

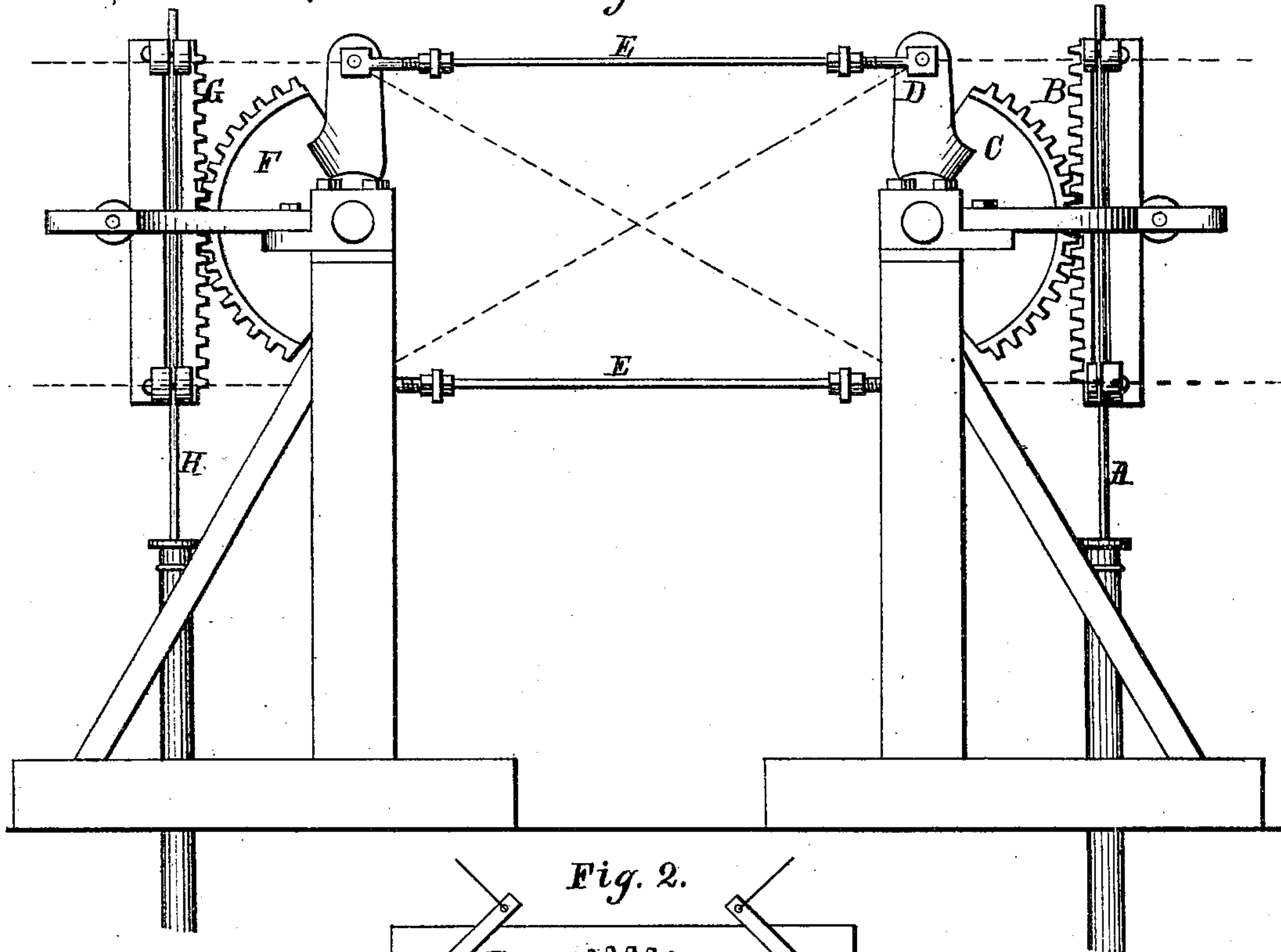
J. W. HULL.

METHOD OF OPERATING PUMPS FOR WELLS, MINES, &c.

