

## **Specification of George Barker : syphons for taking off sewerage, &c.;**

### **Contributors**

Barker, George.

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A.D. 1863, 14th NOVEMBER. N<sup>o</sup> 2849.

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

OF

GEORGE BARKER.

—  
PHONS FOR TAKING OFF SEWERAGE, &c.  
—

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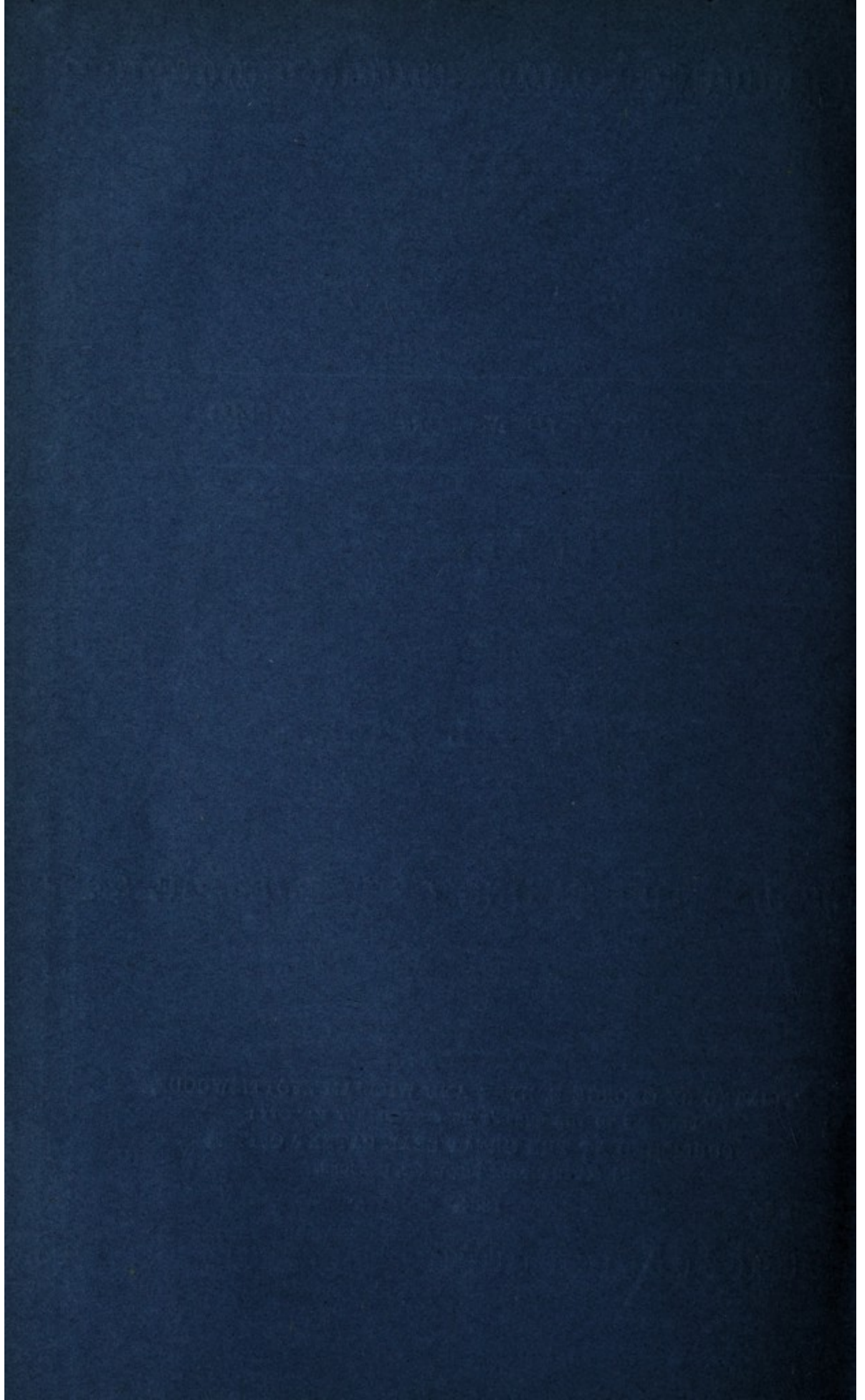
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A.D. 1863, 14th NOVEMBER. N<sup>o</sup> 2849.

