(No Model.)

S. & W. GARBRANT.

DRILLING MACHINE.

No. 441,756. Patented Dec. 2, 1890.

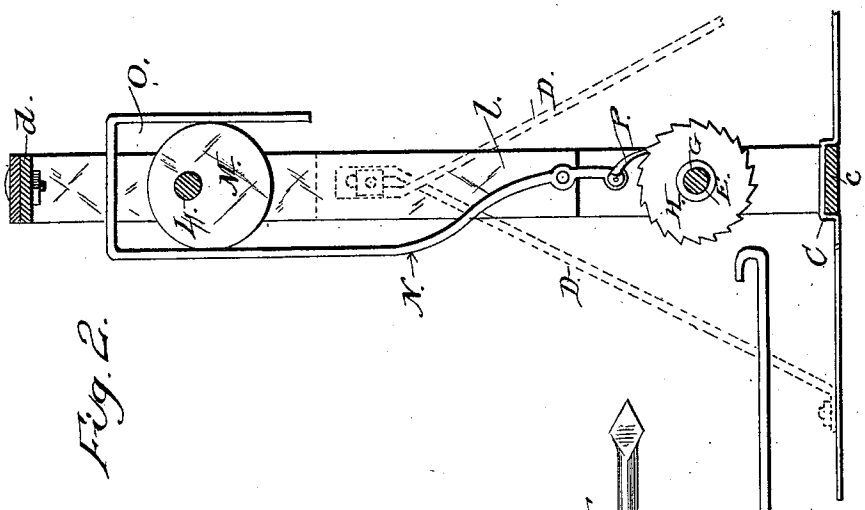


Fig. 2.

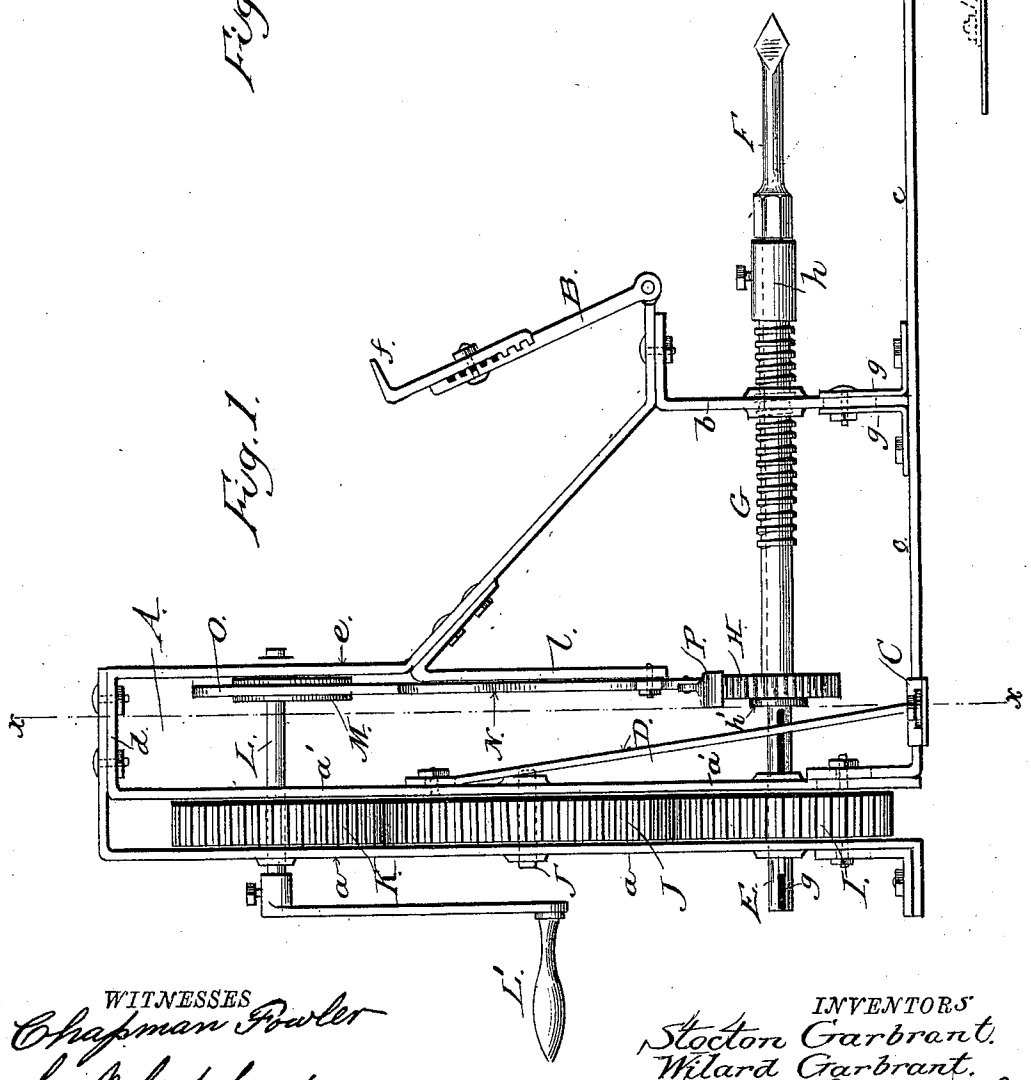


Fig. 1.

WITNESSES
Chapman Fowler
Geo M Copeland

INVENTORS
Stocton Garbrant.
Wilard Garbrant.
by W. H. Evans & Co
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

STOCTON GARBRANT AND WILARD GARBRANT, OF WATERLOO, IOWA.

DRILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 441,756, dated December 2, 1890.

Application filed July 15, 1890. Serial No. 358,828. (No model.)

