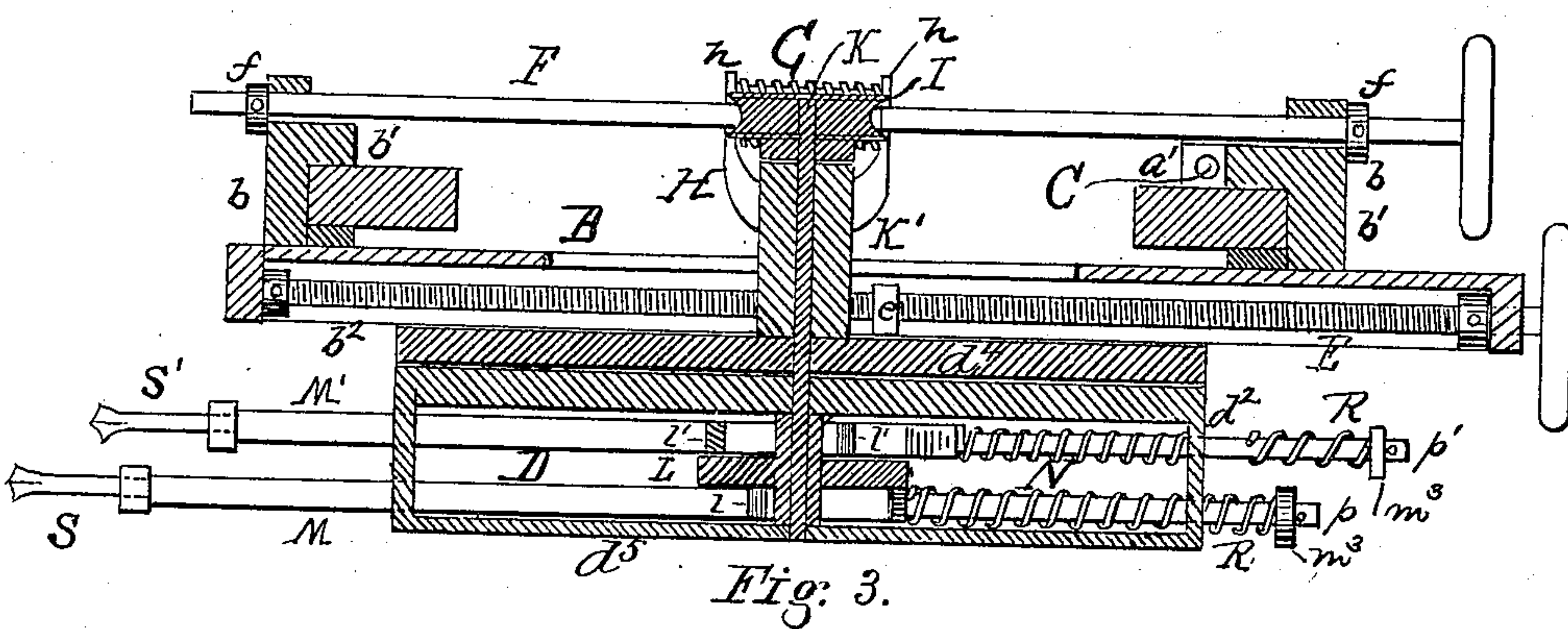
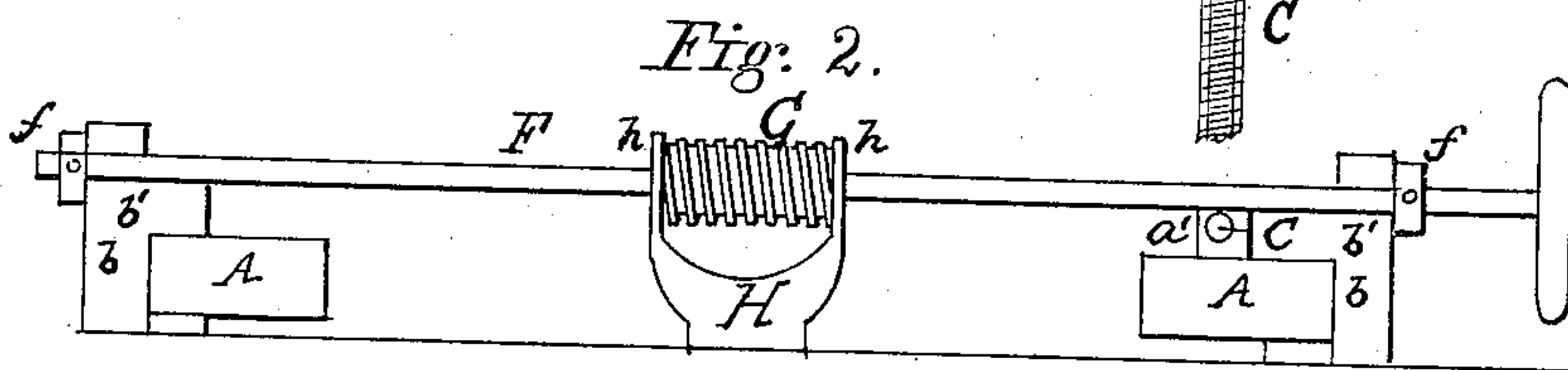
