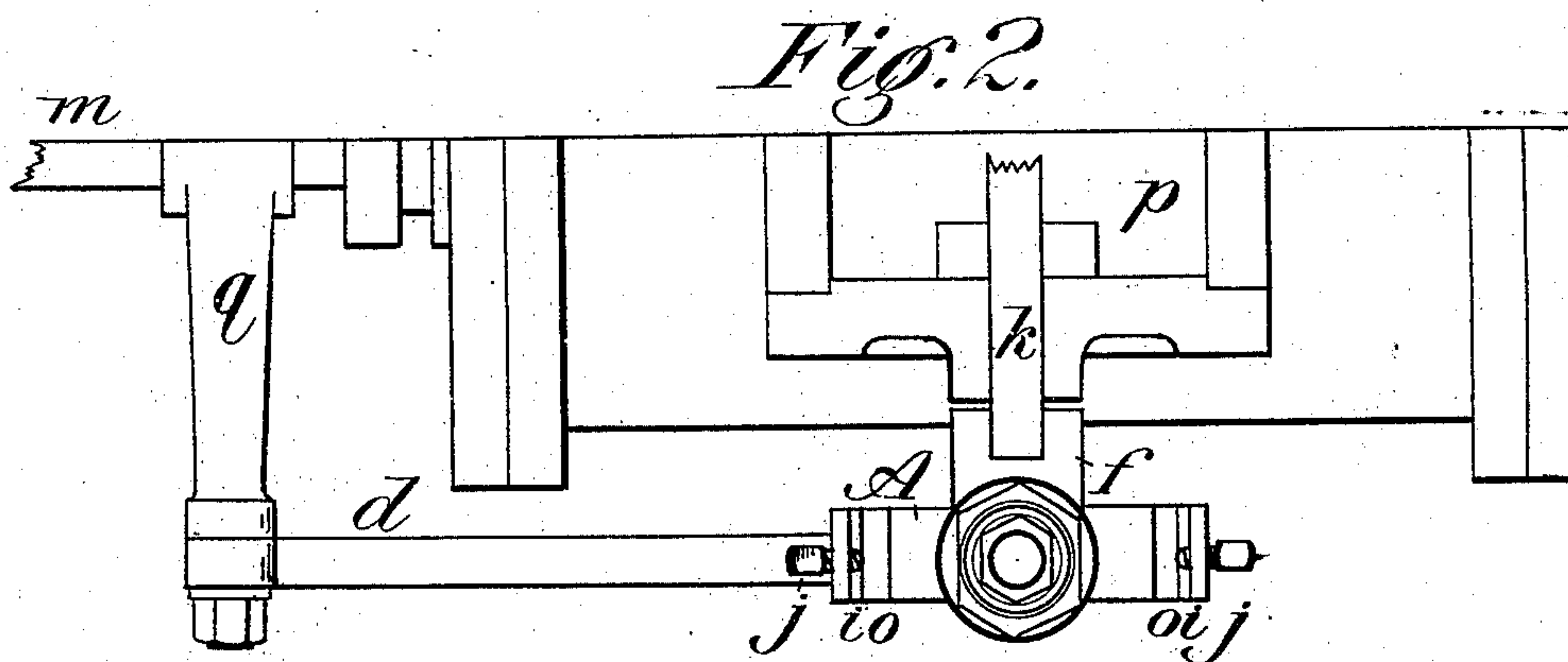
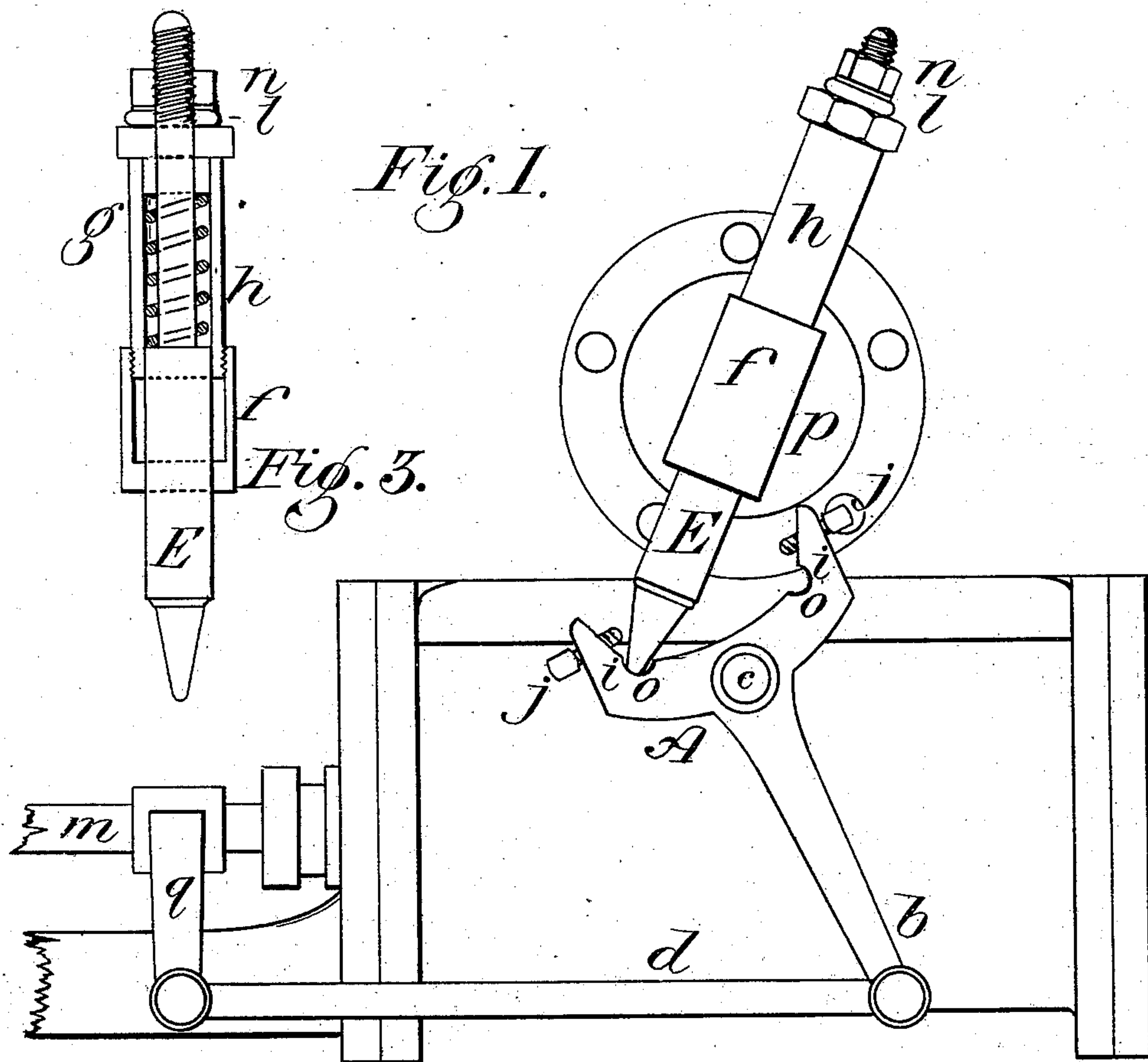


