O. MARTIN.

Earth-Boring Apparatus.

No. 164,689. Patented June 22, 1875.

Fig. 1.

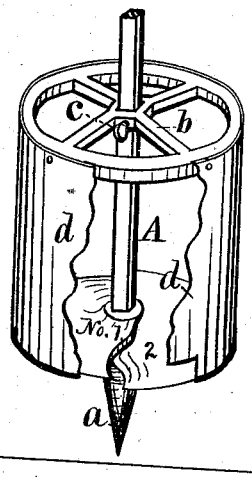
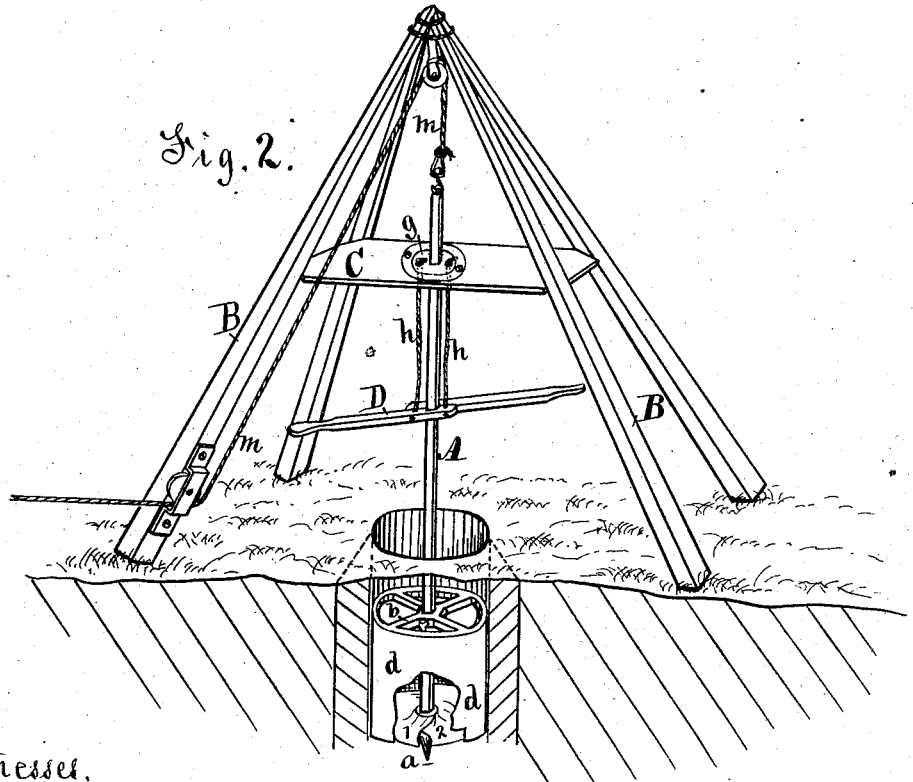


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE

ORIN MARTIN, OF BLOOMFIELD, IOWA.

IMPROVEMENT IN EARTH-BORING APPARATUS.

Specification forming part of Letters Patent No. **164,689**, dated June 22, 1875; application filed April 19, 1875.

To all whom it may concern:

Be it known that I, ORIN MARTIN, of Bloomfield, in the county of Davis and State of Iowa, have invented an Improved Well-Boring Apparatus, of which the following is a specification:

My invention consists in forming and combining an adjustable bucket with an earth-auger in such a manner that the bucket will slide on the auger-shaft to close and open as required to receive, hold, carry, and discharge dirt, and in mounting a rotating shaft-collar upon a derrick in such a manner as to support the rotating auger-shaft in a perpendicular position while in operation, all as hereinafter fully set forth.

Figure 1 of my drawing is a perspective view, illustrating the construction of my auger and adjustable bucket.

A represents a common square shaft, terminating in a centering-point, *a*. It may be formed in sections, and coupled together in any suitable way. Nos. 1 and 2 are two cutting-lips, in the form of twisted half-disks, rigidly fixed to the shaft A in any suitable manner. *c* is a skeleton collar, sliding on the shaft A. *b* is a set-screw, carried by the adjustable collar *c*, for the purpose of clamping and locking the collar to the shaft at any point desired. *d d* is a sheet-metal cylinder, secured to the rim of the collar *c*, and carried thereby, to form my adjustable bucket. Its bottom is cut to form two spiral edges, twisted relative to each other to fit and rest upon or against the two twisted and spiral cutters Nos. 1 and 2.

Fig. 2 is a perspective view, illustrating the construction of my improved derrick, and the manner of supporting and operating my auger therewith.

B B represent posts, connected together at their tops in any suitable manner, and spread below to gain a large base for the derrick. They may be framed together or braced in any suitable way. C is a platform, rigidly secured to the posts B, in a position sufficiently elevated to allow horses and men to work underneath. *g* is the rotating shaft-collar, mounted in the center of the platform C in suitable bearings, that will retain it in its proper position, and allow it free play to revolve with the auger-shaft A. D represents a lever or beam, attached to the shaft A, for the purpose of operating the shaft and auger. It may be worked by hand, or it may be formed and adapted for hitching a horse thereto. It is combined with, and suspended to, the rotating collar *g* by means of cords, chains, or rods *h h*. By lengthening and shortening the cords *h* the lever D can be adjusted relative to its distance from the ground, as may be required to suit different persons or animals operating it. *m m* represent a rope, running over suitable pulleys, to suspend and raise and lower the shaft A and its combined auger and bucket.

In the practical use of my apparatus the derrick is placed over the spot where the well is to be sunk. The skeleton collar *b*, carrying the bucket *d d*, is slipped over the shaft A, and the top of the shaft then passed upward through the beam D, and the rotating collar mounted in the platform C, and attached to the rope *m*. By applying power to the lever or beam D the shaft and auger will be rotated, and the auger-cutters Nos. 1 and 2 will scrape the earth and sink a bore, and elevate the loose dirt into the bucket *d d*. When the bucket is full suitable power may be applied to the end of the rope *m* to elevate the auger and the dirt in its bucket. To discharge the dirt the section of the shaft to which the auger is attached may be uncoupled, and the auger and its load carried to any point desired, and the set-screw *c* turned to free the collar *b*, which can then be pushed up on the shaft to separate the bucket and auger sufficiently to allow the dirt to fall out.

I am aware that a screw-threaded auger-shaft has been operated through a suspended rotating nut; I claim that my manner of sliding a shaft through a rotating collar in an elevated fixed platform, and suspending a horizontal lever, D, by means of cords *h*, so that the lever D, collar *g*, and shaft A will rotate simultaneously, and at the same time maintain their relative positions while the shaft A is operated and descending to sink a bore, is a new and greatly-advantageous arrangement.

I claim as my invention—

1. The skeleton sliding collar *b*, carrying

set-screw *c* and the bucket *d d*, having two inclined edges at its bottom in twisted positions relative to each other, when combined with the shaft A, carrying cutters 1 and 2 and a centering-point, *a*, substantially as and for the purposes shown and described.

2. The rotating collar *g* in the elevated fixed platform C, the horizontal lever D, suspended by cords *h*, and the shaft A, passing through the collar *g* and lever D, when arranged and combined as and for the purposes shown and described.

ORIN MARTIN.

Witnesses:
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