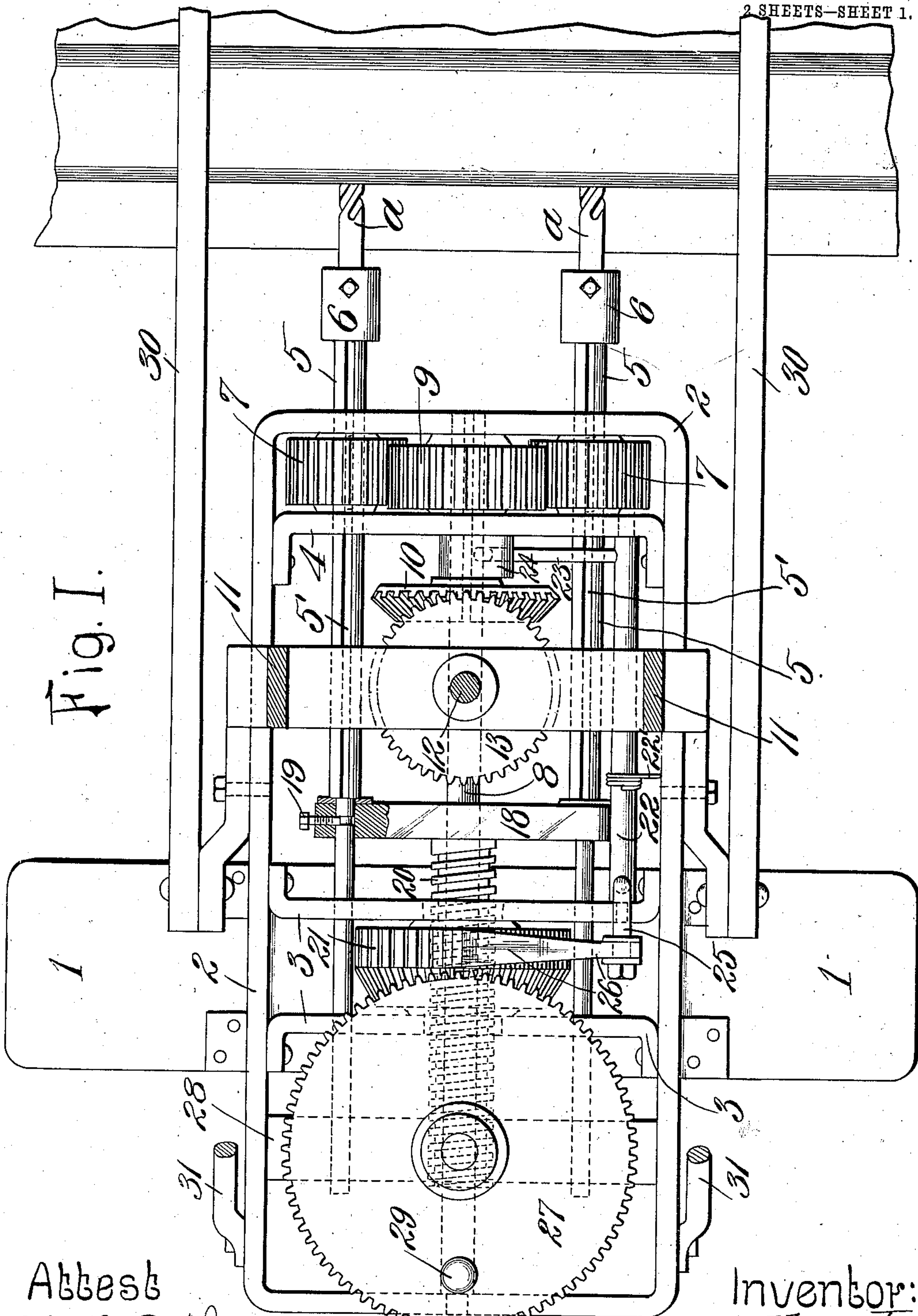


No. 842,544.

