JOHN W. VAN SANT.

Improvement in Oscillating Engines.

No. 125,773. Patented April 16, 1872.

Fig. 1

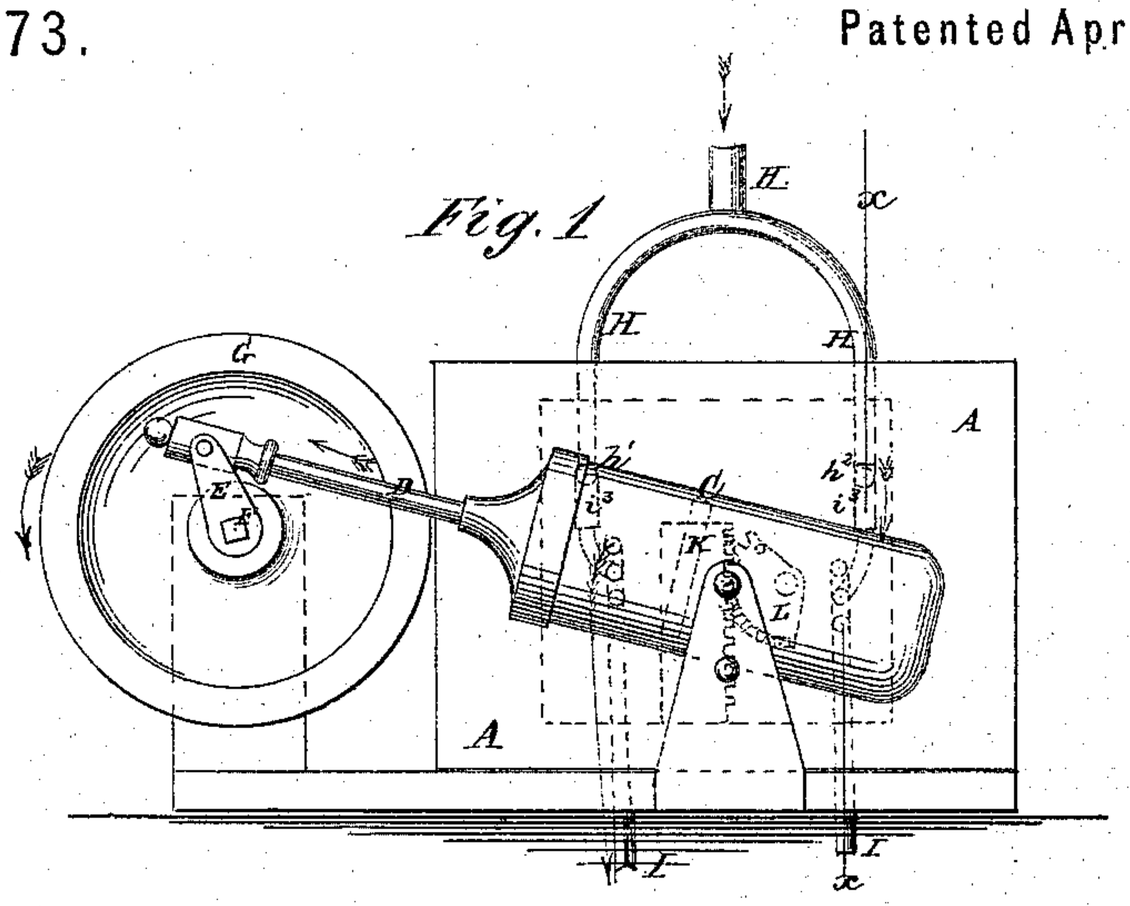


Fig. 2

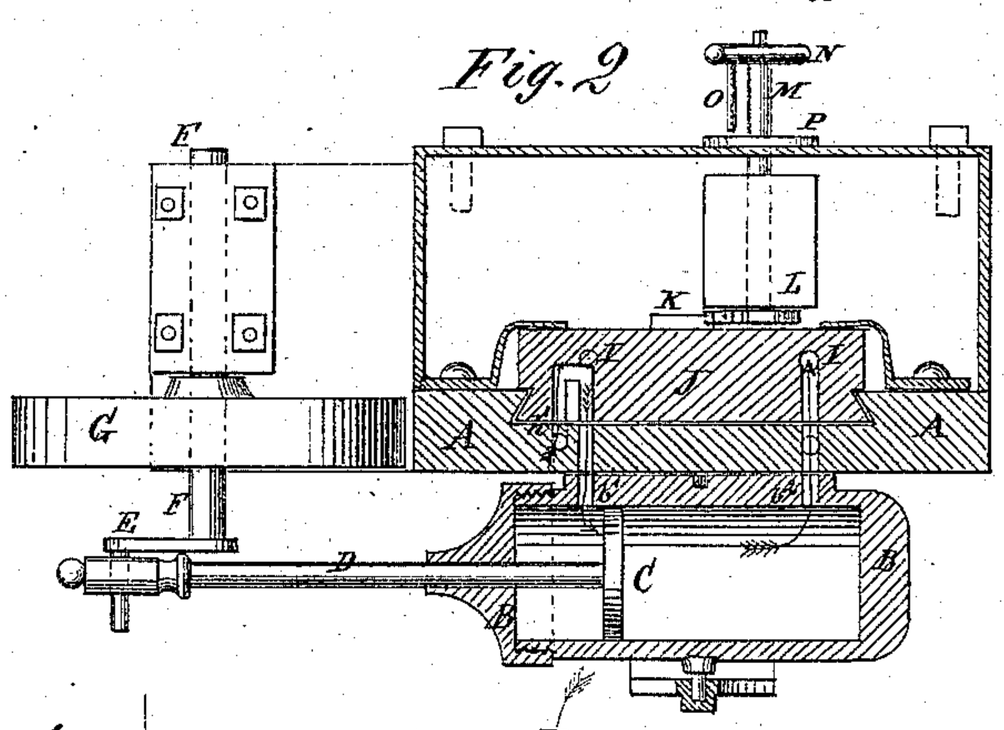