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### Syphons for Taking off Sewerage, &c.

**LETTERS PATENT** to George Barker, of 59, Broad Street, Pendleton, in the County of Lancaster, Merchant, for the Invention of "**IMPROVEMENTS IN THE CONSTRUCTION OF SYPHONS FOR TAKING OFF LIQUID SEWERAGE, OVERFLOW OF RIVERS, AND OTHER LIKE PURPOSES.**"

Sealed the 10th May 1864, and dated the 14th November 1863.

**PROVISIONAL SPECIFICATION** left by the said George Barker at the Office of the Commissioners of Patents, with his Petition, on the 14th November 1863.

I, **GEORGE BARKER**, of 59, Broad Street, Pendleton, in the County of Lancaster, Merchant, do hereby declare the nature of the said Invention for "**IMPROVEMENTS IN THE CONSTRUCTION OF SYPHONS FOR TAKING OFF LIQUID SEWERAGE, OVERFLOW OF RIVERS, AND OTHER LIKE PURPOSES,**" to be as follows:—

My Invention consists in the employment of syphon pipes, constructed as hereafter described, for carrying off the liquid sewerage from towns and other places, the overflow from rivers, and for other purposes. The syphon pipe or pipes is or are turned up at each end or ends, and is or are set at even levels, whereby the syphon may be said to be self-containing. To apply my Invention to the carrying off the liquid portion of sewerage it is run into a tank in which one end of the syphon is placed. When the liquid in the tank rises above the level of the bent end of the syphon it passes up the syphon, traverses its pipe,



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and escapes out at the other end into any suitable receptacle. The syphon pipe may be of any required length, and consequently liquid sewerage is in this manner conveyed outside the town or village, or to any convenient distance therefrom. Manufactories and dwelling houses can, by a similar arrangement, be cleared of liquid refuse, and the overflow water from rivers, canals, drains, 5 and other receptacles can be removed.

My Invention further consists in the employment of syphons, constructed in manner before described, for supplying tanks with liquid for filling bottles. I use in this case a ball valve, the opening of which is long, but narrow, whereby a slight movement of the valve in one direction will shut the orifice, and in 10 the other will open it full.

**SPECIFICATION** in pursuance of the conditions of the Letters Patent, filed by the said George Barker in the Great Seal Patent Office on the 14th May 1864.

**TO ALL TO WHOM THESE PRESENTS SHALL COME, I, GEORGE 15 BARKER,** of 59, Broad Street, Pendleton, in the County of Lancaster, Merchant, send greeting.

**WHEREAS** Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Fourteenth day of November, in the year of our Lord One thousand eight hundred and sixty-three, in the twenty-seventh year of Her 20 reign, did, for Herself, Her heirs and successors, give and grant unto me, the said George Barker, Her special license that I, the said George Barker, my executors, administrators, and assigns, or such others as I, the said George Barker, my executors, administrators, and assigns, should at any time 25 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 CONSTRUCTION OF SYPHONS FOR TAKING OFF LIQUID SEWERAGE, OVERFLOW OF RIVERS, AND OTHER LIKE PURPOSES,**" upon the condition (amongst others) that 30 I, the said George Barker, my executors, administrators, and assigns, 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 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 35 after the date of the said Letters Patent.