PATENTED JAN. 29, 1907.

A. H. HANDLAN, JR.
RAILWAY TRACK DRILL.
APPLICATION FILED AUG. 25, 1906.

2 SHEETS—SHEET 1.



Attest
a. j. m. Cauley.
[Signature]

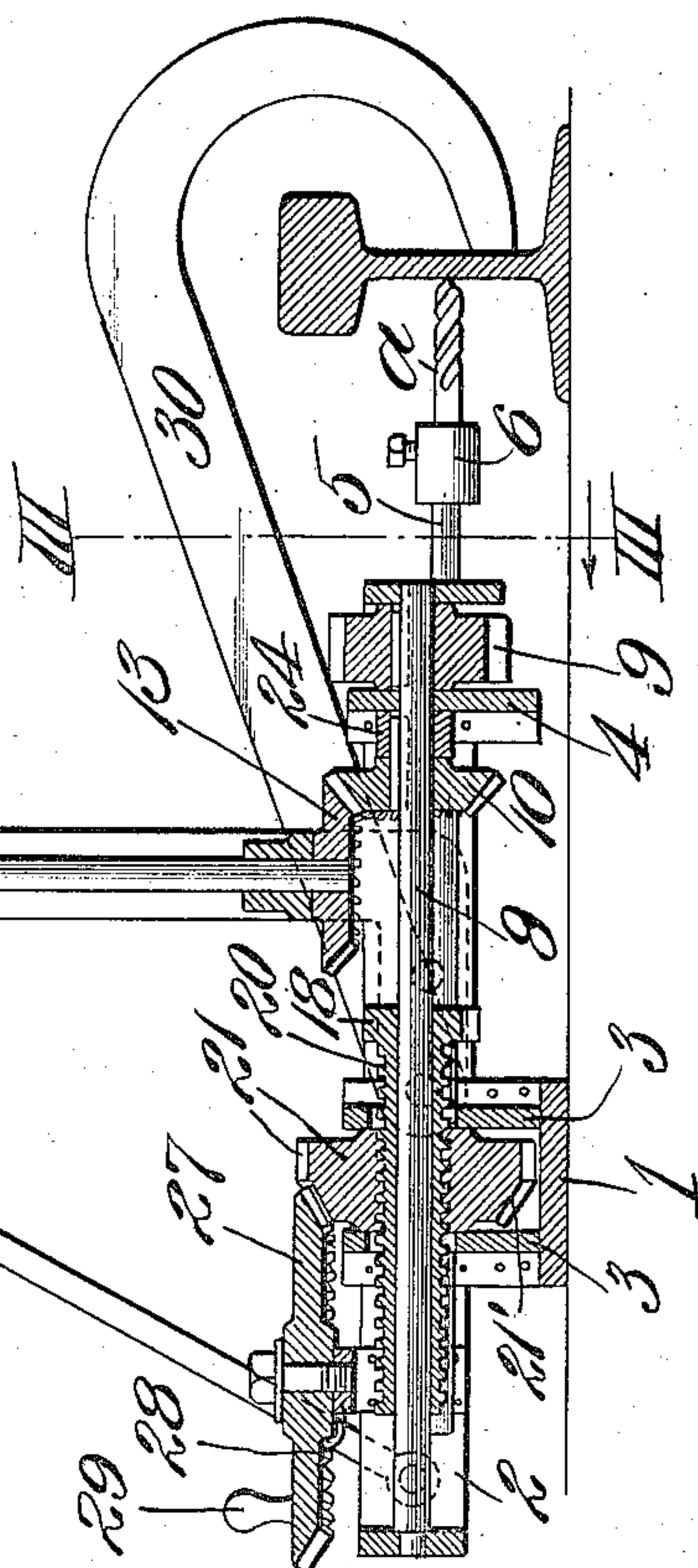
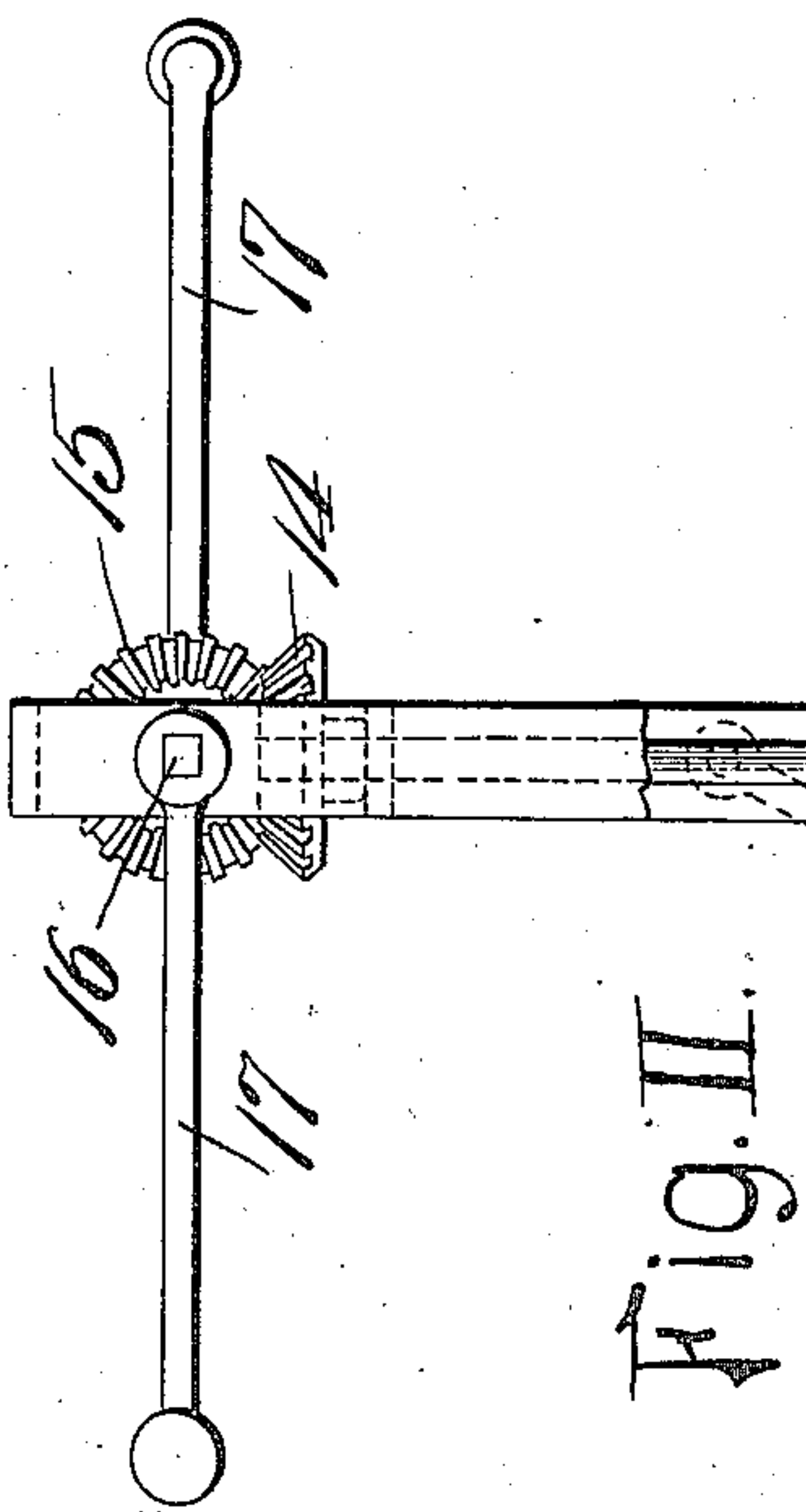
