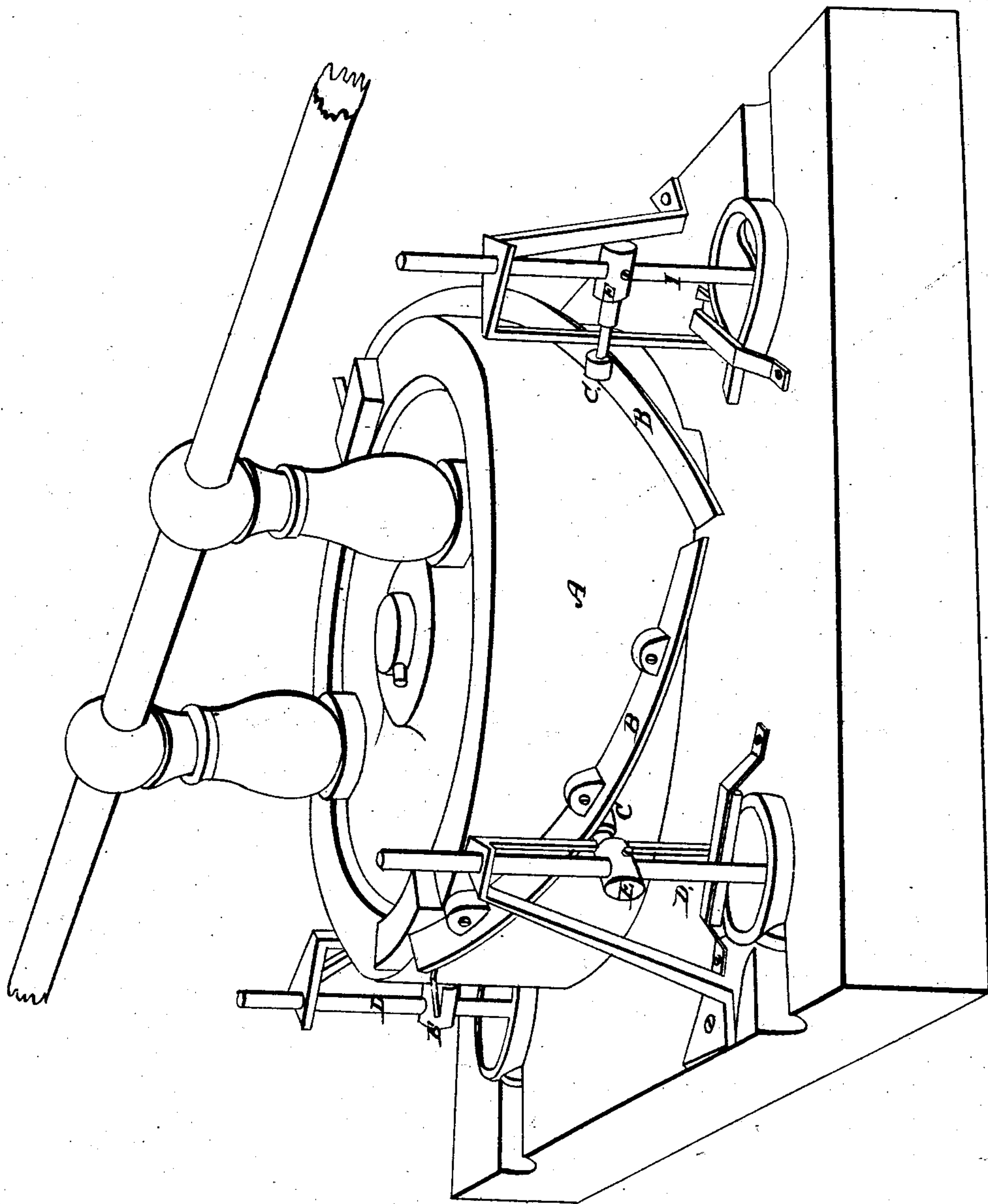


*D. Whittier,*

*Double-Acting Pump.*

*N<sup>o</sup> 697.*

*Patented Apr. 14, 1838.*





# UNITED STATES PATENT OFFICE.

DAVID WHITTIER, OF BELFAST, MAINE.

## MODE OF WORKING THE PISTONS OF PUMPS.

Specification of Letters Patent No. 697, dated April 14, 1838.

*To all whom it may concern:*

Be it known that I, DAVID WHITTIER, of Belfast, in the county of Waldo and State of Maine, have invented a new and Improved Application of Power to Pumps; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in the application of inclined planes, inserted upon the outer circumference of a wheel or cylinder, (which is made to revolve like the capstan of a vessel), to the spear or piston of a pump so as to force it up and down.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

I construct a vertical barrel or cylinder, of wood or metal, of any given diameter, and of sufficient width to raise and depress the spear or piston the distance desired (see A, in the accompanying drawing). Upon the bottom of this barrel or cylinder, I place rollers, or small wheels, upon which it is to revolve. Through the center of the cylinder a metallic spindle is inserted, which is firmly placed in the floor or deck or platform around which spindle the cylinder revolves. If this spindle be constructed, as it may be, like that of the common ship's capstan, the cylinder may revolve upon it, as does a ship's capstan, in which case the wheels upon the bottom may be omitted. Upon the outer circumference of the cylinder, I attach, firmly, four metallic plates, B, B, alternately ascending and descending, from the upper to the lower edge of the same, forming inclined planes, alternately up and down and projecting out sufficiently for the small friction wheels, C, C, attached to the spear or piston rod, R, D, of the pump, to roll upon. Four pumps, or a greater or less number, are then placed around said cylinder, and so near thereto as that the friction wheels attached to the spear or piston, shall run upon said metallic plates—I attach the friction wheels, to the spears or pistons, by

means of a short arm or projection E E extending from the spears or pistons. I then apply to the cylinder, power enough to put it in motion. This may be simply the lever or capstan bar, or wind, steam, or horse power. The friction wheels, attached to the spears or pistons of the pumps, running up on the ascending metallic plates, raise the spears or pistons, until said wheels meet the lower surface of the descending plates, (the ends of which extend a little above the ascending plates so as to catch the wheels upon the lower surface of the descending plates) by which the spear or piston is forced down, when the wheels again meet the ascending plates.

The cylinder, having the metallic plates affixed thereon may be permanently attached to the capstan of a vessel without inconvenience; or it may be made to ship and unship to a capstan, at pleasure.

Instead of inclined planes upon the periphery, as above described, grooves may be formed in the periphery of the vertical cylinder, having the proper direction, and admitting the friction rollers attached to the piston rod, by which means a like effect will be produced.

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

In the manner herein described of raising and depressing the piston rods of pumps, by attaching inclined planes, or sections of an helix to the periphery of a vertical cylinder, to operate substantially in the manner set forth, I also claim, as a modification of the same principle, the forming of grooves, having the same inclination as that given to the said planes, so as to receive the friction rollers attached to the piston rods, and to operate them in a similar manner.

DAVID WHITTIER.

Witnesses:

ALBERT SMITH,  
ANNIE SMITH.