(No Model.)

A. C. RAND.

FOOT PIECE FOR COMPRESSED AIR WATER ELEVATORS.

No. 559,810. Patented May 12, 1896.

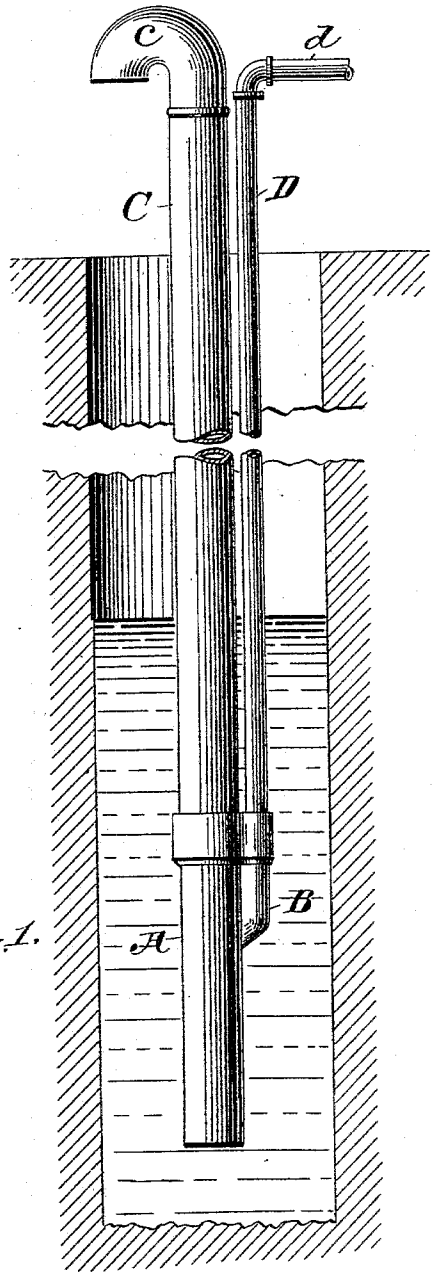

Fig. 1.

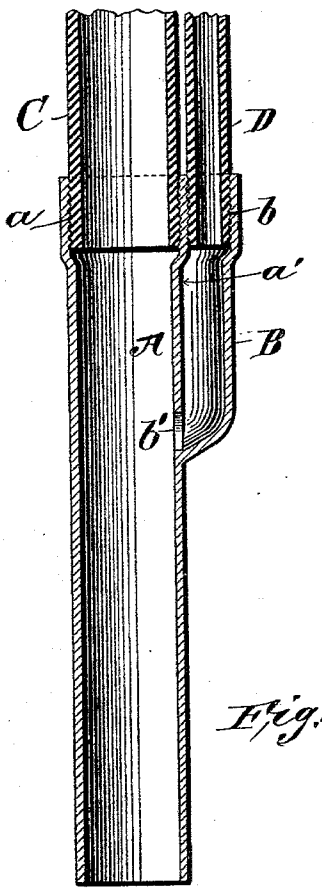

Fig. 2.

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FOOT-PIECE FOR COMPRESSED-AIR WATER-ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 559,810, dated May 12, 1896.

Application filed November 2, 1894. Serial No. 527,733. (No model.)

To all whom it may concern:

Be it known that I, ADDISON C. RAND, a citizen of the United States, residing in the city, county, and State of New York, have invented an Improved Foot-Piece for Compressed-Air Water-Elevators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to apparatus for elevating water, as from an Artesian well, by means of compressed air; and my invention more particularly concerns the water-eduction tube and compressed-air-supply pipe employed in apparatus of this character for the purpose stated.

My invention consists in a new article of manufacture constituting a foot-piece for the lower or submergence ends of the water-eduction tube and compressed-air-supply pipe in a compressed-air water-elevator device, and composed of a main hollow cylinder of a determinate length and diameter, open at both its ends, and a supplemental hollow cylinder of a length and diameter less than those of said main cylinder, open at one end and closed at the other, said cylinders being formed homogeneously of the material of which they are composed, with the open end of the supplemental cylinder adjacent to an end of the main cylinder, and with a wall, common to both cylinders, separating them throughout the length of the supplemental cylinder, in which wall, at or near the closed end of said supplemental cylinder, is an aperture furnishing communication between the two cylinders, the said adjacent open ends of the cylinders being interiorly screw-threaded, as hereinafter set forth and for the purpose specified.

