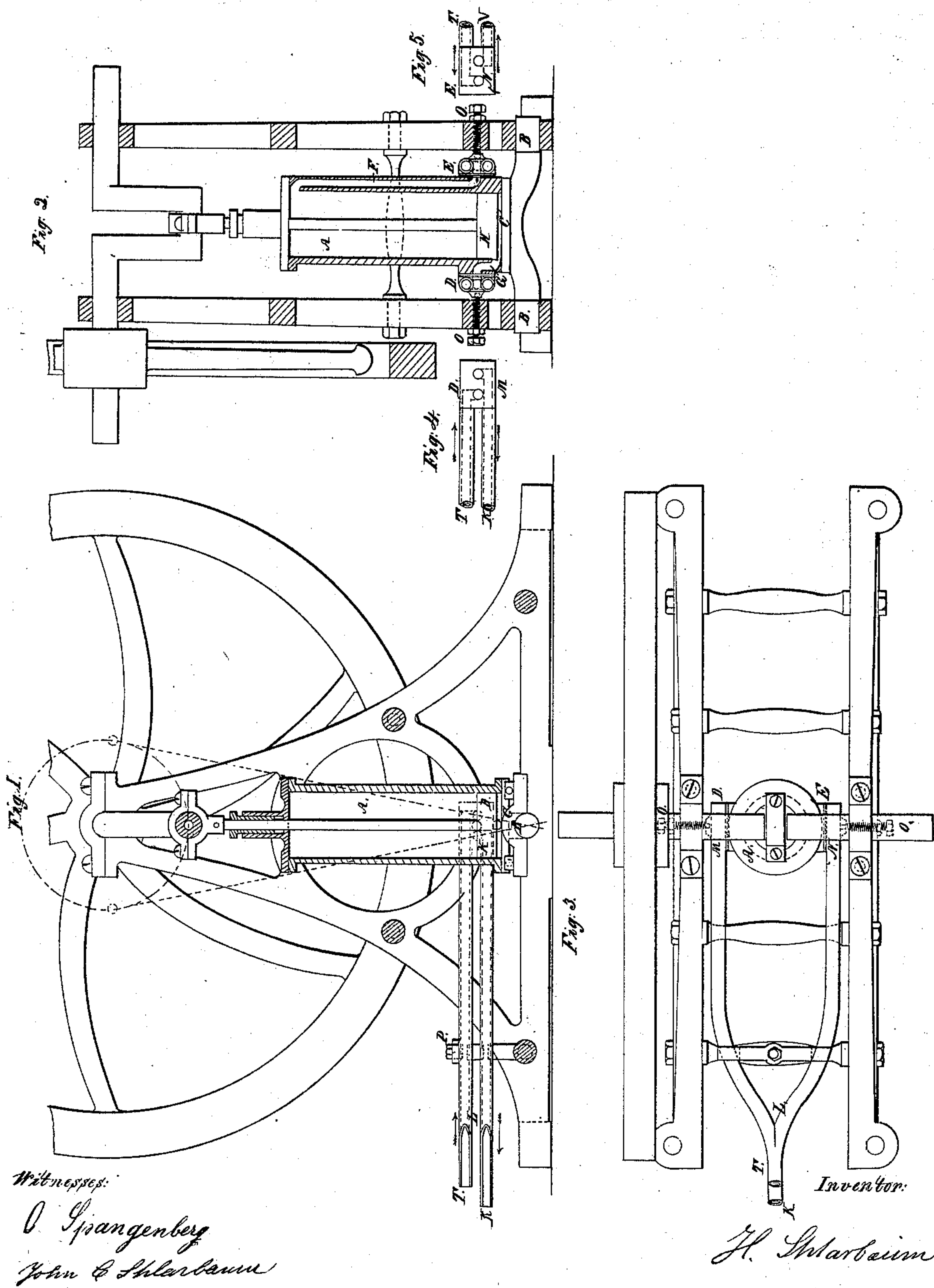


H. Shlarbaum,
Oscillating Steam Engine.

N^o 39,756.

Patented Sep. 1, 1863.



Witnesses:

O. Spangenberg
John E. Shlarbaum

Inventor:

H. Shlarbaum

UNITED STATES PATENT OFFICE.

HERRMANN SHLARBAUM, OF NEW YORK, N. Y.

IMPROVEMENT IN OSCILLATING ENGINES.

Specification forming part of Letters Patent No. 39,756, dated September 1, 1863.

