(No Model.) 2 Sheets—Sheet 1

M. T. HURLEY.

PORTABLE DRILL FOR RAILROAD RAILS.

No. 577,605. Patented Feb. 23, 1897.

Fig. 4.

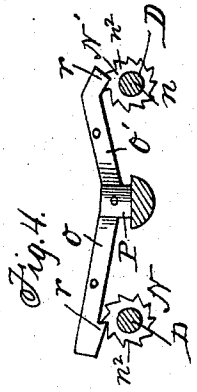
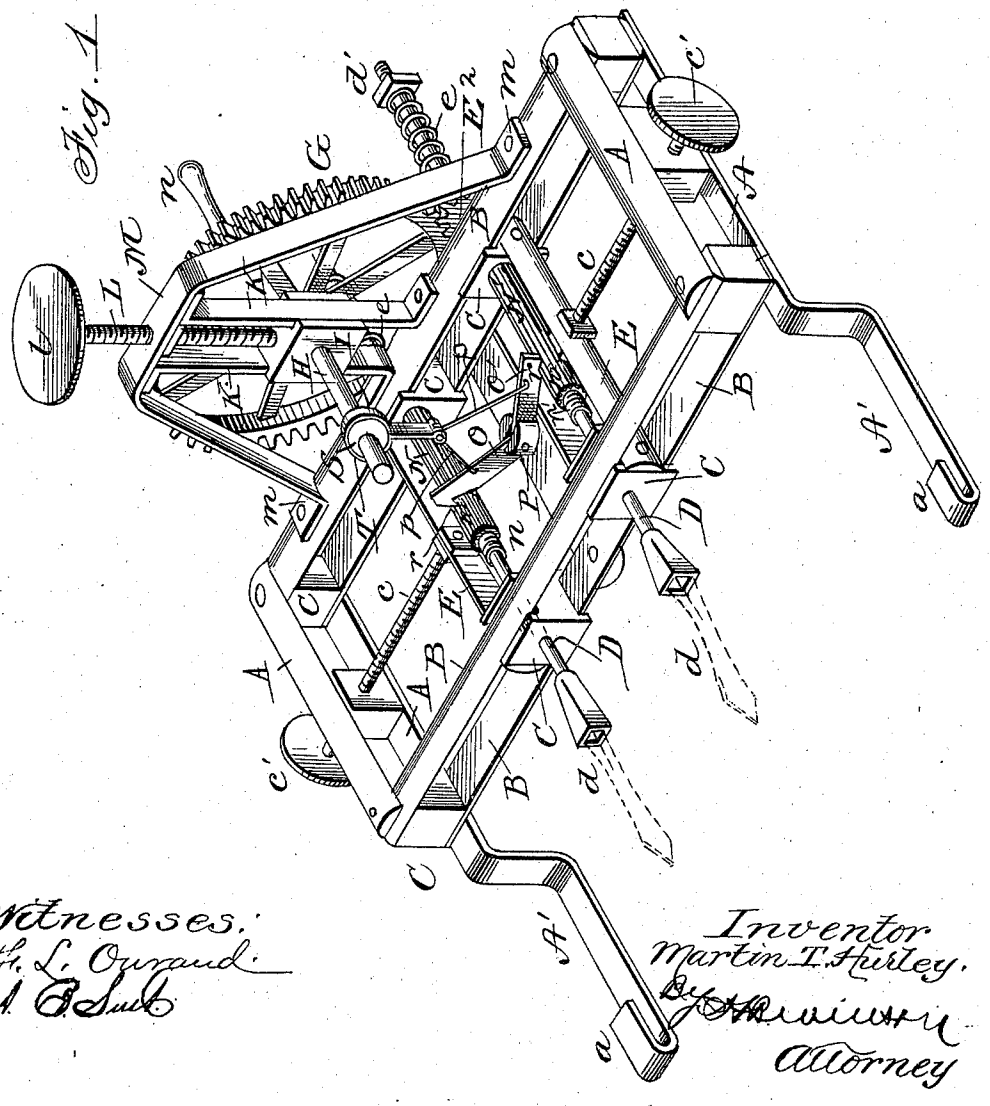


Fig. 1.



