(No Model.)

J. GRAY.

MINING MACHINE.

No. 266,807. Patented Oct. 31, 1882.

Fig. 3.

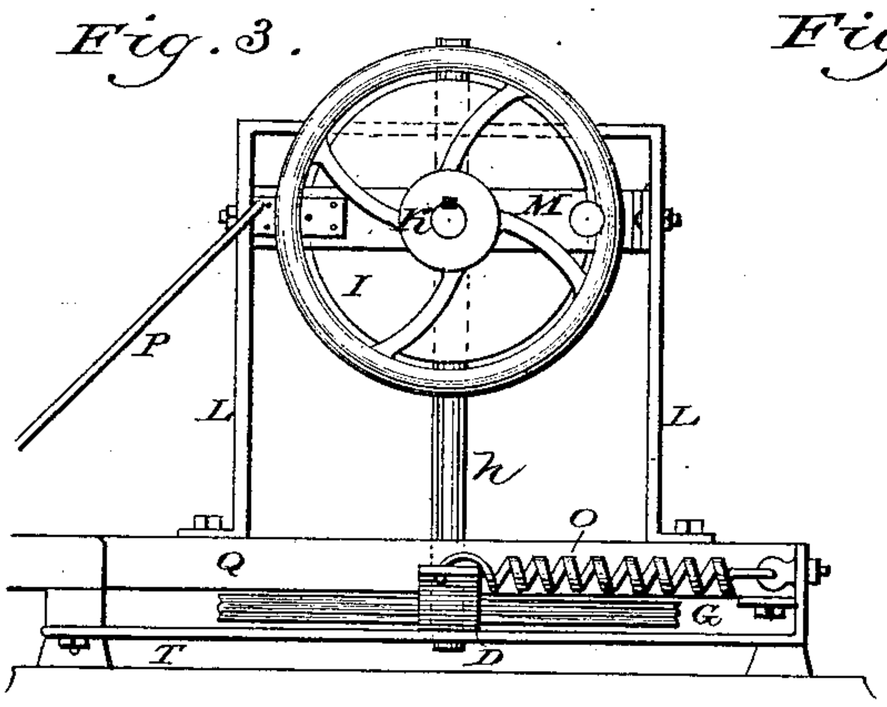


Fig. 1.

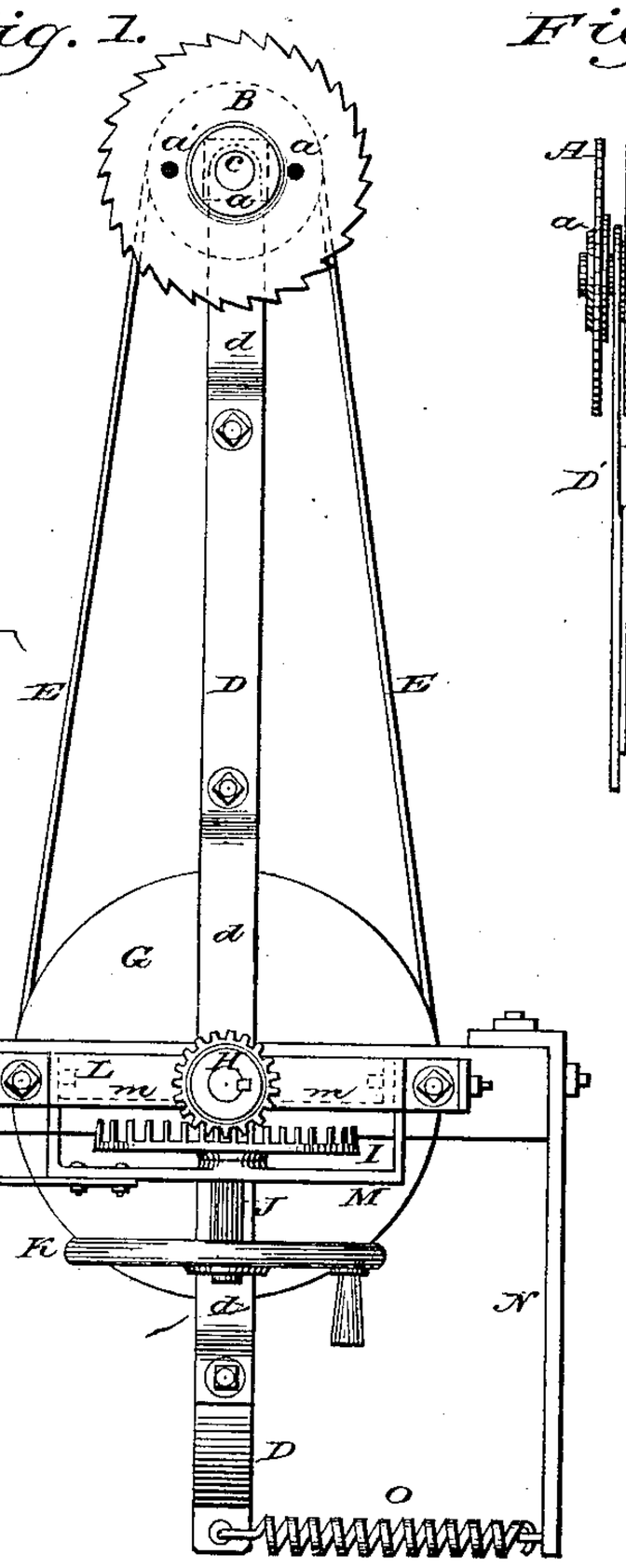
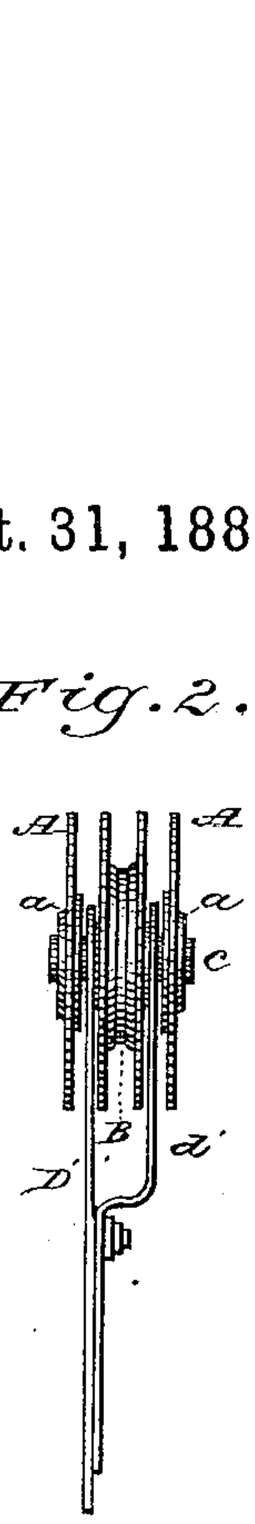


