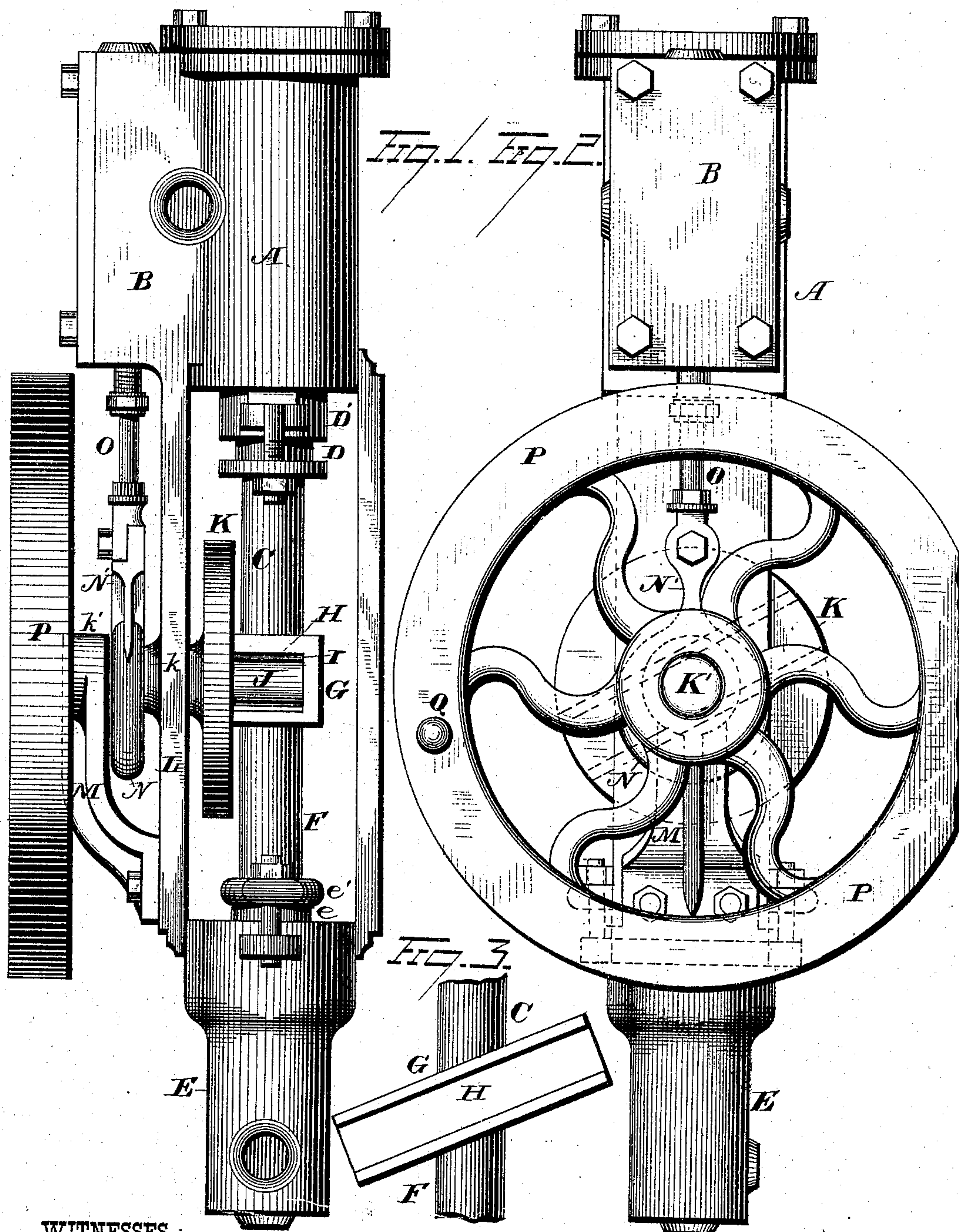


(No Model.)

R. J. PETTIBONE.
Steam Pump.

No. 241,714.

Patented May 17, 1881.