Fig. 4

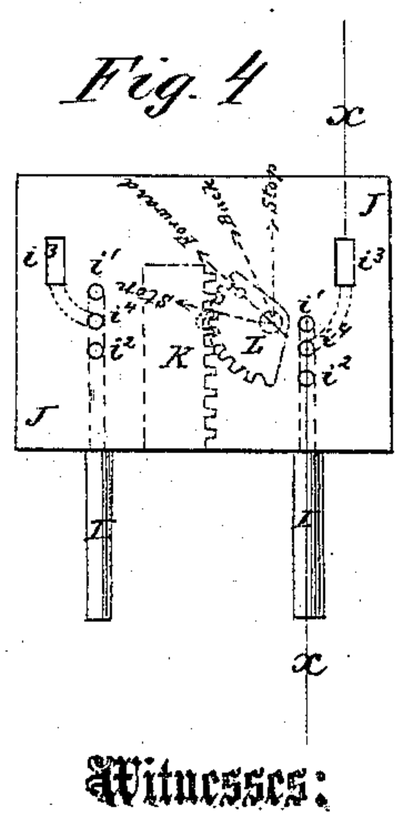
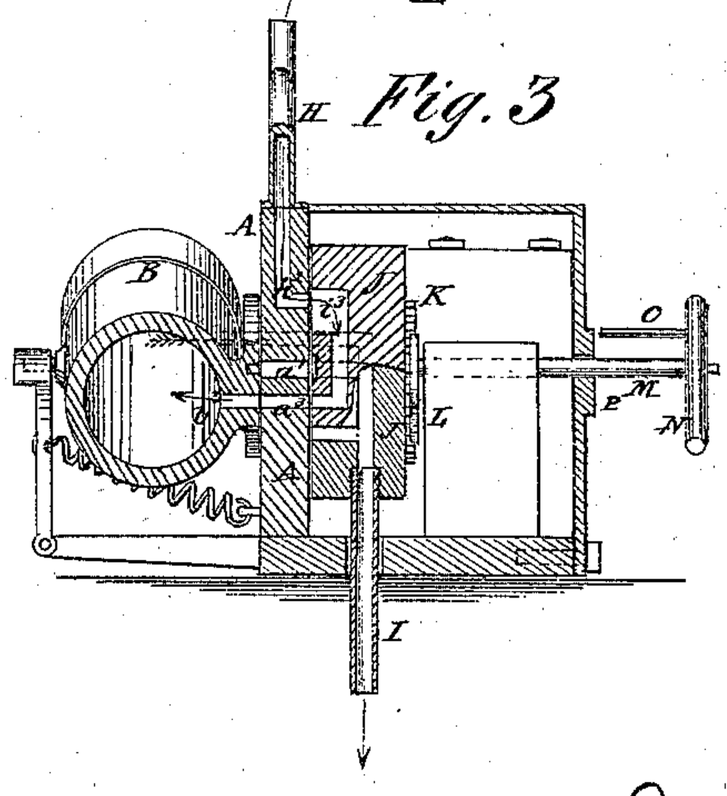


Fig. 3



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125,773

UNITED STATES PATENT OFFICE.

