

Specification of William Clark : desiccating and preserving matters from decay.

Contributors

Clark, William.

Publication/Creation

London : Great Seal Patent Office, 1863 (London : George E. Eyre and William Spottiswoode)

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A.D. 1863, 21st JANUARY. N^o 186.

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

OF

WILLIAM CLARK.

DESICCATING AND PRESERVING MATTERS
FROM DECAY.

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY :

PUBLISHED AT THE GREAT SEAL PATENT OFFICE,

25, SOUTHAMPTON BUILDINGS, HOLBORN.

Price 4d.

1863.





A.D. 1863, 21st JANUARY. N° 186.

Desiccating and Preserving Matters from Decay.

(This Invention received Provisional Protection only.)

PROVISIONAL SPECIFICATION left by William Clark at the Office of the Commissioners of Patents, with his Petition, on the 21st January 1863.—A communication from abroad by Jean Baptiste Pierre Camille Bergouhnioux, of 29, Boulevard St. Martin, Paris, Gentleman.

5 I, WILLIAM CLARK, of 53, Chancery Lane, in the County of Middlesex, Engineer and Patent Agent, do hereby declare the nature of the said Invention for "**IMPROVEMENTS IN DESICCATING AND IN PRESERVING MATTERS FROM DECAY,**" to be as follows:—

This Invention consists in the numerous applications herein-after described
10 and hitherto unknown, which I have imagined, maintaining at all times the following conditions:—In a space as limited and closed as possible, either free from or filled with any gas at any tension, and any temperature, there exists a definite or more or less indefinite source of vapor. In contact with this vapor is a chemical or physical agent, which incessantly in either
15 condensing that vapor or decomposing it on the very spot, or presenting to it always on the same spot a combination which it embraces with avidity, has for final result either a diminution or even an annihilation of the tension of that vapor.

I will presently describe and exemplify some of the hitherto unknown
20 applications I have conceived, yet not departing in the least from the above conditions. Supposing I have to dry some damp substances, such as wood for building, naval, or other industrial purposes, or wool, cloth, linen, paper, ribbands, corn, medical plants, and so forth, I enclose the substances to be

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dried in a space as limited and closed as possible free from any gas or air, in this space I introduce a sufficient quantity of a chemical agent for which water steam has great affinity, caustic potash for instance. If steam has great affinity for the chosen body, or if the contact surfaces are well spread and renewed I obtain the desired desiccation. Supposing that I desire to preserve 5 certain substances such as corn, flour, fruits, preserved sweetmeats, or other nutritive substances, matches, tobacco, and other hygrometric matters liable to be injured by an excess of dampness, I enclose such substances in a space limited and closed, in which space either free from or full of air, or of any gas at a suitable tension or temperature according to the article to be operated 10 on, I dispose a chemical agent more hygrometric than the substance to be preserved, and if the absorbing body is too hygrometric desiccation will be effected, but there will also result the necessary preservation if the chosen body is but sufficiently hygrometric. Now this expression "free from any gas" must be well understood, for if it be not sufficient in order to preserve 15 certain peculiar substances to enclose them in a gaseous atmosphere sufficiently unhydrated, it is further necessary that the gaseous bath be sometimes air, sometimes azote, and sometimes hydrogen, or others, and it must be considered as free from any gas. Supposing I have to suppress in a hot fruit house the moisture which darkens and drops from the panes on the precious plants in 20 this fruit house, which in this case forms the space as limited and closed as possible, before mentioned, I dispose a refrigerating surface colder than the glass and frame, whatever may be the fall of the external temperature or the rise and fall of the internal temperature it is only on the coldest surface that the moisture will appear, and should this condensing surface 25 be so disposed that condensed water may be easily collected then I have obtained the solution of my problem, and therefore the expression physical agent, whereby the vapor can be condensed will be easily understood. Supposing I have to inhabit damp premises, a cellar or otherwise, underground, for instance, (the space being as limited and closed as possible,) I close air- 30 tight the door and windows, then under my bed or upon any furniture I spread upon a tea board, or in a number of plates a sufficient surface of a substance having a sufficient affinity for water, chloride of zinc for instance, and I awake next morning without a cold or a rheumatism. Now it is thereby evidently demonstrated that the source may be more or less indefinite, for in 35 the last instance this source is no other but the very walls and sides of the space, and there is great probability that the supply of chloride of zinc should be nearly renewed every night. Supposing now that I wish to dry the upper story of my own house, when scarcely finished, here again the same solution,

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but the source is definite, if I have the first day collected five gallons of liquid, next day I shall have less, and no water at all after a certain period. Supposing that I have used ether to dissolve tannin, and wish without heating to separate these two bodies the conditions are the same, the space will be
5 composed of two crucibles disposed neck to neck and carefully luted, the crucible shall contain the solution and shall be sufficiently cool so that the whole ether vaporizing in the one crucible may be condensed in the other crucible. Supposing, finally, that I have dissolved india-rubber or caoutchouc in essence of turpentine, and that without heating or ventilating I wish to
10 insulate this caoutchouc in the space limited, and closed as above, I can destroy the vapor from essence of turpentine by decomposing its very elements either by combustion or chemical agency.

I trust that I have by the above various examples justified all the conditions in which I have bound myself, and which limit the Invention, for which I
15 desire to obtain Letters Patent, my explanations will I believe enable any industrial person to make use of and perform my Invention when the same has become public property, but I will further treat of some peculiar points which may be further improved.

1st, when I use chemical agents having great affinity for vapour, this having
20 no real value, and the chemical agent having one, I intend revivifying such chemical agents, and restore to them as economically as possible their former properties. For instance I dry in free air and by the cheapest vapourizing processes chloride of zinc, which although having to day served to dry will still serve to dry to-morrow, and this must be considered as part of my
25 Invention.

2ndly, in case when for saving time it should be necessary to multiply the operations more than the extent of the space will allow, or the extent of the surface of contact between the chemical or physical agent and vapor will allow, some arrangements more or less ingenious may be adopted. Thus the
30 absorbing power of a given surface may be increased tenfold without its real extent being varied, for instance, in the operating space where I have enclosed milk to be evaporated I arrange bellows to circulate the air in the space, blowing it through a cask filled with quicklime or chloride of calcium. This air enters the cask in the damp state and goes out from it in a dry state, by
35 doubling the height of the cask, and the rapidity of the passage of the air, and increasing the capacity of the bellows, I may attain the same result in a shorter and shorter time, but this is but a corollary of my Invention.

3rdly, at any temperature and at any pressure, as stated above, the effects shall be produced as indicated. However it will be an advantage when this

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is possible to raise the temperature and diminish the pressure of the gas. Slightly heated wood will emit vapors in greater quantity and carbonate of potash for a little rise in the temperature will not in consequence have less affinity for water. At a low temperature the like effects will be produced, but all these improvements are but mere details, the observance or non-⁵ observance of which will be no deviation from the very principle of my Invention.

LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1863.
