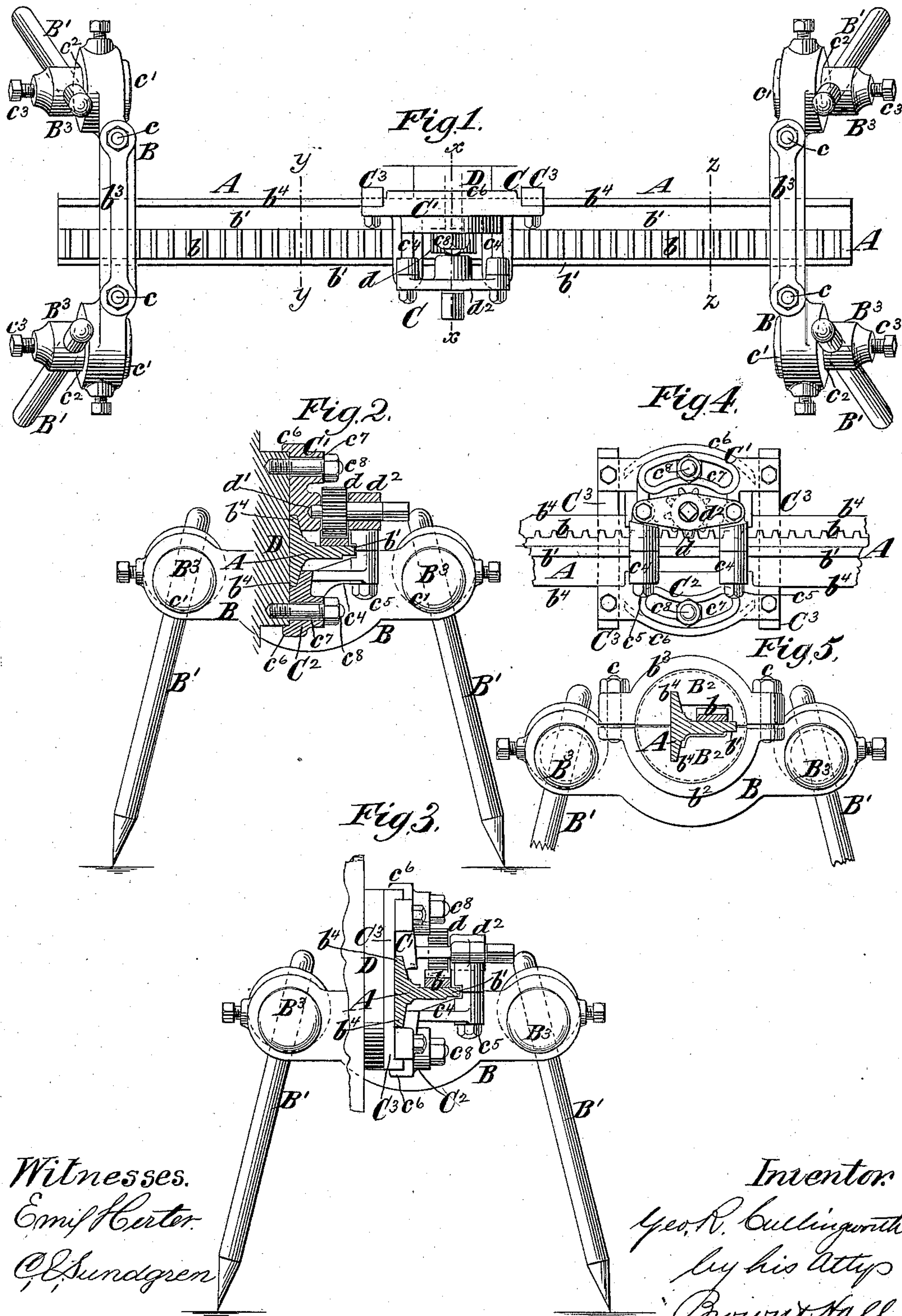


(No Model.)

