

Specification of Thomas Henry Baker and George Friend : treating excrementitious and sewage matters.

Contributors

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Publication/Creation

London : Great Seal Patent Office, 1864 (London : George E. Eyre and William Spottiswoode)

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A.D. 1863, 8th SEPTEMBER. N^o 2208.

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

OF

THOMAS HENRY BAKER
AND
GEORGE FRIEND.

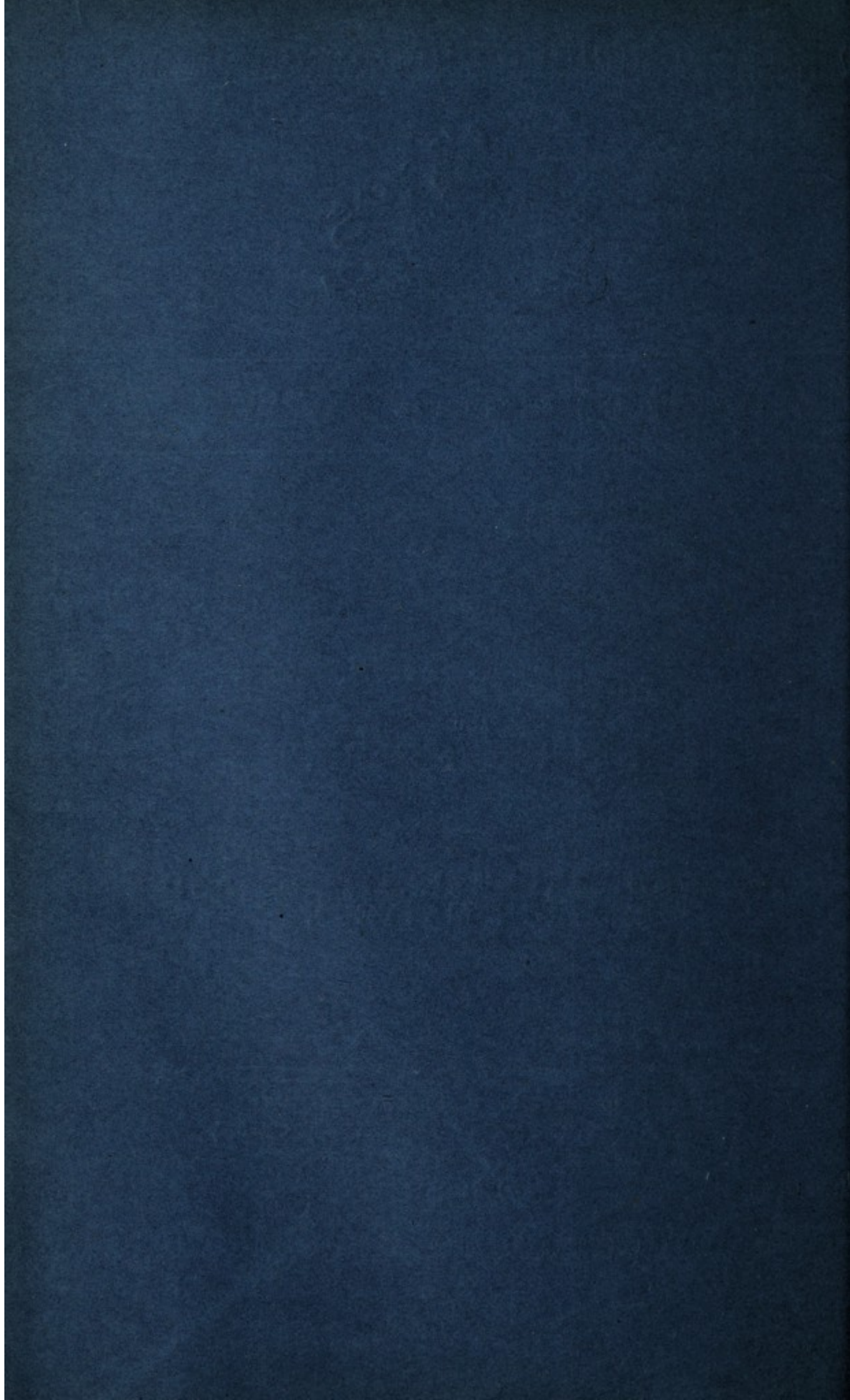
TREATING EXCREMENTITIOUS AND
SEWAGE MATTERS.

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 1s. 6d.

1864.





A.D. 1863, 8th SEPTEMBER. N^o 2208.

Treating Excrementitious and Sewage Matters.

LETTERS PATENT to Thomas Henry Baker, of Tunbridge, in the County Kent, Engineer, and George Friend, of the same Place, Engineer, for the Invention of "**IMPROVEMENTS IN TREATING EXCREMENTITIOUS AND SEWAGE MATTERS, AND IN THE MEANS OR APPARATUS EMPLOYED THEREIN.**"

Sealed the 1st March 1864, and dated the 8th September 1863.

