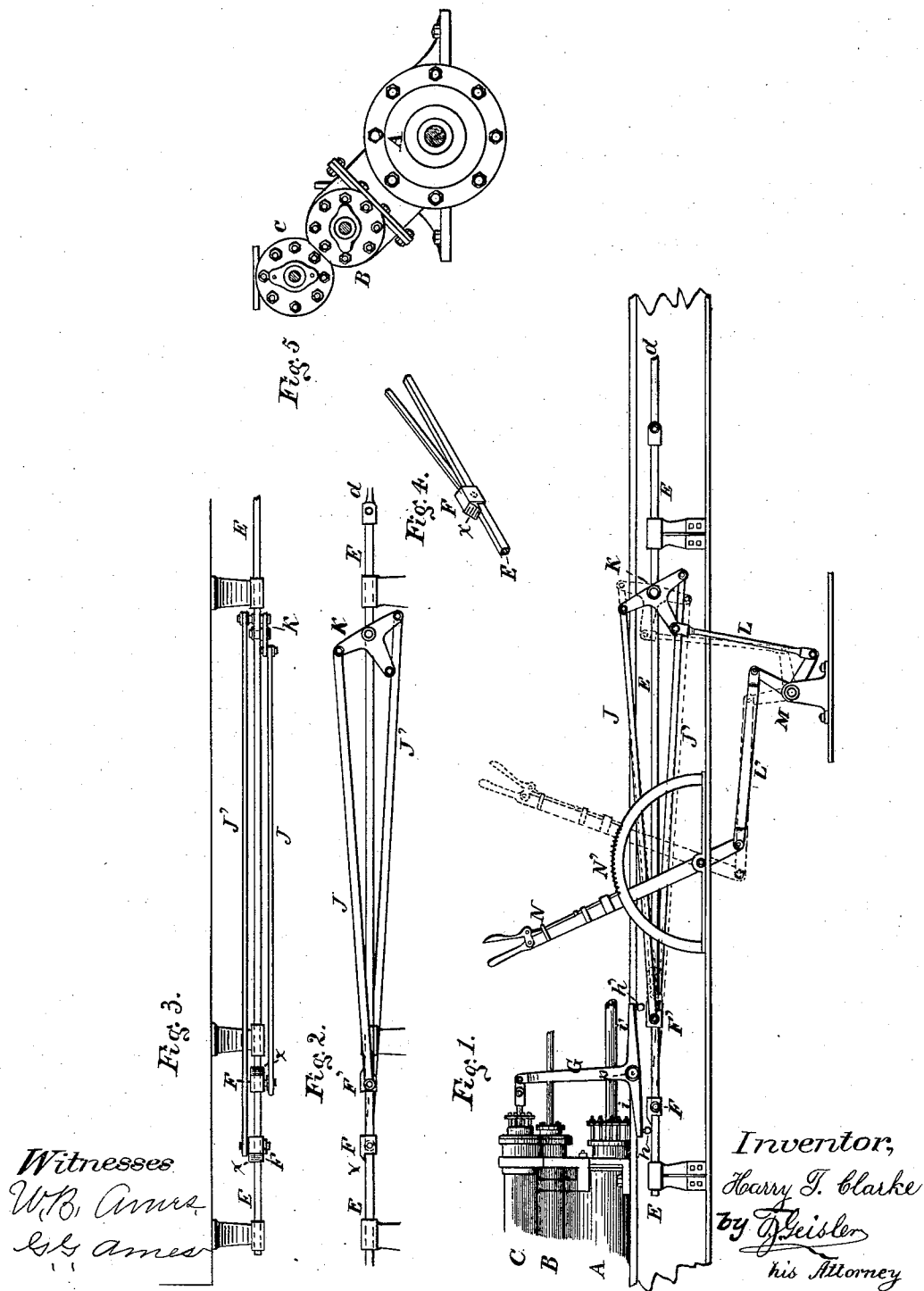


(No Model.)

H. T. CLARKE.
ADJUSTABLE CUT-OFF VALVE GEAR.

No. 478,047.

Patented June 28, 1892.



