

(No Model.)

2 Sheets—Sheet 1.

J. P. COLEMAN.
TRACK DRILL.

No. 572,156.

Patented Dec. 1, 1896.

FIG. 1.

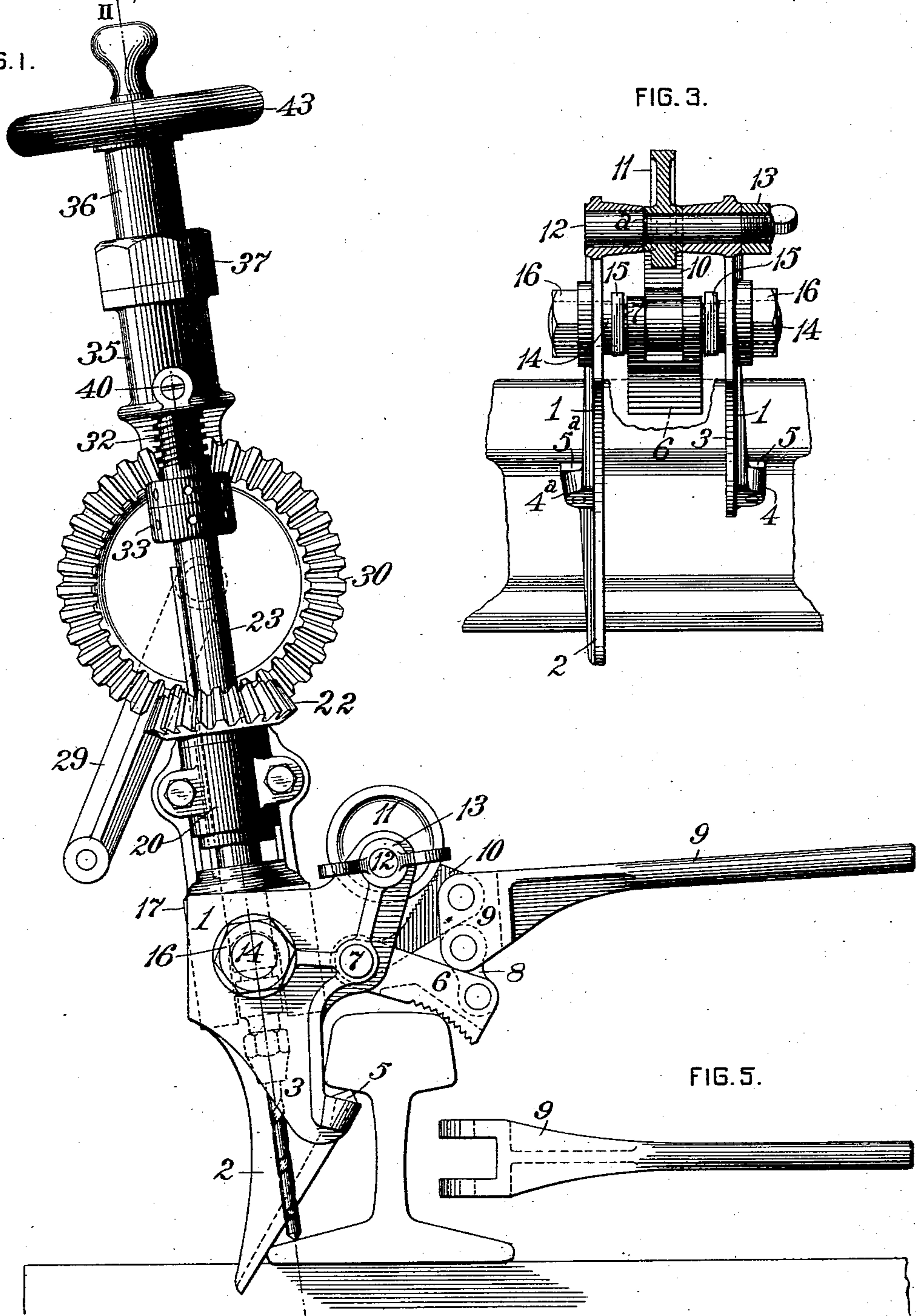


FIG. 3.

