

No. 651,768.

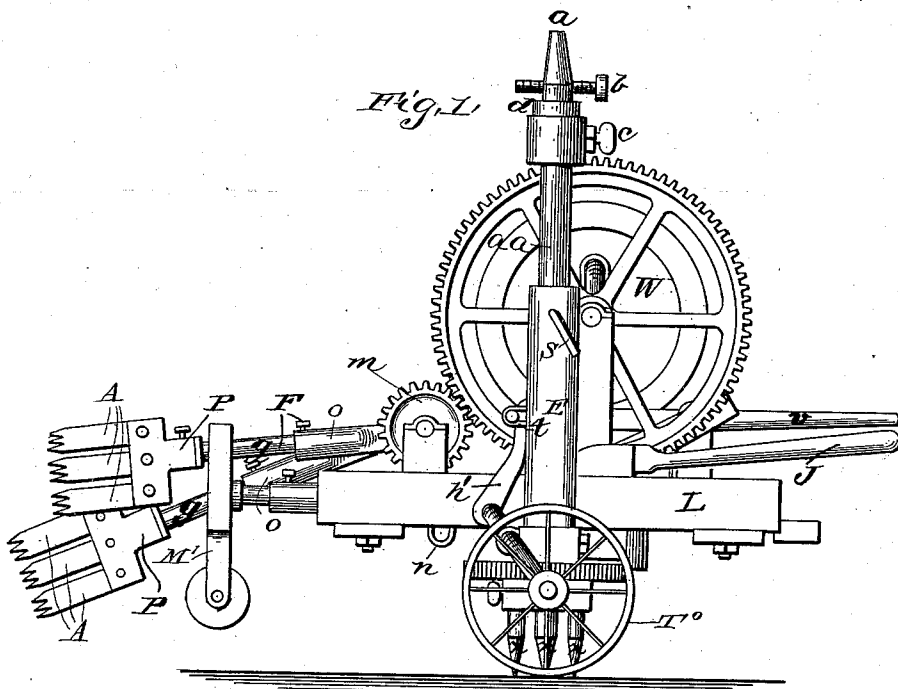
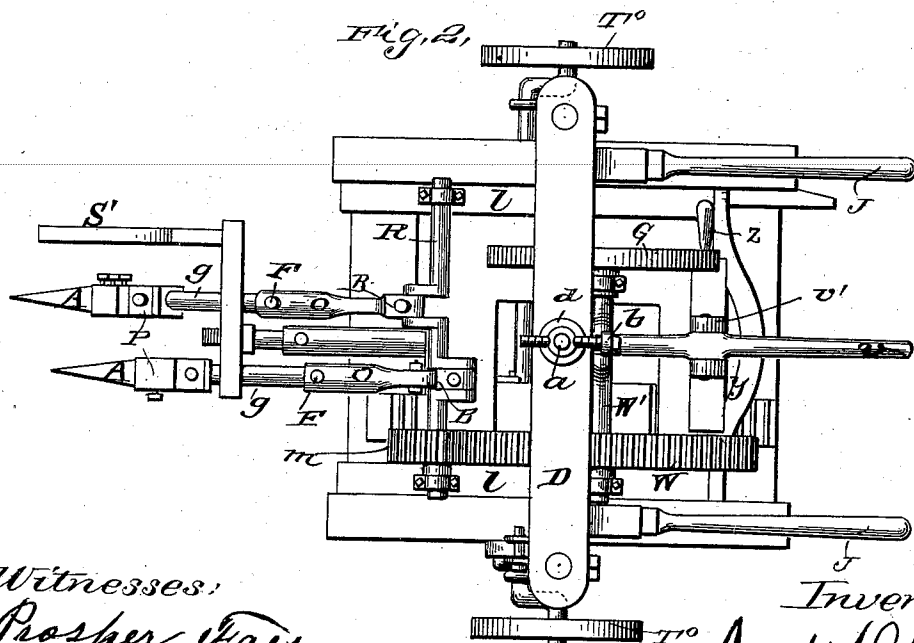
Patented June 12, 1900.

