J. BUTTON.

Drilling-Machine for Artesian and Other Wells.

No. 210,007. Patented Nov. 19, 1878.

Fig: 1.

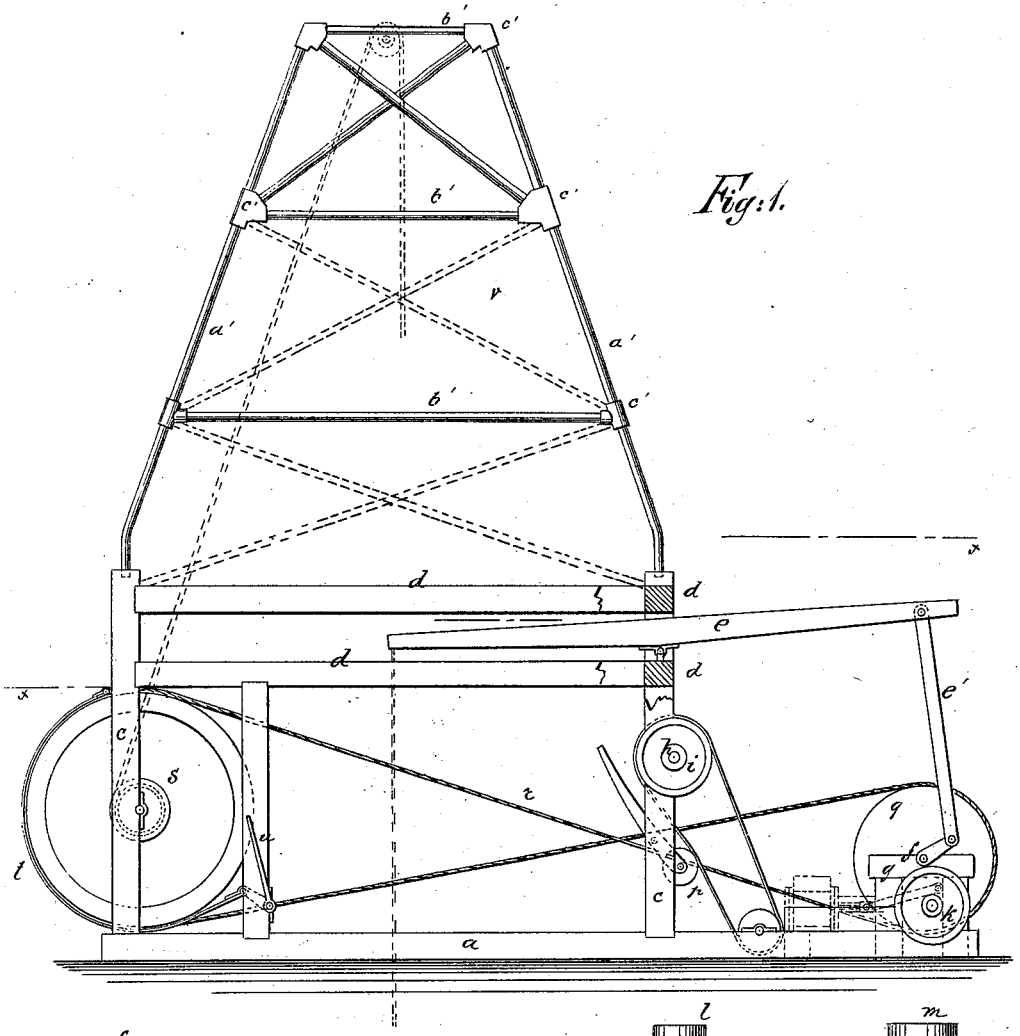
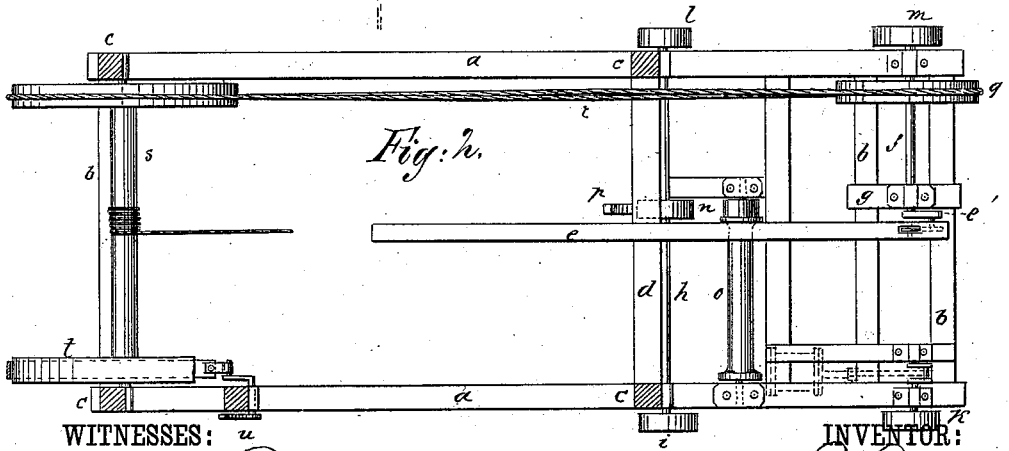


