

Specification of George William Wigner : deodorizing and purifying sewage, &c.;

Contributors

Wigner, George William.

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A.D. 1870, 12th May. N^o 1354.

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

OF

GEORGE WILLIAM WIGNER.

DEODORIZING AND PURIFYING SEWAGE, &c.

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

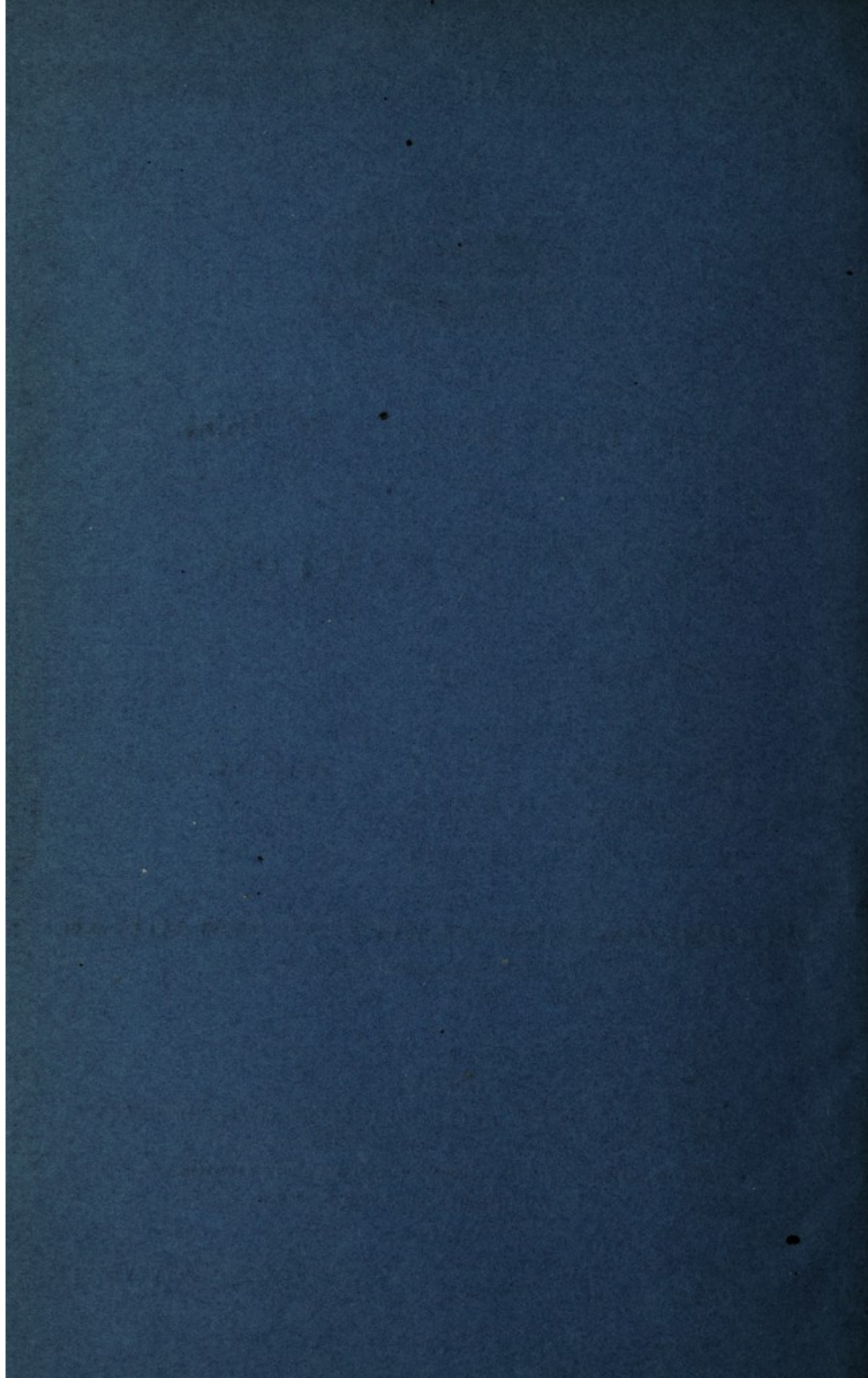
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY:

PUBLISHED AT THE GREAT SEAL PATENT OFFICE,

25, SOUTHAMPTON BUILDINGS, HOLBORN.

