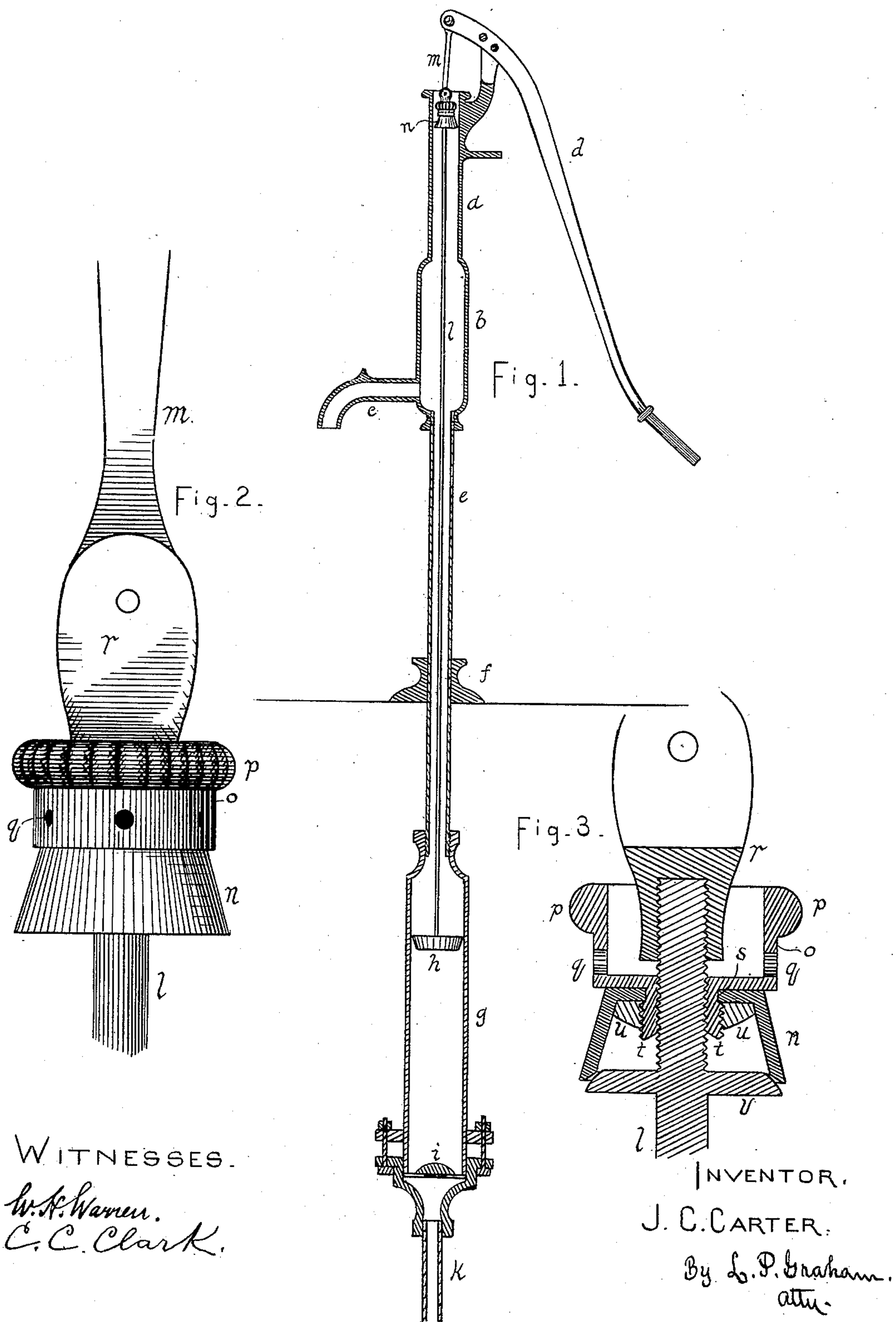


(No Model.)

J. C. CARTER.  
PUMP.

No. 378,766.

Patented Feb. 28, 1888.



WITNESSES.

*W. H. Warren.*  
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# UNITED STATES PATENT OFFICE.

JAMES C. CARTER, OF DECATUR, ILLINOIS.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 378,766, dated February 28, 1888.

