

(No Model.)

G. EDNIE.
COAL MINING MACHINE.

No. 355,153.

Patented Dec. 28, 1886.

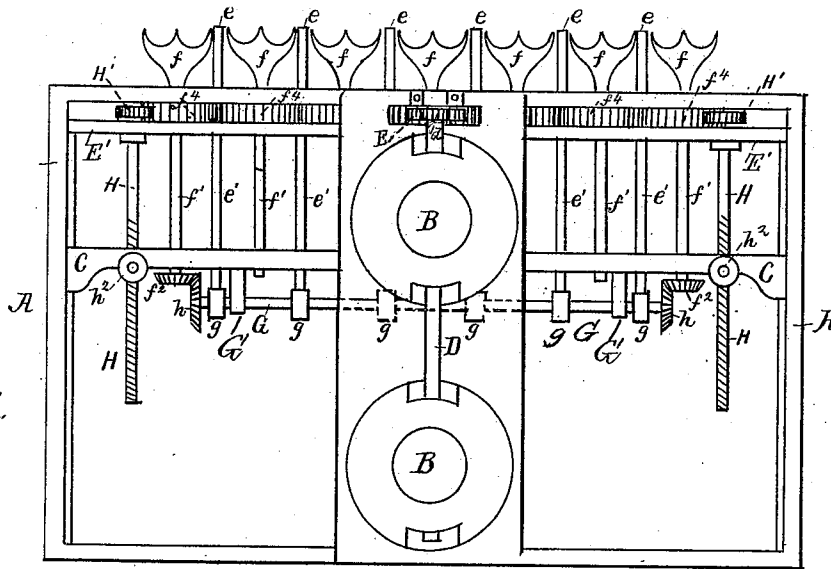


Fig. 1.

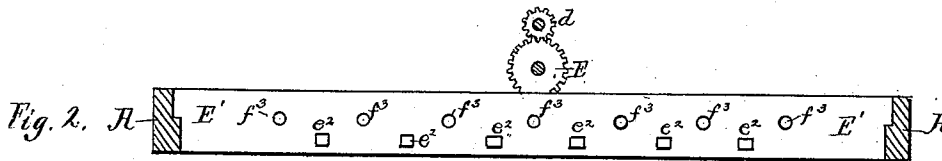


Fig. 2.

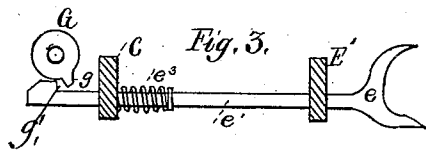


Fig. 3.

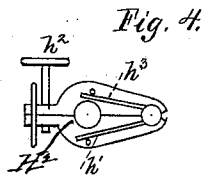


Fig. 4.

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GEORGE EDNIE, OF McDONALD STATION, PENNSYLVANIA.

COAL-MINING MACHINE.

SPECIFICATION forming part of Letters Patent No. 355,153, dated December 28, 1886.

Application filed January 6, 1886. Serial No. 157,757. (No model.)

To all whom it may concern:

Be it known that I, GEORGE EDNIE, of McDonald Station, Washington county, Pennsylvania, have invented a new and useful Improvement in Coal-Mining Machines, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

Similar letters of reference indicate corresponding parts.

This invention has relation to improvements in coal-mining machines; and it consists in the construction and arrangement of parts, as will be hereinafter shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of my invention. Fig. 2 is a detached view of the cross-support. Fig. 3 is a side view of one of the cutters. Fig. 4 is a side view of the adjustable threaded boxing for the feed-screw.

The letters A A denote the frame-work of my coal-mining machine, which is preferably made in rectangular form and provided near one end with a cross-piece, E', for a purpose hereinafter explained.

B B are compressed-air engines; or, rather, as illustrated on the drawings, show where such engines will be located.

C is a sliding cross-piece with its ends resting on bearings or ways on the sides of the frame.

The letters *f* designate the augers or boring-bits, having stems *f'* journaled in the cross-piece E' and in the slide C.

D indicates the main power-shaft, operated by compressed-air engines, or in small machines it may be operated by hand. At the end of this shaft D is a small cog-wheel, *d*, which connects with a larger cog-wheel, E, journaled in the frame. This cog-wheel E connects with the cog-wheels *f'* of the bits *f*, which causes said bits to revolve in their bearings to bore into the coal.

