

N. P. STEVENS.
STEAM-ENGINE.

No. 177,362.

Patented May 16, 1876.

Fig. 1.

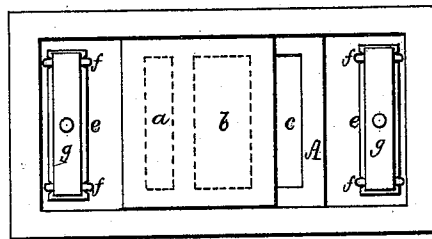
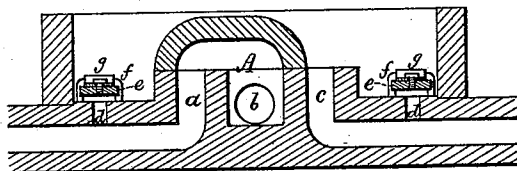


Fig. 2.



Witnesses
S. W. Piper
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by his attorney
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UNITED STATES PATENT OFFICE.

NATHAN P. STEVENS, OF HOPKINTON, NEW HAMPSHIRE.

IMPROVEMENT IN STEAM-ENGINES.

Specification forming part of Letters Patent No. **177,362**, dated May 16, 1876; application filed April 5, 1876.

To all whom it may concern:

Be it known that I, NATHAN P. STEVENS, of Hopkinton, of the county of Merrimac and State of New Hampshire, have invented a new and useful Improvement in Steam-Engines; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view, and Fig. 2 a longitudinal section, of a steam-engine cylinder valve-seat provided with my invention, the purpose of such invention being to prevent what is termed vacuum obstruction of the piston, when the steam is shut off and the piston is in motion in the cylinder.

In carrying out my said invention I combine with the valve-seat A, provided as usual with the two ports *a c* and the intermediate exhaust-port *b*, two other auxiliary ports, *d d*, leading from the bottom of the steam-chest into the passages *a c*, also separate valves *e e* to the said auxiliary ports, each of the said valves *e e* being arranged in yokes, staples, or guides *f f*, and furnished with a lifting or elevating spring, *g*, to throw it off its seat and up to the crowns of the yokes or staples *f f*, all being substantially as represented.

When the steam is let into the chest the auxiliary valves *e e* will be forced by it down upon their seats, so as to close the auxiliary ports *d d*, but on the steam being shut off both valves *e e* will be relieved of its pressure, and by their springs will be thrown off their seats, thereby opening a free communication between the two portions of the cylinder-bore, that may be on opposite sides of the piston-head.

From the above it will be seen that, as the exhaust-port will remain at all times covered by the slide-valve, there will, by my present improvement, be no chance of any sparks being drawn by the piston through such exhaust and into the cylinder.

I claim—

In combination with the valve-seat A, and main and exhaust ports *a b c* of the valve-chest of a steam-engine cylinder, the auxiliary ports *d d*, and the valves *e e* and their elevating-springs *g*, arranged with the said valve-seat and its ports, substantially in manner, and to operate as and for the purpose specified.

NATHAN P. STEVENS.

Witnesses:

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