W. P. STEPHENSON.
Valve-Gear for Steam-Pumps.

No. 224,964.

Patented Feb. 24, 1880.



Attest
John E Logan
J. P. Kendall

Inventor.
Wm. P. Stephenson

UNITED STATES PATENT OFFICE.

WILLIAM P. STEPHENSON, OF PORTLAND, OREGON.

VALVE-GEAR FOR STEAM-PUMPS.

SPECIFICATION forming part of Letters Patent No. 224,964, dated February 24, 1880.

Application filed August 6, 1879.

To all whom it may concern:

Be it known that I, WILLIAM P. STEPHENSON, of Portland, in the county of Multnomah, in the State of Oregon, have invented an Improved Valve Gear or Movement for Steam-Pumps, of which the following is a specification.

My invention relates to valve-gear for steam-pumps; and the novelty therein consists in the peculiar construction and combination of its principal operative parts, as more fully hereinafter described.

In the drawings, Figure 1 is a side elevation, showing the interior of the escapement. Fig. 2 is a half-plan as seen from above, the escapement being in a vertical direction and the piston of engine near one end of its stroke. Fig. 3 is a sectional view of the escapement detached.

I use an oscillating beam, A, moving freely on a pin or center, *c*, and to said beam an arm, *b*, is attached. At each end of the beam A are the lugs *i i*, in which the set-screws *j j* are placed, and in each end of the beam are also the saddles *o o*, which are used to hold the foot of the escapement E in its upward movements. The arm *b* is connected to the piston-rod *m* by a rod, *d*, and a cross-head, *q*. Above *b* an escapement, E, is placed, so as to slide through the T *f*, which is firmly attached to a rock-shaft, *k*, carrying the valve in the steam-chest *p* of the engine. Into the upper end of the T *f* is screwed the sleeve *g*, containing the spring *h* and the upper guide for the escapement E. On the top of the sleeve *g* an elastic bumper, *l*, is laid, and on the sleeve end of the escapement E an adjusting-nut is screwed, which checks the descent of the escapement when it brings up against the bumper *l*. The general shape of the escapement E is V-shaped, slightly rounded on the lower end, made so as to slide freely in the T *f*, the upper end being reduced to receive the spring *h* in the sleeve, and passing through the upper end of *g* to receive the bumper-nut *n*.

Operation: Motion is imparted to the beam A by means of the rod *d*, attached to the piston-rod *m* and arm *b*. The escapement E,

resting in one of the saddles *o*, is gradually raised by its oscillation on the center *c* and pushed through the T *f*, thereby compressing the spring *h* until the full stroke of the piston is ended, when suddenly one of the set-screws *j* operates against the side of the escapement E in such a way as to throw it out of one of the saddles *o*, in which it rested during its rise, and now being thus liberated, it slides quickly down the incline of the beam A by means of the spring *h*, and in so doing causes the rock-shaft to oscillate and carry the slide-valve to the opposite steam-port, and instantly admitting the steam on the other end of the cylinder in the usual manner, and in this way operating the main valve to engine at each full stroke of the piston.

I claim—

1. In valve-gear, the combination of an oscillating beam with an oscillating escapement sliding downwardly upon such beam when the beam reaches either limit of its movement, substantially as and for the purpose set forth.

2. In valve-gear, an oscillating beam connected with the piston-rod, in combination with a spring-escapement secured to the end of a rock-shaft, and yielding in the direction of its length and sliding upon such beam, substantially as described.

3. In valve-gear, an oscillating beam operated by the piston-rod, in combination with a spring-escapement yielding in the direction of its length and sliding upon such beam, and saddles in the beam at the limit of movement of such escapement thereon, to receive the end of the escapement, substantially as and for the purpose set forth.

4. In valve-gear, the spring-escapement yielding in the direction of its length, in combination with the oscillating beam upon which the escapement slides, having saddles at the limits of movement of the escapement, and set-screws to push the escapement out of such saddles, substantially as described and shown.

WILLIAM P. STEPHENSON.

In presence of—

C. B. TALBOT,
E. C. TRICKLE.