PROVISIONAL SPECIFICATION left by the said Thomas Henry Baker and George Friend at the Office of the Commissioners of Patents, with their Petition, on the 8th September 1863.

We, THOMAS HENRY BAKER, of Tunbridge, in the County of Kent, Engineer,
5 and GEORGE FRIEND, of the same Place, Engineer, do hereby declare the nature of the said Invention for "**IMPROVEMENTS IN TREATING EXCREMENTITIOUS AND SEWAGE MATTERS, AND IN THE MEANS OR APPARATUS EMPLOYED THEREIN,**" to be as follows:—

10 In operating on sewage matters our object is to separate the various matters collected and to purify the more liquid portion thereof, so that this purified portion may be allowed to flow or be conducted harmlessly into rivers or otherwise, as desired, while the residuum is solidified and becomes a manure. For this purpose (when dealing with sewers or drains) the sewage matters are
15 conducted into a receiver, the lower portion of which is provided with grating adapted to act as a screen or retainer to keep back stones, bricks, and other solid substances, whilst the less fluid portion of the sewage matter will pass through this screen into another receiver, from which it may be pumped or drawn up; at the same time the more fluid portion of the sewage matter will

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rise in the first receiver to the upper portion thereof, which is provided with a cover formed of or supplied with filtering and purifying matters, and thence through this cover into a chamber above, of which such cover forms the bottom, and the sides of which are formed of or supplied with suitable filtering and purifying materials. The filtering and purifying media employed may be sand, shingle, refuse from tan pits, gravel, charred tan, charred wood, carbonized peat, burnt clay, or other woody or earthy substance, either alone or in combination with other substances, and the more fluid portion of the sewage matters, by percolating through these filtering means, will become purified. The whole of the works may be under cover and be kept at a uniform temperature by the aid of the waste steam of the engines employed to work the pumps or other lifting apparatus. To provide against the event of sudden heavy rains, as well as for other occasions, we employ a storm reservoir with an opening from the main sewer by self-acting flood gates or sluices. The more solid portion of the sewage matters, as raised from the lower receiver, we propose to convey to filtering reservoirs in which, when necessary, we apply a distributor or distributors. The apparatus we employ for incorporating deodorizing material with the sewage in the receiving tank consists of a hopper fixed over the main drain to be charged with deodorizing material, which is passed into the main drain by means of revolving apparatus receiving its motive power from a portion of the sewage being diverted into a chamber by the side of the main drain for that purpose, or by other suitable means.

For deodorizing and cleansing excrementitious matters of closets and other places.—When it is not necessary to have sunk cesspools, or where cesspools are not already in use, we propose to introduce into the closets portable boxes or containers, substituting ordinary closet seats, such box or container to be constructed of galvanised iron or other suitable materials. In connection with the seat box or container will be a chamber charged with deodorizing materials, so that when the closet is being used a portion of the deodorizing matter will fall upon the surface of the deposit. The distribution of such deodorizing matter will be regulated by a spring or balance valve, which may be attached to the seat or the closet door, or otherwise, to effect a self-acting system of deodorizing. In dealing with sunk cesspools we raise the deodorized manure from the same by use of a spiral pump or other apparatus, which may be applied to the manure in the cesspool through the hole in the seat or other suitable opening, so that such manure may be drawn up into boxes or other suitable receivers to be conveyed to the manure waggon or other receiver.

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SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Thomas Henry Baker and George Friend in the Great Seal Patent Office on the 8th March 1864.

TO ALL TO WHOM THESE PRESENTS SHALL COME, we, THOMAS
5 HENRY BAKER, of Tunbridge, in the County of Kent, Engineer, and GEORGE FRIEND, of the same Place, Engineer, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Eighth day of September, in the year of our Lord One thousand eight hundred and sixty-three, in the twenty-seventh year of
10 Her reign, did, for Herself, Her heirs and successors, give and grant unto us, the said Thomas Henry Baker and George Friend, Her special licence that we, the said Thomas Henry Baker and George Friend, our executors, administrators, and assigns, or such others as we, the said Thomas Henry Baker and George Friend, our executors, administrators, and assigns, should
15 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 TREATING EXCREMENTITIOUS AND SEWAGE MATTERS, AND IN THE MEANS**
20 **OR APPARATUS EMPLOYED THEREIN,**" upon the condition (amongst others) that we, the said Thomas Henry Baker and George Friend, 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
25 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 we, the said Thomas Henry Baker and George Friend, do hereby declare the nature of the said Invention, and in what
30 manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say:—

The improvements relate, first, to operating on sewage matters in order to separate the various parts of them as collected, and to purify the more liquid portion thereof, when this liquid portion may be allowed to flow or be con-
35 ducted harmlessly into rivers or otherwise, as desired, while the residuum is solidified to be used as a manure. But that the improvements may be better understood, we will proceed, by the aid of the accompanying Drawings, more fully to describe the same.

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DESCRIPTION OF THE DRAWINGS.

