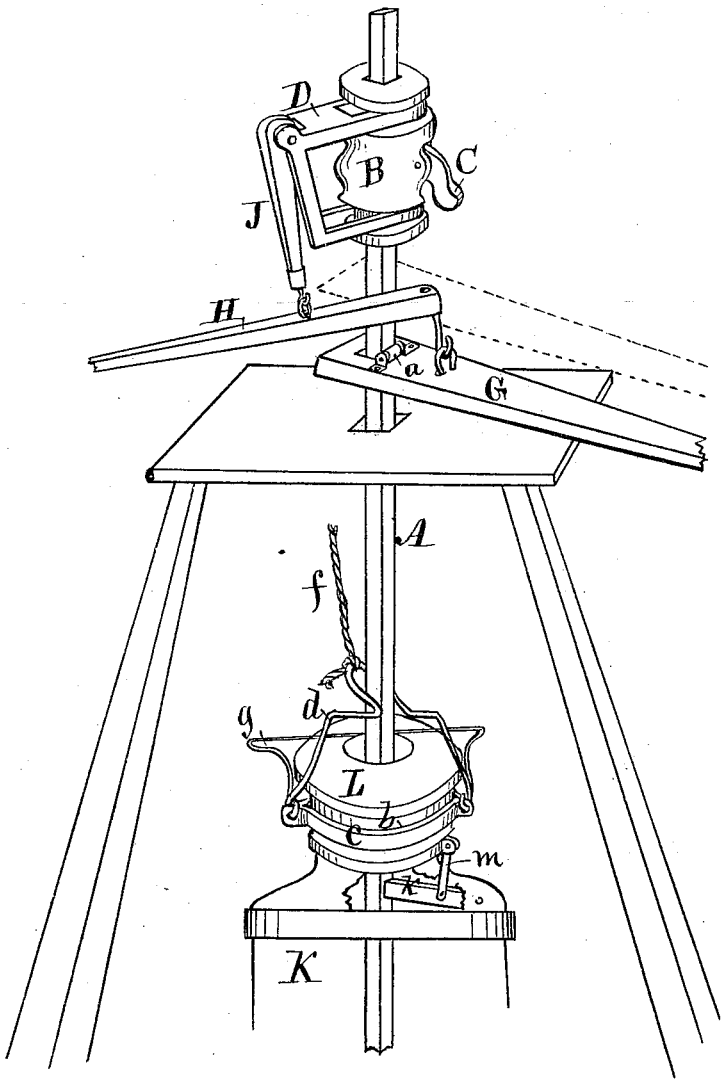
W. K. MILLER.

EARTH-BORING MACHINERY.

No. 181,587. Patented Aug. 29, 1876.



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By Thomas G. Ormig, Atty.

UNITED STATES PATENT OFFICE.

WILLIAM K. MILLER, OF BIRMINGHAM, IOWA.

IMPROVEMENT IN EARTH-BORING MACHINERY.

Specification forming part of Letters Patent No. **181,587**, dated August 29, 1876; application filed February 24, 1876.

To all whom it may concern:

Be it known that I, WILLIAM K. MILLER, of Birmingham, in the county of Van Buren and State of Iowa, have invented certain Improvements in Well-Boring Machinery, of which the following is a specification:

The object of my invention is to facilitate the operation of a rotating auger and a sliding bucket on one and the same shaft, and by means of one and the same sweeping-beam, and thereby economize time and labor in making a well. It consist, first, in a device for adjusting and retaining the sweeping-beam on the shaft, in such a manner that the beam can be alternately operated to rotate the auger and to elevate earth with the bucket; second, in a device for automatically locking the bucket to the bottom of the shaft, in such a manner that it will be rigidly connected with the auger while the auger is in motion, and readily unlocked by the force applied to lift the bucket—all as hereinafter fully set forth.

My drawing is a perspective view illustrating the construction, application, and operation of my invention.

A is the shaft, supported in its vertical position by a suitable frame or derrick, as indicated by the figure in broken lines. B is a sliding block on the top end of the shaft. C is a weighted eccentric, pivoted in a slot in the side of the block B, in such a manner that it will engage and gripe the shaft A by force of gravity. The weighted outside end of the eccentric will hold the eccentric in proper position, and the weight of the block B and its connections constitute the griping power. A corresponding eccentric may be fitted in the opposite side of the block. D is a crane or lever-bearer, connected with the sliding block B in such a manner that it will revolve around the block and the shaft, when the shaft is stationary and the sweeping-beam is operated to raise and lower the bucket. G is the adjustable sweeping-beam on the shaft A, and suspended by means of a lever and fulcrum to the revolving bearer D. *a* is an anti-friction roller on the end of the beam G, designed to bear against the shaft A, and facilitate the raising and lowering of the beam. H is a hand-lever, linked or swiveled to the beam G at a point near the shaft A. J is a fulcrum of the lever H, pivoted to and pendent from the revolving bearer D. By bearing down the free end of the lever H the beam G can be hoisted and disconnected from the mechanism fixed upon the derrick, and employed to raise and lower the bucket by power applied through the sweeping-beam. The weight of the free end of the beam will cause it to bind on the shaft, and prevent it from falling back; and when the sweeping-beam is connected and in gear with the bucket-operating mechanism the block B can be hoisted on the shaft in advance of the beam, and preliminary to the hoisting of the beam, by bearing up the free end of the lever H. The eccentric C will always allow an upward movement, and will instantly lock and retain the block at any point where it is allowed to rest. Complete provision is thus made for disconnecting the beam from the bucket, and rigidly fixing it to the shaft. To free the beam from the shaft, lift the weighted end of the eccentric C, and the block B will drop and carry along the beam G to the point where the shaft is rounded and free to turn in the square mortise of the beam; or the block B may remain stationary and the beam G lowered on the shaft by simply raising the front and free end of the beam. K represents the bucket, designed to slide up and down on the shaft A. L is a sleeve, having lateral arms at its base, rigidly connected with the top of the bucket. *b* is a collar on the sleeve L, allowed vertical play only. *c* is a rotating collar, carried by the vertically-moving collar *b*. D is a bucket-handle, linked to the ears of the collar *c*. *f* is a rope, connected with the handle *d* and the bucket-elevating mechanism mounted upon the derrick. *g* is a guard, carried by the collar *c*, to prevent the handle *d* and rope *f* from coming into contact with the rotating auger. *k* is a pawl, pivoted in a slot or cavity in the arm of the sleeve L, in such a manner that its free end will fall against the shaft A and lock the bucket rigidly to the shaft, to prevent it from rising while the auger is in motion. *m* is a link, connecting the pawl *k* with the vertical-moving collar *b*. A corresponding link and pawl may be used on the opposite side.

When power is applied to the rope *f* to elevate the bucket, the collar *b* is lifted first suf-

ficiently to free the pawl *k* from the shaft A by means of the connecting-link *m*.

A simple automatic device is thus provided for keeping the bucket in its proper place relative to the auger while the auger is in operation at the bottom of the bore.

I claim as my invention—

1. In well-boring machinery, the sliding block B on the shaft A, carrying the eccentric C, the rotating bearer D, the pivoted and pendent fulcrum J, and the suspended lever H, in combination with the adjustable sweeping-beam G, substantially as and for the purposes shown and described.

2. The sliding sleeve L on the shaft A, carrying the vertical-moving collar *b*, the rotating collar *c*, the link *m*, and the pivoted pawl *k*, substantially as and for the purposes shown and described.

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Witnesses:
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