

A. PERRY & G. W. PERRY.
Improvement in Steam Pumps.

No. 121,658.

Patented Dec. 5, 1871.

Fig. 1.

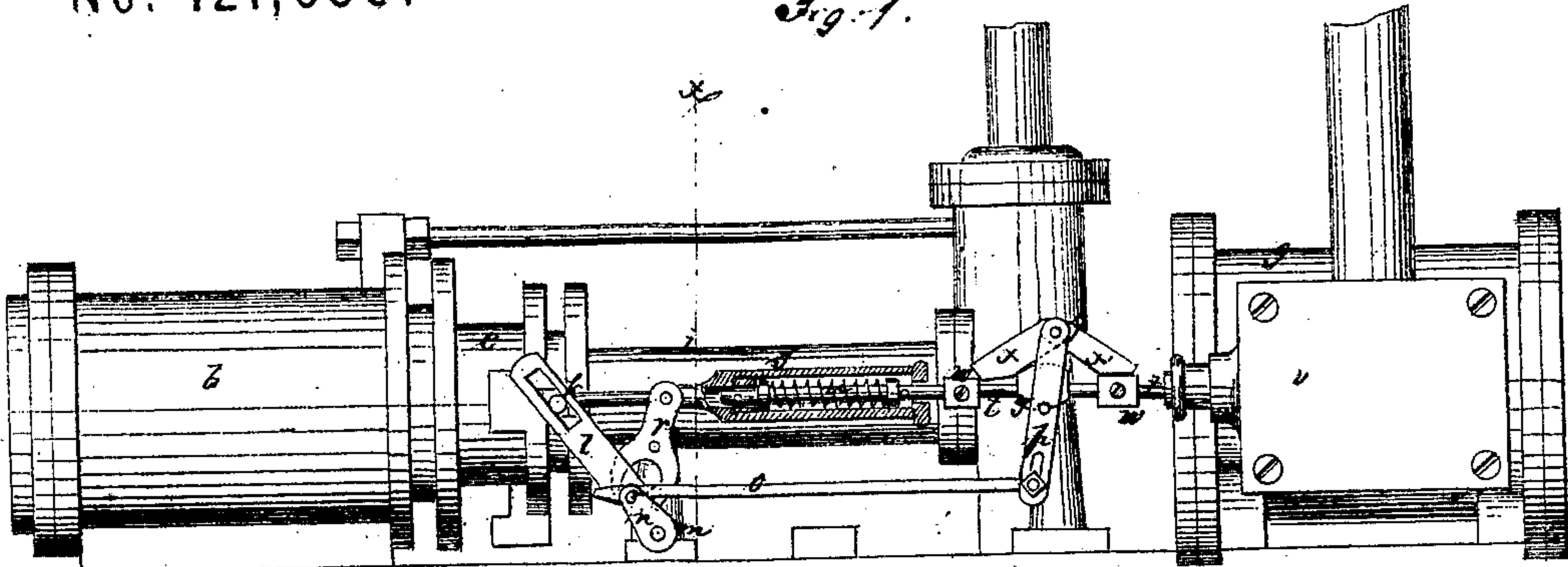


Fig. 2.

