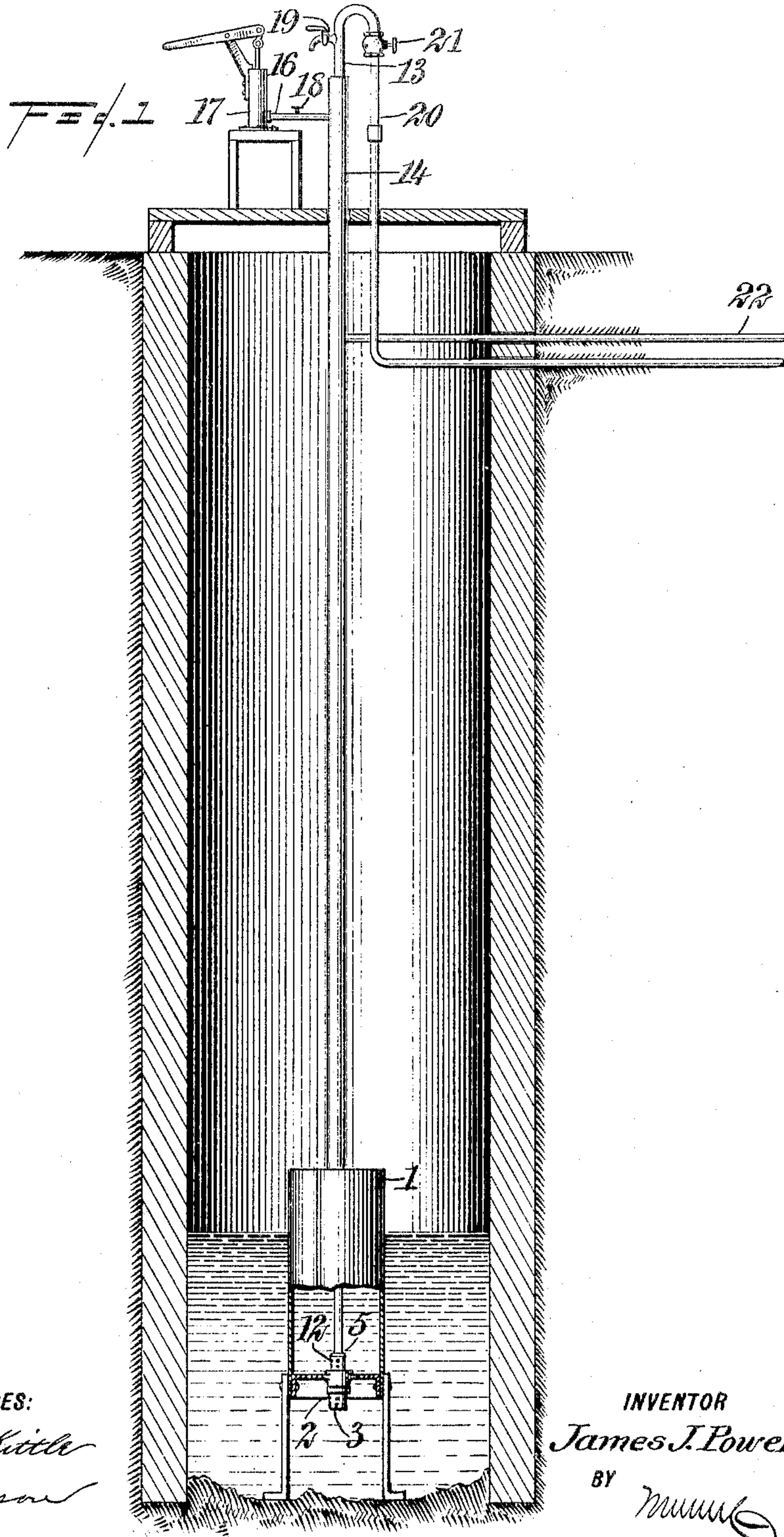


No. 793,953.

PATENTED JULY 4, 1905.