Figure 1 shews a plan of apparatus arranged according to one part of the improvements; Figures 2 and 3 shew transverse sections of parts of Figure 1. The sewage matters are conducted from the main drain or sewer a, a^1 , into a receiver b , the lower portion of which is provided with a grating or screen b^1 , 5 adapted to act as a screen or retainer to keep back stones, bricks, and other solid substances, whilst the less fluid portion of the sewage matter will pass through this grating or screen b^1 into the receiver c , from which it may be drawn up by pumping apparatus c^1 , or by other suitable means. At the same time the more fluid portion of the sewage matter will rise in the reservoir b 10 to the upper portion thereof, which is provided with a cover d formed of grating lined with fine openwork, and supplied with filtering and purifying matters d^1 , and thence such fluid matters will rise through this cover into a chamber e above it, and of which such cover forms the bottom, whilst the sides e^1 of this chamber e are formed of grating, also lined and similarly supplied with 15 suitable filtering and purifying materials. The filtering and purifying media employed may be sand, shingle, refuse from tan pits, gravel, charred tan, charred wood, carbonized peat, burnt clay, or other woody or earthy substance, either alone or in combination with other substances, and the more fluid portion of the sewage matters by percolating through these filtering means 20 will become purified. This chamber e is surrounded by a channel or gutter e^2 , by which the liquid overflowing from the chamber e is collected, to be thence conducted by a pipe or channel e^3 into any adjacent stream or otherwise, as may be desired. The whole of the works may be under cover, and be kept at a uniform temperature, or so as to avoid inconvenience arising from excessive 25 cold of winter by the aid of the waste steam of the engines employed to work the pumps or other lifting apparatus. f is a storm reservoir adapted to provide against the event of sudden heavy rains, as well as for other occasions, there being an opening f^1 from the main sewer a^1 supplied with flood gates or sluices which may be self-acting, if desired, in order to open with excessive 30 pressure. l, l , is a grating to collect bricks, stones, and other matters between the parts a and a^1 of the sewer. The more solid portion of the sewage matters raised from the lower receiver b we then convey into filtering reservoirs or receivers, which may be charged with deodorizing substances, and, by preference, we place such more solid sewage matter in closed chambers such as 35 shewn in plan at Figure 4, and longitudinal and transverse section, Figures 5 and 6; two of these chambers g are shewn, but other number of them may be employed. Each of these chambers is formed at one end with filtering

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media g^1 , whilst the other end g^2 is formed to slide within it, and when pressed inwards upon the contained matter, it serves as a piston to force out the liquid matter still remaining in such contained matter. These chambers g are furnished with wheels to run on rails, so that each may be brought with its
5 end opposite the end of the rod h , which is formed with teeth h^1 so as to be acted upon by the teeth of a pinion h^2 upon an axis driven by a steam engine or other suitable power by which the rod h may be acted on with force to move the piston g^2 , and when sufficient pressure has been applied to the piston g^2 of one chamber g , that chamber will be shifted to admit of another
10 coming into its place to be similarly acted upon.

To facilitate the incorporating of deodorizing material with the sewage in the receiving tank, we sometimes employ a hopper fixed over the main drain charged with deodorizing material, which is passed into the main drain by means of revolving apparatus, which may receive its motive power from a
15 portion of the sewage being diverted into a chamber by the side of the main drain for that purpose, or by other suitable means.

The improvements relate, secondly, to deodorizing and cleansing excrementitious matters of closets and other places. Figure 7 shews a front view, and Figure 8 a section of apparatus adapted to be employed when sunk
20 cesspools are not used. i is a portable box or container, which may be formed so as to be used in place of the ordinary closet seats, and may be constructed of galvanized iron or other suitable material. In communication with the box or container there is a chamber j , which is charged with suitable deodorizing materials, and is provided with suitable valvular means in order
25 that when the closet has been used, a portion of the deodorizing matter employed may be allowed to fall upon the surface of the deposit.

One arrangement for regulating the flow of the deodorizing matter from the chamber j into the box i , as shewn, is formed by two slides 1, 2, which are connected to the opposite ends of a lever 3, which turns upon a centre of
30 motion 4, and may be acted upon by a handle, so that by withdrawing the valve 1, the valve 2 will be placed across the passage 5, when deodorizing matter will fall on the valve 2, and occupy the space between the valves 1 and 2, and then by withdrawing the valve 2, the valve 1 will be forced in, and the portion of deodorizing matter from between the two valves
35 1 and 2 will fall and be conducted on to the deposit in the box. The form or dimension of such valvular apparatus or regulator of the quantity of deodorizing matter distributed each time of use may be varied, and in some cases the chambers for regulating the quantity of deodorizing matter to be employed may be formed, as shewn by Figure 9, by an angular

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or radial division or compartment k adapted to receive the desired quantity of the deodorizing matter, and then by a lever or other means this division or compartment k may be caused to turn upon its axis k^1 to deliver its quantity of matter, when the segmental plate k^2 will close the aperture from the receiver, and when the compartment k has delivered its quantity, a spring or other means may cause that compartment to return into position to receive a fresh supply. These means of obtaining regulated quantities of deodorizing matters from receivers, and throwing them on to the deposit, are also applicable when pans somewhat similar to those of the ordinary construction are used, having valves for the discharge of the combined matters in lieu of the ordinary traps now employed. The distribution of such deodorizing matter may be, if desired, regulated by a spring or balance valve attached to the seat or to the closet door, or otherwise, to effect a self-acting system of deodorizing.

