E. BENSON.

PUMP.

APPLICATION FILED DEC. 12, 1916. RENEWED FEB. 21, 1918.

1,280,134.

Patented Oct. 1, 1918.

2 SHEETS—SHEET 1.

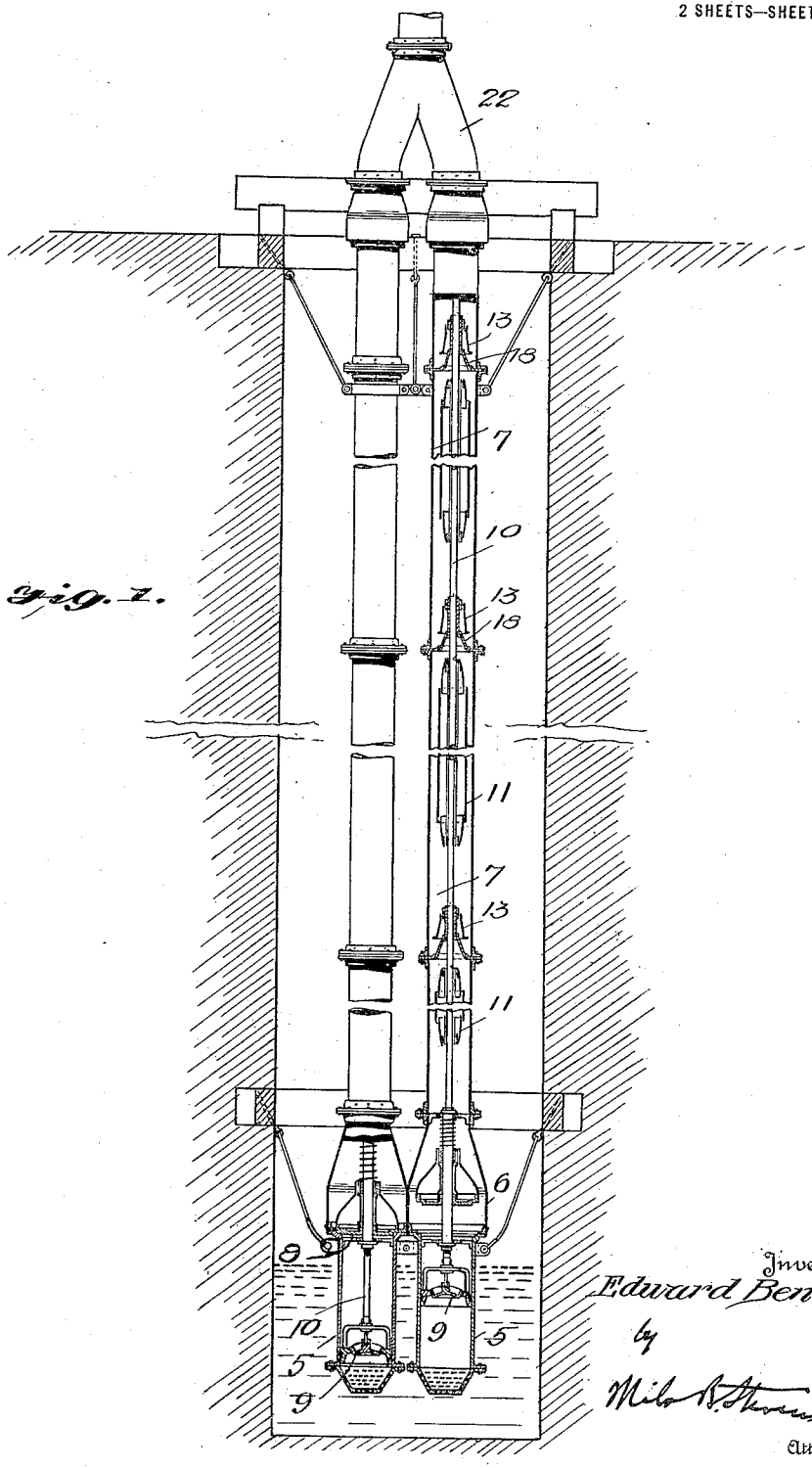


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

