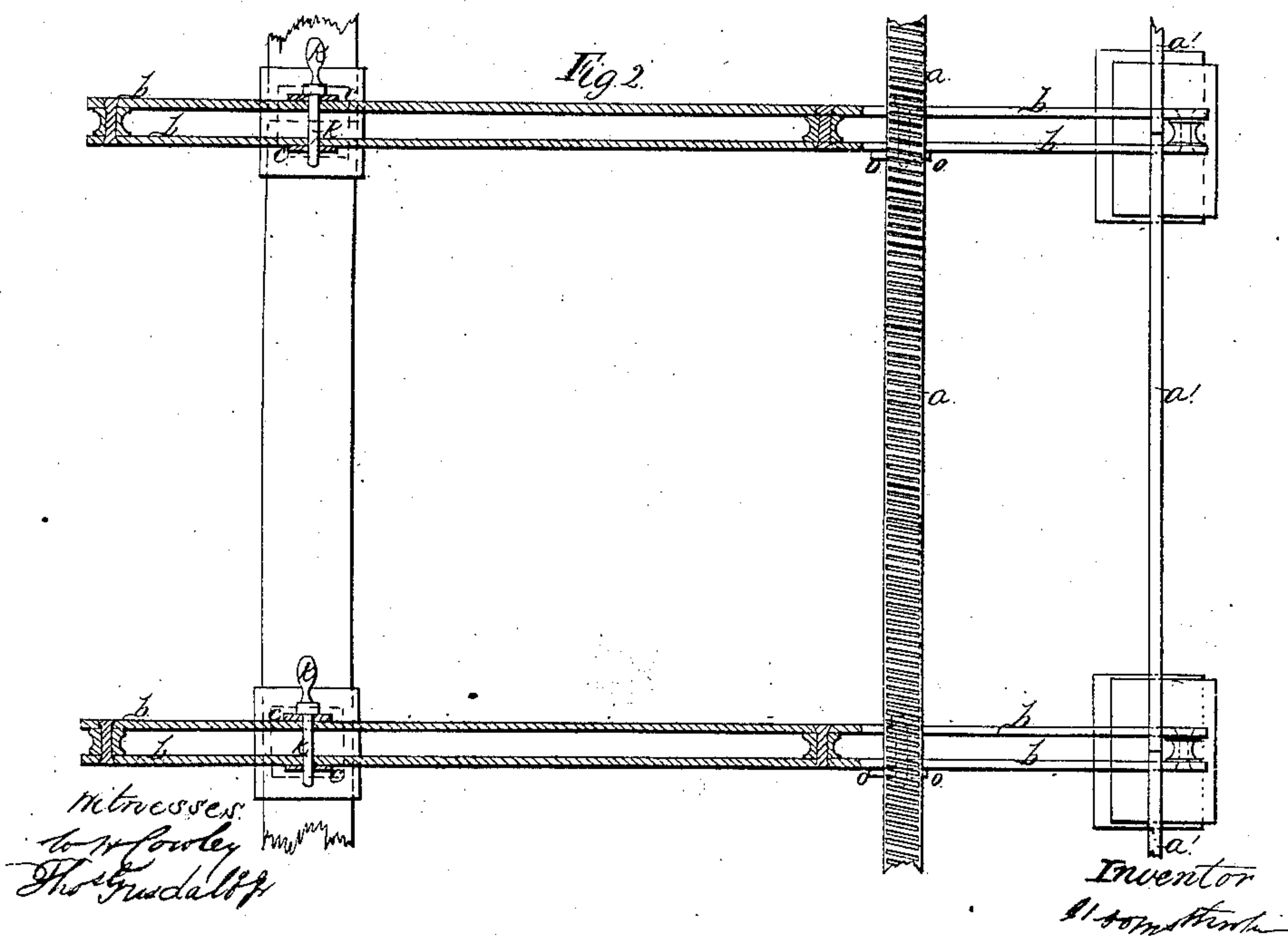