In dealing with sunk cesspools we raise the deodorized manure from the same by the use of a spiral pump or other apparatus which may be applied to the manure in the cesspool through the hole in the seat or other suitable opening, so that such manure may be drawn up into boxes or other suitable receivers to be conveyed to the manure waggon or other receiver.

Having thus described the nature of the said Invention, and means which we adopt in carrying the same into effect, we would have it understood that we do not confine ourselves to the precise details shewn and described, as these may be varied.

In witness whereof, we, the said Thomas Henry Baker and George Friend, have hereunto set our hands and seals, this Fifth day of March, in the year of our Lord One thousand eight hundred and sixty-four.

T. H. BAKER. (L.S.)

GEO. FRIEND. (L.S.)

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Printers to the Queen's most Excellent Majesty. 1864.

FIG. 6.



FIG. 4.

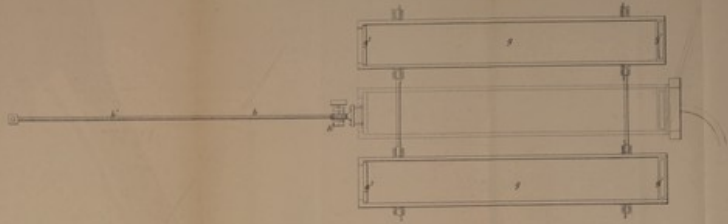


FIG. 5.

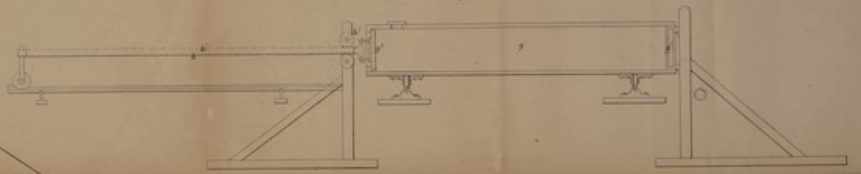
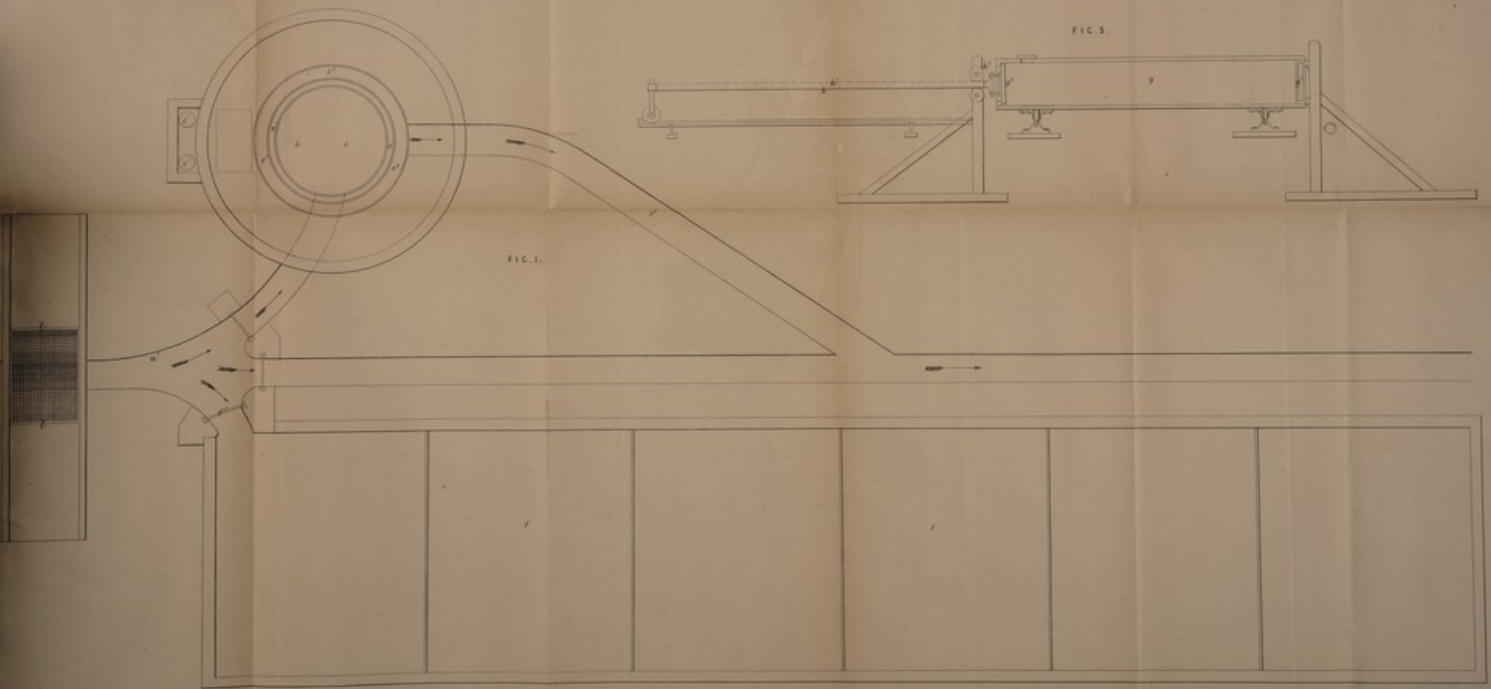


