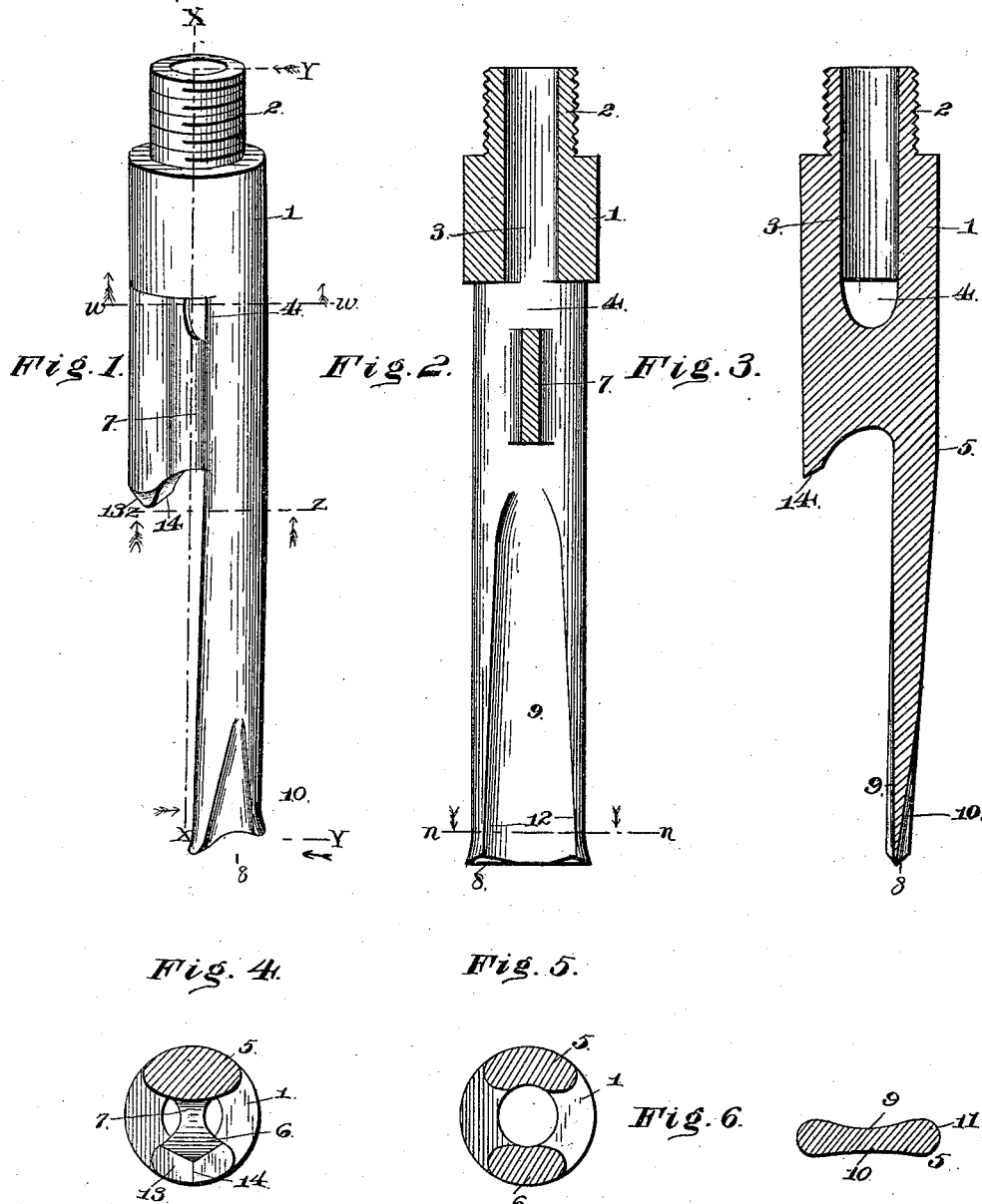


(No Model.)

H. A. ROGERS & J. M. RUNYAN.
DRILLING TOOL.

No. 492,053.

Patented Feb. 21, 1893.



Witnesses
Chas. Ford

Chas. S. Hyer

By their Attorneys,

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Inventors.
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UNITED STATES PATENT OFFICE.

HASKELL A. ROGERS AND JOHN M. RUNYAN, OF BOONE, IOWA.

DRILLING-TOOL.

SPECIFICATION forming part of Letters Patent No. 492,053, dated February 21, 1893.

Application filed April 30, 1892. Serial No. 431,276. (No model.)

