(No Model.)

H. C. SERGEANT.

QUARRY FRAME FOR ROCK DRILLS.

No. 355,347. Patented Jan. 4, 1887.

Fig. 1.

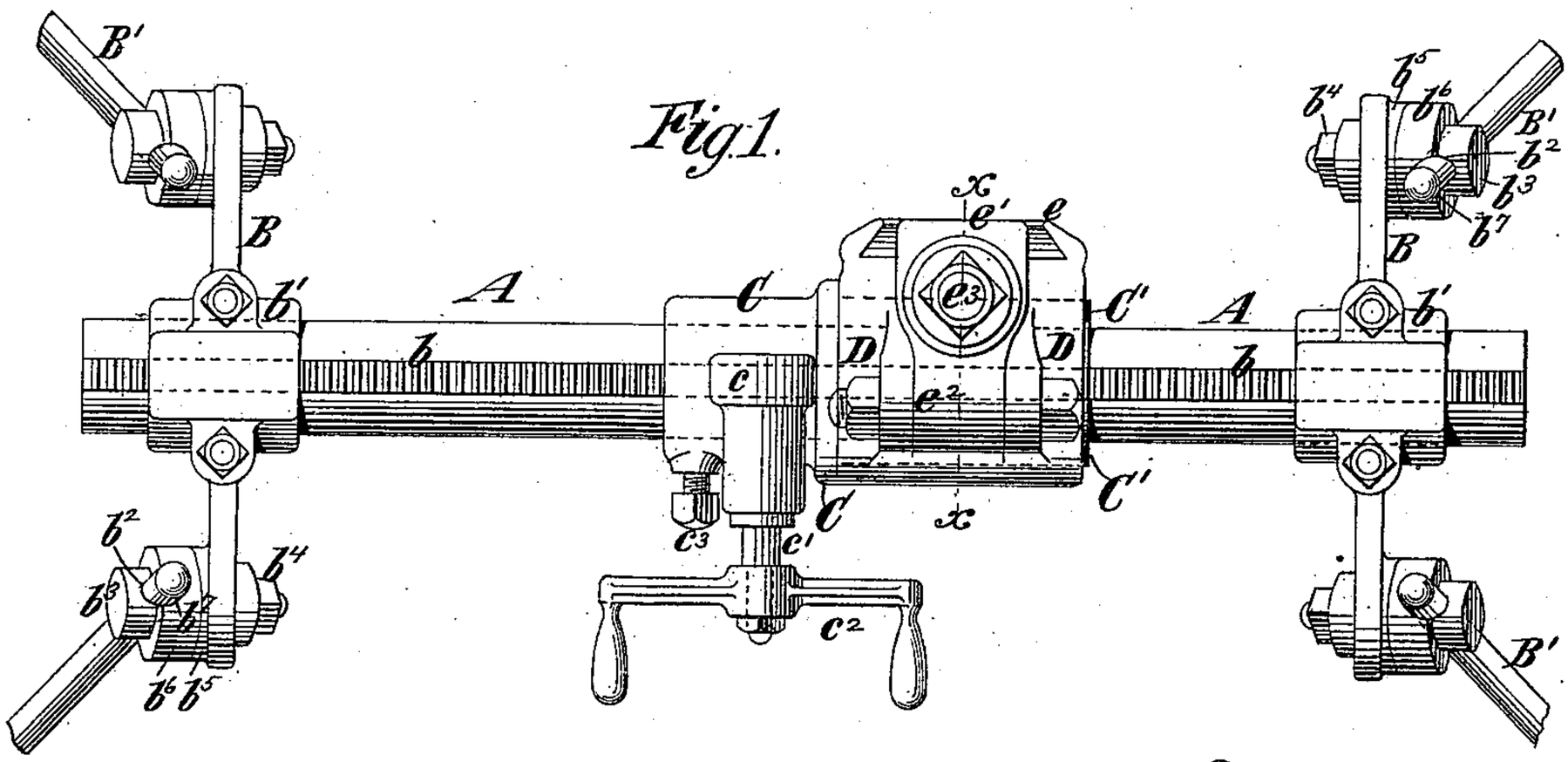


Fig. 3.

