No. 615,794. Patented Dec. 13, 1898.

J. BRADLEY, T. W. OTTO & J. L. WOLFE.

PROSPECTING TOOL AND DRILL.

(No Model.) (Application filed Dec. 15, 1897.)

2 Sheets—Sheet 1.

FIG. 1.

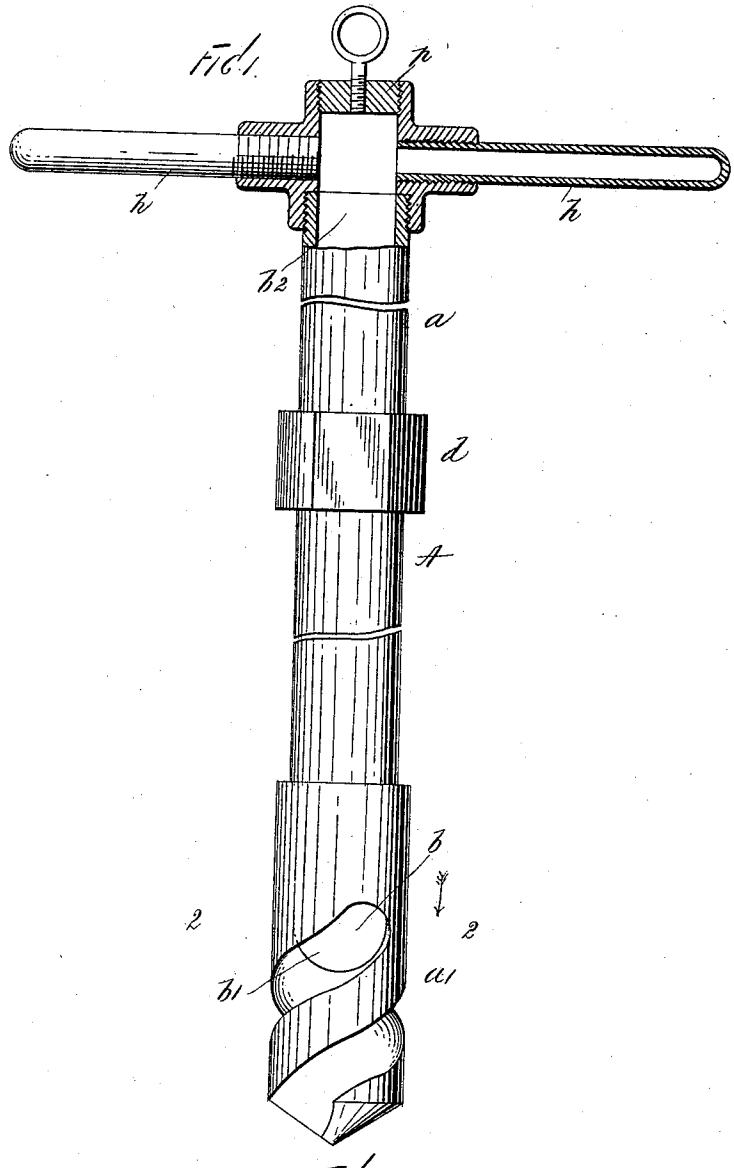
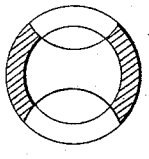


FIG. 2.



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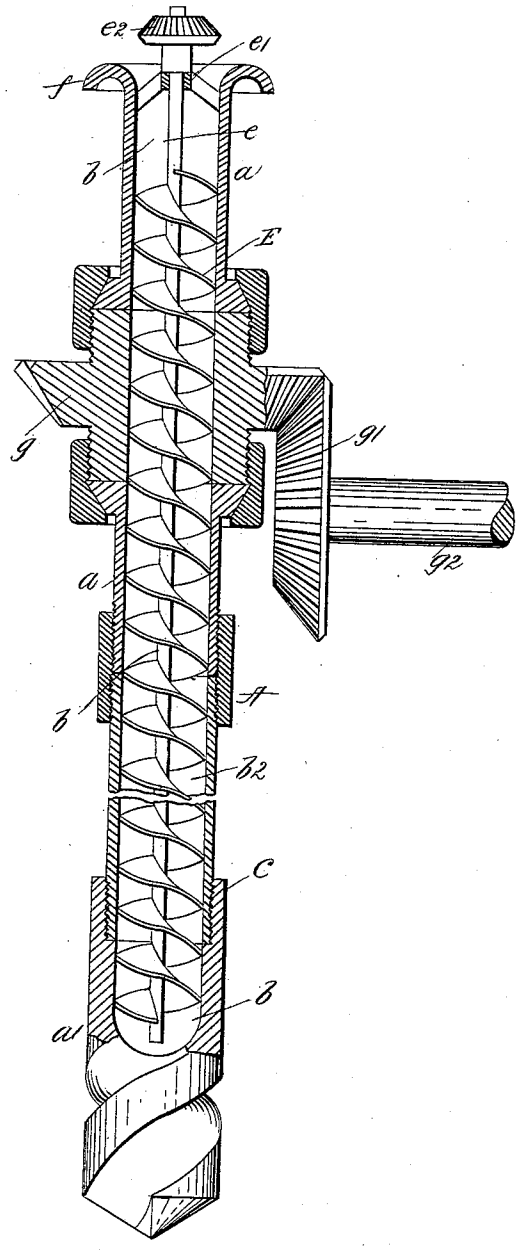
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FIG. 3.



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UNITED STATES PATENT OFFICE.

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PROSPECTING TOOL AND DRILL.