UNITED STATES PATENT OFFICE.

HARRY T. CLARKE, OF PORTLAND, OREGON, ASSIGNOR TO THE PORTLAND IRON WORKS, OF SAME PLACE.

ADJUSTABLE CUT-OFF-VALVE GEAR.

SPECIFICATION forming part of Letters Patent No. 478,047, dated June 28, 1892.

Application filed March 17, 1891. Serial No. 385,433. (No model.)

To all whom it may concern:

Be it known that I, HARRY T. CLARKE, a citizen of the United States, residing at Portland, Multnomah county, State of Oregon, have invented a new and useful Adjustable Cut-Off-Valve Gear, of which the following is a specification.

My invention relates to stern-wheel or horizontal engines provided with a cut-off and main valve, and has for its object the construction of a simple device or gear for operating said cut-off valve that can be conveniently adjusted during the working of the engine and so set as to alter the point of cut-off at will and cause the same to occur at any desired point in the piston-stroke, and thus afford ready means of varying and maintaining the power of the engine. This object I attain by means of the mechanism illustrated in the accompanying drawings, forming a part hereof, in which—

Figure 1 is a side elevation of a portion of a horizontal engine provided with a cut-off valve operated by my invention. Fig. 2 is a partial side elevation showing the mechanism employed by me for adjusting the lifters F F'. Fig. 3 is a top view of the same mechanism. Fig. 4 is a perspective view of one of said lifters; and Fig. 5 shows the position of the cylinder A, main valve B, and cut-off valve C of an engine adapted to use my invention in connection therewith.

Like letters refer to like parts.

The cylinder A, the main valve B, and cut-off valve C must set in a similar position, as shown in Fig. 5, in order to give the mechanism of my adjustable gear sufficient clearance. The cut-off valve C is operated by means of an independent eccentric fixed on the crank-shaft and set directly opposite to the crank to enable the engine to run in either direction. *d* shows a part of the rod of said eccentric, which rod is connected with and reciprocates a rod or bar E, suitably supported and carrying two adjustable lifters F F', each provided with a beveled end *x* to enable the same to glide under the toes *h h'* under the arms *i i'* of the rock-lever G, pivoted at *p*, and thus tip or rock said lever, which is connected with the valve-stem of the cut-off valve C and op-

erates the same. The position of said adjustable lifters F F' is variable at will, the same being set by means of the rods J J', pivotally connected with the T-crank K, which is rigidly pivoted on and travels with the reciprocating rod or bar E, the said T-crank K being connected by means of connections L L' and bell-crank M with a lever and quadrant N N'. The adjustable lifter F being connected with the rod J' and the lifter F' with the rod J, the said lifters can be set by the above-described mechanism and thrown either nearer together or farther apart, according as it may be desired to change the point at which the said lifters shall come in contact with the toes *h h'* under the arms of the lever G, and thus by tipping or rocking said lever operate the cut-off valve.

Having thus fully described my invention, now what I claim, and desire to secure by Letters Patent, is—

1. In a valve-gear, the combination of a rock-lever G, the upper end of which is pivotally connected with the cut-off-valve stem, a rod E, reciprocated by suitable means and provided with adjustable lifters F F' for rocking said lever G, suitable bearings for said reciprocating rod E, and suitable mechanism for adjusting said lifters F F', substantially as set forth.

2. The combination, with the cut-off valve in horizontal engines, of an adjustable gear for operating the same, consisting of a rock-lever G, pivotally connected with the cut-off-valve stem, said lever G having toes *h h'* under each of its arms, a rod E, reciprocated by suitable means, having adjustable lifters F F' for rocking said lever G, suitable bearings for said reciprocating rod, and an adjusting mechanism for said lifters F F', consisting of rods J J', T-crank K, connections L L', and bell-crank M or their equivalents, and quadrant and lever N N', substantially as set forth.

In testimony whereof I hereunto set my hand, at the city of Portland, Oregon, this 2d day of March, 1891.

HARRY T. CLARKE.

Witnesses:

RICHARD BREYER,
T. J. GEISLER.