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

- 5 This Invention consists in the employment of syphon pipes, constructed as hereafter described, for carrying off liquid sewerage from towns and other places, the overflow from rivers, and for other purposes. The syphon pipe or pipes is or are turned up at each end or ends or conducted straight into a tank, and is or are set at even levels, whereby the syphon may be said to be  
10 self-containing. To apply my Invention to the carrying off the liquid portion of sewerage it is run into a tank in which one end of the syphon is placed. When the liquid in the tank rises above the level of the bent end of the syphon or the liquid in the tank it passes up the syphon, traverses its pipe, and escapes out at the other end into any suitable receptacle. The syphon pipe  
15 may be of any required length, and consequently liquid sewerage is in this manner conveyed outside the town or village and to any convenient distance therefrom. Manufactories and dwelling houses can, by a similar arrangement, be cleared of liquid refuse, and the overflow water from rivers, canals, drains, and other receptacles can be removed.
- 20 My Invention further consists in the employment of syphons, constructed in manner before described, for supplying tanks with liquid for filling bottles. I use in this case a ball valve, the opening of which is long, but narrow, whereby a slight movement of the valve in one direction will shut the orifice, and in the other will open it full.
- 25 And that the Invention may be fully understood I will proceed to describe the Drawings hereunto annexed and forming part of this Specification.

## DESCRIPTION OF THE DRAWINGS.

- Fig. 1 represents a sectional elevation of a system of syphons for carrying off the liquid sewerage of towns and villages; Fig. 2 represents the same  
30 system applied to a single dwelling house; Fig. 3 represents a sectional elevation of the self-containing syphons as applied to carrying off the overflow of rivers, floods, or drainage of large tracts of land; Fig. 4 represents the mode of taking the water off from one reservoir to another on elevated grounds or hills; Fig. 5 is a front elevation of the apparatus for filling bottles; Fig. 6 is  
35 a cross section of the same; Fig. 7 is an elevation of the plug used in the supply tap when filling bottles; Fig. 8 represents an elevation of a self-containing syphon as applied to fountains; Fig. 9 represents a section of a



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self-containing syphon for filling barrels and other like receptacles. In each of the above Figures the same letters of reference indicate like parts.

Referring to Fig. 1, the sewerage is conducted by any suitable means into the reservoir E, which has an inclined bottom made for the purpose of collecting all the solid matter or sediment at one corner, as shewn at H; this sediment is raised to the surface of the ground by means of a chain pump G or any other equivalent means, and carted away as shewn. The liquid is conducted up the pipe B into the main pipe A, and thence into the reservoir F, supposed to be at some outlying district of the town. The levels in E and F are alike, and when the reservoir E receives any further liquid to raise its level it immediately passes up the pipe B into A, thence to the reservoir F, which is kept always at the same level by having an overflow at P, over which it flows into the stream or river K. Instead of flowing direct into the river it may be made to turn the water wheel J or any other kind of machine, and thus make the fall available for some useful purpose. The tank Q is what I propose for domestic purposes. The sewerage from the dwelling or other house enters, firstly, into the compartment L through a grid at the top, which can be removed to clean it. From the compartment L the liquid passes up M into the compartment N, whence it passes up the ascension pipe C into the main pipe A, which conducts it into the reservoir or tank F. The tank O is supposed to be some outlying district of the town, and shows how it can also be connected to the main pipe A. In Fig. 2, L<sup>1</sup> is the tank at the dwelling house whence the liquid is taken off through the pipe C<sup>1</sup> to the tank L<sup>2</sup> at any required distance; this tank has an overflow, as described in reference to F in Fig. 1, which conducts the liquid into a stream, or, if required, for irrigation. For taking off the overflow of rivers or drainage into the sea we use the the syphon, as shewn in Fig. 3, in which R is the self-containing syphon passing over a hill or embankment, and having a slide valve V at each end for stopping the action when required; these valves are raised and lowered by means of the handles W, which turn nuts working into screws attached to the valves, or by means of a rack and pinion, as shewn. U represents the sea or other water into which it is required to conduct the water out of S containing the overflow or drainage water. The tanks S, S<sup>1</sup>, have inclined bottoms for accumulating the sediment at one corner, whence it is taken away by a chain pump or scoop, as described in reference to Fig. 1. To fill the syphons at the commencement a force and suction pump Y may be used, which ejects the water through the pipes X, X<sup>1</sup>, into the top of the syphon R<sup>1</sup> until it is full, or it can be filled from a reservoir situated higher than the syphon; the



