

Specification of Jeremiah Marsden & John Collins : treating sewage.

Contributors

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Publication/Creation

London : Great Seal Patent Office, 1874 (London : George E. Eyre and William Spottiswoode)

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A.D. 1873, *4th JULY.* N° 2317.

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

OF

JEREMIAH MARSDEN & JOHN COLLINS.

—
TREATING SEWAGE.
—

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 4s.

1874.





A.D. 1873, 4th JULY. N° 2317.

Treating Sewage.

LETTERS PATENT to Jeremiah Marsden, of Bolton, in the County of Lancaster, Iron Founder, and John Collins, of the same Place, Analytical Chemist, for the Invention of "IMPROVEMENTS IN THE TREATMENT OF SEWAGE WATER AND IN THE MANUFACTURE OF MANURE."

Sealed the 18th November 1873, and dated the 4th July 1873.

PROVISIONAL SPECIFICATION left by the said Jeremiah Marsden and John Collins at the Office of the Commissioners of Patents, with their Petition, on the 4th July 1873.

We, JEREMIAH MARSDEN, of Bolton, in the County of Lancaster, 5 Iron Founder, and JOHN COLLINS, of the same Place, Analytical Chemist, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN THE TREATMENT OF SEWAGE WATER AND IN THE MANUFACTURE OF MANURE," to be as follows:—

Our Invention consists in subjecting sewage water to the action of 10 certain agents by which the solid and fertilising portion is precipitated, to be converted into manure, and the water is cleared and allowed to

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run off. The agents we employ are lime, coal ashes, or other refuse of coal and charcoal, or carbon combined with a salt of soda, potash, iron, manganese, or the like.

In operating upon 200,000 gallons of sewage water we employ about 12 hundredweight of lime, 40 hundredweight of common coal, ground 5 ashes, and 16 hundredweight of charcoal or refuse carbon, and a small quantity of an acid salt of soda, potash, iron, manganese, or the like, and the above ingredients are intimately combined with the sewage water. Other ingredients possessing similar properties may be used.

The above quantities will vary with the various qualities of sewage 10 water under treatment.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Jeremiah Marsden and John Collins in the Great Seal Patent Office on the 1st January 1874.

TO ALL TO WHOM THESE PRESENTS SHALL COME, we, **JEREMIAH 15** **MARSDEN**, of Bolton, in the County of Lancaster, Iron Founder, and **JOHN COLLINS**, of the same Place, Analytical Chemist, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Fourth day of July, in the year of our Lord One thousand eight hundred and seventy-three, in the thirty- 20 seventh year of Her reign, did, for Herself, Her heirs and successors, give and grant unto us, the said Jeremiah Marsden and John Collins, Her special licence that we, the said Jeremiah Marsden and John Collins, our executors, administrators, and assigns, or such others as we, the said Jeremiah Marsden and John Collins, our executors, administrators, and 25 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 vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "**IMPROVEMENTS IN THE TREATMENT OF SEWAGE 30** **WATER, AND IN THE MANUFACTURE OF MANURE,**" upon the condition (amongst others) that we, the said Jeremiah Marsden and John Collins, our executors or administrators, by an instrument in writing under our, or

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their, or one of our or 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
5 after the date of the said Letters Patent.

NOW KNOW YE, that we, the said Jeremiah Marsden and John Collins, do hereby declare the nature of our said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement (that is to say):—

10 Our Invention consists in subjecting sewage water to the action of certain agents, by which the solid and fertilizing portion is precipitated, to be converted into manure, and the water is cleared and allowed to run off. The agents we employ are lime, coal ashes, or other refuse of coal, and charcoal or carbon combined with a salt of soda, potash, iron,
15 manganese, or other substances possessing similar properties.

In carrying our Invention into operation we employ a series or more than one series of reservoirs which are in communication with each other, and with the sewers by which the sewage water is supplied, and with the canal, river, or drain for carrying off the water after it has been
20 purified.

The lime, coal ashes, charcoal, or refuse carbon, with the acid salt or other equivalent are first ground fine and mixed well together in an ordinary mortar mill or other equivalent, the trough of which is supplied with water, and the contents of the trough when the whole has been
25 well triturated are run off into tanks or cisterns provided with agitators, which tanks or cisterns are also in communication with a mixing chamber into which the sewage water is discharged; this mixing chamber is also provided with an agitator.

In operating upon two hundred thousand gallons of sewage water, we
30 employ about twelve hundredweight of lime, forty hundredweight of common coal ashes, and sixteen hundredweight of charcoal or refuse carbon, and a small quantity of an acid salt of soda, potash, iron, manganese, or the like, and the above ingredients, after having been well ground and intimately mixed together are combined in the mixing
35 chamber above referred to with the sewage water, and the whole is collected in a reservoir, where it remains until the solid or fertilizing portion is precipitated or allowed to form a deposit at the bottom. The partially

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purified water is then run off into another reservoir where it is again allowed to form a deposit, and the operation may be repeated until all the solid portion is deposited and the water from which the greater portion of the impurities has been removed is allowed to escape into the canal, river, or drain. The solid and fertilising matter which accumu- 5
lates in the bottoms of the reservoirs is removed and is converted into manure by dessication or otherwise.

We wish it to be very clearly understood that the proportions and other particulars mentioned above are only given as an illustration of the mode of carrying our Invention into operation, and that they will 10
require to be varied according to the nature of the sewage water to be treated, and the amount of animal, vegetable, or fœcal matter with which it is charged. The quantity of acid salt must also be varied according to circumstances.

Having thus stated the nature of our Invention, and described a 15
mode of carrying the same into operation, we wish it to be understood that we do not limit ourselves to the details given, and that we claim treating sewage water by the ingredients mentioned, or others possessing similar properties, in the manner and for the purposes set forth.

In witness whereof, I, the said Jeremiah Marsden, for myself and 20
on behalf of the said John Collins, have hereto set my hand and seal, this Thirtieth day of December One thousand eight hundred and seventy-three.

JEREMIAH MARSDEN. (L.S.)

LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1874.