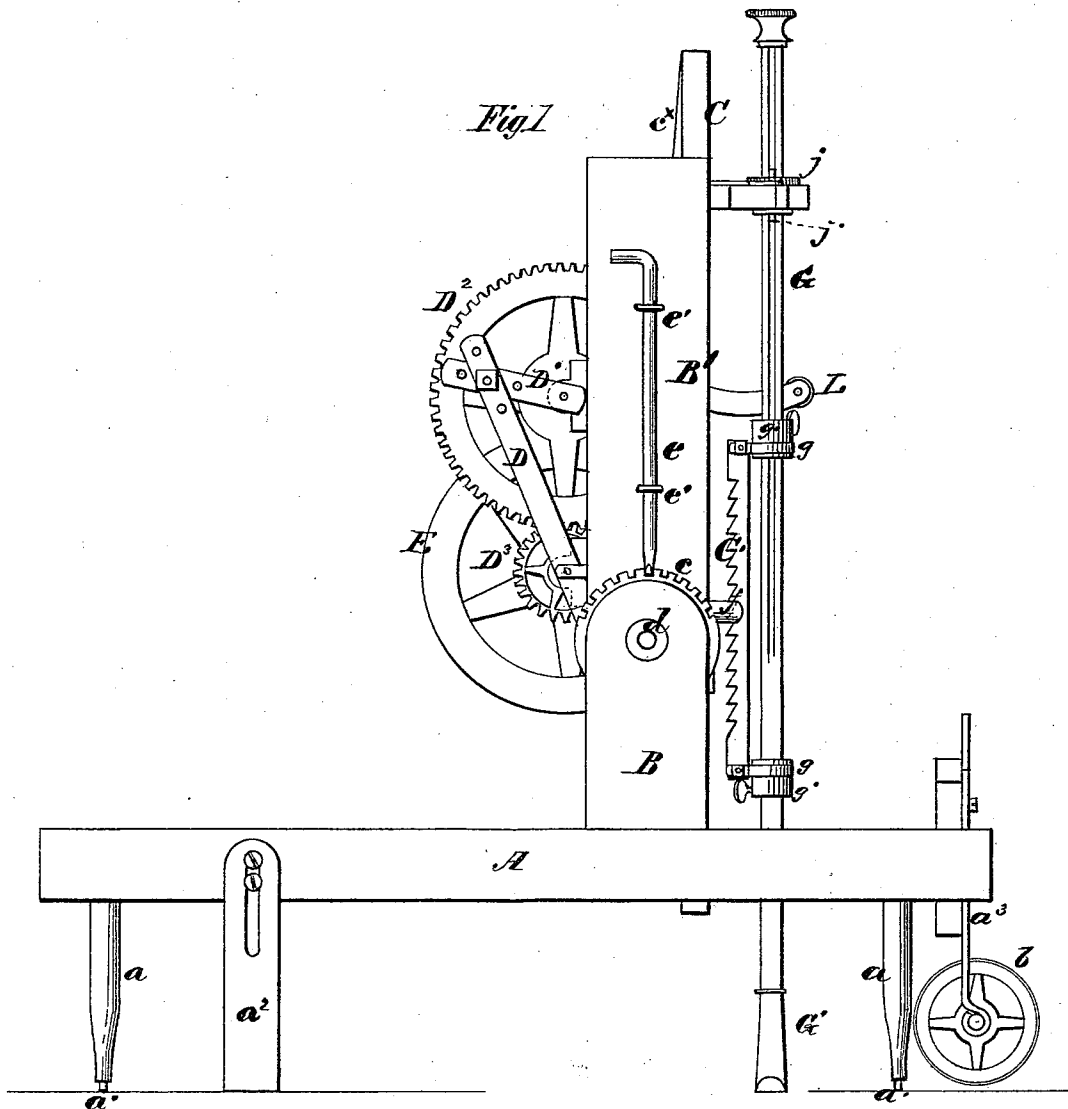


J. A. BEAMISDARFER.
Rock-Drills.

No. 148,917.

Patented March 24, 1874.



Witnesses
R. T. Campbell
James Martin Jr.

