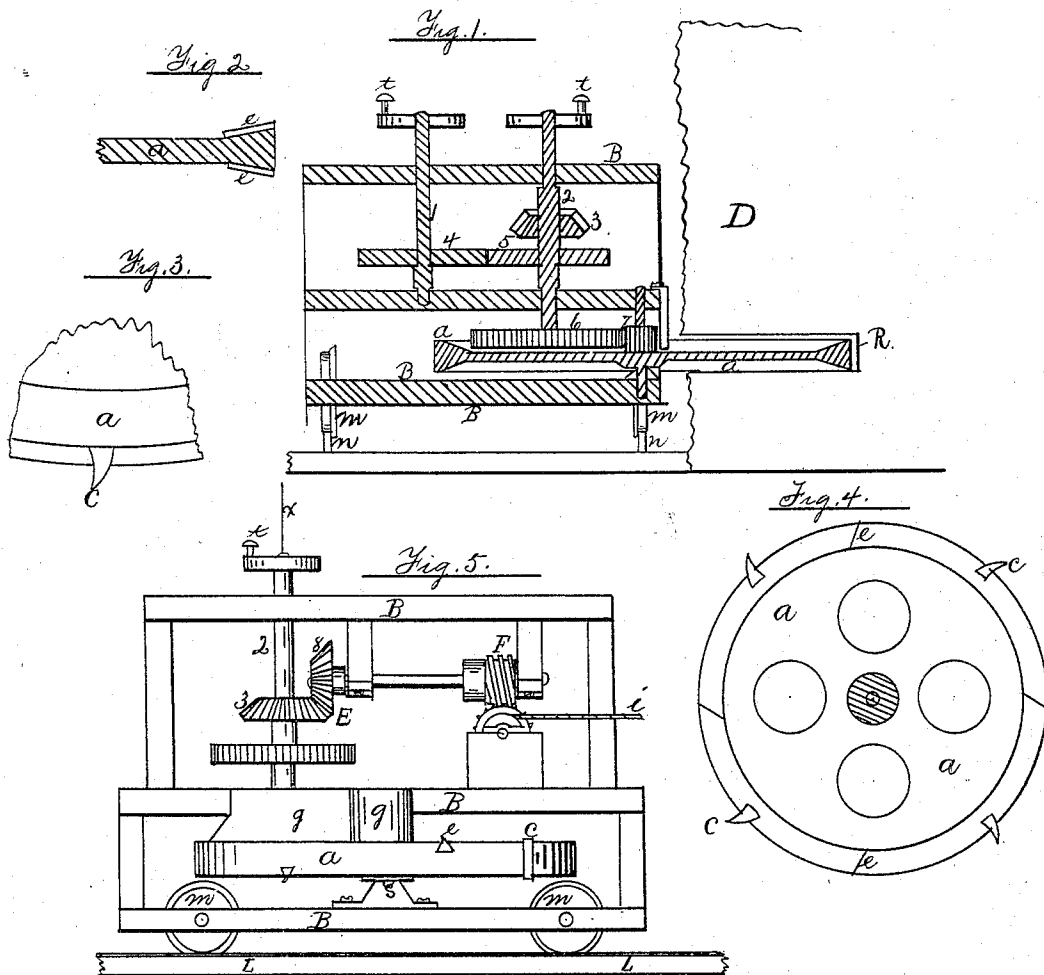


A. CROMBIE.
MINING-MACHINE.

No. 171,470.

Patented Dec. 28, 1875.



Witnesses

Thos. H. Hutchins
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ALEXANDER CROMBIE, OF WILMINGTON, ILLINOIS.

IMPROVEMENT IN MINING-MACHINES.

Specification forming part of Letters Patent No. **171,470**, dated December 28, 1875; application filed November 15, 1875.

To all whom it may concern:

Be it known that I, ALEXANDER CROMBIE, of the city of Wilmington, Will county, and State of Illinois, have invented certain Improvements in Mining-Machines, of which the following is a specification:

The nature of my invention consists in so constructing a machine for mining (especially coal) as to cut a channel in the side walls of the mine, so it will be easier to quarry and mine out the coal or other material, the construction and operation of which I will proceed to explain, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical sectional view on the line *x*; Fig. 2, a section of the planer *a*; Fig. 3, a top view of a section of the planer *a*; Fig. 4, a plan view on the top of the planer *a*, and Fig. 5 a side elevation of the whole machine.

In the drawings, B represents the main frame of the machine, which rests upon car-wheel trucks *m*, which run on the rails *n* L. The frame B bears the planer or cutting-wheel *a*, lying in a horizontal position, as shown in Figs. 1 and 5. The planer or cutting-wheel *a* is propelled by means of the train of cogs and shafts 1 2 4 5 6 7, Fig. 1, which receive their motion from engines that may be attached to the cranks *t t*, two engines being used, so as to avoid getting on a center, and to give a more continuous motion. These engines may be run by steam or compressed air, as may be desired.

The machine is calculated to run on the tracks *n* L, along the side of the wall of the mine D; and, as it moves along by means of the screw-power F *i*, Fig. 1, the planer or cutting-wheel *a* cuts the channel R, Fig. 1, in the wall of the mine. It then becomes comparatively easy to break down or pull down the

coal above the channel R, as it has nothing to support its weight.

The cutting-wheel *a* is provided with knives *c* and *e*, Figs. 2, 3, 4, which are attached to the wheel both on its outer periphery and on its two sides, as shown in Figs. 4 and 5. The knives *e* being necessary to enable the cutting-wheel to cut its way out in case the machine should travel over uneven surfaces, those on the periphery are a little longer than the thickness of the cutting-wheel *a*, so the wheel will not bind. These knives *c* and *e* are fastened to the cutting-wheel *a* in dovetails, as shown; or they may be fastened in any other manner desirable. The cutting-wheel *a* is of metal, and made in the shape shown, so its outer rim serves as a sort of balance-wheel, to preserve its momentum. *g* is a guard, so arranged as to prevent the dust and chips from flying into the gearing behind it.

The form and construction of the machine may be varied, so as to conform it to any circumstances and character of mining. It is very obvious that by this mode a vastly greater amount of coal or any other substance may be mined than by any other of the modes generally in use.

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

The mining-machine described, in which the cutting-wheel *a* rests on a step, *s*, in the body of the main frame B, on which it revolves by means of gearing, as shown, and having in combination with it the dust-shield *g*, all combined and arranged as and for the purposes set forth.

ALEXANDER CROMBIE.

Witnesses:

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