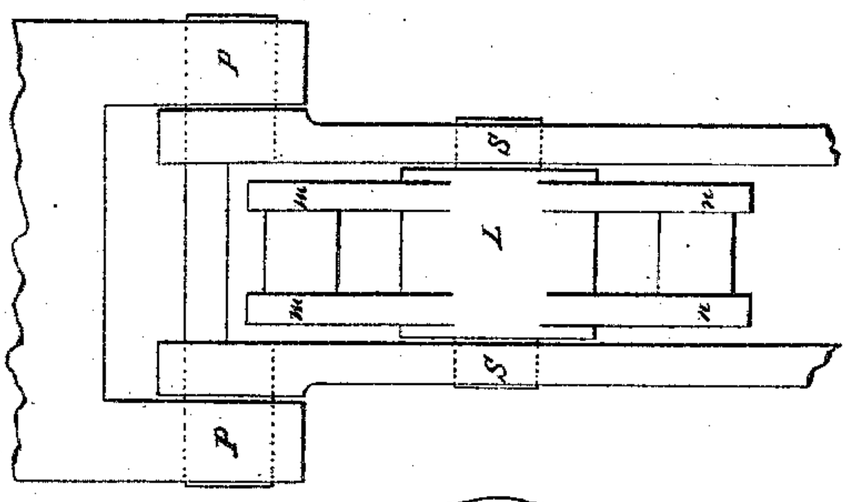
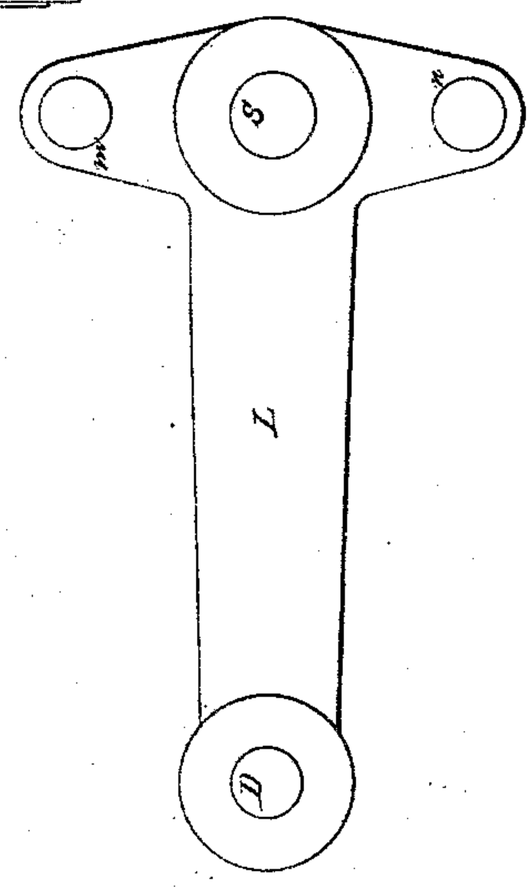
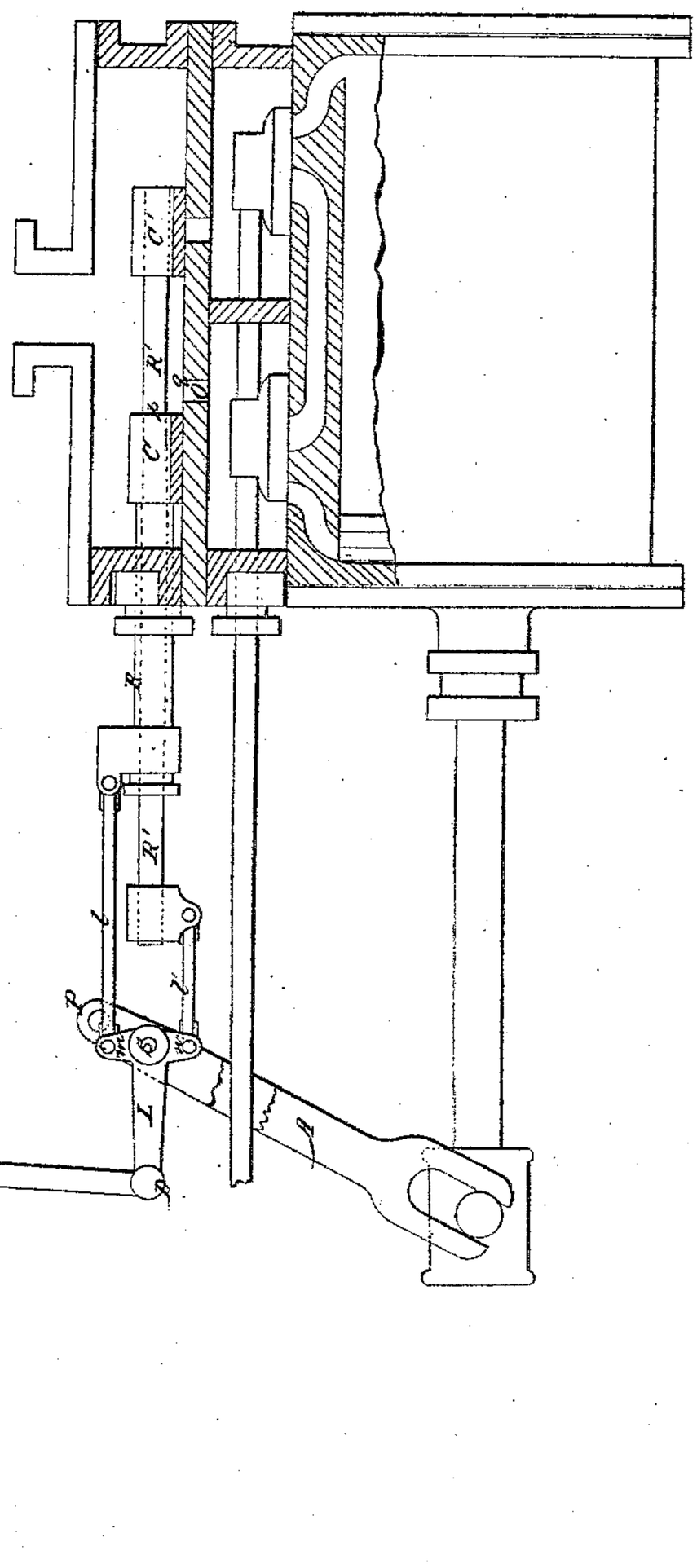
# T. Rogers,

