J. Grieves,

Rock Drill.

No 52,164. Patented Jan. 23, 1866.

Fig 1.

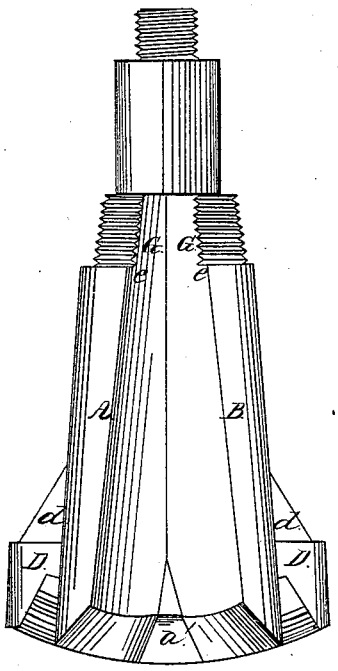


Fig 3.

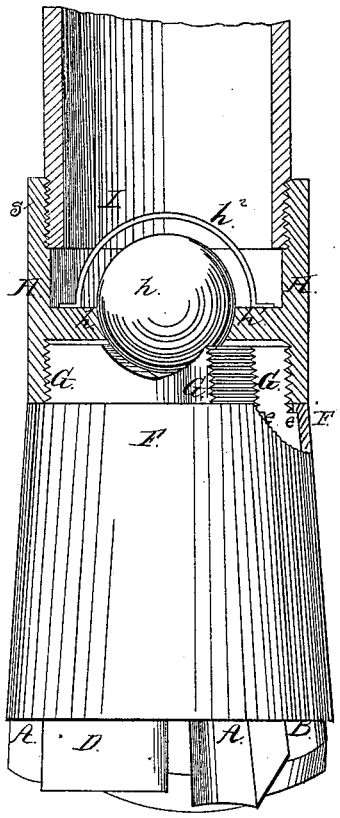


Fig. 2.

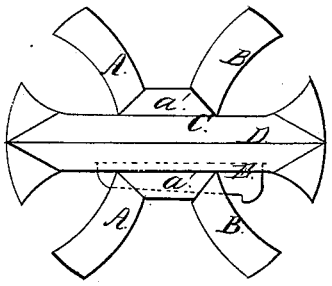


Fig. 4.

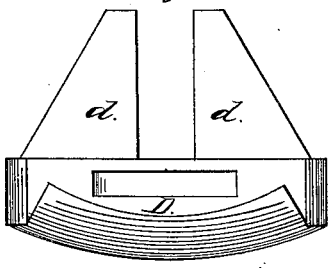
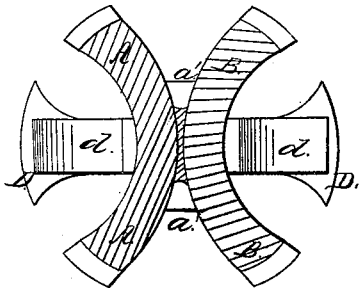


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN GRIEVES, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN DRILLS FOR WELLS.

Specification forming part of Letters Patent No. 52,164, dated January 23, 1866.

To all whom it may concern:

Be it known that I, JOHN GRIEVES, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Drills for Boring Artesian Wells and for other Boring or Drilling Operations in Stone and Similar Substances; 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, forming a part of this specification, in which—

Figure 1 is a side elevation of a drill constructed according to my invention. Fig. 2 is an inverted plan view of Fig. 1. Fig. 3 is a similar view to Fig. 1, with sludge-pump or valve-box and casing attached in partial section. Fig. 4 is a longitudinal side view of the trimming-cutter detached. Fig. 5 is a horizontal section through line *x x* of Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a novel construction of a drill, whereby a very great amount of cutting-surface is exposed to act against the rock, and it is so shaped as to be easily sharpened or dressed upon the anvil. The peculiar construction of this drill is also well adapted to its connection with a sand or sludge pump, as hereinafter fully set forth.

To enable others skilled in the art to construct my invention and apply it to use, I will describe it, having reference to the drawings.

The main body of the drill is constructed of two pieces of bar or plate steel, A and B, cut to the proper length and having the two sides inclined toward each other in an upward direction. These two pieces of steel are then heated and upset on the side edges, making a heavier or thicker edge, to allow for the subsequent redressing to which the drill may be subject. After the edges are upset the said pieces A B are bent transversely into the form of arcs, as shown in Figs. 2 and 5, and the two are welded together along the longitudinal centers of their convexed sides after interposing a small strip of fine, soft iron, *a*, Fig. 5, which is put in in order to form a more perfect union of the two pieces of steel. The lower edge of the iron *a* is faced with steel *a'*, so as to form a cutting-edge, as shown in Fig. 2, on each side of the slot C, which is cut across the two pieces A and B for the reception of the trimming-bit D, which is secured therein by the key E, Fig. 2. The trimming-bit D is made in the form, on its cutting-edge, of an ordinary letter-I drill, and is provided on one or each of its upper sides with brace-pieces *d d*, which slide up along each, outside of pieces A and B. The lower edges of the pieces A and B are beveled toward the outside or toward the circumference of the circle, within the limits of which the cutters fall. The two cutting-edges of A and B may be dressed up or sharpened, after removing the bit D, by simply hammering them upon the horn of the anvil. This mode secures important advantages, whereby the steel is never wasted, as it necessarily would be if the edges were filed or ground to a sufficient acuteness; and in this construction of a drill there need be no material wasted except such as is incident to the wear from contact with the rock.

The form of a drill is also well adapted for the reception of a sludge-pump or valve-box, as shown in Fig. 3. The upper portion of the edges of the pieces A and B is cut to a smaller diameter, leaving a shoulder, *e*, onto which rests the flange *e'*, Fig. 3, of a casing, F, which is driven down over the inclined sides of the pieces A and B, forming a conical casing all around for the passage of the detritus.

The portion G, which is cut down to a less diameter, has a male screw-thread cut upon it corresponding to a female thread cut on the interior of a valve-box, H. In this form of the drill, however, the solid central stock or rod of the drill has a tube, I, Fig. 3, substituted for it.

The valve-box H, which is screwed to the parts G, is forged of wrought-iron, and provided with valve-seat *h'* and cage h^2, to receive the ball-valve *h*, and also on its upper inner edge it is provided with a female screw-thread *s*, corresponding to a male screw on the wrought-iron pipe I, intended to fit thereon. The valve-box screwing down upon the flange *e'* secures the casing F to the drill.

When the pump is connected with the drill in the manner described the detritus or sludge is driven upward at each stroke of the drill and is received above the valve in the same manner as the ordinary sludge-pump.

Instead of forming the curved parts A B of

the drill by welding two pieces together they may be formed of one piece of twice the thickness by slitting it edgewise and bending the divided parts over the anvil; but this would be a more expensive way of forging.

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

1. The drill constructed of the two curved pieces A B and trimming-bit D, combined substantially as herein described.

2. The casing F, in combination with the portions A B of the drill, substantially as and for the purpose herein set forth.

3. The valve-box H, constructed and applied to secure the drill to the tubular rod and to secure the casing F, substantially as herein described.

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