoke.

LETTERS PATENT to Henry James Ditmars, of 4, Pancras Lane, in the City of London, for the Invention of "**IMPROVEMENTS IN APPARATUS FOR THE CONSUMPTION OF SMOKE.**"—A communication from abroad by Augustus Wilhelms and Johannes Marinus Van der Made, both of Dordrecht, Netherlands.

Sealed the 2nd October 1868, and dated the 7th April 1868.

PROVISIONAL SPECIFICATION left by the said Henry James Ditmars at the Office of the Commissioners of Patents, with his Petition, on the 7th April 1868.

I, **HENRY JAMES DITMARS**, of 4, Pancras Lane, in the City of London, do hereby declare the nature of the said Invention for "**IMPROVEMENTS IN APPARATUS FOR THE CONSUMPTION OF SMOKE,**" to be as follows:—

This Invention relates to the construction of a chimney adapted either to fixed, locomotive, steamboat, or other furnaces or fire-places, kilns or ovens, and consists in attaching to the end of the flue a pipe which connects the same to a chamber having therein a metallic double cone which is retained in position by suitable supports. This chamber with the contents just described the inventor designates a

Ditmars' Improvements in Apparatus for Consuming Smoke.

“rectifier.” The upper part of the rectifier is contracted and continued in the form of a pipe which may vary considerably in length according to the nature of the furnace to which it is applied. On the top of the last-mentioned pipe a spherical wire net or grating is fixed carrying a double metallic cone on its summit. 5

The action of the apparatus is as follows:—When the fire in the furnace is first lighted and the air in the rectifier and chimney is cold there is but slight draught, but as the draught is increased the rectifier becomes so highly heated that the smoke in its passage from the flue to the chimney becomes decomposed and the incombustible 10 gases pass up into the open air, the cone and wire grating at the top assisting in this effect by preventing any down draught. It is necessary that the cones and the pipes should bear certain relative proportions to each other, but the size of the pipes will vary according to the size of the furnace and the kind of fuel employed. 15

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Henry James Ditmars in the Great Seal Patent Office on the 7th October 1868.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, HENRY JAMES DITMARS, of 63, King William Street, late of 4, Pancras Lane, in 20 the City of London, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Seventh day of April, in the year of our Lord One thousand eight hundred and sixty-eight, in the thirty-first year of Her reign, did, for Herself, Her heirs and successors, give 25 and grant unto me, the said Henry James Ditmars, Her special licence that I, the said Henry James Ditmars, my executors, administrators, and assigns, or such others as I, the said Henry James Ditmars, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term 30 therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for “**IMPROVEMENTS IN APPARATUS FOR THE CONSUMPTION OF SMOKE,**” being a communication to me

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from abroad by Augustus Wilhelms and Johannes Marinus Van der Made, both of Dordrecht, Netherlands, upon the condition (amongst others) that I, the said Henry James Ditmars, my executors or administrators, by an instrument in writing under my, or their, or one of their
5 hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

10 **NOW KNOW YE**, that I, the said Henry James Ditmars, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement, reference being had to the accompanying Drawing, and to the letters marked thereon, that is to say:—

15 This Invention relates to the construction of a chimney adapted either to fixed, locomotive, steamboat, or other furnaces or fire-places, kilns, ovens, or other apparatus from which smoke is under ordinary circumstances emitted, and consists in attaching to the end of the furnace flue or chimney a pipe A, Fig. 1 in the Sheet of Drawings
20 annexed, which connects the same to a chamber B having therein a metallic double cone C, which is retained in position by suitable supports D. This chamber with the contents just described the inventors designate a "rectifier." The upper part of the rectifier is contracted and continued in the form of a pipe E, which may vary
25 considerably in length according to the nature of the furnace to which it is applied, but about fourteen feet is considered ample for fires of ordinary magnitude and heat. On the top of the last-mentioned pipe a spherical wire net or grating F, Fig. 2, is fixed carrying a metallic double cone G on its summit, in the manner shown in the Drawing. The
30 chimney may be made of iron plate, brick, or other suitable material up to the rectifier, but the rectifier itself is preferred to be constructed of iron. The dimensions of the different parts are determined by the nature of the fuel employed, and the quantity consumed in a given time. The tube E however must always be larger than the pipe A,
35 and the diameter of the cones should equal the radius of the pipes over which they respectively stand, and their bases should be fixed at a distance of twice the diameter above the opening of each of the tubes. The iron cap or wire grating is twice the diameter of the

