

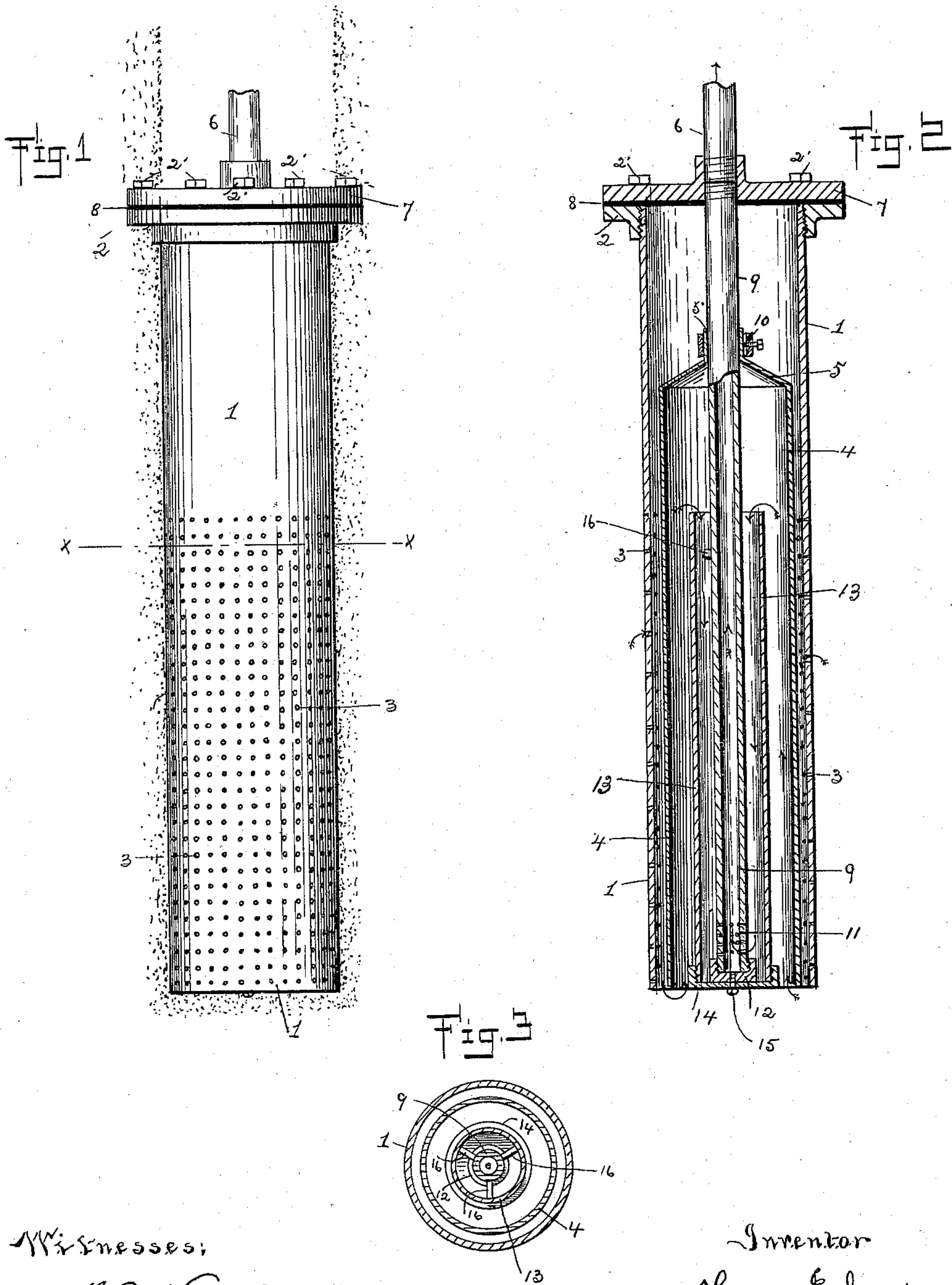
No. 609,269.

Patented Aug. 16, 1898.

H. ETHERIDGE.  
TRAP FOR PUMPING WELLS.

(Application filed Feb. 23, 1898.)

(No Model.)



Witnesses;

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# UNITED STATES PATENT OFFICE.

HARRY ETHERIDGE, OF McKEESPORT, PENNSYLVANIA.

## TRAP FOR PUMPING-WELLS.

SPECIFICATION forming part of Letters Patent No. 609,269, dated August 16, 1898.

Application filed February 23, 1898. Serial No. 671,366. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY ETHERIDGE, a subject of the Queen of Great Britain, and a resident of McKeesport, Allegheny county, Pennsylvania, have invented certain new and useful Improvements in Traps for Pumping-Wells, of which the following is a specification.

This invention relates to certain new and useful improvements in traps for pumping-wells.

The invention has for its object the provision of a new and novel means whereby sand deposits within water or other wells may be trapped and separated from the water, thus allowing a pure and constant supply of water to the pump. In deep wells where cylindrical strainers are employed the sand deposits gradually work into the openings or perforations of the strainer, where they become lodged, prevent a full supply of water, and finally require the strainer to be withdrawn, cleaned, and replaced. Therefore my object is to provide a device in which these disadvantages are overcome.

