

(No Model.)

A. N. TOWNSEND.
ROCK DRILL MACHINE.

No. 344,421.

Patented June 29, 1886.

Fig. 1.

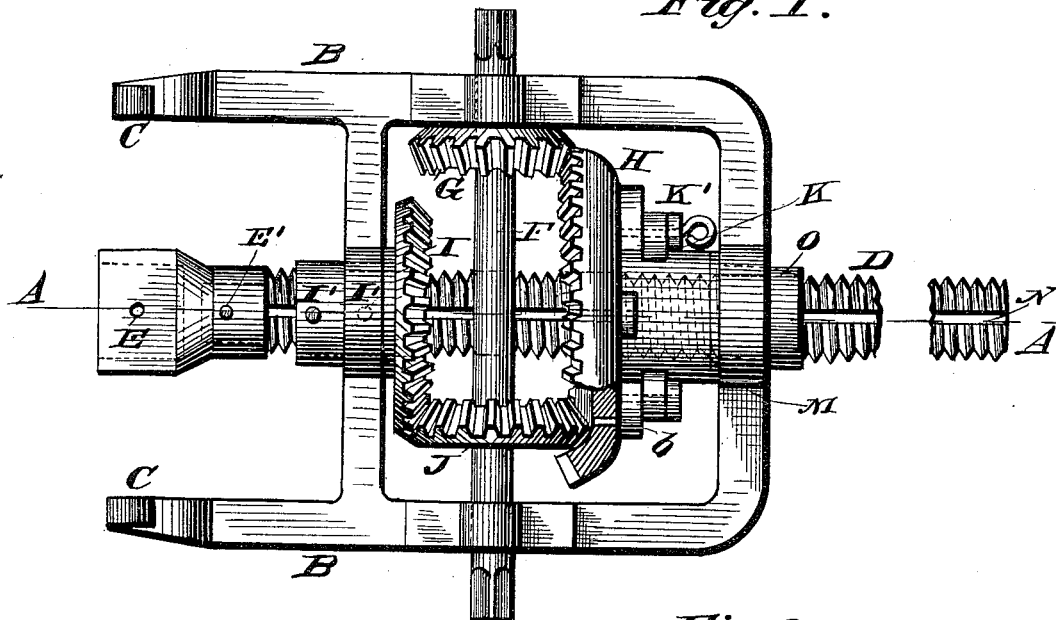


Fig. 2.

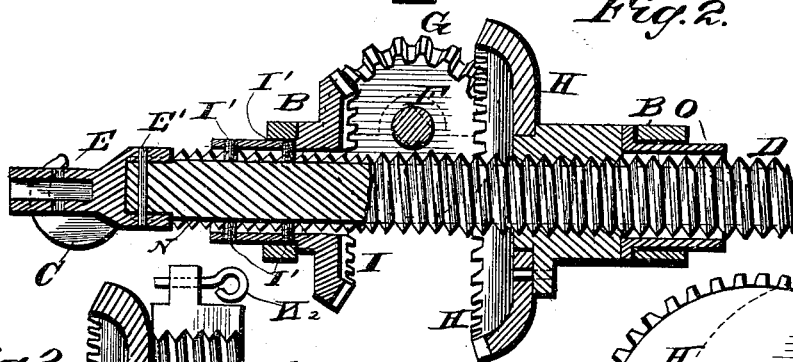


Fig. 3.

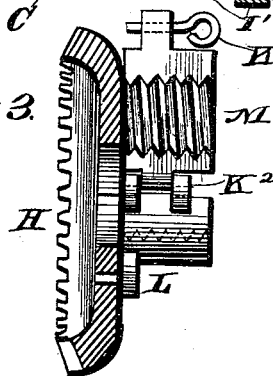


Fig. 4.

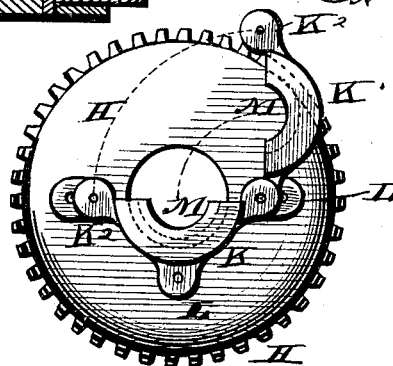


Fig. 5.



