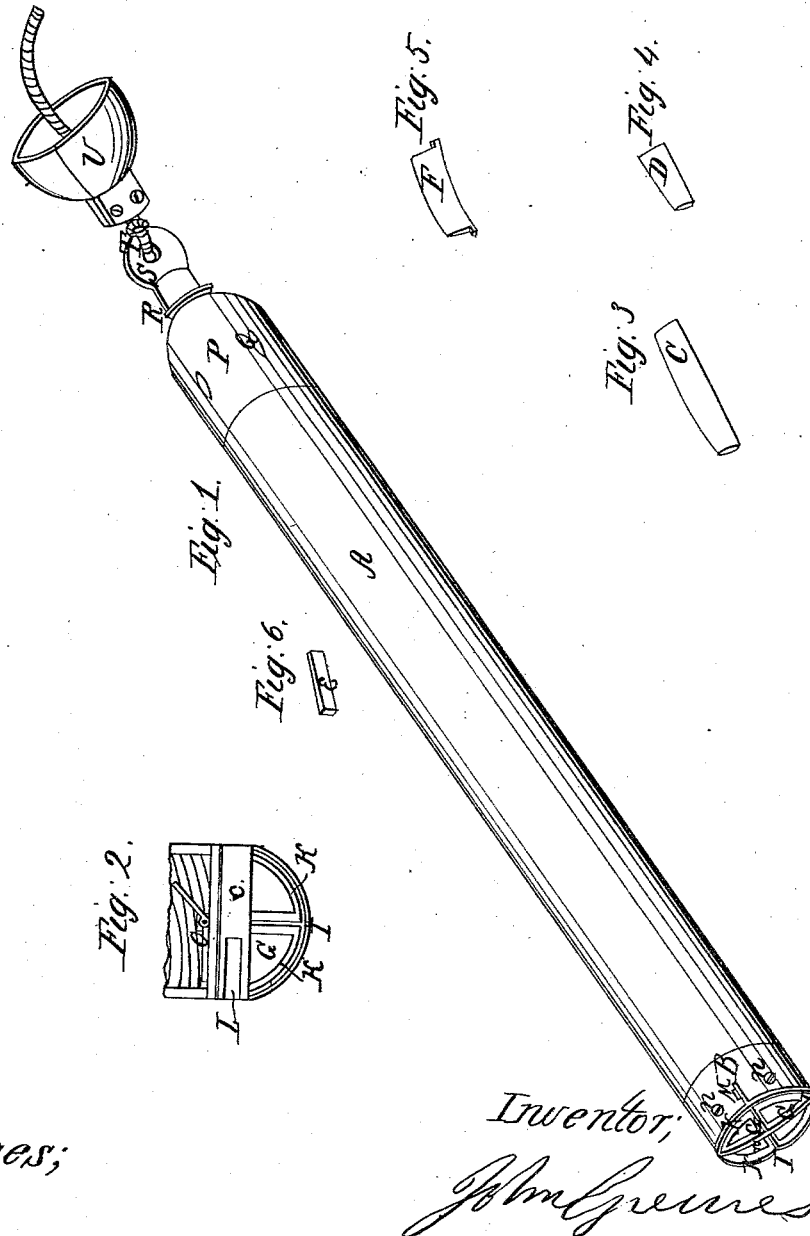


J. GRIEVES.  
WELL BORER.

No. 48,809.

Patented July 18, 1865.



Witnesses;  
J. J. Porter

Inventor;  
John Grievess

# UNITED STATES PATENT OFFICE.

JOHN GREIVES, OF BROOKLYN, NEW YORK.

## IMPROVED WELL-BORER.

Specification forming part of Letters Patent No. 48,809, dated July 18, 1865.

*To all whom it may concern:*

Be it known that I, JOHN GREIVES, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Well-Borer; and I do hereby declare the following to be a full and clear description of the same, reference being had to the annexed drawings, and to the letters marked thereon, making a part of this specification, in which—

Figure 1 is a perspective view of my borer, showing bits, key, and screws for holding and adjusting, also the top of the same, and piece of rope and a safety-cup. Fig. 2 is a transverse section through the center of mouth-piece, showing the key-seats and butterfly-valve. Fig. 3 is a view of circular bits with projections on ends for holding them to their places. Fig. 4 is a view of straight bits. Fig. 5 is a view of key.

