

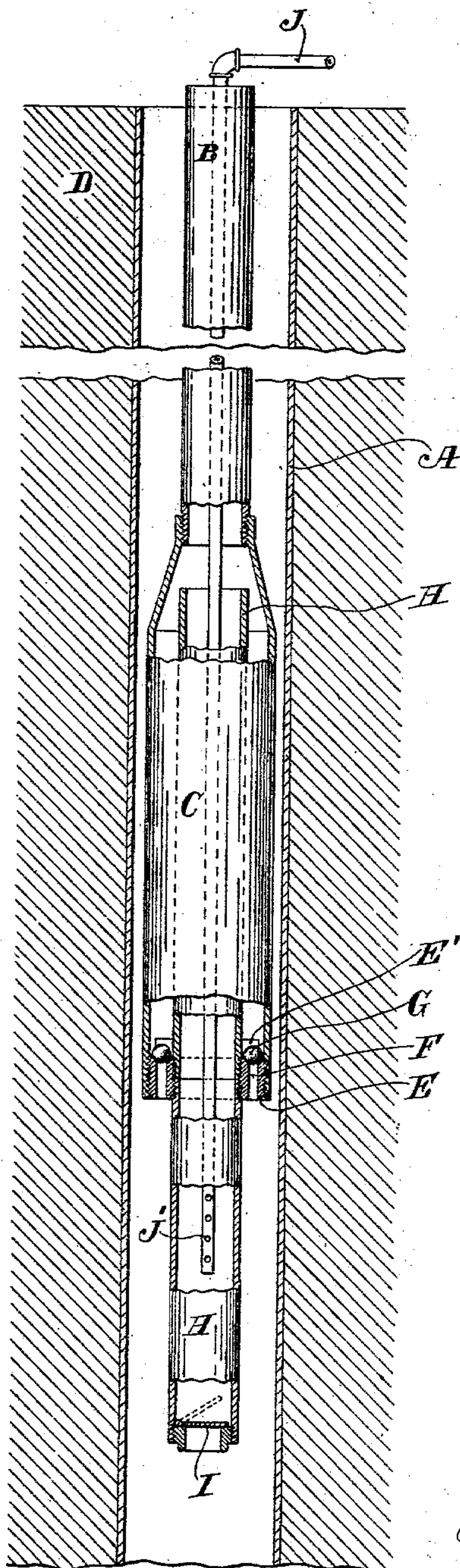
No. 740,999.

PATENTED OCT. 6, 1903.

J. P. COUSE.  
AIR LIFT PUMP.

APPLICATION FILED NOV. 11, 1902.

NO MODEL.



WITNESSES

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## UNITED STATES PATENT OFFICE.

JOHN P. COUSE, OF GLENDALE, CALIFORNIA.

## AIR LIFT-PUMP.

SPECIFICATION forming part of Letters Patent No. 740,999, dated October 6, 1903.

Application filed November 11, 1902. Serial No. 130,923. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN P. COUSE, a citizen of the United States, residing at Glendale, in the county of Los Angeles and State of California, have invented new and useful Improvements in Air Lift-Pumps, of which the following is a specification.

My invention relates to pumps for raising water by compressed air; and the object thereof is to produce a pump of great efficiency for that purpose. I accomplish that object by the pump described herein and illustrated in the accompanying drawing, which is a view, partly in section and partly in elevation, of my improved pump.

In the drawing, A is the well-casing, within which is the delivery-pipe B, which extends from the extra supply-chamber C to the surface of the ground D. The top of this chamber is tapering, as shown. In the bottom of the extra supply-chamber is an annular fitting E, through which extends a number of ports F, the tops of which form seats for the ball valve-stoppers G. Between the valve-stoppers are partitions E', which form a part of the fitting E and keep the valve-stoppers in place. Within this fitting and secured thereto is the pump-chamber H, which extends below the extra supply-chamber and up to nearly the lower end of the delivery-pipe. The lower end of the pumping-chamber is preferably provided with an upwardly-opening valve I. Connected with an air-compressor (not shown) is the compressed-air-supply pipe J, which passes down through the delivery-pipe and into the pumping-chamber, where it terminates a short distance above the lower end thereof in a perforated end J'. The pumping-chamber and extra supply-chamber and lower end of the air-pipe are submerged in the water the required depth, which is preferably a little greater than the distance from the normal surface of the water in the well to the discharge-outlet in the pump, and a supply of compressed air is pumped into the pumping-chamber and passes up there-

through and out with the water through the delivery-pipe. It will also be observed that the flow of water is started in the pumping-chamber and is augmented by the inflow from the extra supply-chamber while the water is in motion. It will also be observed that the check-valves after the delivery-pipe is filled will keep the same practically full of water and that thereafter the water will commence to flow from the delivery-pipe almost as soon as the air-compressor is started. If desired, the extra supply-chamber could be omitted; but I prefer it, as a greater supply of water can be pumped with it than without its use.

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

1. In an air lift-pump the combination of a delivery-pipe; an extra supply-chamber having a tapering top attached to the lower end of said delivery-pipe; an annular fitting in the lower end of said supply-chamber, said fitting having vertical ports extending therethrough and upwardly-extending partitions intermediate said ports; ball valve-stoppers between said partitions; a pumping-chamber extending through said fitting provided with an upwardly-opening check-valve in the bottom thereof.

2. In an air lift-pump the combination of a delivery-pipe; an extra supply-chamber having a tapering top attached to the lower end of said delivery-pipe; an annular fitting in the lower end of said chamber having vertical ports extending therethrough; ball valve-stoppers between said partitions; a pumping-chamber extending through said fitting provided with an upwardly-opening check-valve in the bottom thereof.

In witness that I claim the foregoing I have hereunto subscribed my name this 3d day of November, 1902.

JOHN P. COUSE.

Witnesses:

G. E. HARPHAM,  
HENRY T. HAZARD.