Price 4d.

1870.





A.D. 1870, 12th MAY. N° 1354.

Deodorizing and Purifying Sewage, &c.

LETTERS PATENT to George William Wigner, of No. 1, Saint Swithin's Lane, in the City of London, Analytical Chemist, for the Invention of "**IMPROVEMENTS IN DEODORIZING AND PURIFYING SEWAGE, AND IN MAKING MANURE THEREFROM.**"

Scaled the 5th July 1870, and dated the 12th May 1870.

PROVISIONAL SPECIFICATION left by the said George William Wigner at the Office of the Commissioners of Patents, with his Petition, on the 12th May 1870.

I, GEORGE WILLIAM WIGNER, of No. 1, Saint Swithin's Lane, in the
5 City of London, Analytical Chemist, do hereby declare the nature of the said Invention for "**IMPROVEMENTS IN DEODORIZING AND PURIFYING SEWAGE, AND IN MAKING MANURE THEREFROM,**" to be as follows :—

My Invention relates to a process for which I in conjunction with William Cameron Sillar and Robert George Sillar obtained Letters
10 Patent, bearing date 15th June, A.D. 1868, No. 1954, and my said Invention consists in the addition of the following chemical substances

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to those enumerated in the Specification of that Patent:—I add to the substances therein enumerated sulphate of alumina, sulphate of iron, sulphate of lime and alumina. These substances in a commercially pure or manufactured state may be added to the substances mentioned in the aforesaid Specification, or crude alum, containing sulphate of alumina, 5 sulphate of iron, sulphate of lime and free alumina, or any of them in the form of impurities may be added to the said substances. The sulphate of alumina, sulphate of iron, sulphate of lime and alumina in either of the forms described are either dissolved in water and added to the substances mentioned in the aforesaid Specification, or the said 10 sulphate of alumina, sulphate of iron, sulphate of lime and alumina are dissolved in admixture with the said substances, and the mixture made in either of these ways is then added to the sewage to be purified and mixed therewith. The mixing of the sewage and the chemical substances used for its purification as aforesaid may be effected in any suitable way, 15 but I prefer that described in a Provisional Specification filed by me on the 8th February, A.D. 1870, No. 364. The subsequent operations for completing the manufacture of the manure are or may be the same as those described in the said Provisional Specification.

SPECIFICATION in pursuance of the conditions of the Letters Patent, 20
filed by the said George William Wigner in the Great Seal Patent
Office on the 12th November 1870.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, GEORGE WILLIAM WIGNER, of No. 1, Saint Swithin's Lane, in the City of London, Analytical Chemist, send greeting. 25

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twelfth day of May, in the year of our Lord One thousand eight hundred and seventy, in the thirty-third year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said George William Wigner, Her special licence 30 that I, the said George William Wigner, my executors, administrators, and assigns, or such others as I, the said George William Wigner, my executors, administrators, and assigns, should at any time agree with,

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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 "IM-
5 PROVEMENTS IN DEODORIZING AND PURIFYING SEWAGE, AND IN MAKING MANURE THEREFROM," upon the condition (amongst others) that I, the said George William Wigner, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and
10 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.

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

My Invention relates to a process for deodorizing and purifying sewage and making manure therefrom, for which I in conjunction with William Cameron Sillar and Robert George Sillar obtained Letters Patent, bearing
20 date 15th June, A.D. 1868, No. 1954, and my said Invention consists in the addition of the following chemical substances to those enumerated in the Specification of that Patent. I add to the substances therein enumerated sulphate of alumina, sulphate of iron, sulphate of lime and alumina. These substances in a commercially pure or manufactured state
25 may be added to the substances mentioned in the aforesaid Specification, or crude alum containing sulphate of alumina, sulphate of iron, sulphate of lime, and free alumina, or any of them may be added to the said substances. The sulphate of alumina, sulphate of iron, sulphate of lime and alumina in either of the forms described, that is to say, either as
30 separate substances or as constituents of crude alum are either mixed with or dissolved in water and added to the substances mentioned in the aforesaid Specification, or the said sulphate of alumina, sulphate of iron, sulphate of lime and alumina, in either of the forms described, are mixed with the substances named in the aforesaid Specification, and the
35 compound thus formed is mixed with or dissolved in water, and the mixture made in either of these ways is then added to the sewage to be purified and mixed therewith.