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syphon is then self-acting. The action and mode of operating is identical with that of the sewerage syphon. I prefer to put the pipes under ground, in order that they may be kept from the action of the frost. In case of leakage of these syphons I attach the high-pressure pipe  $Z^6$  to the bottom of the syphon  
5 at the valve or any other part; the flow of the water indicates where it is.

In the arrangement shewn in Fig. 4, for taking off water from a reservoir on the top of one mountain to a reservoir on the top of another, suppose  $e$  is a tank supplied from the reservoir in any convenient position, the water passes along the pipe  $a$  into the sediment reservoir  $b$  and up the pipe  $a^1$  into the  
10 reservoir  $e^1$  to stop the supply; or in case of accident I apply a valve at each end of the pipes  $a, a^1$ , indicated by the letters  $f, c, f^1, c^1$ . When any quantity of sediment has accumulated in  $b$ , I close the valves  $c, c^1$ , and open the valve  $d$ , when the sediment can be removed by any suitable means. The pipe  $h$  is an air pipe to be used when filling the syphon, afterwards it is closed by a valve  
15 at  $k$ . There is another pipe and valve at  $g$  for the like purpose.

I will now describe the apparatus for filling bottles, shewn in Sheet 2, Figs. 5, 6, and 7. The liquid to fill the bottles flows into the trough  $m$  through the tap  $n$ , the plug or valve in which has a long narrow opening, as shewn in Fig. 7, so that a slight rotatory motion gives a large passage for the  
20 fluid; this valve is controlled by a ball  $r$  which floats upon and is actuated by the rise and fall of the liquid in the trough  $m$ ; from  $m$  the liquid passes up the pipes  $p, p$ , into  $p^1, p^1$ , through the taps  $q$ , upon which the pipes  $p^1, p^1$ , swivel into the position shewn in dotted lines, Fig. 6. When the supply is cut off, supposing the trough empty and we wish to fill some bottles, the liquid is  
25 conducted by the supply pipe  $s$  through the valve  $n$  into trough  $m$ , and is allowed to fill up until the level is above top of pipes  $p, p$ , when it flows down the pipes  $p^1$  into the bottles, as shewn at  $F$ , where a bottle is placed upon a platform which can be raised or lowered according to the size of the bottle; the ball valve is then allowed to control the supply, the ball being so adjusted  
30 to cut off the liquid when the level in the tank is at a certain height, and at whatever height that is in the trough it will be of course the same in the bottles; when the bottles are full, the pipe  $p^1$  is turned into the position shewn in dotted line, which cuts off the connection with the syphons, and they are then withdrawn.

35 In Fig. 8, which represents a syphon for a drinking or other fountain,  $u$  is the reservoir into which dips the end of a self-containing syphon  $v$  supported on a pivot at  $v^2$ ; the top of the bend at  $v^1$  is at the same level or a little above that of the water in reservoirs or tank; on depressing this end  $v^1$  the opposite end is raised, and the water immediately commences to flow; on letting it



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return to its original position the water stops running. In the self-containing syphon, shewn in Fig. 9, for filling one barrel from another, the bottom of the two legs are stopped, and openings are made a little way up, as at *x* and *x*<sup>1</sup> and a partition *y* is put therein, so that the liquid follows the course shewn by the arrows, by this means the syphon is made self-containing, and can be hung up or put aside and be always ready for use. It will be understood that one leg of the syphon is put in the full barrel and the other in the empty one.

In witness whereof, I, the said George Barker, have hereunto set my hand and seal, this Twelfth day of May, in the year of our Lord One thousand eight hundred and sixty-four.

GEORGE BARKER. (L.S.)

