

(No Model.)

D. L. MONROE.
WELL BORING APPARATUS.

No. 481,636.

Patented Aug. 30, 1892.

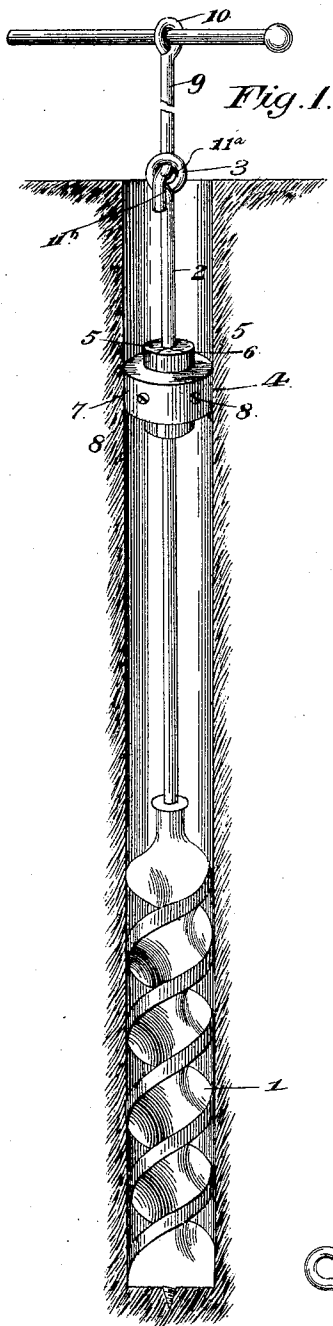


Fig. 2.

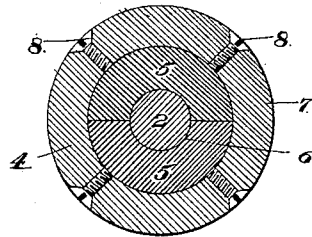


Fig. 4.

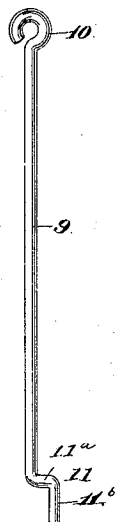


Fig. 3.

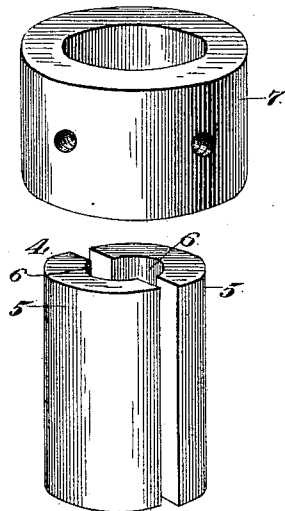
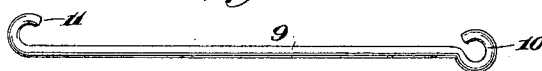


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

DANIEL L. MONROE, OF BLOOMFIELD, IOWA.

WELL-BORING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 481,636, dated August 30, 1892.

Application filed June 24, 1891. Serial No. 397,334. (No model.)

To all whom it may concern:

Be it known that I, DANIEL L. MONROE, a citizen of the United States, residing at Bloomfield, in the county of Davis and State of Iowa, have invented a new and useful Earth-Boring Apparatus, of which the following is a specification.

This invention relates to earth-boring apparatus, and it has special reference to devices for boring horizontally in the ground for the purpose of forming openings for the reception of tiles or pipes.

The invention consists in the improved construction of apparatus, which will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a horizontal section of a boring, showing the auger in position therein. Fig. 2 is a transverse sectional view taken through the guiding device and stem therein. Fig. 3 is a perspective detail view of the guide-band. Fig. 4 is a perspective view showing one form of the coupling by which the auger-stems are connected. Fig. 5 is a perspective view illustrating a modified form of the said coupling.

Like numerals of reference indicate like parts in all the figures.

1 designates the drill or auger-bit, the stem 2 of which is provided with an eye 3.

4 designates a guiding device, which is fitted upon the auger-stem, and which is composed of two elongated semi-cylindrical boxes 5 5, grooved upon their inner or meeting sides, as shown at 6, for the reception of the auger-stem, upon which the said boxes are neatly fitted, and of a band 7, adapted to be fitted around the boxes 5 5, upon which it is secured by means of set-screws 8, whereby the said boxes are clamped securely upon the auger-stem. The band 7 is of an exterior diameter equal to the diameter of the auger, so as to fit accurately in the bore which is being formed, thus guiding the auger straight in a forward direction.

In making horizontal borings the outer end of the auger-stem is liable to drop, thus raising the point of the auger and causing the latter to travel in an upward direction. By

the use of my improved guide-band this difficulty is obviated.

The auger-stems or extension-stems 9 are provided at opposite ends with eyes 10 and with hooks 11, whereby they may be readily connected. The hooks 11 may be turned either in an inward direction, as shown in Fig. 5, or in an outward direction, as shown in Figs. 1 and 4. By either of these forms the stems may be connected with each other and with the main auger-stem in a very rapid and efficient manner, and they are absolutely prevented from being uncoupled while in use, inasmuch as in order to uncouple they must be brought to a position nearly at right angles to each other. The preferable construction embodied in this invention, which most efficiently attains this end, is that shown in Fig. 4 of the drawings, in which the hooks 11 comprise a right-angled portion 11^a at right angles to the stem 9 and passing through the eyes 3, and with a straight end portion 11^b, projecting beyond the eye 3 and in line with the main auger-stem and said supplemental stem, thereby securing a firm and non-detachable coupling, except by manipulating the supplemental stem, as described.

The operation and advantage of my invention will readily be understood from the foregoing description, taken in connection with the drawings hereto annexed.

The guiding device with which the auger is provided is very simple and efficient, and the means for connecting the stems is simple and of such a nature as to enable it to be very quickly operated.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, with an auger, of the elongated semi-cylindrical boxes having longitudinally-grooved meeting faces fitted upon the stem of the auger and entirely inclosing the clamped portion of the same and a band fitted around the said boxes and provided with radially-set screws bearing against the latter, substantially as and for the purpose set forth.

2. In a boring apparatus, the main auger-stem provided at one end with an eye and

the extension stem or stems provided with outwardly or offstanding hooks adapted to detachably engage said eyes, said hooks comprising a right-angled portion at right angles to the stem and passing through said eyes, and a straight end portion projecting beyond the eyes and in line with both stems, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

DANIEL L. MONROE.

Witnesses:

MARTIN HORN,
GEO. DUFFIELD.