

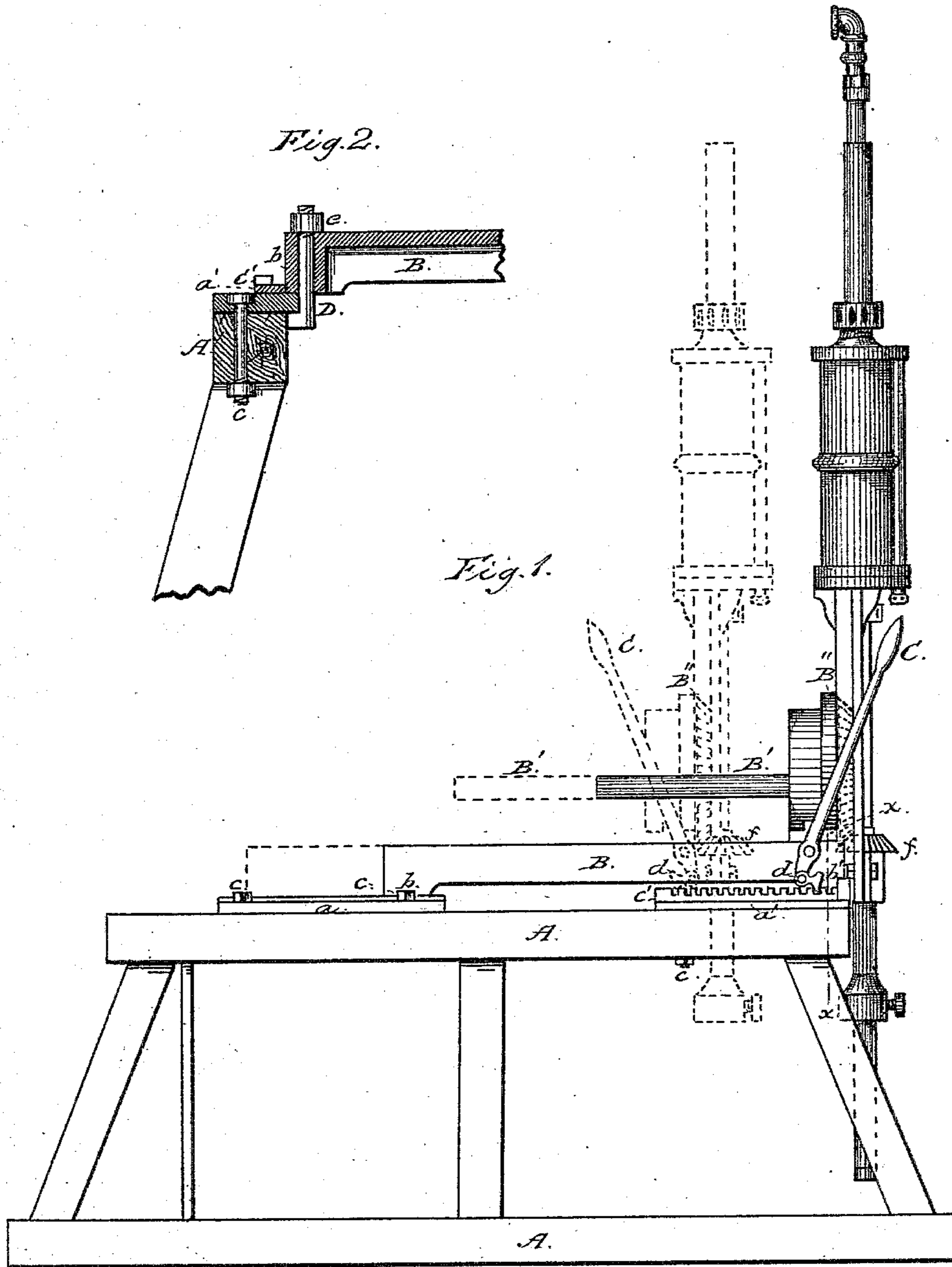
(No Model.)

A. BALL.

APPARATUS FOR SHIFTING DRILLING MACHINES.

No. 295,325.

Patented Mar. 18, 1884.



Attest;  
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# UNITED STATES PATENT OFFICE.

ALBERT BALL, OF CLAREMONT, NEW HAMPSHIRE, ASSIGNOR TO THE  
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## APPARATUS FOR SHIFTING DRILLING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 295,325, dated March 18, 1884.