Witness,

JOSEPH WILLCOCK,

Patent Agent & Engineer,

24, Market Place, Manchester,

& Chancery Lane, London.

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



FIG. 1.

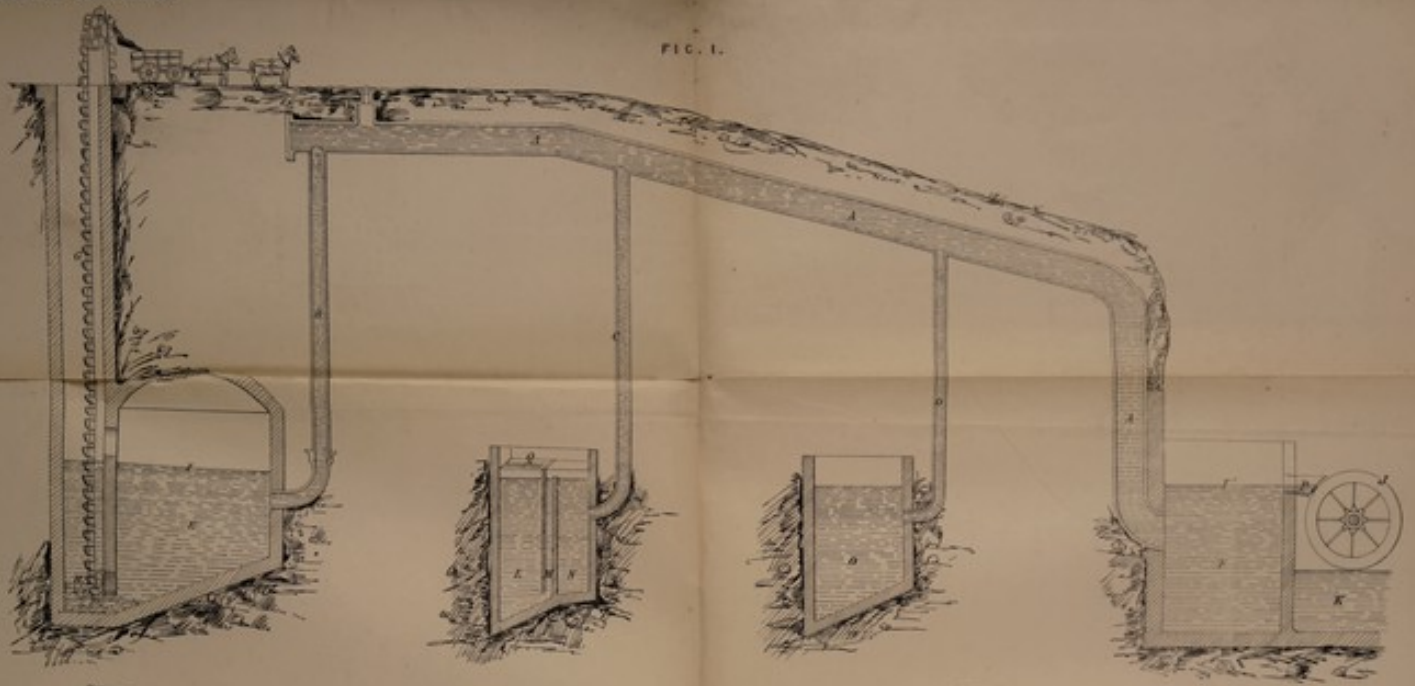


FIG. 3.

