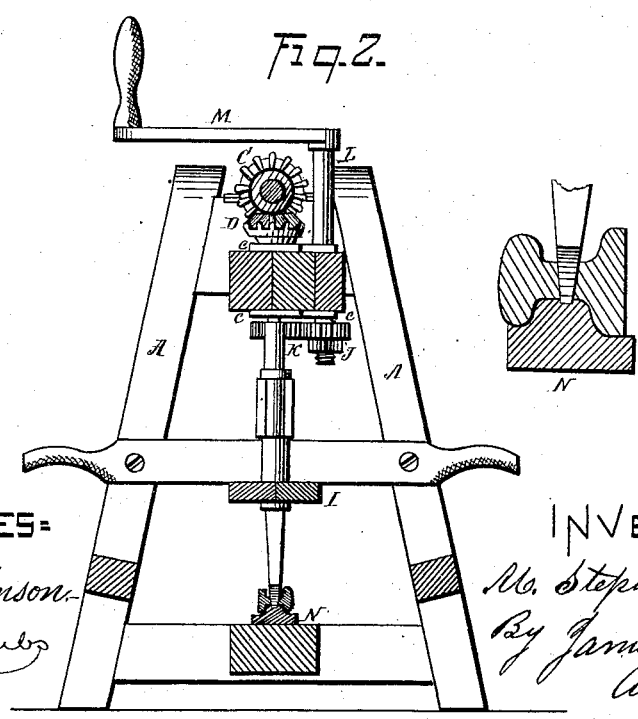
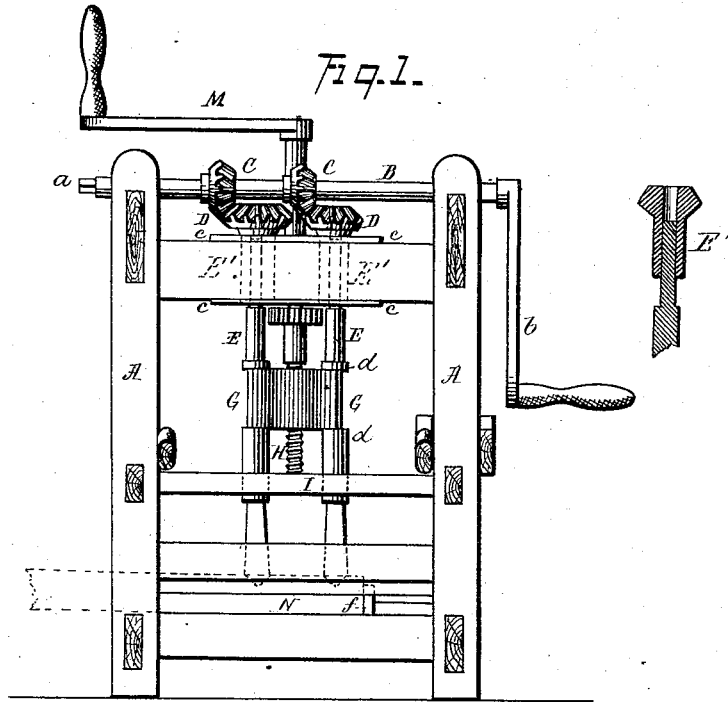


M. STEPHENSON.
 Portable Drilling Machine.

No. 160,361.

Patented March 2, 1875.



WITNESSES-
Gas. E. Hutchinson.
Wm. S. Coombs

INVENTOR-
Mo. Stephenson.
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UNITED STATES PATENT OFFICE.

MICHAEL STEPHENSON, OF STRATFORD, CANADA.

IMPROVEMENT IN PORTABLE DRILLING-MACHINES.

Specification forming part of Letters Patent No. **160,361**, dated March 2, 1875; application filed December 10, 1874.

To all whom it may concern:

Be it known that I, MICHAEL STEPHENSON, of the town of Stratford, in the county of Perth and Province of Ontario, Canada, have invented certain new and useful Improvements in Hand-Drills for Iron Rails, of which the following is a specification:

This invention relates to a portable hand-drill drilling-machine, for boring the holes in railroad-rails designed to receive the fastening-bolts of the fish-plates that connect the ends of the rails; and the object of the invention is to produce a machine whereby the two holes in the end of the rail can be drilled simultaneously the proper and exact distance apart, and the proper and exact distance from the end, top, and bottom of the rail without any measuring, countersinking, or scribing.

The invention consists in the combination of a rail-supporting bed and a pair of revolving drill spindles and drills, which are movable in a vertical direction, so as to enable them to be fed to and from the work, as will be hereinafter more fully described.

In the accompanying drawings, Figure 1 is a front elevation of a hand-drill constructed according to my invention. Fig. 2 is a vertical section of the same.

A designates a substantial frame, which is composed of corner-posts or standards and horizontal connecting beams or bars. B is a horizontal driving-shaft, which is journaled in the sides of the frame, and is provided with square end projections *a*, for applying a hand-crank, *b*. On said shaft B are mounted a pair of bevel-wheels, C C, which mesh into bevel-wheels D D on the upper ends of tubular pendent axles or sockets E. Said sockets or tubular bevel-wheel axles project through and turn in a central cross top beam of the frame, metallic bearing and re-enforcing plates *c* being applied to the top and under side of the cross-beam. A pair of parallel drill-shafts extend up through the sockets E, and are connected with the same by means of splines and grooves, so as to permit both a rotating and sliding or feeding motion. The drill-shafts may be provided with detachable tools or points at their lower ends, or the shafts may be properly shaped for the same purpose. G is a sliding

block, which is provided with channeled or bifurcated sides, for embracing the drill-spindles between a pair of collars or shoulders, *d*, formed on the same. A vertical feed-screw, H, passes through a central screw-threaded opening in the sliding block, and through a drill-guide board, I. The upper end of the screw carries a spur-wheel, J, into which gears a similar spur-wheel, K, on the lower end of a hand-shaft, L, which is journaled in the top cross-bar of the frame. By turning a hand-crank, M, on said shaft the feed-screw can be correspondingly turned, for carrying the sliding block up and down for feeding the drills to and from the work. Immediately below the drills there is located a rail-bed, N, which is shaped like a railroad-rail, and provided with a stop or end gage, *f*, for defining the exact position of the end of the rail in respect to the drill-spindles.

By rotating the drill-spindles and feeding the same downward, the two bolt-holes usually formed in the ends of railroad-rails for the reception of the bolts for fastening the fish-plates can be formed with great ease and facility, and this without resorting to scribing or marking of the rail. The exact relative positions of the bolt-holes is in all cases determined by the position of the drills and the stop of the rail-bed, and it is thus possible to drill bolt-holes in any desired number of rails with the holes of every rail at the same distance apart.

What I claim is—

The combination, in a portable hand-drill, of a pair of vertical drill-tools having the bevel-gear wheels D D, the horizontal shaft B having the pinions C and journaled in the upper ends of the frame, the collar or block G embracing the drill-spindles, and the vertical adjusting-screw H, the whole being constructed and arranged for operation as herein shown and described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

M. STEPHENSON. [L. s.]

Witnesses:

H. W. HUTTON,
JOHN E. HARDING.