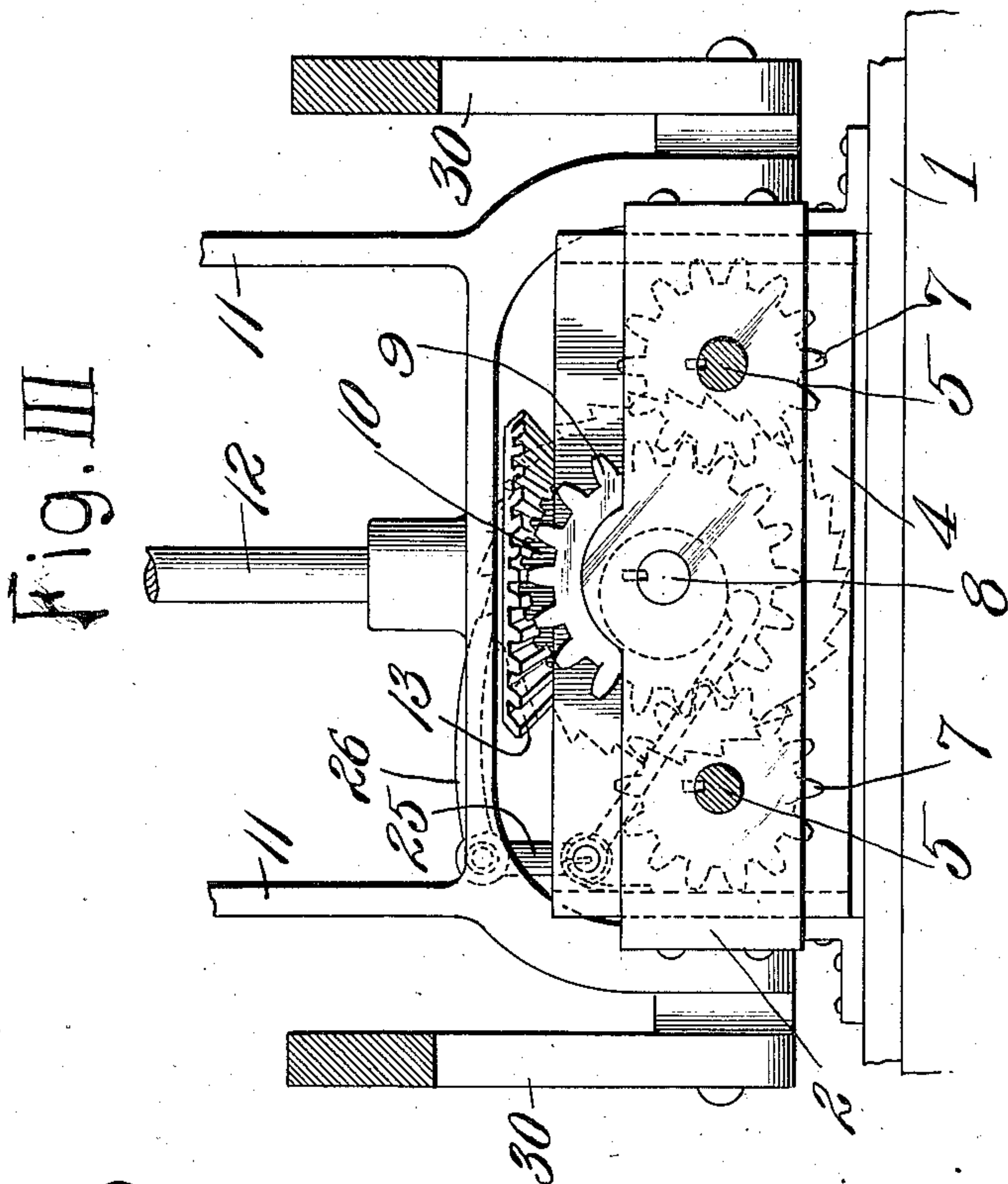
Inventor:
A. H. Handlan Jr.
by *[Signature]* Attorney