FIG. 1.



The steel drawing is colored.

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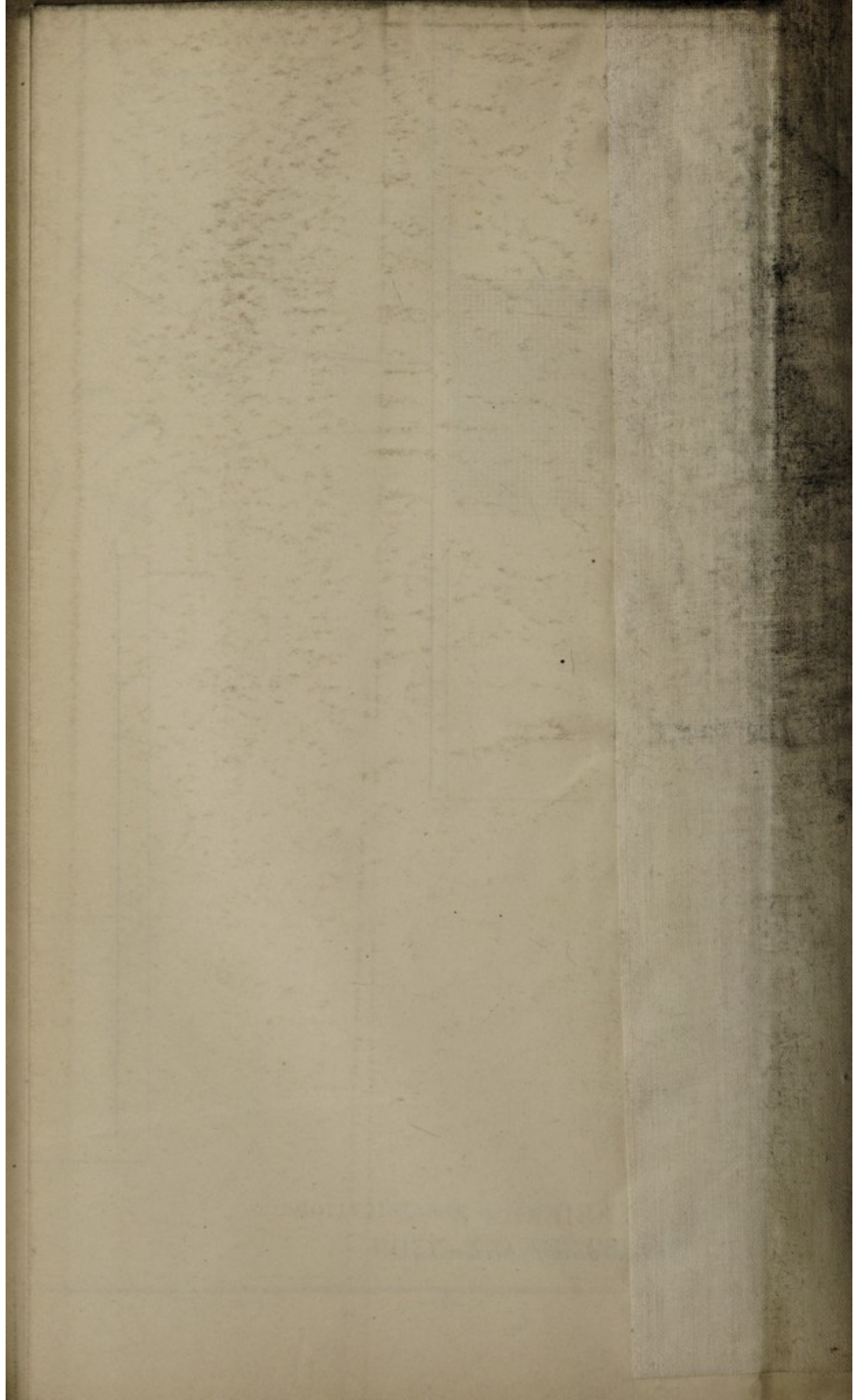


FIG. 2.

