H. TAYLOR.

Valve-Motion for Steam-Engines.

No. 197,951. Patented Dec. 11, 1877

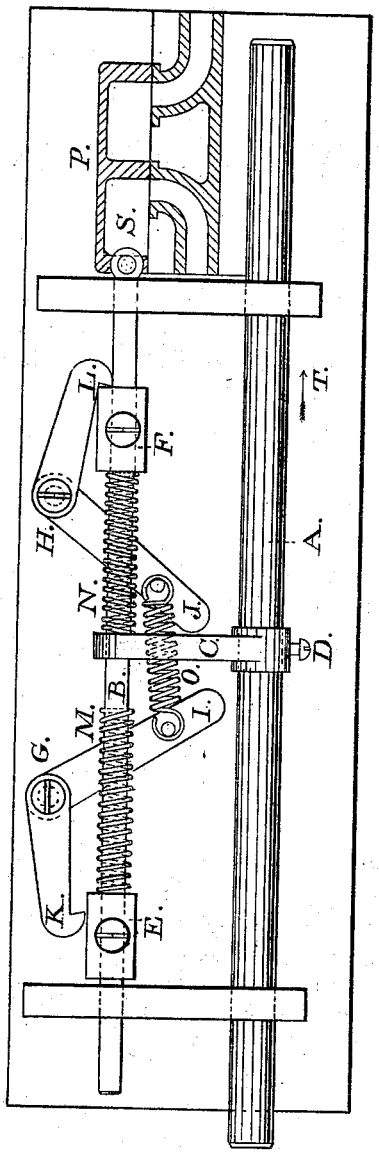

FIG. I.

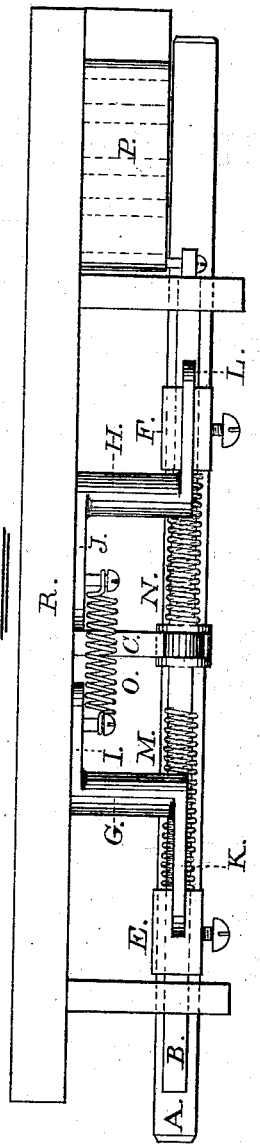

FIG. II.

—WITNESSES.—

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HENRY TAYLOR, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN VALVE-MOTIONS FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **197,951**, dated December 11, 1877; application filed October 27, 1877.

To all whom it may concern:

Be it known that I, HENRY TAYLOR, of Baltimore city and State of Maryland, have invented a new and useful Improvement in Valve-Motions for Steam-Engines or Donkey Steam or Air Pumps, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to alternately open and close the valves common to steam-engines or donkey steam-pumps by means of mechanism fully explained in the following specification and claim.

Figure 1 is a side elevation. Fig. 2 is a plan.

Like letters represent like parts in each.

A represents the piston-rod that connects the pistons of the donkey engine and pump together. B is the valve-rod common to steam-engines and donkey-pumps. It is connected with the steam-valve P at S, and worked, as usual, through a stuffing-box.

C is an adjustable arm, common to donkey-pumps, fastened on A by means of the set-screw D. The upper end of the arm plays freely over the valve-rod B.

E and F are two adjustable rectangular latch-blocks, fastened on B with set-screws on opposite sides of the arm C. They are capable of being changed by reversing their ends or revolving them on B, so that when one latching-point wears, five others may be used before the blocks are worn out. The functions of these latch-blocks are to hold, in connection with the hooks K and L, the valve at any desired point on opposite sides of the steam-ports.

G and H are bell-crank rock-shafts, suspended on pivot-bolts in the frame of the engine, on opposite sides of the arm C. M and N are two spiral springs, that slip loosely on the valve-rod B, between the arm C and the blocks E and F. The resiliency or force of these springs under compression must be equal or greater than the friction and other resistance of the steam-valve and its connections, so as to quickly reverse the valve when the hook-latch K or L is raised and the piston is at the end of its stroke, as shown at L.

R represents the frame between the steam-engine and pump.

The operation of my invention is as follows: When the piston-rod A moves in the direction of the arrow T the arm C continues to compress the spring N against the block F until the piston is nearly at the end of its stroke, when the arm C strikes the pendent lever J of the rock-shaft, and raises the hook L above the block F, when the force of the spring reverses the valve, and the piston moves in the opposite direction, performing a like action, thus securing a constant and reliable motion to the engine and pump. This method of operating valves may also be used as a cut-off to use steam expansively, for which I contemplate applying for a separate patent.

Having described the construction and operation of my invention, I claim—

The arrangement of the piston-rod A, valve-rod B, arm C, latch-blocks E and F, rock-arms G and H, springs M and N, spring O, and valve P, said parts being constructed and operating substantially as herein shown and described, and for the purpose set forth.

HENRY TAYLOR.

Witnesses:

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