WITNESSES

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ASBURY N. TOWNSEND, OF LUCAS, IOWA.

ROCK-DRILL MACHINE.

SPECIFICATION forming part of Letters Patent No. 344,421, dated June 29, 1886.

Application filed September 30, 1885. Serial No. 178,623. (No model.)

To all whom it may concern:

Be it known that I, ASBURY N. TOWNSEND, of Lucas, in the county of Lucas and State of Iowa, have invented a new and useful Improvement in Miners' Hand-Drills, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, which form part hereof, and in which—

Figure 1 is a plan of my improved drill. Fig. 2 is a vertical longitudinal section on the line A A, Fig. 1. Fig. 3 is a section of hinged nut attached to the bevel-wheel H. Fig. 4 is an end elevation of hinged nut attached to bevel-wheel, and Fig. 5 is an end view of feed-screw.

My invention relates to that class of drills known as "miners' hand-drills" for boring coal; and it consists in certain improvements upon such hand-drills, as hereinafter specified, it being the object of my invention to so construct a drilling-machine that a coarse thread can be used on the feed-screw to increase its durability.

My improved drill is represented in the accompanying drawings, and consists of a strong frame or housing, D, with the necessary boxes and sleeve, O, for carrying the crank-shaft F and feed-screw D, also hooks C C, to attach machine to posts when in operation. The feed-screw D is made in the ordinary manner, and is provided with a key-seat, N, on one side or both. In this case it is on both sides and extending the whole length of screw, having a drill-socket, E, at one end, and secured by pin E', passing through it. Screw D passes freely through the bevel-wheel I, which has a sleeve projecting on one side and passing through housing B, having feathers or pins I', Figs. 1 and 2, to correspond and to work freely into key-seats N N of screw D, Figs. 1 and 5. Pins I' allow screw D to move lengthwise and give motion to screw through pinion J, Fig. 1, secured upon crank-shaft F, the speed of the rotary motion of screw regulated by the size of the bevel-wheels that drive it. Feed-screw D passes through a hinged nut, M, (shown in the several views,) made in this manner to facilitate the changing of different lengths of drills, as will readily be seen. When the nut

is open, the feed-screw can be moved longitudinally to accommodate the different lengths of drills, and when closed up and held by pin K' clasping the screw, it is ready for operation. Nut M is provided with ears to be secured to bevel-wheel H (so as to turn with bevel) at points L L L, allowing the hinged part of the nut K' to be freely opened to relieve the screw and closed to engage in the screw. Motion is transmitted to nut M by pinion G, placed upon crank-shaft F, engaging into bevel H in proportion, say, about two revolutions of crank-shaft F to one of bevel H. It will also be seen that by the arrangement of a coarse thread on screw D (of, say, five threads to the inch) one revolution of crank-shaft F will revolve bevel H and nut M one half-turn, which will feed screw one-tenth of an inch at every turn of crank-shaft. The drills now in use are arranged so that every turn of screw feeds one-tenth of an inch, requiring ten threads to the inch instead of five, by which the durability of the machine is increased.

I am aware that mining-machines have heretofore been devised in which the threaded drill-rod is simultaneously rotated and fed forward by gear-connections with a single actuating-shaft, and hence I do not claim such construction, broadly.

My invention differs from all previous structures of its class in the superior simplicity and durability of the device, owing to the peculiar construction and arrangement of its parts.

Having thus described the nature and object of my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The combination, with the supporting-frame constructed substantially as described, of the threaded drill-rod and the crank-shaft mounted at right angles to each other in said frame, the gear-wheels G and J, mounted rigidly upon the shaft at opposite sides of the drill-rod, the gear-wheel I, keyed to the drill-rod and meshing with the gear J, and the gear H, having the hinged feeding-nut K, and gearing with the gear G, substantially as set forth.

2. The combination, with the frame B, con-

structed as described, and having the sleeve O and hooks C, of the threaded drill-rod D and crank-shaft F, mounted at right angles to each other in said frame, the gear-wheels G J, 5 mounted rigidly upon the crank-shaft and at opposite sides of the drill-rod, the gear I, having its sleeve keyed to the drill-rod and mesh-

ing with the gear J, and the gear H, having the hinged feeding-nut K, and meshing with the gear G, substantially as described.

ASBURY N. TOWNSEND.

Witnesses:

WILL KNEELAND,
E. H. WATKINS.