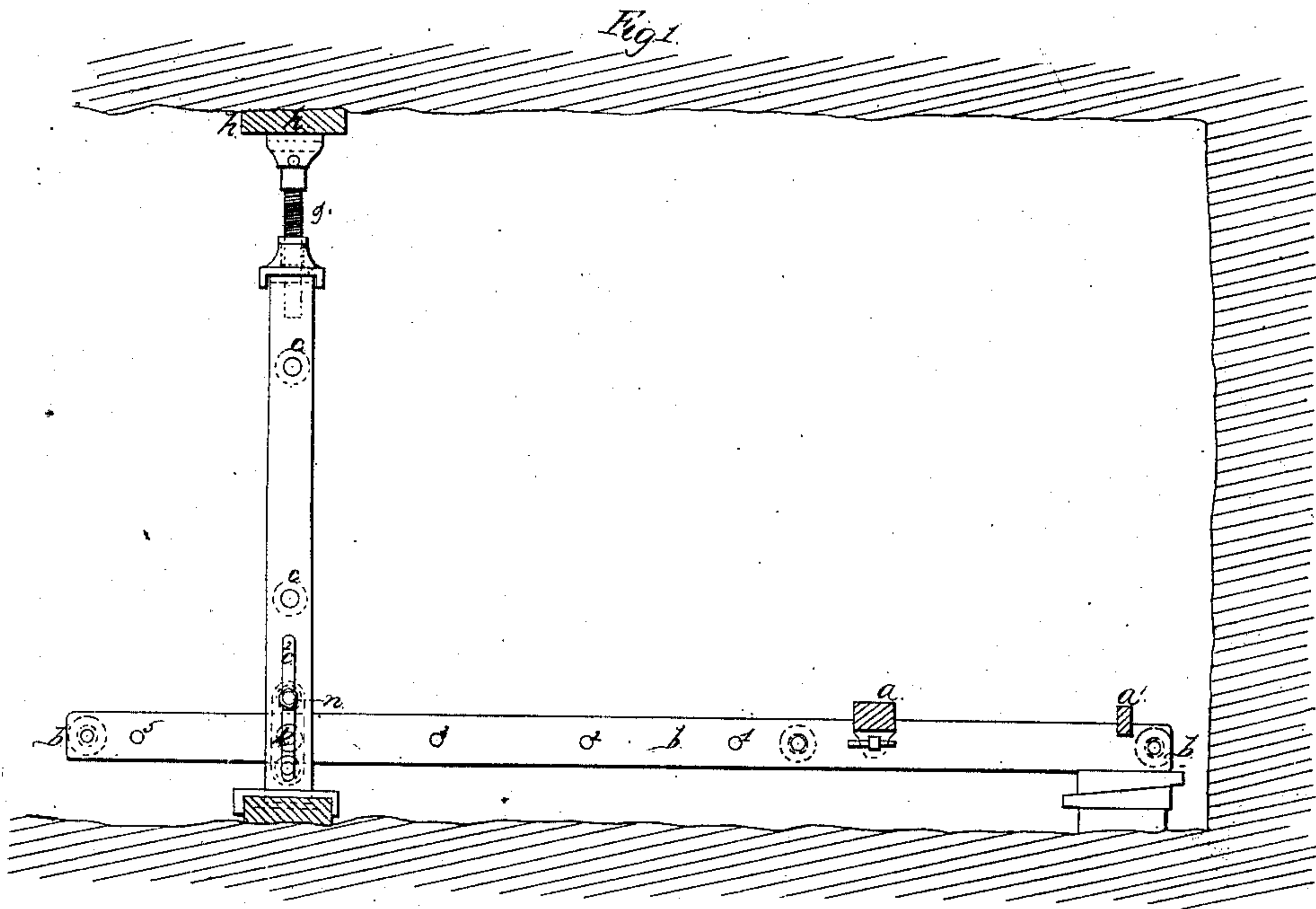


