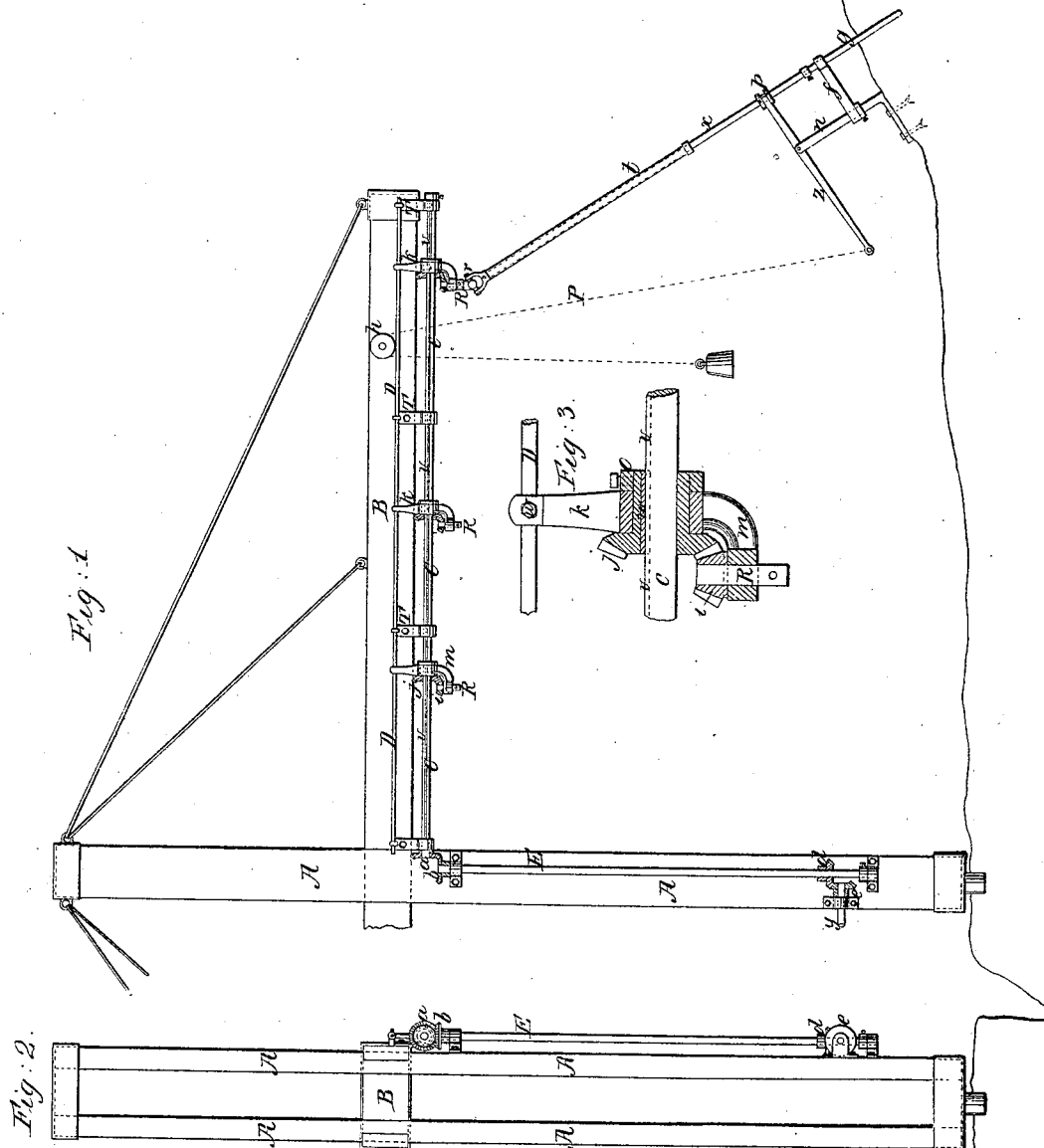


I. S. Lauback,

Stone Drill,

N^o 53,992.

Patented Apr. 17, 1866.



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UNITED STATES PATENT OFFICE.

ISAAC S. LAUBACK, OF NEW YORK, N. Y.

IMPROVED DRILL AND CRANE ATTACHMENT.

Specification forming part of Letters Patent No. 53,992, dated April 17, 1866.

To all whom it may concern:

Be it known that I, ISAAC S. LAUBACK, of the city and county of New York, in the State of New York, have invented certain new and useful Improvements in Cranes, to be used to hoist, drill, or bore large bodies, such as rocks or large pieces of metal; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a side elevation of an ordinary crane with my improvement applied thereto. Fig. 2 is a rear elevation of the same, and Fig. 3 is a part of the invention to be hereinafter described.

My invention consists in combining and uniting with an ordinary crane certain mechanical devices, so arranged in connection therewith as to form what I style a "universal drilling attachment."

To enable those skilled in the mechanical arts to which this invention appertains to make and use the same, I will proceed to describe the manner of making, applying, and using the attachment aforesaid.