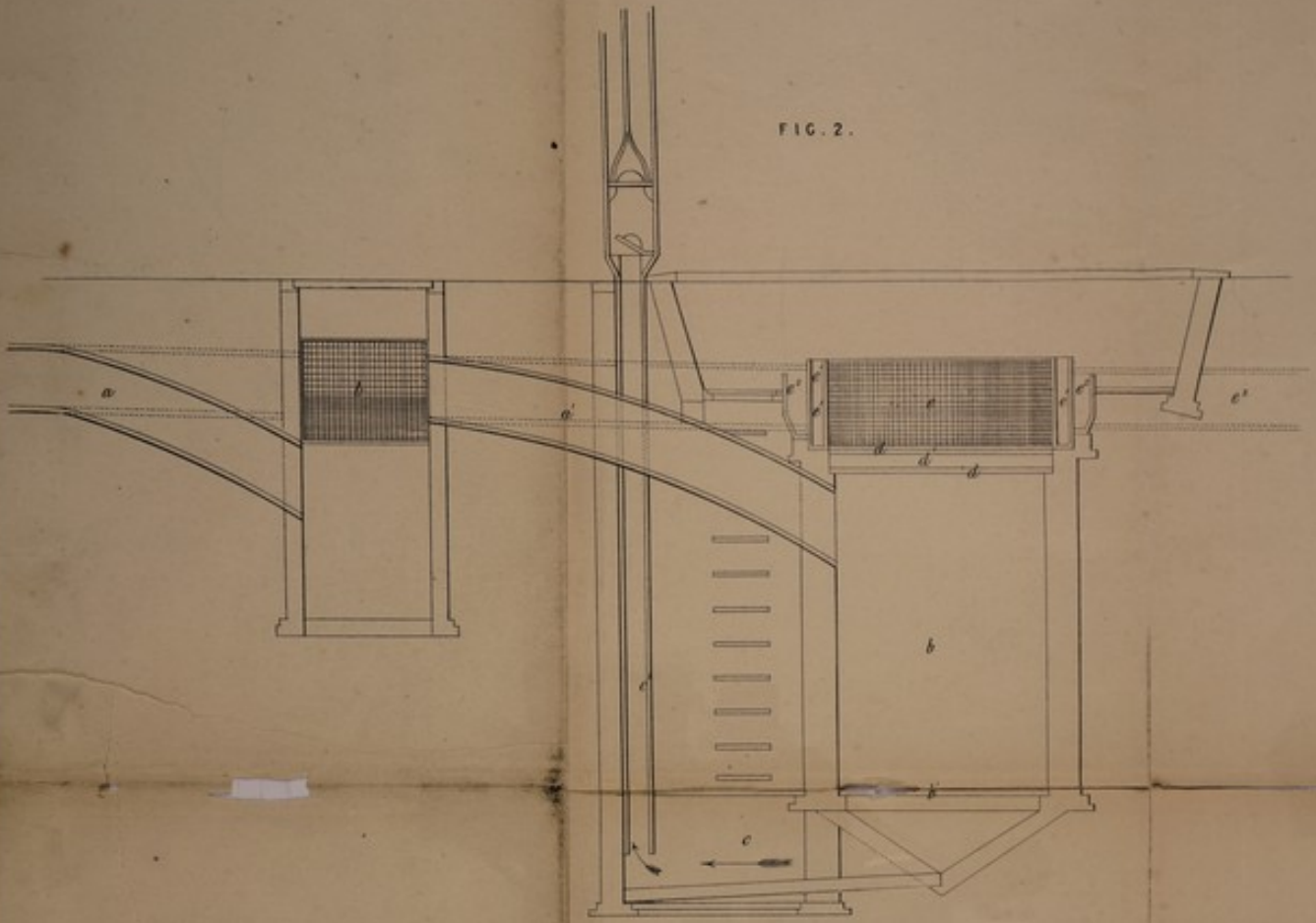
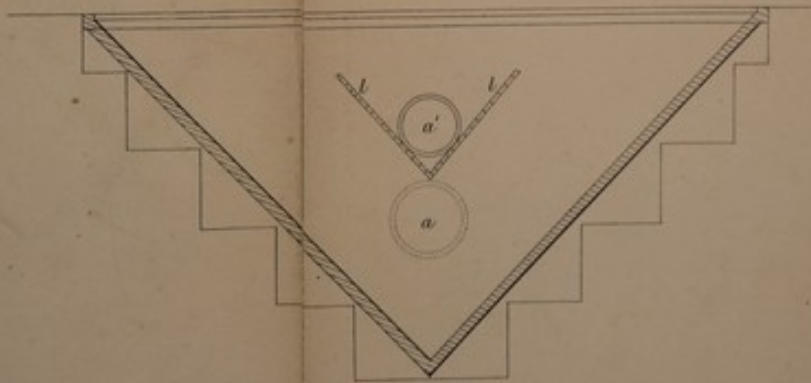
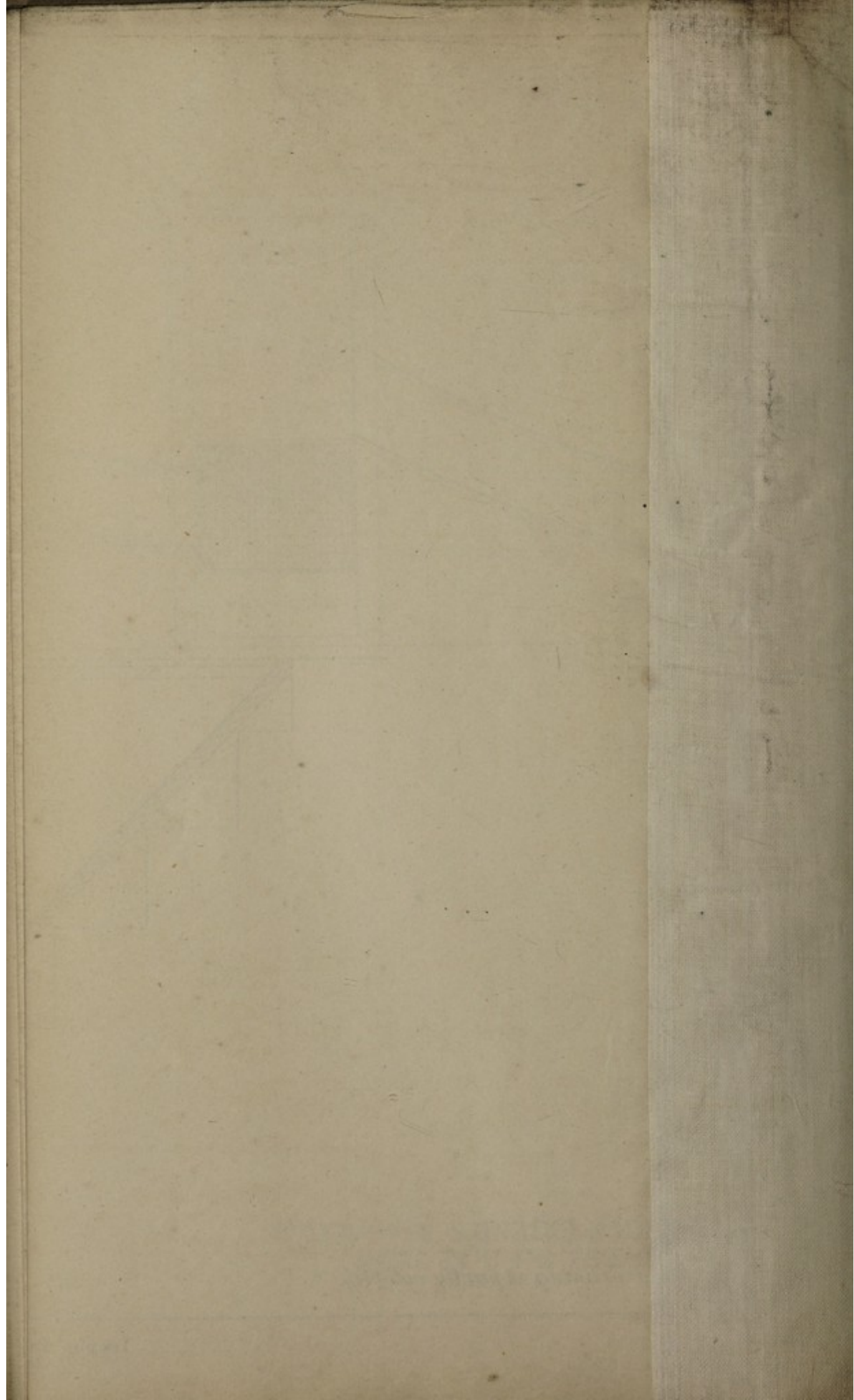