To all whom it may concern:

Be it known that we, STOCTON GARBRANT and WILARD GARBRANT, citizens of the United States, residing at Waterloo, in the county of Black Hawk and State of Iowa, have invented certain new and useful Improvements in Drills, of which the following is a full and clear description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation of a drill embodying our invention. Fig. 2 is a cross-sectional view on the line *x x* of Fig. 1.

Our invention relates to certain new and useful improvements in drilling appliances, and especially to that used for drilling railroad-rails, and consisting in the constructions and combinations of devices which we shall hereinafter fully describe and claim.

The object of our invention is to provide a cheap and simple portable apparatus by means of which holes may be drilled in railroad-rails and like devices while the same are in position and without necessitating the removal of the same.

To enable others skilled in the art to which our invention appertains to make and use the same, we will now describe its construction and indicate the manner in which the same is carried out.

In the said drawings, A represents a suitable frame, consisting of the uprights *a*, *a'*, and *b* and the base-piece *c*, the said piece *a'* having a horizontal arm *d*, which is bolted to a similar arm of the piece *a*, and said piece *a'* being bent to form a vertical arm *e*, whose lower end is inclined and bolted or otherwise secured to the upper end of the upright *b*, as shown in Fig. 1, and serves as brace for the frame. The lower or base piece *c* has its outer end curved and adapted to engage the bottom flange of the rail, and to the free end of the inclined brace-arm, which is secured to the upright *b*, is pivotally secured an arm B, formed, preferably, of two pieces bolted together and slotted, and whose meeting faces are serrated, whereby they are firmly held together and capable of adjustment to correspond with the size of rail operated upon, and said arm B has its outer end bent downward at *f* or hook-shaped to engage the head of the rail. By this means the rail is securely held at top and bottom and the drilling-machine held firmly to the rail, so that its drill may operate to bore the hole, as we shall hereinafter indicate.

The base-piece *c* may have secured to it lugs or ears *g*, between which the upright *b* is secured, and one end of said base-piece *c* is bent upward alongside of the upright *a'* and bolted thereto. If desired, the upright *b* and the bent end of the base-piece *c* may be slotted to provide for the vertical adjustment of the frame and the working parts of the device, this being often desirable because of the rails being of different heights.

Secured to the base-piece *c* is a transverse bar C, which is designed to rest upon the road-bed or tie and form a strong support for the device, and to the upright *a'* is secured the upper end of brace-rods D, whose lower ends are bolted to the cross-bar C.

Mounted in the lower portions of the uprights *a* and *a'* and the upright *b* is the drill-shaft E, which is provided with a feather-way *g*, whereby said shaft may be longitudinally moved, and said shaft carries at its outer end a head *h*, in which the drilling-tool F is secured in any suitable manner. Upon the shaft between the head *h* and a collar *h'* is a sleeve G, externally threaded and passing through a threaded nut or bearing in the upright *b*, and is provided with a ratchet-wheel H on its inner end, as shown.

Upon the drill-shaft E, between the uprights *a* and *a'*, is a gear-wheel I, which meshes with a similar gear-wheel J on a stub-shaft J', and this gear-wheel J in turn meshes with and is driven by a gear-wheel K on a shaft L, mounted in the upper portion of the frame between or in the uprights *a* and *a'*, and is extended outside of said frame to receive a crank-handle L', by which the gears are operated. From this description it will be seen that when the handle L' is turned the gears I, J, and K are set in motion and the drilling-tool rotated.

To provide an automatic feed for the drill we employ the following mechanism: Upon the shaft L, near the inner face of the vertical portion *e* of the upright *a'*, is mounted an eccentric M, and pivotally secured to the lower portion of an arm *l*, extending from the portion *e* of the upright *a'*, is a lever N, whose upper end is formed as a yoke O, which straddles the eccentric, and whose lower end carries

or is formed with a wide pawl P, which is adapted for engagement with the ratchet-wheel H on the sleeve G.

From the foregoing it is manifest that as the crank is turned to operate the gears and thereby rotate the drilling-tool the eccentric M is also rotated, and by contacting with the inner walls of the yoke O causes the lever N to oscillate, and thereby causes its pawl to automatically engage and move the ratchet-wheel H and regulate the feed of the drill, the pawl P being wide enough to feed the drill forward the desired distance without disengaging therefrom.

The apparatus described is simple in construction, portable in its nature, not liable to get out of working order, and is very effective in drilling bolt-holes in the rails while they are in position on the road-bed. The adjustment of the parts is quickly accomplished and the drilling quickly performed, as the operation of the drill is a continuous one and not intermittent, as are many of those now in use.

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

1. In a drilling-machine, the frame consisting of the uprights and base-piece, adjustable with relation to each other, said base-piece having an upturned end for engaging the lower flange of the rail, a two-part arm pivotally hung to said frame and having a hook-shaped end for engaging the head of the rail, and a transverse support and brace-rods, in combination with the gears I, J, and K, mounted in said frame, a crank for operating the gears, a horizontally-moving drill-shaft, and a drilling-tool carried by the shaft, substantially as herein described.

2. In a drilling-machine, the frame, the drill-shaft and its tool, and the gearing by which the same is operated, in combination with means for automatically feeding the drill forward, consisting of a threaded sleeve on the drill-shaft, having a ratchet-wheel, an eccentric on one of the gear-shafts, a pivoted lever having a yoke at one end engaged by the opposite end engaging the ratchet-wheel on the threaded sleeve, substantially as herein described.

STOCTON GARBRANT.
WILARD GARBRANT.

Witnesses:
E. M. WYANT,
JACOB GARBRANT.