Similar letters of reference represent corresponding parts of the different figures in the drawings.

Against the side of the crane-post A, I arrange a vertical shaft, E, in suitable bearings fixed to said post, as shown. On or near the lower end of said shaft I fix a miter cog-wheel, *d*, arranged to match in a corresponding wheel, *e*, fixed upon a horizontal shaft, *y*, held in a journal secured to the post in the manner shown, and upon the upper end of said vertical shaft I place a miter-wheel arranged to match in a corresponding wheel fixed upon the end of a horizontal shaft, C, which last-mentioned shaft is carried by brackets T T T bolted to the arm B of the crane. Upon said shaft C I place brackets *k k k*, each of which carries a pair of miter cog-wheels, *i j*, the wheel *j* being placed upon the shaft C and the wheel *i* upon a vertical spindle, R, also carried by the lower end, *m*, of said bracket. The wheel J is fitted with a feather-key, which fits a corresponding feather-seat, *v*, cut in the shaft C along its entire length, the wheel J being held in the journal of said bracket by a collar, O, as shown in Fig. 3, which is a section upon an enlarged scale through the journal of said bracket and through the wheels which it car-

ries. Against the side of the arm B of the crane I also arrange a shaft, D, and secure it in lugs made on the upper part of the brackets T. To this shaft I secure the brackets *k*, upon the upper end of which I make a socket, which I fit with a screw, *u*, and through which I pass the shaft D, so that by slackening the screw *u* the bracket *k* will be left free to move horizontally on the two shafts C D anywhere between the brackets T, and by tightening upon said screw said bracket will be held from swinging on a vertical plane when the shaft C is made to revolve and drive the miter-wheels carried by said brackets.

To the lower end of the spindle R, I attach a universal coupling, *v*, the lower part of which is attached to a hollow spindle, *t*, into which is arranged a spindle, *x*, and to the lower end whereof is secured a drill, Q, and upon the body of the spindle *x* I place a collar, *w*, into which the fork end of a lever, *z*, is arranged, which lever is supported in the upper end of the column *n*, which also carries the guide-arm *f*, and to the end of said lever I attach a cord or chain and carry it over a pulley, *h*, and to the end thereof I attach a weight, *s*, for the purpose of feeding the drill as it cuts its way into the rock or metal.

The base of the column *n* is secured to the ground or floor in any convenient manner, and the spindles *x* and *t* should be fitted with a feather and feather-seat to allow the one to slide freely out of the other as the drill advances.

In operating this apparatus, power is applied to the shaft *y*, which, through the agency of the miter-wheel above described, gives motion to the shafts E C and the spindles R, carried by the brackets *k*, to each of which a drill-spindle may be attached, as shown by *r t x*.

The drawings show but three brackets, *k*, and spindles R; but these may of course be increased or diminished in number as circumstances may require; and the arm of the crane may be extended to the other side of the post, with the drilling attachment affixed, so as to drill on both sides of the post instead of on only one side, as shown in the drawings.

No hoisting attachment is shown in the drawings, it being intended to use the ordinary attachment for this purpose, which is now so well known and in such universal use that a description of it here is not thought necessary.

By means of this attachment a crane can be fitted to drill holes in almost any direction

within reach of its arm, and may be used to great advantage in large machine-shops to drill metal, or in quarries, tunnels, or in rock-cuts for railroads, the diamond-pointed drill being employed for drilling rocks. The post of the crane is set in a step on a pivot in the ordinary manner, so as to swing around upon its axis, and when set for drilling should be stayed in any efficient manner to keep it from swinging away from the drill or away from the position in which it has been adjusted by the operator.

In all other drilling-machines with which I am acquainted the drill-spindle is fed—that is, pressed down to its work—by means of a screw or lever supported in a beam, or actuated by a force arranged above or on the spindle, in which case the beam B, for example, would have to be braced or tied, so as to keep it from rising up by the action of the force that pressed the drill down; but in this invention of mine it will be seen that the power which presses the drill down, instead of pressing the beam B up, draws it down, so that the stress upon the crane in drilling is the same as in hoisting heavy weights.

Having now described my invention, the

manner of making and operating the same, I claim and desire to secure by Letters Patent—

1. In combination with the post and arm of a crane, the vertical and horizontal driving-shafts C E, when fitted with the necessary cog-wheels and connection to drive a drill-spindle, substantially as set forth.

2. The movable bracket *k*, in combination with the shaft C and the arm of the crane B, for the purpose of carrying the driving-wheels *i j* and the drill-spindle R.

3. In combination with the arm of the crane, the drill-spindle *t*, when connected by means of the universal joint *r*, for the purpose of drilling holes under said arm at an oblique angle therewith.

4. In connection with the drill-spindle *t* and the crane-arm, the lever *z*, connected to the arm of the crane, so that the power which presses the drill forward will also tend to draw the beam down instead of pressing it up, substantially as described.

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