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The proportions and quantities in which these substances added as aforesaid should be used will vary with the quality of the sewage to be purified, that is to say, with the quantity of actual excreta contained in it, and also to a small extent with the age of the sewage, but for an average sample of London sewage, the said substances may be used in 5 the following proportions:—

Sulphate of alumina	-	169 parts by weight.	
Sulphate of iron -	-	3 „ „	
Sulphate of lime	-	66 „ „	
Alumina	-	94 „ „	10

I prefer however to use crude alum in sufficient quantity to give the above weights of the above substances. The quantity of the said crude alum, which will probably be required will be about 488 parts by weight. These substances in the above proportions may be added to those named in the aforesaid Specification, and the proportions of all the ingredients 15 will then be as follows:—

Alum	-	600 parts by weight.	
Blood	-	1 part „	
Clay	-	1,900 parts „	
Magnesia	-	5 „ „	20
Manganate of potash	-	10 „ „	
Burnt clay	-	25 „ „	
Chloride of sodium	-	10 „ „	
Animal charcoal	-	15 „ „	
Vegetable charcoal	-	20 „ „	25
Magnesian limestone	-	2 „ „	
Sulphate of alumina	-	169 „ „	
Sulphate of iron -	-	3 „ „	
Sulphate of lime -	-	66 „ „	
Alumina -	-	94 „ „	30

Or in place of the last four substances 488 parts by weight of crude alum may be used as aforesaid. The quantity to be added to the sewage will be about 4 lbs. of the mixed substances to 1,000 gallons of sewage. Should any of the substances be present in sufficient quantity in the sewage they may of course be omitted from the mixture added 35 to the sewage. Some of the substances will in certain cases be found to be unnecessary, and may be omitted from the mixture. In some

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cases also the whole or a great part of the alum contained in the original formula may be omitted and crude alum in similar proportion may be added instead. In such cases the formula to be used for an average sample of London sewage may be,—

5	Crude alum	-	-	1,088 parts by weight.
	Blood	-	-	1 part „
	Clay	-	-	1,900 parts „
	Magnesia	-	-	5 „ „
	Manganate of potash	-	-	10 „ „
10	Burnt clay	-	-	25 „ „
	Chloride of sodium	-	-	10 „ „
	Animal charcoal	-	-	15 „ „
	Vegetable charcoal	-	-	20 „ „
	Magnesian limestone	-	-	2 „ „

- 15 These proportions also will of course be subject to variation according to the changes in the quality of the sewage to be treated. For instance, in many cases the proportion of alum or crude alum used may be advantageously changed. In sewage mixed with a large quantity of surface water the clay may often be advantageously diminished, but
20 in strong sewage a further addition of clay is often desirable.

The mixing of the sewage and of the chemical substances used for its purification as aforesaid may be effected in any suitable way, but I prefer that described in the Specification of Letters Patent granted to me and bearing date 8th February, A.D. 1870, No. 364. The subsequent
25 operations for completing the manufacture of the manure are or may be the same as those described in the Specification of the Letters Patent, No. 1954, A.D. 1868, herein-before referred to.

Having now described the nature of my Invention, and the manner in which the same is to be performed, I wish it to be understood that
30 I do not limit myself to the precise details and proportions herein-before described, as the same may (as before stated) be varied according to circumstances, but I claim as my Invention the addition of the chemical substances herein named, that is to say, sulphate of alumina, sulphate of iron, sulphate of lime and alumina, (or any of them), or
35 of crude alum containing these substances, (or any of them) to the substances named in the Specification of the aforesaid Letters Patent, No. 1954, A.D. 1868, (or some of them), and the use of the compound

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mixture thus formed in the process of purifying and deodorizing sewage and making manure therefrom.