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tube over which it is placed. The cone C being fixed in accordance with the foregoing directions the height of the rectifier is at once determined, and the whole will then wear the proportion and general appearance as shown in the illustrations, and be about 35 feet in height from bottom to top. Fig. 2 is an elevation of the apparatus, 5 and shows a door H through which the ash which will collect in that part of the rectifier marked I may be removed. It is sometimes necessary however to surround or partially so the rectifier with brick or other material, so as to retain the heat and prevent radiation and consequent loss. 10

The action of the apparatus is as follows:—When the fire is first lighted the draught is but slight as in furnaces generally, but sufficient to set all the fuel on fire in a few minutes and the heat to ascend into B, which soon becomes hot and stimulates the draught thereby. The temperature in B very shortly attains so high a heat that it 15 becomes necessary to regulate it by a damper or other suitable contrivance, and if well managed any kind of combustible may then be consumed without the slightest smoke being visible at the wire cap at the top of the chimney. This wire cap and cone have the effect of separating the warm air inside of the tube E from the 20 exterior atmosphere and averting it from the chimney opening. From the foregoing it is inferred that when the fire is lighted, and the rectifier has attained a sufficiently high temperature, the pure carbon separates itself from the incombustible gases and ash. The gases pass up through the tube E while the ash falls into that part 25 of the chamber marked I. The pure carbon then fills the whole space of the rectifier and causes a separation between the cold and warm temperature, consequently no heat from the fire is allowed to pass, but is retained in the furnace and there consumes all the smoke. By the adoption of these improved means a great saving is effected 30 in the construction of chimneys, especially for large furnaces, and considerable economy in the quantity of fuel consumed.

Having now described and particularly set forth the nature of this Invention, and the manner in which the same is or may be carried into effect, I would observe in conclusion that I do not confine or restrict 35 myself to the precise details or arrangements which I have described or referred to, as variations may be made therefrom without deviating from the principles or main features of this Invention; but what I consider

Ditmars' Improvements in Apparatus for Consuming Smoke.

to be novel and original, and therefore claim as the Invention secured to me by the herein-before in part recited Letters Patent is, the construction of apparatus for the consumption of smoke, substantially as herein described.

5 In witness whereof, I, the said Henry James Ditmars, have hereunto set my hand and seal, this Seventh day of October, in the year of our Lord One thousand eight hundred and sixty-eight.

H. J. DITMARS. (L.S.)

LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1868.

Dixons' Apparatus for Consuming Smoke.

