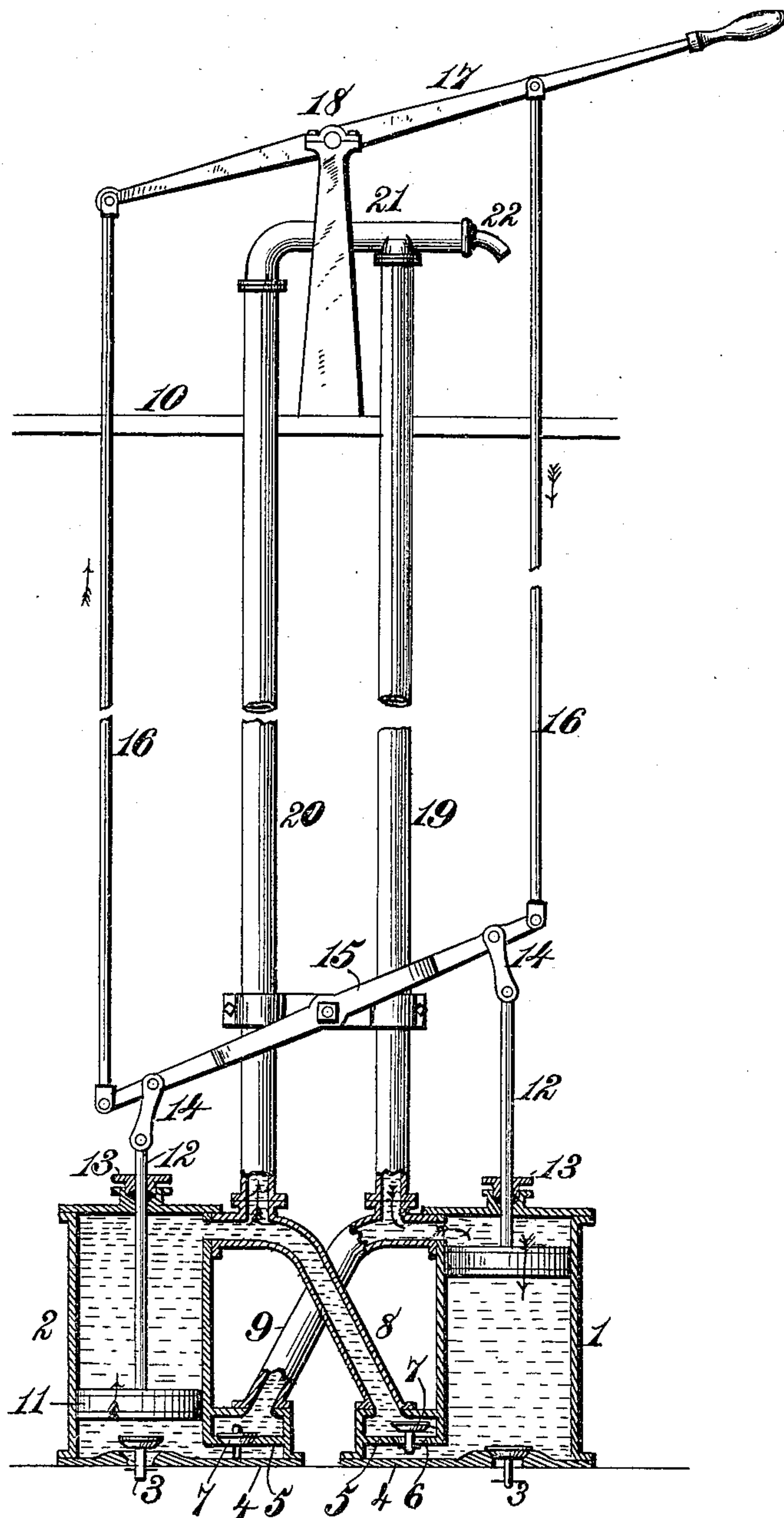


(No Model.)

H. S. RAMSEY.
DOUBLE ACTING PUMP.

No. 350,770.

Patented Oct. 12, 1886.



Witnesses.

Robert Emmett

J. A. Netherford

Inventor.

Haley S. Ramsey.

By

James L. Norris.

Atty.

UNITED STATES PATENT OFFICE.

HALEY S. RAMSEY, OF COMANCHE, ASSIGNOR OF ONE-HALF TO GEORGE D. STREETER, OF WACO, TEXAS.

DOUBLE-ACTING PUMP.

SPECIFICATION forming part of Letters Patent No. 350,770, dated October 12, 1886.

Application filed August 10, 1886. Serial No. 210,564. (No model.)

To all whom it may concern:

Be it known that I, HALEY S. RAMSEY, a citizen of the United States, residing at Comanche, in the county of Comanche and State of Texas, have invented new and useful Improvements in Double-Acting Pumps, of which the following is a specification.