Application filed December 31, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT BALL, of Claremont, in the county of Sullivan and State of New Hampshire, have invented a new and useful device for shifting drilling-machines out of the line of the holes and back again; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to a device of novel character designed to be employed in connection with rock-drills, and is more especially adapted to accommodate those described in Letters Patent Nos. 247,872 and 248,982, granted to myself and Geo. F. Case, October 4, 1881, and November 1, 1881, respectively. It has for its object—which is essential and desirable in boring at great depths—a simple and ready means for moving or shifting the drill mechanism out of the way of the line of the hole being bored during the intervals of removing the cores, so as to better facilitate the accomplishment of such work, which, when completed permits the drill by the same means to again resume its normal or working position, if desired, by a similar movement to that which places it out of the normal or working position.

It consists in mounting the drill mechanism upon a frame of suitable and substantial construction, and principally in providing the base of such mechanism with a lever constructed and arranged to engage with a rack, forming one of the guides or tramways with which the frame is provided, and upon which the base of such mechanism rests, so that by operating the said lever its connection and arrangement with other parts will enable the drill mechanism to be moved out of and again back to the normal or working position, all as more fully hereinafter described and claimed.

For the better understanding of my invention, and to enable those skilled in the art to which it relates to know how to construct and use the same effectively, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the device with the drill mechanism mounted thereon,

and indicating the position of such mechanism in dotted lines when thrown out of normal or working position; and Fig. 2, a cross-section of the same, taken on the line *x x* of Fig. 1.

Like letters refer to corresponding parts throughout the drawings.

A represents the frame, composed of any desired substantial material, upon which is mounted the drill mechanism. Its supports are weighted or secured to the surface upon which they rest by any means suitable to prevent the frame from moving during the process of drilling. This frame is provided on its upper surface with guides or tramways *a a'*, on which rest the legs *b b'* of the base B, to which base is secured the drill mechanism, as is also the engine for driving the same, not shown in the drawings, nor is it necessary to here describe such drill mechanism, as it is similar to that described in the Letters Patent hereinbefore referred to, the only addition shown in the drawings being the driving-shaft *B'*, provided on its inner end with the beveled-gear wheel *B''*, which meshes with the pinion *f*, splined to the hollow feed-rod. The guides or tramways *a a'* are rigidly secured to the top of the frame by means of bolts *c*, and are located apart from one another, as shown in Fig. 1.

The elevation *c'* on the guide *a'* has its upper edge toothed, thus forming a rack, as shown in Fig. 1, with which engages a pawl or dog, *d*, of the lever C. This lever is pivoted, as shown, to the side of the base B by means of a stud or bolt, and is provided at its extremity below the pivoted point with the pawl or dog *d*, (above referred to,) pivoted thereto. Now, when it is desired to shift aside the mechanism to remove the cores, the clamp-bolt D, Fig. 2, which clamps the base B to the guide-rack *a'*, is loosened by means of its nut *e*, thereby placing the base and mechanism in a condition ready for shifting. By operating the handle of the lever C back and forth, the pawl or dog *d*, engaging with the guide-rack or tramway *a'*, operates to readily shift the entire machinery, with the base B, back to the position indicated by the dotted lines in Fig. 1, so as to be entirely out of the line of the hole being drilled, and permit free access to

the work of removing the cores. To shift the drill back again in line with the hole, the pawl or dog *d* is reversed, as indicated by the dotted lines, and then, by a similar movement of the lever, the drill is brought forward to its proper position in line with the hole being bored, and the nut *e* of the clamp-bolt D tightened, thus securing the mechanism in a position for the continuation of drilling devoid of further movement or play until again shifted.

It is obvious that by changing the lines of the guides or tramways the movement of the drill can be made sidewise; or by pivotally securing the base B to the frame A at the end remote from the hole being bored, and adjusting the guides or tramways on a circle, the same result could be effected; but I prefer the method herein described as being the most simple and practical.

What I claim is—

In a drill-shifting apparatus, the combination, with the frame A and its guides, and rack *a a'*, supporting the drill mechanism, of the pawl *d*, and lever C, for shifting the drill, and clamp-bolt D, for adjustably securing the same, said bolt passing through the base of the drill mechanism and engaging at its lower bent end with the under side of one of the guides, substantially as described.

This specification signed and witnessed this 3d day of December, 1881.

ALBERT BALL.

Witnesses:

CHARLES H. CLARK,  
ALBERT ROSSITER.