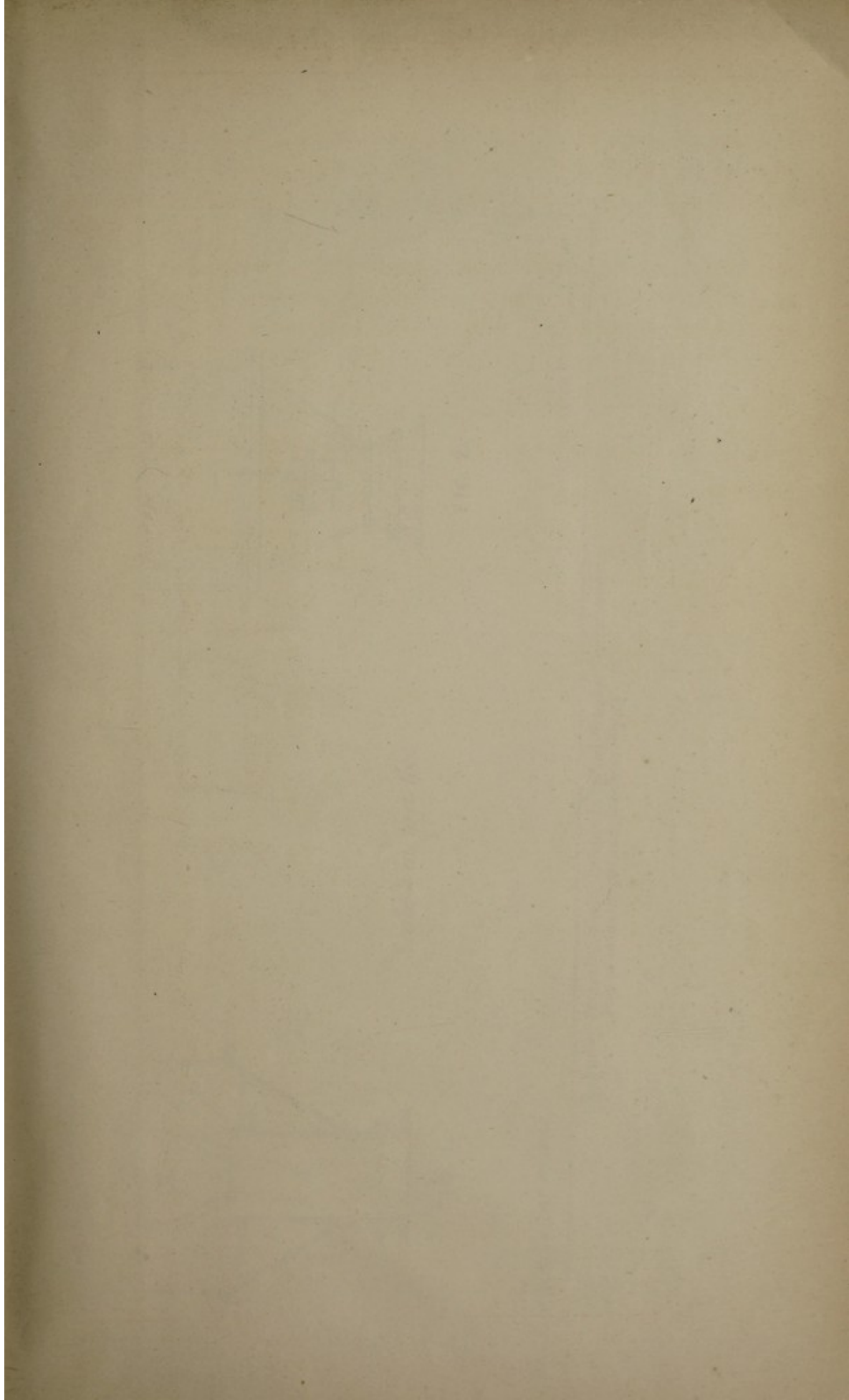
to be novel and original, and therefore claim as the invention secured to me by the herein-before in part recited Letters Patent is the combination of apparatus for the consumption of smoke, substantially as herein described.

In witness whereof, I the said Henry James Dixons, have hereunto set my hand and seal, this Seventh day of October, in the year of our Lord One thousand eight hundred and sixty-eight.

H. J. DIXONS. (Sd.)

LONDON:

Printed by GEORGE HOWARD EYRE and WILLIAM STODDART, Printers to the Queen's most Excellent Majesty, 1868.



