

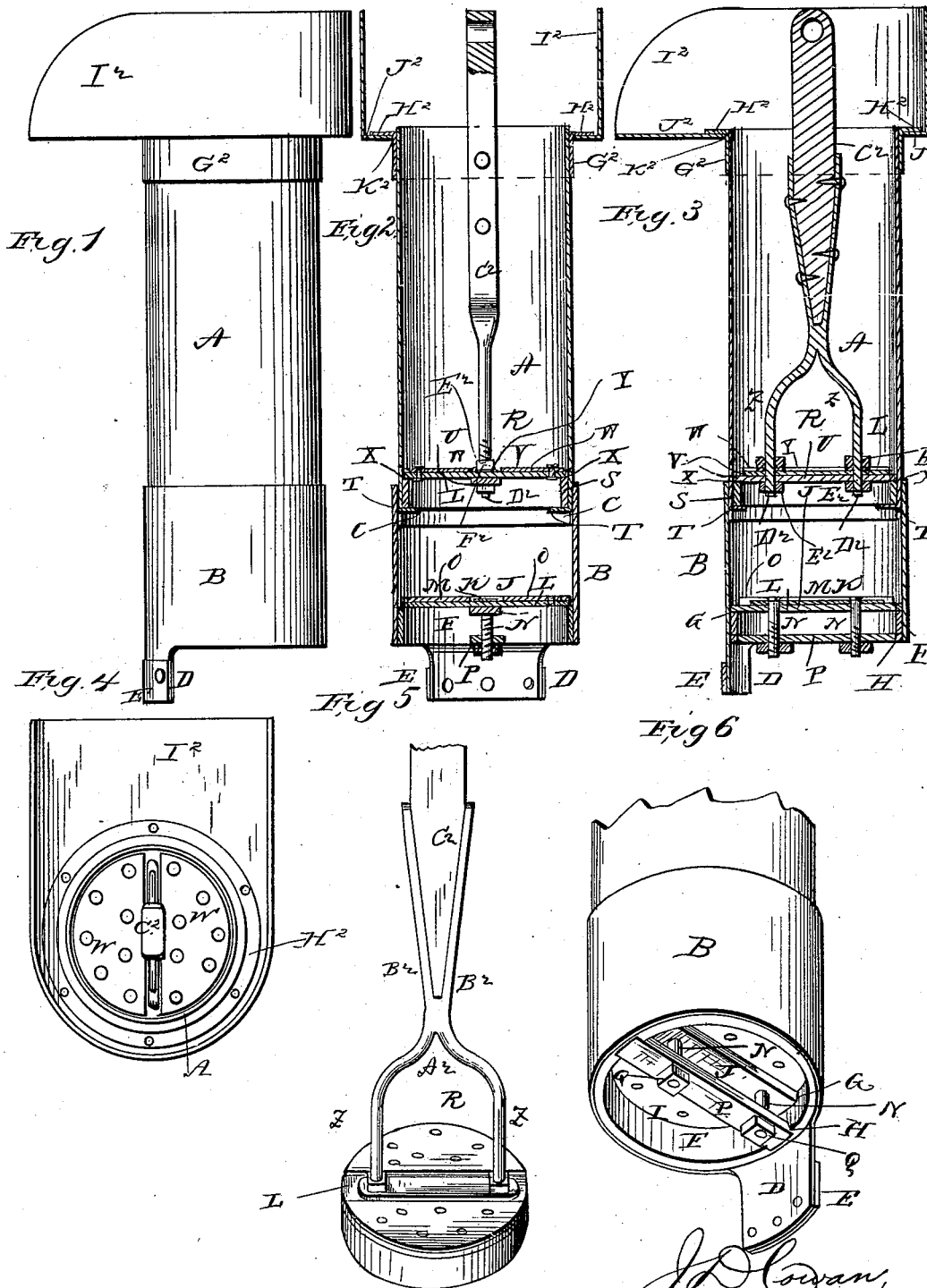
(No Model.)

J. D. COWAN.

PUMP.

No. 306,812.

Patented Oct. 21, 1884.



WITNESSES  
F. L. Curand  
J. R. Little

J. D. Cowan,  
INVENTOR  
by C. Brown & Co.  
Attorneys.

# UNITED STATES PATENT OFFICE.

JACKSON D. COWAN, OF McKEESPORT, PENNSYLVANIA.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 306,812, dated October 21, 1884.

Application filed August 29, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JACKSON D. COWAN, a citizen of the United States, residing at McKeesport, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Pump, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to pumps, and is especially adapted for use as a marine or ship pump.