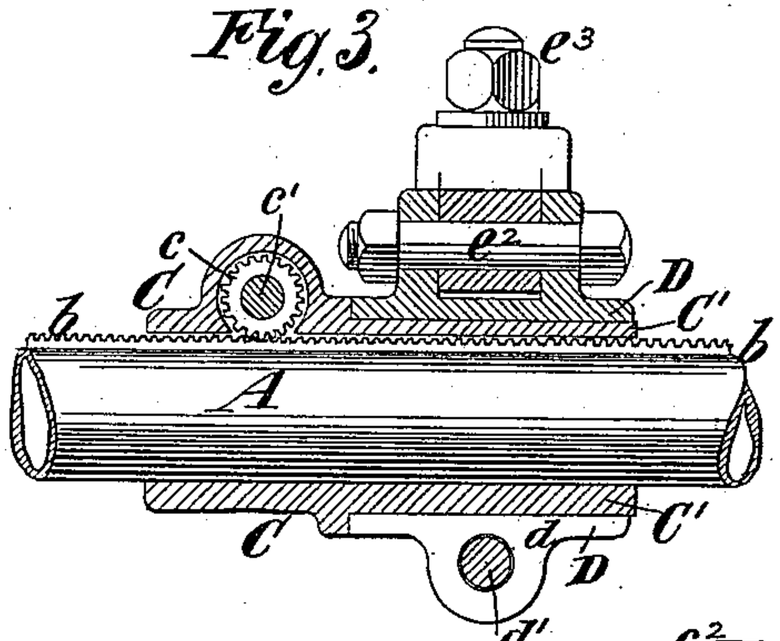
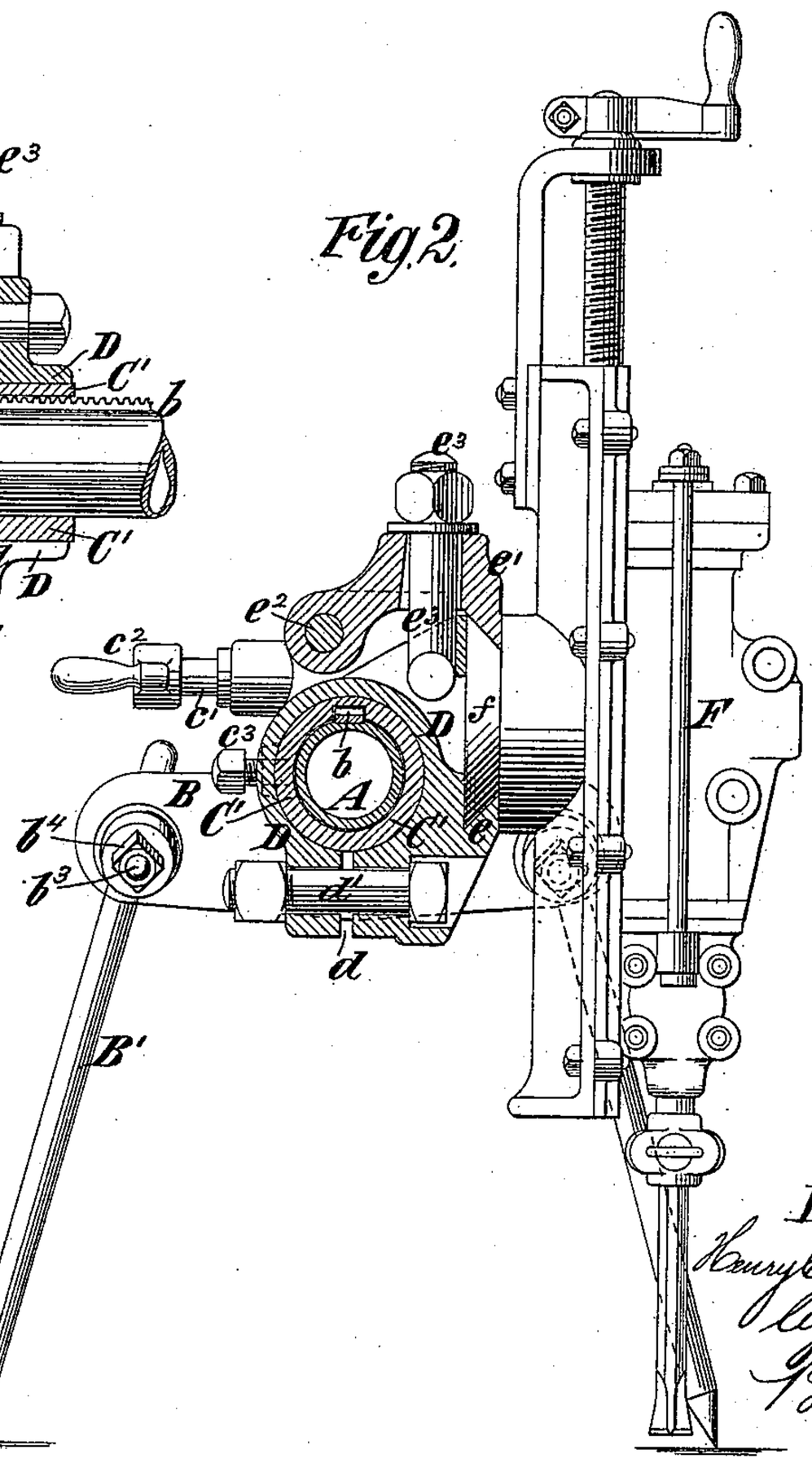


