

G. W. PRICE.
STEAM ENGINE.

Patented Feb. 5, 1889.



INVENTOR:

Geo. W. Price

ATTORNEY.

UNITED STATES PATENT OFFICE.

GEORGE W. PRICE, OF BALTIMORE, MARYLAND, ASSIGNOR TO JOHN D. FISKE, OF SAME PLACE.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 397,468, dated February 5, 1889.

Application filed April 28, 1888. Serial No. 272,177. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. PRICE, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Steam-Engines, of which the following is a specification.

My invention relates to improvements in steam-engines, and is illustrated in the accompanying drawings, in which—

Figures 1 and 2 are vertical sections of the engine. Fig. 3 is a top view of the bottom cylinder-head. Fig. 4 shows two views of the slide-block. Fig. 5 is a horizontal section of the cylinder on line 5 5.

The engine is of the vertical class. The letter A designates the cylinder; B, the stand which supports the cylinder, and C the crank-shaft in bearings *d* in the base of the stand. The piston E has a diametrical bolt, *e*, to which one end of the rod F is pivoted, while the other end is connected with the crank C'. As this one rod connects from the piston E directly to the crank C', it serves as both piston-rod and pitman. The top head, G, of the cylinder is of ordinary construction. The bottom head, G', has a central slot, *h*, and on its upper surface a dovetailed slideway, *i*. A dovetailed slide-block, J, fits in said slideway and reciprocates crosswise of the lower cylinder-head. The slide-block has a central hole, *k*, and a concaved seat or bearing, *l*, at each of two sides, which is occupied by the T-shaped head *m* of a piston-rod sleeve, N. The T-shaped head is cylindric and fits steam-tight in the concaved seat *l*, and is confined thereto by bands *m'*. The sleeve N extends downward through the hole *k* in slide-block J, and also through the slot *h* in the bottom cylinder-head. The sleeve is pendent below the cylinder and swings or vibrates. The lower end of the sleeve is provided with a packing-box, *o*. The piston-rod F extends through the sleeve N and packing-box.

It will be seen that as the piston E reciprocates the lateral motion imparted to the lower end of the rod F by the crank causes the block J to slide back and forth on the lower cylinder-head, and the pendent sleeve N, which is carried by the block, is caused to vibrate.

The cylinder is provided with a steam-chest, *p*, ports *e e'* to the cylinder, an exhaust-opening, *c'*, central between the said

two ports, and an exhaust-port, *c*, leading therefrom to the side. A disk-valve, *q*, is mounted on a shaft, *d*, which passes through a stuffing-box, *a'*, on the cover of the steam-chest. The outer end of the shaft has a crank, *d'*. The valve has an inlet-port, *f*, which opens through it, and as the valve oscillates this port is brought into coincidence with first one and then the other port, *e*, leading to the cylinder. On its inner face the valve has an exhaust-recess, *g*. As all these valve parts are fully shown and described in my application for patent, Serial No. 258,414, filed December 19, 1887, further explanation here is unnecessary. The valve is oscillated by a lever, *r*, which is attached to a pivot, *s*. The upper end of the lever is suitably attached to the valve-crank *d'*, and the lower end is attached to a pivot-stud, *t*, on the piston-rod sleeve N. The swinging movement of the sleeve will impart a vibrating movement to the lever *r*, which, by acting on the valve-crank, will cause the valve *q* to oscillate.

Having described my invention, I claim—

1. The combination, with the head of a steam-cylinder, through which the piston-rod works, of a dovetailed slide-block moving in a dovetailed slideway in said head, and the sleeve having a T-shaped head resting in a concave seat in the block and provided with a packing at the lower end, through which the piston-rod works, the sleeve extending through a slot in the piston-head, substantially as specified.

2. A steam-engine having, in combination, the cylinder provided with a piston, and having at one end a slide-block, J, which reciprocates crosswise of the cylinder-head, a disk-valve provided with a crank, *d'*, a sleeve, N, projecting from the slide-block, provided with a pivot-stud, *t*, and capable of vibrating, a main crank, C', a rod connecting the piston and main crank and extending through the said sleeve, and a lever, *r*, having one end attached to the valve-crank, the other end attached to the said pivot-stud, and pivoted at *s* between its ends.

In testimony whereof I affix my signature in the presence of two witnesses.

GEORGE W. PRICE.

Witnesses:

JOHN E. MORRIS,
JNO. T. MADDOX.