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Mining Coal.

N^o 76,418.

Patented Apr. 7, 1868.

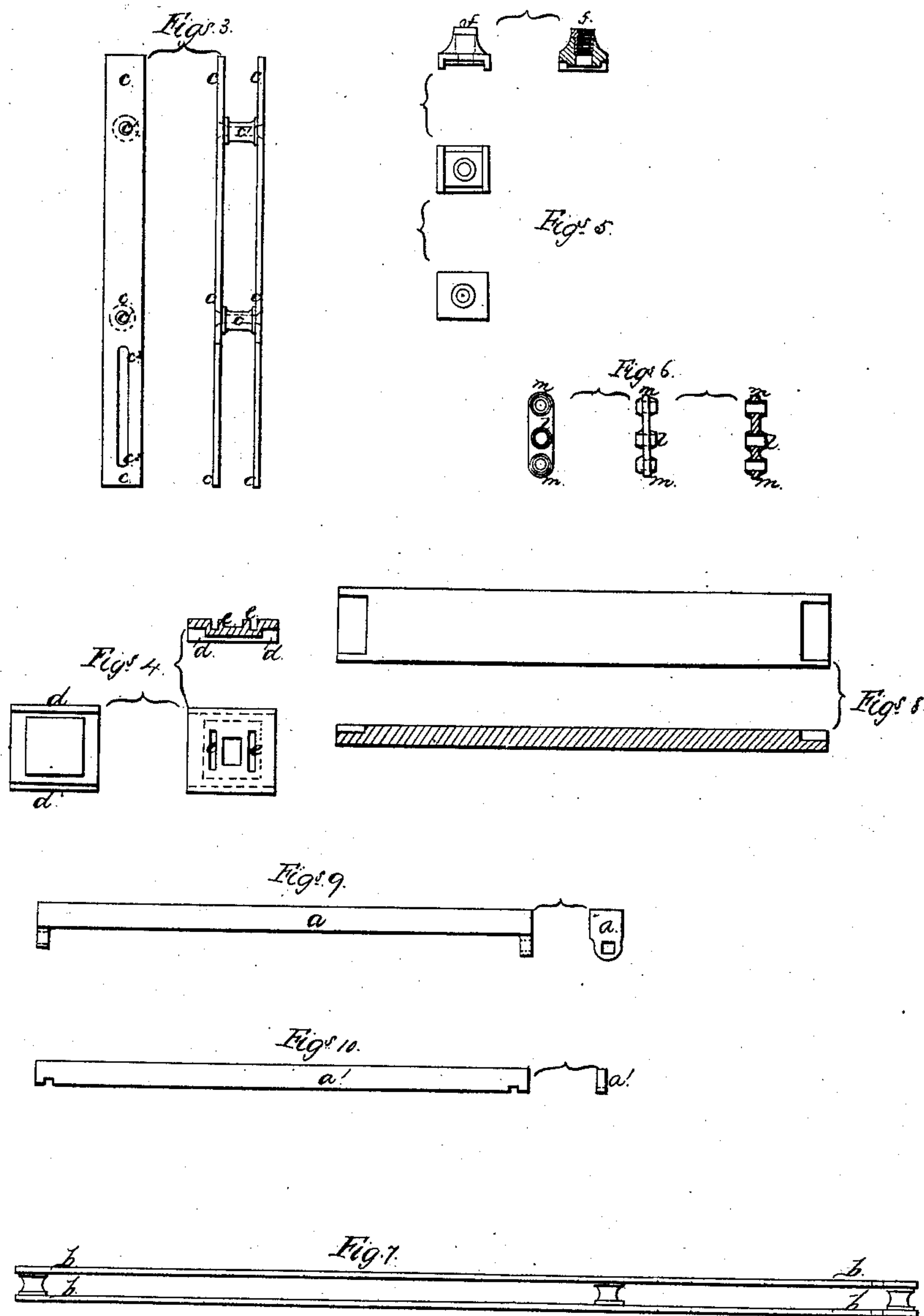


G. E. Danisthorpe,

Mining Coal.