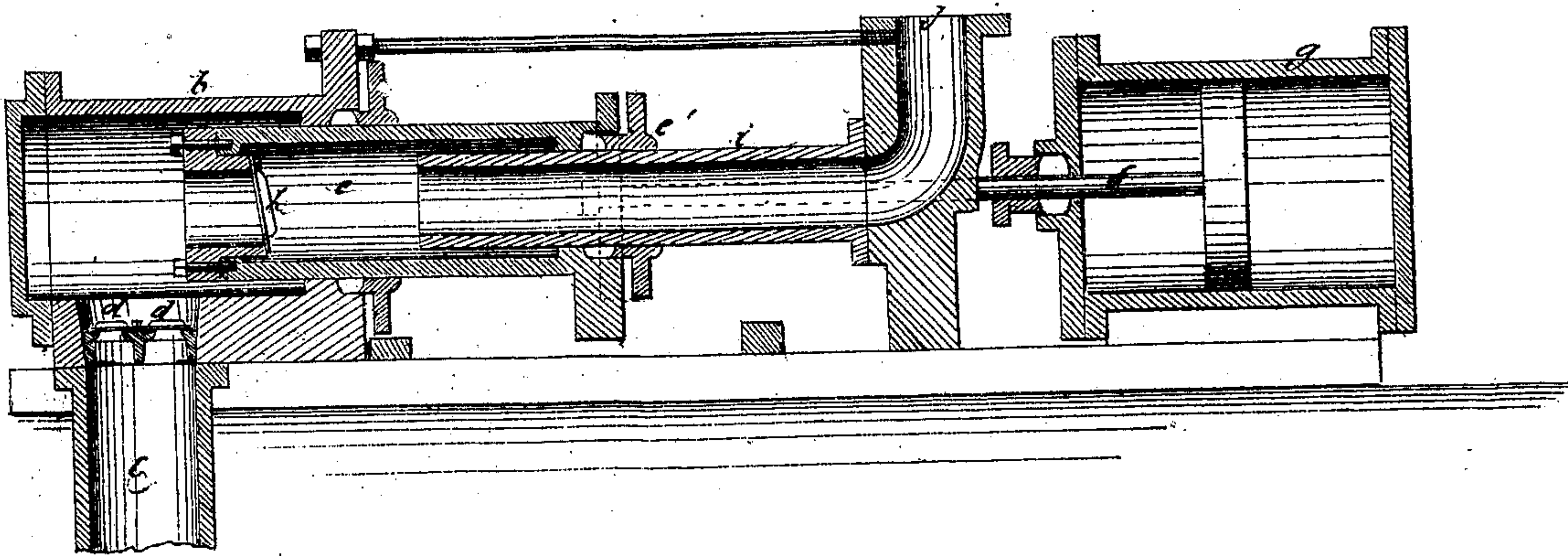
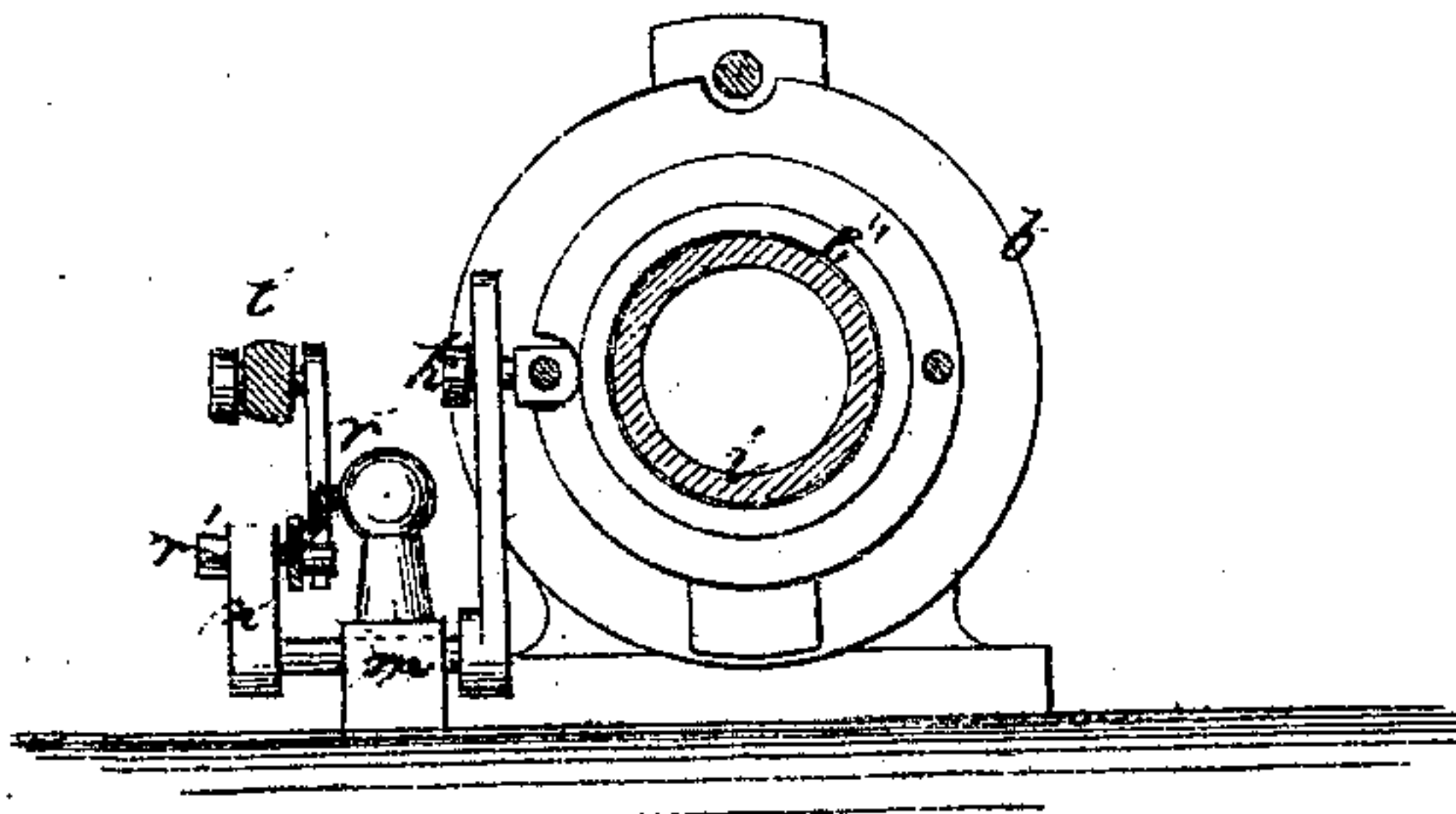


