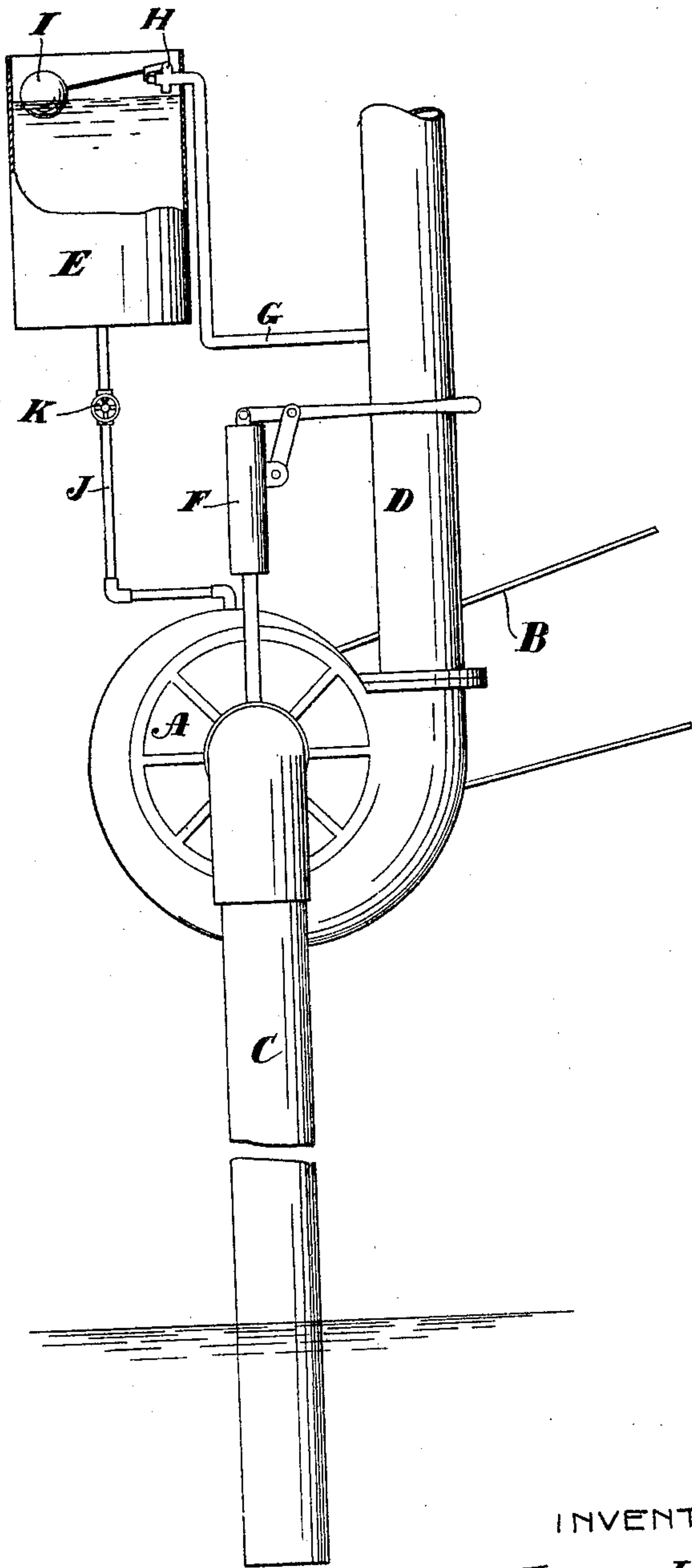


No. 804,774.

PATENTED NOV. 14, 1905.

J. L. SHEPARD.  
CENTRIFUGAL PUMP.  
APPLICATION FILED JULY 5, 1904.



WITNESSES

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# UNITED STATES PATENT OFFICE.

JASON LEE SHEPARD, OF LOS ANGELES, CALIFORNIA.

## CENTRIFUGAL PUMP.

No. 804,774.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed July 5, 1904. Serial No. 215,402.

*To all whom it may concern:*

Be it known that I, JASON LEE SHEPARD, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Centrifugal Pumps, of which the following is a specification.

The object of my invention is to dispense with any check or foot valve in the discharge or induction pipe of a centrifugal pump.

I accomplish this object by means of the device described herein and shown in the accompanying drawing, in which A represents the centrifugal pump; B, the driving-belt; C, the induction, and D the discharge-pipe. I am enabled to dispense with a valve in either the suction or discharge pipe by the means shown in the accompanying drawings, in which I employ a priming-reservoir E in connection with an air-pump F. The priming-reservoir is filled with water through the supply pipe G, extending from the discharge-pipe D to and communicating with the reservoir E. On the discharge end of the supply-pipe G, I have mounted a valve H, automatically operated by the float I. On the priming-pipe J, extending from the bottom of the reservoir E and connecting with the top of the centrifugal-pump chamber, I have placed the cut-off valve K. This valve is normally kept closed. The priming-reservoir E will be filled with water when water is passing through the discharge-pipe D by means of the pipe G, and the level of the water will be maintained in the reservoir by the float-valve.

Now when it is desired to prime the pump for starting, power is turned on to operate the pump O and the valve K is opened, allowing the water in the priming-reservoir to flow into the pump-chamber. This will provide a seal against the entrance of air downward through the discharge-pipe D. After the valve K is open and the water has run into and filled the pump-chamber, the pump being operated meanwhile, the air-pump F is operated to exhaust the air in the induction-pipe, causing the water to rise therein, the lower end of the induction-pipe being immersed in

water or other fluid to be pumped, and immediately thereafter the centrifugal pump will begin to operate. When the water has risen in the induction-pipe on the operation of the air-pump to a point where the water will run into the pump-chamber, the propellers will exhaust all the remaining air in the induction-pipe and in the pump-chamber without further operation of the air-pump. A centrifugal pump embodying my invention may be placed as far above the water-level as an ordinary suction-pump may be placed. By this construction it will be manifest that all valves can be omitted from both the induction and discharge pipes, giving a full clearance for the passage therethrough of water unimpeded by these valves.

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

1. In a pump, the combination with a centrifugal pump, of an entirely and constantly free and unobstructed induction-pipe thereto, a discharge-pipe extending therefrom, an air-exhaust pump communicating with the induction-pipe at a point intermediate its ends, means for actuating the centrifugal pump, and a priming-reservoir connected with the centrifugal pump.

2. A device of the character set forth comprising an entirely and constantly free and unobstructed induction-pipe, a centrifugal pump to which the induction-pipe is connected at one end, a discharge-pipe connected to and extending from the centrifugal pump, an air-exhaust pump connected to the induction-pipe at a point intermediate its ends and means for priming the centrifugal pump to prevent the entrance of air thereinto through the discharge-pipe and pump.

In witness that I claim the foregoing I have hereunto subscribed my name this 4th day of June, 1904.

JASON LEE SHEPARD.

Witnesses:

HENRY T. HAZARD,  
G. E. HARPHAM.