

Specification of William Cameron Sillar, Robert George Sillar and George William Wigner : deodorizing sewage for manure.

Contributors

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A.D. 1868, 15th JUNE. N° 1954.

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

OF

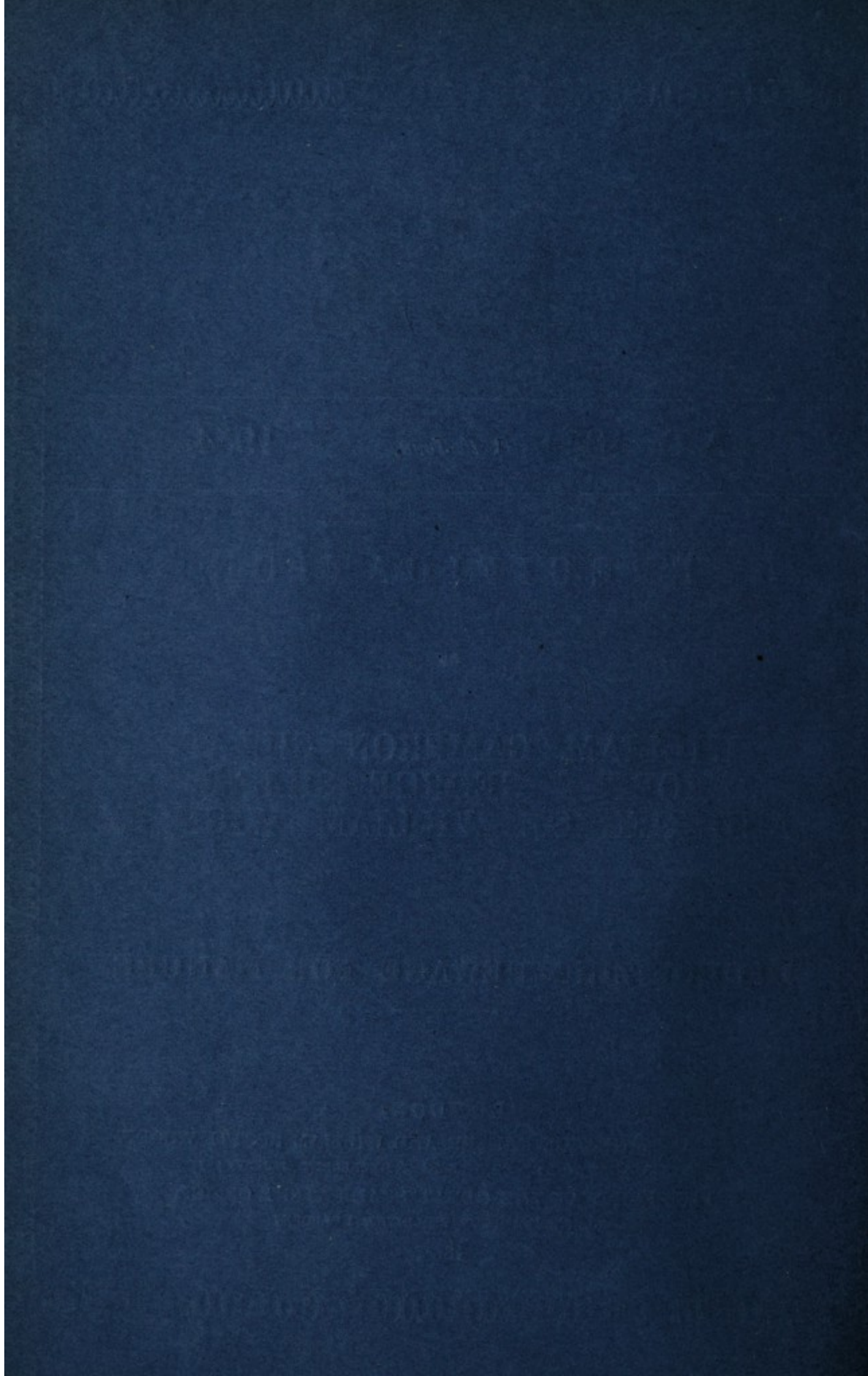
WILLIAM CAMERON SILLAR,
ROBERT GEORGE SILLAR,
AND GEORGE WILLIAM WIGNER.