Inventor
Joseph A. Beamisdarfer
by his attys
Mason Fenwick Lawrence

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Fig. 3

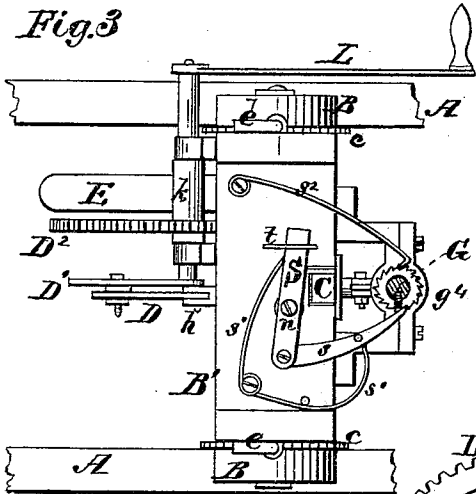
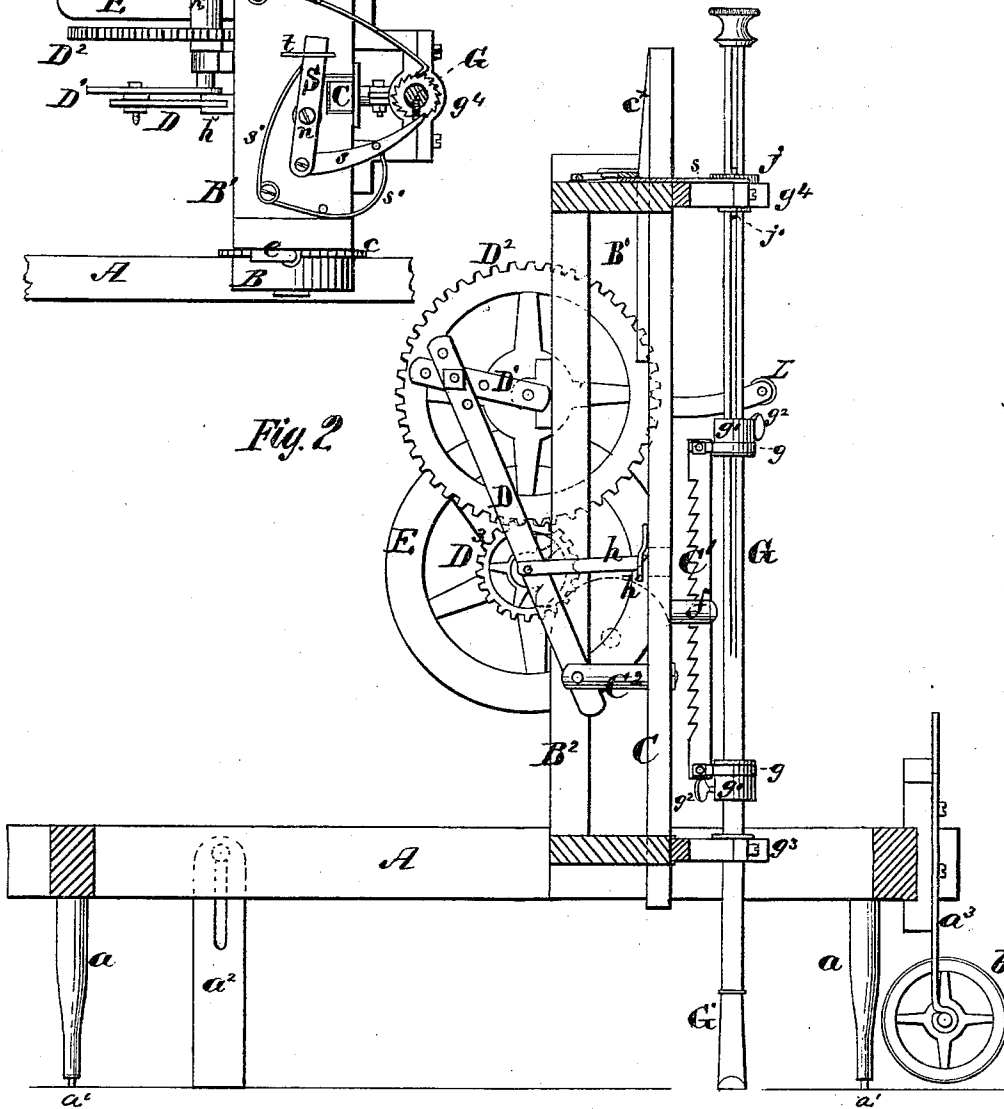


Fig. 2



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UNITED STATES PATENT OFFICE.

JOSEPH A. BEAMISDARFER, OF LEBANON, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND HERMAN E. LONG, OF SAME PLACE.

IMPROVEMENT IN ROCK-DRILLS.

Specification forming part of Letters Patent No. 148,917, dated March 24, 1874; application filed September 10, 1873.

To all whom it may concern:

Be it known that I, JOSEPH A. BEAMISDARFER, of Lebanon, in the county of Lebanon and State of Pennsylvania, have invented a new and Improved Rock-Drill; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, Plate 1, is a view of one side of the drill. Fig. 2, Plate 2, is a section taken vertically and longitudinally through the same. Fig. 3 is a top view, with part of the main frame broken away.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of my invention consists in a rod, combined with both the reciprocating lifter of the rock-drill and the cam-rod which operates the mechanism which turns the drill, said rod being connected directly to the cam-rod and to the lifter, and also to an arm of the driving crank-shaft, and all in such manner that a very simple machine is produced, as will be hereinafter seen.

