

## **Specification of George Davies : inhaling apparatus.**

### **Contributors**

Davies, George.

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A.D. 1864, 22nd APRIL. N<sup>o</sup> 1012.

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S P E C I F I C A T I O N

OF

GEORGE DAVIES.

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I N H A L I N G   A P P A R A T U S .  
—

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY:

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1864.







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A.D. 1864, 22nd APRIL. N° 1012

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### Inhaling Apparatus.

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**LETTERS PATENT** to George Davies, of No. 1, Searle Street, Lincoln's Inn, in the County of Middlesex, and No. 28, St. Enoch Square, in the City of Glasgow, Civil Engineer and Patent Agent, for the Invention of "**IMPROVEMENTS IN INHALING APPARATUS.**"—A communication from abroad by Emile Siegle, of Stuttgart, Wurtemberg.

Sealed the 13th October 1864, and dated the 22nd April 1864.

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**PROVISIONAL SPECIFICATION** left by the said George Davies at the Office of the Commissioners of Patents, with his Petition, on the 22nd April 1864.

I, **GEORGE DAVIES**, of No. 1, Serle Street, Lincoln's Inn, in the County of Middlesex, and No. 28, St. Enoch Square, in the City of Glasgow, Civil Engineer and Patent Agent, do hereby declare the nature of the said Invention for "**IMPROVEMENTS IN INHALING APPARATUS,**" (a communication to me from abroad by Emile Siegle, of Stuttgart, Wurtemberg,) to be as follows:—

This Invention relates to apparatus for reducing liquids to the state of an impalpable powder or spray for the purposes of inhalation. Hitherto such apparatus has been made to act by means of compressed air or liquid, and a pair of bellows or a force pump was necessary to compress the same to the required degree before the apparatus would act.

By this Invention heated vapours are employed (instead of compressed air)



*Davies' Improvements in Inhaling Apparatus.*

which are better vehicles for conveying the pulverized liquid, and the apparatus is also (so to speak) automatic.

The apparatus consists principally of a metallic casing enclosing a spirit lamp, above which is placed a bottle or glass vessel containing water. In the stopper of this vessel is placed a bent pipe (also of glass,) the mouth of which 5 is in a horizontal position outside the casing. Immediately below this orifice is a second glass tube, placed at right angles thereto in a vertical position, and these tubes are connected together at a short distance from their orifices by an elbow pipe. The lower end of this vertical tube dips into the medicated or other liquid to be reduced to spray, which is placed in an open vessel 10 beneath it; a small spirit lamp is placed below this vessel to heat the liquid if required. Upon igniting the spirit lamp inside the casing, the water in the glass vessel will be converted into steam, which passing along the bent pipe will be blown from the orifice thereof immediately over the mouth of the vertical tube at right angles thereto, which will have the effect of sucking (as 15 it were) the liquid up the tube, and blowing it off the top of the same in the state of spray or powder. A small thermometer is placed in the stopper of the glass vessel wherein the steam is generated, and the heat is regulated by raising or lowering the spirit lamp.

**SPECIFICATION** in pursuance of the conditions of the Letters Patent, filed 20 by the said George Davies in the Great Seal Patent Office on the 22nd October 1864.

**TO ALL TO WHOM THESE PRESENTS SHALL COME, I, GEORGE DAVIES,** of No. 1, Searle Street, Lincoln's Inn, in the County of Middlesex, and No. 28, St. Enoch Square, in the City of Glasgow, Civil Engineer and 25 Patent Agent, send greeting.