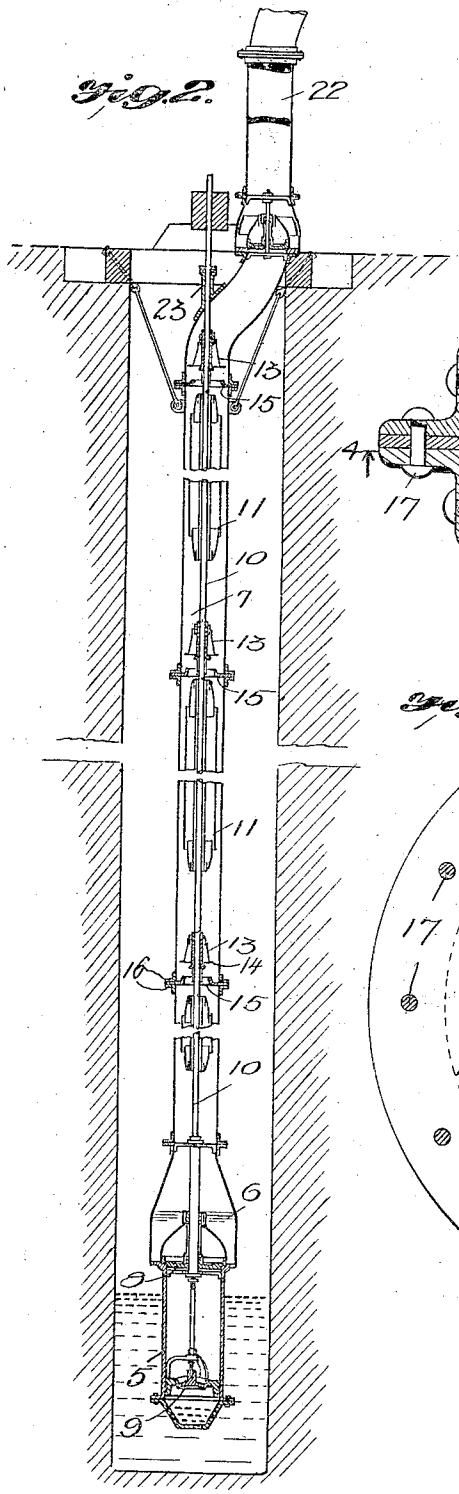


Fig. 3.

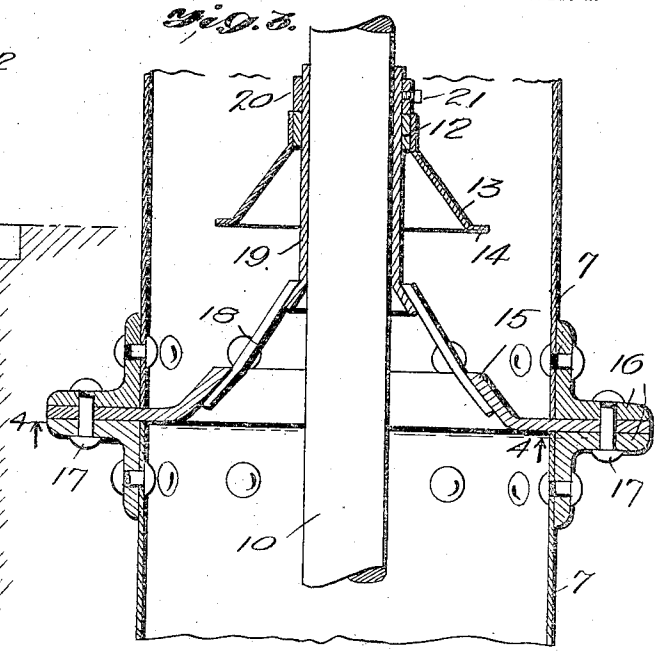
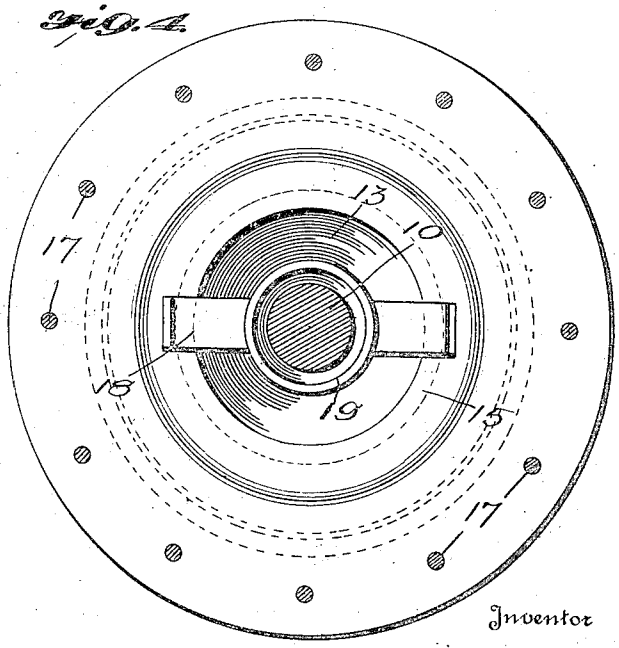


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD BENSON, OF MIAMI, ARIZONA.

