Nottingham & Duncan,

Expanding Rock Drill.

No. 59,631. Patented Nov. 13, 1866

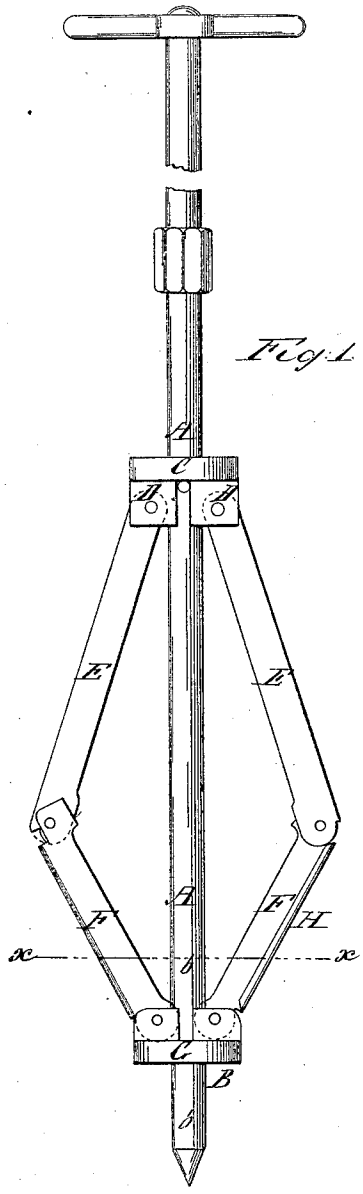

Fig. 1

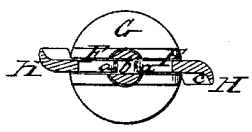

Fig. 2

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UNITED STATES PATENT OFFICE.

MORGAN NOTTINGHAM AND WILLIAM DUNCAN, OF VINTON, IOWA.

IMPROVEMENT IN DRILLS.

Specification forming part of Letters Patent No. **59,631**, dated November 13, 1866.

To all whom it may concern:

Be it known that we, MORGAN NOTTINGHAM and WILLIAM DUNCAN, of Vinton, in the county of Benton and State of Iowa, have invented a new and Improved Drill; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The present invention relates to a new and improved tool or drill for enlarging the bore of a well at and about its lower end, which tool for this purpose is so connected to the lower end of a rod, either made in sections or in one piece, of a sufficient length to reach or extend to the bottom of the well, that by rotating such rod in any proper manner the said tool will be brought to bear against the sides of the well, and, cutting the same, produce the enlargement desired, as will be obvious from the following detail description of the tool, reference being had to the accompanying plate of drawings, in which—

Figure 1 is a side elevation of our improved tool, and Fig. 2 a transverse section taken in the plane of the line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

A in the drawings represents a solid rod or bar, to one end, B, of which our improved tool is connected, as will be hereinafter explained. This rod A is to be of sufficient length to reach or extend to the bottom of the well in which it is to be used, and may be either made in one piece or in sections, as may be deemed best or desirable. To this rod A, at a short distance from its lower end, B, a collar or ring, C, is secured, having lugs D upon its under side, to which are pivoted or hung, at one end, arms E, one upon each side of the rod, and at points diametrically opposite to each other. F are arms pivoted or hung to the outer ends of the arms, of which they form a continuation, and at their other or lower ends are hung to a collar or plate, G, arranged upon the rod A so as to slide up and down upon it, moving by the projecting portions *a* of the arms F in a vertical slot, *b*, of the rod A. Along the outside edge, *c*, of each of the arms F a knife or cutting-blade, H, is formed or secured, which cutting-blades project in opposite directions to each other, so that as the rod A is rotated in any proper manner they will act in the same direction upon the surface with which they are brought in contact, as will be presently explained. The extreme lower end, B, of the rod is made pointed, as shown in Fig. 1.

In the use of the tool herein above explained the rod A is first lengthened to the degree required for it to extend through the entire depth of the well, which is to be enlarged at its bottom by attaching one section after another, if made in sections, when lowering the rod into the well, until its sliding collar G rests upon the bottom of the same. The rod is then rotated in any proper manner, at the same time bearing or pressing down upon the same, which causes the pointed end of the rod to enter the ground, thus sliding or moving the collar G upward and throwing out the blades or cutting-arms F, bringing them to bear against the sides of the well, on which they act, cutting the same as they are rotated through the rod, and consequently enlarging the bore of the well, as is obvious without any further explanation, whereby a reservoir, as it were, is formed at the bottom of the well, the loose earth contained in which can be removed in the operation of pumping the water from the well.

We claim as new and desire to secure by Letters Patent—

The rod A, having fixed collar C and sliding collar G, connected together through arms E and F, with the latter, F, provided with cutting-blades H, substantially as and for the purpose described.

MORGAN NOTTINGHAM.
WILLIAM DUNCAN.

Witnesses:
AUSTIN KNOX,
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