

(Model.)

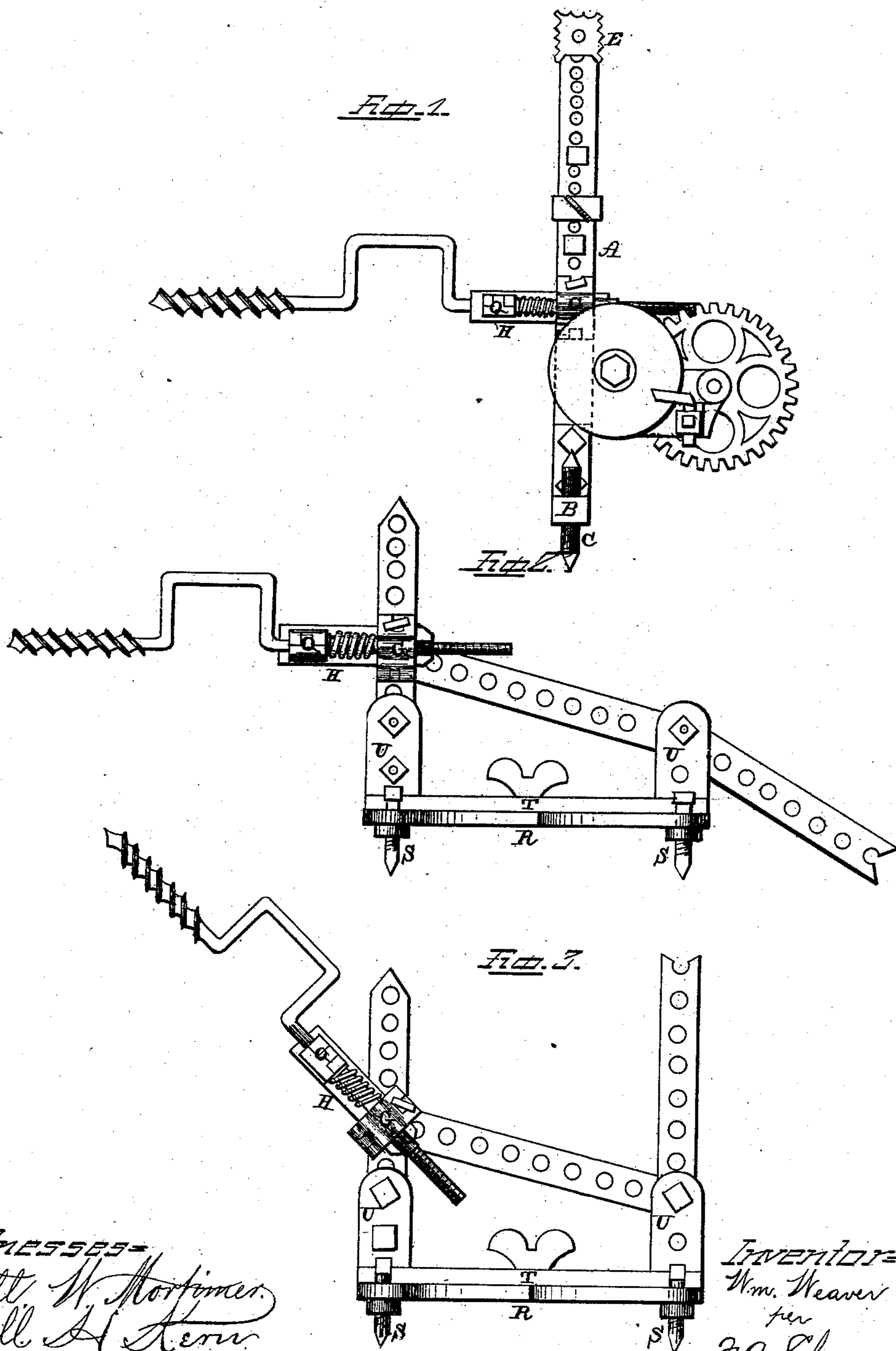
2 Sheets—Sheet 1.

W. WEAVER.

Coal Mining and Quarrying Machine.

No. 228,148.

Patented May 25, 1880.



Witnesses—
Wm. W. Morfimer.
Will A. Herr.

