

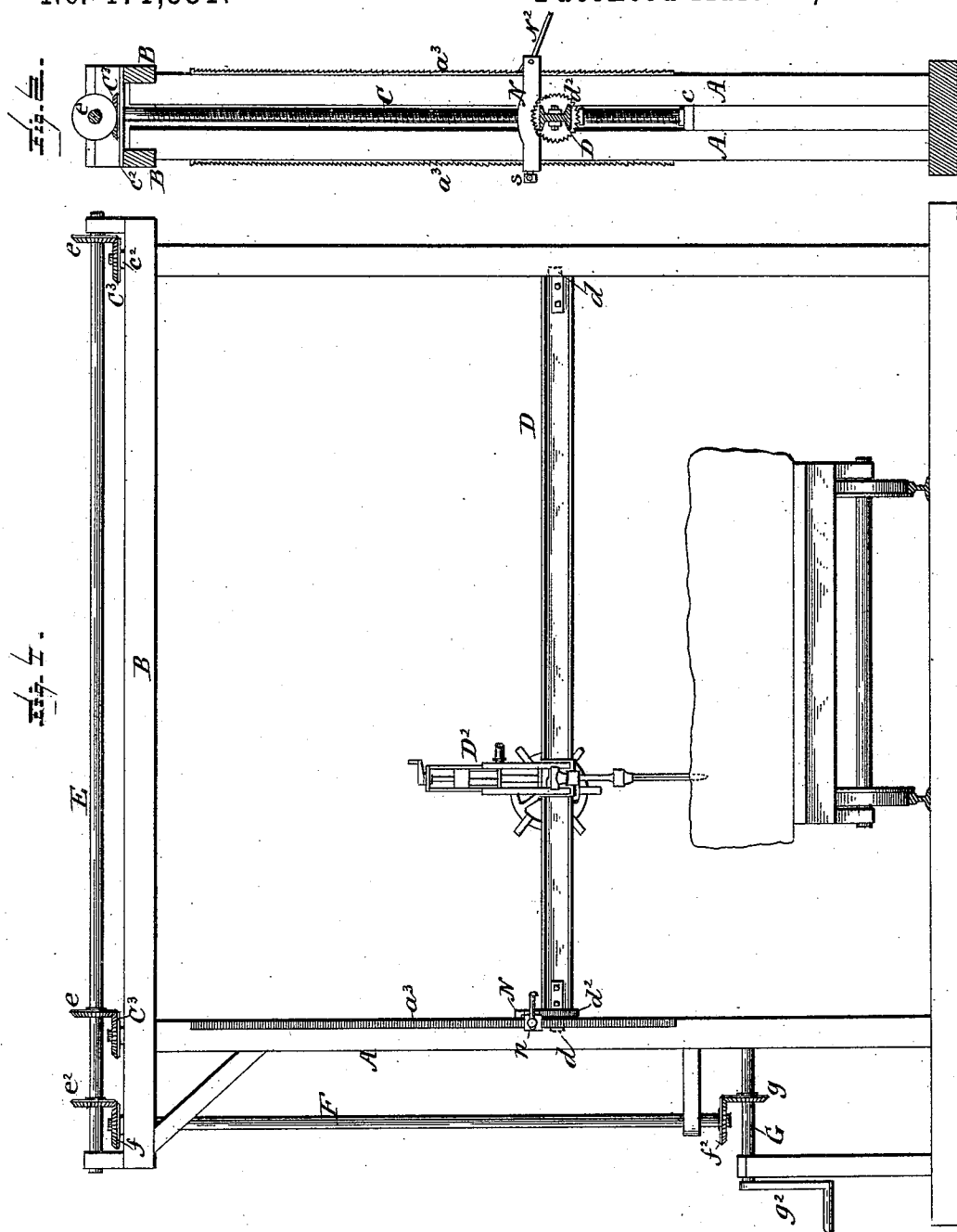
(No Model.)

2 Sheets—Sheet 1.

W. ARNOLD.
ROCK DRILL MACHINE.

No. 471,331.

Patented Mar. 22, 1892.



Witnesses:

C. C. Schiller,
L. C. Mills

Inventor.