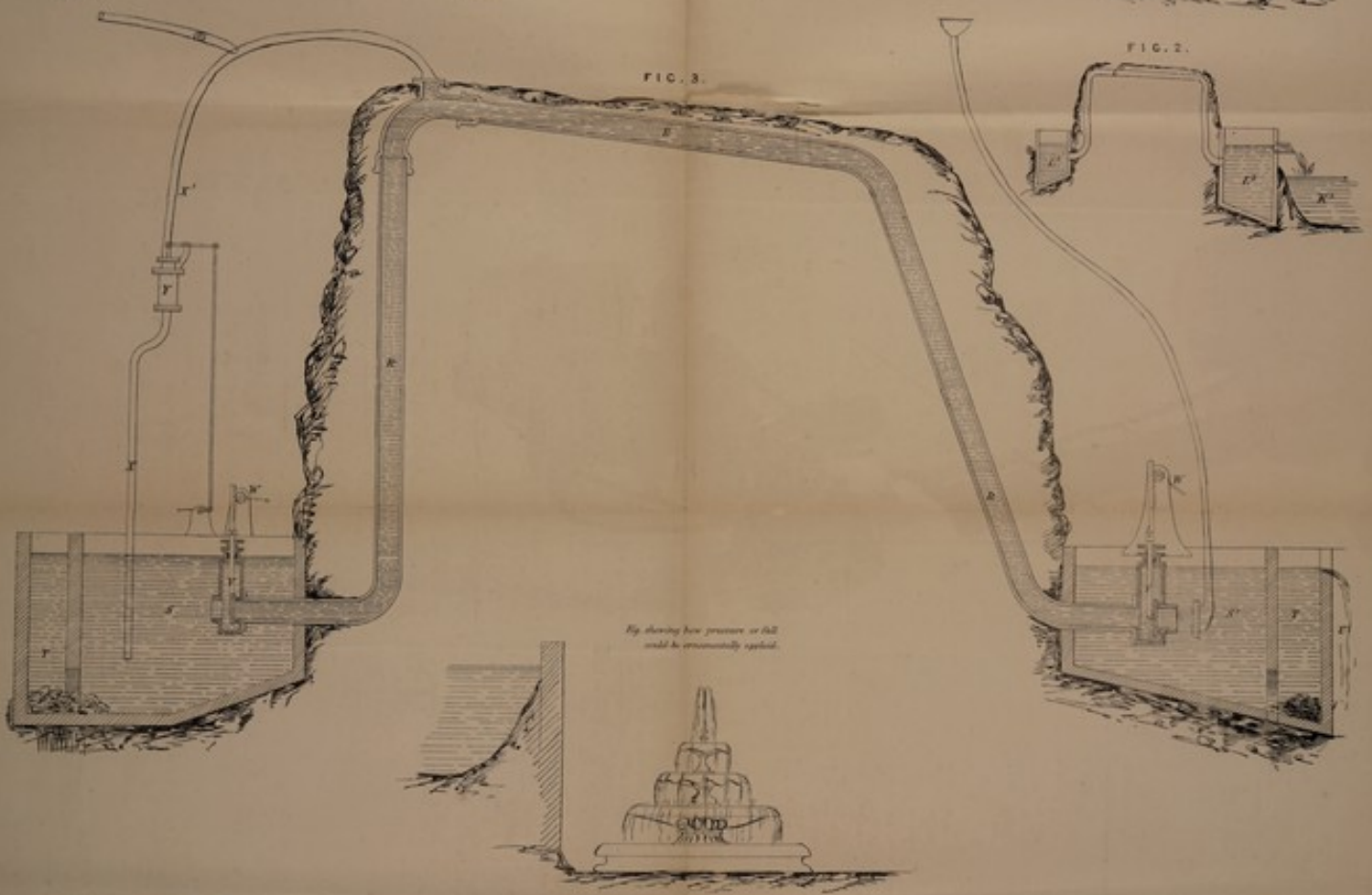
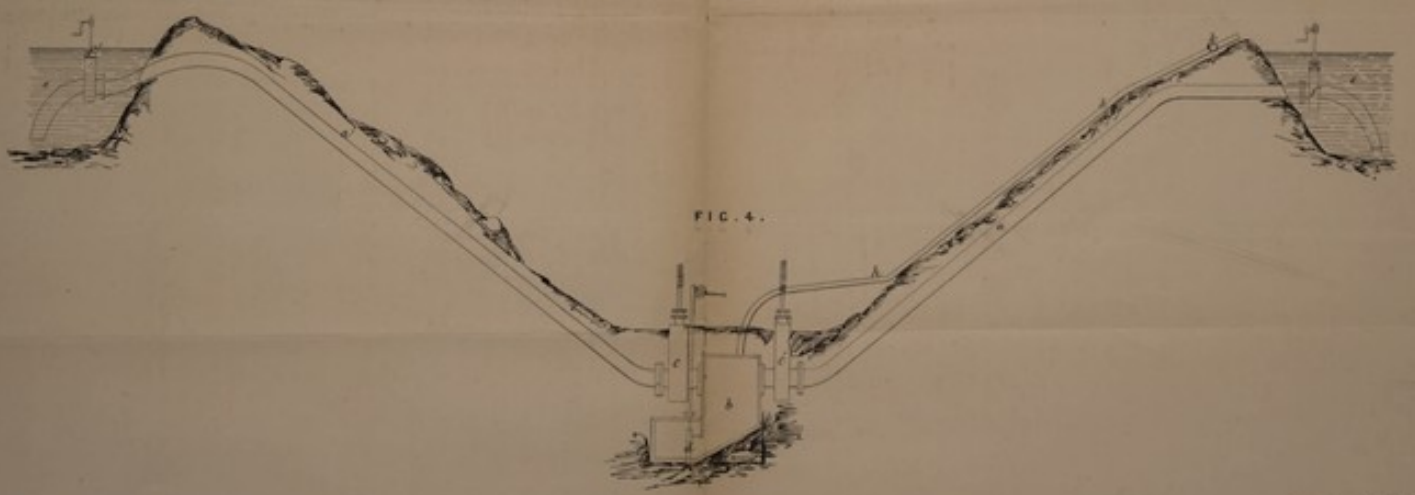