To all whom it may concern:

Be it known that we, HASKELL A. ROGERS and JOHN M. RUNYAN, citizens of the United States, residing at Boone, in the county of Boone and State of Iowa, have invented a new and useful Drilling-Tool, of which the following is a specification.

This invention relates to drilling tools, and consists of the construction and arrangement of the parts thereof as will be more fully hereinafter described and claimed.

The object of this invention is to provide a drilling tool or bit with a reaming attachment adapted to increase the size of the hole for the purpose of permitting the insertion of pipes or tubes, as in Artesian well drilling or other purposes, as may be desirable.

In the drawings—Figure 1 is a perspective view of the improved drilling tool or bit. Fig. 2 is a vertical section on the line $x-x$, Fig. 1. Fig. 3 is a vertical section on the line $y-y$, Fig. 1. Fig. 4 is a horizontal section on the line $z-z$, Fig. 1. Fig. 5 is a horizontal section on the line $w-w$, Fig. 1. Fig. 6 is a horizontal section on the line $n-n$, Fig. 2.

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

The numeral 1 designates the body of the tool or bit, having a screw-threaded head 2, for attachment of the same to the drill-rod, not shown. A vertical opening 3 extends through said head and communicates with a transverse opening 4 at the base of the body 1. Depending from the said body 1 are two bit-extensions or drills 5 and 6, whose outer surfaces are convex in contour and are equally touched by the circumference of a circle drawn around the same. The extension or drill 5 is the main cutting tool and is connected with the extension or drill 6 by a web 7 which is concaved to give free action to the opposite sides of each of the drills or extensions 5 and 6 and arranges the latter part at right angles to the other. The concavity of the web 7 provides a trough leading to the transverse opening 4, and consequently to the vertical opening 3. The extension or drill 5 is formed with a cutting edge 8, and the inside surface of the said extension is concaved as at 9, nearly the whole length thereof up to the lower termination of the web 7, which, it will

be seen, provides a throat or way for the escape of material upward over the same. Near the cutting edge 8 on the outer side of said extension or drill 5, another slight concavity 10 is provided, and by this means the said cutting edge is rendered thin in the center thereof and thickened toward the opposite sides or edges, as at 11, 11. Furthermore, said opposite sides or edges are flared when they reach the cutting edge, as at 12, for a purpose which will be readily understood. The drill or extension 6 has its end formed with inclined faces 13, meeting at a central point after the manner of a reaming tool, and by this means the diameter of the hole being drilled after having been first started by the extension or drill 5, is enlarged by the said extension or drill 6; and in drilling through rock, hard-pan, or analogous substances, the operation is rendered much more effective and easily accomplished.

The openings hereinbefore set forth provide for the ingress or egress of water when the tool is employed in hydraulic or jetting systems of drilling. The web and parts around the same are preferably forged from solid steel to provide a strong support between the extensions or drills 5 and 6, and by cutting it away, as at 14, the cutting edge of the said drill or extension 6 can be more readily sharpened or otherwise manipulated.

The attachment of the device to the drill-rod is preferably accomplished by the attachment of a piece of gas-pipe, to the head 2, though other connections may be employed if desired. This form of drill is adapted to pass through pipe mounted in position for setting, and the hole formed by the drill in the earth or rock or strata through which it passes, will be large enough to permit the pipe to freely pass downward over the bit any distance without driving the same. This advantage is exceptionally important, as it obviates the pressing downward with the pipe of soft earth or hard rock to block the movement of the same.

The slight bend in the shank of the drill 2 will position the lower end of said tool or disk at or near the center of the lead hole at the same time the round back portion will be at the opposite side and against the side of the

hole being reamed; the said construction also allows of the point being sharpened in any shape desired without undue wear thereon. The long extension 5 should be constructed in width about one inch for use in connection with a two inch pipe and otherwise proportionately increased in size and varied according to the use desired.

Having thus described the invention, what is claimed as new is—

A drilling tool comprising two extensions depending from a tubular head one of which is longer than the other and extends inward at its lower end from a vertical line, and the other shorter and forming a reaming attachment, and connected by a thin web at a right angle to each having opposite concave sides, an opening between the upper portion thereof

and said head and in line with the tubular portion of said head, and the lower end thereof cut away on an upward curved bevel to expose the cutting portion of said reaming attachment, the inner side of the longer extension being concaved on its inner side nearly the whole length thereof and on its outer side adjacent to its lower end, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

HASKELL A. ROGERS.
JOHN M. RUNYAN.

Witnesses:

T. F. HULL,
W. B. MEANS.