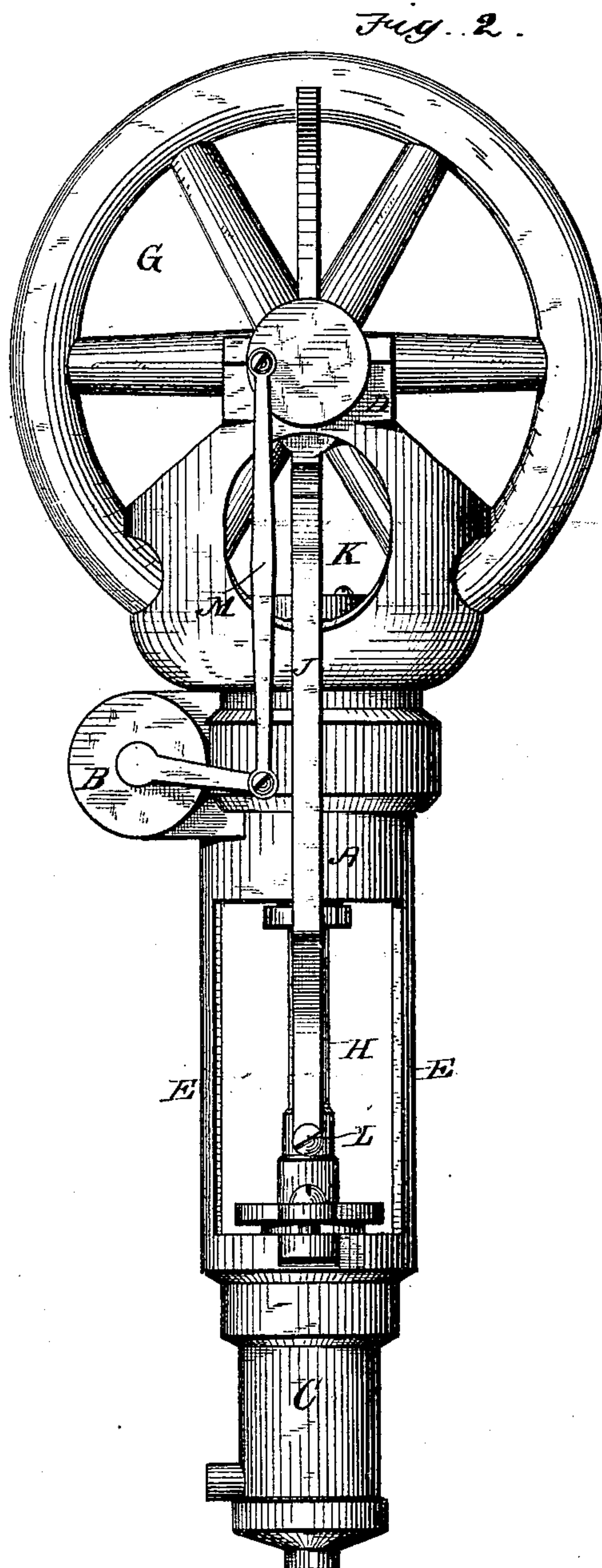
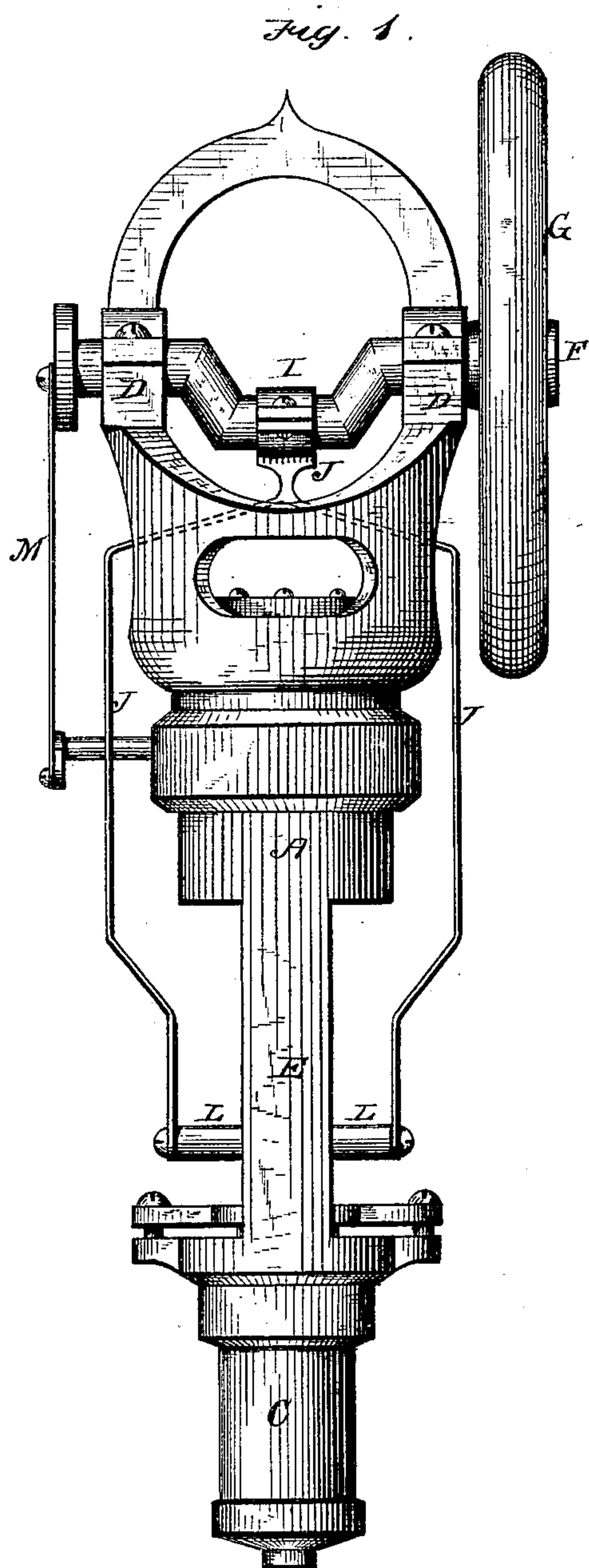