Fig. 2.



Witnesses:
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Abr Farrie

Inventor:
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UNITED STATES PATENT OFFICE.

JOHN GRAY, OF OSAGE CITY, KANSAS.

MINING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 266,807, dated October 31, 1882.

Application filed March 30, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN GRAY, a citizen of the United States, residing at Osage City, in the county of Osage and State of Kansas, have invented a new and useful Mining-Machine, of which the following is a specification.

My invention relates to a device for sawing a channel underneath or vertically into a layer of coal, or horizontally or vertically into the vein or gangue rock of other mineral deposits, after which the coal or vein matter cut around or undercut may be broken off with wedges and removed. I accomplish this end by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan of the entire machine; Fig. 2, an edge view of the gang of circular saws by which the rock or shale is cut away, and Fig. 3 a portion of a vertical side view.

Similar letters refer to similar parts throughout the several views.

The drawings are made to a mechanical scale of an inch and a half to the foot.

The bed-piece Q, of wood or iron, the U-shaped iron bar L, secured to it with bolts and screws, and the brace P, the geared wheel supporting bars M *m*, secured to L with bolts and screws, the fixed arm N, secured to the bed-piece Q with bolts and screws, and the oscillating bar D *d*, with the stirrup bar T, constitute the frame-work of the machine. The gang of four circular saws, A, are secured in relative position upon the spindle *c* and operated by means of the pulley B. The two inner saws are secured to the pulley by pins *a'*, and the two outer ones, by their arbors *a*, are screwed to their place on the spindle and bear against a shoulder, the screw being so cut as to make the resistance of the material sawed, when the machine is in operation, act as a set to the saws. The gang of saws so arranged is suspended upon and turns in sockets or holes prepared in the arms D' *d'* of the oscillating bar. Motion is communicated to the pulley B by means of the crank-wheel K, the geared wheel I, the pinion and spindle H *h*, the driving wheel or disk G, and the rope or belt E. The oscillating bar D *d* is swung to the left, forcing the saws against the material to be cut by the stiff spiral spring O, hooked at one end into the bar D and at the other into the fixed arm N.

The table-leaf R, hinged to the bed-piece Q, provides a seat for the operator when the machine is driven by hand, and enables the operator at the same time to utilize his own weight in ballasting the machine.

When the machine is to be used the gang of saws is swung as far to the right as necessary, and the machine is then placed at the proper distance from the wall to be channeled, each succeeding sweep of the bar D *d* permitting a wider oscillation than the previous one, and requiring a nearer approach of the machine to the wall until the channel shall be cut to the depth desired or to the extent permitted by the length of the oscillating bar. The machine may be driven by hand or by steam or hydraulic power.

I claim as my invention and desire to secure by Letters Patent—

The gang of circular saws A, adjusted upon the spindle *c* and operated by the pulley B, rope E, driving-disk G, spindle and pinion H *h*, geared wheel I, and crank K, and oscillated by the bar D *d* and spiral spring O, substantially as and for the purpose described.

JOHN GRAY.

Witnesses:

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