Rec'd & filed April 11 1865
E. W. Wells

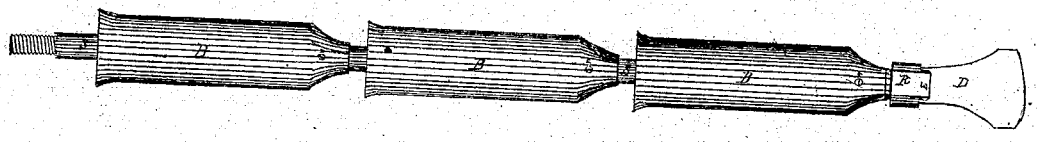
No. 48,584.

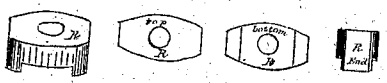
AMOS CRANDALL'S

IMPROVEMENTS

DRILLS FOR OIL WELLS

Patented July 4. 1865.





Witnesses
Robt. Franks
Geo. W. Smith

Inventor.
Amos Crandall

UNITED STATES PATENT OFFICE.

AMOS CRANDALL, OF GREAT BEND, PENNSYLVANIA.

IMPROVEMENT IN WELL-DRILLS.

Specification forming part of Letters Patent No. **48,524**, dated July 4, 1865.

To all whom it may concern:

Be it known that I, AMOS CRANDALL, of Great Bend, in the county of Susquehanna, in the State of Pennsylvania, have invented a new and useful Improvement in Drills for Boring for Oil or Minerals; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view, and Fig. 2 is a longitudinal section, of my invention.

Similar letters of reference indicate corresponding parts in both figures.

The object of this invention is to provide an instrument for drilling oil-wells or drilling for minerals which will do the work of drilling and reaming out the well and pumping out the sand at the same operation, thus combining a drill, reamer, and sand-pump.

I attach to the shaft S one or more buckkets, B B B, which are held in place by the screws W W W, or some equivalent device. A short drill, D, is screwed or otherwise fastened to the lower end of the shaft S, and a reamer, R, fitted on the drill, like a collar. The reamer R is provided with the cutters E E, projecting downward and slightly beveled on the inside. The reamer projects a little beyond the cutting-edge of the drill, so as to dress out the well, and is placed at right angles with the edge of the drill.

The advantage of using a short drill is that it is not liable to cramp in cutting through rock.

The operation of the whole is as follows: As the drill cuts its way through the rock or other substance the reamer follows and dresses out the well the required size. The diameter of the buckets being somewhat less than that of the well, a space is left for the water to pass up as the drill is forced downward. The water being filled with the sand or dirt made by the cutting of the drill settles back into the buckets. The buckets are made flaring at the top, so as to crowd the water and sand against the surface of the well and cause it to rush over into the buckets. When the buckets become filled with the sand or dirt the drill is withdrawn and the buckets emptied. By lengthening the shaft S the buckets may be carried to any required depth.

Having thus described my improvement, what I claim as my invention, and desire to secure by Letters Patent, is—

The combination and arrangement of the drill D, reamer R, shaft S, and buckets B B B, constructed and operating substantially as and for the purposes set forth.

AMOS CRANDALL.

Witnesses:
ISAAC RECKHOW,
J. C. GREEN.