

(No Model.)

J. McCARTNEY. OSCILLATING ENGINE.

No. 579,599.

Patented Mar. 30, 1897.

FIG. 1.

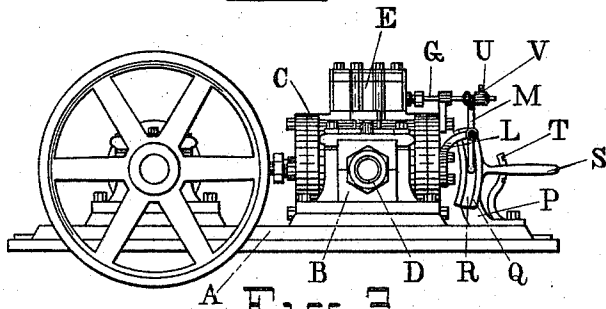


FIG. 2.

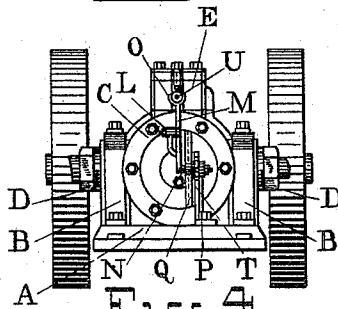


FIG. 3.

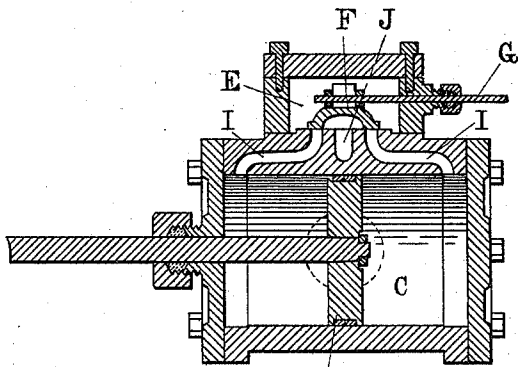


FIG. 4.

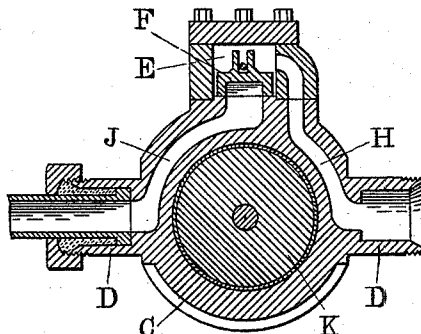


FIG. 5.

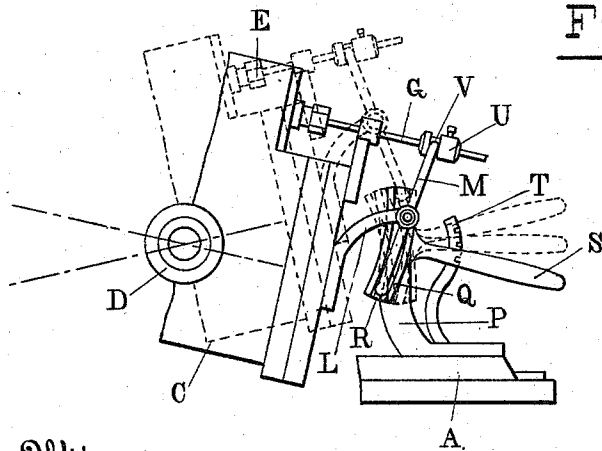


FIG. 6.

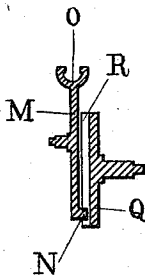
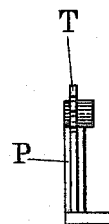


FIG. 7.



Witnesses
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UNITED STATES PATENT OFFICE

JAMES MCCARTNEY, OF BESSEMER, ALABAMA, ASSIGNOR OF ONE-HALF TO
WILLIAM JACOB LONG, OF SAME PLACE.

OSCILLATING ENGINE.

SPECIFICATION forming part of Letters Patent No. 579,599, dated March 30, 1897.

Application filed July 8, 1895. Serial No. 555,227. (No model.)

To all whom it may concern:

Be it known that I, JAMES MCCARTNEY, a citizen of the United States, residing at Bessemer, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Oscillating Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of steam-engines which oscillate on trunnions and are known as "oscillating" engines; and the objects of my improvement are, first, to provide a reversible oscillating steam-engine of a simple and cheap construction having a slide-valve operating in a steam-chest on the side of the cylinder in the usual manner; second, to provide a novel and cheaply-constructed valve-operating device for an oscillating engine, the device attached to the bed-plate of the engine and operating the valve by the motion of a rock-lever pivoted to the cylinder-head, and, third, to provide a reversing device for oscillating engines of a simple and easily-operated construction, the device pivoted to a stand attached to the bed-plate and provided with a handle and the usual form of notched segment to hold it in the position desired. Heretofore the valve mechanism has been placed in this class of engines between the cylinder and the fly-wheel, necessitating many extra parts and increasing the danger in operating the valve.