FIG. 2.



FIG. 4.



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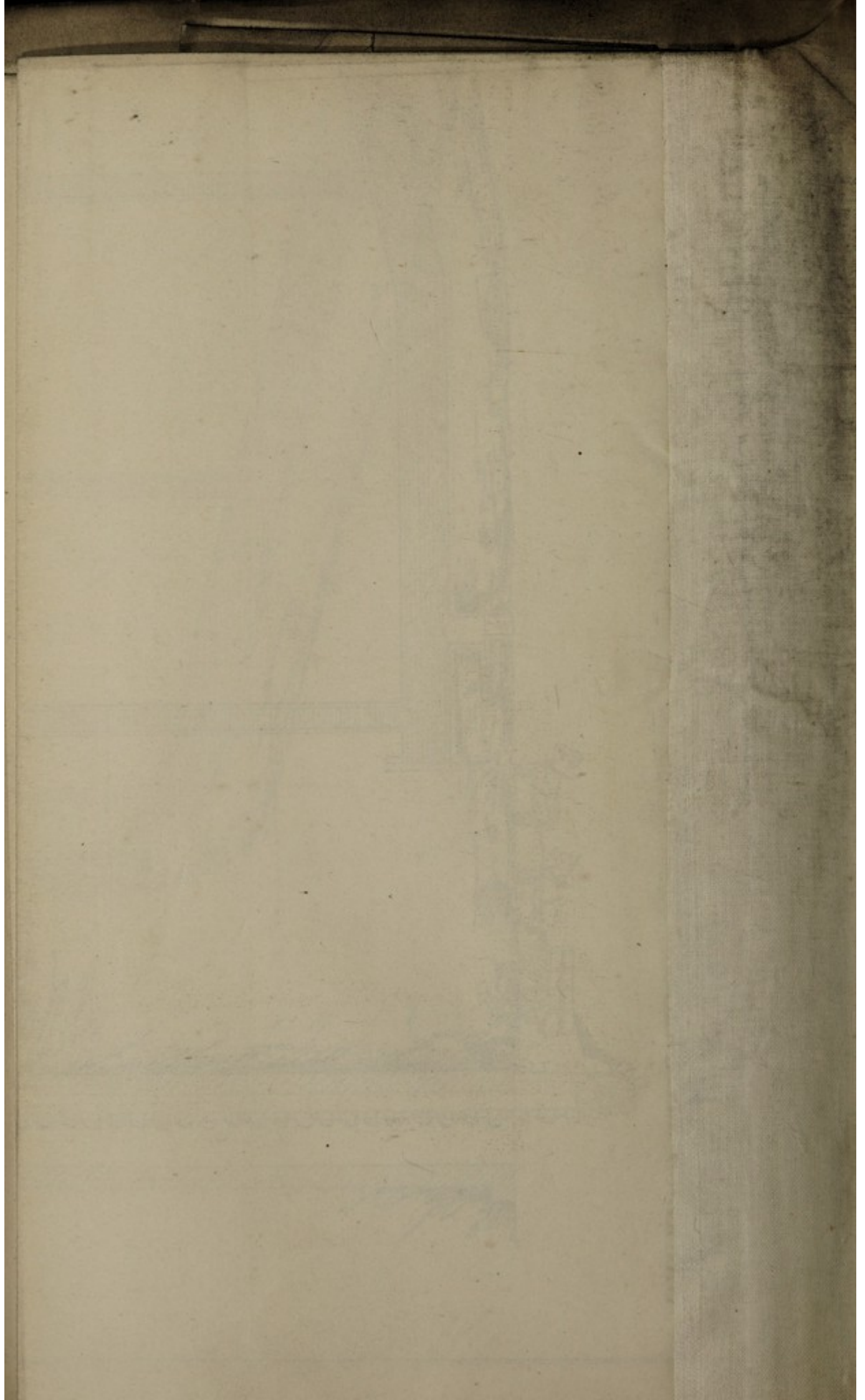