To all whom it may concern:

Be it known that I, HERRMANN SHLARBAUM, in the city, county, and State of New York, have invented a new and Improved Mode of Constructing Steam-Engines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawings, and to the letters of reference marked thereon.

The nature of my invention consists in a peculiar mode of distributing steam to and from the two opposite sides of the piston, by the steam and exhaust pipes running close up to the cylinder and connecting tightly with the same on two steel-lined surfaces, which are at right angles to the axis of oscillation, the steam not passing through the latter. The annexed drawings show pretty clearly the mode in which I propose to effect this most direct application of steam, but in order further to elucidate all the particulars and advantages of the invention, I respectfully submit the following.

My oscillating cylinder A has its axis B either on one end, as in the drawings, or can have it in its middle. This axis is solid, and forms part, in this case, of the lower cylinder-cover, C. On each side of the cylinder, at right angles with the axis of oscillation B, is one steel-lined surface, D and E, from which steam-ports F and G run to the upper and to the lower part of the cylinder, between which the piston H plays up and down. The steam-pipe T and the exhaust-pipe K, branching off at L to each side of the cylinder, terminate in a steel-lined head, M and N, which fit and press to the surfaces D and E. Their two openings are of proper diameter and distance from each other, such that all steam-connection is shut off when the piston is exactly at the end of its course, and fully open when it is in the middle of it. Figures 4 and 5 show these two heads as removed from the cylinder, and the dotted lines and arrows indicate the way of steam in and out. The two heads M and N are pressed with sufficient power against D and E by means of screws O O, in order to prevent all escaping of steam. Any wear of these hardened steel linings, which in time will certainly take place, can thus easily be corrected. Other screws at P serve to secure the steam and exhaust pipes in a proper and steady position. All the other parts of

this oscillating steam engine being outside of my claim, and their mode of working known, I forbear to dwell on the working of them.

As some of the advantages of this construction I name the following:

First. The machine is exceedingly simple in all its parts, more so, probably, than any one in existence. It will be cheap, therefore, both to procure and to maintain it.

Second. No steam passing through the axis of oscillation—which has to carry the whole power of the engine—leaves the same cooler, and the lubricating-oil will not be baked, as in the other case.

Third. The port-holes on the sides of the cylinder, being round, and traveling, so to say, between the corresponding holes for steam and exhaust, open gradually and just in the exact proportion as the angle of the crank demands, thus giving full steam or full exhaust when the crank is at its greatest power, and all steam-openings being shut when the crank is at its dead-points. This, with all the other intermediate positions perfectly correct, insures a very uniform and economical working.

Fourth. All the parts where wear may be expected are of very easy access, and will show when they should need repair. Assuming that one engine wears out as fast as another, I would prefer the one which does not hide its defects. An ordinary steam-engine with steam-chest and slide-valve may have the latter very badly leaking without the knowledge of the engineer and owner. Large amounts of steam—and money for coal—may thus be wasted, and doubtless are, without any outside means of detection.

My steam-distribution is protected against wear and leaking, so far as possible, by hardened steel linings, and its leaking is openly shown when it occurs, thus inviting the attention of the engineer. An evil that is manifest is nearer the cure than if the same is hidden away and unknown.

I am aware that a patent was granted July 19, 1859, to Mr. Reed, for an oscillating steam-engine that takes steam at the end of the trunnions. It might be said that this comes, at least in principle, somewhat near to mine; but as it is admitting steam through the axis of oscillation, whereas mine possesses the essential advantage that it does not, and

is besides quite a different construction, not resembling it, it cannot truthfully be contended that they infringe on each other.

My construction, with steam-pipe heads that can be pressed tightly to the cylinder, will not be liable to leakage.

What I regard as novel and as my own invention, and desire, therefore, to secure by Letters Patent, is—

The peculiar arrangement for distributing steam to and from the opposite sides of the piston H, in double-acting oscillating high-pressure steam-engines, which is effected on two straight and steel-lined surfaces, D and E, which are at right angles, both in the horizontal and in the vertical planes, to the axis

of oscillation B, and are opposite each other, with two steam-conducting head-pieces, M and N, on the ends of the steam and exhaust pipes I and K, those head-pieces being pressed against the cylinder A by means of the screws O, the changes of steam to be made by the movement of the cylinder A alone, without any movement of the steam-conducting head-pieces D E I K, and without any steam passing through the axis of oscillation or trunnions B of cylinder A, all in the manner hereinbefore described.

H. SHLARBAUM.

Witnesses:

O. SPANGENBERG,
JOHN C. SHLARBAUM.