A. OCHTINSKY.  
MACHINE FOR UNDERMINING COAL.

(Application filed Feb. 15, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:  
Prosper Davis.  
John Quinn

Inventor.  
And: Ochtinsky

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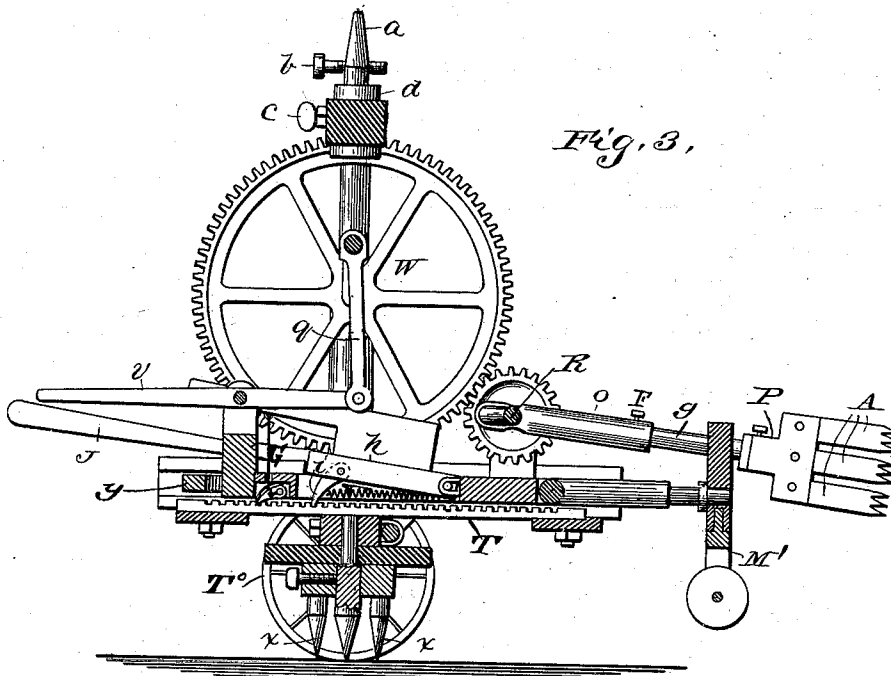
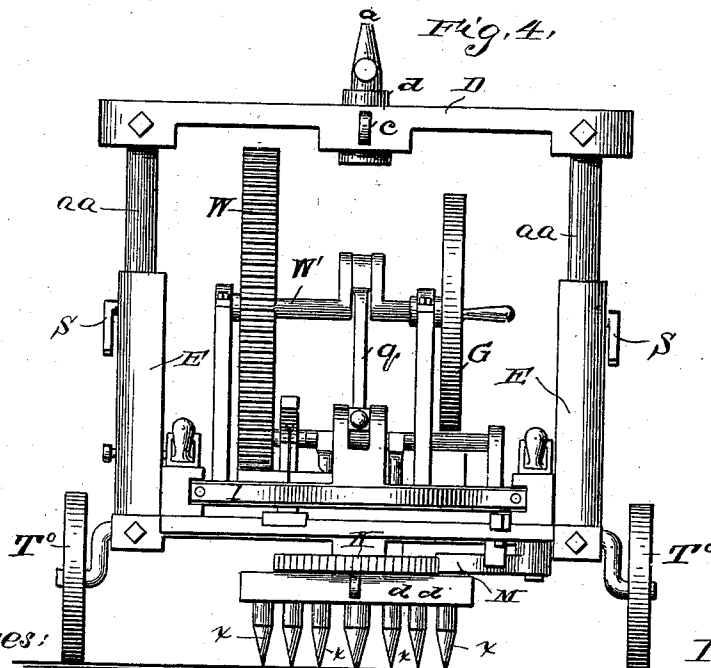
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·(No Model.)

**2 Sheets—Sheet 2.**



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# UNITED STATES PATENT OFFICE.

ANDI OCHTINSKY, OF ROCKVALE, COLORADO.

## MACHINE FOR UNDERMINING COAL.

SPECIFICATION forming part of Letters Patent No. 651,768, dated June 12, 1900.

Application filed February 15, 1900. Serial No. 5,404. (No model.)

*To all whom it may concern:*

Be it known that I, ANDI OCHTINSKY, of Rockvale, in the county of Fremont and State of Colorado, have invented a new and useful  
5 Improvement in Coal-Mining Machines, of which the following is a specification.

My invention relates to mining-machines, and has for its object a portable machine of this class adapted to be operated by hand  
10 and capable of easy shift laterally and in an advanced direction as the picks undermine the coal.

The invention consists in special forms of devices for feeding the machine forward and  
15 for turning it laterally and other details of construction and arrangements of the parts, which I shall hereinafter specifically describe and claim.

Reference is to be had to the accompanying  
20 drawings, forming part of this specification, in which like characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of my improved hand-operated coal-undermining machine.  
25 Fig. 2 is a plan view thereof. Fig. 3 is a longitudinal section thereof, and Fig. 4 is a rear view.