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(No Model.) 2 Sheets—Sheet 2

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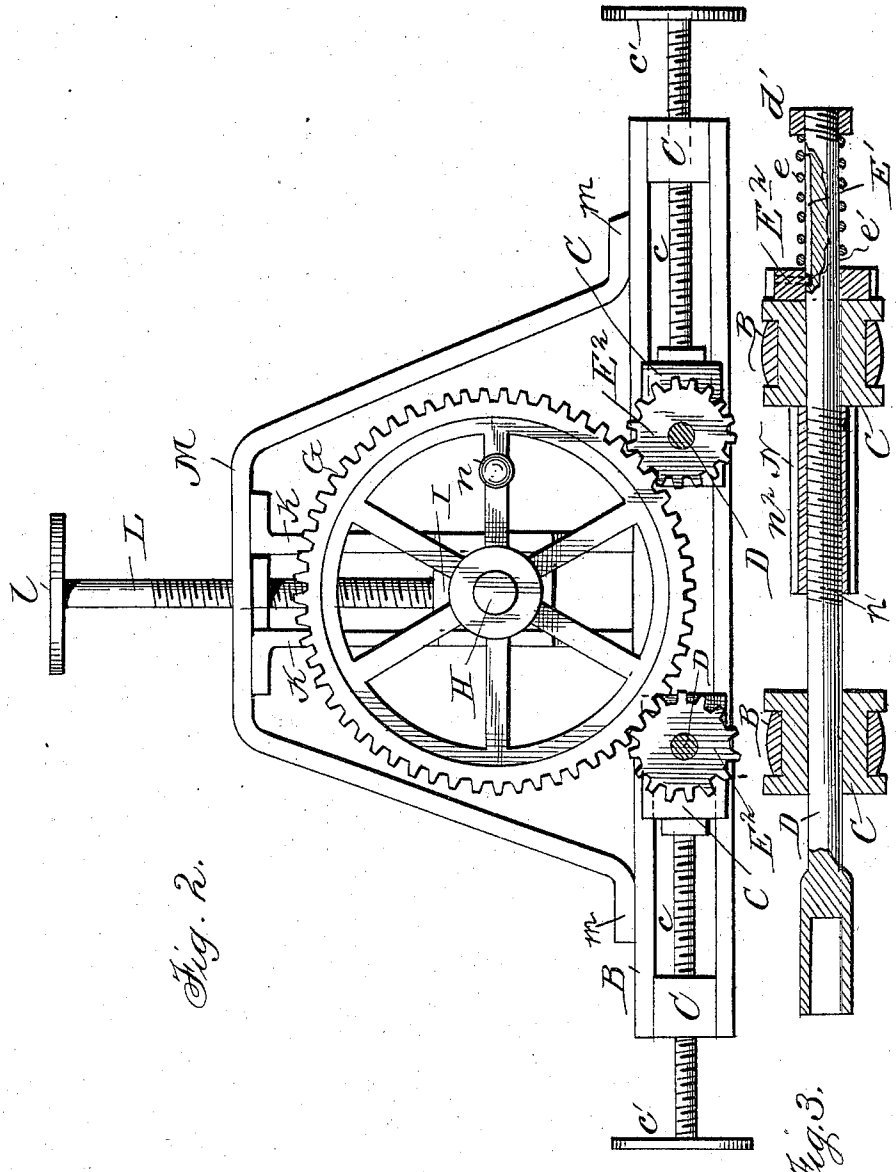

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

MARTIN T. HURLEY, OF PEORIA, ILLINOIS.

PORTABLE DRILL FOR RAILROAD-RAILS.

SPECIFICATION forming part of Letters Patent No. 577,605, dated February 23, 1897.

Application filed April 7, 1896. Serial No. 586,555. (No model.)

To all whom it may concern:

Be it known that I, MARTIN T. HURLEY, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Portable Drills for Railroad-Rails; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to portable drills for drilling holes in railroad-rails; and the object is to provide a portable device of this class that can be easily manipulated by one man, so that the ends of the rails can be expeditiously drilled at different distances after the track has been laid; and to these ends the novelty consists in the construction, combination, and arrangement of the several parts of the same, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings the same letters of reference indicate like parts of the invention.

Figure 1 is a perspective front view of my improved drill in operation. Fig. 2 is a rear elevation of the same, and Fig. 3 is a detail section of one of the drill-shafts. Fig. 4 is a detail view of the feeding mechanism.