E. E. MILLER.  
Steam Pump.

No. 234,601.

Patented Nov. 16, 1880.



*Attest.*  
*W. H. N. Knight*  
*Le. Hill*

*Inventor,*  
*Edgar E. Miller*  
*By E. A. Allworth*  
*His Attorney.*



# UNITED STATES PATENT OFFICE.

EDGAR E. MILLER, OF CANTON, OHIO, ASSIGNOR OF ONE-HALF OF HIS  
RIGHT TO CASSIUS M. MILLER, OF SAME PLACE.

## STEAM-PUMP.

SPECIFICATION forming part of Letters Patent No. 234,601, dated November 16, 1880.

Application filed February 24, 1880.

*To all whom it may concern:*

Be it known that I, EDGAR E. MILLER, of Canton, in the county of Stark and State of Ohio, have invented a new and useful Improvement in Steam-Pumps; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to make and use it, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation, and Fig. 2 a side elevation, of the pump, showing my improvements.

Similar letters of reference denote the same parts in the several figures of the drawings.

The invention consists in the construction of the steam and water cylinders, together with the frame, and in the combination thereof of a forked connecting-rod, having a central crank-bearing at one end and connected at the other end to the rod of the pump-plunger and piston, as I will now proceed to describe.

In the accompanying drawings, A represents the steam-cylinder; B, the valve-chest on the side thereof; C, the water-cylinder; and D, the pillow-blocks, the steam and water cylinders being joined by side bars, E E, upon opposite sides. These parts are preferably cast in one piece to prevent the crank-shaft and the two cylinders from getting out of line, or the webs may be otherwise connected to the cylinders.

F is the crank-shaft, having its bearings in the pillow-blocks, and provided with a fly-wheel, G, on one end, outside the pillow-blocks.

H is the rod connecting the pump-plunger and the water-cylinder C with the piston in the steam-cylinder A. Instead of connecting the rod H with the crank-shaft by means of two connecting-rods and a crank at both ends of the shaft outside the pillow-blocks, or by means of a single rod outside the pillow-blocks, both of which means are now in general use, and both tending to produce side draft upon the plunger and piston-rod, the shaft is constructed with a central crank, I, between the pillow-blocks, in line with the centers of the steam and water cylinders, and connected by a branched rod, J, with opposite sides of the plunger and piston-rod.

The branches of the connecting-rod are

bent outward from the crank in opposite directions, and pass through openings K K in the web under the bearings of the crank-shaft, and thence pass downward to the rod H, to which they are connected by bosses L L, so that when the pump is in operation the openings K K and the open sides between the steam and water cylinders permit the free movement of the branched rod.

The steam-cylinder is provided with a rotary valve of the usual three-port kind, and is connected by a rod, M, to an eccentric or wrist on one end of the crank-shaft.

By employing the forked connecting-rod, joined to a central crank of the crank-shaft, the whole pump is considerably shortened in length; and as it applies the power from the center—that is to say, vertically in line with the centers of the steam and water cylinders—there is very little, if any, side draft upon the plunger and piston-rod, such as exists in those pumps where cross-heads are used.

The combined steam pump and engine is entirely independent of the main engine, as it takes its steam direct from the boiler, and may therefore be placed at any point on the boiler, or removed therefrom. It can be run fast or slow, or stopped entirely, thus relieving the main engine from the constant friction of an attached pump that works the engine, and requires little or no attention.

Having thus described my invention, what I claim is—

1. The steam-cylinder A and water-cylinder C, united by side bars, E E, combined with the forked connecting-rod J, having a central crank-bearing at one end, and connected by bosses L at the other end to the pump-plunger and piston-rod, all constructed substantially as specified.

2. A steam-pump consisting of the steam-cylinder A and water-cylinder C, united by side bars, E E, the crank-shaft, the pillow-blocks D, the forked connecting-rod J, the rod connecting the pump-plunger and piston, the steam-chest B, and the valve mechanism, all arranged substantially as specified.

In testimony of which invention I have hereunto set my hand this 1st day February, A. D. 1880.

EDGAR E. MILLER.

Witnesses:

HANAN BORDNER,  
J. J. BORDNER.