J. H. DAVIS & W. WHITE.

VALVE-GEAR FOR STEAM-ENGINE.

No. 193,440. Patented July 24, 1877.

Fig. 1

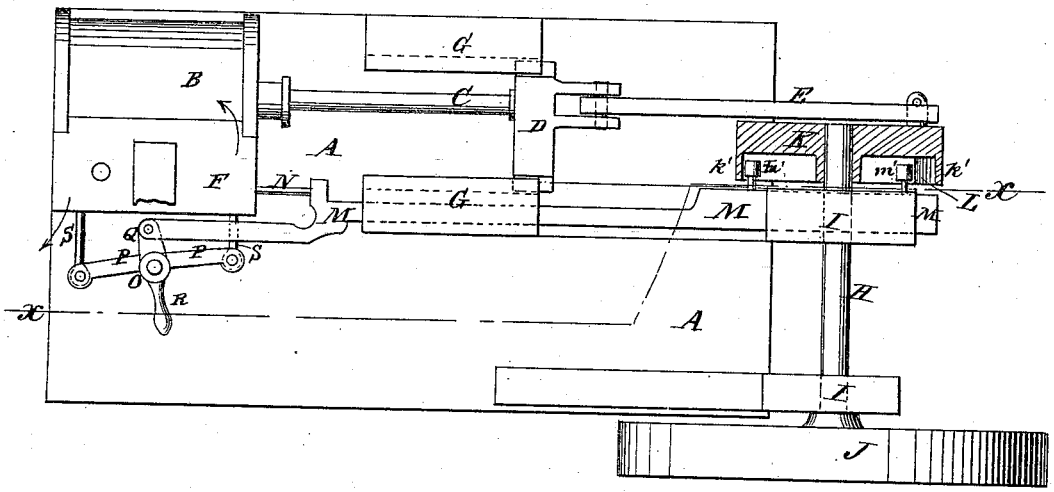
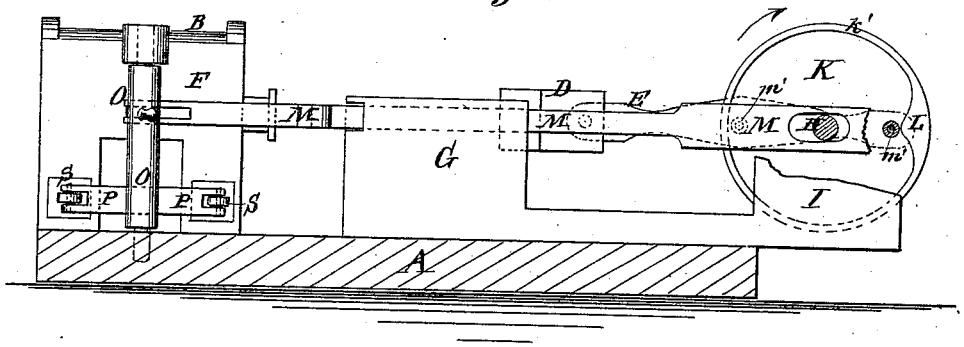


Fig. 2



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES H. DAVIS AND WILLIAM WHITE, OF WINNSBOROUGH, TEXAS.

IMPROVEMENT IN VALVE-GEAR FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **193,440**, dated July 24, 1877; application filed November 25, 1876.

To all whom it may concern:

Be it known that we, JAMES HARVEY DAVIS and WILLIAM WHITE, of Winnsborough, county of Wood, and State of Texas, have invented a new and Improved Steam-Engine, of which the following is a specification:

Figure 1 is a top view of an engine to which our improvement has been applied, parts being broken away to show the construction. Fig. 2 is a side view of the same, part being broken away to show the construction.

The object of this invention is to furnish an improvement in steam-engines which shall be so constructed as to give a full application of the steam and a free exhaust at regular intervals, which will enable the engine to be easily reversed, can be easily attached to any engine, which will enable an engine to be worked by water-pressure, will run smoothly and with very little friction, and will be very durable.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

Similar letters of reference indicate corresponding parts.

A is the bed or foundation for the engine. B is the cylinder. C is the piston-rod. D is the cross-head, which slides in the ways G, and to which is pivoted the end of the pitman E. The other end of the pitman E is pivoted to the crank-pin of the wheel K, attached to the shaft H, which revolves in bearings in the supports I, and has a fly-wheel, J, attached to it. The crank-wheel K is made with a projection rim, *k'*, to the inner surface of which is attached, or upon it is formed, an oval or double inclined projection or cam, L. The projection or cam L, at each half-revolution of the wheel K, strikes against one or the other of two pins, *m'*, which have rollers placed upon them to diminish friction, and are attached to the sliding bar M at such distance apart that they may be struck alternately by the projection *m'*, to give a reciprocating movement to the said bar M. The bar M slides in the bearings in the supports I G, and to it is attached the stem N of the inlet-valve, which slides in the steam chest F, and admits steam into the ends of the cylinder alternately.

The end of the bar M is pivoted to the end of an arm, Q, rigidly attached to an upright rock-shaft, O, which is provided with two rigid arms, P, projecting in opposite directions, and at right angles with the arm Q. To the ends of the arms P are pivoted the outer ends of the stems S of the outlet or exhaust valves, which are placed at the ends of the cylinder B, and from which the exhaust-steam passes directly down into the heater. The rock-shaft O is provided with a handle, R, to enable it to be turned to reverse the engine.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

A steam-engine whose exhaust-valve stems project below the cylinder, and are connected, by arms P P Q on shaft O, with an extension of the main-valve slide M, substantially as and for the purpose specified.

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Witnesses:
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