S. J. Goucher,

Boring Artesian Wells.

No. 52,642. Patented Feb. 13, 1866.

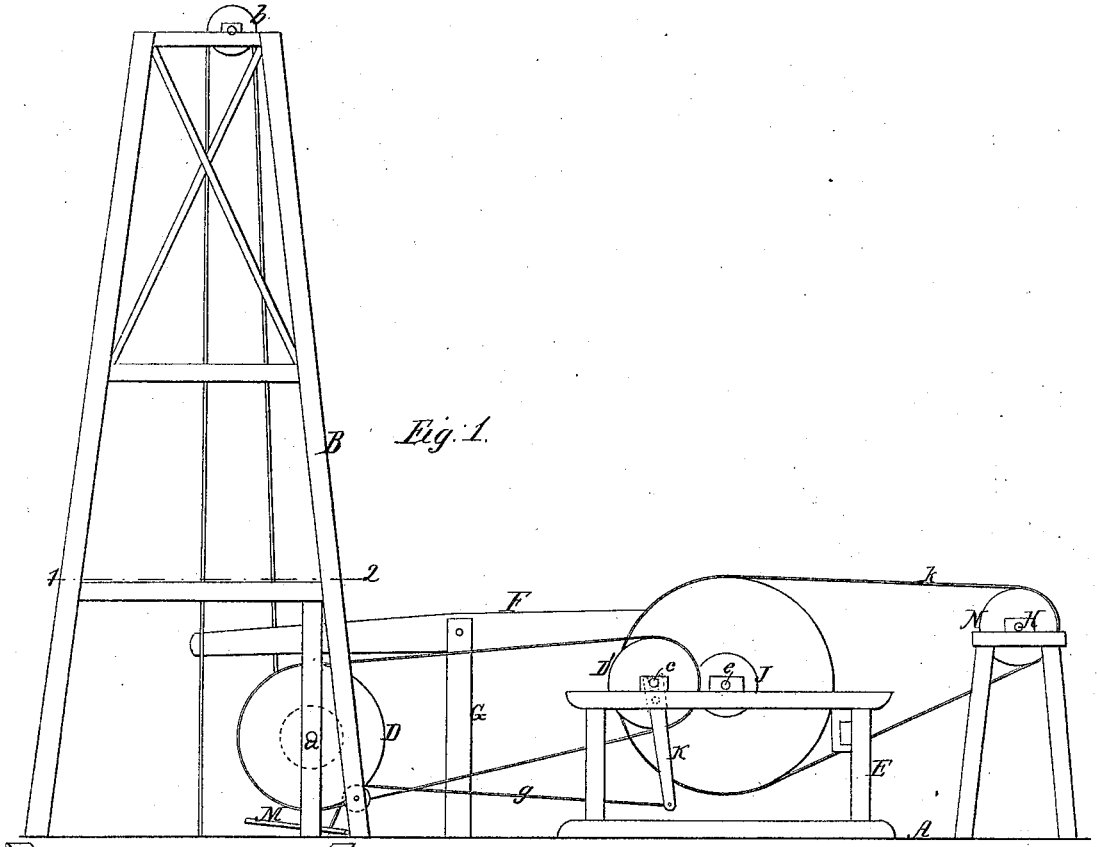

Fig. 1.

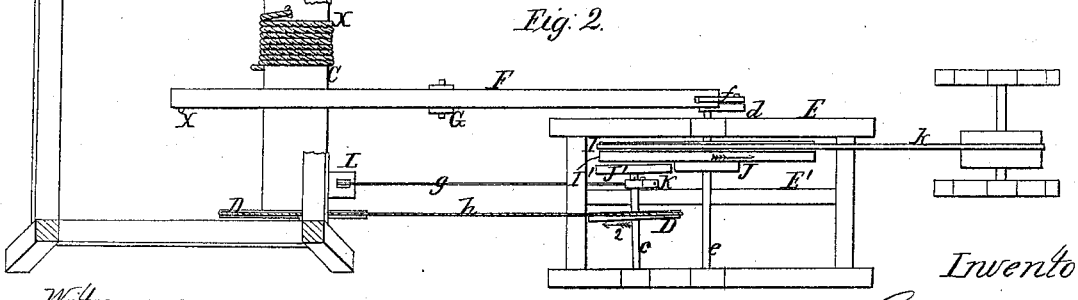

Fig. 2.