The object of my invention is to provide an economically-constructed and durable foot-piece for the lower or submergence ends of the water-eduction tube and compressed-air-supply pipe in an apparatus of the character stated, and one into which the said ends, properly threaded, of said tube and pipe may be readily and conveniently seated, and which, when thus combined as a single piece with said tube and pipe, will cause the compressed air supplied through its pipe to be properly and effectively presented to the water-column in the main cylinder of the foot-piece communicating with the eduction-tube and will permit the inflow of water to the said main cylinder and thence to the eduction-tube at a desirable distance below the air-inlet.

Figure 1 illustrates, in vertical elevation, in position in a well a foot-piece containing my invention in connection with the water-eduction tube and the compressed-air-supply pipe; and Fig. 2 is a central vertical sectional view of the foot-piece, enlarged, containing my invention.

In carrying out my invention I fabricate a foot-piece consisting of a main hollow cylinder A of a determinate length and diameter, having regard to the distance which it is desired that the foot-piece shall reach below the end of the eduction-tube of the water-elevating device and the diameter of the eduction-tube which is to be attached to said cylinder. This cylinder A is open at both its ends, as shown. The device further consists of a supplemental cylinder B, which is hollow, as shown, and is of a less length than the main cylinder and of such less diameter than said main cylinder as will adapt it to receive the air-supply pipe of the apparatus. This supplemental cylinder is open at one end, as at b, and closed at the opposite end, as at b'. I form these two cylinders homogeneously of the material of which they are composed, preferably casting them in one piece of malleable iron, with the open end b of the cylinder B adjacent to an open end a of the cylinder A and with a wall a' common to both cylinders, as shown, separating their bores throughout the length of said cylinder B. At or near the closed end of the cylinder B, I form an aperture b' in said wall a', thereby opening communication between the two cylinders at this point. The adjacent open ends a and b of the respective cylinders are interiorly threaded, as shown.

It is apparent that in the practical use of the described foot-piece the water-eduction tube, (illustrated at C,) having its end suitably threaded, may be seated in the threaded end of the main cylinder A, and that the air-supply pipe, (illustrated at D,) having its end likewise suitably threaded, may be seated in the adjacent threaded end of the supplemental cylinder B, as shown plainly in Fig. 2, and

that by the use of my described foot-piece in the manner set forth and shown the operative portion of a compressed-air water-elevator device will consist only of three individual elements—namely, the water-eduction tube, the compressed-air-supply pipe, and the said foot-piece.

In Fig. 1 the described single foot-piece is shown in submerged position in a well with the water-eduction tube and air-supply pipe connected with it, as set forth, and rising to the surface of the ground, where the tube C has a discharge-neck *c* and the air-pipe D has a connection *d* leading thereto from a compressed-air generator or storage reservoir. (Not shown.)

It is evident that by means of the described foot-piece the air-pipe D may, after the eduction-tube has been attached to said foot-piece, as set forth, and the foot-piece has been lowered or sunk to the desired position in the well or other water supply, be passed down to the foot-piece and readily and conveniently seated in the open end of the cylinder B in the manner hereinbefore described, and also that the compressed air supplied through said pipe D will be, by the cylinder B through the aperture *b'*, presented to and injected into the water-column in the submerged cylinder A in a manner to effectively operate to lift the water-column through said eduction-tube leading from said cylinder.

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

As an article of manufacture, a foot-piece for the submergence ends of the water-eduction tube and compressed-air-supply pipe in a compressed-air water-elevator, consisting of a hollow open-ended cylinder, adapted at one end to receive and be jointed to the lower end of the water-eduction tube, and a hollow cylinder of lesser diameter, formed homogeneously with the larger cylinder, at the end thereof which is adapted, as stated, to receive the eduction-tube, the bores of said cylinders being separated by a common wall, and said lesser cylinder extending only part way of the length of said larger cylinder and being closed at its lower end, so that the greater portion of said larger cylinder extends beyond said closed end of said lesser cylinder, and the said common, separating wall having an aperture at or near the closed end of said lesser cylinder, giving communication between the two cylinders, and the opposite open end of said lesser cylinder being adapted to receive and be jointed to the lower end of the compressed-air pipe, and to sustain said pipe throughout its length closely to the eduction-tube, as specified.

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