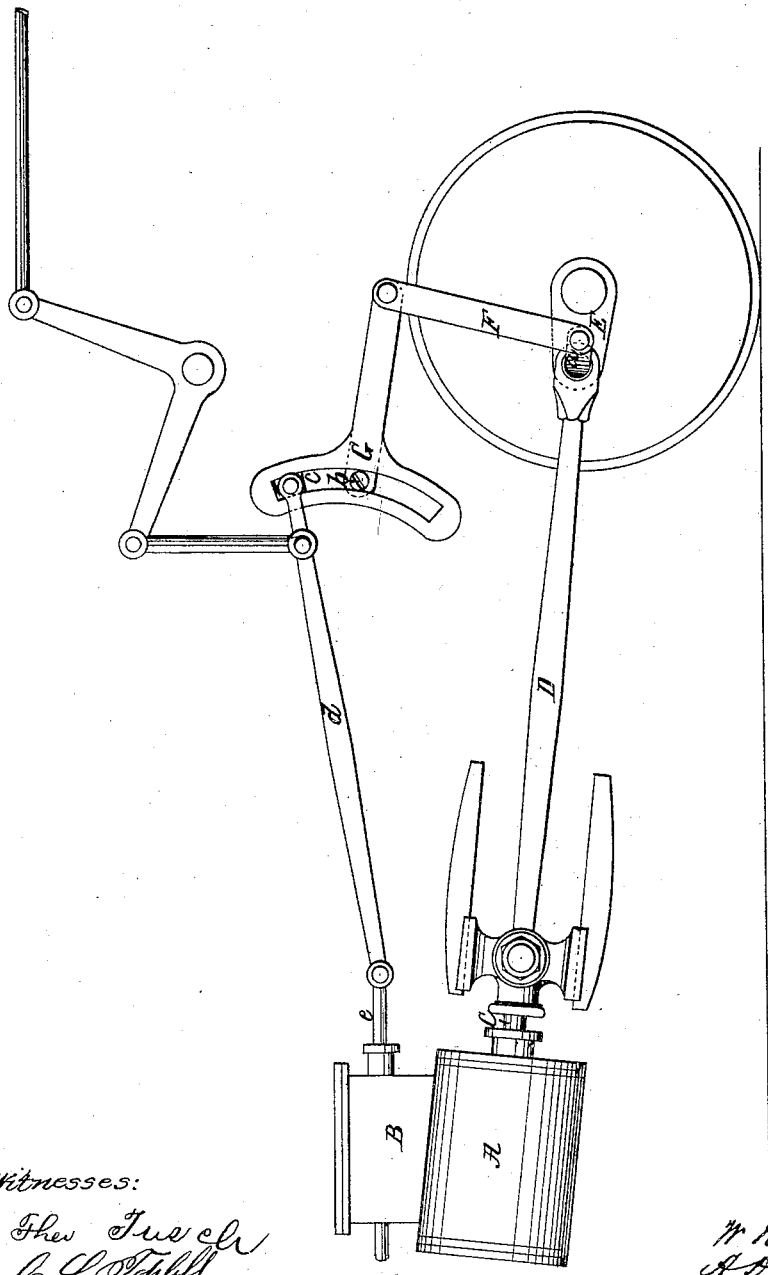
Stanton & Spencer,

Steam-Engine Valve-Gear.

No. 50,966. Patented Nov. 14, 1865.



Witnesses:

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UNITED STATES PATENT OFFICE.

WM. H. STANTON AND A. D. SPENCER, OF DUNMORE, PENNSYLVANIA.

IMPROVEMENT IN VALVE-GEARS FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. 50,966, dated November 14, 1865.

To all whom it may concern:

Be it known that we, WILLIAM H. STANTON and A. D. SPENCER, of Dunmore, in the county of Luzerne and State of Pennsylvania, have invented a new and Improved Valve-Motion 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 drawing, forming part of this specification.

The drawing represents a side elevation of this invention, showing its application to a locomotive-engine.

This invention consists in the employment or use of a slotted rocker-arm, being connected either to the crank, main rod, or parallel rod, in combination with a rod which forms the connection between a slide moving in the slot of the rocker-arm and between the valve-rod in such a manner that by adjusting said slide in the rocker-arm the motion of the valve is regulated and that the valve at each end of its stroke remains stationary for a short space of time, giving a full head of steam as the crank passes the half-centers.

A represents an ordinary steam-cylinder, to which steam is admitted through the steam-chest B, in which the main valve operates. The piston-rod C connects, by a rod, D, with the crank E, and from said crank extends a link, F, to the rear end of a slotted rocker-arm, G.

The connection between the link and the crank *b* can be made either directly by means of the crank-pin, or a short supplementary crank, *a*, may be used, the object of which will be hereinafter more fully explained.

The rocker-arm G has its fulcrum on a pivot or on a rock-shaft, *b*, and its slotted end forms the guide for a sliding block, *c*, which connects by a rod, *d*, with the valve-rod *e*.

A suitable lifting-rod serves to adjust the position of the block *c* in the slot of the rocker-arm.

By the connection with the crank E an oscillating motion is imparted to the rocker-arm, and as the crank passes its half-centers the rocker-arm remains stationary.

The space of time during which the rocker-arm remains stationary is increased by the supplementary crank *a*, which turns in a direction opposite to that of the main crank, causing the link to retain its highest and its lowest position for a perceptible period of time. By this arrangement the valve is kept wide open during the time the crank passes its half-centers, and a full head of steam is made to act on the piston.

By shifting the block *c* in the slotted end of the rocker-arm G the motion of the valve can be regulated, or the engine can be reversed and stopped. If the block is moved to the center of the rocker-arm, the valve stops, and by moving the same to the opposite end of the slot in the rocker-arm the engine is reversed.

It is obvious that, instead of connecting the rocker arm to the crank, it might be connected to some portion of the main rod or of a parallel rod without altering the effect, and our valve-motion is applicable to stationary engines as well as to locomotive-engines.

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

1. The rocker-arm G, applied and operating in combination with the valve, substantially as and for the purposes set forth.

2. The combination of a supplementary crank, *a*, with the rocker-arm G, main crank F, and valve-rod *e*, substantially as and for the purpose described.

The above specification of our invention signed by us this 25th day of July, 1865.

WM. H. STANTON.
A. D. SPENCER.

Witnesses:
M. M. LIVINGSTON.
C. L. TOPLIFF.