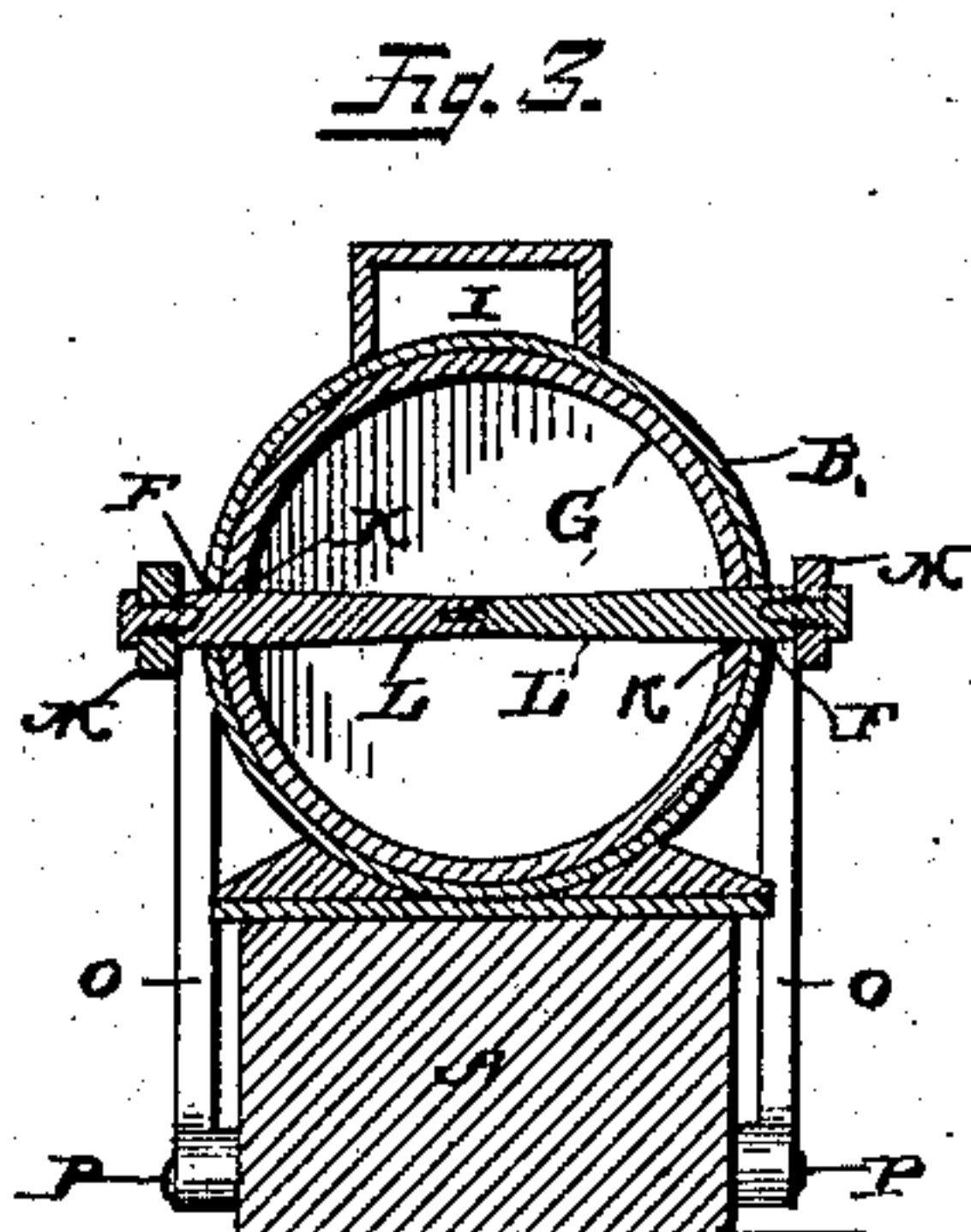
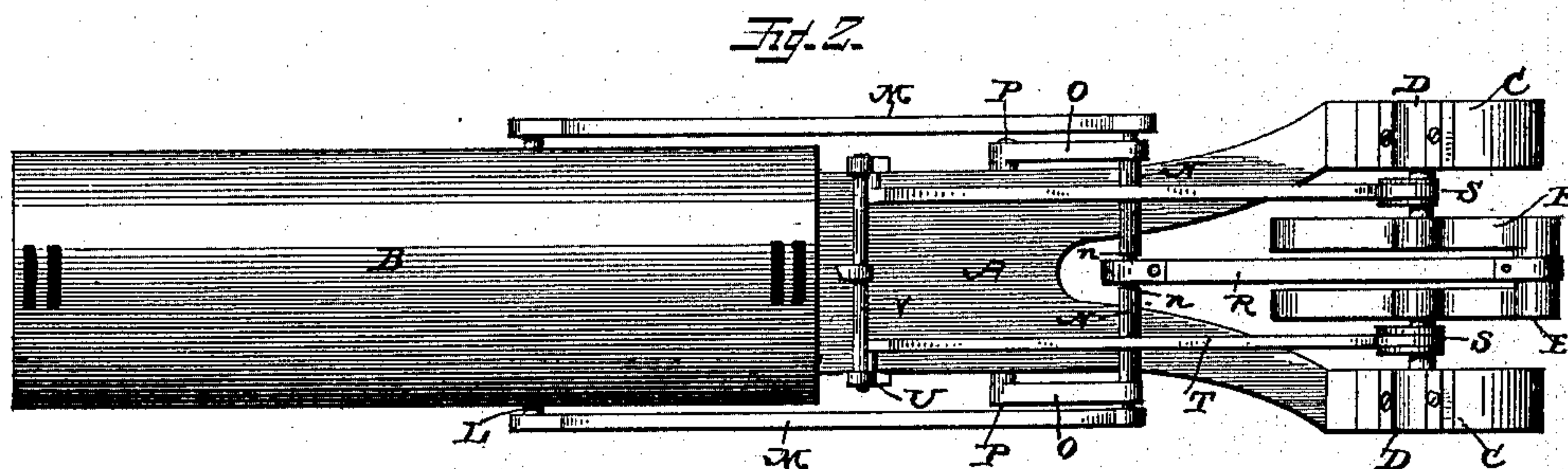