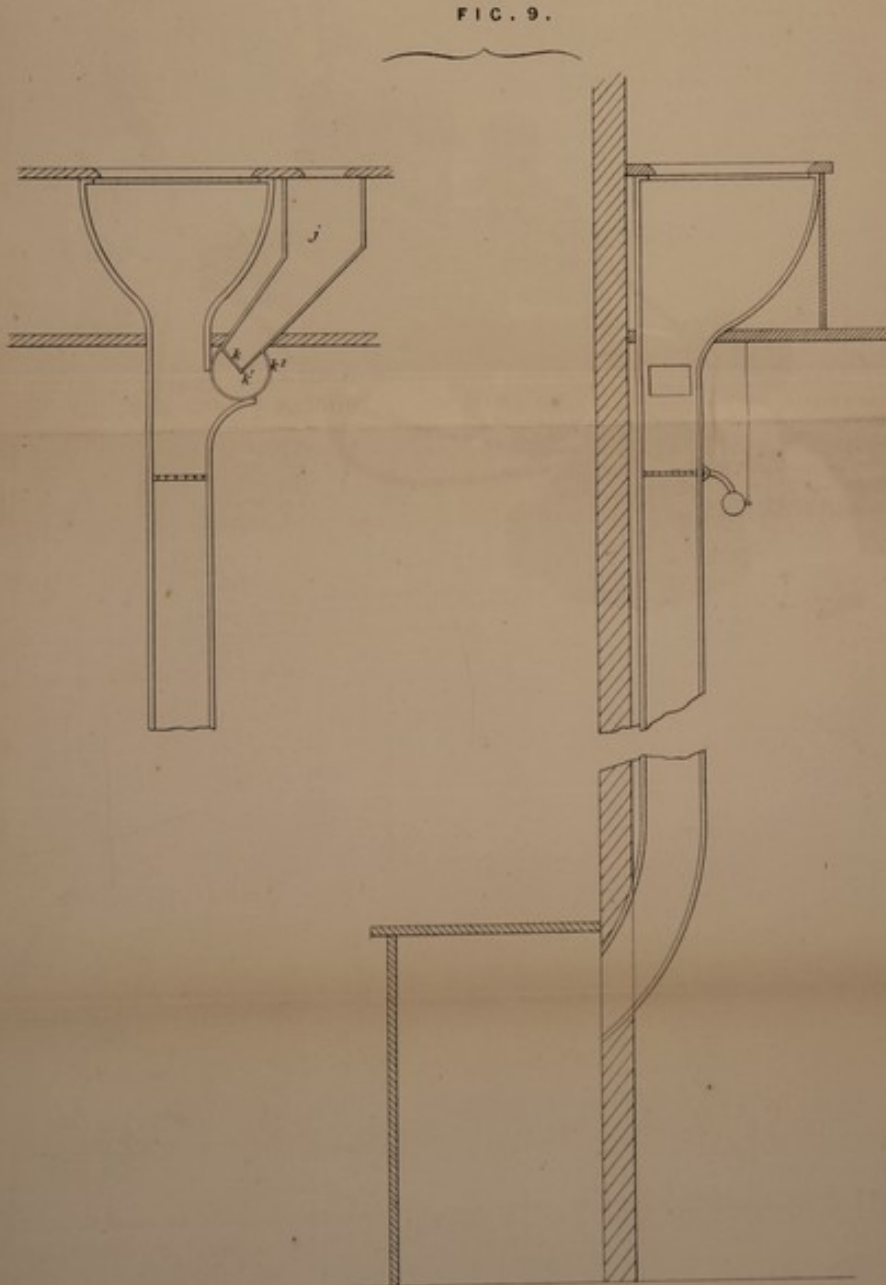
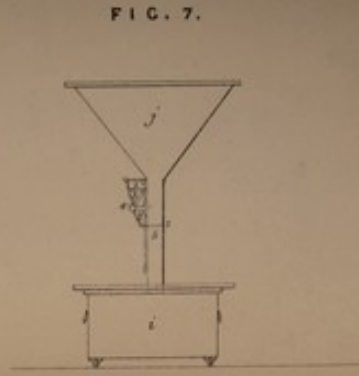
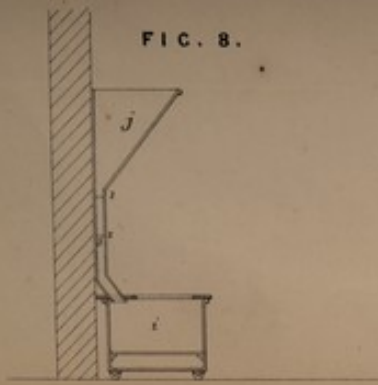
FIG. 3.



