(No Model.)

G. E. FOSTER.

ADJUSTING AND SUPPORTING DEVICE FOR DRILLS.

No. 396,866. Patented Jan. 29, 1889.

Fig. 1.

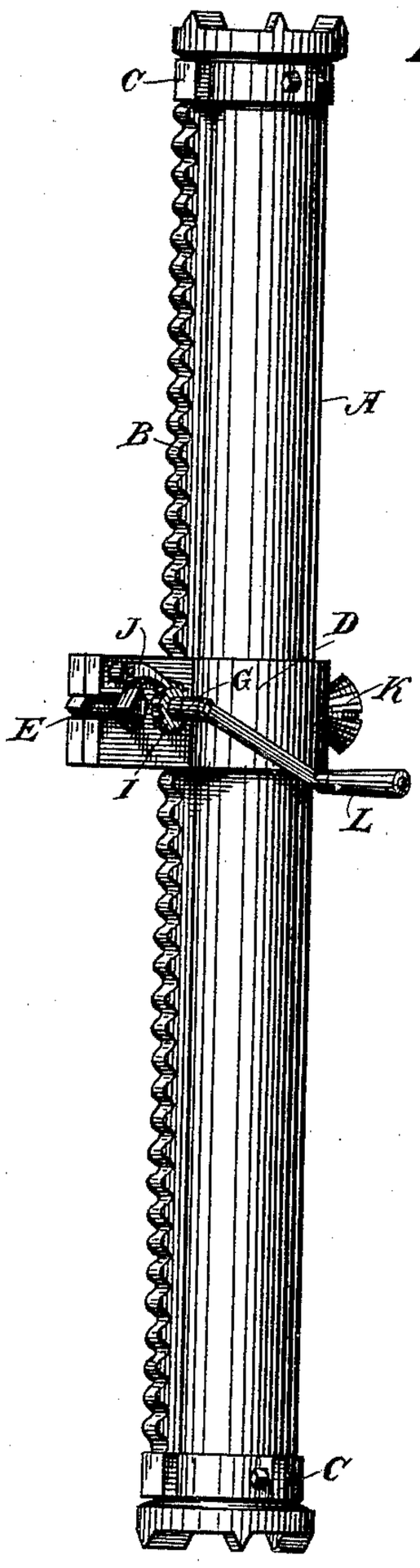
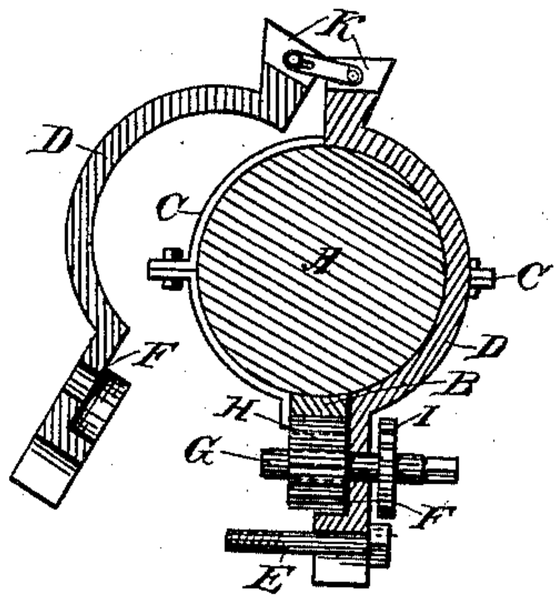


Fig. 2.



Witnesses,
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UNITED STATES PATENT OFFICE.

GEORGE E. FOSTER, OF PLEASANT VALLEY, CALIFORNIA.

ADJUSTING AND SUPPORTING DEVICE FOR DRILLS.

SPECIFICATION forming part of Letters Patent No. 396,866, dated January 29, 1889.