N^o 76,418.

Patented Apr. 7, 1868.



Witnesses:
W. H. Comley
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United States Patent Office.

GEORGE EDMUND DONISTHORPE, OF LEEDS, ENGLAND.

Letters Patent No. 76,418, dated April 7, 1868; patented in England, March 8, 1866.

IMPROVED COAL-MINING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL TO WHOM IT MAY CONCERN:

Be it known that I, GEORGE EDMUND DONISTHORPE, of Leeds, in the county of York, England, a subject of the Queen of Great Britain, have invented or discovered new and useful "Improvements in Fixing or Securing the Rail or Tramways Used when Getting Coal and other Minerals by Machinery;" and I, the said GEORGE EDMUND DONISTHORPE, do hereby declare the nature of the said invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof; that is to say:

Heretofore, when getting coal and other minerals by means of picks or cutters actuated by machinery, the cutters have been usually carried by trucks running on rails laid on the floor of the mine, along the front of the face of coal or other mineral upon which the cutters are to be made to operate, and difficulty has been experienced in laying the rails securely to prevent their shifting when the machine is at work. Now, according to my invention, I employ posts or pillars, wedged or held between the floor and roof of the mine, to hold the rails in position, and prevent them shifting sideways away from the face of the work. The drawings hereunto annexed show the manner in which I prefer to accomplish this object—

Figure 1 of the drawings being a side view of the arrangement, and

Figure 2 a plan view, partly in section.

In this arrangement the rails $a a'$, upon which the machine used for cutting the coal runs, are carried at one end of sleepers or bearers $b b$ of wrought iron. These sleepers or bearers are made of considerably greater length than the distance between the rails, and the ends of the sleepers or bearers to which the rails are attached, are merely supported and brought to the desired height from the floor by blocks of wood, as is shown. The opposite ends of the sleepers or bearers are supported by and fixed to posts or pillars wedged or held between the floor and the roof of the mine.

The parts of which these posts or pillars are composed are shown separately at Figures 3, 4, 5, and 6. At figs. 3, a side view and end view of the main portion or body of the post are shown. This part of the post is composed of two plates, $c c$, of wrought iron, connected together, and held at a distance apart from each other by rivets and distance-pieces $c^1 c^1$, as is shown. The foot of the post is shown separately in plan, under side view, and section, at fig. 4. This foot is of cast iron, and on its under side it is formed with two descending flanges, $d d$, which are to embrace wooden sleepers, upon which these feet are placed. In the upper surface of the foot two recesses $e e$ are formed, which are to receive the lower ends of the two plates $c c$. The head of the post is shown in side view section, under side view and plan at figs. 5. This head fits on the top of the two plates $c c$, and is bushed at $f f$. In this bush a screw-thread is cut, in which the screw g works. On the top of this screw is a circular head, which is to bear against the roof or ceiling of the mine, a block of wood being by preference placed between them, as is shown at $h h$, fig. 1. The sleepers or bearers which support the rails are composed of two parallel plates of wrought iron, connected together, at a distance apart from each other, by rivets and distance-pieces, as is shown in the plan view of one of the sleepers, at Figure 7.

Through the plates of which the sleeper is composed, circular holes, 1 2 3 4 5, are formed, at distances apart from each other, as is shown, the distance between the holes corresponding to the depth of cut which is made into the coal by the cutters. These holes are to allow of a pin, k , being passed through, which pin also passes through a hole, l , in a link, m , shown separately in side view, edge view, and section at figs. 6. This link is placed between the plates $c c$ of the post, and is connected to them by a bolt and nut, n , which passes through slots c^2 in these plates, and also through the hole in the upper part of the link. The link can by means of this bolt and nut be connected at any desired height to the post, by reason of the bolt being able to slip up or down in the slots c^2 , and when the link is brought to the desired height it can be retained there by screwing up the nut on the bolt. The two kinds of rails I employ are shown separately at Figures 9 and 10. The rail shown at figs. 9, supports the rollers or wheels at the side of the machine farthest from the work, and has a screw-rack formed on its upper face, into which a worm or screw on the machine gears, and by which the machine is caused to travel forward when at work.