**WHEREAS** Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-second day of April, in the year of our Lord One thousand eight hundred and sixty-four, in the 27th year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the 30 said George Davies, Her special licence that I, the said George Davies, my executors, administrators, and assigns, or such others as I, the said George Davies, 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 therein expressed, should and lawfully might make, use, exercise, and 35 vend, within the United Kingdom of Great Britain and Ireland, the Channel



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Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN INHALING APPARATUS," being a communication to me from abroad by Emile Siegle, of Stuttgart, Wurtemberg, upon the condition (amongst others) that I, the said George Davies, my executors or administrators, by an instrument in writing  
5 under my, or their, or one of their 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 George Davies, 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 in writing, and on reference to the accompanying Sheet of Drawings, that is to say:—

15 This Invention relates to apparatus for reducing liquids to the state of an impalpable powder or spray for the purposes of inhalation. Hitherto such apparatus has been made to act by means of compressed air or liquid, and a pair of bellows or a force pump was necessary to compress the same to the required degree before the apparatus would act.

20 By this Invention heated vapours are employed (instead of compressed air), which are better vehicles for conveying the pulverized liquid, and the apparatus is also (so to speak) automatic.

The apparatus consists principally of a metallic casing enclosing a spirit lamp, above which is placed a bottle or glass vessel containing water. In the  
25 stopper of this vessel is placed a bent pipe (also of glass), the mouth of which is in a horizontal position outside the casing. Immediately below this orifice is a second glass tube placed at right angles thereto in a vertical position, and these tubes are connected together at a short distance from their orifices by an elbow pipe. The lower end of this vertical tube dips into the medicated  
30 or other liquid to be reduced to spray, which is placed in an open vessel beneath it; a small spirit lamp is placed below this vessel to heat the liquid if required. Upon igniting the spirit lamp inside the casing, the water in the glass vessel will be converted into steam, which passing along the bent tube, will be blown from the orifice thereof immediately over the mouth of the  
35 vertical tube at right angles thereto, which will have the effect of sucking (as it were) the liquid up the tube, and blowing it off the top of the same in the state of spray or powder. A small thermometer is placed in the stopper of the glass vessel wherein the steam is generated, and the heat is regulated by raising or lowering the spirit lamp.



*Davies' Improvements in Inhaling Apparatus.*

The advantages to be derived from the use of this apparatus are as follows:—

Firstly, the production of the spray or vapor at a temperature of from 15 to 20 degrees, whilst that produced by ordinary apparatus is only about 8 or 9 degrees centigrade. 5

Secondly, a more complete pulverization than that hitherto obtained.

Thirdly, the almost impossibility of defective working. Thus, in the ordinary apparatus the capillary openings by which the spray escapes become rapidly choked, which cannot happen when employing steam, which does not carry any solid body with it, and which, moreover, clears the conduits through 10 which it passes.

Fourthly, with the compressed air apparatus the force diminishes very rapidly, and it is necessary to compress the air again from time to time, which with the improved apparatus is not necessary.

Fifthly, all the apparatus is made of glass, which facilitates the replacement, 15 without loss of time, of any damaged part.

Sixthly, the great economy which results from the simplicity of the apparatus.

Such being the nature and object of the said Invention for "Improvements in Inhaling Apparatus," I will now proceed to describe more in detail the 20 manner in which the same is to be or may be performed or carried into practical effect; and in order that the same may be distinctly understood, I have annexed hereunto a Sheet of Drawings, and have marked the same with figures and letters of reference corresponding with those in the following explanation thereof, that is to say:— 25

Figure 1 is an exterior elevation of the apparatus, and Figure 2 is a vertical section of the same.

The apparatus is contained in a case A made of sheet or cast metal; this case is closed above by the cover A<sup>1</sup> which carries at one side the projection K. In the case is placed the spirit lamp B furnished with the screw B<sup>1</sup>, serving 30 to regulate the intensity of the flame. The vessel C placed above the lamp contains the water intended to be converted into steam, and is closed hermetically by the stopper C<sup>1</sup>. The curved tube D passes through the stopper, and its lower extremity is open to admit the steam which passes out by the other end, which is brought to a point having a very small opening. To this 35 tube a second or suction tube H is connected by the elbow pipe I; the upper extremity of the tube H also terminates in a point having a small opening, whilst the other end is plunged into the liquid to be pulverized or vaporized, which is contained in the second vessel G. The apparatus being put in



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action, the steam disengaged in the vessel C escapes by the tube D and blows over the orifice of the tube H, carrying with it the liquid from the vessel G in the form of an impalpable powder.

