J. TESSEYMAN.

Steam-Pump.

No. 162,122. Patented April 13, 1875.

Fig. 1

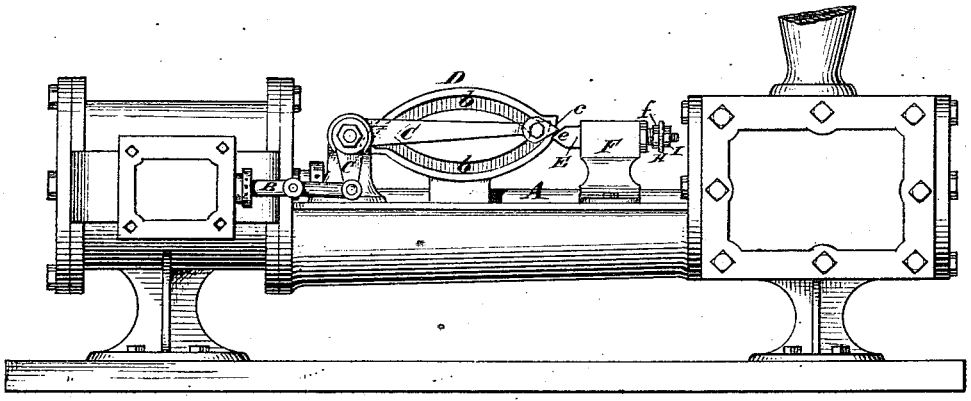
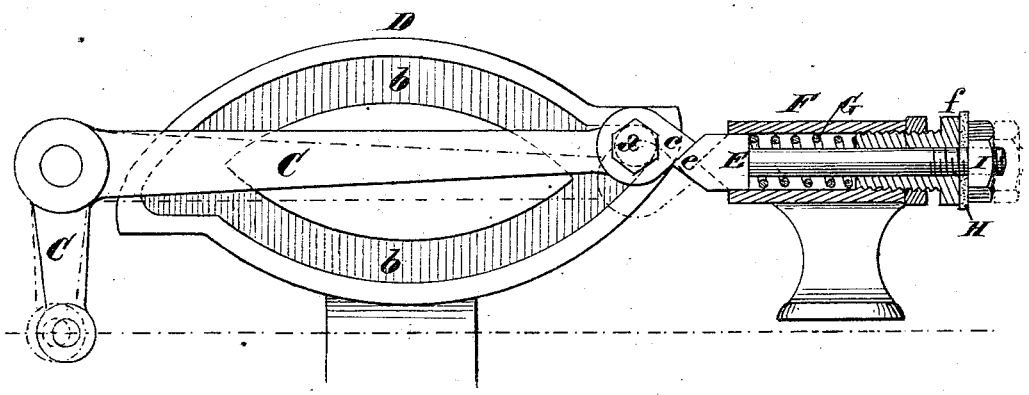


Fig. 2



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JOHN TESSEYMAN, OF DAYTON, OHIO, ASSIGNOR TO PRESERVED SMITH.

IMPROVEMENT IN STEAM-PUMPS.

Specification forming part of Letters Patent No. **162,122**, dated April 13, 1875; application filed November 9, 1874.

To all whom it may concern:

Be it known that I, JOHN TESSEYMAN, of Dayton, Montgomery county, State of Ohio, have invented a certain new and useful Improvement in Valve-Gear for Steam Pumps and Engines, of which the following is a specification:

My invention is designed as an improvement upon the valve-gear for which Letters Patent 139,439 were issued to myself and E. I. Howard, May 27, 1873; and my improvement consists of a combination of valve-moving lever, a reciprocating V-shaped plunger, and a spring, the V-shaped faces of the plunger, projected by the power of the spring, acting upon a V-shaped projection from the end of the valve-moving lever, so as to continue the stroke of the valve at the termination of each stroke of the piston.

Figure 1 is a side elevation of a steam-pump embodying my invention. Fig. 2 is an enlarged view of my improvement as applied to the reciprocating cam of a steam pump or engine.

A is the piston-rod of the engine or pump, and B the valve-rod of the valve which governs the steam-passages of the steam-cylinder. This rod is operated by the bell-crank lever C, the long end of the lever having in this instance a projecting stud, *a*, (seen in dotted lines in Fig. 2,) which fits the groove *b* of the cam D, the latter being secured permanently to the piston-rod A, so that the reciprocating action of the piston will directly impart the necessary vibratory motion to the valve-moving lever C.

It is well known that the piston of a steam-engine cannot practically move its own valve positively to such an extent as to open the steam-passage sufficiently for the proper propulsion of the piston in the opposite direction for the return stroke without the employment of some extraneous gravitating or flexible device to continue or complete the stroke of the valve after the piston has commenced it.

In the adaptation of my improvement to the cam device D *b*, (shown in the drawings,) it is only necessary that this extraneous device should move the valve a short distance after the piston has exhausted its effort in that direction, as the cam D *b* will complete the stroke of the valve in the progress of the return stroke.

The peculiar construction and operation of this extraneous device is the subject-matter of my present improvement; and it consists of a plunger, E, having a V-shaped end, *e*, and adapted to reciprocate in a fixed support, F, the fixed support containing and supporting a coiled spring, G, which is the active agent in the accomplishment of the end sought. The end of the lever C also has a V-shaped end, *c*, corresponding in shape with, and acting in conjunction with, the V-shaped end *e*.

The end of the spring G is supported against an adjustable head, *f*, which, by reason of its adjustability, is adapted to increase or diminish the retractile force of the spring G. The outer end of the plunger E has a nut, I, secured to it, which is adjustable for the purpose of limiting the projection of the V-shaped end of the plunger, and, consequently, regulating the stroke of the plunger.

To prevent noise on the retraction of the spring and plunger, I introduce an elastic washer, H, between the nut I and the fixed support F.

In the operation of my device in the connection shown, the cam D *b*, near the termination of the stroke, brings the end *c* of the lever C against the end *e* of the plunger E, and forces it just past the center, necessarily compressing the spring G.

The forcible retraction of the spring then, owing to the presence of the incline faces of the ends *c e*, serves to move the lever C and its valve sufficiently to partially open the steam-port for the return stroke, and to enable the cam to return and carry the stud *a* in the opposite groove.

I do not claim, broadly, a V-shaped piston or plunger propelled by a spring to continue the stroke of a valve.

I claim—

1. The combination of cam D *b*, lever C *c*, plunger E *e*, and spring G, substantially as and for the purpose specified.

2. In combination with the plunger E *e*, valve-moving lever C *c*, and fixed support F, the adjustable head *f*, adjustable nut I, and spring G, operating substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

JOHN TESSEYMAN.

Witnesses:
THOMAS WINSHIP,
F. E. SMITH.