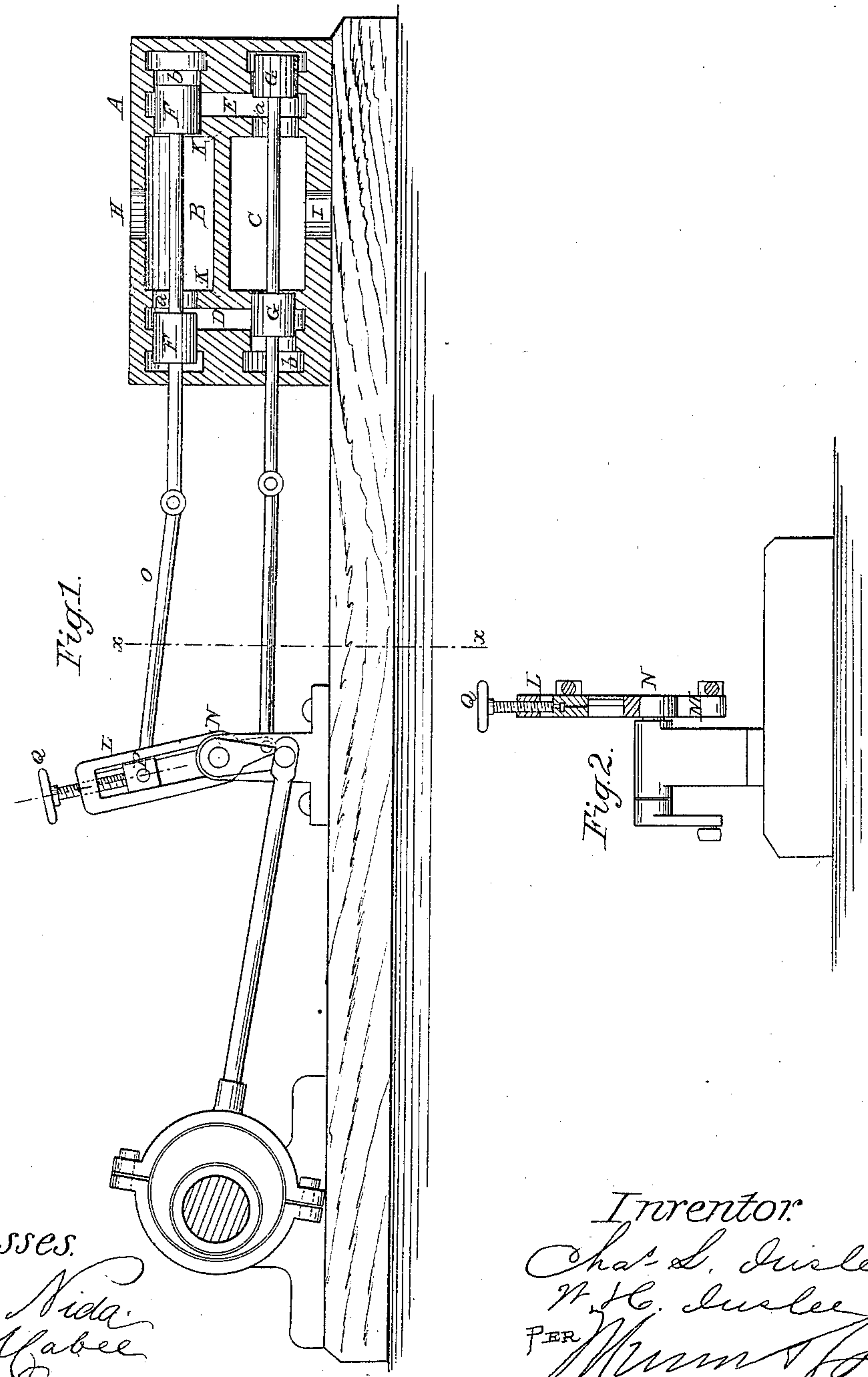


C. L. & W. H. Inslee.

Steam Engine Valve Gear.

N^o 4,316.

Patented Aug. 31, 1869.



Witnesses.
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CHARLES L. INSLEE, OF NEW YORK, N. Y., AND WILLIAM H. INSLEE.
OF NEWARK, NEW JERSEY.

Letters Patent No. 94,316, dated August 31, 1869.

IMPROVEMENT IN STEAM-ENGINE VALVE-GEAR.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, CHARLES L. INSLEE, of New York, in the county of New York, and State of New York, and WILLIAM H. INSLEE, of Newark, in the county of Essex, and State of New Jersey, have invented a new and improved Valve-Gear for Steam-Engines; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to new and useful improvements in valves, ports, and operating-devices, whereby it is designed to provide a simple and cheap plan of construction, and a more efficient arrangement of the same for operation than any now in use.

The invention consists in an improved arrangement of steam-chest passages and live-steam and exhaust balance-valves and operating-devices, as hereinafter more fully specified.

Figure 1 represents a longitudinal sectional elevation through the valve-chest, and

Figure 2 represents a transverse section, taken on the line *x x*.

Similar letters of reference indicate corresponding parts.

A represents the valve-chest, preferably located at the side of the cylinder. It is divided into two chambers, B C.

D and E represent the ports,

F, the live-steam valve, and

G, the exhaust-valve.

The steam is admitted through the passage H, and exhausted at I.

These valves are circular disk or piston-valves, and fitted to work snugly through cylindrical passages *a*, through the bars K, and into coincident passages *b*, in the end walls of the steam-chest. They are considerably reduced between the ends fitting these passages or seats, and the steam presses equally on the shoulders where they are reduced, whereby they are always balanced.

When the valve F is moved through the bar K, at either end of the chest, toward the said end thereof, the steam follows, and is admitted to the port, and where the valve G passes through the said bars in like manner, the steam escapes into the chamber C and exhausts.

For operating these valves, they are connected to

cranks L M, of a rock-shaft, N, the one above and the other below the centre of the said shaft, which is worked by an eccentric on the crank-shaft and connecting-rod, in the usual way.

The crank L is slotted, and the rod O of the live-steam valve is connected to an adjustable block, P, capable of sliding up and down in the slot, and provided with an adjusting-screw, Q. By this arrangement, the movement of the valve F may be made longer or shorter, as required, and the admission of steam regulated, without interfering with the movement of the exhaust, which may be always set for a full opening.

Instead of the adjusting-screw and sliding block P, any other arrangement of devices may be used for adjusting the rod O.

We propose to connect the block P, in some cases, to the governor, and thus provide for regulating the admission of steam by this adjustment of the valve E. As the pressure of steam upon these valves is always counterbalanced in all the parts, they will not wear sensibly, and the force required to move them will be only that required to overcome the friction. Moreover, they are not liable to be affected by unequal expansion or contraction, as the steam is admitted to the spaces behind the valves.

The construction is very simple and cheap, requiring but little fitting for the valves and seats, which may be done by turning the valves in a lathe, and by boring the seats *a b* when the two parts of the chest, which may be divided on the section represented in the drawing, are joined together.

Having thus described our invention,

We claim as new, and desire to secure by Letters Patent—

1. The arrangement of valves F G and valve-seats *a b*, with reference to chambers B C and ports D E, as and for the purpose set forth.

2. The construction and arrangement, with respect to each other, of the rod O, slide P, screw Q, and yoke L, for the purpose of adjusting the throw of the valves F G, as set forth.

The above specification of our invention signed by us, the 1st and 3d days of June, 1869.

WM. H. INSLEE.

CHAS. L. INSLEE.

Witnesses:

FRANK BLOCKLEY,

ALEX. F. ROBERTS.