G. R. CULLINGWORTH.  
QUARRY FRAME FOR ROCK DRILLS.

No. 365,733.

Patented June 28, 1887.



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# UNITED STATES PATENT OFFICE.

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## QUARRY-FRAME FOR ROCK-DRILLS.

SPECIFICATION forming part of Letters Patent No. 365,733, dated June 28, 1887.

Application filed July 26, 1886. Serial No. 209,105. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE R. CULLINGWORTH, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Quarry-Frames for Rock-Drills, of which the following is a specification.

My invention relates to a frame employed for supporting a rock-drill for quarry-work, so that the drill may be shifted horizontally, in order to drill a line or row of holes at any desired distance apart, such a frame comprising an approximately horizontal bar supported at the ends by benches and legs, and a carriage which, by means of a rack and pinion, may be moved along the bar in a direction lengthwise thereof, and to which the rock-drill is secured.

My invention is more particularly intended for machines in which the bar has a T-shaped transverse section, the rack being secured to the horizontally-extending web of the bar; and an important object of my invention is to provide a carriage which may be cheaply constructed and fitted to the bar at a slight expense, and to which the rock-drill may be secured adjustably, so as to provide for swinging the drill at different angles in the plane of movement of the carriage, or, in other words, at different angles in a plane parallel with the face of the bar.

The invention consists in novel features of construction and combinations of parts, which are hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan of a quarry-frame embodying my invention. Fig. 2 is a transverse vertical section thereof upon the plane of the dotted line *x x*, Fig. 1, and showing also a portion of the drill-back which is secured to the carriage. Fig. 3 is a similar transverse section on the plane indicated by the dotted line *y y*, Fig. 1, looking toward the right hand from said line. Fig. 4 is a rear elevation of a portion of the horizontal bar and the carriage which is fitted thereto; and Fig. 5 is a transverse section upon the plane of the dotted line *z z*, Fig. 1, also looking toward the right hand from said dotted line.

Similar letters of reference designate corresponding parts in all the figures.

A designates the approximately horizontal bar, which is supported at opposite ends by benches or cross-bearers B, provided with legs B'. As best shown in Figs. 2, 3, and 5, the bar A is of T-shaped transverse section, with a rack, *b*, secured upon its horizontally-extending web *b'*. The bars A, when of such transverse section, may be readily made from rolled I-beams by simply cutting the beam in two parts lengthwise of the web and midway between its flanged sides, one beam therefore being made to produce the bars for two drill-frames.

In order to provide for turning the bar A so that the rock-drill, which is secured to the carriage C, as I shall soon describe, may be swung in a plane transverse to the length of the bar, I have represented the benches or bearers B as provided with circular bearings *b*<sup>2</sup>, to which are fitted circular heads or divided journals B<sup>2</sup>, as best shown in Fig. 5. These divided heads or journals B<sup>2</sup> have in their meeting faces apertures which fit approximately the transverse section of the bar A, and such heads or journals may be clamped securely in place by tightening-bolts *c*, applied to the caps *b*<sup>3</sup> of the bearings, wherein they are fitted. When the bolts *c* are loosened, the bar A and its heads or journals B<sup>2</sup> may be turned readily in the bearings *b*<sup>2</sup>, so as to present the drill supported by the carriage C at different angles in a plane transverse to the length of the bar A. After being thus adjusted to proper position, the heads or journals B<sup>2</sup> and the bar A may be secured in position by tightening the bolts *c*, and thereby clamping the heads or journals B<sup>2</sup> against turning in the bearings *b*<sup>2</sup>.