Witnesses;
Wm. Albert Skeel.
E. W. Baker

Inventor;
S. J. Goucher
by his Atty
R. Howson

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

S. J. GOUCHER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO MILTON FOREMAN, OF SAME PLACE.

IMPROVED WELL-BORING APPARATUS.

Specification forming part of Letters Patent No. **52,642**, dated February 13, 1866.

To all whom it may concern:

Be it known that I, S. J. GOUCHER, of Philadelphia, Pennsylvania, have invented certain Improvements in Well-Boring Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to improvements, fully described hereinafter, in apparatus for boring Artesian wells, the said improvements being such as to permit the attendants to readily discontinue the process of boring and as readily resume the same.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation of my improved well-boring apparatus, and Fig. 2 a plan view, partly in section.

A is the foundation of the apparatus, and B is a derrick to a shaft, *a*, at the lower part of which is secured a drum, *c*, having at one end a grooved pulley, D.

A rope, X, which is coiled around the drum, is carried from the latter to the top of the derrick and over a grooved pulley, *b*, the drilling-tool being secured to the lower end of the rope, which passes into the well.

In a frame, E, turn two shafts, *c* and *e*, and on one end of the latter is a crank, *d*, the pin of which is connected, by a rod, *f*, to one end of a walking-beam, F, the latter being supported by an upright, G. The forward end of the walking-beam projects beneath the derrick and over the mouth of the well, and is furnished with the ordinary feeding-screw.

On the shaft *e* are two pulleys, I and I′, the former being secured to the shaft, while the latter can turn freely thereon, and at the side of the pulley I′ is a smaller friction-pulley, J, for a purpose described hereinafter.

One end of the shaft *c* turns in a stationary bearing on the frame E, and the other end passes through the upper end of a lever, K, hung to a cross-piece, E′, of the frame, and to the inner end of this shaft is secured a friction-pulley, J′.

To the lower end of the lever K is secured a cord, *g*, which passes over a grooved pulley in an upright, L, of the derrick, and is attached at its end to a treadle, M; and on the shaft *c* is a grooved pulley, D′, round which and round the pulley D passes a rope or band, *h*. On the driving-shaft H is a broad band-pulley, N, round which a band, *k*, passes to one of the pulleys I or I′.

When a well has to be bored the drill attached to the rope X is brought against the face of the rock, the rope is secured to the feed-screw at the outer end of the walking-beam F, and the band *k* is thrown onto the pulley I, when a vibrating motion will be imparted to the walking-beam, so as to raise the cutter and bring it down against the rock.

When it is required to cease drilling the band *k* is thrown onto the pulley I′, which, with the friction-pulley J, is thus caused to revolve in the direction of its arrow, and should it then be desirable to raise the drill the attendant presses with his foot on the treadle M, so as to operate the lever K and bring the friction-pulley J′ into contact with the friction-pulley J, a rotary motion in the direction of the arrow 2 being thus imparted to the shaft *c* and to the shaft *a* and its drum, the rope X being wound on the latter until the drill is raised from the well.

It will be seen that by means of the above-described arrangement the operation of the machine may be discontinued and resumed without interrupting the motion of the driving-shaft—an object which is especially desirable when two or more machines are driven from the same shaft.

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

The shaft *e*, with its permanent pulley I and loose pulleys I′ and J, combined with the driving-shaft H, adjustable shaft *c*, its pulley J′, the drum C, and walking-beam F, all substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL J. GOUCHER.

Witnesses:

CHARLES E. FOSTER,

W. J. R. DELANY.