

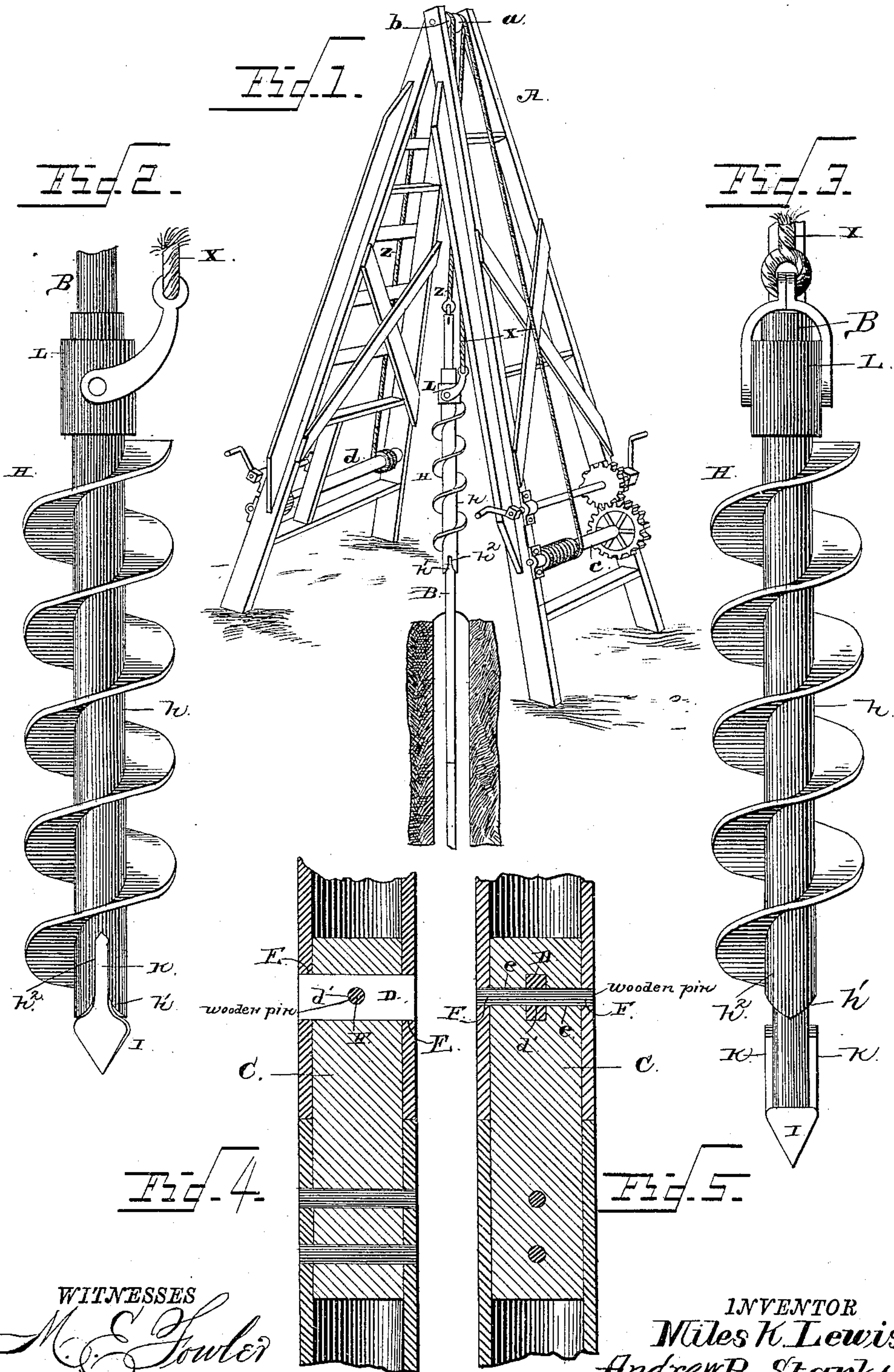
(No Model.)

M. K. LEWIS & A. B. STARKY.

WELL BORING MACHINE.

No. 344,389.

Patented June 29, 1886.



WITNESSES
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UNITED STATES PATENT OFFICE.

MILES K. LEWIS, OF HASTINGS, AND ANDREW B. STARKY, OF MINDEN, NEBR.

WELL-BORING MACHINE.

