(No Model.)

M. C. & C. E. BAKER.

MACHINE FOR OPERATING DRILLS.

No. 292,888. Patented Feb. 5. 1884.

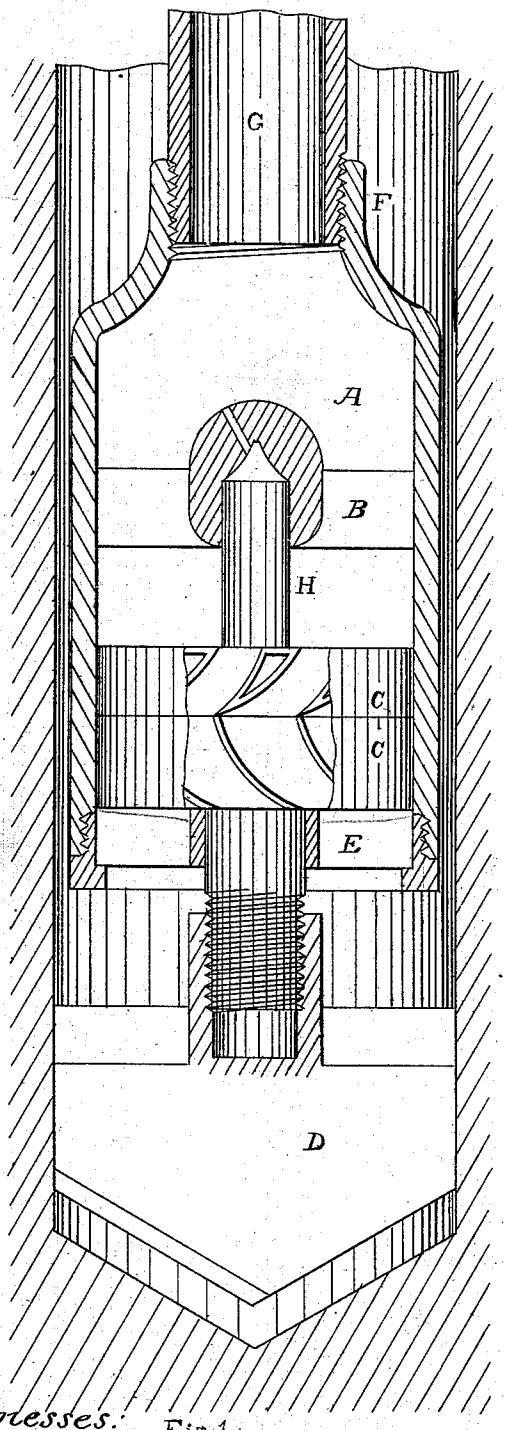


Fig. 1

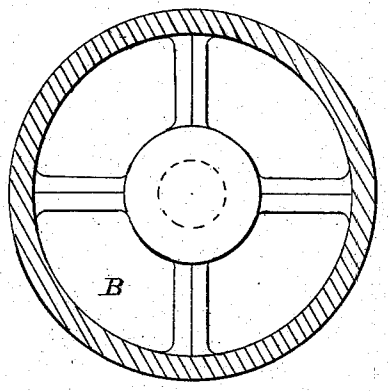


Fig. 2

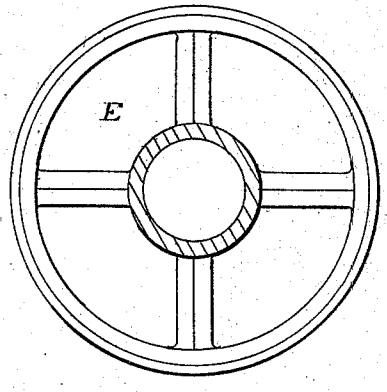


Fig. 3

Witnesses:
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UNITED STATES PATENT OFFICE.

MORRIS CUTLER BAKER AND CLARENCE EDWARD BAKER, OF MITCHELL, DAKOTA TERRITORY.

MACHINE FOR OPERATING DRILLS.

SPECIFICATION forming part of Letters Patent No. 292,888, dated February 5, 1884.

Application filed July 12, 1883. (No model.)

To all whom it may concern:

Be it known that we, MORRIS CUTLER BAKER and CLARENCE EDWARD BAKER, residing at Mitchell, in the county of Davison, Territory of Dakota, have invented a new and useful Machine for Operating Drills for any Purpose, but more especially for sinking deep and Artesian wells, of which the following is the specification.

Our invention relates to the application of power to the drill through the medium of water, steam, gas, or compressed air, without the action of the drill-rods.

Heretofore drills have been made to operate only by actual motion of the drill-rods, either in a reciprocating manner, as with churn-drills, or in a rotary manner, as with the diamond or other drills of that class, which, in the case of deep wells, are liable to breakage by the constant jar in one case or by torsion in the other. It is also impossible to cause a rotary drill to progress in a straight line when power is applied to the drill-rod.

The object of our invention is to provide a machine which shall operate the drill without causing any reciprocal or rotary motion to the drill-rods, thus avoiding the before-mentioned objections.

The invention consists in the application of power directly to the drill by means of a turbine or other convenient form of wheel operated by water, steam, compressed air, or gas, and the use of the escaped water, steam, compressed air, or gas to remove the drillings from around the drill.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 gives a sectional view of the machine and its parts; and Fig. 2, a cross-section through part B, shown in Fig. 1.

A is a case attached to a drill-rod, G, at F, in which is a turbine wheel, C C, on a short shaft, H, one end supported by a spider, B, with a water bearing to avoid heating, while the other end carries a bit, D, connected by a screw or socket-and-pin coupling.

The operation of the device is as follows: The machine being attached to the drill-rod G, as shown, and placed on the surface in the position desired to bore or drill, water or other fluid is forced through drill-rod G, by means of a forcing-engine suitably attached, into the case A, onto wheel C C, causing it and the attached drill D to rotate without imparting motion to the drill-rod G or casing A. Thus a constant action of the drill D may be had regardless of any action of the drill-rod. The waste fluid passes around and onto drill D with great force, and up past casing A, carrying with it all drillings to the surface, where, in case of water being used, it may be conducted to settling-tanks, and reused after all grit has been removed. Any other form of drill may be used by attaching it to the shaft H. The wheel C C and shaft H are held in place in casing A by the screw-section E E, in which webs are placed vertically, as shown in Fig. 3, to allow free egress of fluid.

It is obvious that this device is applicable to any mechanical department where boring or drilling is required, and when used for well-drilling may be handled by any automatic jack used for well-drilling purposes; but we have designed a special jack for this purpose, which will form the subject-matter for another patent.

We believe this device and mode of operating for the purposes herein set forth to be entirely new.

What we claim is—

1. The rotating of the drill D by means of the wheel C C, or its equivalent, by the use of water, steam, compressed air, or gas, without imparting motion to the drill-rod G or casing A, for the purposes herein set forth.

2. The casing A, containing spider and water bearing B, the wheel C C, shaft H, and screw-section E, all combined and connected to drill D, to operate substantially as herein described.

3. The screw-section E E, containing web arranged vertically, to allow free egress of fluid, substantially as described.

4. The spider B, with water bearing for shaft H, for purpose as before described.

5. The combination of the casing A, the

spider B, wheel C C, drill D, screw-section E E, drill-rod connection F, drill-rod G, and shaft H, all combined to operate for the purposes herein set forth and described.

6. The constant rotation of the drill D by the means herein described, regardless of any motion otherwise imparted to drill-rod G.

7. The use of the escaping motor-fluid for removing the drillings from around the drill D.

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