J. J. POWERS.
WATER ELEVATOR.
APPLICATION FILED FEB. 3, 1905.

2 SHEETS—SHEET 1.



WITNESSES:

John J. Kittle
C. B. Ferguson

INVENTOR

James J. Powers

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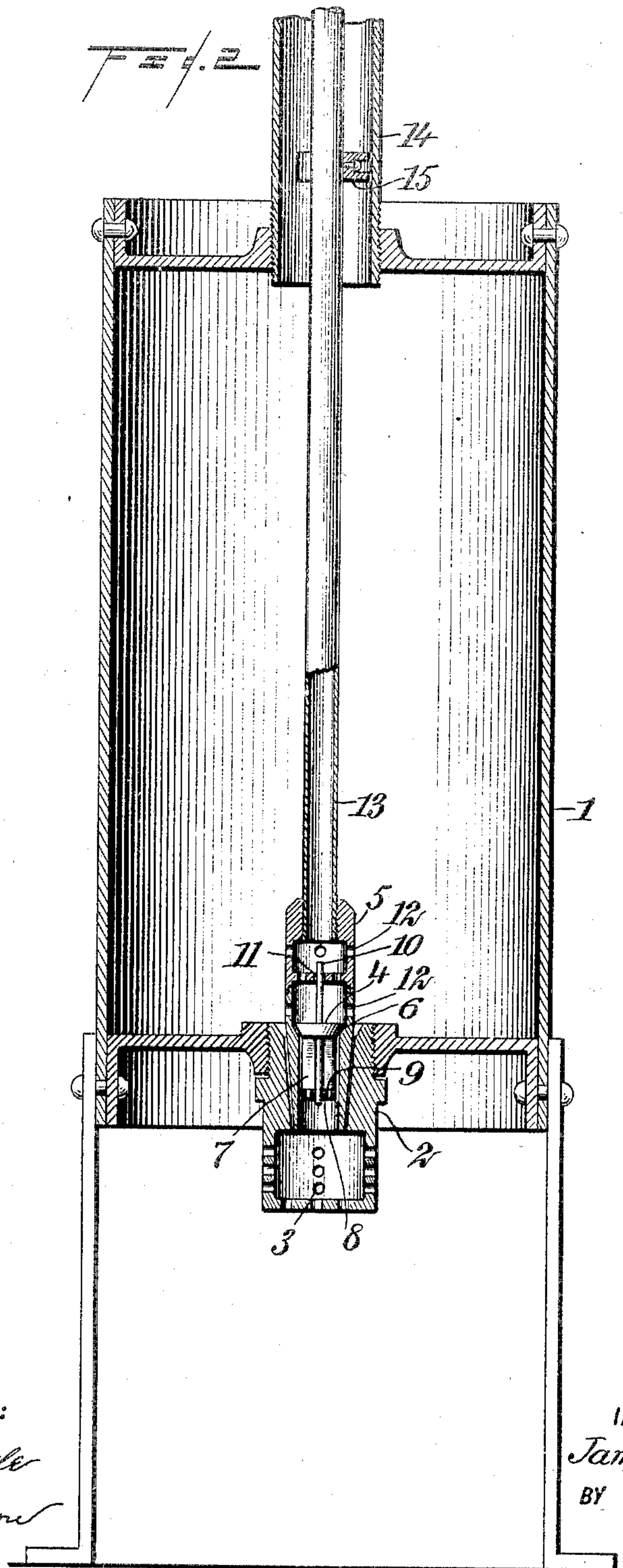
Mumford
ATTORNEYS

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UNITED STATES PATENT OFFICE.

JAMES J. POWERS, OF CENTRALPARK, NEW YORK.

WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 793,953, dated July 4, 1905.

Application filed February 3, 1905. Serial No. 243,967.

To all whom it may concern:

Be it known that I, JAMES J. POWERS, a citizen of the United States, and a resident of Centralpark, in the county of Nassau and State of New York, have invented a new and Improved Water-Elevator, of which the following is a full, clear, and exact description.

This invention relates to improvements in apparatus for elevating water from wells, the object being to provide a water-elevator of simple and novel construction and in which the water is forced to the point of discharge by air-pressure.

Other objects of the invention will appear in the general description.

I will describe a water-elevator embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional elevation of a water-elevator embodying my invention, and Fig. 2 is a sectional elevation showing on a larger scale the receiving-cylinder and valve mechanism.