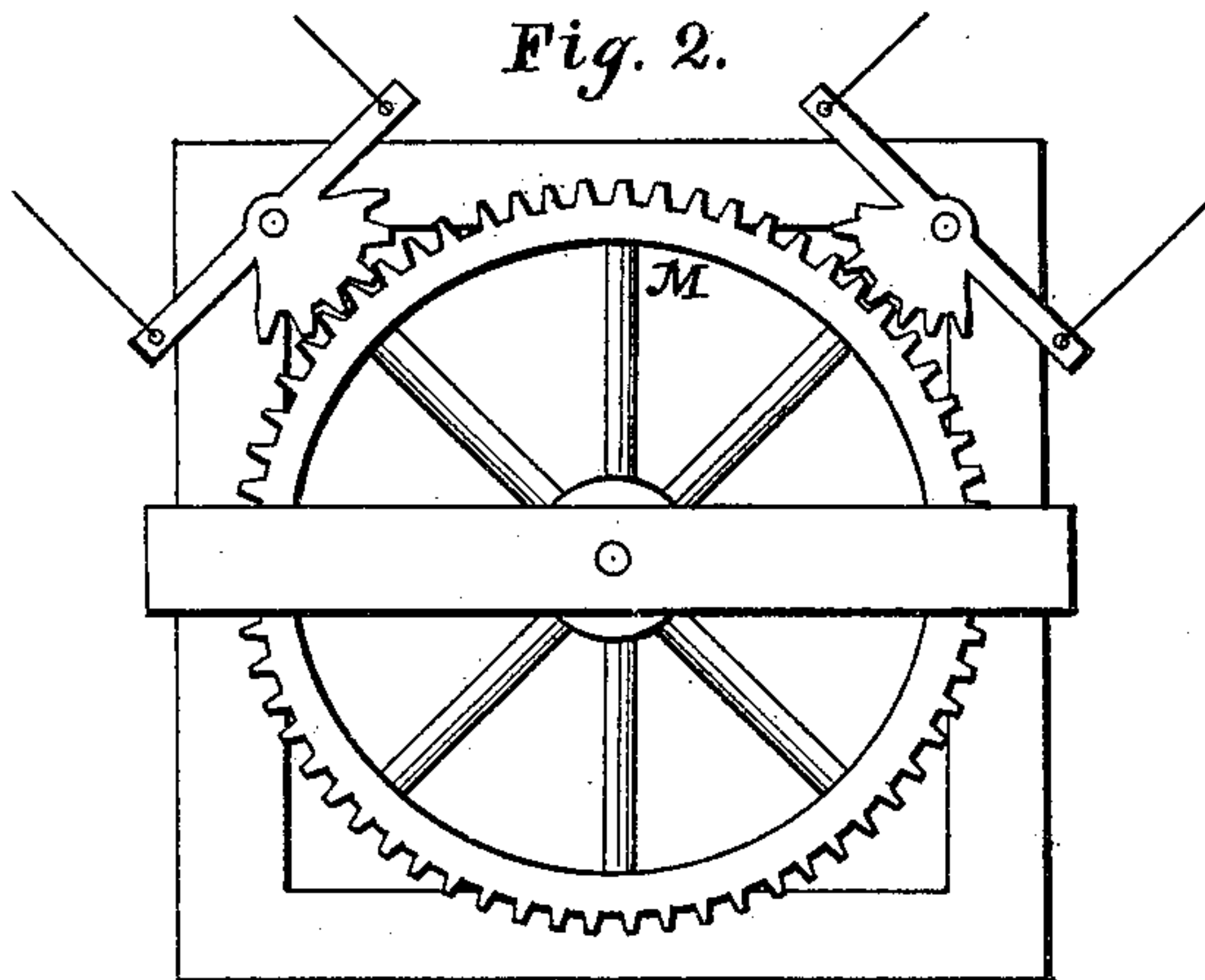
No. 175,564.

Patented April 4, 1876.

*Fig. 1.*



*Fig. 2.*



*Witnesses:*

*J. M. Henderson,  
A. B. Howland.*

*Inventor:*

*John W. Hull;  
By his Attorney  
Joseph Smith.*

# UNITED STATES PATENT OFFICE.

JOHN W. HULL, OF FAGUNDUS, PENNSYLVANIA.

IMPROVEMENT IN METHODS OF OPERATING PUMPS FOR WELLS, MINES, &c.

Specification forming part of Letters Patent No. 175,564, dated April 4, 1876; application filed November 29, 1875.

*To all whom it may concern:*

Be it known that I, JOHN W. HULL, of Fagundus, Warren county, Pennsylvania, have invented certain Improvements in the Method of Operating Pumps for Artesian Wells, Mines, &c., of which the following is a specification:

My invention relates to the manner of operating pumps located in proximity to each other, as oil or salt wells, or in mines, where the power applied to operate one pump may be transmitted and applied to others in the vicinity, using but one engine or steam-cylinder.

In the drawing, Figure 1, A represents the piston-rod of a pump, driven in the ordinary manner. Attached to this is a rack, B, with cogs, working in the pinion C. Attached to the shaft of the pinion C, and working with it, are the arms D D, and attached to these arms are the rods, wires, or cables E E, of any desired length, reaching to and connecting with the arms of a similar pinion, F, which works in a rack, G, attached to the piston-rod H of the second pump.

It is now evident that when the piston A of the first pump is put in motion, the motion is communicated, through the rack and pinion and rods E E, to the second rack and pinion F and G, and to the piston H, and that the action is reciprocal, or that when the piston A is drawn up the piston H is descending,

and vice versa. Should it be required to have both pumps make the upward and downward stroke together, it may be done by crossing the wires E E, as shown by the dotted lines.

If it is required to attach more than two pumps together it may be done by extending the wires past the arms D D and F, as shown by the dotted lines, and attaching them to other similar racks and pinions, in that manner communicating the power to as many pumps as may be desired, any change of direction being made by means of rocker-shafts.

Instead of the power being first communicated to the pinion C by the rack B, it may be done by using a horizontal toothed wheel, M, Fig. 2, to which an oscillating motion is communicated by any power, and which may have around its circumference any desired number of pinions, with arms, operating as before described.

What I claim as my invention is—

The rack and pinion B and C, together with the cords or cables E E, and the rack and pinion F and G, by which the motion of the piston A is communicated to the piston H, substantially as described, and for the purposes set forth.

JOHN W. HULL.

Witnesses:

J. M. HENDERSON,  
ANDREW B. HOWLAND.