Inventor—
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per
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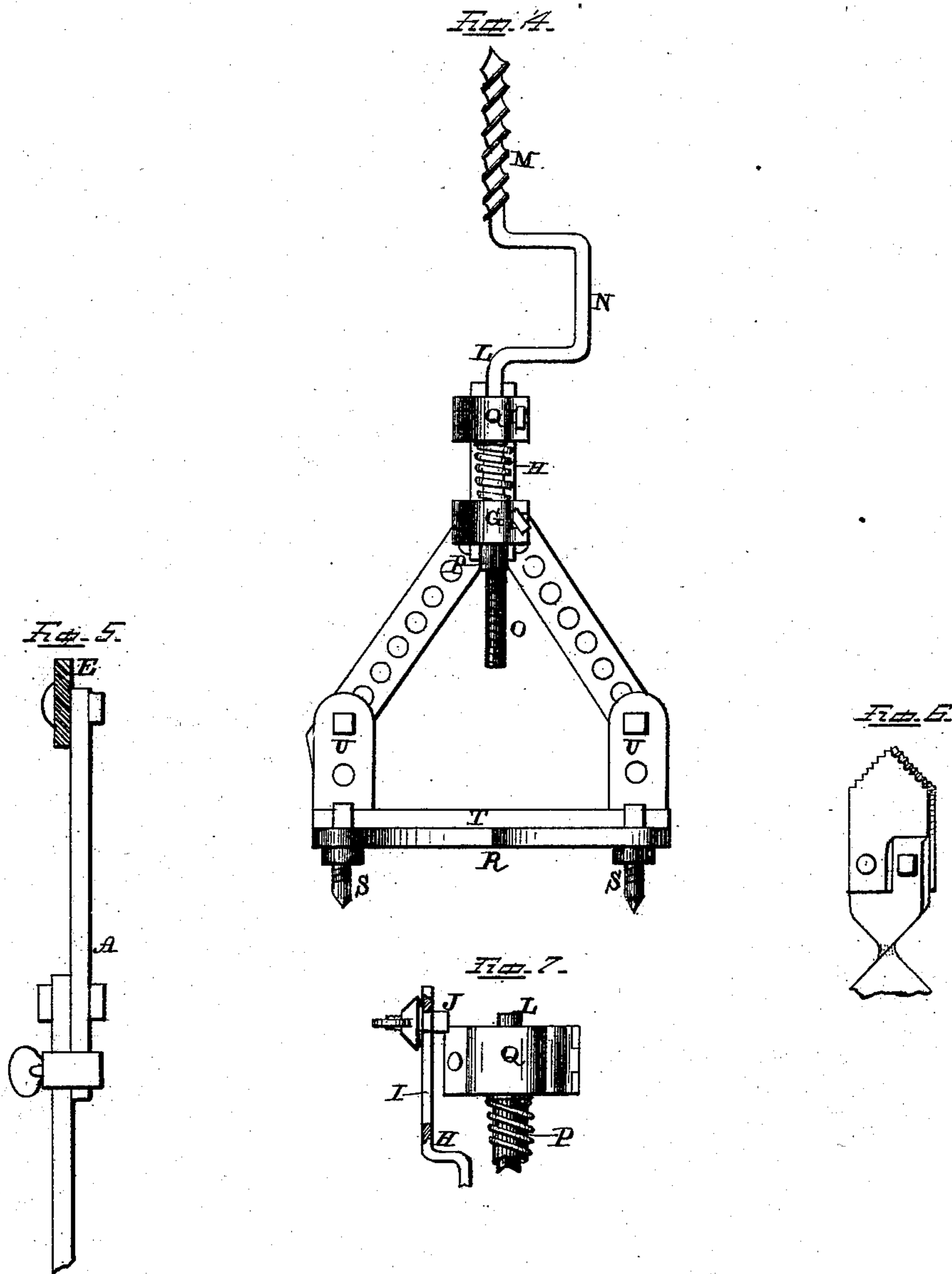
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Coal Mining and Quarrying Machine.

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Witnesses=

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Will B. Kern

Inventor=

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UNITED STATES PATENT OFFICE.

