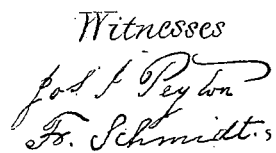


### *Boring Artesian Wells.*

*Patented Mar. 27. 1866.*



Thos. J. Bonegrave  
by his Atty  
Baldwin & Son

# UNITED STATES PATENT OFFICE.

THOMAS J. LOVEGROVE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR  
TO HIMSELF AND HENRY BALDWIN, JR., OF SAME PLACE.

## IMPROVEMENT IN DRILL-FEEDS FOR ARTESIAN WELLS.

Specification forming part of Letters Patent No. **53,536**, dated March 27, 1866.

*To all whom it may concern:*

Be it known that I, THOMAS J. LOVEGROVE, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Method of Feeding the Drill in Boring Artesian Wells, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which makes part of this specification, and which shows a view, in perspective, of so much of an apparatus for boring wells as is necessary to illustrate my invention, with a portion of the frame-work broken away, to show the parts more clearly.

In boring oil-wells two classes of tools are used, respectively designated as "pole-tools" and "rope-tools." My invention relates to the latter class.

A set of rope-tools consists of, first, the drill; second, the drill-stock; third, the jar; fourth, the sinker, (the parts being arranged in the order named, the drill being lowest;) and, fifth, the rope attached by a socket or clamp on its lower end to the sinker.

As ordinarily arranged, the rope to which the tools are attached passes from the bull-wheel over a pulley (at the top of the derrick and directly over the bore) to a clamp at the lower end of a temper-screw, which clamp has to be moved and readjusted as often as the drill bores a distance equal to the length of the temper-screw.

When the boring commences a temper-screw clamp is fastened upon the rope about four feet above the wrench-board. About twelve or fifteen feet of rope are then drawn from the bull-wheel and formed into a loop in order to allow sufficient play for the twisting of the rope in turning the drill. This loop is troublesome to manage. The arrangement of the temper-screw is also objectionable, as it requires readjustment as often as the boring progresses the length of the screw.

I have found by experiment that wire rope is by far the best for boring oil-wells; but such rope cannot advantageously be employed under the system above described.

Now, it is the object of my invention to obviate the objections incident to the former system; and my improvement consists in feeding the rope to the drill over the end of the

walking-beam of the boring-engine while the beam is in motion by means of a system of sheaves or pulleys so arranged as to afford rope enough to accommodate the twisting of the drill without having any loop or slack rope, while the feed is controlled by the augerman, who can detach the rope at once from the pulleys when it becomes necessary to raise or lower the drill or tubing. My improvement also dispenses with the temper-screw.

In the accompanying drawing, which exemplifies what I deem the best mode of applying my invention, A represents the well; B, the derrick; C, the walking-beam; D, the sampson-post; E, the bull-wheel; E', its shaft; F, the brake; G, the rope, and H I J K the pulleys.

The rope is so arranged as to pass over the pulley H at the top of the derrick and directly over the hole, thence under the pulley I in the side of the derrick and next the walking-beam, thence around the pulley J on the sampson-post, (the shaft of this pulley I, in this instance, being the fulcrum of the walking-beam,) and finally over the pulley K on the end of the walking-beam and directly over the hole. By this arrangement the rope is brought back to its position in line with the hole, and will be raised and lowered more equally while drilling than if brought down directly from the top of the derrick while at the same time the twist imparted in turning the drill may extend back the entire length of the rope from the drill to the bull-wheel.

The augerman stands over the hole and turns the drill as it descends by twisting the rope, and at the same time controls the feed of the drill by means of the brake F. The weight of the drill is sufficient to unwind the rope, so that it is only necessary to retard its descent by the brake to regulate the feed.

A ratchet or rag wheel and detent might be used instead of a friction-brake, if preferred.

When the drill is to be raised or lowered the rope is thrown off the pulley on the sampson-post, when it immediately releases itself from all the others except the one at the top of the derrick. The tools are then raised by power applied to the bull-wheel or its shaft in the usual way.

It is obvious that the arrangement of the pulleys might be varied somewhat without de-

parting from the spirit of my invention. For example, the pulley H may be replaced by a shaft having a central groove for the cord and be supported near the top of the rear standards. The pulley I may be also replaced by a similar shaft having journals near the center of the joint-standards, while the walking-beam may have a pulley secured in a notch on its inner end, and the brake may be applied to the under side of a grooved pulley on the reel or rope-beam.

As my invention dispenses with the temper-screw, and the loop in the rope permits the advantageous use of wire rope, (which is not so cumbersome nor liable to chafe or break as hemp,) leaves the feed entirely under the control of the augerman, and can readily be applied to the ordinary boring apparatus with-

out essential modification of their parts, its advantages are obvious.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Feeding the drill-rope from the bull-wheel over the end of the walking-beam through a series or system of pulleys, substantially in the manner described.

2. The combination, with the bull-wheel and the pulley H on top of the derrick, of the pulleys I J K, or their equivalents, substantially as and for the purposes set forth.

In testimony whereof I have hereunto subscribed my name.

T. J. LOVEGROVE.

In presence of—

WM. C. HART,

W. G. H. CONE.