

Wiswell & Shaw,
Artesian Well Drill.

N^o 48,006.

Patented May 30, 1865.

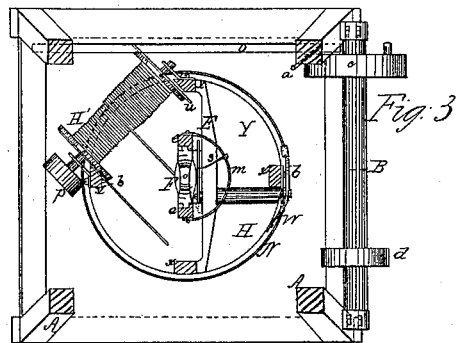
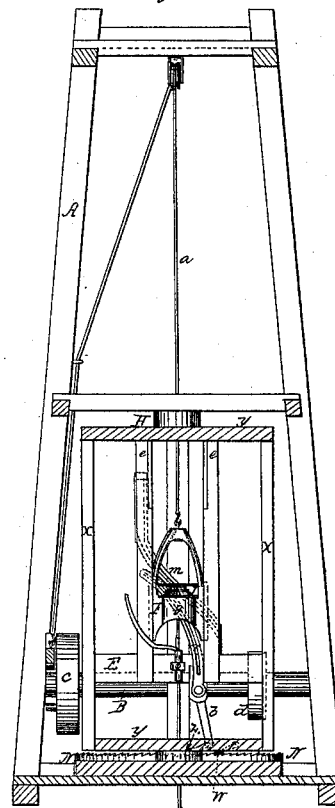
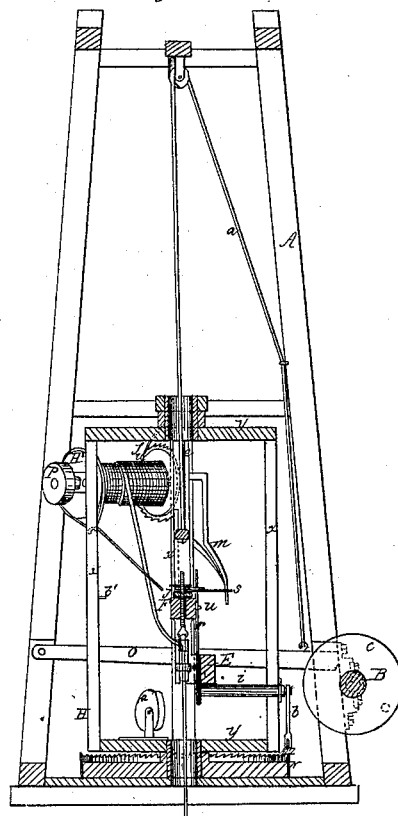


Fig. 1

Fig. 2



Witnesses:
O. S. Bruce
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UNITED STATES PATENT OFFICE.

D. H. WISWELL AND GEORGE W. SHAW, OF BUFFALO, NEW YORK.

IMPROVEMENT IN DRILLS FOR BORING WELLS, &c.

Specification forming part of Letters Patent No. 48,006, dated May 30, 1865.

To all whom it may concern:

Be it known that we, D. H. WISWELL and GEORGE W. SHAW, of Buffalo, in the county of Erie and State of New York, have invented an Improvement in Drills for Boring Wells, &c., of which the following is a specification.

The nature of our invention consists in constructing an automatic rotating drill by which we are able to commence from the surface of the ground and drill to any required depth.

The novelty of our invention further consists in providing a means by which the ropes operating the drill may be kept taut, and thus preventing it being twisted.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

Figure I is a vertical section. Fig. II is a sectional elevation. Fig. III is a transverse section of the same. Fig. IV is a longitudinal section of the cross-head used in commencing a well.

A represents a derrick to which our drill is secured.

In the accompanying drawings, H represents the frame of our improved drill; B, the shaft upon which is secured a band-wheel, *c*, by which the drill is driven. On wheel *c* is a tappet by which both a rotary and vertical motion is imparted to the drill.

o is a lever, which is worked by the tappet-wheel *c*, and to which is secured the rope *a*, which works the drill.

x x x x are posts connecting the disks *y y*.

e e are two uprights secured to the upper disk and at their lower ends to cross-bar E, Fig. II. To these uprights are guides or ways in which the cross-head F works, and to which the operating ropes are also attached.

d is a band-wheel, used for letting down the drill or withdrawing it from the well by running a band from band-wheel *d* around pulley *p*, the operation of which will be more fully described. The belt that propels the drill is put from the driving-wheel around the band-wheel *c*, in which may be one or more tappets. These tappets in their revolutions come in contact with the lever near its end,

when it is pressed or borne down until the tappets in their revolution pass off the end of the lever and fall down. The drill, which in the meantime has been raised by means of said lever, also falls. In the upward motion of the cross-head F, to which the drill is secured or attached, the frame H, which is formed by the two disks and posts, *x x x x*, and which contains the cross-head F, is rotated by means of arm *b*, connected to shaft *i*, upon which is a slotted guide, *r*. In the cross-head is a pin, *w*, which works in the slot in guide *r*. Now, it will be seen from the drawings, Fig. II, that when the cross-head is raised the pin is drawn up in a perpendicular manner, and thus raises the guide in like direction from its incline and rotates the frame. After each alternate move of the frame, it is held in its position by means of the feeding-pawl *z* and the follower *n*. (Shown in dotted lines Fig. II. A downward or feed motion is imparted to the drill by means of guide *m*, similar in construction and form to the one heretofore described. In the slot is a lever, *s*, which passes to and is rigidly attached to ratchet-wheel *j*, which is worked in the same manner as the frame.

H' is a pulley or shaft upon which the slack rope is coiled, and which is used for the purpose of removing the drill-pipe or other material from the well. On one end of the shaft is a ratchet-wheel, *u'*, for the purpose of keeping the shaft in its place by means of the pawl *f*. On the end of the shaft is a brake-wheel, to which a brake is applied when necessary in operating the machine. When it is found necessary to remove the drill from the well, the rope is displaced from the hook *v'* and passed under the snatch-block *a'*, which is moved immediately over the well, so that the rope will work in a perpendicular manner or in line with the well.

F in Fig. IV represents a cross-head used in commencing a well at the surface of ground, to which the drill-rod may be attached.

N is a ratchet secured to the periphery of a disk projecting above the surface of the disk. The pawl works in this ratchet N and rotates the frame H.

Having thus described our invention, what

we claim, and desire to secure by Letters Patent, is—

1. The rotating frame H, in connection with the cross-head F, uprights *e e*, guides *r* and *m*, pawl and ratchet *j j*, substantially as herein described.

2. Frame H, in combination with pawl N, and ratchet M, all constructed and operating in the manner specified.

3. An automatic rotating drill, constructed and arranged substantially as herein set forth.

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Witnesses:

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