C. N. Briggs,

Boring Artesian Wells.

No. 52,670. Patented Feb. 20, 1866.

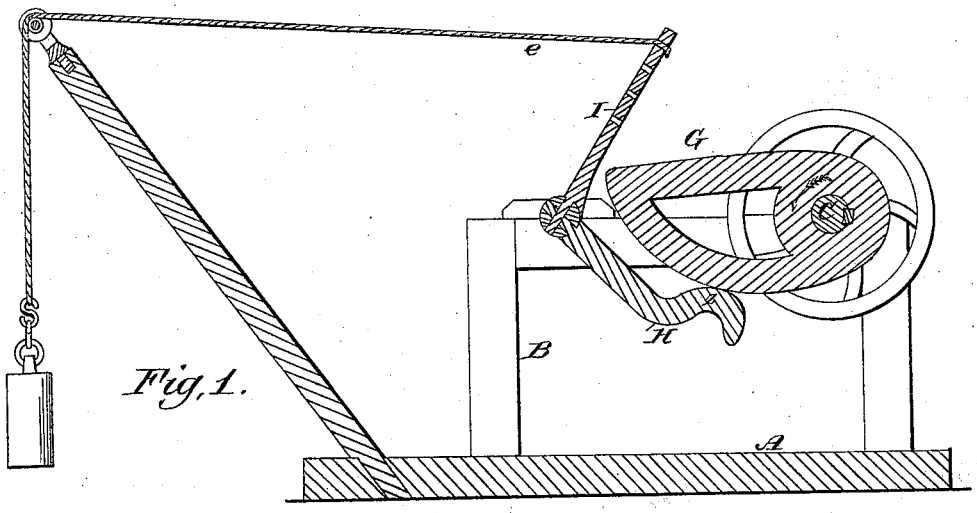
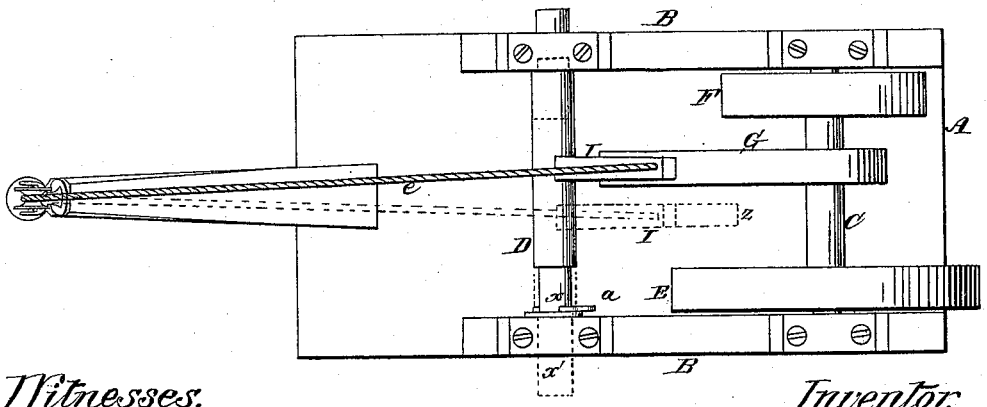


Fig. 1.

Fig. 2.



Witnesses.

Charles Howson.
John Parker.

Inventor.

C. N. Briggs
By his Attorney
Henry Howson.

UNITED STATES PATENT OFFICE.

C. N. BRIGGS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN WELL-BORING MACHINES.

Specification forming part of Letters Patent No. **52,670**, dated February 20, 1866.

To all whom it may concern:

Be it known that I, C. N. BRIGGS, of Philadelphia, Pennsylvania, have invented certain Improvements in Well-Boring Machinery; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists of certain devices for operating drills and other apparatus for boring wells, the said devices being constructed and arranged, as fully described hereinafter, so that the machine shall be more regular in its operation than those of the ordinary construction.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a sectional elevation of my improved well-boring machine, and Fig. 2 a plan view.

A is the base-plate of the machine, to which are secured the side frames, B and B′, and in the latter turn the shafts C and D.

To the shaft C are secured the fly-wheel E, the band-pulley F, and the cam G.

The journals of the shaft D are of such a length that the shaft can be adjusted laterally to the position shown in red lines, Fig. 2, and in one end of the shaft are two openings, x x', to which is adapted a detachable pin, a, for a purpose described hereinafter. To the center of the shaft D are secured two arms, H and I, which are at right angles, or nearly at right angles, to each other.

The arm H is curved at its outer end, so as to form a projection, z, against which bears the edge of the cam G, and to the arm I is fastened one end of a rope, c, which passes over a pulley secured to the derrick, and is attached at its opposite end to a drill or other apparatus.

When the drill is to be operated the shaft D is adjusted to the position shown in Fig. 2, and the pin a is passed through the opening x, so as to prevent any lateral movement of the shaft. On imparting a rotary motion in the direction of its arrow to the shaft C the cam G will be brought against the projection z on the arm H, and will depress the said arm, thus moving back the arm I and raising the drill, the latter, when the drill passes from contact with the arm, falling smartly against the rock and raising the arm to its first position.

In ordinary rock-drilling machines, in which a lever is depressed by a cam, the lever is perfectly straight, so that at the beginning of the movement the cam bears on the lever much nearer the end than it does just prior to passing from contact with the same, and there is consequently more power required to operate the lever at the end than at the commencement of the movement. In consequence of this unequal resistance to the action of the cam, the motion of the latter, as well as that of the lever, is irregular, and both the machine and the driving-engine are injured by the sudden shocks and strains imparted to the same.

By constructing the arm H of the form shown in the drawings, however, the distance between the fulcrum of the arm and the bearing-point of the cam varies but little during the entire operation, so that the motion of the parts is uniform, and the machine is preserved uninjured for a much longer time than those constructed in the usual manner.

When it is desired to use the band-pulley to operate the drum, the arms H I are moved out of the way by removing the pin a and adjusting the shaft D to the position shown in red lines, Fig. 2, the shaft being secured in this position by inserting the pin a in the opening x'.

In the ordinary machines, where the cam G is adjusted instead of the lever, the cam is apt to become loosened during the operation of the drill, and it is frequently necessary to stop the machine to tighten the parts. It will be apparent that this difficulty is avoided by making the shaft D adjustable and securing the cam G permanently to its shaft, as above described.

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

The combination of the shaft C, with its cam G, and the adjustable shaft D, with its arms H and I, the whole being constructed and operating as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

C. N. BRIGGS.

Witnesses:

CHARLES E. FOSTER,

JOHN WHITE.