Fig. 2.



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HENRY C. SERGEANT, OF NEW YORK, N. Y.

QUARRY-FRAME FOR ROCK-DRILLS.

SPECIFICATION forming part of Letters Patent No. 355,347, dated January 4, 1887.

Application filed June 4, 1886. Serial No. 204,154. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. SERGEANT, 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.

The invention is applicable to quarry-frames upon which a rock-drill comprising a fluid-actuated piston and a cylinder is to be adjustably secured, so that it may be shifted in position to drill a line or row of holes at any desired angle.

The invention relates to a quarry-frame which consists of a bar supported at opposite ends, and supports for the drill which provide for its movement both lengthwise of and around the bar.

In quarry-frames of this kind as heretofore constructed the same securing devices or bolts have been employed to hold the supports for the drill-cylinder in the desired position on the bar, both as regards lengthwise movement upon the bar and rotary movement around the bar; and the object of my invention is to so construct and combine such supports for the drill that freedom is afforded for moving the drill lengthwise of or swinging it around the bar without necessarily freeing it entirely, so that its position in respect to both said movements is disturbed.

In what I now consider its most approved form the apparatus comprises, in addition to a horizontal bar, a carriage which may be moved lengthwise of the bar by a rack and pinion and secured in position by a set-screw or otherwise, and which has a circular journal portion projecting from it, and upon this circular journal portion is fitted a second carriage, which may consist of a split collar or clamp, and which is provided with means for the attachment of a rock-drill and for clamping it upon the circular journal portion to prevent its turning thereon.

The invention consists in novel 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 section thereof upon the plane of the dotted line *x x*, Fig. 1, and including an elevation of a rock-drill secured in position upon the rotary carriage or clamp; and Fig. 3 is a longitudinal section through the two carriages, also showing a side view of a portion of the bar on which they are supported.

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

A designates the horizontal bar, which may be made of a piece of heavy pipe or tubing, and upon which is secured a toothed rack, *b*, extending lengthwise of the bar. At opposite ends the bar A is supported by benches B, which extend transversely to the bar and have formed in them bearings *b'*, wherein the bar is held securely against turning, and these benches have adjustable legs B' for supporting them. As here represented the legs B' are passed through transverse holes b^2 in bolts b^3, which are inserted through the benches B, and provided with nuts b^4, and said benches have at the side hubs or bosses b^5, upon which rest collars b^6. Each collar b^6 has in its face semicircular recesses b^7, receiving a leg, B', and as here represented the bosses or projections b^5 have their faces oblique or inclined to the perpendicular, so that the legs B' of the benches at opposite ends of the bar A will stand outward or inclined away from each other in a direction lengthwise of the bar A, as shown in Fig. 1. By loosening the nuts b^4 the legs of each pair may be swung inward or outward toward or from each other, and they may also be slid more or less through the holes b^2 provided for them in the bolts b^3. By tightening the nuts b^4 the legs B' are secured both against swinging and against any lengthwise movement.