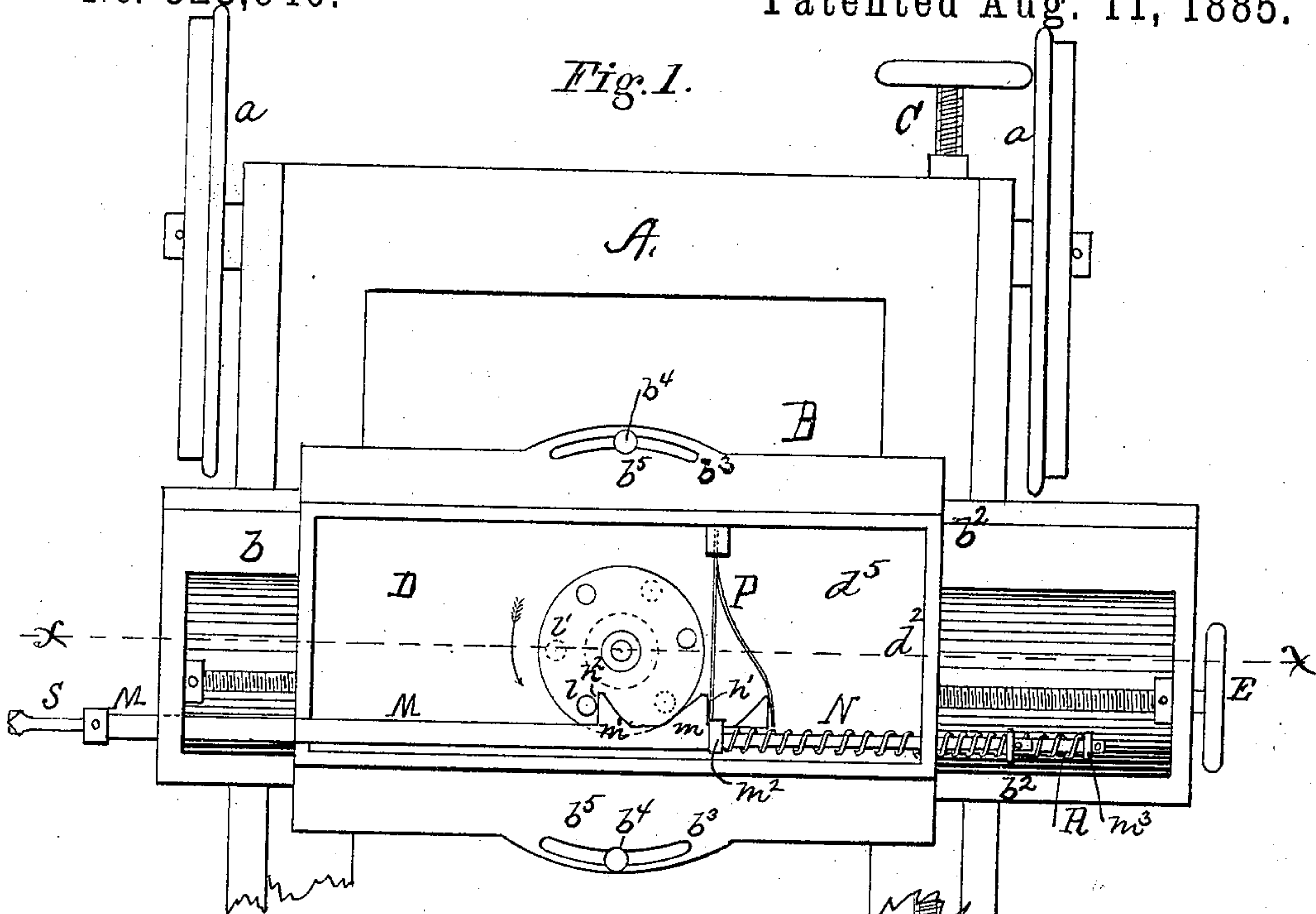