In witness whereof, I, the said George William Wigner, have hereunto set my hand and seal, this Eleventh day of November, in the year of our Lord One thousand eight hundred and seventy. 5

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

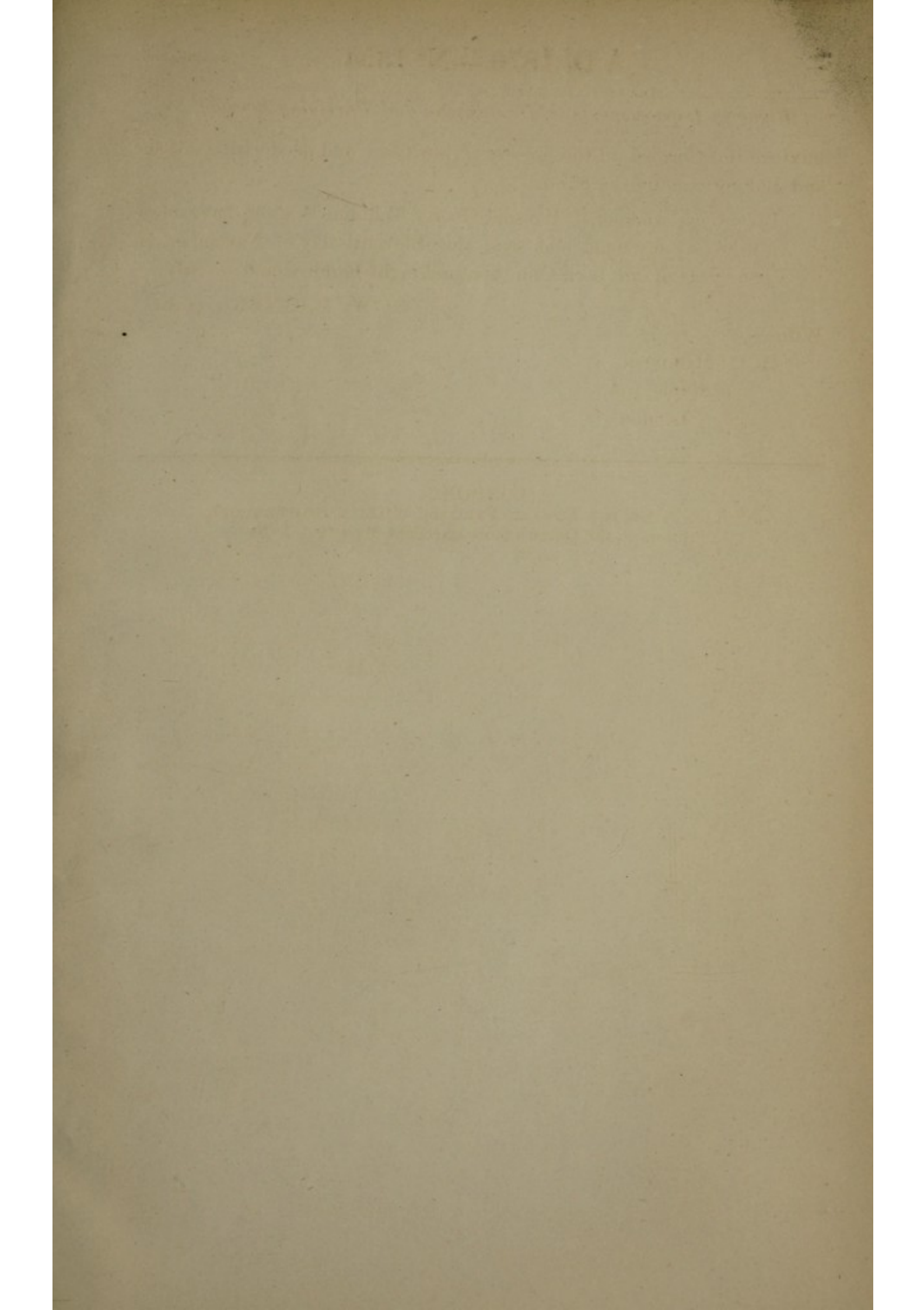
Witness,

H. H. MURDOCH,
7, Staple Inn,
London.

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