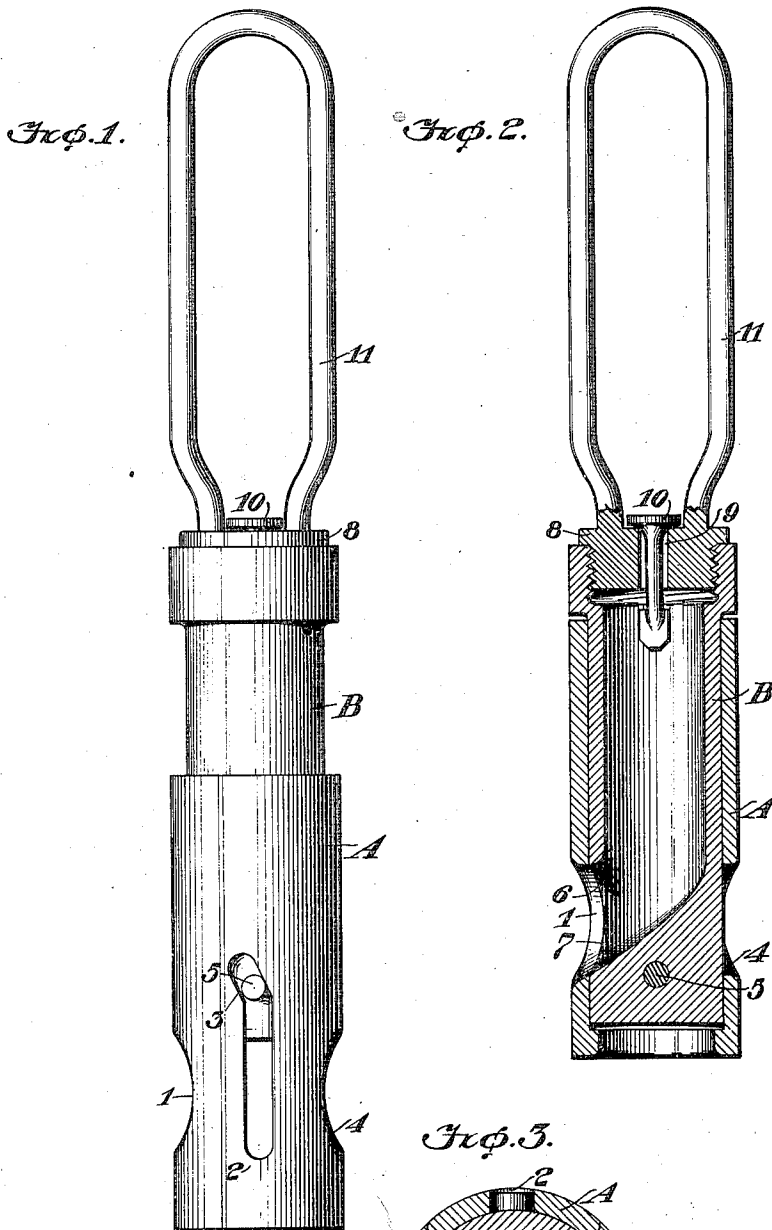


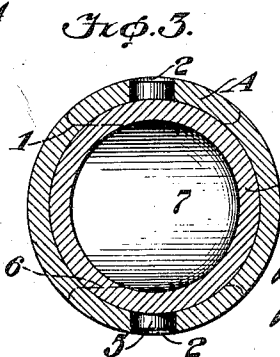
R. L. DUTTON.
SAND PUMP.
APPLICATION FILED OCT. 28, 1909.

1,036,979.

Patented Aug. 27, 1912



Witnesses
Lloyd W. Patch
A. A. Hammond



Inventor
Robert L. Dutton
By Vernon C. Hodges
His Attorney.

UNITED STATES PATENT OFFICE.

ROBERT L. DUTTON, OF WAUNETA, KANSAS, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO THE DEWEY MANUFACTURING COMPANY, OF DEWEY, OKLAHOMA, A CORPORATION.

SAND-PUMP.

1,036,979.

Specification of Letters Patent.

Patented Aug. 27, 1912.

Application filed October 28, 1909. Serial No. 525,153.

To all whom it may concern:

Be it known that I, ROBERT L. DUTTON, a citizen of the United States, residing at Wauneta, in the county of Chautauqua and State of Kansas, have invented certain new and useful Improvements in Sand-Pumps, of which the following is a specification.

My invention relates to an improvement in sand pumps and its object is to provide two cylinders which are provided with openings which register with each other for filling the inner cylinder as it is lowered in the outer cylinder and to permit of the discharge of the material drawn into the inner cylinder through the opening in the outer cylinder after the two cylinders have been raised to the top of the well.

The invention consists in certain novel features of construction and combinations of parts which will be hereinafter described and pointed out in the claims.

In the accompanying drawings:—Figure 1 is a view in side elevation, Fig. 2 is a vertical sectional view, and Fig. 3 is a transverse section.

