

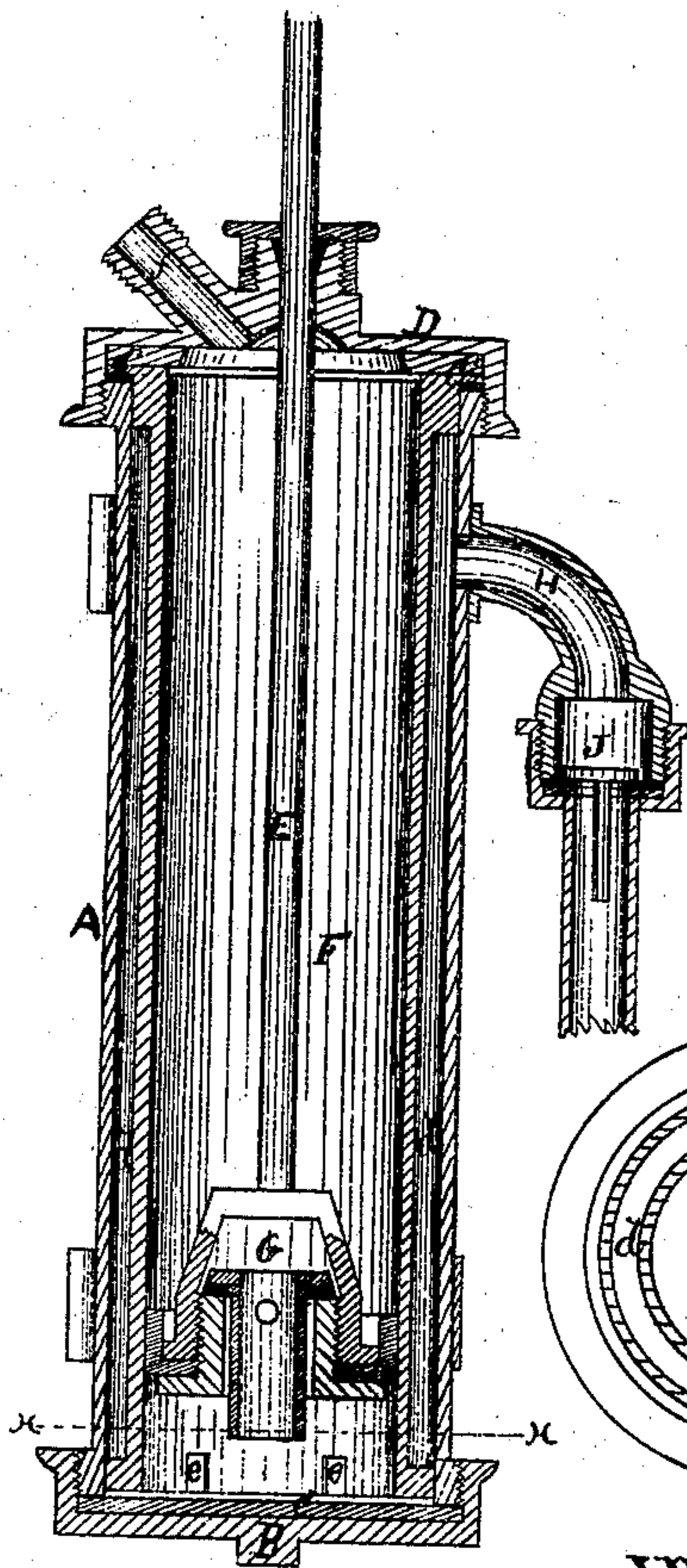
*P. Harvey,*

*Pump.*

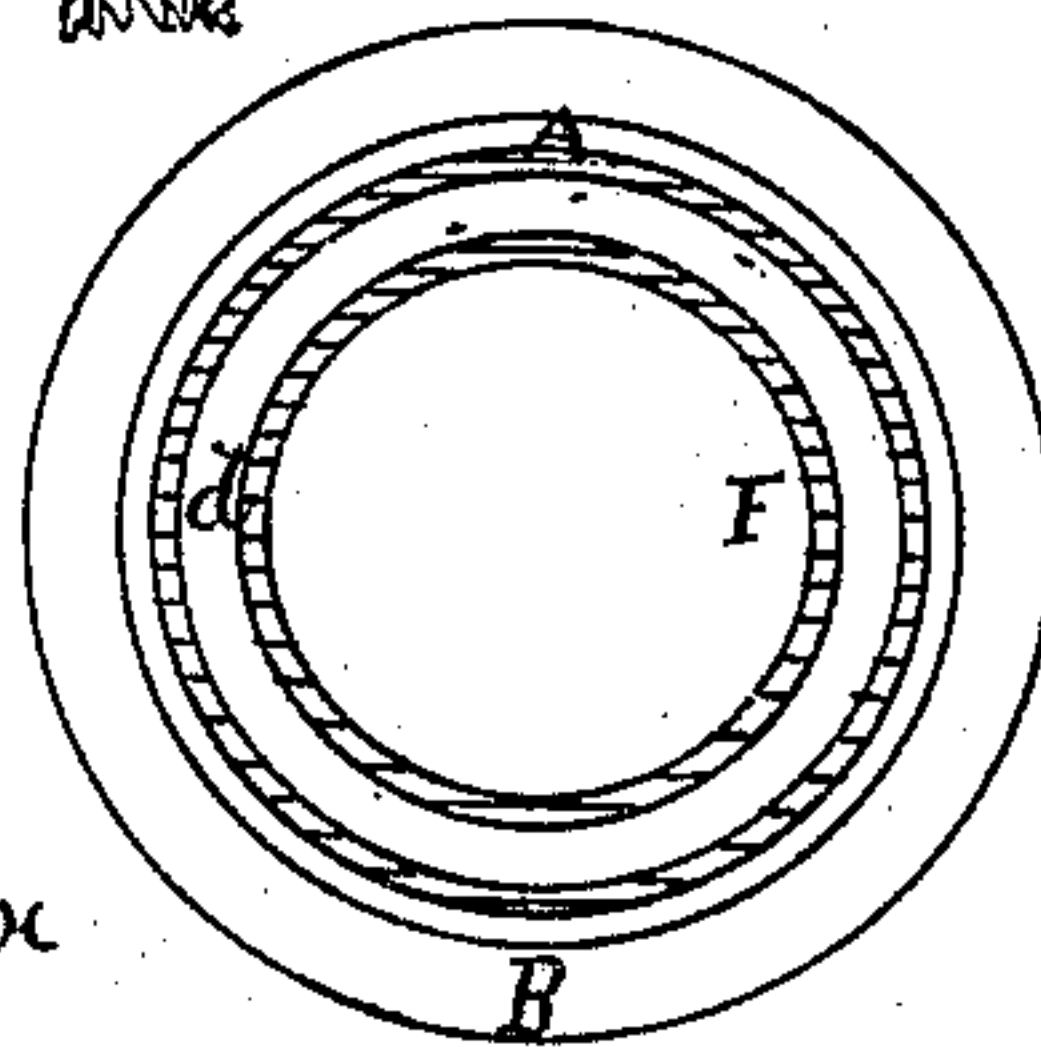
*No. 111,120.*

*Patented Jan. 24. 1871.*

*Fig 1*



*Fig 2.*



*inventor*

*Witnesses*

*A. C. Girdley*

*Edw. J. Frost. Patrick Harvey*

# United States Patent Office.

PATRICK HARVEY, OF CHICAGO, ILLINOIS.

Letters Patent No. 111,120, dated January 24, 1871.

## IMPROVEMENT IN PUMPS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern :*

Be it known that I, PATRICK HARVEY, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Pumps; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a vertical central section of my invention; and

Figure 2 is a cross-section or plan of the same, taken on line *x x*.

Similar letters of reference indicate corresponding parts in the several figures of the drawing.

My invention relates to that class of pumps commonly operated by suction; and

The improvement consists in providing the main cylinder with an intermediate or inner cylinder, within which is secured the suction-valve, the whole of which is so arranged as to bring said valve below the check-valve of the pipe communicating with the well or reservoir from which water is to be drawn, the object of which is to secure the priming of the valve, rendering the same air-tight, by which means the pump will at all times perform its necessary function.

In the accompanying drawing—

A represents the main cylinder, which is made of metal, and has its upper and lower end screw-threaded externally.

B is an annular disk, which is screw-threaded on its inner side, by which means the same is firmly affixed to the lower end of said cylinder.

Upon the inner side of said disk, between its upper surface and the lower end of the cylinder, is secured a packing, C, which may be made of any suitable material that will insure a water-tight joint.

Affixed to the upper end of said cylinder is a similar disk, D, through which the plunger-rod E passes.

Said disk is also secured water-tight by means of suitable packing, C.