My invention consists in locating all of the valve mechanism at the rear end of the engine, thus placing the cylinder between it and the fly-wheel, whereby a cheaper and simpler valve mechanism can be used than has heretofore been possible. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical side view of my improved reversible oscillating steam-engine. Fig. 2 is a rear end view of the same. Fig. 3 is an enlarged detail longitudinal sectional view throughout the center of the cylinder. Fig. 4 is a cross-sectional view of the same through the center. Fig. 5 is an enlarged detail vertical side view of a part of the cylin-

der and the slide-valve-operating mechanism. Fig. 6 is a detail vertical cross-sectional view through the valve-operating link and the rock-lever. Fig. 7 is a detail vertical rear view of the stand for the valve-operating link. 55

Similar letters refer to similar parts throughout the several views.

The bed-plate A is made of any suitable metallic material and of any desired form. Trunnion-bearings B are attached to the bed-plate in any desirable manner. The trunnion-bearings can be made of any of the usual forms, provided with caps to hold the trunnions to place in the bearing. The front end of the bed-plate is provided with bearings for a main shaft, as shown. The main shaft can be of any of the usual forms of center crank-shafts and fitted with balance wheels or pulleys in the usual manner. 60 65

The cylinder C is made of any suitable metallic material and provided with the usual form of heads on both ends, the heads attached to the cylinder in the usual manner. Two trunnions D D are formed on opposite sides of the cylinder. The trunnions are made circular to fit the bearings provided therefor and are adapted to oscillate therein. A steam-chest E of the usual form is provided on one side of the cylinder, the steam-chest having the usual form of slide-valve F operating therein, the valve provided with a stem G, extending through a stuffing-box in the usual manner to the outside of the steam-chest. 70 75 80

An inlet steam-passage H, having a suitable pipe connection, enters through one of the trunnions. The steam-passage extends upward through the shell of the cylinder and enters the side of the steam-chest, as shown. The usual form of steam-ports I I connects the steam-chest with the cylinder. An exhaust-port J leads from the steam-chest downward through the shell of the cylinder and has an outlet through one of the trunnions, the outlet provided with a suitable pipe connection to carry off the exhaust-steam. 85 90 95

A piston-head K is provided in the cylinder. The piston-head is made in any of the usual forms and has a piston-rod extending through a stuffing-box on the front head in 100

the usual manner. The end of the rod is attached to the crank of the main shaft by any of the usual connections or methods.

A bracket L, formed as shown, is attached 5 by any suitable means to the rear cylinder-head. A rock-lever M is pivoted in the bracket. The rock-lever is provided at its lower end with a pin or roller N, formed on one side, a fork O being formed, as shown, 10 on the head of the rock-lever to engage a grooved collar, as hereinafter described.

The metallic stand P, formed as shown, is attached by suitable means to the bed-plate 15 in the rear of the cylinder. A valve-operating link Q is pivoted in the head of the stand. The link is provided on its face with a curved groove R for the pin or roller N, formed on the rock-lever, to slide in as the cylinder oscillates. The operating-link is provided with 20 a handle S to swing it on the pivot. The handle is provided with any of the usual forms of spring-catches to engage the notches formed in a segment T, extending upward from the stand.

A collar U is attached with a set-screw or 25 other suitable means to the valve-stem G. The collar is provided with a groove V for the forked head of the rock-lever to operate in when sliding the valve as the cylinder oscillates. 30

In operating the engine the notched segment T is used to hold the operating-link

in the desired position. The middle notch 35 throws the valve on the center and the two outer notches runs the engine in opposite directions. If the handle of the operating-link is set in the bottom notch, as shown in Fig. 5, and it is desired to reverse the engine, the handle of the operating-link is moved upward 40 to engage the top notch, which throws the valve and reverses the motion of the engine.

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

The oscillating cylinder, and the slide- 45 valve, having its stem projecting from the rear end of the cylinder, combined with a bracket secured to the end of the cylinder, a rock-lever pivoted in the upper end of the bracket, having its upper end forked to en- 50 gage with the valve-stem and its lower end provided with a pin or roller; a stand P, valve-operating link pivoted on the stand, and provided with a curved groove, a handle secured 55 directly to the link and extending in a line with the cylinder, and a segment to lock the handle in place, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES McCARTNEY.

Witnesses:

THOS. TURNER,
H. D. SMITH.