FIG. 5.

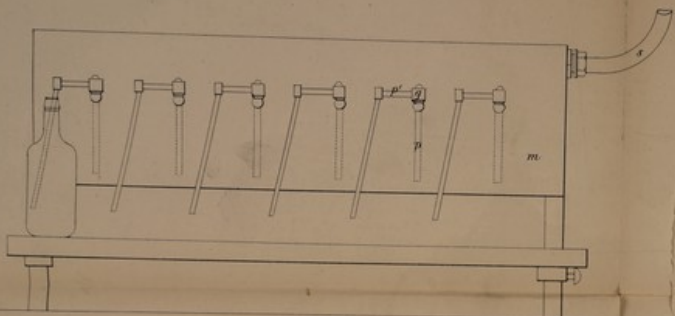


FIG. 7.



FIG. 6.

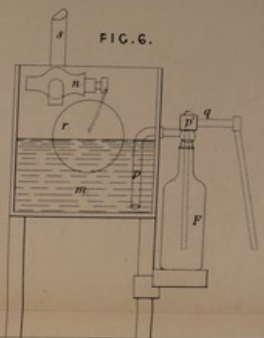


FIG. 8.

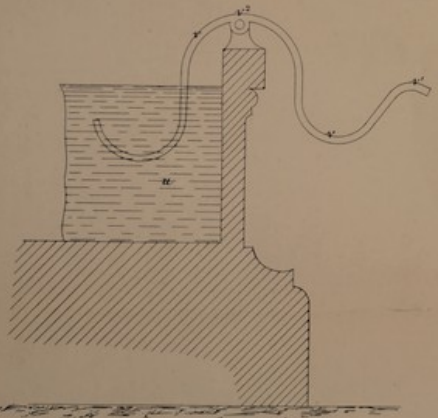
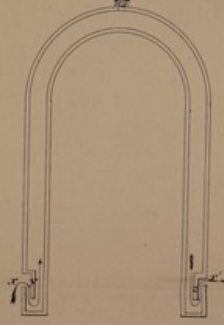


FIG. 9.



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