

Charles Peck's Improved Rock Drill

110280

PATENTED DEC 20 1870.

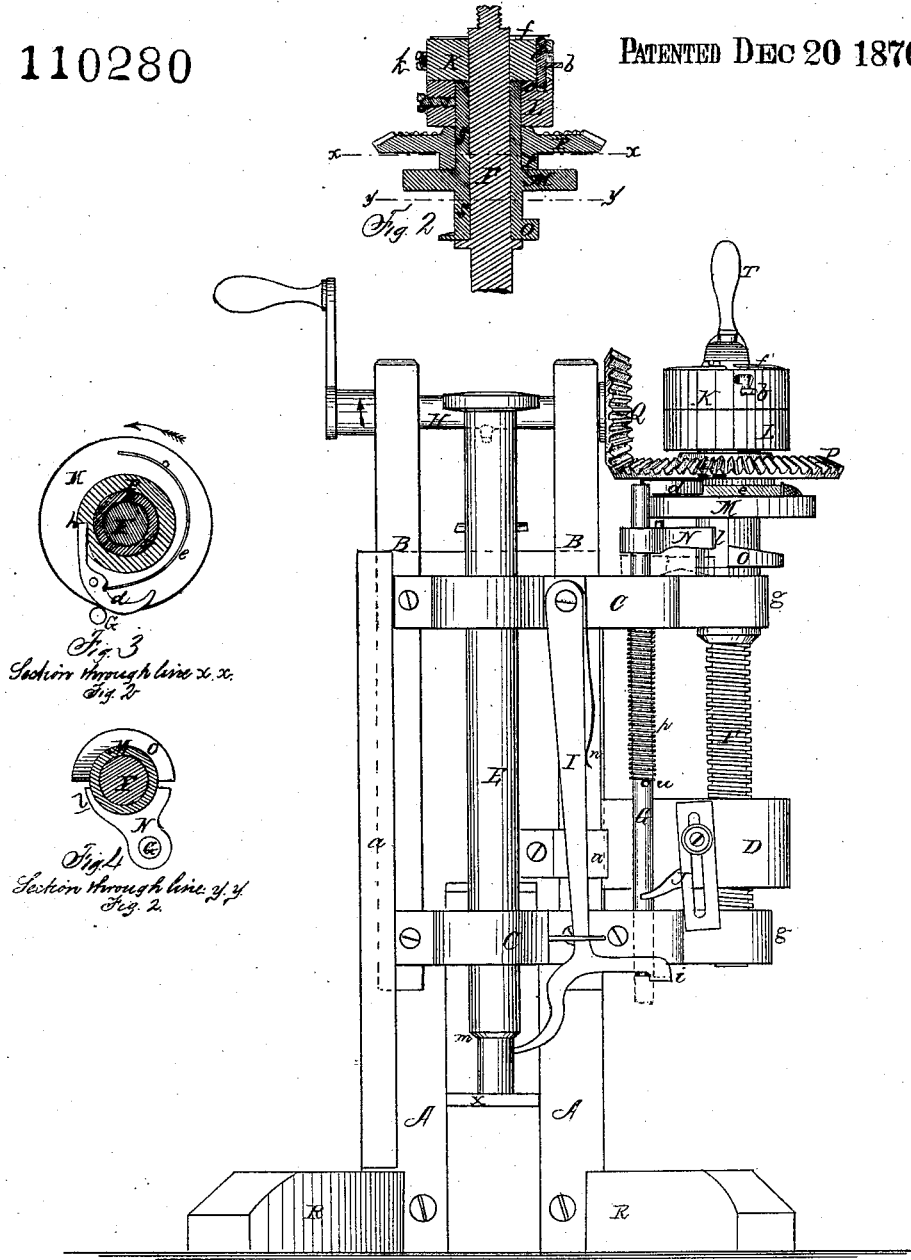


Fig. 3
Section through line x. x.
Fig. 2.

Fig. 4
Section through line y. y.
Fig. 2.

Fig. 1

Witness:

Lucius H. Peck
Adolph Schen

Charles Peck Inventor

United States Patent Office.

CHARLES PECK, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO HIMSELF
AND MILO PECK, OF SAME PLACE.

Letters Patent No. 110,280, dated December 20, 1870.

IMPROVEMENT IN ROCK-DRILLS.

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

I, CHARLES PECK, of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Rock-Drills, of which the following is a specification.

Nature and Objects of the Invention.

This invention relates to that class of machines known as rock-drills, and consists in certain novel arrangements and combinations of parts, the purposes of which will be fully set forth and described hereafter.

Description of the Drawing.

Figure 1 is a front elevation of my machine.
Figures 2, 3, and 4 are parts in detail.

General Description.

