C. Burleigh,

Steam Rock-Drill.

No. 52,961 Patented Mar. 6, 1866.

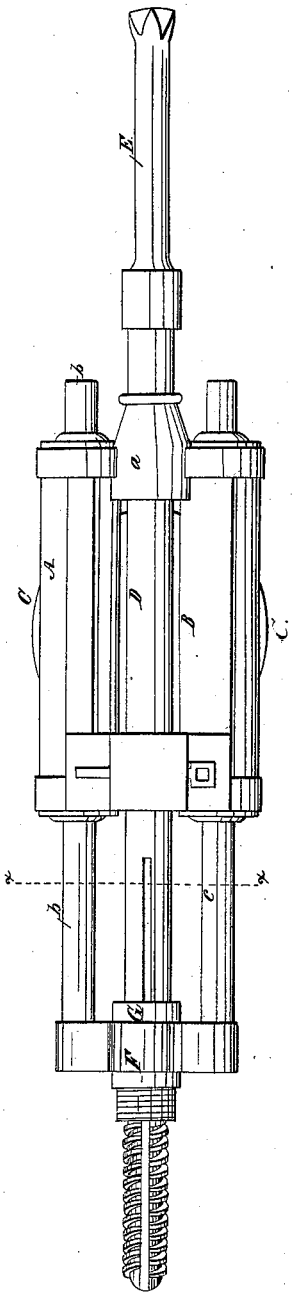

Fig. 1.

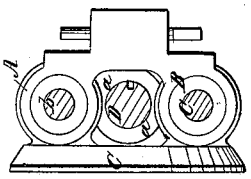

Fig. 2.

Witnesses:

P. C. Theschmacher

N. W. Stearns.

Inventor:

Charles Burleigh

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES BURLEIGH, OF FITCHBURG, MASSACHUSETTS.

IMPROVED MACHINE FOR DRILLING ROCKS.

Specification forming part of Letters Patent No. **52,961**, dated March 6, 1866.

To all whom it may concern:

Be it known that I, CHARLES BURLEIGH, of Fitchburg, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Machinery for Drilling Rocks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an elevation of one side of my improved machine for drilling rocks. Fig. 2 is a transverse section through the same on the line *x x* of Fig. 1.

My invention consists in combining two or more cylinders with the drill or drill-holder, which is placed outside the cylinders and connected with their piston-rods, the power of which is thus made to act simultaneously to drive the drill, by which construction the drill or drill-holder is brought nearer to the center of the support of the machine than where the drill or its holder passes through a hollow piston-rod, which requires a cylinder of larger diameter, and consequently carries the drill or its holder farther from the center of the support, rendering it less steady while in operation.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A B are two cylinders of small diameter, from which projects the disk C, which fits into the clamp by which the machine is supported in a well-known manner.

D is the drill-holder, which passes through the portion *a*, which connects the forward ends of the cylinders and serves as a guide for the drill-holder, to one end of which is secured the drill E.

The piston-robs *b c* of the cylinders A B are connected together by a cross-head, F, in which revolves the short hollow shaft G, through which passes the drill-holder D.

The manner of rotating the drill and feeding it forward, as well as the method of operating the valves of the cylinders, forming no part of my present invention, will not be here described.

The piston-rods *b c* through the cross-head F are thus made to act simultaneously on the drill-holder, which, being placed between the cylinders, enables me to make the cylinders of smaller diameter than where the drill or its holder passes through a hollow piston-rod, by which construction the drill or its holder can be brought much nearer to the center of the support to which the machine is attached, thus rendering the whole more steady and firm while in operation. The drill-holder, being placed outside the cylinders, is rotated independently of the piston-rods, thus avoiding the necessity of rotating the piston and piston-rod within the cylinder, as heretofore.

Instead of two cylinders being employed, as shown, three or more cylinders may be arranged together and their piston-rods connected to the drill or drill-holder, so as to act simultaneously on it without departing from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of two or more cylinders with the drill or drill-holder, operating substantially as described, for the purpose set forth.

CHARLES BURLEIGH.

Witnesses:

P. E. TESCHEMACHER,

N. W. STEARNS.