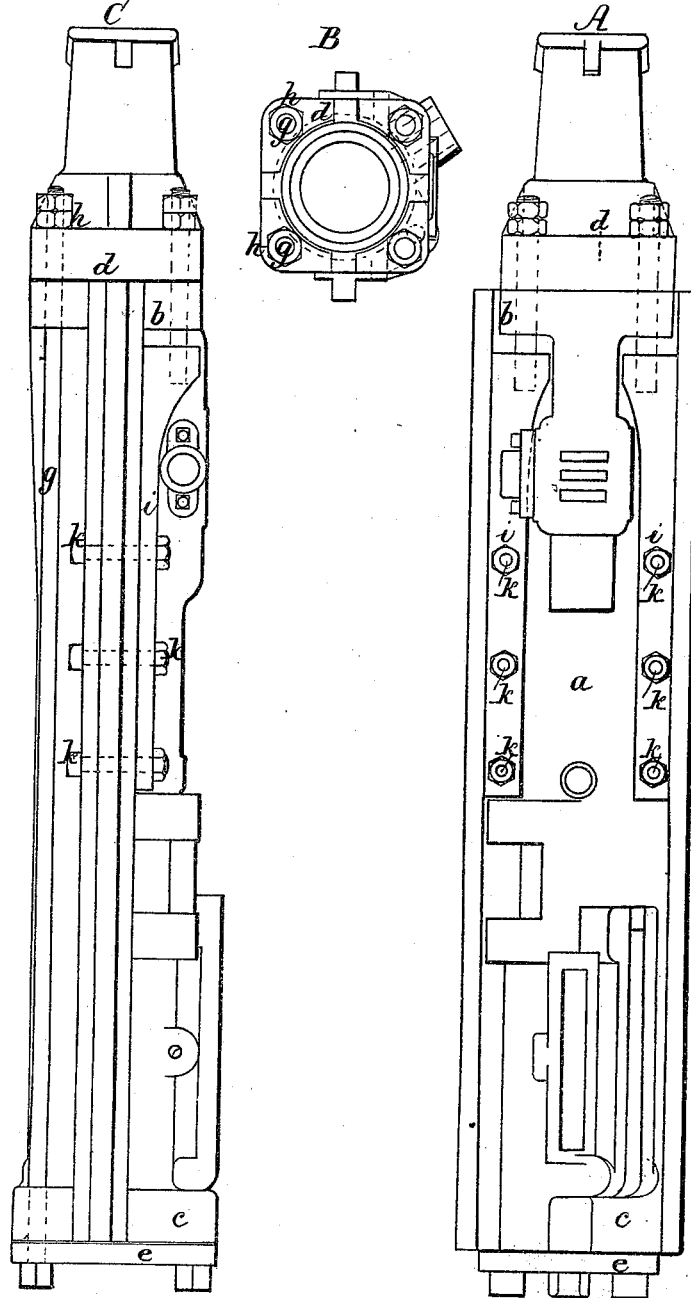


C. S. Pattison.
Drill Cylinder.

Nº 114,193.

Patented Apr 25, 1871.



Witnesses

*L. B. Kider
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Inventor;

C. S. Pattison

by his Atty.

Crosby, Hildes & Gould

United States Patent Office.

CHARLES S. PATTISON, OF NORTH ADAMS, ASSIGNOR TO BURLEIGH ROCK-
DRILL COMPANY, OF FITCHBURG, MASSACHUSETTS.

Letters Patent No. 114,193, dated April 25, 1871.

IMPROVEMENT IN DRILL-CYLINDERS.

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

To all whom it may concern:

Be it known that I, CHARLES S. PATTISON, of North Adams, in the county of Berkshire and State of Massachusetts, have invented an Improvement in Drill-Cylinders; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

In the construction of the cylinders of rock-drilling engines of that class, instances of which are shown in United States patents Nos. 59,960 and , and which are particularly well known as Burleigh rock-drills, it has been customary (until my invention) to bolt or screw the upper and lower cylinder-heads to flanges at the adjacent ends of the cylinder, and under the unavoidable occasional blows of the piston against the lower head breakage occurs, the strain upon the head rupturing the cylinder back of the flange, or somewhere between the opposite heads, of course ruining the cylinder.

These breakages have been so constant as to seriously delay progress in important rock-drilling operations where these drills have been in use, and have detracted in a very great measure from the practical utility of the drills.

The cylinders are cast-iron, and in my improvement I re-enforce the cylinder by means of wrought-iron straps, ties, or rods, or encompassing jackets, by means of which the strain is transferred from the cast or granulated metal to the wrought or fibrous metal; and

My invention consists in a drilling-engine cylinder, the lower head of which is united or held to the body by means of wrought-iron rods, straps, or other wrought-metal connections.

The drawing represents a drilling-engine cylinder embodying my invention.

A shows a plan of the cylinder;

B is an end view of it;
C, a side elevation of it;
a denotes the cylinder;
b c, the end flanges thereof;
d, the lower cylinder-head; and
e, the upper cylinder-head.

From the head *e* to the head *d* I extend wrought-iron rods *g*, having heads at one end and screw-threads at their opposite ends, with tightening-nuts *h*, so that the two ends of the cylinder are directly bolted together, and the strain is spent upon these rods instead of upon the cylinder.

Instead of extending these rods from head to head, however, they may extend from wrought-iron strap-plates *i i* through the flange *b* and head *d*, the straps being bolted to the cylinder by bolts *k*; or this wrought-iron strap may be an encompassing or partially encompassing wrought-iron ring or cylinder, bolted at its front end to the head *d*, and at its opposite end or at its sides to the head *e* or flange *c*, or to a flange or flanges on the sides of the cylinder.

Thus strengthened or re-enforced, no rupture of the cylinder ever occurs or can occur, as the strain is spent upon the wrought-metal bands, ties, or straps.

The blow of the piston against the head occurs when the drill-point fails to strike the rock, the piston-rod then driving forward until the piston brings up against the head.

I claim—

In a cylinder, in which works the piston of a drill-carrying piston-rod, the re-enforcing connections, substantially as shown and described.

Executed December 26, A. D. 1870.

CHARLES S. PATTISON.

Witnesses:

WM. P. PORTER,
CHAS. N. VAN DE MARK.