The rail shown at figs. 10 is a plain rail, and is to support the wheels on the side of the machine nearest to the work. Both these rails are made of a length equal to the distance that it is desired to have between the

sleepers or bearers. The sleepers or bearers have notches or recesses formed in them, into which the ends of the rails are dropped.

The rails shown at figs. 9 have at each end a piece projecting downward, through each of which a hole is formed, as is shown. Corresponding holes are also formed through the plates of which the sleeper or bearer is composed, in order that a bolt may be passed through these holes to secure the rails in their places, and the bolts are by preference secured by a key passing through a slot in the bolt, as is shown at *o o*, fig. 2.

The rails shown at figs. 10, in addition to dropping into notches in the sleepers or bearers, have also notches formed on their under sides, which notches embrace the plates of which the sleepers are composed, and so hold the ends of the sleepers in their places, and as these rails are merely dropped into their places on the sleepers, they may readily be removed, and again replaced when desired.

In order to set up a line of rails supported in the manner above described, a row of wooden sleepers, such as are shown in plan view and section at Figures 8, are first laid along the floor of the mine, parallel with the face of the coal which is being worked. Upon these are placed the cast-iron feet of the posts, the posts are then inserted in their places in these feet, and the heads of the posts are put on, and the screws carried by them turned, so as to cause the head of the screw to bear against the roof of the mine, and so wedge the posts firmly in their places. The sleepers or bearers which support the rails are then passed into their places through the posts, and a pin, *k*, is passed through the link carried by each post, and also through the holes 1 formed in the sleeper or bearer. The ends of the bearers which are nearest to the face of coal to be worked, and which support the rails, are then wedged up to the desired level, and the ends which are connected to the pillars are also brought to the proper level, and secured there by means of the bolt and nut *n*. The rails are afterwards secured to the sleepers or bearers. When the cutting-machine has travelled along rails so laid in position, and has made the requisite number of cuts in the face of the work, the coal is broken off by means of levers or wedges, and is removed; the bearers are then moved a distance forward towards the work, in order that the pins *k* may be passed through the holes 2 in the bearers; the ends of the bearers nearest the face of the work are then again wedged up, and the machine is caused to work a fresh series of cuts in the coal; the coal is then again removed, and afterwards the sleepers or bearers are again moved forwards, and so on until the pin *k* has been placed in the last hole, 5, in the bearer. A fresh row of pillars is then erected, between the row of pillars already set up and the face of coal that is being worked, these pillars being adjusted so that the pins *k*, which pass through the links carried by them, may also be passed through the holes 1. Before the pins are passed through these holes, the bolt which connects each link with its post is free to rise and fall in the slots in the post. When the pins have been inserted in their places, links are secured to the posts by the screw-bolts. The set of posts first erected may then be removed, and yet the bearers will still be retained at the same level at which they were first laid. The level or line at which the rails are laid should in most cases coincide with the line in which the seam of coal runs. If the seam of coal is at any time found to incline upwards or downwards, the level at which the bearers are retained can at any time be readily readjusted.

Having thus described the nature of my invention, and the manner of performing the same, I would have it understood that although I have only given a precise description of one arrangement of apparatus for carrying out my invention, yet I do not confine myself to this arrangement, as other arrangements of apparatus may be employed in carrying out my invention.

What I claim, is—

The holding in position the rails (upon which machines used in getting coal and other minerals run) by posts or pillars wedged or held between the floor and roof of the mine, substantially as herein described.

G. E. DONISTHORPE.

Witnesses:

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THOS. GRISDALE, Jr., } *Both of Leeds, England.*