With the above object in view the invention finally consists in the novel construction, combination, and arrangements of parts, as will be hereinafter more specifically described in detail.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference designate like parts throughout the several views, in which—

Figure 1 is a vertical side view of my improved sand-trap arranged within a well. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a sectional plan view of the same on the line  $x-x$  of Fig. 1.

Referring to the drawings, the numeral 1 designates a metal cylinder or tube which is of such diameter as that of the well. This cylinder has a thread formed around its upper end and screwed tightly into the head 2. A number of small perforations 3 are formed through the cylinder, which extend around the periphery of said cylinder. A plain metal cylinder 4, having its outer diameter a trifle less than the interior diameter of the aforesaid outer cylinder, is provided. This

cylinder is also closed at its upper end by the flared head 5, upon which is formed the collar 5'.

The suction-pipe 6 has connected to its lower end the flanged head 7, which is of the same diameter as the aforesaid head 2, and between these heads is arranged the gasket 8, after which they are securely bolted together by the bolts 2', thereby making a perfectly water-tight joint.

A section of pipe or tubing 9 of about the same diameter as that of the suction-pipe is also connected to the aforesaid head 7 and extends down through the plain cylinder to the lower end of the same and is held to the cylinder at its top by the strap 10, which is arranged around the collar portion 5'. A number of small perforations 11 is formed near the lower end of this tube or suction-pipe extension, and to the extreme end is secured the cap 12.

A plain cylinder 13 of greater diameter than that of the tube 9, but less than the interior diameter of the cylinder 4, is provided. This cylinder is closed at its lower end by the head or cap 14 and is connected to the aforesaid cap 12 of the suction-pipe by the set-screw 15, and the height of this cylinder is such that it will extend from the bottom up along the line of perforations of the outer cylinder, so as to form a safe trap; and in order to keep this cylinder in position at equal distance all the way around the tube 9 I employ the inwardly-extended bars or arms 16, which are made fast to the cylinder. This device, when inserted within the bottom of the well and connected up to the suction-pipe, would operate in the following manner: The water surrounding the outer cylinder 1 would be prevented from rushing or flooding through the perforation, as the inner water-level is lowered by virtue of the cylinder 4 damming said flows or waterfalls as would ordinarily take place through these perforations were the aforesaid cylinder or dam 4 removed, or; in other words, there would be no waterfall or flooding through any of the perforations whatsoever, and consequently no sand would be drawn through, as the action of the cylinder 4 acts as a dam to the water that would ordinarily flood through these perforations and would result in the whole body of water



surrounding the cylinder 1 to be gradually lowered, and thereby prevent any disturbance of the sand surrounding this perforated cylinder. The cylinder 13, again, prevents any  
 5 disturbance of the water, for the reason that it is caused to rise several feet before it again descends to ascend in the tube or suction-pipe extension 9.

It will be readily apparent that by causing  
 10 the water in the well to rise and fall, as described, and indicated by the arrows at Fig. 2, the water will practically be free from all sand and other extraneous matter before reaching the pump-barrel.

15 Slight modifications may be made in the construction of this device without departing from the general principles involved in the invention, such as perforating the entire surface of the outer cylinder from top to bottom  
 20 and the cylinders 4 and 13 adjusted to suit such a condition.

Having thus fully shown and described my invention, what I claim as new, and desire to secure by Letters Patent, is—

25 1. A trap for water or other wells, comprising a pump-tube having its lower end perforated, a trap-cylinder surrounding the said pump-tube and which is closed at its lower end and extends a suitable distance above  
 30 the said perforated portion of the pump-barrel leaving a water-space between them, a dam-cylinder extending a suitable distance above and surrounding the aforesaid trap-cylinder with water-space between them, and an outer  
 35 perforated cylinder surrounding the said dam-cylinder with water-space between them, all arranged and combined to operate substantially as described.

2. A trap for water or other wells, compris-

ing a pump-tube having its lower end perforated; a trap-cylinder surrounding the said pump-barrel and which is closed at its lower end and extends a suitable distance above the said perforated portion of the pump-tube leaving a water-space between them, a dam-  
 45 cylinder incasing the aforesaid trap-cylinder, and closed at its upper end around the pump-barrel and extending a suitable distance above the aforesaid trap-cylinder leaving a water-space between them, and an outer perforated  
 50 cylinder surrounding the said dam-cylinder with water-space between them, all arranged and combined to operate substantially as specified.

3. A trap for water or other wells comprising a pump-tube having its lower end perforated, a trap-cylinder surrounding the said pump-barrel and which is closed at its lower end and extends a suitable distance above the perforated portion of the pump-barrel  
 60 leaving a water-space between them, a dam-cylinder inclosing the aforesaid cylinder and closed at its upper end around the pump-barrel and extending a suitable distance above the aforesaid cylinder, leaving a water-space  
 65 between them, and an outer perforated cylinder inclosing the said dam-cylinder and which is closed at its top around the pump-tube leaving a water-space between it and the dam-cylinder with perforations, all arranged and combined to operate substantially  
 70 as specified.

Signed by me, at McKeesport, Pennsylvania, this 14th day of February, 1898.

HARRY ETHERIDGE.

Witnesses:

R. C. RANKIN,  
 E. L. MAY.