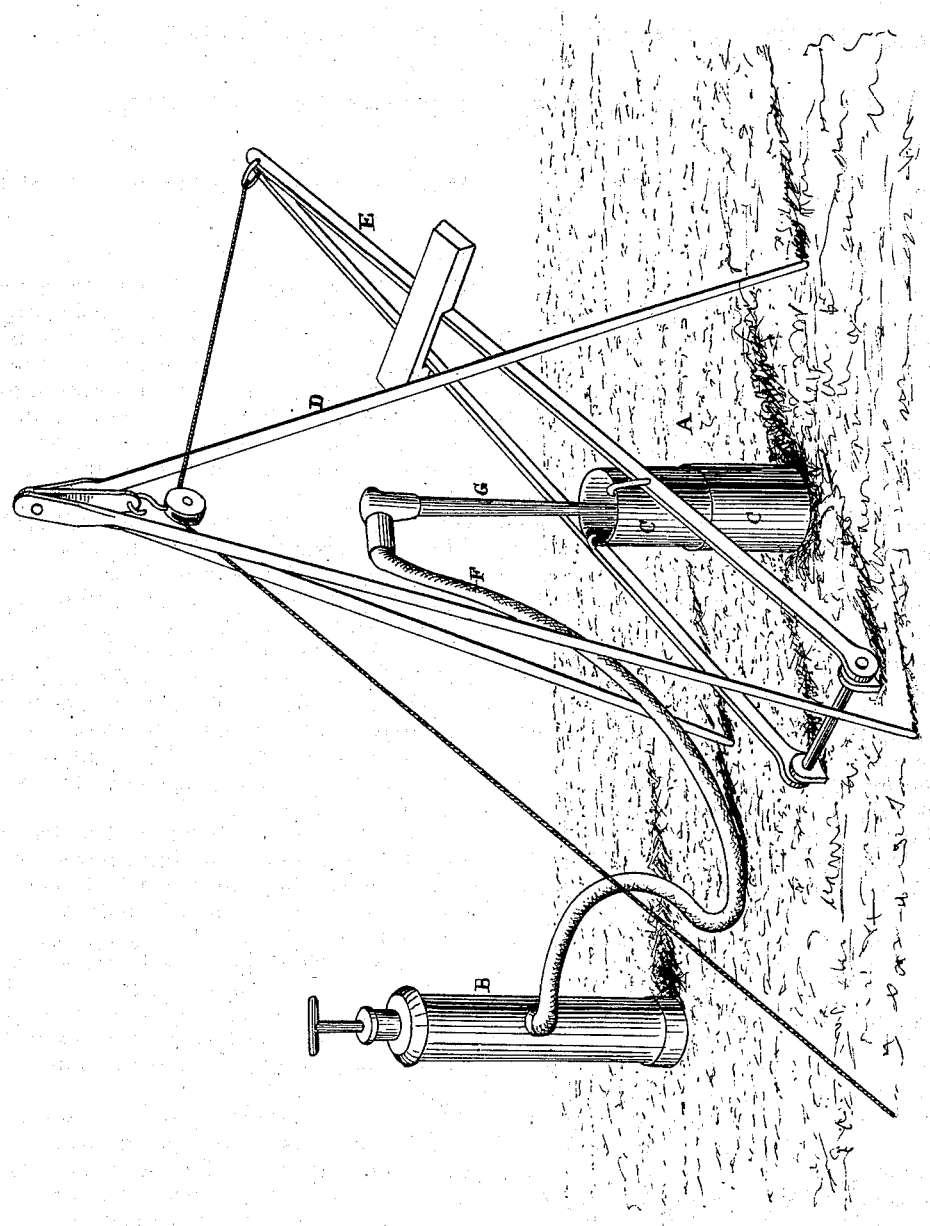
J. BENNERSCHEIDT.
Well-Boring Machinery.

No. 198,182. Patented Dec. 18, 1877



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH BENNERSCHEIDT, OF ANAHEIM, CALIFORNIA.

IMPROVEMENT IN WELL-BORING MACHINERY.

Specification forming part of Letters Patent No. **198,182**, dated December 18, 1877; application filed October 22, 1877.

To all whom it may concern:

Be it known that I, JOSEPH BENNERSCHEIDT, of Anaheim, county of Los Angeles, and State of California, have invented certain new and useful Improvements in Well-Boring Machinery; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to an improved device for sinking or boring wells, and for removing the earth and borings therefrom.

It consists in the employment of a hydraulic stream of water forcibly ejected through a pipe and nozzle against the earth in the bottom of the well by a pump, substantially as herein described, reference being had to the accompanying drawing, in which the figure is a perspective view.

Let A represent the surface of the ground in which a well is to be bored. At a short distance from the point where the well is to be sunk I locate a force-pump, B, which in practice will preferably be a powerful steam force-pump.

I employ well-tubing C, in suitable lengths and properly connected, in the usual way, to line the shaft as it is sunk, and a derrick, D, and lever E are used to assist in boring the shaft and in sinking the tubes. I then connect one end of a flexible hose or pipe, F, with the force-pump B, and attach its opposite end to the upper end of a long metallic tube or pipe, G, which is open at its lower end H and closed at its upper end.

The pipe C is placed vertically at the point where the well is to be bored, with its open end H pressing upon the ground. Water is then forced by the pump B through the flexible pipe F and metallic pipe G against the earth, so as to cut and tear away the soil. As fast as the sinking proceeds the curb or lining is forced down into the excavation, so that the stream of water has only a diameter equal to the diameter of the tube or curb to act directly upon. As the pipe G descends, additional lengths are attached by means of suitable couplings. The water which is forced into the shaft rises in the pipe and overflows its top, carrying with it the detached soil, which is loosened by the force of the water, in a semi-liquid state, and it is carried away with the overflow of the shaft, so that no withdrawals of the pipe from the shaft is necessary to remove the soil and material which is cut away.

This application of the hydraulic force of water also serves as a means by which well-tools, such as sand-pumps, drills, &c., that have been dropped into shafts or become wedged or immovably fixed in quicksands encountered in wells, can be removed.

Artesian wells are bored by this arrangement at a much less expense and in less time than the ordinary method.

I am aware that the force of a stream of water has been used for dredging purposes; but in such cases the material which has been loosened by the stream of water has to be drawn out from a chamber by means of suction and an independent discharging-conduit. I therefore do not claim, broadly, the utilizing of the stream of water to loosen up the earth.

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

The vertical sinking pipe or well-tube C, open at both ends, and connected by a flexible hose, F, to a hydraulic forcing apparatus, arranged to discharge the soil by means of the overflow, substantially as described.

In witness whereof I have hereunto set my hand and seal.

JOSEPH BENNERSCHEIDT. [L. S.]

Witnesses:

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