PUMP.

1,280,134. Specification of Letters Patent. Patented Oct. 1, 1918.

Application filed December 12, 1916, Serial No. 136,451. Renewed February 21, 1918. Serial No. 218,591.

To all whom it may concern:

Be it known that I, EDWARD BENSON, a citizen of the United States, residing at Miami, in the county of Gila and State of Arizona, have invented new and useful Improvements in Pumps, of which the following is a specification.

This invention relates to valves employed in connection with pumps for preventing a return flow in the delivery pipe of the pump, and the object of the invention is to provide a simple and efficient valve for this purpose.

With the object stated in view, the invention consists in a combination and arrangement of parts to be hereinafter described and claimed, reference being had to the accompanying drawings forming a part of this specification.

In the drawings,

Figure 1 is an elevation of the pump, partly broken away and partly in section;

Fig. 2 is a vertical section through one of the cylinders and delivery pipes of the pump;

Fig. 3 is an enlarged vertical section of the valve, and

Fig. 4 is a horizontal section on the line 4—4 of Fig. 3.

Referring specifically to the drawings, 5 denotes a pump cylinder having connected to its upper end a valve chamber 6 from which a delivery pipe 7 extends. The cylinder discharges into the valve chamber, and the latter, in turn, discharges into the delivery pipe. At the top of the cylinder is a check valve 8 for preventing the water from flowing back from the valve chamber into the cylinder. This check valve is the subject-matter of a companion application, filed December 12, 1916, Serial No. 136,450.

In the cylinder 5 works a valved plunger 9 carried by a rod 10 which extends through the valve chamber 6 and the delivery pipe 7. The plunger rod, at suitable intervals, is fitted with air-tight chambers 11 serving as floats to ease the operation of the pump and better distribute the power for operating the same between the strokes, these chambers being immersed in the water contained in the delivery pipe.

The delivery pipe 7 is provided with a series of check valves located at suitable intervals therein. The delivery pipe is made up of a number of sections joined endwise, and the check valves are located at the junction between the sections in order that they may be readily assembled and mounted in place.

Each of the aforesaid check valves is composed of a brass collar 12 carrying a depending conical or hood-like sheet metal shell 13, which latter is the body of the valve. The flared base or bottom of the shell 13 has an outstanding marginal flange 14 which is the seating portion of the valve. The seat for the valve is a frusto-conical ring 15 so positioned and dimensioned that the flange 14 may seat on top thereof. The ring is held between the adjacent ends of two adjoining delivery pipe sections 7, and also between flanged rings 16 encircling said ends of the sections on the outside thereof. The sections are secured to the rings, and by bolting said rings together, the sections are secured in end-to-end relation. The bolts 17 connecting the rings 16 also pass through the ring 15 and thus serve to secure the latter in place.

The ring 15 carries braces 18 which support a tubular guide 19 for the valve, the collar 12 fitting loosely on the guide so that the valve may slide up and down thereon. The upward movement of the valve is limited by an adjustable stop collar 20 held fixed on the upper end of the guide by a set screw 21. The guide is tubular in order that the plunger rod 10 may pass therethrough, and said rod therefore does not interfere with the free movement of the valve. The plunger rod also passes through the valve seat ring 15.

The drawings show the invention applied to a pump having two cylinders, discharge pipes, etc. The upper ends of the delivery pipes are connected to a single discharge pipe 22. The upper ends of the pipes 7 also have lateral bends to permit the plunger rods 10 to extend therefrom, said bends having suitable stuffing boxes 23 through which the plunger rods pass. Suitable

means connected to the upper ends of the plunger rods, will be provided for operating the pump.

I claim—

A pump valve comprising a collar and a conical shell fixed to and depending from the collar, the flared base of the shell having an outstanding marginal flange forming the seat portion of the valve, a valve seat comprising a frusto-conical ring on the edge of which the aforesaid flange is adapted to seat, supports carried by said ring and rising therefrom, and a valve guide carried by said supports, on which guide the aforesaid collar is slidably mounted.

In testimony whereof I affix my signature.

EDWARD BENSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."