The water-elevator comprises a cylinder 1, designed to be wholly or partly submerged in the water of a well. This cylinder is closed at the top and bottom, and arranged in the bottom wall is an inlet-chamber 2, having ports 3, through which water passes into the cylinder upon the opening of a valve 4, mounted to move vertically in a valve-casing 5, which, as clearly indicated in Fig. 2, is formed in two sections having screw-thread engagement one with the other. The valve-casing is provided with a beveled seat 6 for the valve, and extended downwardly from the valve are web portions or wings 7, which form the lower guides. These web portions at the lower end are connected to a disk 8, provided with ports 9. The valve is further guided by its stem 10, extended loosely through a perforation in a ported spider 11, formed in the upper section of the valve-casing. The valve-casing is also provided above and below the spider 11 with inlet-ports 12.

It will be noted that the outer surface of

the valve-casing 5 is tapered, and the opening in the part 2 for receiving said tapered portion is correspondingly shaped and ground. By this construction a tight fit is formed between the casing and receiving-chamber 2, and the parts will be held in such close connection by the weight or gravity of the valve-casing and the discharge-pipe 13, connecting therewith.

The discharge-pipe 13 leads upward through a valveless air-pressure pipe 14, and, if desired, a guide or guides 15 may be secured to the discharge-pipe 13 and engaged with the interior of the air-pipe. The air-pipe 14 is closed at the top, and communicating therewith through a pipe 16 is an air-pressure pump 17. The pipe 16 is provided with a valve 18, and the discharge-pipe 13 has above the pipe 14 a discharge-cock 19. From the pipe 13 a supplemental discharge-pipe 20 is shown, and it may lead into the basement of a house or to any desired point, and in this pipe 20 is a valve 21. An auxiliary air-pressure pipe 22, leading from the house and connecting with a suitable source, connects with the main air-pipe 14.

In the operation air is forced into the cylinder 1 by means of the pump while the cock 19 and valve 21 are closed, it being understood that prior to this the water in the well will open the valve 4 and pass into the cylinder 1, partly if not completely filling the same, when the valve closes by gravity. The air-pressure will hold the valve closed and force the water up through the pipe 13, to be discharged through the cock 19 or through the pipe 20 when the valve 21 is open.

It will be noted that the air-pipe 14 is sufficiently large to permit the pipe 13, carrying the valve-casing, to be drawn upward there-through when it is desired to repair the valve or valve-casing, and this removal of the valve and valve-casing does not in any way disturb the location of the cylinder 1.

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

1. In a water-elevator, a cylinder adapted to be submerged, a ported receiving-chamber arranged in the lower wall of said cylinder and having a tapered opening, a valve-casing

having a tapered portion for engaging in said opening, a valve in the valve-casing, the said casing being provided with ports, a discharge-pipe leading upward from the valve-casing, 5 the said valve-casing with its tapered portion and the said discharge-pipe, forming a practically continuous structure, whereby the said parts may be passed through the air - pipe without disturbing the cylinder, an air-pipe 10 surrounding the discharge-pipe, and an air-pump communicating with said air-pipe.

2. A water-elevator comprising a cylinder, a receiving-chamber arranged in the lower wall thereof, a valve-casing removably en- 15 gaging in said chamber and provided with ports, a valve in said casing, a discharge-pipe connected to and leading upward from the valve-casing, a valveless air-pipe through which the discharge-pipe passes, a pump hav- 20 ing communication with the air-pipe, and a discharge-controlling valve at the upper portion of the discharge-pipe.

3. A water-elevator comprising a cylinder closed at the top and bottom, a valveless air-pipe leading into the upper end of said cyl- 25 inder, an air-pressure pump having connection with said pipe, a receiving-chamber engaging with the lower wall of said cylinder and having inlet-ports, a valve-casing for removably engaging in said chamber and hav- 30 ing ports, an upwardly-opening valve in the valve-casing, a pipe connected to and leading upward from the casing through the air-pipe, an auxiliary discharge-pipe leading from the first-named discharge-pipe, a valve in said 35 auxiliary discharge-pipe, and an auxiliary air-pressure pipe leading into the main air-pipe.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES J. POWERS.

Witnesses:

JNO. M. RITTER,

C. R. FERGUSON.