Walter Arnold
by E. E. Masson
atty

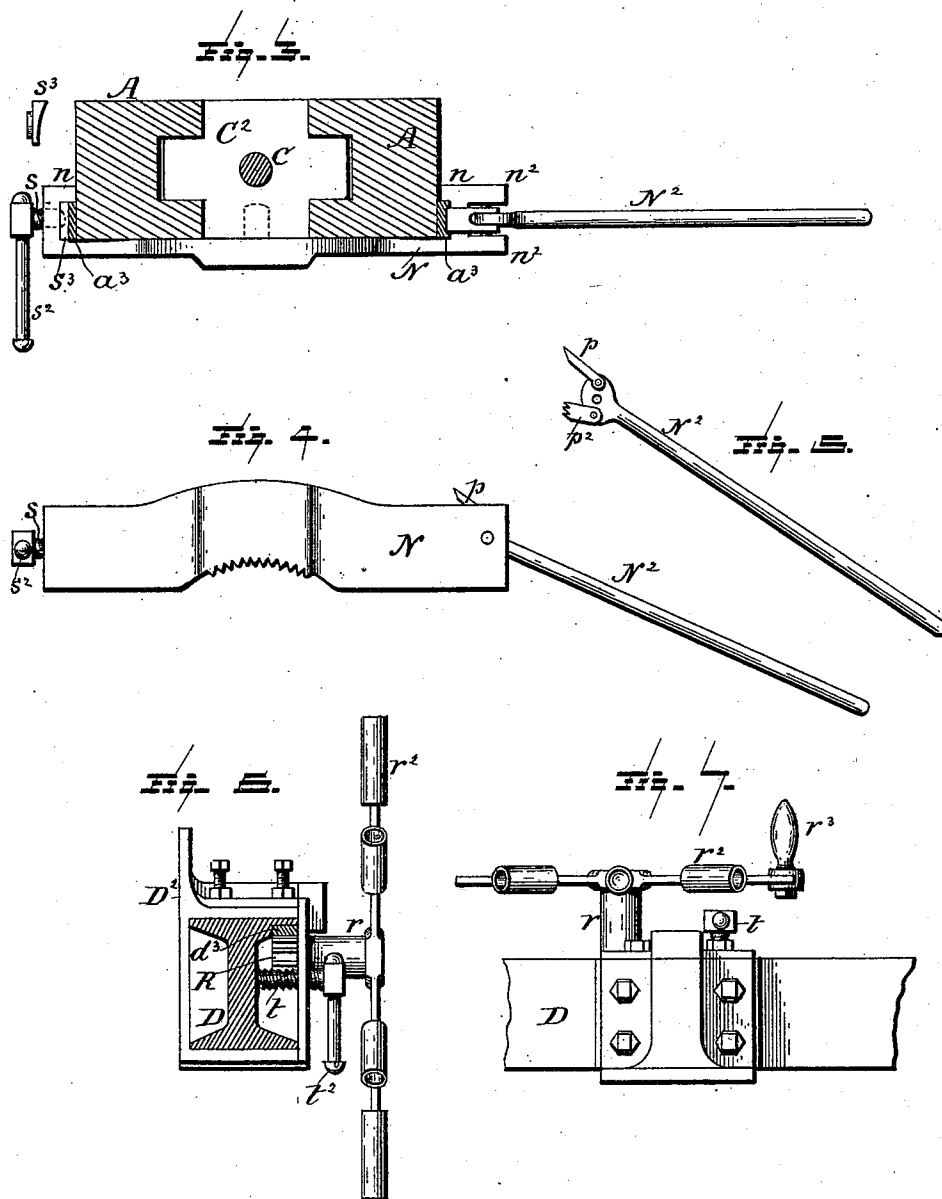
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UNITED STATES PATENT OFFICE.

WALTER ARNOLD, OF ST. CLOUD, MINNESOTA.

ROCK-DRILL MACHINE.

SPECIFICATION forming part of Letters Patent No. 471,331, dated March 22, 1892.

Application filed October 22, 1891. Serial No. 409,462. (No model.)