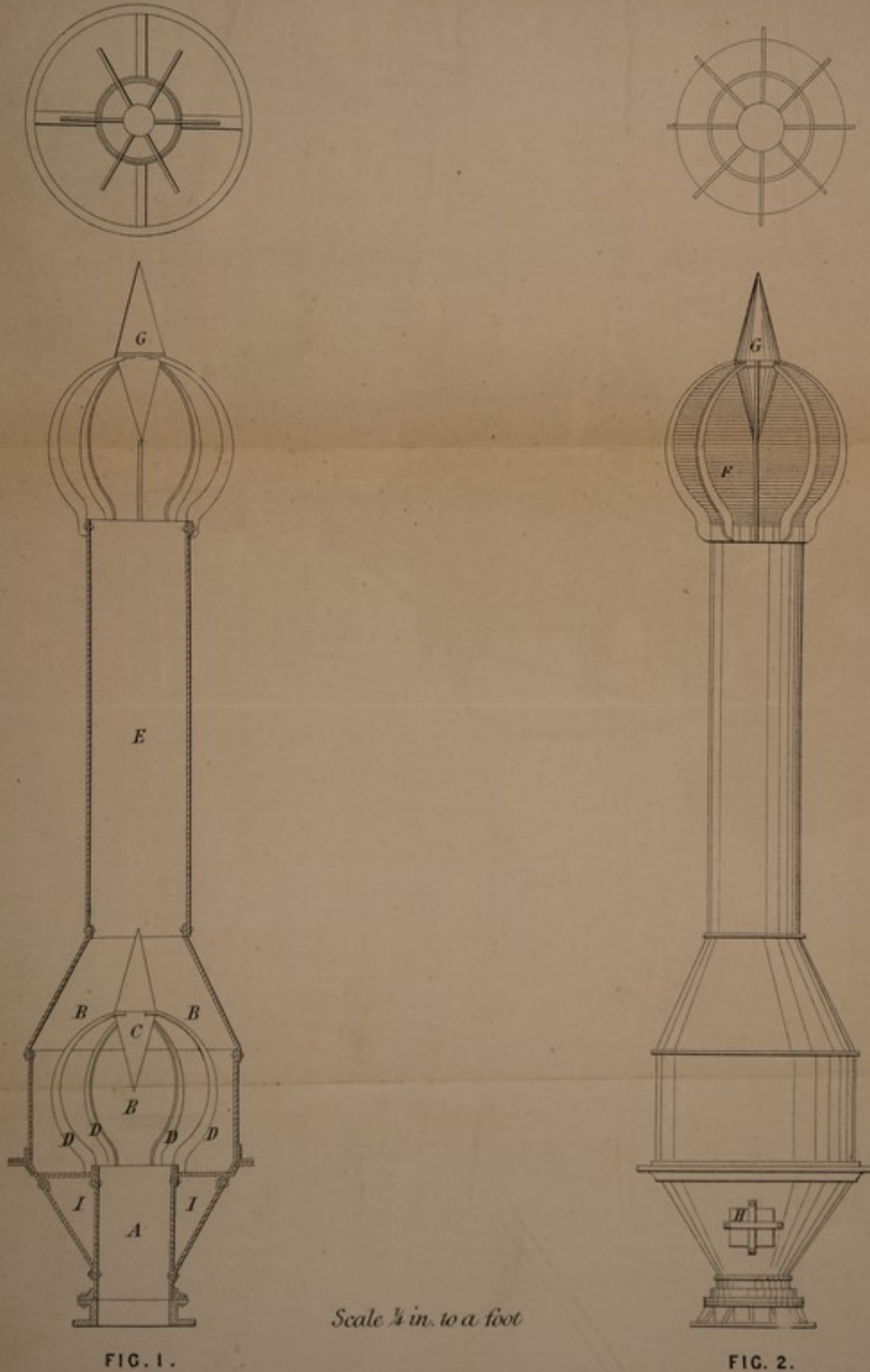


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Scale $\frac{1}{4}$ in. to a foot

FIG. 1.

FIG. 2.

The filed drawing is not colored.

Drawn on Stone by Malby & Sons

