(No Model.)

J. DAVIS.

STEAM ENGINE PISTON.

No. 346,584. Patented Aug. 3, 1886.

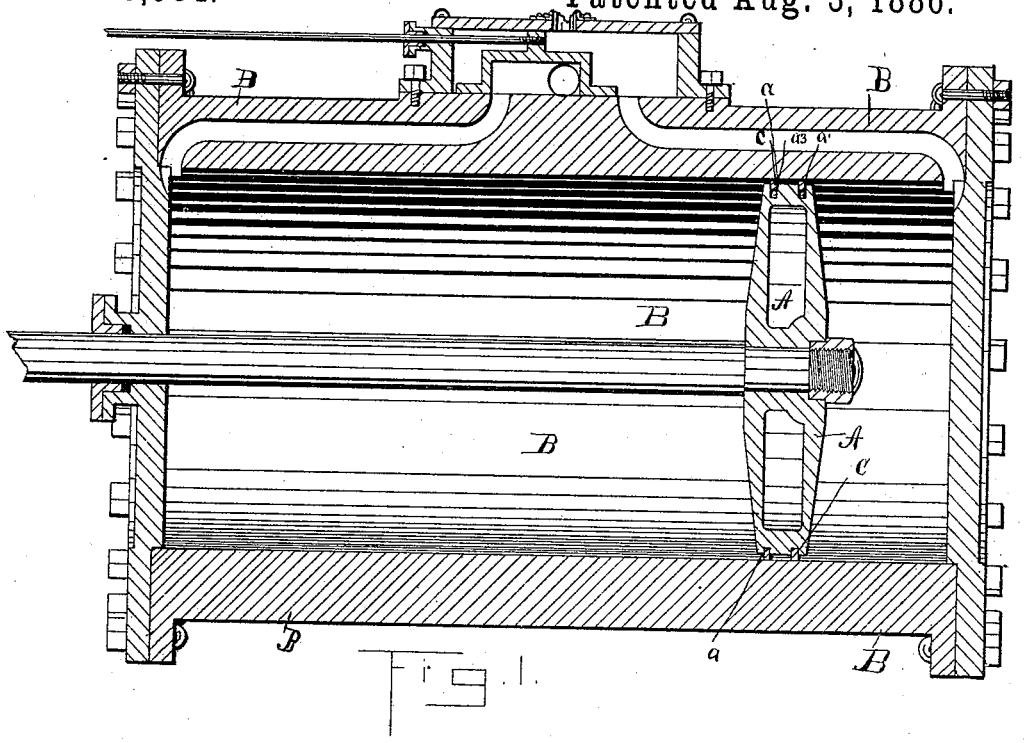

Fig. I.

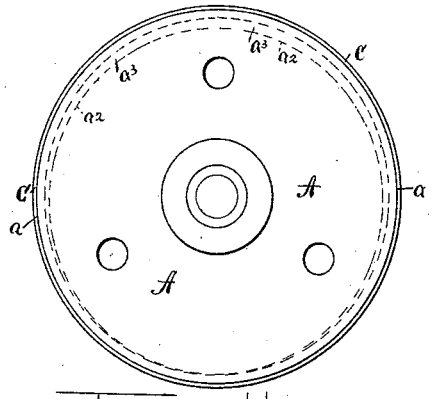

Fig II.

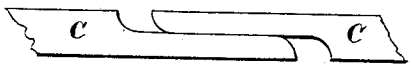

Fig III

Witnesses:
W. Pell. Pitts
G. W. Rumble

By

Inventor
Joseph Davis
Richardson
Attorneys

UNITED STATES PATENT OFFICE.

JOSEPH DAVIS, OF ALTOONA, PENNSYLVANIA.

STEAM-ENGINE PISTON.

SPECIFICATION forming part of Letters Patent No. 346,584, dated August 3, 1886.

Application filed May 26, 1885. Renewed May 25, 1886. Serial No. 203,261. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DAVIS, a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented a new and useful Improvement in Steam-Engine Pistons and Packings; and I hereby declare the following to be a full and clear description thereof.

The object of this invention is to provide the piston with packing-rings on which the piston rests at the bottom of the cylinder of a horizontal steam-engine, and which said packing-rings automatically adjust themselves to the upper portions of the cylinder.

The invention consists in turning eccentric circumferential grooves in the periphery of the piston, and in placing therein respectively packing-rings on which the piston shall rest at the bottom of the cylinder, while the eccentricity of the said grooves allows the packing-rings to move laterally, or, rather, radially, at the upper part of the piston, and thereby adapt themselves automatically to the interior surface of the cylinder.

The invention will be readily understood by reference to the accompanying drawings, of which Figure I is a longitudinal sectional elevation of a horizontal steam-engine provided with one of my improved pistons and a set of my packing-rings. Fig. II is an elevation of the piston, showing in dotted lines the eccentric formation of the packing-ring grooves. Fig. III is a plan of the portion of the packing-rings, which represents the mode of overlapping or splicing the ends of them.

The piston A is turned up to a true circle, *a*, circumferentially, which said circle *a* when the parts are assembled is concentric with the interior or bore of the cylinder B. The grooves *a'*, which are turned circumferentially in the periphery of the piston, are made eccentric to it, as is shown by the dotted line a^2 in Fig. 2, the said bottom line, a^2, forming the bottom of the said packing-ring groove. The packing-ring C is made of equal width all around the piston, and is placed in its groove so as to bottom on the groove at the lowermost side of the piston, and from thence toward the topmost side of the piston a gradually-widening space, a^3, is interposed between the inner face of the packing-ring and the bottom of the groove, the said space a^3 serving to allow the packing-ring to laterally, or, rather, radially, automatically adjust itself to the inner surface of the cylinder, against which it is arranged to habitually impinge by reason of the spring in the metal acting to expand it outwardly for the purpose. The projection of the packing-ring C beyond the periphery of the piston is habitually uniform on all its sides, as is shown in Fig. 2, and the weight of the piston rests on the bottom of the cylinder through the medium of the interposed packing-ring, which always keeps the piston from contact with the cylinder, and consequently the piston is never worn; but as the cylinder becomes worn it can be rebored and trued up, and the proper relative positions of the cylinder and piston be maintained by putting in new packing-rings. These rings always bottom on the bottom of their respective grooves at the lowest part of the piston and automatically adjust themselves to the inner surface of the cylinder above that point, by reason of the eccentricity of the said grooves permitting such automatic adjustment, and leaving the upper parts of the packing-rings free play to move inwardly, the overlapping ends of the packing-rings serving also to permit the free movement laterally or radially of the packing-rings for this purpose.

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

1. In a horizontal steam-engine, a piston provided with circumferential packing-grooves in its periphery, which said grooves are formed eccentric to the piston and receive packing-rings on which the piston is allowed to rest at the bottom of the cylinder, while the eccentricity of the piston-grooves allows a radial movement and automatic adjustment of the packing-rings at the top of the cylinder, substantially as shown and described.

2. A steam-engine piston eccentrically grooved circumferentially, and in combination therewith one or more packing-rings, adapted, respectively, to the said grooves, and arranged to support the piston on the bottom of the cylinder, and to radially and automatically adjust themselves to the upper parts of the cylinder, substantially as and for the purpose specified.

In witness whereof I have hereunto set my hand this 19th day of May, 1885.

JOSEPH DAVIS.

In presence of—
WM. D. COUCH,
THOS. P. FOSTER.