JOHN W. VAN SANT, OF PERTH AMBOY, NEW JERSEY.

IMPROVEMENT IN OSCILLATING ENGINES.

Specification forming part of Letters Patent No. 125,773, dated April 16, 1872.

Specification describing a new and Improved Oscillating Steam-Engine, invented by JOHN W. VAN SANT, of Perth Amboy, in the county of Middlesex and State of New Jersey.

Figure 1 is a side view of my improved engine, showing the position of the parts when the piston is moving forward in the cylinder. Fig. 2 is a detail sectional view of the same. Fig. 3 is a detail sectional view of the same taken through the line *x x* of Fig. 1. Fig. 4 is a detail face view of the starting, stopping, and reversing plate.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved oscillating steam-engine, simple in construction, conveniently manipulated, and effective in operation, and which shall be so constructed that the motion may be conveniently reversed or stopped when desired; and it consists in the construction and combination of various parts of the device, as hereinafter more fully described.

A is a plate, to the side of which, and to another suitable support or frame-work, is pivoted the cylinder B. C is the piston. D is the piston-rod, the outer end of which is pivoted to a crank, E, attached to the shaft F, from which motion is communicated to the machinery to be driven, and to which is attached a fly-wheel, G. The side of the pivoted cylinder that rests against the plate A is flattened, or has a flat plate attached to it which bears against the side of the plate A. b^1 b^2 are the ports through which the steam passes into and out of the cylinder B, and which pass through the flattened or inner sides of the cylinder B, near its ends, as shown in the drawing. In the side of the plate A, in the arcs through which the ports b^1 b^2 move, and opposite each of said ports are formed two holes, a^1 a^2, which holes pass directly through said plate A. H is the ingress steam-pipe, the lower part of which is branched, which branches enter the edge of the plate A and communicate with holes h^1 h^2 upon the outer side of the said plate A. I are the exhaust steam-pipes which enter the lower edge of the plate J, and each of which communicates with two holes, i^1 i^2, formed in the inner side of the plate J, and twice the distance apart of the holes h^1 h^2 of the plate A. i^3 are short slots formed in the inner side of the plate I, opposite the holes h^1 h^2 that communicate with ingress-pipes H, and of a length equal to or a little longer than the distance apart of the holes a^1 a^2. The slots i^3 communicate with holes i^4 formed in the forward or inner side of the plate I, midway between the holes i^1 i^2 of said plate. The plate J slides up and down in ways or guides upon the outer side of the plate A, and must be held closely against said plate. To the outer side of the sliding plate J is secured a rack, K, into the teeth of which mesh the teeth of a segmental gear-wheel, L, attached to the end of a shaft or rod, M, which works in bearings in the frame-work of the engine, or in some other suitable support. To the outer end of the rod or shaft M is attached a cross-bar, crank, or hand-wheel N, to which is attached a pointer, O, which points to marks upon a stationary index-plate, P, attached to the casing or some other stationary part of the engine, to indicate the position in which the corresponding holes in the stationary plate A and movable plate J stand with respect to each other.

With this construction, when the cylinder B is in the position shown in Fig. 1 the forward port b^1 is opposite the upper hole a^1 of the plate A, and the upper forward exhaust-hole of the plate A, so that the steam is exhausted from the forward end of the cylinder B. At the same time the rear port b^2 of the cylinder is opposite the rear central hole i^4, and the cylinder is receiving steam in its rear end. As the forward end of the cylinder is depressed the operation is exactly reversed, and the steam is received into the forward end of the said cylinder and exhausted from its rear end. To reverse the motions of the engine the plate J is raised by means of the reversing gearing through a space equal to the distance between the holes a^1 a^2 of the plate A, so as to bring the ingress-hole i^4 opposite the upper hole a^1, so that the ends of the cylinder may receive and exhaust steam in the positions in which it before exhausted and received it, thus reversing the motion. By lowering the plate J from the position first described and raising it from the position last described, the ingress-ports will both be closed, and the exhaust-ports at both ends of the cylinder will be opened,

allowing all the steam to escape from the cylinder.

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

The adjustable sliding plate J provided with slots and holes i^3 and i^4 for the entering steam, and holes i^1 i^2 for the exhaust steam, in combination with the stationary plate A provided with holes h^1 h^2 and a^1 a^2 for the passage of the steam, and with the pivoted or oscillating-cylinder B provided with the holes b^1 b^2, substantially as herein shown and described, and for the purpose set forth.

JOHN W. VAN SANT.

Witnesses:

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