This invention has for its object to provide a novel, simple, and efficient double-acting balanced pump of such construction and mode of operation that the power required to operate it is only such as is requisite to lift the quantity of water discharged at each stroke. This object I accomplish in the manner and by the means hereinafter described and claimed, reference being made to the accompanying drawing, in which the figure is a vertical central sectional view of a double-acting balanced pump constructed according to my invention.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawing, where—

The numerals 1 and 2 indicate two cylinders placed side by side, with a space between them, and each having at its lower end a central upwardly-opening inlet-valve, 3, while each is also furnished with a lateral bottom extension, 4, containing a diaphragm, 5, having an orifice, 6, which is opened and closed by an upwardly-opening valve, 7. The lateral extension of the cylinder 1 is connected by a tube, 8, with the upper end of the cylinder 2, and the lateral extension of the cylinder 2 is connected with the upper end of the cylinder 1 by a tube, 9, said tubes crossing each other between the cylinders and having no communication the one with the other. These cylinders are submerged in a well, at or near the bottom thereof, the well-platform being indicated by the numeral 10. In each cylinder is arranged a piston, 11, the piston-rod 12 of which extends through a stuffing-box, 13, in the upper end of the cylinder, and connects by a link, 14, with one end of a walking-beam, 15, which in turn connects by rods 16 with an operating-handle, 17, pivoted intermediate its ends, as at 18, all in such manner that when the handle is swung on its pivot the pistons in the cylinders are reciprocated in opposite

directions, the one ascending as the other is descending.

The numerals 19 and 20 indicate two stand-pipes, respectively communicating at their lower ends with the upper ends of the cylinders above the pistons therein, as by the tubes 8 and 9, said stand-pipes being connected at their upper ends by a tube or chamber, 21, having any suitable discharge-spout, 22.

In operation, when the operating-handle is depressed, the parts being in the position shown in the drawing, the weight of the column of water in the stand-pipe 19 bears upon the piston in the cylinder 1, and as said piston descends the column of water in the stand-pipe 19 also descends with it, and thereby balances the weight of the column of water in the stand-pipe 20 as the piston in the cylinder 2 ascends. The crossing tubes 8 and 9 receive the contents of the cylinders as the pistons fall, so that as the piston in the cylinder 1 descends the water beneath the piston passes by the tube 8 into the stand-pipe 20, so that a stream is raised through the stand-pipe 20, and the surplus, after filling up 19, is discharged at 22. The operation is the same with reference to the piston in the cylinder 1 ascending.

It is important that the crossing pipes have no communication the one with the other, and also that two independent stand-pipes of equal proportion be employed, so that the weight of the columns of water in the stand-pipes will bear, respectively, upon the pistons in the cylinders, whereby the pump is perfectly balanced in operation. The connection of the upper ends of the stand-pipes by a tube or chamber, 21, is also important, in that it permits the water to flow up one stand-pipe and down the other. In this way the column of water in the stand-pipe 19 bears on the top of the piston in the cylinder 1, and as said piston descends still bears thereupon, thereby balancing the column of water in the stand-pipe 20 as it ascends from the supply of the cylinder 2 through the tube 8. In like manner is the column of water in the stand-pipe 19 balanced while ascending by the weight of the column of water in the stand-pipe 20 resting on the piston in the cylinder 2.

Heretofore a double-acting pump has been

composed of two cylinders having reciprocating tubular piston-rods connected at their upper ends by a tube having a discharge-nozzle and telescopic tubes connecting the lower end of one cylinder with the tubular piston-rod of the other cylinder, as in Patent No. 266,713. Such, therefore, I do not claim.

I am also aware of English Patent No. 2,022 of 1867, but do not claim the construction therein disclosed.

Having thus described my invention, what I claim is—

1. The combination, in a balanced pump, of the two submerged cylinders closed at the top and having valved lower ends and each containing a piston, the piston-rods for the pistons, means, substantially such as described, for reciprocating the pistons in opposite directions, the two independent stationary stand-pipes of equal proportion, both located between the piston-rods and connected at their upper ends by a tube having a discharge-nozzle, the stationary crossing tubes interposed between cylinders having no communication with each other and respectively connecting the lower end of one cylinder with the upper end of the other cylinder, and the valves arranged, respectively, at the lower ends of the

crossing tubes, substantially as and for the purpose described.

2. A balanced pump consisting of the following elements, to wit: the two cylinders closed at the top and having valved lower ends and each containing a piston, the piston-rods for the pistons, the walking-beam, the links connecting the extremities of the latter with the piston-rods, the operating-handle pivoted intermediate its ends, the rods connecting the walking-beam with said handle, the two stationary stand-pipes of equal proportion, both located between the piston-rods and connected at their upper ends by a tube having a discharge-nozzle, the two stationary crossing tubes interposed between the cylinders having no communication with each other and respectively connecting the lower end of one cylinder with the upper end of the other cylinder, and the valves arranged, respectively, at the lower ends of the crossing tubes, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

HALEY S. RAMSEY.

Witnesses:

MILAN STILL,
JAMES P. ANDERSON.