A A is the frame of the machine, the lower sides being formed with extensions A′, the ends of which are bent over to form clamps *a a*, which engage the flange of the rail when in position to be drilled, and longitudinal braces B B form guides, between which the bearing-blocks C, in which are journaled the drill-shafts D D, slide; and E is a cross-brace connecting each pair of blocks C on the same drill-shaft, which is provided with an adjusting-screw *c*, provided with a milled adjusting-head *c′*, by means of which the blocks C, containing the drill-shaft D, may be adjusted with reference to the distance between the drills *d*. The rear ends of the drill-shafts D are provided with nuts *d′*, under the head of which and around the shaft is located a spiral spring *e*, the other end of said spring pressing against a pinion E^2, mounted on said drill-shaft by a pin or stud *e′*, passing through said pinion and into the slot E′ in said shaft in such a manner as to carry said shaft with it when it is rotated, and at the same time allow the shaft to be fed through the pinion while it is rotating it, the spring *e* constantly pressing the pinion against the side of the rear bearing-block C, and in the same plane with the large driving gear-wheel G. This gear-wheel is journaled on a shaft H in a bearing-block I, which is adjustable vertically between the uprights K K by means of an adjustiug-screw L, provided with a milled head *l*, and a crank *n* serves to operate the large gear-wheel and give motion to the pinions E^2 E^2. These upright guides K K are rigidly bolted to one of the longitudinal braces B, and they are supported at their upper ends by a strap M, which forms a brace by having its lower ends *m m* bolted to the same braee B as the uprights.

N N′ are sleeves mounted on the screw-threaded portion *n′* of the drill-shafts, and their rear ends abut against the face of the rear bearing-block, as shown in Fig. 1. These sleeves N N′ are provided on their periphery with longitudinal ratchet-shaped recesses n^2, and two pawls O O′ are pivoted to a central stationary stud P, so that the free end of the pawl O engages with one of the recesses n^2 on the sleeve N, and the tooth *r* on the pawl O′ engages with one of the similar recesses n^2 on the sleeve N′, and holds them stationary while their drill-shafts are rotating in them. This causes the screw-threaded portion *n′* on the drill-shaft to rotate in the similarly-threaded inside of the sleeve and feed the shaft and its drill-bit forward. The upper ends of these pawls are connected by rods *p p* to an eccentric-strap T, operated by an eccentric S, secured to and rotating with the shaft H, and the operation is such that while the sleeves normally rotate with their drill-shafts when not retarded by the pawls the ends of the pawls at each revolution of the shaft H engage one of the recesses in said sleeves, which holds them stationary for a moment. This causes the threaded portion of the drill-shaft to rotate in the sleeve, as above described, and feed said drill-point forward, and from this it will be seen that when the machine is once adjusted to the rail and the handle *n* operated, the drill-point will be automatically fed forward until the operation of drilling the holes is complete. This

automatic feed is brought into play only when the drill-points are adjusted to the standard distances corresponding to the bolt-holes in the fish-plates and is the normal adjustment of the drill-points. When it is desired to drill holes at other than the standard distance between the drill-points, which, however is very seldom the case, the pawls are thrown out of gear and the drills fed by hand through the medium of the sleeves N N′.

To adjust the machine, the places where the holes are to be drilled are first laid off and marked with a center-punch and the drills *d* adjusted to the center-punch marks by means of the milled-head adjusting-screws *c c′*.

The bearing-block I, carrying the shaft H and gear-wheel G, is then adjusted by means of the adjusting-screw L until its teeth mesh with the pinions E^2 E^2 on the drill-shafts D D. The crank-handle *n* is then operated until the holes are bored, the drills being automatically fed as above described. After the holes are finished the motion of the gear-wheel G is reversed, while the sleeves are held stationary and the drills are withdrawn from the holes by the action of the spiral springs *e*, and the machine shifted to a new rail and the operation is then repeated as before.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The frame A provided with the drill-shaft D, having the threaded portion n', upon which is mounted a sleeve N, having longitudinal recesses n^2 and the stud P, to which is pivoted a pawl O, in combination with the shaft H, having the eccentric S, and eccentric-strap T connected by a rod *p* to the pawl O, substantially as and for the purpose specified.

2. The frame A provided with the drill-shafts D D, each having driving-gears E^2 E^2 and the threaded portion n', upon which are mounted the sleeves N N′ having longitudinal recesses n^2, in combination with the shaft H provided with the gear-wheel G and eccentric S, eccentric-strap T, and rods *p p* connected to the outer ends of the pawls O O′ fulcrumed in the stud P, substantially as and for the purpose set forth.

3. The frame A provided with the extensions A′ terminating in integral clamps *a a*, the drill-shafts D D journaled in said frame and provided with slots E′, the driving-gears E^2 E^2, having pins *e′*, the springs *e* and nuts *d′*, and having threaded portions n' on which are mounted the sleeves N N′, in combination with the shaft H provided with the gear-wheel G, substantially as and for the purpose set forth.

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

MARTIN T. HURLEY.

Witnesses:
JOHN T. HURLEY,
E. L. HENFORD.