The frame proper consists of the upright A and bracket D, secured to the bed-plate R, and provided with guides *a*, in which the sides B B of the drill-frame slide.

The horizontal bars C C of the drill-frame support and furnish bearings for the drill E, the screw-shaft F, and rod G, and are secured to the sides B B, within which they slide.

The screw F works in a nut secured in the bracket D, and is held at both ends in the bearings *g g* in the drill-frame, so that, as the screw is turned, the drill-frame is raised or lowered.

The upper end of this screw-shaft has a collar, K, secured to it by the set-screw *k*, and immediately below this collar is a sleeve, S, of which the disk M and cam O are a part.

The collar L is secured to this sleeve, and is provided with a recess, *o*, into which the pin *c* in the upper collar K is pressed by the spring *f*, so that, as the sleeve revolves, the shaft will turn with it.

Upon the upper face of the disk M there is pivoted a pawl, *a*, which is pressed against the collar upon the under side of the bevel-gear P, and into its depression *h* by the spring *e*.

The rod G is held up by the curved end *i* of the trip-lever I, so that its upper end presses against that part of the pawl which projects beyond the disk M, and holds it out of contact with the bevel-wheel. This position of the disk M and rod G is shown in fig. 1.

At the lower end of the drill E a shoulder, *m*, is formed, by a portion of the stock being turned smaller than the rest, and against this smaller part the trip-lever is held by the spring *n*. When it is in this position the end *i* of the lever is held under the rod G.

As the drill penetrates deeper into the rock the shoulder *m* will approach the end of the trip-lever un-

til it strikes it and forces it back. This will cause the end of the rod G to slip from the curved end *i* of the lever, and the rod will be forced down below the disk M by the coil spring *p*. The pawl *a* will then be free to engage with the bevel-gear P, and, as the latter revolves, the screw-shaft will turn with it and lower the drill-frame a certain distance.

While the shaft F is thus being revolved the end *l* of the projecting arm N upon the rod G will strike the lower surface of the cam O upon the sleeve S, and be gradually raised until the upper end of the rod strikes the pawl *a* and disengages it from the bevel-gear P; and the lower end rises above the end *i* of the trip-lever sufficiently to permit it to be thrown back again by the spring *n*. Thus the bevel-gear P is free to revolve with the pinion Q, except when the rod G is permitted to drop and release the pawl *a*, when the screw-shaft F and bevel-gear will turn together.

As the only connection between the collar L, secured upon the sleeve S, and the collar K upon the screw-shaft F, is the pin *c*, (fig. 2,) it follows that when the pin is raised from the recess in the collar L the bevel-gear will turn, but the shaft F will remain stationary, so that by raising the pin *c* during the operation of the machine, the feed-motion of the drill will be arrested without interfering with the working of the machine, as the mechanism operating the drill and that turning the screw-shaft are entirely disconnected.

The feed motion of the drill is thus always under control, and may be arrested or set in motion at any point by disconnecting the collar K from the collar L, as before stated.

The end of the screw-shaft F is provided with a handle T, by which it can be rotated when the pin *c* is raised in order to adjust the drill-frame to any desired position.

As the drill-frame is fed downward by the screw-shaft the curved end of the trip-lever I is caused to drop a certain distance below the shoulder *m* upon the drill, at which point it remains stationary until the drill penetrates far enough into the rock to allow the shoulder *m* to strike it. It will thus be evident that the frequency of the operation of the feed is governed by the penetration of the drill into the rock, the feed operating at shorter intervals for soft rock and at longer ones for hard rock.

The stop J upon the stationary bracket D can be adjusted to stop the feed and the penetration of the drill at any desired point, by setting it in such position below the pin *u* on the rod G that, as the drill-frame is fed downward, the pin *u* will, at the proper time, catch upon the stop J and prevent the rod G from dropping down to release the pawl *a*, the feed being

set in motion at each time the rod G drops, is, in this case, arrested at the required time.

I am aware of the patent, No. 55,307, granted June 5, 1866, and do not wish to be understood as claiming any part, device, or thing therein claimed.

Claims.

I claim—

1. The mechanism for automatically regulating the feed in drilling-machines, consisting of the rod G, with the arm N, and the cam O, and the vibrating lever I, constructed and operating substantially in the manner herein described and specified.

2. The mechanism for disconnecting the feed, consisting of the collar K on the screw-shaft, the collar L, and the pin c, constructed and operating substantially as described and specified.

3. The mechanism for automatically stopping the feed of the drill at any point, consisting of the adjustable stop J, and the rod G with its stop u, constructed and operating substantially in the manner herein described and specified

CHARLES PECK

Witnesses:

LUCIUS G. PECK,
ADOLPH ASHER.