The filed drawing is partly colored.

Drawn on Stone by Malby & Sons.





The filed drawing is partly colored.

Drawn on Stone by Melby & Sons

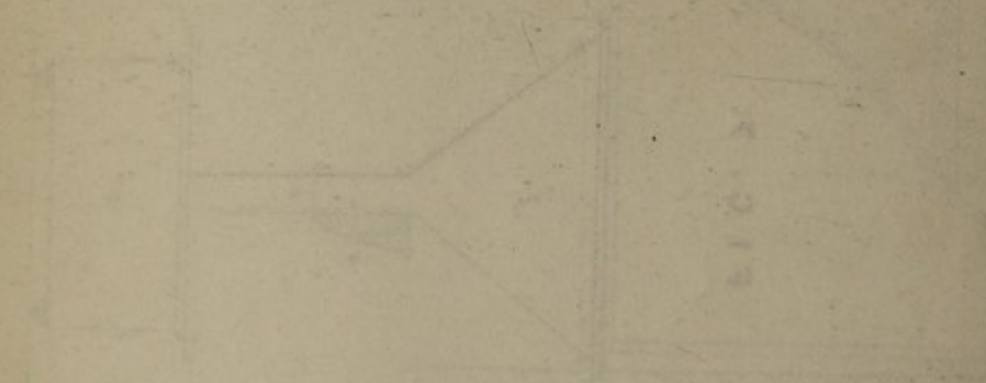


FIG. 2



FIG. 3

ВЪЗНЕСЕНА СЪЩЕ И ДРУГА
ВЪЗНЕСЕНА СЪЩЕ И ДРУГА

ВЪЗНЕСЕНА СЪЩЕ И ДРУГА