(No Model.)

T. E. KNAUSS.
MINING MACHINE.

No. 323,940.

Patented Aug. 11, 1885.



Witnesses

S. Stern
Geo. F. Graham

Inventor
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per
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Attys

UNITED STATES PATENT OFFICE

THOMAS E. KNAUSS, OF NELSONVILLE, OHIO.

MINING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 323,940, dated August 11, 1885.

Application filed January 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. KNAUSS, of Nelsonville, in the county of Athens and State of Ohio, have invented certain new and useful Improvements in Mining-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is an inverted plan view of the carriage; Fig. 2, a longitudinal section, the parts being in position for use; Fig. 3, a detail.

This invention relates to improvements in mining-machines; and it consists in the construction hereinafter set forth.

In the annexed drawings, the letter A indicates a suitable truck arranged on wheels a , there being several such wheels. Placed across this truck is the drill-carriage B. At each end of the supporting platform b of this carriage is a runner, b' , which encompasses the rail of the truck, and the carriage is moved lengthwise the truck by the screw-rod C, which engages a lug, a' , on the carriage. Supported on the platform b is the drill-box D, consisting of an upper or slider part, d^1 , and a lower part or receptacle, d^2 , and this box is movable lengthwise of the platform and across the truck by the screw-rod E, working in the lug e , rising from the box. The platform b is trough-like, and through the trough the rod E passes, the upper part, d^1 , of the box D bearing against the edges b^2 of the platform b . Above the carriage B, and arranged lengthwise thereof, is a plain rod, F, which works in bearings f on said carriage. This rod F passes through a worm-cylinder, G, which is arranged so as to turn with the rod, but also to slide lengthwise thereof, the connection between them being made by a spline and groove. This worm G rests on the rod F, between the arms h of a yoke, H, which rises from the box D, so that said worm can move with the carriage across the truck and along the rod F, the rod passing through the arms.

Geared with the worm G is a wheel, I, which is keyed to a vertical shaft, K. This shaft K

passes through a bearing, K', extending up from the box D, and such shaft passes down through the platform and box, forming an axis on which the lower part, d^2 , of the box turns. The extent of the circular movement of the lower part, d^2 , of the box is determined by slots b^3 and pins b^4 , the slots being in offsets b^5 of the lower part, d^2 , of the box, and the pins passing through such slots and engaging lugs on the upper or slider part, d^1 , of the box.

Within the box D a wheel, L, is keyed to the shaft K. This wheel has sets of pins l , extending from and perpendicularly to its faces. These pins are placed at equal intervals apart, and those of one set come between those of the other, as shown. Running lengthwise of the box, at one side, are the chisel stocks or jacks M M', (two being shown.) Where these stocks are tangential to the wheel L they are provided on the side toward the wheel with catches m m' , which are beveled on the ends which are together, and perpendicular on their other ends, n' n^2 . The wheel L and the stocks are arranged so that the periphery of the wheel comes between the catches on the stocks. Surrounding these stocks, and bearing between the inside of end d^2 of the box and the collars m^2 of the stocks, are springs N N.

Other springs, P P, may be placed within the box, one end secured to the box, and the other bearing on the ends n' of the catches. These springs may be used with the springs N N, or either set may be used alone.

On the projecting ends p p' of the stocks M M' are placed springs R R, which bear between the outside of end d^2 of the box and collars m^3 of the stocks. To these stocks or jacks M M' are secured the chisels S S'. These stocks and their drills are to be placed close together, so that the drills shall work alternately in the same hole or cut.

In use the truck with the carriage is run into the mine along the gallery, as usual. When in position the carriage is adjusted to the proper point by means of the rods C and E. Power is applied to the rod F, and through the worm G, wheel I, and shaft K to the wheel L, turning the last in the direction of the ar-

row. As the wheel turns, the pins $l l'$, striking the ends n^2 of the catches m , force the stocks $M M'$ inward, compressing the inside springs. As soon as the pins pass the catches; the springs act to throw the drills into the drift with a sharp, quick action. By arranging the pins as described they act alternately upon the drills, and these are thrown, first one and then the other, into the hole. As the hole deepens, the carriage is advanced by the rod E . In case the carriage should not be close enough, and when the drill enters there should be no resistance, the outside springs, $R R$, take up the thrust and prevent jar in the machine.

If it is desired to drill in a corner or at an angle, the box can be turned on the platform, as described.

If desired, another set of drills can be placed at the other side of the box.

I am aware that two drills have been arranged so as to converge and thus strike into the same hole; also, that two drills have been arranged parallel but at such distance apart as to cut separate holes; also, that several—*i. e.*, more than two—drills have been arranged so as to cut several holes.

I herein lay no claim to chisels or drills which are adapted to rotate, as my drills do not rotate, but simply cut with a rectilinear reciprocating movement.

What I claim is—

1. In a mining-machine, non-rotating drills placed side by side, parallel and in close juxtaposition, forming practically one cutter, in combination with means, such as described, for alternately operating such drills, whereby the holes made by the drills are merged into one, as set forth.

2. In a mining-machine, the combination of the carriage B , the rod F above and lengthwise the carriage, the worm G on said rod, yoke H , embracing the worm, wheel I , engaging the worm, shaft K , extending from the wheel I and carrying the wheel L , the wheel L , and the chisels and their stocks, such wheel L engaging such stocks, as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

THOS. E. KNAUSS.

Witnesses:

J. R. HICKMAN,
O. S. COOKSEY.