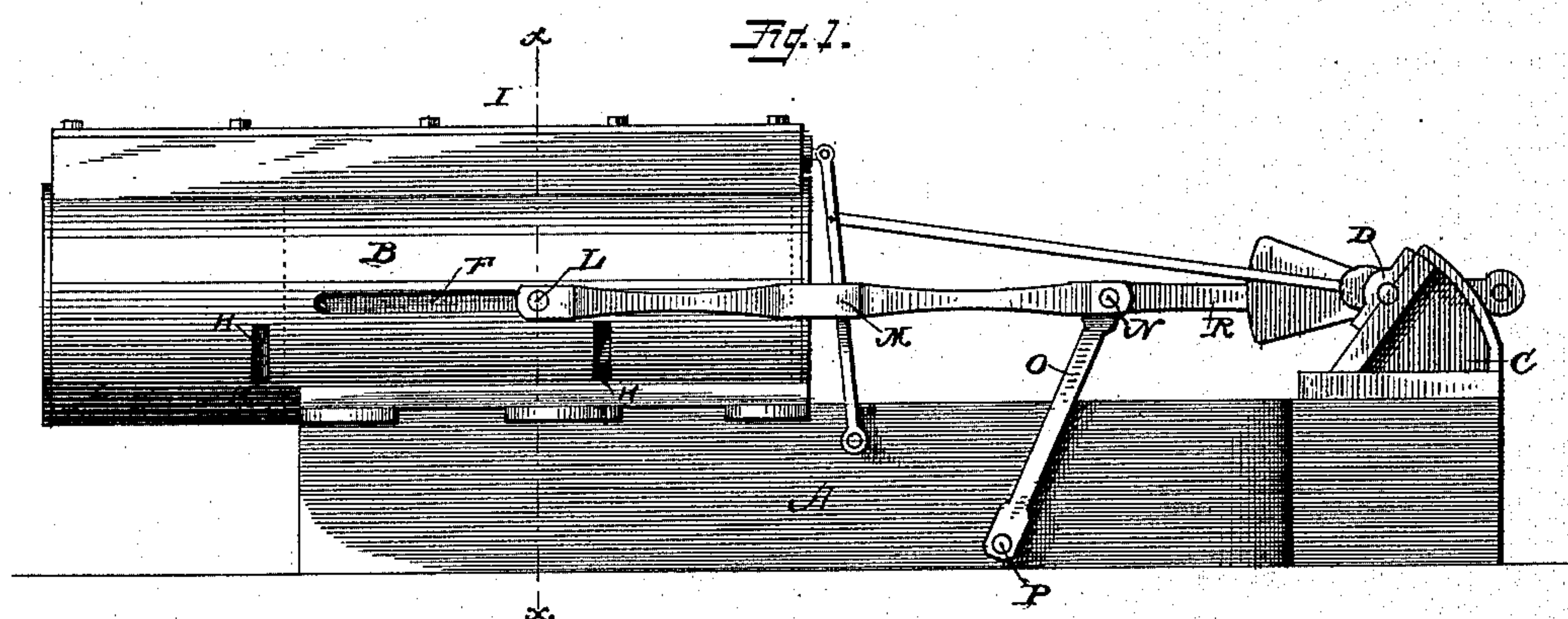