My well-borer is very simple, consisting mainly in the construction of the head and arrangement of the bits. The head is made of wrought or cast metal, of any desired size—say four and a half inches in diameter—with cross-bars or partitions through the center. The head is four inches long, and aforesaid bars or partitions about two and a half inches long, leaving one inch and a half of open tube, which has screws cut in it to screw on a hollow tube, hereinafter more fully explained. This head or bit-stock has slots cut in the face of partitions, lengthwise with them, to any desired depth—say one and a fourth inch deep and three-sixteenths wide. Seats are cut in the side of these slots or grooves to admit keys to hold bits to their places. These said partitions are raised up in the middle in the shape of a common drill-bit. The outside or shell of this head is about half an inch thick, and is connected with the said partitions. Around this said shell a groove is made, of the same width and a fourth of an inch deeper than the groove in the partitions. In this groove circular bits are neatly fitted, meeting in the center of the said cross-grooves. The ends of these bits are cut down even with bottom of cross-grooves, thus leaving a portion of the ends under the straight bits, so that the straight bits hold the circular bits in; or these circular bits may be held to their places by screws passing through the rim of the head and through the bits. These screws are set in smoothly with the outer surface of head, and are cut off

smoothly on the inside, so that the openings are clear. The straight bits may also be held in by screws in the partitions against them. The heads of these screws are countersunk smoothly with the surface of the partition. The straight bits are made rounding on the edge, in the shape of a common drill-bit, and stand out from the edge of the partitions about one-half inch. The curved bits are slightly lower than the said straight bits, and are inclined outward, so that the edges are out a little beyond the surface of the head, which is a little larger than the main body. This is in order to keep the edges of the hole trimmed round and smooth. When these bits become worn down they are raised up or pushed out, and thin slips of metal are put under them to hold them out the desired distance. By this arrangement the bits are adjusted out or in to suit the rock being drilled or remedy the wear, thus making adjustable bits which are easily set as desired or taken out. Opposite the face of this head, on the cross-bars or partitions, is a butterfly-valve, fastened by pins in the center, hereinafter more fully explained. This said head is screwed on the end of a strong tube, the other end of which has a cone-shaped cap with openings in the sides. A collar for catching hold of when fast in well is formed on the end of this said cone; then a few inches are left square for using wrench on. At the extreme outer end an eye is formed for fastening rope to.

On the rope there are strong cups fastened by being cut in two, and having two little screws through the shank, which grasps the rope between it, thus holding the said cup or cups true on the rope with mouth up to catch anything that may fall in the well while being bored.

The tube above mentioned, being strong and heavy, is a perfect drill-bar, and with the valve in the head, as before mentioned, the cuttings are received and retained until desired to be emptied, which may be done with ease when the tool is out of the well by unscrewing the aforesaid cap and turning upside down.

One of the peculiarities of my borer is that there is no need of turning it, as the torsion of the rope will be all-sufficient to change the bits to a new position every time it drops.

In order that persons may more fully understand my well-borer, I will refer to it by letters.

A represents the body of my well-borer; B,

the mouth-piece or bit-stock; C, the long bit; D, the short bit; E, the key; F, the circular bit; G, the partitions; H, the rim of bit-stock; I, grooves in partitions; K, the grooves in rim; L, key-seat in partitions; M, the keys; N N, screws for holding bit; O, valve in mouth-piece, with one wing down, the other up; P, the cone-shaped cap; Q, the openings in it; R, the collar on upper end; S, the eye in which the rope is fastened; T, the rope; U, the safety-cup.

The operation of my well-borer is as follows: The bits C and D properly adjusted by the key or screws, the bit-stock B is screwed on the tube A, the cone-shaped cap P screwed on the other end, the rope attached with safety-cups on, the borer is ready for action, and is lifted up and let drop as fast as desired. As the tool drops the cuttings are thrown by the action of drop up through the valve O each drop until the tube is filled up. The tool is then drawn out, the cap unscrewed, the contents emptied, and it is ready for use again. When the bits become dull, the keys M drawn—or the screws *nn*, as the case may be—the bits are freed and

can be removed instantly and with great ease for sharpening, which is done by grinding. These bits are made of high temper, and therefore require but very little sharpening. I have given the two ways of fastening bits, preferring the keys always.

After having thus fully described my well-borer, I would distinctly say that I do not claim the combination of a hollow tube with a drill-bit for sand-pumping while drilling, for that is described in the "New American Encyclopedia," vol. 2nd, page 172, latter part of article on Artesian Wells; nor do I claim the combination of drill and reamer, for that is an old and well-known device; but

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

1. The cone-shaped cap P, with the collar R, for the purpose set forth.
2. The safety-cup N, as specified.

JOHN GREIVES.

Witnesses:

J. J. PARKER,  
J. D. PARKER.