As here represented, each leg B' is secured in place by a post, B<sup>3</sup>. This post B<sup>3</sup> has at one end a head or flange, *c'*, and it is inserted through a circular hole or bearings, *c*<sup>2</sup>, in the end portion of the bench or bearer B. The leg B' is inserted transversely through the post B<sup>3</sup> on the side of the bearer opposite the head or flange *c'*, and in the outer end of the post is a set-screw, *c*<sup>3</sup>, which bears against the leg B'. When the set-screw *c*<sup>3</sup> is loosened, the post B<sup>3</sup> may be turned easily in its seat or socket, so as to swing the leg in a plane transverse to the length of the bar A, and the leg B' may also be slipped more or less through



the post, in order to raise or lower the bench or bearer B. By tightening the set-screw  $c^3$  the post  $B^3$  is secured against turning in the bench or bearer B, and the leg  $B'$  is secured against slipping endwise through the post  $B^3$ .

The carriage C consists, as here represented, of upper and lower members,  $C'$   $C^2$ , which have a bearing upon the top and bottom flanges,  $b^4$ , of the bar A, and which also have a bearing upon the rear edge of the web  $b'$  of said bar, as shown in Figs. 2 and 3. The upper and lower parts,  $C'$   $C^2$ , of the carriage have rearwardly-extending arms  $c^4$ , which are secured firmly together in rear of the bar A by bolts  $c^5$  at the front of the bar. The upper and lower members,  $C'$   $C^2$ , are secured together by tie-pieces  $C^3$ , which extend transversely across the face of the bar A, and bear against said faces and front faces of the members  $C'$   $C^2$ , being approximately coincident with the face of the bar A. The upper and lower members,  $C'$   $C^2$ , of the carriage are provided with segmental lips or flanges  $c^6$ , forming between them a circular seat, the faces of which receive a projection, D, upon the drill-back. In the upper and lower members,  $C'$   $C^2$ , of the carriage are also provided segmental slots  $c^7$ , which are formed with less radius than the segmental lips or flanges  $c^6$ , but from the same center, and said slots receive bolts  $c^8$ , which are fast in the projection D of the drill-back, as shown best in Fig. 2, and which have nuts applied to their outer ends, whereby they may be clamped in any position in the segmental slots  $c^7$ . The slots  $c^7$  provide for swinging the drill-back D in a plane parallel with the face of the bar A, so that the drill or bit will be presented at different angles in said plane, and after the drill-back has been thus adjusted relatively to the carriage it may be secured in place by tightening the nuts upon the bolts  $c^8$ .

The carriage C is provided with a pinion,  $d$ , which engages the rack  $b$ , and by which the carriage may be moved along the bar A. The inner end of the pinion-shaft fits a bearing,  $d'$ , consisting of a socket formed in the upper member,  $C'$ , and on the opposite side of the

pinion the pinion-shaft has a bearing in a bridge-piece,  $d^2$ , extending horizontally across the back of the upper member,  $C'$ , of the carriage. 50

It will be understood that the carriage above described is of very simple construction, and that it only need have a bearing upon the top and bottom flanges of the bar A and upon the rear edge of the horizontally-extending web  $b'$ . 55

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a quarry-drill frame, the combination, with a bar provided with a rack, of a carriage fitted to slide thereon and provided with a pinion for engaging the rack, and having upon its face a circular seat for the reception of a projection on the drill-back, and segmental slots for receiving bolts to secure the drill to the carriage, substantially as herein described. 65

2. In a quarry-drill frame, the combination, with a bar of T-shaped transverse section, having a rack secured to its horizontally-extending web, of a carriage composed of upper and lower members connected together behind the bar and bearing upon the top and bottom flanges and on the rear edge of the web of the bar, and a pinion journaled in the carriage for engaging the said rack, the carriage being constructed for the attachment of a rock drill, substantially as herein described. 75

3. The combination, with the bar A of T-shaped transverse section, provided with the rack  $b$ , of the carriage comprising the upper and lower members,  $C'$   $C^2$ , fitted to slide on the top and bottom flanges of the bar and bolted together behind the bar, and provided with segmental lips  $c^6$ , for receiving a projection on the drill-back, and with the segmental slots  $c^7$ , the tie-pieces  $C^3$ , connecting said upper and lower members and bearing on the face of the bar A, and a pinion,  $d$ , journaled in the carriage, substantially as herein described. 85

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