Application filed March 5, 1888. Serial No. 266,274. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. FOSTER, of Pleasant Valley, El Dorado county, State of California, have invented an Improvement in an Adjustable and Supporting Device for Drills; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a mechanism for supporting drills which are worked from a column to which they are fixed; and it consists of an independent rack extending along the outside of the column parallel with its axis and movable around its periphery, and, in combination therewith, of a clamp to which the drill apparatus is fixed, said clamp being provided with a pinion to engage the rack, and a pawl-and-ratchet mechanism for adjusting the drill to the proper position, and a clamping bolt or screw for holding it when adjusted.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a view of my device. Fig. 2 is a horizontal section through the center of the clamp.

A is a standard or column—such as are employed in mines or tunnels for the purpose of supporting a rock-drill in proper relative position to the face in which the work is to be done. These standards or columns are usually similar to a jack-screw, and are fixed between the floor and roof, walls, or projections, and have a clamp to which the drilling apparatus is attached. These clamps are usually raised and lowered by main strength, the whole weight of the drill having to be supported while the clamp is temporarily loosened.

In my invention B is a rack, which extends along one side of the post to which it is fitted. This rack is independent of the post, and straps or yokes C C pass loosely around the post at the upper and lower ends, and the rack-bar is firmly attached to these yokes. By this construction it is possible to move the rack to any point around the periphery of the post, as the yokes turn loosely and simultaneously, so that the rack when moved preserves its parallelism with the axis of the post. D is a clamp, which is hinged at one side, so that it may be opened to pass around the post, and it will then be closed around the post, being held or clamped firmly upon the latter by the bolt and nut E.

A slot, F, is made through the clamp parallel with the axis of the post, and wide enough to admit the rack-bar B, so that the clamp may move up or down upon the post when loosened, the rack-bar passing through this slot. The shaft G extends along the part of the clamp which projects behind the slot, and has a pinion, H, keyed to it, so as to turn within the slot and engage the rack-bar. Upon the outer projecting end of this shaft is fixed a ratchet-wheel, I, and a pawl, J, fulcrumed to the side of the clamp, engages this ratchet-wheel, so as to hold it wherever desired. The end of the shaft G which passes through the side of the clamp opposite to the ratchet-wheel fits loosely enough in its bearings on this side to allow the clamp to be easily opened or closed upon it. The side of the clamp opposite to the shaft and pinion has a conical or other suitably-shaped projection, K, to which the drill mechanism is attached, and by which it is supported in any position desired relative to the work to be done.

The operation will then be as follows: The nut E being loosened upon the clamping-bolt, the pawl J engaging the ratchet-wheel will prevent the shaft and pinion H from turning, and the pinion engaging the rack B will prevent the clamp and the drill from slipping down after the clamping-nut E has been loosened. By means of a lever-arm, L, which fits upon the end of the shaft G, squared for the purpose, this shaft may be turned, and the pinion H, rotating, will travel up or down the rack B, as may be desired, until the proper position or elevation of the drill has been reached. At the same time the vertical rack B being independent of the column A, the clamp and drill and the rack may turn around to any position upon the column until the drill stands exactly as desired. The clamping-nut E may then be screwed up tight and the clamp compressed upon the column, so as to hold the drill in proper position.

By this device I am enabled to adjust a drill easily and accurately, and no lifting or difficult work is necessary, the whole thing being easily handled by one man.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the supporting column or standard and the independent rack-bar, of the hinged clamp D, fitted to the standard and having the projection K, to which the drill is attached, and a transverse shaft passing through said clamp and provided with a pinion which engages the rack-bar, said clamp having a slot through which the rack-bar passes and in which the pinion operates, substantially as described.

2. The hinged clamp fitted to the supporting standard or column of a rock-drill, and having a projection or arm at one side to which the drill is fixed, a projection upon the opposite side having a transverse shaft carrying a pinion, said clamp having a slot in which the pinion operates, and a ratchet-wheel, and a pawl engaging the ratchet-wheel, in combination with an independent rack-bar passing through the slot in the clamp, and yokes to which the ends of the rack-bar are secured, said yokes turning loosely about the column, substantially as herein described.

In witness whereof I have hereunto set my hand.

GEO. E. FOSTER.

Witnesses:
S. H. NOURSE,
H. C. LEE.