WILLIAM WEAVER, OF PHOENIXVILLE, PENNSYLVANIA.

COAL MINING AND QUARRYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 228,148, dated May 25, 1880.

Application filed March 11, 1880. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM WEAVER, of Phoenixville, in the county of Chester and State of Pennsylvania, have invented certain
5 new and useful Improvements in Coal Mining and Quarrying Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will
10 enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in coal mining and quarrying machines.

15 It consists in a boring-shaft which is provided with a crank which is placed between the boring-bit and the screw, by which the bit is fed forward.

It further consists in the combination of a
20 screw-clamp which is placed upon the screw-thread of the boring-rod, and which clamp revolves with the boring-rod and catches against a suitable stop, against which it is held sufficiently long to compress a spring which is
25 placed upon the boring-rod to a certain degree, and then the screw-clamp slips past the stop, and the pressure exerted upon the spring serves to force the bit forward.

It further consists in the combination of a
30 platform, a bolster placed thereon to support the drill, and perforated bars, by means of which the machine can be braced in position while at work, all of which will be more fully described hereinafter.

35 The object of my invention is to produce a machine which will automatically feed the bit forward just the required distance under all circumstances, and which can be used not only
40 in places where the vein is not more than three or four feet thick, but which can be applied to underground and surface work of all kinds.

Figure 1 is a side elevation of my invention, showing the drill attached to the standard alone. Fig. 2 is a side elevation of my
45 invention placed upon the platform by means of the detached parts of the column. Fig. 3 is a similar view of my invention, showing the parts of the column in a different position. Fig. 4 is also a side elevation of my invention,
50 showing the drill placed in a vertical position. Figs. 5 6, 7 are detail views of the machine.

A represents the standard upon which the machine is supported in position in cases where the ceiling can be readily reached, and which standard is composed of a number of sections
55 or pieces which are bolted or clamped together in any suitable manner. These sections may be made of square, flat, or any other suitably-shaped pieces of metal, which have a series of holes through them for the purpose of passing
60 screw-bolts through them to secure them together. The lower end of this standard is provided with a suitable foot, B, through which is passed a screw-bolt, C, which can be
65 adjusted to any desired height, and serves for tightening the standard in place between the ceiling and floor. This foot B and its screw
C are entirely removed from the standard A when the standard is to be taken apart and
70 used to brace the platform in position, as shown in Figs. 2 and 3.

By making the foot removable every section of the standard can be used as a brace in any of the positions shown, which would not be the case if the foot formed a part of one of
75 the sections.

Upon the upper end of this standard is clamped a flat plate, E, having any desired number of sides, which sides are provided
80 with sharp points to catch in the ceiling, and which plate serves to prevent the standard from turning around, as it might do if the bearing consisted of but a single sharp point.

By having a series of holes through each one of the parts of this standard an equal distance apart, the standard may be lengthened
85 or shortened, according to the distance between the floor and ceiling, and thus can be made to accommodate itself to various heights of ceiling.

90 Clamped to this standard at any suitable distance above the floor is the hinged clamp G, which is made to open and close, so that the drill can be readily applied to and removed from it at any time. Extending from one side
95 of this hinged clamp is a rigid arm, H, which has a slot, I, made through it, and fastened in this slot by means of a thumb-screw is an adjustable stop, J, which is beveled away at both of its ends. This stop can be adjusted
100 back and forth in the slot and secured rigidly at any desired point, according to the

pressure which it is desired to exert upon the drill.

The drill-rod L consists of the spiral drill M, the crank N, and the screw portion O, the crank being placed between the drill and the screw portion, as shown.

The rear end of the screw portion of the rod is passed through the sleeve P, which sleeve serves to protect the screw from the hinged coupling in which the machine is supported. Upon this sleeve is placed a spiral spring, which spring bears against the flange on one end of the sleeve and against the hinged coupling G at the other. This spring, after having been compressed by the screw-clamp, forces the bit forward against the surface in which the hole is being bored, and serves as the feed.

