

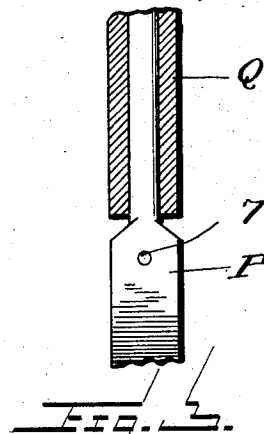
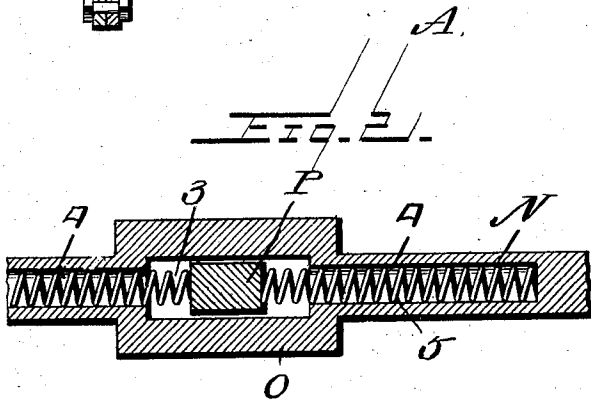
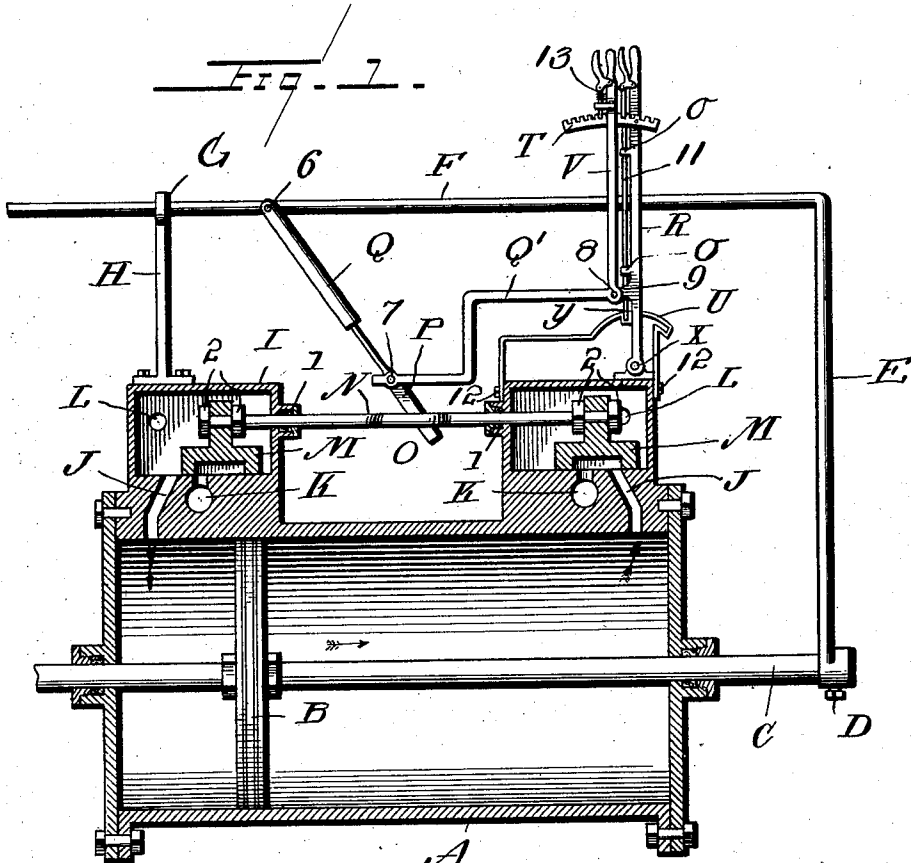
No. 746,158.

PATENTED DEC. 8, 1903.

J. A. REED.
ENGINE FOR STEAM PUMPS.

APPLICATION FILED SEPT. 18, 1903.

NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN A. REED, OF GULFPORT, MISSISSIPPI.

ENGINE FOR STEAM-PUMPS.

SPECIFICATION forming part of Letters Patent No. 746,158, dated December 8, 1903.

Application filed September 18, 1903. Serial No. 173,734. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. REED, residing at the city of Gulfport, in the county of Harrison and State of Mississippi, have invented certain new and useful Improvements in Motors or Engines for Steam-Pumps, of which the following is a specification, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central vertical longitudinal sectional view of a motor made in accordance with my invention. Fig. 2 is a detail sectional top view of the central part of the rod N, showing the helical springs in position. Fig. 3 is a detail view of the trip-rod and vertical rod P.

The present invention relates to that class of motors designed for use in connection with hoisting-engines, locomotives, steamboat-engines, and double-acting force-pumps with high pressure of both water and air; and it consists in certain novel features hereinafter fully set forth and claimed, the object being to dispense with the use of eccentric links, blade, strap, and the reverse motion now being used on reversing-engines and traction-engines, and thereby produce a simple, cheap, and effective apparatus of this character.