To all whom it may concern:

Be it known that I, WALTER ARNOLD, a citizen of the United States, residing at St. Cloud, in the county of Stearns, State of Minnesota, have invented certain new and useful Improvements in Rock-Drilling Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to stationary rock-drilling machines, in which the quarry-bar carrying the drill-holder is pivoted at both ends in vertically-adjustable nuts; and the objects of my improvement are to provide a simple and reliable means for retaining the quarry-bar locked to the frame of the machine, and simple means, also, to advance the drill-holder and clamp it to the quarry-bar. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a rock-drilling machine constructed in accordance with my invention. Fig. 2 is a vertical section of the same. Fig. 3 represents, on a larger scale, a horizontal section of one of the twin posts of the frame and a top view of the clamping-yoke and its adjuncts used to lock the quarry-bar. Fig. 4 is a front view of the yoke. Fig. 5 is a front view of the operating-lever detached from the yoke. Fig. 6 is a transverse vertical section of the quarry-bar, showing, also, a side view of the drill-holder carrier. Fig. 7 is a top view of the same.

In said drawings, A represents the twin posts of the frame, connected together at their upper ends by the top beams B. Between each of the twin posts is placed a screw C, having its lower end received in a shoe c and its upper end received in a guide-plate c², screwed on the top of the beams B. Each screw passes through a nut C², Fig. 3, that is guided by the posts A, and said nuts contain the bearings for the journals d of the quarry-bar D. To rotate the screws C, each one carries on its upper end a bevel-gear C³, that meshes with a bevel-gear e upon a horizontal shaft E, received in bearings on top of the beams B, and to rotate this shaft it carries

also a bevel-gear e² near one end, and said gear meshes with a bevel-gear f on the upper end of a vertical shaft F. On the lower end of said shaft there is a bevel-gear f², that meshes with a bevel-gear g upon a horizontal counter-shaft G, that carries also a crank g², by which it can be rotated. The drill-holder D² is suitably secured to the quarry-bar D, and the latter can be rotated on its journals d, but to retain it at any point of its rotation with the drill pointing in any desired direction said bar D has secured on one end thereof a toothed wheel d², with which the teeth on the under side of a yoke N are made to engage. Said yoke extends across the face of one of the pairs of posts A, and has hooked ends n to engage with the edge of rack-bars a³, vertically secured to the posts A. To clamp the yoke to the posts one of the hooked ends has two ribs n² projecting from its face, and through said ribs is passed a pivot-pin that passes also through the head of the handle N². To the head of said handle there is pivoted a wedge-pointed pawl p, and under the latter a second pawl p², having a serrated end, which when the handle n² is depressed enters into engagement with the teeth of the rack a³. The other hooked end of the yoke N has a perforation which is screw-tapped and receives a screw s, through the head of which is a hole to receive the handle s². Retained connected to the rounded end of the screw s by a concave socket-joint is a wedge-shaped block s³, which is pressed against the rack a³ by means of the screw s. The quarry-bar is a beam I-shaped in cross-section, and has a rack-bar d³ fastened to the under side of one of its upper flanges. Meshing with this rack-bar is a pinion R, which is secured to one end of a shaft r. This shaft passes through the back of the drill-holder D², and carries on its outer end a hand-wheel r², which can be operated by the handle r³ thereon. By turning the wheel r² the pinion meshing with the rack d³ moves the drill-holder D² along the quarry-bar D. To secure the drill in any desired position on the quarry-bar, the rear plate of the drill-holder has a perforation screw-tapped to receive the screw t, through the head of which

passes the handle t^2 , by means of which said screw can be revolved and pressed against the web of the quarry-bar.

Having now fully described my invention,

5 I claim—

The combination of the posts of a rock-drill frame, racks secured to the sides of said posts, a yoke embracing said racks and having teeth on its under side, a hand-screw inserted in
10 one end of said yoke, and a pawl-carrying le-

ver in the opposite end with a quarry-bar having a toothed wheel thereon for engagement with the teeth of the yoke, substantially as described.

In testimony whereof I affix my signature in 15 presence of two witnesses.

WALTER ARNOLD.

Witnesses:

ANDREW C. ROBERTSON,
THOMAS W. ROBERTS.