DEODORIZING SEWAGE FOR MANURE.

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY:

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A.D. 1868, 15th JUNE. N° 1954.

Deodorizing Sewage for Manure.

LETTERS PATENT to William Cameron Sillar, of 62, Cornhill, in the City of London, Bullion Broker, Robert George Sillar, of No. 3, Grange Road, Upper Norwood, Gentleman, and George William Wigner, of Grove Lane, Camberwell, Chemist, both in the County of Surrey, for the Invention of "**IMPROVEMENTS IN DEODORIZING AND PURIFYING SEWAGE AND MAKING MANURE THEREFROM.**"

Sealed the 28th October 1868, and dated the 15th June 1868.

PROVISIONAL SPECIFICATION left by the said William Cameron Sillar, Robert George Sillar, and George William Wigner at the Office of the Commissioners of Patents, with their Petition, on the 15th June 1868.

5 We, **WILLIAM CAMERON SILLAR**, of 62, Cornhill, in the City of London, Bullion Broker, **ROBERT GEORGE SILLAR**, of No. 3, Grange Road, Upper Norwood, Gentleman, and **GEORGE WILLIAM WIGNER**, of

W. C. & R. G. Sillar & Wigner's Impts. in Deodorizing Sewage for Manure.

Grove Lane, Camberwell, Chemist, both in the County of Surrey, do hereby declare the nature of the said Invention for "**IMPROVEMENTS IN DEODORIZING AND PURIFYING SEWAGE AND MAKING MANURE THEREFROM,**" to be as follows:—

We add to the sewage to be purified, which should be collected in 5 tanks, the following substances:—Alum, blood, clay, magnesia or one of its compounds, manganese or one of its compounds, burnt clay otherwise known as ballast, chloride of sodium, animal or vegetable charcoal, and magnesian limestone. One or more of these substances may in some cases be omitted. On the addition of these substances the 10 greater part of the organic and inorganic matters contained in the sewage are precipitated, and the sewage is rendered clear and inodorous, or nearly so. The sediment obtained from the sewage as mentioned above will then be found to possess the power of precipitating and deodorizing a further quantity of sewage if mixed with it. We in some 15 cases treat the residue with acid to render it more suitable for use as manure.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said William Cameron Sillar, Robert George Sillar, and George William Wigner in the Great Seal Patent Office on the 20 15th December 1868.

TO ALL TO WHOM THESE PRESENTS SHALL COME, we, **WILLIAM CAMERON SILLAR**, of 62, Cornhill, in the City of London, Bullion Broker, **ROBERT GEORGE SILLAR**, of No. 3, Grange Road, Upper Norwood, Gentleman, and **GEORGE WILLIAM WIGNER**, of Grove Lane, Camberwell, 25 Chemist, both in the County of Surrey, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Fifteenth day of June, 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, 30 give and grant unto us, the said William Cameron Sillar, Robert George Sillar, and George William Wigner, Her special licence that we, the said William Cameron Sillar, Robert George Sillar, and George William Wigner, our executors, administrators, and assigns, or such others as we,

W. C. & R. G. Sillar & Wigner's Impts. in Deodorizing Sewage for Manure.

the said William Cameron Sillar, Robert George Sillar, and George William Wigner, our 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
5 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 DEODORIZING AND PURIFYING SEWAGE AND MAKING MANURE THEREFROM," upon the condition (amongst others) that we, the said William Cameron Sillar, Robert George Sillar, and George William
10 Wigner, our executors or administrators, by an instrument in writing under our or their hands and seals, or under the hand and seal of one of us or them, 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
15 calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said George William Wigner, on behalf of myself and the said William Cameron Sillar and Robert George Sillar, do hereby declare the nature of the said Invention, and in
20 what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say:—