Placed upon the screw portion of the drill-rod between the flanged end of the collar and the crank is a screw-clamp, Q, which clamp is made to open and close, so that it can be the more quickly adjusted to any desired position upon the rod. This clamp revolves with the drill-rod as it is turned around until one corner of the clamp comes in contact with the adjustable stop, when the clamp will be prevented from turning around for the moment, and while thus held by this stop the screw, in passing through the clamp, serves to compress the spring, which compressed spring forces forward the bit. This screw-clamp is held by the stop long enough to allow the screw to press this spring to the desired extent, when the clamp slips past the stop and again revolves with the screw-rod. This screw, having been compressed by the clamp, maintains an even steady pressure upon the rod and keeps the bit fed forward at a uniform speed. As the drill-rod is revolved by means of the crank this screw-clamp will alternately catch against the stop and revolve with the rod according to the amount of compression of the spring. While the spring is fully compressed the clamp may turn one or more times with the rod, and then as the spring becomes somewhat relaxed the clamp will again catch on the stop and compress the spring again to the point at which it was compressed in the first place, when the clamp slips. In other words, the desired feed is obtained by adjusting the stop slightly either toward or from the screw-clamp, and then securing it by the thumb-screw.

Where this machine is to be used either for surface-work, or where the ceiling is so high above the floor that the standard cannot reach it, the standard is taken apart and the parts are applied to the platform R, which consists of a broad plate or base, and which is supported at each corner by an adjusting-screw, S. This plate has a large number of perforations made through it, for the purpose of adjusting and securing the bolster or platform T in any desired position. This bolster has a longitudinal slot extending through its cen-

tral part, and through this slot are placed one or more clamping-screws, for the purpose of securing the bolster in any position desired. Upon each end of the slotted portion of this bolster is formed a perforated standard or support, U, and to these supports the detached portions of the standards are bolted for the purpose of forming a suitable frame for supporting the drill. These parts of the standard may be adjusted to the positions shown in Fig. 2 where the drill is to be used for boring a horizontal hole, or as shown in Fig. 3 where a hole is to be bored at an angle, or as shown in Fig. 4 where the hole is to be vertical.

The positions shown in Figs. 2, 3, and 4 are but samples of the positions to which the drill may be adjusted, as the combinations or arrangements of the perforated parts of the standards can be varied, in connection with the bed-plate, so as to support the drill at any angle or position that may be desired.

In order to hold the bed-plate rigidly in position, any amount of weight required is placed upon it, and one of the parts of the standard is used to form a brace, as shown in Fig. 2.

Where a hole of any depth is to be bored in coal I find that a special drill having square edges is liable to become clogged and will not clean itself. In order to overcome this defect the square edges of the drill are sharpened or cut away, so as to form a sharp or a cutting point, as shown, which cutting-point acts not only as a reamer, but prevents all clogging.

The point of my drill consists of any number of plates having their edges made corrugated, with a view of making them cut more rapidly. Where but a single plate is employed in making this point, the inner end may be split, and then the two points bent slightly in opposite directions, so that one end or point will come upon one side of the drill and the other end or point upon the other side. These two ends are then rigidly secured to the drill by means of bolts and screws which are passed through them.

The object of this invention is to make the points readily removable, so that when one has become dull it can be easily removed and another one applied in its place.

For the purpose of sharpening these drill-points or bits an emery-wheel suitably geared may be secured to the frame-work, as shown in Fig. 1.

Having thus described my invention, I claim—

1. The combination of the platform, bolster, and perforated bars, whereby a support is formed for the machine while in operation where there is no ceiling or roof, substantially as described.

2. The combination of a drill with a bit having its inner end split, and then the ends bent in opposite directions and bolted to the end of the drill, substantially as shown.

3. In a mining and boring machine, the combination of an adjustable stop, a screw-clamp

which fits on the screw part of the drill-rod, and a spring, substantially as described.

4. The combination of a clamp for supporting the drill-rod, a sleeve which passes through the clamp and protects the thread of the drill-rod, a spring, a screw-clamp, and an adjustable stop placed upon a supporting-arm, substantially as set forth.

5. A standard for drilling and mining machines, composed of a number of removable

perforated sections, in combination with a removable foot, B, and screw C, substantially as shown.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of 15 March, 1880.

WILLIAM WEAVER.

Witnesses:

CHAS. H. ISHAM,
JOHN W. PILLING.