No. 842,544.

PATENTED JAN. 29, 1907.

A. H. HANDLAN, JR.
RAILWAY TRACK DRILL.
APPLICATION FILED AUG. 25, 1906.

2 SHEETS—SHEET 2.



Attest
A. G. McCauley.
[Signature]

Inventor:
A. H. Handlan Jr.
by *[Signature]* Atty.

UNITED STATES PATENT OFFICE.

ALEXANDER H. HANDLAN, JR., OF ST. LOUIS, MISSOURI.

RAILWAY-TRACK DRILL.

No. 842,544.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed August 25, 1906. Serial No. 331,964.

To all whom it may concern:

Be it known that I, ALEXANDER H. HANDLAN, Jr., a citizen of the United States of America, residing in the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Railway-Track Drills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of drills used for boring holes in railway-rails; and it has for its object to provide a drill of this character having means for operating a plurality of drill-bits.

It also has for its object to provide quick-acting means by which the drill-bits may be speedily adjusted to operative position and withdrawn from such operative position.

Figure I is a view, partly in plan and partly in horizontal section, of my track-drill. Fig. II is a view of the track-drill, partly in side elevation and partly in vertical longitudinal section. Fig. III is an enlarged front elevation of the lower portion of the track-drill, with parts shown in vertical cross-section, taken on line III III, Fig. II.

1 designates the base-plate of my drill, and 2 is a rectangular horizontal frame supported by said base. Within the horizontal frame is a pair of cross-bars 3, arranged parallel with each other, and a third cross-bar 4, the latter being located near the forward end of the horizontal frame.

5 designates a pair of drill-rods that are journaled in the front end of the horizontal frame 2 and its cross-bars 3 and 4, these rods being provided at their forward ends with chucks 6, that are adapted to receive the drill-bits *a*. Each drill-rod is provided with a longitudinal groove 5', and mounted upon each rod between the forward end of the horizontal frame 2 and the cross-bar 4 is a pinion 7, that is grooved to receive a spline that fits in the longitudinal groove of the drill-rod and serves to hold the pinion from rotation on the rod, while permitting longitudinal movement of the rod within the pinion.

8 designates a horizontal driving-shaft that is journaled in the forward and rear ends of the horizontal frame 2 and passes freely through the cross-bars 3 and 4 of said horizontal frame. This driving-shaft has keyed to it a driving gear-wheel 9, that is located between the forward end of the horizontal frame 2 and the cross-bar 4 and in

mesh with the drill-rod pinions 7, whereby upon the rotation of said shaft rotary motion is imparted to the drill-rods for the operation of the drill-bits carried thereby.

10 is a bevel gear-wheel fixed to the driving-shaft 8.

11 designates a rectangular vertical frame surmounting the horizontal frame 2 and having horizontal arms hinged to the latter, and 12 is a vertical shaft journaled in said frame. This vertical shaft has fixed to its lower end a bevel gear-wheel 13, that is arranged in mesh with the bevel gear-wheel 10 on the driving-shaft 8. Fixed to the upper end of the vertical shaft 12 is a bevel gear-wheel 14, that is arranged in mesh with a bevel gear-wheel 15, fixed to a horizontal shaft 16, journaled in the upper portion of the vertical frame 11. The horizontal shaft 16 is provided with hand-cranks 17, by which said horizontal shaft may be operated to cause it to drive the vertical shaft 12 through the medium of the gear-wheels 15 and 14 and cause said last-named vertical shaft to drive the horizontal driving-shaft 8 through the medium of the bevel gear-wheels 13 and 10.

18 is a cross-head that is loosely fitted to and carried by the horizontal driving-shaft 8 and in which the drill-rods 5 are fitted. The drill-rods are permitted to rotate in said cross-head; but the rods and cross-head are held from individual movement relative to each other by suitable means, such as set-screw 19, introduced into the cross-head (see Fig. I) and entering into annular grooves in the drill-rods.