A, represents the outer cylinder which is provided with an opening 1 in the side thereof at or near the lower end of the cylinder. Slots 2, 2, are formed in the sides or wall of the cylinder and are inclined as at 3 at their upper ends. The inner cylinder B is movably mounted within the cylinder A. A rod 5 passes through the lower end of the cylinder B and each end of the rod is received in a slot 2 for guiding the cylinder B within the cylinder A. The rod 5 limits the upward and downward movement of the cylinder B, and when the ends of the rod are drawn into the curved or inclined slots 3, the inner cylinder B is drawn snugly against one side of the inner wall of the outer cylinder A. The bottom of the cylinder B is closed and the opening 6 formed in the side of the cylinder B registers with the opening 1 in the cylinder A when the two cylinders are in their lowermost positions. The bottom of the cylinder B is inclined upwardly as at 7, whereby the sand or other material drawn into the cylinder B will be forced toward the top of the cylinder. This inclined bottom will also permit of the ready discharge of the material from the inner cylinder, when the pump has been drawn to the top of the well and the inner cylinder is caused to drop into the

outer cylinder whereby the openings in the cylinders will register. A plug 8 is screwed into the top of the inner cylinder B and is provided with an opening 9 in which a valve 10 is received. A bail 11 is connected to the plug to which can be connected a rope or other means for raising and lowering the cylinders in the well and for raising and lowering the inner cylinder within the outer cylinder.

After the well has been shot, the cylinders are lowered into the well, the outer cylinder being suspended from the inner cylinder through the rod 5; therefore, the outer cylinder will strike bottom first and as the inner cylinder is lowered within the outer cylinder and the openings 1 and 6 of the two cylinders register, the air in the inner cylinder will cause the valve to rise and allow the air to pass through the inner cylinder. The fluid and sand rushing into the inner cylinder creates a vacuum causing a sucking or drawing of the sand, gravel, and the like into the inner cylinder. Opposite to the opening in the outer cylinder is an opening 4, which allows the water to pass through, thereby balancing the pump as it is lowered into the well. The outer cylinder is suspended from the inner cylinder during the lowering operation and the openings 1 and 4 are below the bottom of the inner cylinder, therefore, the water can pass through both openings and allow the pump to strike bottom properly. After the inner cylinder becomes filled, it is drawn up within the outer cylinder. The rod 5 being raised within the slots 2, will travel upwardly, and as the ends of the rod travel along the inclined or curved portions of the slots the opening 6 of the inner cylinder will be caused to come into contact with the cylinder wall of the outer cylinder, thereby forming a perfectly water and air-tight connection when the two cylinders are suspended in the well. The cylinders are now drawn from the well and are swung to any suitable position, when the inner cylinder is lowered within the outer cylinder and the material discharged through the openings 1 and 6 as they register. When the cylinders are lowered or raised from the well, the inner cylinder will be drawn upward into the outer cylinder, so that the outer cylinder will be suspended from the lower end of the inner cylinder by the rods

5. Therefore, when the inner cylinder is empty and the cylinders are being lowered into the well, an air chamber will be formed in the inner cylinder. The curved upper ends of the slots 2 cause the opening of the inner cylinder to be closed by the wall of the inner cylinder being drawn tightly against the outer cylinder, so that it is practically air and water tight until it is lowered within the outer casing, and as soon as the openings of the cylinders register, there will be an inflow of sand and water into the inner cylinder, causing the air to be compressed, thereby raising the valve and creating a suction for drawing the sand and stones into the inner cylinder, which will be caused to be fed upward by the inclined bottom of the inner cylinder.

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

1. A sand pump comprising inner and outer cylinders movably connected together, one being hung upon the other, the outer cylinder provided with an opening and the inner cylinder having a lateral opening into its bore adapted to register with the opening of the outer cylinder when the cylinders are in one position and adapted to be closed when the cylinders are in their opposite relation to each other.

2. A sand pump comprising inner and outer cylinders movably connected together, one cylinder hung upon the other, the outer cylinder having two openings in its wall and the inner cylinder having a lateral opening through its wall to the bore in position to register with one of the openings in the outer cylinder when the two cylinders are in one relation and to be closed with the outer cylinder when they are in another relation.

3. A sand pump comprising inner and

outer cylinders movably connected together, one being hung upon the other, the outer cylinder provided with an opening and the inner cylinder having a lateral opening into its bore adapted to register with the openings of the outer cylinder when the cylinders are in one position and adapted to be closed when the cylinders are in their opposite relation to each other, a plug removably secured to the inner cylinder and provided with an opening therein and a valve operating in said opening.

4. A sand-pump comprising inner and outer cylinders movably connected together, said cylinders having openings therein for the admission of material, the outer cylinder having curved slots, and means on the inner cylinder received in the slots for causing the opening in the inner cylinder to be brought into engagement with the inner wall of the outer cylinder when the inner cylinder is drawn upwardly in the outer cylinder forming an air-tight connection.

5. A sand-pump comprising inner and outer cylinders movably connected together having openings in the sides thereof which are adapted to register for admitting the material to or discharge it from, the inner cylinder, the outer cylinder provided with curved slots, means connected to the inner cylinder passing through the slots and means for raising the inner cylinder within the outer cylinder whereby the opening in the inner cylinder will be brought into engagement with the inner wall of the outer cylinder.

In testimony whereof I affix my signature, in the presence of two witnesses.

ROBERT L. DUTTON.

Witnesses:

J. E. STEPHENS,
W. J. KIRBY.