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

ALBERT PERRY, OF NEW PHILADELPHIA, AND GEORGE W. PERRY, OF
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IMPROVEMENT IN STEAM-PUMPS.

Specification forming part of Letters Patent No. 121,658, dated December 5, 1871.

To all whom it may concern:

Be it known that we, ALBERT PERRY, of New Philadelphia, and GEORGE W. PERRY, of Mahanoy City, in the county of Schuylkill and State of Pennsylvania, have invented a new and Improved Steam-Pump; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 is a side elevation with a section of the tube *s*. Fig. 2 is a longitudinal sectional elevation. Fig. 3 is a cross-section on line *xx* of Fig. 1.

Referring to the drawing, *b* is the pump-barrel; *c*, the pipe through which water enters said barrel; *d*, the valve to the pipe *c*; *e*, a hollow plunger working in the pump *b* through a stuffing-box, said plunger being connected at its outer end with the extremities of two piston-rods, *f*, which reciprocate with the single piston of the steam-cylinder *o*. *h* is an inwardly-opening valve placed inside the plunger *e*, near the inner end thereof. *i* is a pipe fastened at one end to the fixed vertical discharge-pipe *j* and communicating therewith, the other end of the pipe *i* entering the plunger *e* at its outer end through a stuffing-box *e'*, so that the latter works outside the said pipe. When the plunger *e* moves forward its valve *h* opens, and water flows from the barrel into the plunger, and the plunger displaces so much water from the pump while moving forward in the same as to fill not only the pipe *i* but also the discharge-pipe *j*, causing the water to be ejected from the latter. As the plunger moves backward its valve *h* closes, and consequently displaces the water in the plunger *e* and the pipe *i* *j* with the same effect as before. The result is, therefore, that the plunger *e* produces a continuous discharge from the pipe *j*. To a pin, *k*, extending from the outer end of the plunger *e* a crank, *l*, is jointed, which crank proceeds from a rock-shaft mounted in a block, *m*, and bearing another crank, *n*, which is jointed to a rod, *o*, connected at its other end with an arm, *p*, that is hung at its upper end to a standard at *q*. To the

block *m* is also pivoted an arm, *r*, forked at its lower extremity, between which forks enters the pin *r* from the crank *n*. To the upper end of the arm *r* is jointed the extremity of a tube, *s*, that is placed outside of a valve-rod, *t*, with a spiral spring, *u*, between the tube and rod and blocks on the rod at each end of the spring. The rod *t* enters the valve-chest *v* and is connected with the valves therein. On the rod *t*, at each side of the arm *p*, is fixed a block, *w*. Latches *x* are hung on the pivot of the arm *p*, extending one to each side thereof. A double wedge, *y*, fixed to the arm *p* by a pin slides loosely on the rod *t* under the latches *x* and lifts them alternately. When the plunger *e* is moving, say forward, the pin of the crank *n*, striking one of the forks of the arm *r*, throws the upper end of the latter, together with the tube *s*, backward. The tube *s* compresses the spring *u*. The front latch *x*, meanwhile, being in contact with the front block *w*, prevents the rod *t* from moving backward with the tube. But the rod *o* at the same time draws the wedge *y* forward until it lifts the front latch *x* above the front block *w*. This takes place just a moment before the piston in the cylinder *o* reaches the end of its stroke. The spring *u* thereupon at once drives the rod *t* backward, closing the port in rear of the piston and opening that in front of it, which causes the engine to reverse. The same operation is repeated near the rear end of the stroke.

We have, therefore, an improved self-operating valve-gear.

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

1. The plunger *e*, in combination with the pump *b* and fixed tube *i*, constructed and arranged as specified.

2. The arrangement of the tube *s*, rod *t*, spring *u*, blocks *w*, latches *x*, wedge *y*, arm *p*, rod *o*, arm *r*, cranks *l*, their connecting rock-shaft, and the plunger *e*, combined as described.

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Witnesses:

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