C designates a carriage fitted to the bar, and which may be traversed along the bar in a direction lengthwise thereof by means of a pinion, *c*, which engages the rack *b*. This pinion *c* is upon a shaft, *c'*, having applied to it a handle or hand-crank, c^2, whereby it may be turned, and after the carriage C is brought to the proper position on the bar A it may be there secured by a set-screw, c^3. The carriage C has a circular journal portion, C', which is clearly shown in Fig. 3, and to this journal portion is fitted a rotary carriage, D, which may be turned upon the circular journal-portion C' in a plane transverse to the length of the bar A. This carriage D may advanta-

geously consist of a clamp or collar divided at *d*, as shown in Fig. 2, and provided with a bolt, *d'*, whereby it may be clamped tightly upon the journal portion, so as to prevent its turning. This carriage D moves with the carriage C in a direction lengthwise of the bar, and after the carriage C is secured in fixed position the carriage D may be rotated or turned any desired portion of a revolution around the bar A and upon the journal portion C'. This clamp or carriage D is provided with means for the attachment of a rock-drill. In this example of the invention these means consist of a fixed jaw, *e*, and a movable jaw, *e'*, made in the form of a lever fulcrumed at e^2. These jaws are dovetailed on their inner faces and are adapted to grasp and strongly hold a correspondingly dovetailed circular projection, *f*, on the back of the drill F. The movable jaw *e'* may be drawn inward, in order to clamp the projection *f*, by means of a bolt, e^3. I make no claim to the specific construction of this clamp, as it is shown and described in my Letters Patent No 337,526.

From the above description it will be understood that in order to drill a line or row of holes at any angle it is only necessary to loosen the bolt *d'* and turn the rotary carriage D around the bar A and upon the circular journal portion C', so as to present the drill at the proper angle, or, if it be desired, either horizontally or vertically. The bolt *d'* is then tightened, to hold the rotary carriage D in place, and holes are then drilled by the machine, the sliding carriage C being moved a proper distance between the drilling of the several holes.

Although I have described the bar A as horizontal, it may, owing to the nature of the surface on which the machine is used, be set at any incline desired. If used upon an approximately-horizontal surface the bar will be horizontal.

It will be observed that the carriage D is held against rotation about the bar A by the bolt *d'*, and that it is held against movement lengthwise of the bar by the set-screw c^3, which directly holds the carriage C. These securing devices are entirely independent of each other, and it will be obvious that the bolt *d'* may be loosened to provide for turning the carriage D with the drill upon it, while it is positively held against movement lengthwise of the bar, and that by loosening the set-screw c^3 provision is afforded for moving the carriages C D lengthwise of the bar, while the carriage D is positively clamped upon the carriage C, so as to maintain the drill at the desired angle.

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

1. The combination, with a horizontal bar and benches and legs at opposite ends thereof for supporting the bar and preventing its turning, of a rotary carriage turnable around the bar, and provided with means for the attachment of a rock-drill, and securing devices independent of each other for holding the carriage against longitudinal and rotary movement on the bar, whereby provision is afforded for releasing the carriage for either movement without freeing it for the other movement, substantially as herein described.

2. The combination, with a horizontal bar and benches and legs for supporting the bar and preventing its turning, of a split collar, D, turnable around on an adjustable saddle upon the bar, and provided with a fixed jaw, *e*, a movable jaw, *e'*, and a bolt for adjusting the movable jaw relatively to the fixed jaw, whereby provision is afforded for the attachment of the rock-drill, and a bolt, independent of the bolt which operates the movable jaw, for securing the split collar against turning around the bar, substantially as herein described.

3. The combination, with a horizontal bar and benches and legs at opposite ends thereof for supporting the bar and preventing its turning, of a carriage, C, movable lengthwise of the bar and comprising a circular journal portion, C', and a rotary carriage, D, fitted to turn on said journal portion, and provided with means for the attachment of the rock-drill, substantially as herein described.

4. The combination, with a horizontal bar and benches and legs at opposite ends thereof for supporting the bar and preventing its turning, of the carriage C, movable lengthwise of the bar and comprising a journal portion, C', gearing for moving said carriage lengthwise of the bar, and a rotary carriage, D, fitted to turn on the journal portion C', and provided with means for the attachment of a rock-drill, substantially as herein described.

5. The combination, with the horizontal bar provided with a longitudinal rack, *b*, of the sliding carriage C, provided with a pinion, *c*, and having the circular journal portion C', and the split collar D, turnable on the journal portion, and provided with a clamp for the attachment of a rock-drill, substantially as herein described.

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