In the hollow upright standards E of the machine are fitted posts *a a*, held at various  
30 elevations by means of clamps S and connected at their upper ends by a cross-bar D, in which is fitted a socket *d*, fastened in place by a thumb-screw *c*. A tapering spike *a*, provided with a cross-pin *b*, is received in  
35 said socket and is adapted for engagement with the roof of the drift in which the machine is working.

Between the standards E extend horizontal guides L, in which plates *l* are fitted to  
40 move, said plates forming part of the bed which supports all the driving or operating mechanism of the machine. This latter consists of a cranked transverse shaft R, on whose cranked portions are mounted tubular  
45 arms O, in which the pick-bars *g* are adjustably fitted and are held in proper adjustment by clamping-screws F. Each bar *g* at its forward end is inserted in a socket-piece P, and these latter have the pick blades or  
50 teeth A held therein by set-screws. To turn the shaft R to cause the reciprocation of the picks, I provide the shaft with a pinion *m*,

which meshes with a large gear-wheel W on a shaft W', journaled in uprights rising from the plates *l*. The shaft W' constitutes the  
55 main driving-shaft of the machine and is operated by hand by means of a handled wheel G and by means of a vertically-vibrating hand-rod *v*, mounted between short posts *v'* and connected by a link *q* with cranks on the  
60 shaft, as shown in Figs. 3 and 4.

I purpose feeding the operating parts of the machine forward as the picks cut into the coal, and to this end I provide a vertically-  
65 swinging lever *h*, having a pawl *i* engaging teeth on a rack-bar T, held stationary in the machine. A spiral spring is arranged beneath the lever *h* and connected with the pawl *i* for the purpose of retracting the latter. It  
70 is evident, therefore, referring especially to Fig. 3, that the operator, by repeatedly pressing down on the lever *h*, will cause the plates *l* and the whole operating part of the machine to move forward step by step as the picks  
75 cut into the coal. The operation is begun with the picks and pick-bars at the inward limit of their position in their sockets, and the machine is fed forward, as above described, as far as possible. A pawl G is connected  
80 with lever *h* by a rod, as shown in Fig. 3. This pawl G engages the rack-bar T and serves to lock the frame *l* against backward movement. When the forward limit of the machine is reached, the lever *h* is raised  
85 until the locking-pawl G is released from rack T, and the machine is then drawn backward in its guides by the bar Y, the adjustment of the pick-bars is lengthened, and the feeding operation is repeated.

To support and guide the picks, the wheel-  
90 supported guide M' is provided, and in front of the said guide is located a slate-shovel S'. J designates handles used in wheeling the machine from place to place and in steady-  
95 ing the machine while it is being operated.

In connection with the roof-engaging devices before described it is expedient to brace the machine on the floor of the drift, and for this purpose a bar *d d'*, provided with spikes  
100 *x*, is attached to a ratchet-wheel K, and both pivoted centrally and horizontally to and beneath the main frame. A spring-pawl M engages the ratchet-wheel and serves to lock it and the bar in any desired position. The bar

*d d* may be rotated and shifted as required to accommodate it to the floor of the drift, or, in other words, so that it may take a firm hold thereon. The wheels *T*<sup>0</sup> are mounted  
5 on a cranked axle, which may be rotated to raise or lower the wheels, so that the spikes of bar *d d* may the more firmly engage the drift-floor. To rotate the axle, a lever-arm  
10 *h'* is affixed to it, and a means for fastening it in position to hold the wheels down or up is provided at *t* and *n*.

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

15 1. In a mining-machine, the combination, with the main frame, a vertically-adjustable frame mounted thereon and carrying a drift-roof spike at its upper end, and pick-bars adapted to operate horizontally, of a rotatable,  
20 horizontal bar provided with spokes and a ratchet-wheel, secured to said bar, the wheel and bar being arranged rotatably un-

der and attached to the main frame, and a spring-pawl adapted to engage the ratchet-wheel, as shown and described for the purpose specified. 25

2. In a mining-machine, the combination with the main frame and pick mechanism, of hollow standards *E* fixed on said frame, posts  
30 *a* fitted slidably therein, a cross-bar connecting the posts, and a drift-roof spike mounted adjustably on said bar, a ratchet-wheel and bar-carrying spikes, arranged horizontally beneath the frame, and a pawl for engaging  
35 the ratchet-wheel, as shown and described.

In testimony whereof I have signed my name to this specification in the presence of subscribing witnesses.

ANDI OCHTINSKY.

Witnesses:

THOMAS QUINE,  
PROSPER FAES,  
JOE H. POWELL.