Application filed January 14, 1886. Serial No. 188,510. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES C. CARTER, of the city of Decatur, county of Macon, and State of Illinois, have invented certain new and useful Improvements in Pumps, of which the following is a specification.

My object is to produce a cheap and effective lift-pump that may by means of a simple adjustment be readily converted into a force-pump; and my invention consists in certain details of construction and combinations of parts, as hereinafter set forth and claimed.

In the drawings accompanying and forming a part of this specification, Figure 1 is a vertical section of my pump-casing, showing the construction and arrangement of the rod and valves therein. Fig. 2 is a representation of the adjustable upper valve, and Fig. 3 is a vertical section of the same.

*a* is the casing for the upper valve.

*b* is an equalizing-chamber, provided with outlet *c*.

*d* is the pump-handle, constructed in any well-known manner and suitably pivoted on the casing.

*e* is a pipe extending downward from chamber *b* to lower valve-casing, *g*.

*f* is a supporting-collar that embraces pipe *e* and rests on the top of the well-platform.

*h* is an ordinary bucket-valve in casing *g*, attached to the lower end of the pump-rod.

*i* is an ordinary flap-valve at the bottom of casing *g*.

*k* is a pipe that connects casing *g* with the water to be elevated.

*l* is the piston-rod connected with the pump-handle by means of jointed rod *m*.

*n* is an expansible valve on the upper end of rod *l*.

*r* is a pivot-head for rod *l*.

*o* is a valve-supporting band, provided with corrugated surface *p* and holes *q*. This band is also provided with downwardly-projecting shoulder *t*, threaded externally and internally, and provided with peripheral recess or depression *s*. The internal threads of the shoulder fit on the upper end of the pump-rod, the valve *n* fits in the depression *s*, and collar *u* engages the external threads of the shoulder and secures the valve in position. The valve *n*, which is necessarily elastic, is forced over the external

threads of the shoulder into depression *s*, and, after collar *u* is properly adjusted, is suitably locked to prevent misplacement.

*v* is a disk, made rigid with the piston-rod in any well-known manner at about the proportionate position shown, and beveled, as indicated, on the upper portion of its periphery.

When the pump-handle is at the lowest point of its stroke, the band *p* should rise above the top of the pump, and the valve *n*, in its normal condition, should be slightly smaller than the internal diameter of the casing, so that under ordinary circumstances the lower valve or bucket will operate alone in the manner of a common lift-pump.

In order to convert the device into a force-pump, band *o* is screwed down until the lower portion of valve *n* is expanded by the resisting pressure of beveled disk *v* to the diameter of the interior of casing *a*, thus making said valve operative.

In operating the device as a force-pump the water is lifted by bucket-valve *h* and the downward pressure of the valve *n* is resisted by flap-valve *i*. Chamber *b* increases the efficiency of the forcing mechanism by providing a reserve supply of water that has the effect of equalizing the flow.

While the specific means shown and described for expanding the upper valve are considered preferable, it is obvious that the valve may be forced on the disk in a variety of well-known ways, or that the disk may be forced into the valve, and consequently I do not wish to be understood as confining myself exclusively to the rigid disk and threaded valve, as herein specified.

I claim—

1. A convertible force and lift pump consisting in the combination of a cylinder, means for supporting the cylinder on a well-platform, means for connecting the cylinder with the water of the well, a lateral discharge-spout for the cylinder, a pivoting-handle for the cylinder, a piston-rod in the cylinder connected with the handle in a suitable manner, a lift-valve on the piston-rod below the discharge-spout, a valve in the cylinder below the lift-valve on the piston-rod, an expansible inverted bucket-valve screwed onto the piston-rod above the discharge-spout, and a bevel-edged

disk rigid on the piston-rod immediately below the inverted bucket-valve, as and for the purpose set forth.

2. A convertible force and lift pump consisting in the combination of a cylinder having a lateral discharge-spout, a piston-rod in the cylinder threaded at its upper end, a lift-valve on the piston-rod below the discharge-spout, a valve in the cylinder below the piston-rod, a  
10 beveled disk rigid on the piston-rod near the top of the cylinder and above the discharge-

spout, and an inverted bucket-valve screwed onto the threaded portion of the rod immediately over the disk, as and for the purpose set forth.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

JAMES C. CARTER.

Witnesses:

J. D. WALKER,  
L. P. GRAHAM.