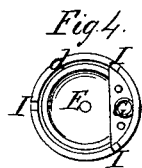
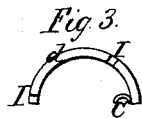
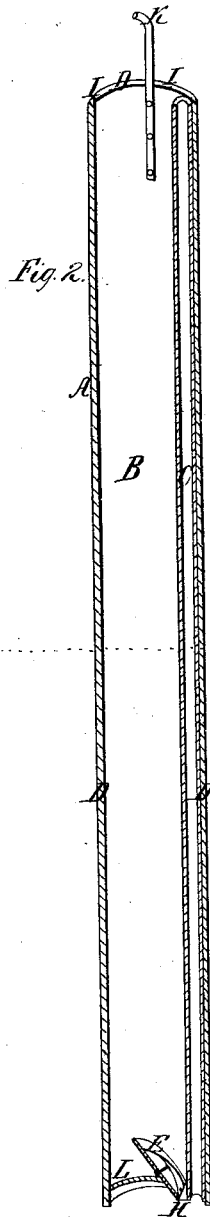
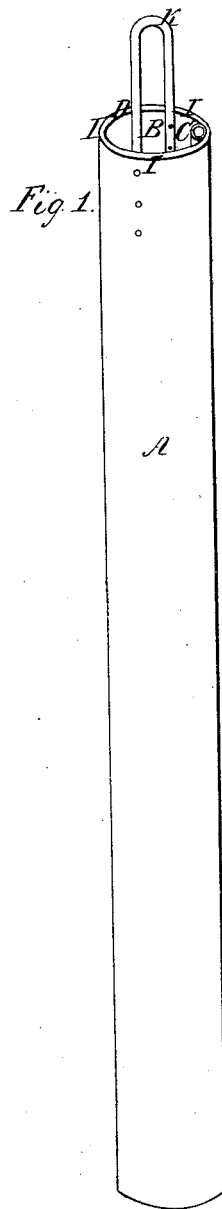


O. B. Latham.

Sand Pump.

N<sup>o</sup> 51,730.

Patented Dec. 26, 1865.



Witnesses;  
J. W. Henry  
Geo. W. McGee

Inventor;  
O. B. Latham

# UNITED STATES PATENT OFFICE.

OBADIAH B. LATHAM, OF SENECA FALLS, NEW YORK.

## IMPROVEMENT IN SAND-PUMPS.

Specification forming part of Letters Patent No. 51,730, dated December 26, 1865.

*To all whom it may concern:*

Be it known that I, OBADIAH B. LATHAM, of the village of Seneca Falls, in the county of Seneca, in the State of New York, have invented a new and useful Improvement in Sand-Pumps; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon.

The nature of my invention consists in supplying a current of water or air beneath a sand-pump to prevent the occurrence of a vacuum, and the consequent obstruction of the pump, which may be accomplished by various means.

To enable others skilled in the art to apply and use my invention, I will describe the appliances by which I prefer to operate, first premising, however, that although denominated a "pump," this apparatus is not intended for nor adapted to the elevation of gases or liquids, being more nearly analogous to mud-machines in its construction, mode of operation, and functions in the removal from wells, of whatever depth, of all descriptions of sediment or debris preparatory to the application of the fluid-pump.

The common sand-pump consists of a cylinder, of boiler-tube or galvanized iron, of three or four inches in diameter and about six feet long, with a valve at the bottom. The cylinder is open at the top, over which is a strong bail or handle, through which a link passes, to which is attached the rope which operates the pump.

In constructing my improved sand-pump I envelop this cylinder with an outside case or cylinder about a quarter of an inch greater in diameter and of equal length. The two cylinders are firmly fastened together by rivets or other usual modes through the metal blocks I, which also keep them apart at a uniform distance from each other. The spaces between the blocks I at the top and bottom are open, allowing a free passage between the cylinders from top to bottom. The ventilating-tube C extends from the top to the bottom of the inner cylinder, lying close to the side thereof, and fastened thereto, and passes through the valve-seat back of the valve, as shown at C, Fig. 4. This tube is open at both ends. It may be made of gas-pipe of any convenient

diameter proportioned to the size of the pump, and sufficient to admit the passage of water or air. I commonly use for this purpose gas-pipe of about one-half an inch in diameter, and by fastening a band about one-fourth of an inch thick and about one inch in width around the outside at the top of the pump, for the purpose of a screen for the detached pieces of rock which may fall and get between said band and the walls of the well, which secures adequate space, allowing the pieces of rock to fall to the bottom of the pump, thus preventing the pump from becoming fast.

The construction of my improved sand-pump will more clearly appear by reference to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view of my improved sand-pump. Fig. 2 is a longitudinal section through the center. Fig. 3 is a transverse section of the longitudinal section; and Fig. 4 is a transverse section of the pump at the bottom, showing the valve and the tube C where it passes through the valve-seat behind the valve.

A is the outside cylinder; B, the inner cylinder; D, the open space between the cylinders; I I I I, metal blocks through which the two cylinders are fastened together at the top and bottom, and by which they are kept at a uniform distance apart. K is the bail. C is a ventilating-tube, extending through the pump from top to bottom; L, valve seat; E, valve; H, valve-hinge.

In boring deep wells the sand-pump is used at a great depth. The weight of the column of water above the pump and pressure of the atmosphere, added to the friction caused by the collection of debris and the falling of detached pieces of rock between the pump and sides of the well, very often prevent the operation of the sand-pumps heretofore in use, a vacuum being produced by the upward stroke of the pump and the wedging in of detached pieces of rock, by which it becomes fast, and is removed with great difficulty and expense.

The principle and object of my invention consist in providing the means for a passage of water or air through or on the outside of the pump, through an external tube from above to the space below the pump, and its advantage consists in admitting of the use of a pump

of greater capacity and giving a more perfect action with less power and expense than is required by other sand-pumps, and without the liability to become fast in the well. I do not always use both the double cylinder and ventilating-tubes; but sometimes dispense with the outside tube and cylinder, as they perform the same office, and in most cases one of them is sufficient. When only one is used I prefer to dispense with the outside tube and cylinder and use the inside ventilating-tube, which allows the cheapest construction, and I consider it most convenient.

In the ordinary sand-pump its operation is sometimes unobstructed, in which case the débris and borings become so thoroughly in-

termixed with the water or fluids in the bore as to allow the air and sediment to pass freely under the pump when used for its designed purpose; but it is where such facilities do not exist that my invention is intended to apply.

What I claim as my invention, and desire to secure by Letters Patent, is—

The promoting the operation of a sand-pump by the admission of a flow of air or water down and beneath the valve, substantially as shown and described.

O. B. LATHAM.

Witnesses:

EDM. F. BROWN,  
CHAS. L. CHAPMAN.