SPECIFICATION forming part of Letters Patent No. 615,794, dated December 13, 1898.

Application filed December 15, 1897. Serial No. 662,000. (No model.)

To all whom it may concern:

Be it known that we, JOSIAH BRADLEY, THEODORE W. OTTO, and JOSEPH L. WOLFE, citizens of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Prospecting Tools and Drills, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to prospecting tools and drills; and it has for its object to provide a simple and improved prospecting-tool of this class which will be designed for effective use in prospecting for all kinds of minerals, oils, water, gas, coal, &c., and which can also be effectively employed in all kinds of drilling and for dredging or like purposes.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of our improvement are designated by the same letters of reference in each of the views, and in which—

Figure 1 is a side elevation, partly in section, of a drill embodying our improvements; Fig. 2, a transverse sectional view taken on the line 2 2, Fig. 1; and Fig. 3, a vertical longitudinal sectional view showing a modified construction of our improved drill as adapted for dredging and similar purposes.

In the drawings forming part of this specification A designates the body of the drill, which comprises the stem *a* and drill-point *a'*. The drill-point *a'* may be separate from the stem *a* and secured thereto by a threaded socket connection, as at *c*. The drill-point is preferably of helical form and is provided with a central bore *b*, intersecting or opening into the helical point, as at *b'*. The central bore or opening in the drill-point *a'* thus connects with the spiral grooves of the drill-point, so that the substance or products of boring will pass from the grooves into the bore or opening *b*.

The stem or body of the drill *a* is of tubular construction or provided with a central longitudinal bore, as at b^2, corresponding to the bore of the drill-point, so that the body or stem forms a cylinder through which the products of boring are adapted to pass to the top of the drill. The cylindrical stem may be of any desired length, made up of separate sections connected together by threaded joints and collars, as at *d*, or in any other suitable or desired manner.

Our improved drill or tool may be operated by hand by means of any suitable arrangement of lateral handles, such as that shown at *h* in the construction illustrated in Fig. 1, and the top end of the central longitudinal bore of the stem or body of the drill, which bore extends to and opens at the top, may be closed by a plug, as at *p*.

In the construction just described when the drill has accumulated the substance or product of drilling within its longitudinal bore or cylindrical body the drill may be then withdrawn and the plug or closure *p* removed to enable the deposit of the contents for examination or other desired purposes.

In Fig. 3 we have illustrated a construction of our improved drill which is adapted to be operated by any suitable motive power, the stem or body of the drill being provided with a bevel-gear section, as at *g*, meshing with a bevel-pinion g^2, in connection with any adapted motive power. This form of our improved drill is especially adapted for heavy work or for dredging in rivers, canals, or the like, and the cylindrical tubular body may be provided with a spiral elevator E, coextensive with the central bore *b* and carried upon a longitudinal shaft *e*, mounted in suitable bearings *e'* and preferably carrying a pinion e^2 at its top end, which projects from the stem or body of the drill, by means of which pinion suitable power connections may be made for operating the spiral elevator.

In the form of our invention just above described the spiral elevator will operate to continuously carry through the cylindrical tubular body or stem of the drill the substances or products of boring which are fed into the bottom end of said body from the grooves of the drill, which intersects said central bore, and in this continuously-operating construction the top of the stem *a* is preferably turned outwardly and downwardly

or provided with an annular curved flange, as at *f*, forming a flaring upper end, from which the substance from the bore of the drill will continuously pass to a suitably-arranged receptacle.

The operation and advantages of our invention will be readily understood by those skilled in the art to which it appertains. It provides a simple and effective construction of prospecting tool or drill which is adapted for convenient use in a great variety of purposes and may be employed either in a small hand-drill or in a large drilling or dredging apparatus.

Having fully described our invention, we claim as new and desire to secure by Letters Patent—

1. An improved prospecting tool or drill, comprising a tubular stem provided with a cylindrical drill-head, said drill-head being provided in the upper end thereof with a cylindrical socket and in the sides of the lower end thereof with helical grooves extending from the point of the drill-head upwardly around the cylindrical body thereof, the upper ends of said grooves communicating with the lower end of said socket, and said socket being in communication with the lower end of said tubular stem whereby the earth is forced upwardly by a continuous helical movement within the helical grooves and into said tubular stem and means for operating said stem, consisting of a beveled gear-wheel mounted thereon and a horizontal power-shaft provided with a beveled gear-wheel which operates in connection therewith, said tubular stem being also provided with a conveyer or elevator comprising a shaft which extends longitudinally therethrough and into the socket of the drill-head, said shaft being provided with a spiral, the diameter of which is equal to the inner diameter of the stem, and the inner diameter of the socket, and means for operating said conveyer or elevator within said stem, substantially as shown and described.

2. In a prospecting tool or drill, the combination with a tubular stem or body, a bevel-gear fixed thereon, a drill-point arranged upon the lower end of said tubular stem and provided with helical grooves communicating with the bore of the tubular stem, an elevator or conveyer operatively arranged within the bore of said tubular stem, a bevel-gear mounted upon the projecting shaft of said elevator, of a bevel-gear fixed upon a power-shaft and in mesh with the bevel-gear of the tubular stem and a second bevel-gear fixed upon a power-shaft and in mesh with the bevel-gear fixed upon the elevator-shaft, substantially as described.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of the subscribing witnesses, this 13th day of December, 1897.

JOSIAH BRADLEY.
THEO. W. OTTO.
JOSEPH L. WOLFE.

Witnesses:
GEO. H. BECK,
WM. F. WATERBURY.