P. VAN TASSEL & M. PAUP.

Steam-Pump.

No. 207,226. Patented Aug. 20, 1878.

Fig: 1.

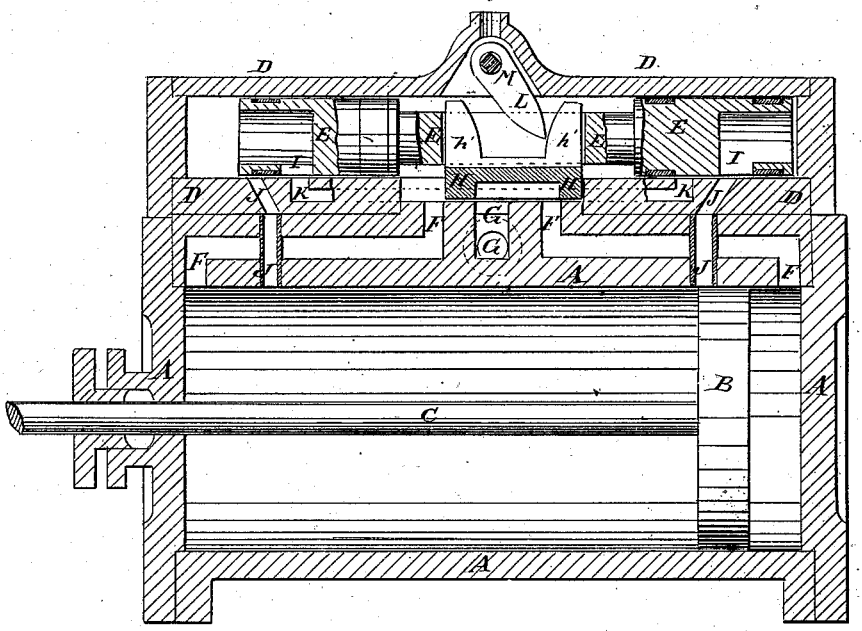
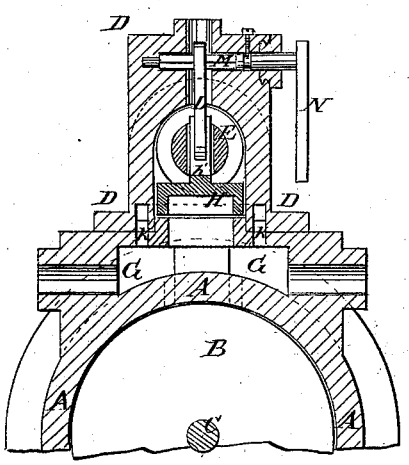


Fig: 3.

Fig: 2.



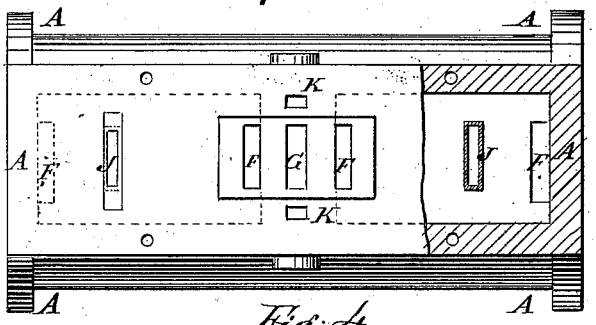
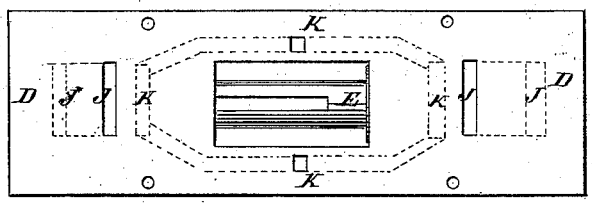


Fig: 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

PHILIP VAN TASSEL AND MARTIN PAUP, OF PORT MADISON, WASHINGTON TERRITORY.

IMPROVEMENT IN STEAM-PUMPS.

Specification forming part of Letters Patent No. **207,226**, dated August 20, 1878; application filed May 22, 1878.

To all whom it may concern:

Be it known that we, PHILIP VAN TASSEL and MARTIN PAUP, of Port Madison, in the county of Kitsap, Washington Territory, have invented a new and useful Improvement in Steam-Pumps, of which the following is a specification:

Figure 1 is a vertical longitudinal section of our improved steam-pump. Fig. 2 is a vertical cross-section of the same. Fig. 3 is a top view of the same, the valve-chest being taken away, and shown, partly in section, through the shell of the cylinder. Fig. 4 is an underside view of the valve-chest.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved steam-pump which shall be so constructed that the valve may be operated, without any gear or other attachment, by the movement of the main piston, to change the position of the valve and reverse the motion of the main piston, and which at the same time shall be simple in construction, without any part liable to break or get out of order, and shall operate with a positive movement.

A represents the cylinder, which is provided with heads and a piston, B, in the usual way. C is the piston-rod, which passes out through the stuffing-box in one of the heads of the cylinder A in the usual way. To the upper side of the cylinder A is attached the valve-chest D, the cavity of which is made cylindrical to receive the piston-valve E. The end parts of the piston-valve E are made of such a size as to fit into the cavity of the valve-chest D, and are packed in the usual way to prevent the passage of steam. The middle part of the piston-valve E is made smaller, so that steam may pass around it freely to enter the ports F leading from the middle part of the said valve-chamber to the end parts of the cylinder A, and which serve alternately as inlet and outlet ports for the steam.

In the middle part of the bottom of the valve-chest D is formed the exhaust-port G, through which the exhaust-steam escapes as the slide-valve H is shifted. The slide-valve H has a central longitudinal flange, *h'*, formed upon its upper side to fit into the slot in the middle part of the piston-valve E, so that the said valve may be moved by the movement of the said piston-valve. The ends of the piston-valve E are hollowed out, and from them ports I lead through their lower sides. From the end parts of the valve-chest D ports J lead into the cylinder A at a little distance from its ends, so that the piston B will pass the said ports before reaching the end of its stroke. Through the bottom of the valve-chest D are formed ports K, which lead to the exhaust-ports G, to carry off the exhaust-steam from the ends of the said valve-chest D, as required.

With this construction, when the parts are in the position shown in Fig. 1 and the piston B is moving to the right, as the inner end of the port J is uncovered the steam passes through the ports J and I and forces the piston-valve E to the left, which covers the right-hand port J and uncovers the left-hand port J, the steam escaping from before the left-hand end of the piston-valve E through the left-hand port, K. As the piston-valve E moves to the left it carries the slide-valve H with it, which admits steam through the right-hand port F, in front of the piston B', reverses its movement, and drives it in the opposite direction. As the piston B reaches the other end of its stroke the same operation is repeated, so that the slide-valve will be moved by the movement of the main piston B. The upper edge of the flange *h'* of the slide-valve H is notched to receive the end of a lever, L, which is rigidly attached to a shaft, M, that passes through the enlarged upper middle part of the valve-chest D, and has a lever, N, attached to its outer end. This device is designed for use should the valve H get out of place during the transportation of the engine, or from other accidental cause. In all other cases the said slide-valve H will be operated by the movement of the main piston B.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination, with the cylinder A, having ports F G J, arranged as described, of the piston-valve E, having ports I, and slide-valve H, the latter connected by flange and slot with the former, as and for the purpose specified.

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Witnesses:
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