(No Model.)

T. BRANTLEY.
STEAM ENGINE.

No. 325,725.

Patented Sept. 8, 1885.



WITNESSES

W. W. Mortimer.
E. S. Diggers.

INVENTOR

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UNITED STATES PATENT OFFICE.

THOMAS BRANTLEY, OF FORT VALLEY, GEORGIA, ASSIGNOR OF ONE-HALF
TO WALTER H. SAWYER, OF SAME PLACE.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 325,725, dated September 8, 1885.

Application filed April 18, 1885. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BRANTLEY, a citizen of the United States, residing at Fort Valley, in the county of Houston and State of Georgia, have invented a new and useful Improvement in Steam-Engines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improvement in steam-engines; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a steam-engine embodying my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical sectional view taken on the line *xx* of Fig. 1.

A represents the bed-plate, which may be of any suitable construction, and to which is bolted the cylinder B at one end and the standards C at the opposite end. To the standards are bolted bearing boxes or blocks D, in which is journaled the cranked driving-shaft E. In the center of the cylinder, in the sides thereof, are cut horizontal slots F, and in the cylinder is placed a hollow piston, G, that is of sufficient length to keep the slots F closed at every portion of its stroke, so as to prevent the escape of steam through said slots. The piston is packed steam-tight in the cylinder in the usual manner. In one side of the cylinder are cut the exhaust-openings H, which are located just beyond each end of the stroke of the piston. A steam-chest, I, is located on the upper side of the cylinder, and in this steam-chest is located a slide-valve of the common construction that controls the admission of steam into the cylinder through ports that communicate with the steam-chest and cylinder in the usual way. In the sides of the piston are made tapered openings K, that register with the slots F of the cylinder, and through these openings and through the slots in the cylinder pass tapered pins L, one of which has the female and the other the male portion of a screw-coupling in their inner ends, by which the pins are joined together. The outer ends of these pins project slightly beyond the sides of the cylinder,

and to these projecting ends of the pins are pivoted the rear ends of the side arms, M. The front ends of the side arms are pivoted on the projecting arms of a transverse shaft, N, that passes through the upper ends of rock-arms O that have their lower ends pivoted on a shaft, P, that passes through the bed-plate at a suitable distance in front of the cylinder. A connecting-rod, R, has its rear end pivoted centrally on the shaft N between collets or shoulders *n* that are shrunk on said shaft, and the front end of the connecting-rod is pivoted to the wrist of the cranked shaft in the usual manner. Gibs and keys are provided for the ends of the connecting-rod in order to compensate for wear at the bearing-points. The slide-valves that control the admission of steam into the cylinder are operated by an eccentric, S, on the cranked shaft, a rod T, rock-arm U, and rod V, as shown. Steam is admitted into the ends of the cylinder alternately and drives the piston back and forth therein. As the piston is moving in either direction, the exhaust-port is closed by the piston until the end of the stroke is reached, when the port is suddenly opened as the end of the piston passes beyond it and the steam is permitted to escape freely before the return-stroke of the piston is begun.

An engine thus constructed is cheap and simple, has few joints and bearings, and consequently but little friction and wear, allows no chance for the working parts to get out of line, and thus does not require the services of a skilled mechanic in order to keep the engine in working order, and dispenses with the use of a piston-rod and a stuffing-box therefor.

Having thus described my invention, I claim—

1. The combination of the cylinder having the slots F, the piston, and the tapered pins that pass through the slots and enter the piston, said pins having the screw-coupling at their inner meeting ends, substantially as described.

2. The combination of the bed-plate, the cylinder having the slots F, the exhaust-ports H, and valves for controlling the admission of steam into the cylinder, the piston having pins working in slots F, the side side arms,

M, connected to the pins, the rock-arms O, fulcrumed to the bed-plate and having the connecting-shaft N, to which the free ends of the arms M are connected, the crank-shaft E, 5 bearings therefor, and the rod R, connecting the crank-shaft to the shaft N, substantially as described.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in presence of two witnesses.

THOMAS BRANTLEY.

Witnesses:

W. T. GULLEDGE,
J. A. FLOURNY.