SPECIFICATION forming part of Letters Patent No. 344,389, dated June 29, 1886.

Application filed August 21, 1885. Serial No. 174,982. (No model.)

To all whom it may concern:

Be it known that we, MILES K. LEWIS and ANDREW B. STARKY, citizens of the United States, residing at Hastings and Minden, in the counties of Adams and Kearney and State of Nebraska, have invented a new and useful Improvement in Well-Boring Machines, of which the following is a specification, reference being had to the accompanying drawings.

Our invention relates to an improvement in well-borers; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claim.

In the drawings, Figure 1 is a perspective view of a "boring-plant" embodying our improvements. Fig. 2 is a detailed elevation of the shafting and auger, showing the same connected to rotate together. Fig. 3 is a similar view of the same, the auger being detached from the shafting; and Figs. 4 and 5 are detailed sectional views showing our improved devices for coupling the sections of the shafting.

A represents a derrick, which is of the ordinary construction, having the pulleys *a* *b* at its upper end, and the winding-windlasses *c* and *d*.

B represents the shafting, made of sections of cylindrical iron pipe, each section having a wrought-iron pin, C, riveted or otherwise firmly secured in its upper end and projecting therefrom. This projecting pin is adapted to enter the lower end of a similar section of pipe, and to be secured therein by a metallic key or keeper, D, that is inserted transversely in aligned openings E, made in the pipe and pin. This key is equal in length to the outside diameter of the pipe, about one-fourth of an inch in thickness, and about an inch and one-fourth in breadth, and in the center of this key is a small circular transverse opening, *d'*, that registers with a similar opening, *e*, made in the upper end of the pin and the lower end of the pipe. A wooden pin, F, is then driven through the openings *e* and *d'*, and firmly secures the key in place, and prevents it from moving so as to project beyond either side of the pipe. The pin F, being made of wood, is compressed so tightly in place as to be prevented from moving, as will be readily understood, thus making a coupling having no projections on

the outside of the pipes, so as to allow an auger, H, having a hollow cylindrical core, *h*, to slide vertically freely on the shafting, the bore in the core corresponding to the outside diameter of the shafting, as shown.

In the bottom of the lower section of the shafting is secured a drilling or boring point, I, and projecting on opposite sides of the lower end of the lower section of the shafting are feathers K, the upper ends of which are pointed. The lower end of the core of the auger has substantially inverted-V-shaped notches *h'*, with the upper ends of which communicate vertical slots *h''*, adapted to receive the feathers when the auger is lowered on the shafting, and thereby lock the shafting and auger together and cause them both to rotate when one does.

By pointing the ends of the feathers and providing the lower end of the core of the auger with the inverted-V-shaped notches the feathers are directed into the slots *h''* when the auger is lowered. To the upper end of the auger is attached a swivel, L. A rope, *x*, is wound upon the windlass *c*, passes over the pulley *a*, and is attached to the swivel, and a rope, *z*, is attached to the upper end of the shafting, passed over the pulley *b*, and wound upon the windlass *d*.

In boring a well the auger is slipped on the lower section of the shafting, and the ropes attached to the auger and the shafting and tightened to hold the latter in a perfectly-vertical position, when the auger is lowered on the shafting and the latter rotated in the usual well-known manner to bore into the earth. As the boring proceeds, an additional section is coupled onto the shafting, as hereinbefore described. The auger is raised from the bore from time to time by hoisting it up on the shafting to remove the excavated earth from the well; but the shafting is never raised until the well is entirely bored, the shafting thus serving as a guide for the auger to direct the latter in a perfectly vertical and straight line, thus insuring a perfectly-straight vertical bore to the well. As the shafting is raised from the well when completed, the sections of the shafting are detached by driving out the keys and causing them to cut through the wooden pins.

No claim is made to the apparatus shown in Figs. 2 and 3 of the drawings, and described herein, as this forms no part of the present invention.

5 Having thus described our invention, we claim—

The pipe-sections having the projecting pins secured at one end and adapted to enter an adjacent section, openings in the pipes and pins,
10 the keys adapted to enter said openings and secure the sections of the shafting together, the transverse openings through the pipes,

pins, and keys, and the wooden pins adapted to be driven into said openings to keep the keys from working in the couplings, substantially as described. 15

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

MILES K. LEWIS.

ANDREW B. STARKY.

Witnesses:

JAS. M. RAMSEY,

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