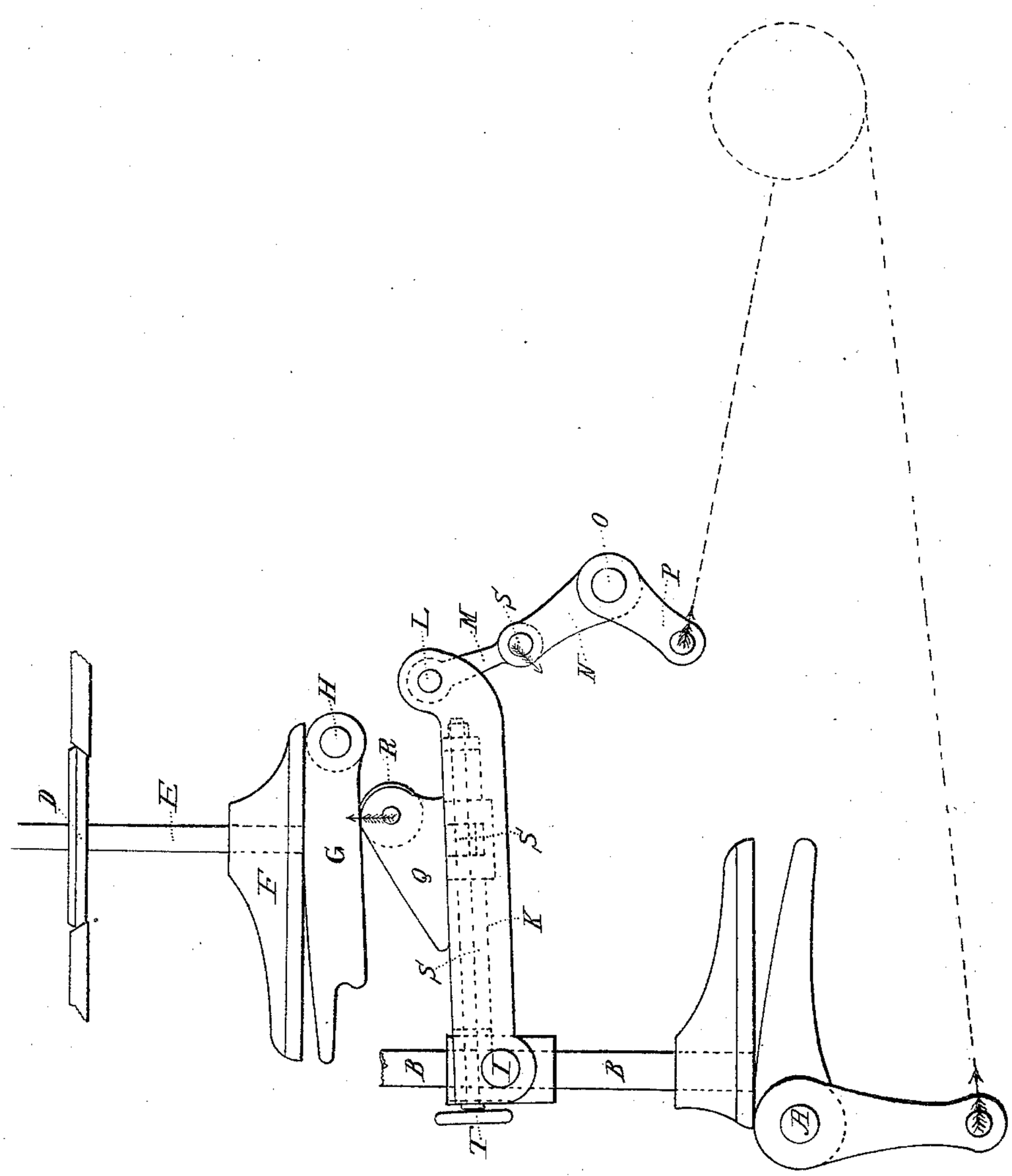
H. Allen,

Steam Cut-Off.

No. 6,093. Patented Feb. 6, 1849.



UNITED STATES PATENT OFFICE.

HORATIO ALLEN, OF NEW YORK, N. Y.

ADJUSTABLE LEVER CUT-OFF WITH SECONDARY TOE.

Specification of Letters Patent No. 6,093, dated February 6, 1849.

To all whom it may concern:

Be it known that I, HORATIO ALLEN, of New York, N. Y., have invented an Improvement in Adjustable Lever Cut-Offs With Secondary Toe, of which the following is a specification.

The main feature of the improvement herein described is set forth in a caveat dated June 26th 1847.

The combination is represented in the drawings hereto annexed, which combination I have denominated "lever cut off No. 2," as it embraces the same general arrangement as that of the combination called "lever cut off," and described in my application for a patent in November, 1847.

A is the usual rock shaft.

B is the usual lifting rod.

D is the steam valve.

E is the valve stem.

F is a piece fastened on the valve stem.

G is a toe having a fixed center H.

K is the lever attached at one end to the lifting rod by a center at I, and connected at the other end by the link M to the end of the arm N.

O is the cut off rock shaft on which are fastened the arms N and P.

Q is a piece supported by the lever K. This piece Q is made fast and adjustable by means of the rod and screw S.

R is a friction roller fastened in the piece Q. The toe G rests on the friction roller R.

The rock shaft A receives its motion from an eccentric in the usual manner.

The cut off rock shaft O receives its motion from any part of the engine having a motion coincident with the motion of the piston.

If the parts are adjusted as represented in the drawing and are supposed to be at the commencement of the stroke and to have motions in the directions indicated by arrows it will be seen that the center I will be raised with the lifting rod, (L being the center of motion,) and that consequently the piece Q, the toe G resting on Q, and the piece F will thereby be all raised, and that the valve D will thus be raised. It will also be seen that the upward motion of the lifting rod ceases at about $\frac{1}{3}$ of the stroke, while the downward motion of the arm S increases rapidly from a state of rest when the crank is on its center, and that the end L is sooner or later lowered more rapidly than the end I is raised. By this compound motion of the lever K, the valve will be opened at the beginning of the stroke, and closed again at such point as the position of the piece Q on the lever K determines. By turning the handle T the piece Q is made to change its position on the lever K, and thus the point at which the valve is returned to its seat is made adjustable.

What I claim is—

The combination of the lever K adjustable piece Q and toe G with the lifting rod B, by means of which the valve is raised at the commencement of the stroke, and the combination of the lever K, link M, and arm N with the cut off rock shaft O, by means of which the valve is lowered to its seat, substantially in the manner herein described.

New York, July 14, 1848.

HORATIO ALLEN.

Witnesses:

WM. PLUMB,

J. R. WIGGIN.