WITNESSES

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RUSH J. PETTIBONE, OF STILLWATER, MINNESOTA, ASSIGNOR OF ONE-HALF
TO SEYMOUR, SABIN & CO., OF SAME PLACE.

STEAM-PUMP.

SPECIFICATION forming part of Letters Patent No. 241,714, dated May 17, 1881.

Application filed March 30, 1880. (No model.)

To all whom it may concern:

Be it known that I, RUSH J. PETTIBONE, of Stillwater, in the county of Washington and State of Minnesota, have invented certain new and useful Improvements in Direct-Acting Steam-Pumps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in direct-acting steam-pumps.

The object of the invention is to provide a steam-pump which shall be simple and durable in its construction, of small initial cost, and adapted to be operated at a minimum expenditure of power; and with these ends in view my invention consists, first, in the combination, with a steam-piston, water-plunger, and slotted link, the latter arranged diagonally to the piston and plunger, of the crank-pin and sliding block located in the diagonal link.

My invention further consists in certain other details in construction and combinations of parts, as will hereinafter be explained, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in front elevation of my improved pump. Fig. 2 is a side elevation, and Fig. 3 is a detached view of the diagonal link.

A represents the steam-cylinder, and B the steam-chest. Any suitable construction or form of valve may be employed for regulating the admission of steam to the steam-cylinder for actuating the piston.

C is the piston-rod, and D the gland of the stuffing-box D' for packing the piston-rod.

E is the water-cylinder, and F is the water-plunger, the latter being packed by a suitable stuffing-box, e, and gland e'.

Piston-rod C and plunger F are connected by the link G, which is arranged diagonally to such parts as are shown in Fig. 3.

The piston-rod, plunger, and link are all made solid and in a single piece, which construction is of light cost in its manufacture,

as all fitting and fastening of the parts is dispensed with, and also there is much less liability of any disarrangement or breakage of the parts when made in the manner described.

Within the slot H in the diagonal link G is located a sliding block, I, in which is received the crank-pin J, the latter being secured to or connected with the wheel or disk K attached to the shaft K', the inner end of the latter being supported in a bearing, k, in the yoke L, and the outer end in a bearing, k', on the upper end of the bracket M.

An eccentric, N, is attached to the shaft K' at a point between the bearings k k', and encircling the eccentric is an eccentric strap or yoke, N', to which is fastened the lower or outer end of the valve-stem O.

To the outer end of the shaft K' is secured the fly-wheel P, which may be provided with a handle, Q, so that the pump may be operated by hand if desired.

Steam being admitted to the steam-cylinder operates to reciprocate the piston and plunger in the usual manner.

The diagonal link serves to impart rotary motion to the shaft K', and thereby operate the slide-valve through the medium of the eccentric. The slotted diagonal link for imparting motion to the crank-wheel obviates the great objection incident to the employment of the ordinary link, which is arranged at right angles to the stroke of the piston. In the latter it is well known that considerable power is expended in carrying the crank over its dead-centers, and, as the result of such construction, the wear on the parts is unduly great, causing a thumping of the piston as it passes over its dead-centers. By arranging the link diagonally to the stroke of the piston the sliding block in which the crank-pin is located is caused to move between inclined walls, and thus when the crank is on its dead-centers the block, instead of being located between walls or guides arranged at right angles to the line of direction in which the power is applied, is located between inclined walls or guides which allow the block to be readily moved irrespective of the position of the crank, and prevents undue wear of the parts, and, further, obviates

the thumping or jarring of the piston and other parts of the pump while in operation.

While my improved pump is especially adapted for use as a steam-boiler feed-pump, I do not restrict myself to the employment of my improvement on this particular type of pumps, as the invention may be embodied in other styles and kinds of pumps than that referred to.

10 Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a steam-pump, the combination, with the crank-wheel, of a steam piston-rod, water-plunger, and slotted link, the latter arranged

diagonally to the piston-rod and water-plunger, substantially as set forth.

2. In a steam-pump, the combination, with the crank, of a steam piston-rod, water-plunger, and slotted link, the latter arranged diagonally to the piston-rod and water-plunger, and the link, piston-rod, and plunger made in a single piece, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand.

RUSH J. PETTIBONE.

Witnesses:

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