## Steam Cut-Off

No. 4,028. Patented May 1, 1845.



# UNITED STATES PATENT OFFICE.

THOMAS ROGERS, OF PATERSON, NEW JERSEY.

## CUT-OFF VALVE FOR STEAM-ENGINES.

Specification of Letters Patent No. 4,028, dated May 1, 1845.

*To all whom it may concern:*

Be it known that I, THOMAS ROGERS, of Paterson, in the county of Passaic, in the State of New Jersey, have invented an Improvement on Horatio Allen's Cut-Off, of which the following is a full and exact description.

In using the general plan of cut off patented by Horatio Allen in 1841, I propose to introduce a mode of adjusting the slides, (that is of changing their position in relation to the openings which they are respectively to close), which is herein described. This mode is represented in the drawings annexed to which reference is made.

C and C′ are the cut off slides, carried by independent rods R and R′; one of the rods may pass through the other, (as represented in drawing) or the two rods may come out of the steam chamber separately, each having its necessary stuffing box. The rods R and R′ are connected by the links *l* and *l′* to the short arms or levers *m* and *n*. The arms *m* and *n* and the lever L are all united in the relative position represented in the drawing, to a common shaft S, so that they must all move together with or on that shaft as a center. The shaft S has its center in the lever A, which lever has its center on a fixed pin P. The lever A has a reciprocating motion coincident with that of the piston, but only that range of motion at the center of the shaft S that is required for the cut off slides. The lever A may derive this motion, either directly from the cross head (as represented in the drawing) or from an eccentric on the crank shaft. The end D of the lever L hangs on the rod E, the upper end of which has its center in the end of the arm F. By means of the handle H therefore, the end of the lever L can be raised or depressed, or when the handle H is fastened in any position, the end of the lever L cannot be raised or depressed although it may have a longitudinal motion. It will be seen that as the end D can have no vertical motion as long as the handle is fixed in one position, consequently the movements of the ends of the levers *m* and *n* must be alike and must be parallel with that of their common center.

As the parts are arranged in the drawing, the piston is at the commencement of the stroke, and the cut off slides are supposed to have a motion twice that of the distance from *p* the forward edge of the slide C, to *g* the far side of the opening O; consequently at half stroke the edge *p* will arrive at *g* and thus cut off the supply of steam at that point. On the return of the stroke a similar effect will be produced at the other opening. If now the handle H be moved in either direction the slides C and C′ will either be drawn together or separated, and consequently the steam will be cut off at an earlier or later proportion of the stroke. In the place of the arms *m* and *n* there could be substituted a pinion working into racks one on the link *l* and the other on the link *l′* which would effect the same end and is a combination substantially the same as that above described.

What I claim is—

The combination herein described of the three levers L, *m* and *n* having a common center in the lever A, with the rod E, and the slides C and C′ as a means of adjusting the slides while the engine is in motion and the lever A is working the slide by a reciprocating motion, or any combination substantially the same, but I do not claim the combination of, or the right to use the combination of adjustable slides and fixed seats with openings for each end of the cylinder as herein referred to and set forth in Letters Patent granted to Horatio Allen in August, 1841.

In testimony whereof I, the said THOMAS ROGERS, hereto subscribe my name in the presence of the witnesses whose names are hereto subscribed on the 15th day of April, A. D. 1844.

THOMAS ROGERS.

Signed in our presence:

J. M. HALL,

I. H. VOORHEES.