20 designates a feed-screw sleeved on the driving-shaft 8 at the rear of the cross-head 18 and having its forward end fixed to said cross-head.

21 is a ratchet-wheel threaded interiorly and mounted upon the feed-screw 20 between the rear cross-bars 3, the said ratchet-wheel being adapted to rotate on said feed-screw for the purpose of imparting longitudinal movement to the feed-screw on the driving-shaft and moving the cross-head 18 in either a forward direction or a rearward direction in order that the drill-rods and their bits may be carried forwardly toward the railway-rails to be drilled for drilling operation or retracted from said rails. The ratchet-wheel 21 is operated through the medium of mechanism now to be described.

22 is a rock-shaft journaled in one of the rear cross-bars 3 and the forward cross-bar 4.

This rock-shaft is provided at its forward end with an arm 23, the free end of which is arranged in engagement with a cam 24, fixed to the driving-shaft 8 between the forward cross-bar 4 and the bevel gear-wheel 10. At the rear end of the rock-shaft is a crank-arm 25, to which is pivoted a pawl 26, that is arranged in engagement with the ratchet-wheel 21.

22' is a spring applied to the rock-shaft and serving to yieldingly hold the arm 23 of said shaft against the cam 24.

During the operation of the machine the cam 24 is rotated with the driving-shaft 8, and said cam operates to intermittently move the rock-shaft arm 23, thereby causing the rock-shaft to be rotated and impart rotation to the ratchet-wheel 21 through the medium of the pawl 26 to affect the forward feeding action of the drill-rods.

For the purpose of providing for the quick adjustment of the drill-rods in setting them to the track-rails that are to be drilled and also quickly retracting them from the rails I utilize the mechanism which will now be described.

27 is a horizontal setting bevel gear-wheel that is journaled to a horizontal cross-bar 28, supported by the horizontal frame 2 between the rear end of the latter and a rear cross-bar 3. This setting-wheel is arranged in mesh with a bevel gear-wheel 21', formed on the rear part of the ratchet-wheel 21. The setting bevel gear-wheel is provided with a handle 29, by which it is rotated. It will be seen that by rotating the setting bevel gear-wheel the combined bevel gear-wheel 21, and ratchet-wheel 21 may be speedily rotated in either direction to reciprocate the feed-screw 20 with the cross-head 18 and set the drill-rods into drilling position or retract them from drilling position, due to quick movement of the feed-screw 20 and the cross-

head 18. In this connection it is obvious that when the drill-rods are to be retracted it is necessary to remove the pawl 26 from engagement with the ratchet-wheel 21.

30 designates a pair of claws that are pivotally connected to the hinged horizontal arms of the vertical frame 11 and are adapted to be placed in engagement with the railway-rail to be drilled at the opposite side of said rail to that to which the drill-bits are applied and which serve as restraining members during the drilling operation.

31 designates a jointed folding brace that connects the vertical frame of the drill to the horizontal frame and which is adapted to be unjointed to permit the lowering of the vertical frame to the horizontal frame to release the pair of claws 30.

I claim—

A railway-track drill, comprising a base-plate, a rectangular horizontal frame supported upon the base-plate, having a pair of rear cross-bars and a forward cross-bar, a pair of drill-rods journaled in the front end of the horizontal frame and in the rear and forward cross-bars, pinions splined to the drill-rods, between the front end of the horizontal frame and the forward cross-bar, and through which the drill-rods are adapted to slide, a driving-shaft journaled in the forward and rear ends of the horizontal frame; a cross-head carried by the drill-rods, a driving gear-wheel keyed to the driving-shaft between the front end of the horizontal frame and the forward cross-bar and meshing with the pinions, means for operating the driving-shaft and means for advancing and retracting the cross-head with the drills.

ALEXANDER H. HANDLAN, JR.

In presence of—

E. S. KNIGHT,

NELLIE V. ALEXANDER.