Fig: 2.



WITNESSES:

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IMPROVEMENT IN DRILLING-MACHINES FOR ARTESIAN AND OTHER WELLS.

Specification forming part of Letters Patent No. **210,007**, dated November 19, 1878; application filed October 22, 1878.

To all whom it may concern:

Be it known that I, JESSE BUTTON, of the city, county, and State of New York, have invented a new and Improved Drilling-Machine for Artesian Wells, of which the following is a specification:

The object of my invention is to construct the frame-work and machinery used in boring Artesian and other wells in a compact and convenient form, for the purpose of saving labor and space, and to enable the machine to be conveniently moved from place to place.

My invention consists in a frame-work of timber, constructed so as to support compactly the different parts of the machinery used in drilling wells, and having a removable tower for elevating and lowering the drill-rods, as more fully hereinafter set forth.

In the accompanying drawings, Figure 1 is a side elevation of my improved machine; and Fig. 2 is a sectional plan on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The frame-work of the apparatus consists of longitudinal sills *a a*, united by cross-sills *b*. From the sills *a* rise corner-posts *c*, connected together at their upper ends by the plates *d*. These parts are united by mortise-and-tenon joints, held together by pins, so as to permit disconnection of the parts and replacement, as desired. The sills *a* extend at one end beyond the upright portion of the frame-work, and upon that part of the sills the engine is placed, as shown in dotted lines, for driving the machine. In the place named the engine counterbalances the weight of the drill-rods.

e is the walking-beam, hung upon one of the cross-plates *d*, in such position that the inner end, which carries the drill-rods, comes at the center of the frame-work, and the outer end is above a crank-shaft, *f*, which is supported in bearings *g* on sills *a b*, and carries a pitman-rod, *e'*, connected to beam *e*.

h is an intermediate shaft, hung across the machine on posts *c*, and receiving motion by means of a belt (not shown) from pulley *i* on *h* to pulley *k* on the crank-shaft of the engine.

l is a pulley on shaft *h*, which will be connected by a belt to a pulley, *m*, on shaft *f*, for the purpose of driving beam *e*. The shaft *h* also carries a pulley, *n*, for driving the sand-pump reel *o*, that is journaled on sills *a*. *p* is a tightener for the belt that drives the reel *o*, by which the pump can be thrown into or out of operation.

The shaft *f* carries a wheel, *q*, that is connected by a belt, *r*, to the hoisting-drum *s*, which is used for raising and lowering the tools in the well. The belt *r* will be thrown on or off the drum *s*, as required, and in lowering the tools the friction-brake *t* will be used, it being fitted around one head of drum *s*, and provided with a handle, *u*, for operating it. The rope from drum *s* passes over a sheave at the top of the tower *v*, and from thence to the drill-rods. The tower *v* is built upon the frame-work of the machine, its four vertical supports, *a'*, resting on corner-posts *c*. This tower may be of wood or metal; but I prefer to construct it of metal tubing, the vertical supports *a'* and cross-braces *b'* being united by screw-joints *c'*, so that it may be taken apart and used or not, according to the place where the well is being driven.

The machine described is very compact, and occupies but little space, in comparison with the apparatus heretofore used. It is adapted for removal from place to place, and may be used for the purpose of driving wells where the room for operation is limited—as, for instance, in a building.

The labor required in operating the machinery is much less than heretofore necessary, as all the operations are under control of two or three operators, and there is also a great saving in time in performing the various operations required in drilling a well.

The engine, drilling-tools, and sand-pump will be of any usual or desired character, and do not need further description.

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

1. The drilling-machine tower *v*, consisting of the supports *a'*, screw-braces *b'*, and screw-joints *c'*, as shown and described.

2. The combination, with the frame, constructed substantially as set forth, of the beam *e*, shaft *f*, intermediate shaft, *h*, and drum *s*, arranged for operation as described.

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Witnesses:

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