

A. J. L. LORETZ.

Combined Quarter-Connections and Parallel Motions
for Engines.

No. 144,852.

Patented Nov. 25, 1873.

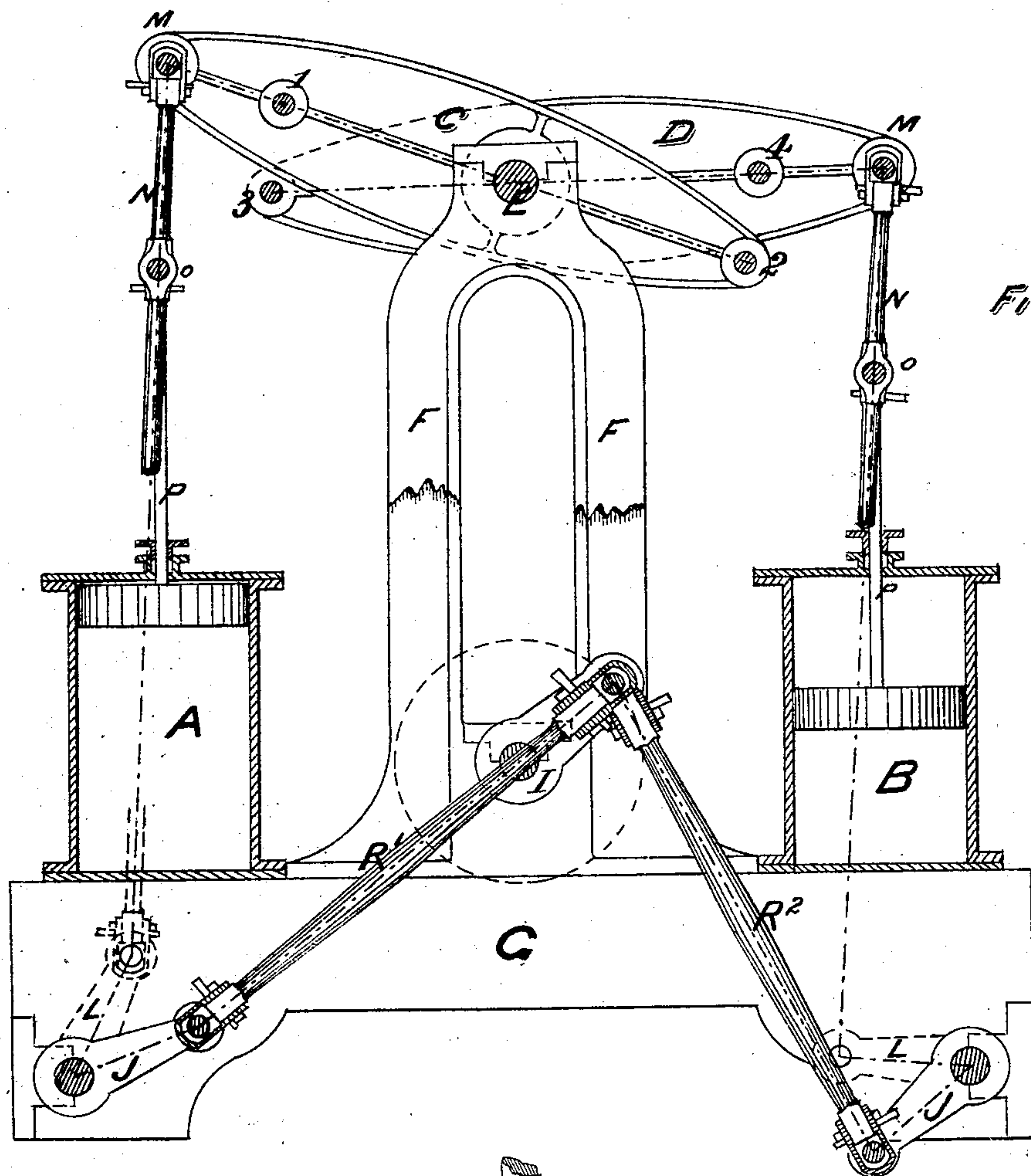


Fig. 1.