We add to the sewage to be purified a mixture consisting of the following ingredients:—Alum, blood, clay, magnesia, or one of its
25 compounds, by preference the carbonate or the sulphate, manganate of potash, or other compound of manganese, burnt clay otherwise known as ballast, chloride of sodium, animal charcoal, vegetable charcoal, and magnesian limestone. Of these substances the manganese compound, the burnt clay, chloride of sodium, and magnesian limestone may be
30 omitted, and it is not essential that both animal and vegetable charcoal should be used. If any of the ingredients named should from any cause be present in sufficient quantity in the sewage it may of course be omitted from the mixture. The proportions in which the ingredients are to be used vary according to the nature of the sewage to be purified,
35 as, for instance, if a large proportion of urine is present we increase the proportion of clay, if the sewage is much diluted we slightly increase the proportion of alum and blood, if it contains a large proportion of street refuse we decrease the proportion of clay.

W. C. & R. G. Sillar & Wigner's Impts. in Deodorizing Sewage for Manure.

For ordinary sewage the following proportions have answered well:—

Alum	-	-	-	600	parts.	
Blood	-	-	-	1	„	
Clay	-	-	-	1,900	„	
Magnesia	-	-	-	5	„	5
Manganate of potash	-	-	-	10	„	
Burnt clay	-	-	-	25	„	
Chloride of sodium	-	-	-	10	„	
Animal charcoal	-	-	-	15	„	
Vegetable charcoal	-	-	-	20	„	10
Magnesian limestone	-	-	-	2	„	

These substances are mixed together and added to the sewage to be purified until a further addition produces no further precipitate. The quantity required will be about four pounds of the mixture to one thousand gallons of sewage. In many cases it is preferable to mix the 15 above compound with a small quantity of water, and add it in a liquid state to the sewage. The sewage must then be thoroughly mixed with the compound and allowed to flow into settling tanks. The greater part of the organic and other impurities will be immediately separated in the form of large flakes, which rapidly fall to the bottom, leaving the 20 supernatant water clear and inodorous, or nearly so. The water may then be allowed to flow away into a river, or be disposed of in any other way, and the sediment or mud allowed to accumulate at the bottom of the tank. In some cases it is preferable to add the compound of manganese to the water after the sediment produced by the other 25 ingredients has been allowed to subside. The sediment will be found to possess the power of precipitating a further quantity of sewage, it must therefore be pumped or otherwise taken from the tank and mixed with fresh sewage, the sediment being allowed to subside in the same way as before. The sediment may be used five or six times over in 30 this way. When the sediment no longer possesses the power of precipitating the impurities in the sewage it must be removed from the tank and allowed to dry; when partially dry a small quantity of acid, by preference sulphuric acid, may be mixed with it, which will retain all the ammonia in a soluble form. When dried the sediment will be a 35 valuable manure.

We claim, first, the deodorizing and purifying sewage by means of

W. C. & R. G. Sillar & Wigner's Impts. in Deodorizing Sewage for Manure

the mixture of chemical substances above described, and the so obtaining a sediment which may be used as manure.

Second. The deodorizing and purifying sewage by means of mud already precipitated from sewage, as above described.

5 Thirdly. The addition of an acid to the mud in order to retain ammonia and fit it for use as a manure, as above described.

In witness whereof, I, the said George William Wigner, have here-
unto set my hand and seal, this Fifteenth day of December,
in the year of our Lord One thousand eight hundred and sixty-
10 eight.

G. W. WIGNER. (L.S.)

LONDON:

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

W. G. O. Miller & W. G. O. Miller's Analytical Chemistry for the
 the nature of chemical substances above described, and the so obtaining
 a sediment which may be used as follows:

Secondly, The dissolving and purifying away by means of water
 already precipitated from sewage, as above described.

Thirdly, The addition of an acid to the mud in order to retain
 ammonia and fit it for use as a manure, as above described.

In witness whereof, I the said George William Miller have here-
 unto set my hand and seal this Twentieth day of December
 in the year of our Lord One thousand eight hundred and sixty-
 eight.

G. W. MILLER (S.S.)

LONDON:
 Printed by George Lawrence and William Stevenson,
 Printers to the Queen's most Excellent Majesty, 1868.