The nature and operation of the improvements will be readily understood by those skilled in the art from the following description.

In the drawings, A represents the steam-cylinder of usual construction, in which is arranged a piston B, connected to a piston-rod C, passing through stuffing-boxes located in the heads of the steam-cylinder. In practice one end of the piston-rod C passes into the cylinder of the pump which it is proposed to operate and is connected with a piston located therein. The pump-cylinder and its piston are not shown in the drawings, as they form no part of the present invention. To the opposite end of the piston-rod C is secured a collar D, to which is connected a sliding frame, consisting of a vertical arm E, (which is secured to the piston-rod by a set-screw,) and a horizontally-arranged member F, extending above the steam-chests and connecting at one end with the vertical arm E, while

the other end passes through and slides in a ring G, forming a rest on the free end of brace-rod H, which is secured at its lower end to the top of the steam-chest at the left-hand end of the cylinder, as seen in the drawings.

At each end of the cylinder A is a steam-chest I, having two ports—a steam-admission port J, communicating with the interior of the steam-cylinder, and an exhaust-port K. The steam-chests are supplied with steam from any suitable source through pipes L L. Within each steam-chest is a slide-valve M, the two valves being connected by a rod N, which passes through stuffing-boxes 1 1, and the valves are secured to the rod by jam-nuts 2 2 and control the steam-inlet ports J J and exhaust-ports K K. The valve-rod N has formed at its center an enlarged portion O, which is provided with a central longitudinal slot 3, which registers with a central bore or slot 4, formed in the rod N on each side of the said enlarged portion. Helical springs 5 are placed in the slots 4 and when extended enter the slot 3 of part O and press against either side of the vertical rod P, which passes down through the slot 3 in the center of valve-rod N. The upper portion of rod P projects well up into the hollow trip-rod Q, which is secured to arm F of the sliding frame by a wrist-pin 6 at a point (or midway thereof) to bring the rod P directly in the slot in the enlargement O of the valve-rod. The rod P is pivotally secured by a wrist-pin 7 to the outer end of the transverse angle-bar Q, which in turn is connected at its inner end to an arm 9 on the reverse-lever R by a wrist-pin 8. The lower end of the reverse-lever R is pivotally secured at X to the top of one of the steam-chests, as seen in the drawings, while its upper end has riveted to it a notched curved cross-bar T.

A spring-dog 11 is movably secured lengthwise of lever R by brackets 0 0 and is arranged to enter the notch y in the curved piece U, which spans and is secured to either end of one of the steam-chests by set-screws 12 12.

Running parallel with the reverse-lever R is a second lever V, which is a continuation of rod P and is adapted to change the stroke of the valve and is pivotally connected at its

lower end to the arm 9 of the said lever, while its upper end is provided with a spring-dog clutch 13, which engages with the cross notched bar or rack T, secured to the upper end of the reverse-lever R.

When it is desired to change the motion of the engine, grip the dog 11 at the top, and it will release its lower end from the notch in the curved piece U, and the lever can then be moved in the desired direction, and then place the lever back on center. If it is desired to change the valve to a longer or shorter stroke, pull the clutch 13 until it is disengaged from the notch in the rack T, then push the lever V in the desired direction.

It will be seen that the parts are connected together to move in unison and the slide-valves so arranged that when the one valve is in position to open the steam-port J and to close its exhaust-port K the other valve will be in position to throw its inlet-port J into communication with its exhaust - port K. When the engine is in motion, the spring ahead of the trip-rod will be compressed until the trip-rod strikes the end of the slot, which causes the valve to move all at once when it does start. This is an important advantage in my improvement and materially accelerates the operation of the engine.

Having described my invention and the best way now known to me of carrying the

same into effect, what I claim as new, and desire to secure by Letters Patent, is—

In an apparatus of the character described, the combination of the cylinder, the piston and piston-rod, the vertical arm connected with the piston-rod, the longitudinally - arranged member connected with the vertical arm, the steam-chests, the slide-valves, and inlet and exhaust ports, the valve-rod having a central opening extending through the rod, and a bore or slot on either side of said central opening, springs located in said bore or slot, a vertical rod passing through the central opening in the valve-rod and between the ends of the said springs, a hollow trip-rod surrounding the upper portion of said vertical rod and connected with the longitudinal member of the sliding frame, the reversing-lever connected to the steam-chest, the transverse angle-bar connected at one end to the vertical rod and at its other end to the reversing-lever, and its vertical lever member arranged and adapted to operate the valve-rod to change the stroke of the valve, substantially as described.

In testimony whereof I have hereunto set my hand this 2d day of September, 1903.
JOHN A. REED.

Witnesses:

JOHN H. LANG,
H. A. JACKSON.