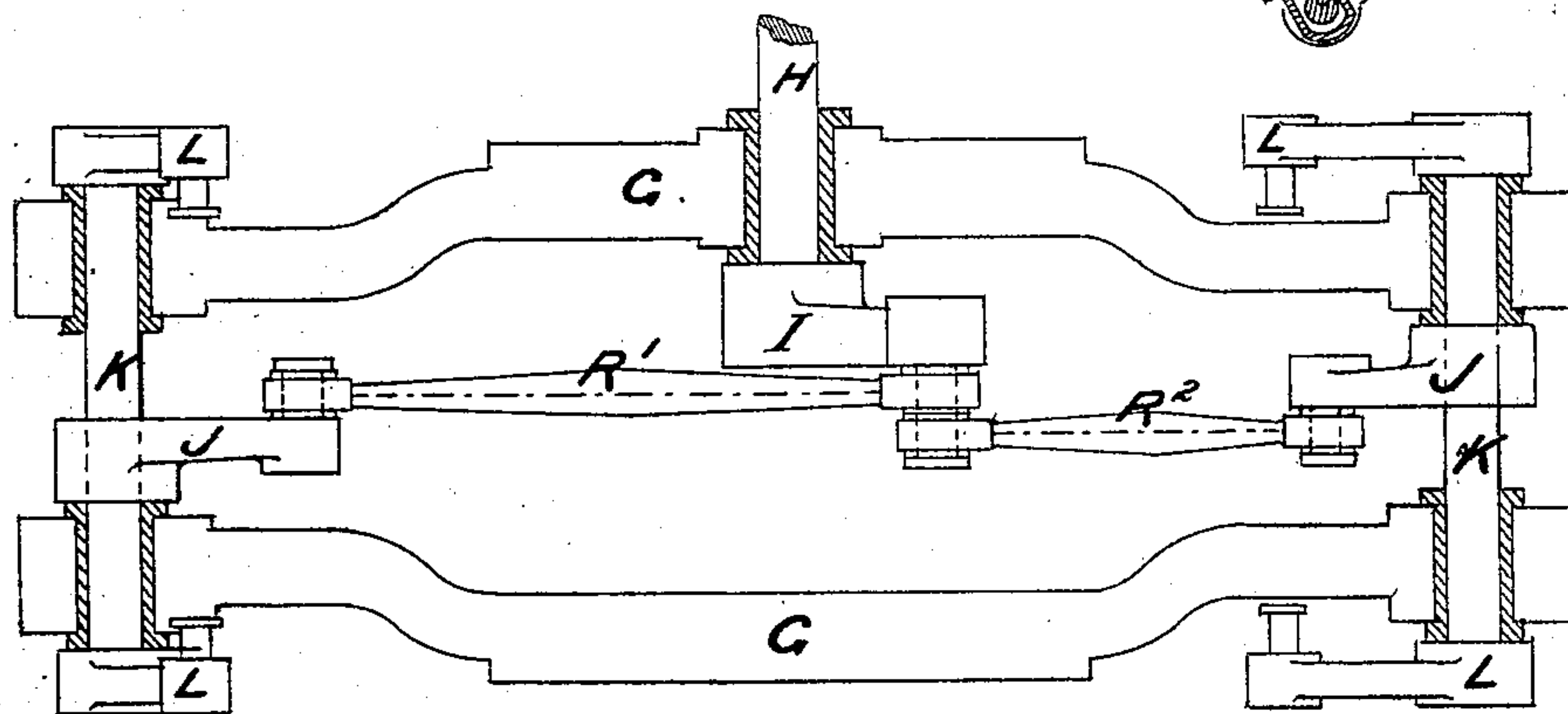


Fig. 2.

WITNESSES.