Within said cylinder is secured an intermediate or inner cylinder, F, which is so arranged as to provide an annular chamber, *d*, between its outer side and the inner-side of the main cylinder A, which communicates with the chamber of the inner cylinder by

means of a series of vertical slots, *e e*, cut through the lower end of the same.

Within said cylinder F is secured the suction-valve G, which is connected to the plunger-rod E, in the usual manner.

Affixed to the main cylinder, near its upper end, is a pipe, H, which communicates with the well or reservoir from which the water is to be drawn.

Secured within said pipe H, near its upper end, is an ordinary check-valve, J, so arranged as to be lifted by the action of the water when drawn through the pipe.

It is a fact long established that, in using the ordinary pump, the valves often fail to perform their proper function. This is occasioned by the water leaking from the same, which prevents the forming of a vacuum in the cylinder by the air passing through the valve, while with my invention this difficulty is entirely overcome, as the main valve is secured within the inner cylinder below the check-valve, thus preventing any leakage of water from the same, which renders the valves self-priming.

In using my invention, the operation is as follows:

Power is applied to the handle of the pump, (not shown,) which imparts a vertical movement to valve G, by means of rod E, in the usual manner. Thus the water is raised from the well or reservoir through pipe H into the annular chamber *d*, and is drawn through slots *e e* into the chamber of the inner cylinder F, and is discharged therefrom through pipe *f*, affixed to and within disk D.

Having thus described the nature and object of my invention,

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

The cylinders A and F, provided with the annular chamber *d*, in combination with valve G, pipe H, and valve J, the whole arranged as described, whereby suction-valve G may be secured below the check-valve J, substantially as and for the purpose specified.

The above specification of my invention signed by me this 13th day of December, 1870.

PATRICK HARVEY.

Witnesses:

N. C. GRIDLEY,  
G. H. FROST.