In the vessel containing the steam a thermometer E is plunged, in which, 5 when the apparatus is working properly, the surface of the column of mercury oscillates between the points 1 and 2, but when this height is exceeded, the temperature must be lowered immediately by diminishing the intensity of the flame of the lamp B by means of the screw B<sup>1</sup>. The small spirit lamp L is used to heat the liquid to be vaporized when necessary.

10 Having now particularly described the nature and object of the said Invention for "Improvements in Inhaling Apparatus," together with the manner in which the same is to be or may be performed or carried into practical effect, I would remark, in conclusion, that I claim as the Invention (communicated to me by Emile Siegle, of Stuttgart, Wurtemberg,) the 15 general construction and arrangement of the inhaling apparatus, as above described and exhibited in the Drawing annexed.

In witness whereof, I, the said George Davies, hath hereunto set my hand and seal, this Twenty-first day of October, in the year of our Lord One thousand eight hundred and sixty-four.

20

GEORGE DAVIES. (L.S.)

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LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,  
Printers to the Queen's most Excellent Majesty. 1864.



The steam engine in the vessel C was by the tube D and flows  
 over the valve of the tube H, carrying with it the liquid from the vessel Q in  
 the form of an impalpable powder.  
 In the vessel containing the steam a thermometer H is placed, in which  
 when the apparatus is working properly, the surface of the column of mercury  
 oscillates between the points I and R, but when the height is exceeded, the  
 temperature must be lowered immediately by diminishing the intensity of the  
 flame of the lamp B by means of the screw D. The small spirit lamp J is  
 used to heat the liquid to be separated when necessary.  
 Having now particularly described the nature and object of the said  
 invention for "improvements in Liquefying Apparatus," together with the  
 manner in which the same is to be or may be performed or carried into  
 practical effect, I would remark, in conclusion, that I claim as the invention  
 (communicated to me by Emma Seale, of Stuttgart, Wurttemberg) the  
 general construction and arrangement of the tubular apparatus as above  
 described and specified in the Drawing annexed.  
 In witness whereof, I the said George Davies, his lawful attorney, do  
 hereunto set my hand and seal, this Twenty-first day of October, in the year of our  
 Lord One thousand eight hundred and six-four.

GEORGE DAVIES (es.)

LONDON:  
 Printed by George Edward Ryan and William Broomfield,  
 Printers to the Queen's most Excellent Majesty, 1854.



FIG. 2.