George Whittaker
A. Loretz

INVENTOR

A. J. L. Loretz

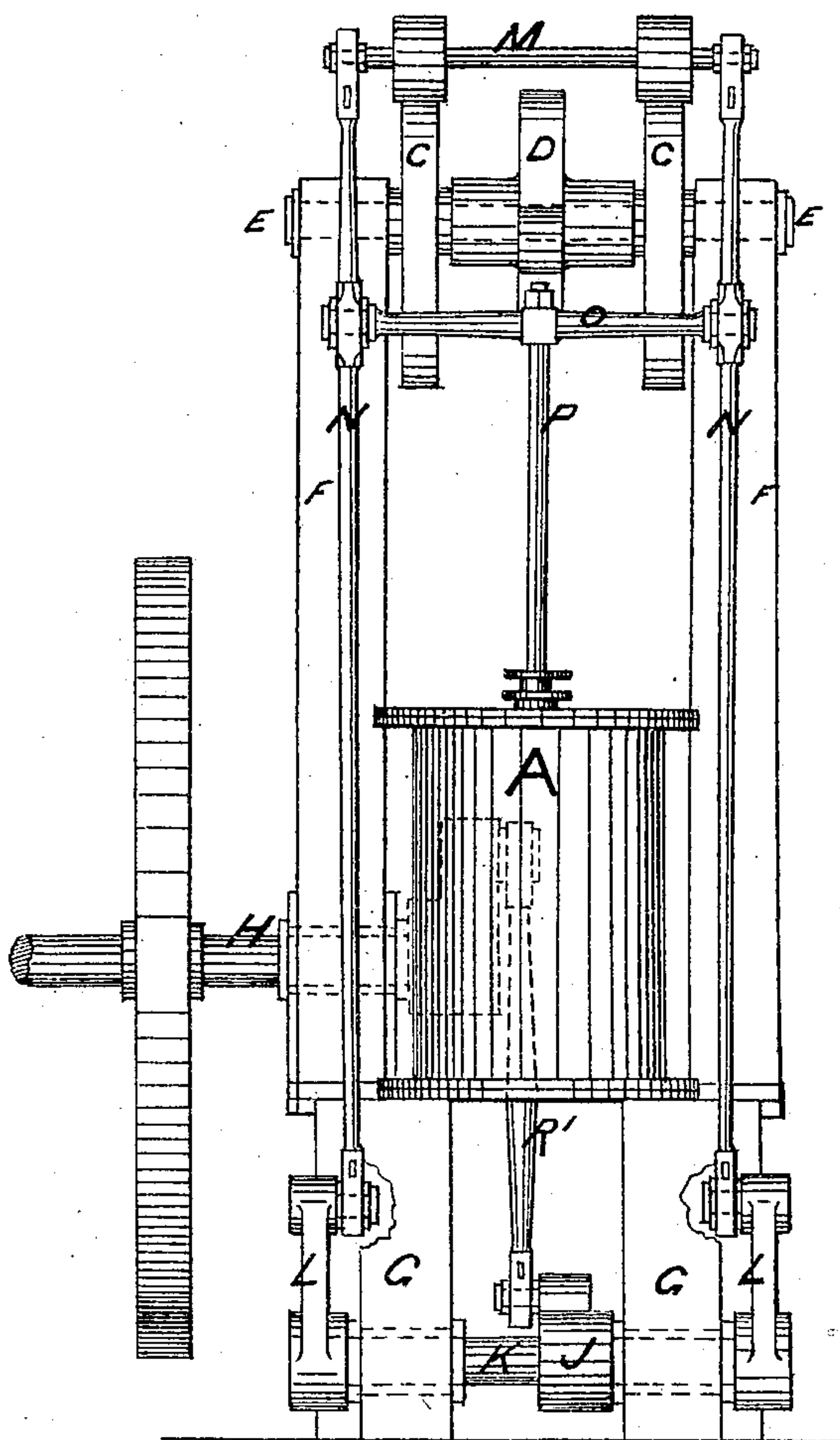
2 Sheets--Sheet 2.