The letters *e* designate the cutters, having stems *e'*, provided with notches *g'*, with the body of the stems arranged in rectangular bearings *e''* in the cross-piece E', aforesaid, and also arranged in similar bearings in the slide C, as shown in Fig. 3. The stems *e'* of the cutters are provided with spiral springs *e''*, secured to the stems at their outer ends, their

inner ends being arranged to abut against the slide C, as shown in Fig. 3.

G is a shaft located in the rear of the slide C, and having its bearing in parts G' on the slide C. This shaft G is provided with cams *g*, arranged thereon at suitable distances apart, for a purpose hereinafter explained. On the ends of this shaft G are secured bevel cog-wheels *h*, which mesh with bevel cog-wheels *f''* on the ends of the two outer auger-stems, *f'*, whereby, when motion is given to the main shaft by the means as above described, the cog-wheel *d* meshes with the larger wheel E, which in turn revolves the cog-wheels *f'*, and the augers *f* are put in motion to bore into the coal-mine. This action of the above parts of the mechanism sets in motion the bevel cog-wheels *f''*, which mesh with the bevel cog-wheels *h* on the shaft G, which causes said shaft to revolve, whereby the cams *g* engage the notches *g'*, which contracts the spiral springs *e''*, and when said cams disengage the notches by the revolution of the shaft G the springs retract and the cutters *e* are driven into the coal and dislodge the partitions, which have been cut on each side of them by the bits or augers.

H are the feed-screws arranged in threaded hinged boxings H', which are provided with hand-screws *h''*, which regulate the flow of the feed-screws. The feed-screws are also provided with cog-wheels H', which mesh with the cog-wheels of the two outer augers, *f*, which revolve the screws H and convey the slide C, with its boring and cutting mechanism, to the front of the machine.

In the drawings I have shown seven augers and six cutters, though there may be either more or less of them, as desired. The augers or bits should be made of substantial material, and in size should be made about four inches in diameter, or more or less, as desired. The cutters should be made of a corresponding size.

From the foregoing description of my invention any one skilled in the art to which the invention relates will be enabled to not only make but operate the same successfully. The drawings will give a good idea of the machine.

The machine can be transported to the scene of operation by means of wheels attached thereto in any suitable manner; and the ma-

chine can be raised or lowered when in operation by means of jack-screws or other suitable devices.

Having described my invention, what I claim is—

1. In a coal-mining machine, the combination, with the frame A, having the cross-piece E' and slide C, of the augers or bits *f* and cutters *e*, arranged in said cross-piece and slide, the former to revolve and the latter to slide longitudinally of the frame therein, as shown and described, and for the purpose set forth.

2. In a coal-mining machine, the combination, with the frame A and its cross-piece E' and sliding bar C, having the revolving bits *f* and spring sliding cutters *e*, of the shafts D G, and mechanism connected to said shafts, as described, for operating said bits and cutters, as and for the purpose described.

3. In a coal-mining machine, the combination, with the frame A, having the cross-piece E' and sliding bar C, the bits *f*, and spring-cutters *e*, the former arranged in circular bearings in the cross-piece and bar to bore into the coal and the latter arranged in the cross-piece and bar by rectangular openings to cut the coal after being bored by the bits, of the shafts D G, for operating said bits and cutters, as shown and described.

4. In a coal-mining machine, the combination, with the frame A, having the cross-piece E', and sliding bar C, arranged behind the piece E', the bits *f* and cutters *e*, arranged in said piece and slide, the former to revolve and the latter to slide therein, of the shafts D G, the cams *g* on said shaft G, and the cog-wheels *d* E *f*¹ *f*² *h*, arranged to operate the bits and cutters, as shown and described.

5. In a coal-mining machine, the combination, with the frame having the cross-piece E' and slide C, the bits *f* and cutters *e*, arranged in said piece and slide, as described, of the feed-screws H, located at each end of the frame and provided with the threaded guides H², having springs *h'* *h*³, and the hand-screws *h*², to regulate the feed of the bits and cutters, as shown and described.

6. In a mining-machine, the combination, with revoluble augers, and a longitudinally-reciprocating cutter arranged intermediate of the augers, of a cross-head arranged on the augers to advance therewith, and constructed to form a guide for the cutter-bar, substantially as described, and for the purposes set forth.

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Witnesses:

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