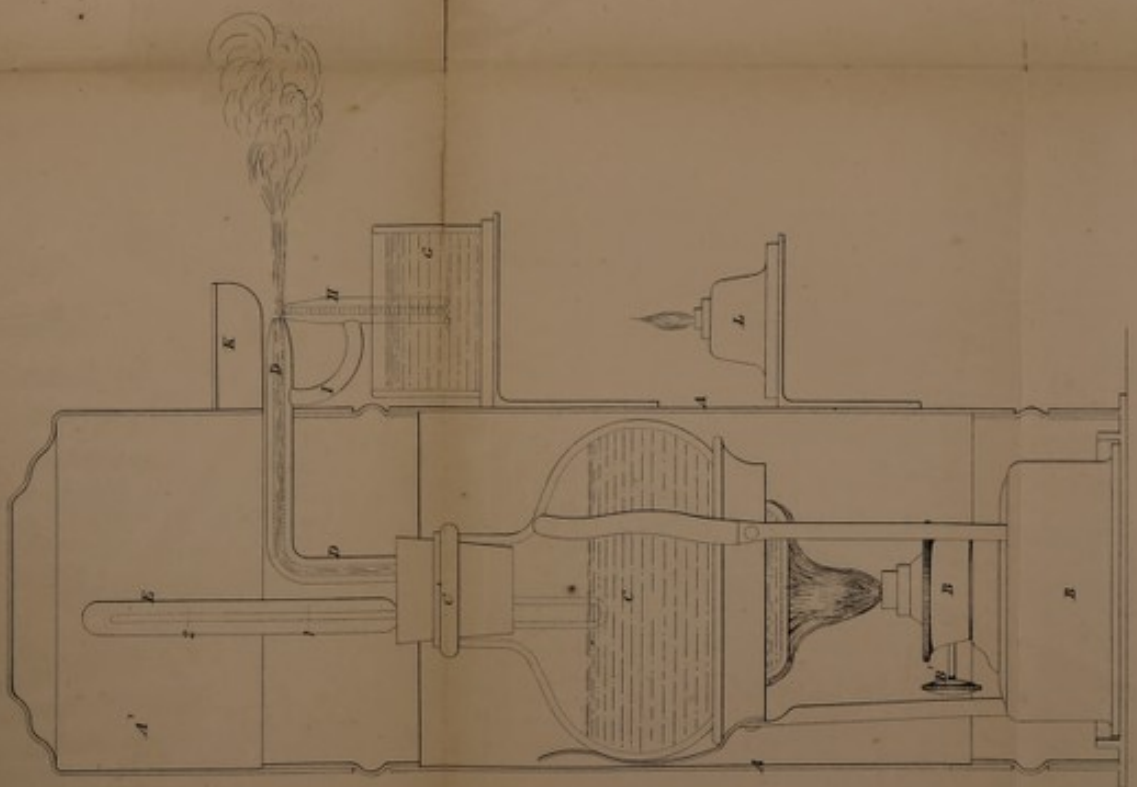
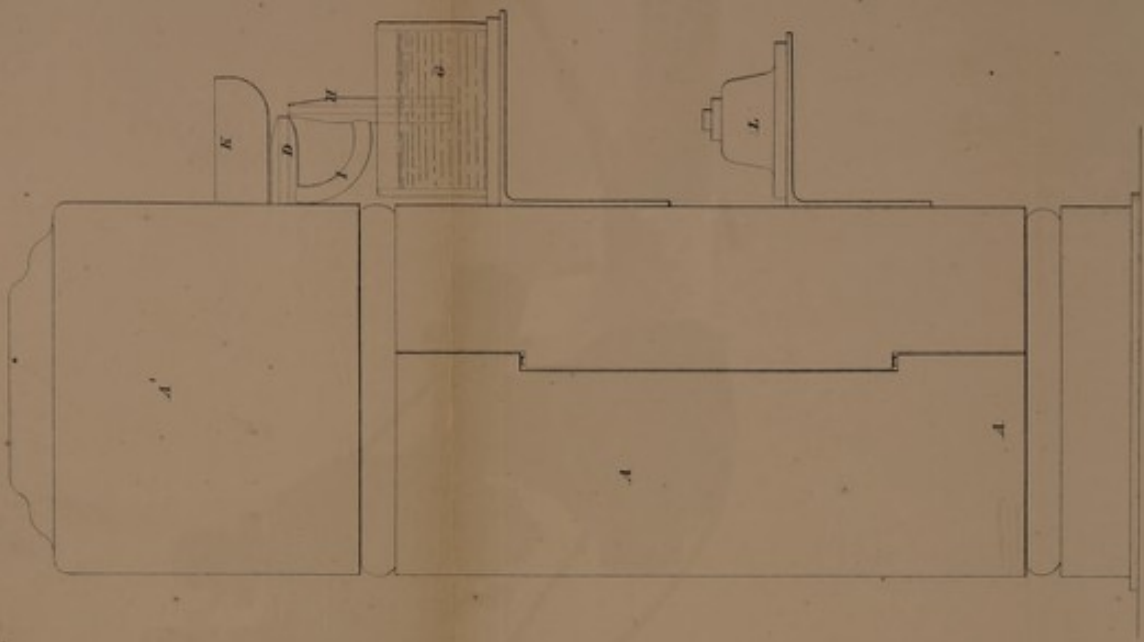


FIG. 1.



The steel drawing is partly colored

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Drawn on Sheet by Moly A. Sear