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Fig. 3.



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UNITED STATES PATENT OFFICE.

ARTHUR J. L. LORETZ, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-THIRD HIS RIGHT TO NORMAN HUBBARD, OF SAME PLACE.

IMPROVEMENT IN COMBINED QUARTER-CONNECTIONS AND PARALLEL MOTIONS FOR ENGINES.

Specification forming part of Letters Patent No. 144,852, dated November 25, 1873; application filed October 1, 1872.

To all whom it may concern:

Be it known that I, ARTHUR J. L. LORETZ, of Brooklyn, in the county of Kings and State of New York, have invented a Quarter-Connection and Parallel Motion Combined, of which the following is a specification:

My invention consists of an arrangement for connecting a double vertical cylinder-beam engine on the quarter for the purpose of obtaining four separate vibrating points, or a continuous motion from their beams—such as would be required for four lifting-pumps, for instance—to keep up a continuous stream. Supposing each center 1, 2, 3, and 4 of the beams C and D, Plate I, were to have a pump attached to it, as in my pumping-engine case filed June 7, 1872—or, when the beam-center 1 on beam C of cylinder A is at its highest point, and 2 at its lowest, both apparently in their slowest point of movement, in consequence of the connection of the cylinder A being on the dead-center—the centers 3 and 4 of the beam D are at their point of greatest velocity, one going up and the other down, in consequence of the connections of cylinder B, which vibrates the beam D, being on the quarter or at half stroke, while those of cylinder A, as above described, are on the center; and when the connections of cylinder B arrive at the end of the stroke those of cylinder A will be on the quarter or at half-stroke, precisely in the same position as were those of cylinder B previously.

Plate 1 represents a side elevation and plan of the aforementioned arrangement, and Plate 2 a side elevation.

A and B are the steam-cylinders, placed opposite each other. C and D are their respective beams, having centers 1, 2, 3, and 4 for the purpose hereinbefore set forth. The beam of cylinder A is made of two beams, C, as represented in the side elevation, Plate 2, keyed ast to the main-beam center E, which pin E vibrates in journals of the upright frame F, which is bolted to the main bed pieces G, to which both cylinders A and B are bolted. The beam D of cylinder B vibrates loose on the main center-pin E, having a wide boss, equal in width to the two center bearings of E, and vibrates between the two beams C of cylinder A.

All the connections connected to the beam

and to the crank-shaft are alike for both cylinders.

The piston-rods P are connected to the cross-heads O, Plate 2, said cross-heads being connected to links N, the upper parts of which links N are attached to the end center-pins M, and the lower parts to the vibrating cranks L (Plates 1 and 2) of the rock-shafts K, said shafts K vibrating on journals in the main bed-plates G. In the center of shafts K are attached cranks J, so located with regard to the main crank I of the crank-shaft H, as to be on the quarter, Plate 1, the two cranks J being connected to the one crank I by two connecting-rods, R¹ for cylinder A, and R² for cylinder B. The links N, besides forming part of the regular quarter-connection, act, also, as parallel rods for the piston-rods of their respective cylinders.

By connecting the cross-head at a certain point of the links N—as where the cross-head is shown connected—the piston-rod will be kept in a true vertical course; for, as the beam vibrates in the one direction, the rock-shaft crank L vibrates in the opposite, thus keeping the cross-head of the piston-rod P always in a perfect vertical line, no matter at what point of the stroke.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of the cylinders A and B with their beams C and D, the side connections N, rock-shaft K with its cranks L and J working in bearings in the same bed-plates G to which the cylinders A and B are bolted, and connected on the quarter, through rods R¹ R², to main crank I of the crank-shaft H placed in the center between the cylinders A and B, substantially as and for the purpose hereinbefore set forth.

2. The combination of the cross-head O, piston-rod P, connecting-rods N, beams C or D, and crank L, substantially as and for the purposes described.

ARTHUR J. L. LORETZ.

Witnesses:

WM. BURDON,
J. A. COLEY.