In the drawings, Figure 1 is a side elevation of my improved pump. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a vertical sectional view taken through the bucket and valve-chamber on a line parallel with the hinge of the valves. Fig. 4 is a top view of the pump. Fig. 5 is a detail perspective view of the bucket. Fig. 6 is a detail perspective view looking into the bottom of the valve-chamber.

Referring to the drawings, A designates the cylinder of the pump, around the bottom of which is secured a separate valve-chamber, B, preferably by heating the top of the valve-chamber until it expands sufficiently to receive the lower end of the cylinder, the adjustment of the chamber onto the end of the cylinder being limited by small interior shoulders, C C, and when the parts have cooled the chamber will have shrunk tightly and securely on the cylinder and the joint will be air and water tight. From the bottom edge of the chamber B projects an integral perpendicular flange, D, that elevates the bottom of the said valve-chamber, so that there will be a ready flow of water into the same. This supporting-flange is at one side only, and may be re-enforced by a strip, E, secured to its bottom.

F is a circumferential interior flange or ring secured around the bottom edge of the chamber B, and having corresponding recesses, G and H, respectively, in its top and bottom edges and on diametrically-opposite sides. The top edge, I, of the ring F forms the valve-seat, and a supporting strip or bar, J, is arranged transversely in the chamber, and has its ends seated in the recesses G G and flush with the top edge or seat, I.

K is the valve, which consists of a leather

disk, L, that is secured down against the supporting-bar J by means of a longitudinally-disposed washer-strip, M, through which pass a pair of clamp-bolts, N N, said disk being provided with two segmental wings or plates, O O, that are secured on top the leather and stiffen the valve. By this arrangement the leather acts as a hinge and packing, and the outer edge of said leather disk comes down against the valve-seat I. The bolts N N pass down through the strip M, disk L, bar J, and another transverse clamp-bar, P, that is held up in the recesses H H by the nuts Q Q on the ends of said bolts N N. By simply removing these nuts the parts by which the valve is secured in position can be readily separated, and the valve removed for substitution or repair.

R is the lift-valve, which is mainly like the entrance-valve in the chamber B, and consists of a circular ring, S, adapted to slide in the cylinder A, and having its downward movement limited by stops or shoulders T on the interior of the cylinder. The ring S is provided with a cross-bar, U, which is either integral with the ring or secured thereto, and to the top of this bar U is secured a leather disk, V, that is re-enforced by segmental plates W W, secured to its top surface, and has its edges arranged to come against the top edge of the ring S, said edge forming a valve-seat for the disk. The leather disk V forms the packing of the valve and also the hinge for the same, and is secured down on the cross-bar U by means of a longitudinally-disposed washer-strip, Y, through which pass two bolts, Z Z, that converge at their upper ends, A<sup>2</sup>, and are flattened, as at B<sup>2</sup> B<sup>2</sup>, to form the socket for the lift-rod C<sup>2</sup> of the pump, and have their lower ends, D<sup>2</sup>, screw-threaded and provided with securing-nuts E<sup>2</sup> and F<sup>2</sup>, respectively, above the plate or strip Y and under the cross-bar U.

G<sup>2</sup> is a collar that is firmly fastened around the top edge of the cylinder A by heating it until it expands sufficiently to receive the cylinder, and then allowing it to cool and shrink on the same. This collar is formed with an outwardly-projecting circumferential flange, H<sup>2</sup>, at its top edge, to which the spout I<sup>2</sup> is se-

cured by riveting or other suitable means, the bottom plate or flange,  $J^2$ , being secured to said flange  $H^2$  and provided with an opening,  $K^2$ , to receive the cylinder. On the upstroke of the bucket the water readily enters through the bottom valve into the valve-chamber and passes through the bucket on the downstroke of the same, and is lifted by the bucket on its next upstroke.

10 I claim as my invention—

1. The combination of the ring the top edge of which forms the valve-seat, the cross-bar secured to the ring with its top surface flush with the top edge of said ring, the flexible disk secured on top the said cross-bar, the transverse washer-plate binding the said disk against the cross-bar, and bolts passing through the washer-plate disk and cross-bar and nutted above said washer-plate and below said cross-bar, substantially as set forth.

2. The combination of the ring or annular

flange having the corresponding recesses in its top and bottom edges and on diametrically-opposite sides, the transverse top and bottom bars seated in the said recesses, the top bar being flush with the top edge or seat of the ring, a leather disk secured on top the cross-bar, segmental plates secured to the face of said disk, and securing-bolts passed through the disk and cross-bars and secured by clamping-nuts against the under side of the bottom bar, whereby the parts of the valve-securing mechanism can be readily removed, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JACKSON D. COWAN.

Witnesses:

DANIEL DONOVAN,

JERRY. M. HEASLEY.