My improvements relate to devices for raising and dropping the drill-shaft; also, to means for adjusting the drill-shaft during the progress of drilling; also, to means for adjusting and leveling the main frame; and also, to a wheel or roller for allowing the machine to be easily moved from one place to another, all of which will be hereinafter explained.

The following description of my improvements will enable others skilled in the art to understand the same.

In the accompanying drawings, A represents the main frame, which is mounted on four legs, *a*, having spikes *a*¹ in their lower ends, which can be seated in holes made into the rock, to keep the machine steady when in operation. In addition to the legs *a*, three adjustable standards, *a*² *a*², are employed, two of which, *a*² *a*², are applied to the sides of the frame A, and the other is applied on one end thereof, and provided, on its lower end, with a wheel, *b*. These standards are adjustable, for leveling the machine, laterally, and the wheel *b* allows the machine to be rolled about on it like a wheelbarrow. B B are two standards, which

rise perpendicularly from the frame A, and have pivoted to them, at *d*, an adjustable rectangular frame, B'. On the upper ends of the standards B, and concentric to the axis of pivots *d*, are teeth *c*, with which rods *e* engage. The rods *e* are applied, in guides *e*', on the sides of the frame B', and are intended for locking frame B' at any desired angle of adjustment. G is the drill-shaft, which is guided in brackets *g*³ *g*⁴ secured to the frame B', and which is caused to rotate during its up-and-down strokes, as will be hereinafter explained. To this drill-shaft cylindrical collars *g*¹ *g*¹ are rigidly but adjustably secured by means of set-screws *g*² *g*². The collars have annular grooves in their peripheries, in which yokes *g* are applied, which are connected to the upper and lower ends of a rack, C¹. The yoke attachments *g* allow the drill-shaft G to be rotated while it is being moved up and down. C represents an endwise-sliding rod, which is guided by the upper and lower ends of the frame B', and which has a forked guide, *f*, projecting from it, and receiving the rack C¹. This rod has also a stud, C², projecting from it, to which the lower end of a vibrating connecting-rod, D, is pivoted, which rod is adjustably pivoted to a crank, D¹, on the main driving-shaft *k*. (See Fig. 3.) On this crank-shaft *k* is keyed a large spur-wheel, D², and a hand-crank, L. The wheel D² engages with a pinion, D³, on a shaft which carries a fly or balance wheel, E. By rotating the main shaft *k*, the rod C receives a rapid endwise motion. Between the ends of the connecting-rod D, and pivoted to it is a lifter, *h*, the beveled end of which passes through a guide, *h*', and through the rod C, for the purpose of engaging with the rack C¹.

When the crank D¹ moves the rod D in a position to commence lifting the rod C, the lifter *h* is engaged with the rack C¹, and lifts the shaft carrying the drill G¹ at the same time the rod C is lifted. When this rod C reaches its highest stroke, the connecting-rod D draws back the lifter *h*, and disengages it from its rack C¹, which allows the drill-shaft to drop by its own gravity. By these means the drill-shaft G gives one blow at every revolution of the crank D¹.

By the adjustable attachment of rod D to

crank D¹ the strokes of the drill-shaft can be lengthened or shortened. To rotate the drill-shaft for changing the position of the cutting-edge of the drill with respect to the cuts made by it I employ the following mechanism: On top of the upper bracket and guide *g*¹ is a ratchet-wheel, *j*, through which the drill-shaft *G* passes freely; but it is prevented from turning in it by means of a feather, *j'*, on it, which is received into a long groove made into the drill-shaft, as shown in Figs. 1 and 2. The drill-shaft thus turns with the ratchet-wheel. On top of the frame B', and pivoted to it at *n*, and guided by a long staple, *t*, is an arm, *S*, which is held in contact with the beveled edge of a plate, *c*^x, on the rod C, by means of one arm of a spring, *s'*. This arm *S* has pivoted to it a long pawl, *s*, which is held in contact with the teeth of the ratchet-wheel *j* by the spring *s'*, as shown in Fig. 3.

It will be seen that at every upstroke of the rod C the beveled plate *c*^x will cause the pawl *s* on arm *S* to turn the ratchet-wheel *j*, and, with it, the drill-shaft.

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

The lifter *h* and the cam-rod C, both connected to the rod D, the said lifter, cam-rod, and rod D being combined with the arm D¹, the ratchet *j*, pawl *s*, and arm *S*, and with the rock-bar of the drill, all substantially as and for the purpose described.

JOSEPH A. BEAMISDARFER.

Witnesses:

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CHAS. P. WEBSTER.