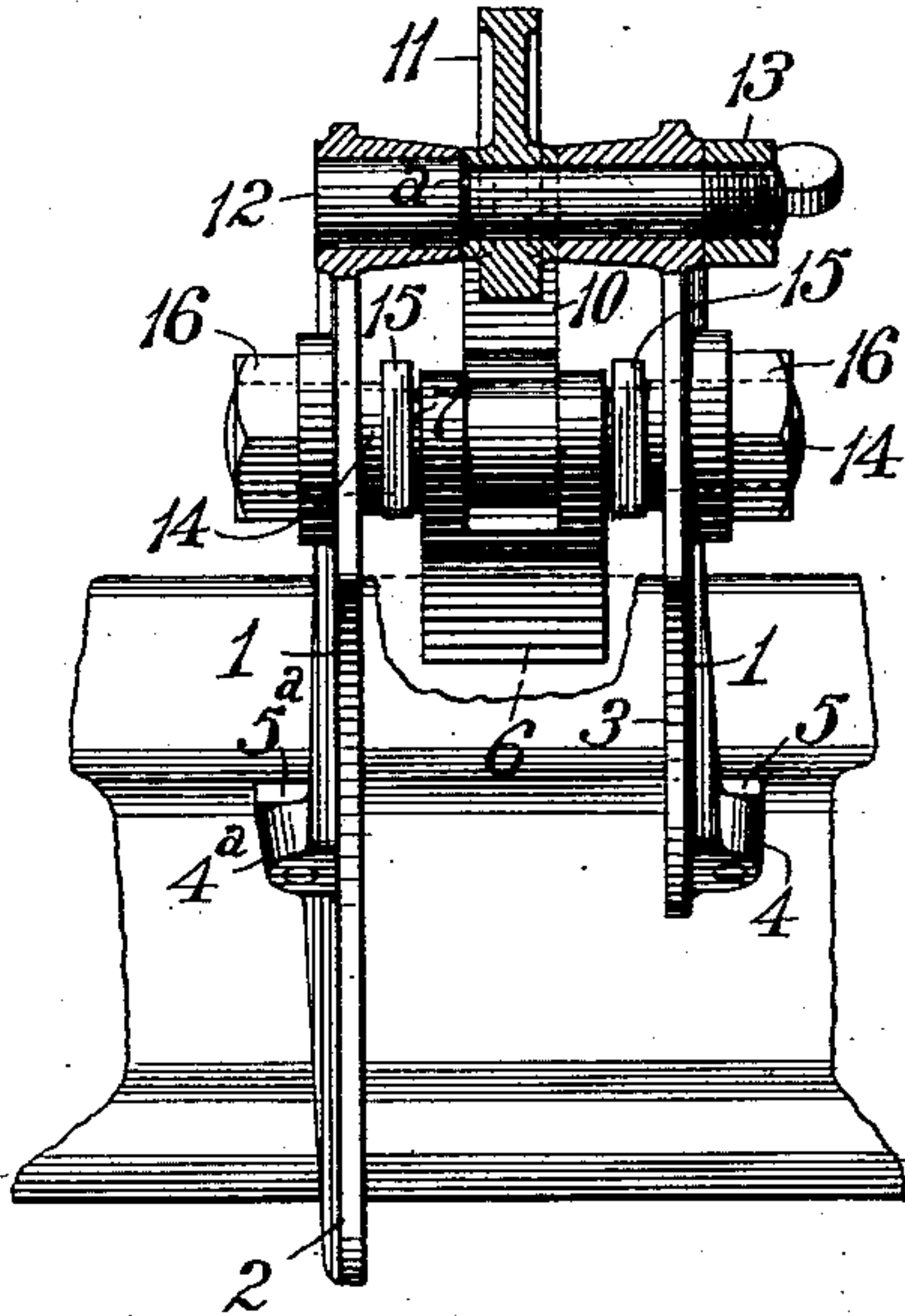
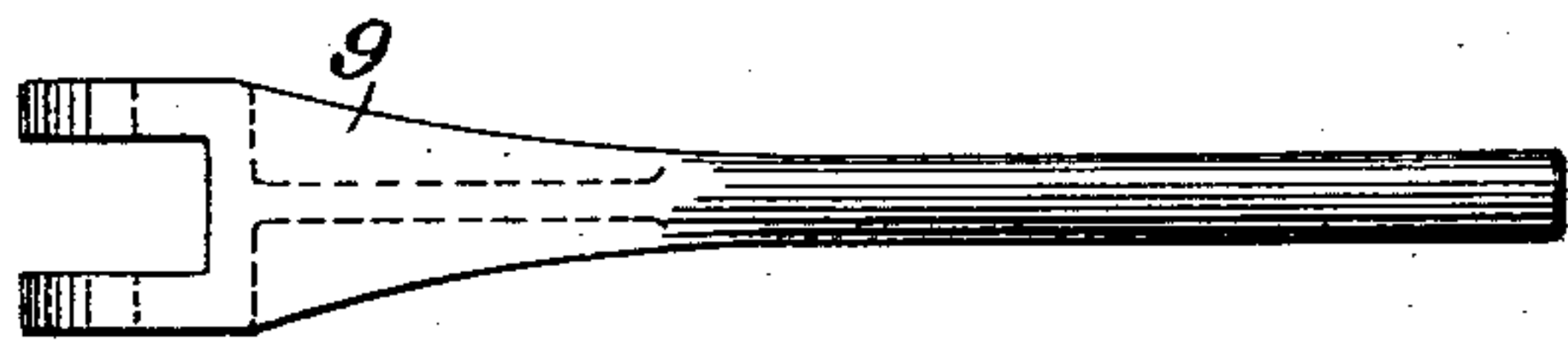


FIG. 5.



WITNESSES:

Chas. F. Miller.
A. E. Gaither

INVENTOR,

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by Saml. S. Wolcott
Att'y.

UNITED STATES PATENT OFFICE.

JOHN PRESSLEY COLEMAN, OF EDGEWOOD PARK, PENNSYLVANIA, ASSIGNOR
TO THE UNION SWITCH AND SIGNAL COMPANY, OF SWISSVALE, PENN-
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TRACK-DRILL.

SPECIFICATION forming part of Letters Patent No. 572,156, dated December 1, 1896.

Application filed May 28, 1896. Serial No. 593,373. (No model.)

To all whom it may concern:

Be it known that I, JOHN PRESSLEY COLEMAN, a citizen of the United States, residing at Edgewood Park, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Track-Drills, of which improvements the following is a specification.

The invention described herein relates to certain improvements in that class or kind of drills employed in drilling holes in rails for railway-tracks while such rails are in position on the track; and the invention has for its object a construction of clamping device whereby the drill may be secured in any desired position on the rail regardless of the size of the head of the latter and a drill stock or press which is detachably connected to the clamping mechanism and can be mounted therein in different angular positions, thereby adapting the drill for use in such manner that the operator can face in either direction, up or down the track or directly across the same, and can be used by a right or left hand workman. In general terms the invention consists in the construction and combination substantially as hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of my improved drill mechanism attached to a rail. Fig. 2 is a sectional elevation of the same, the plane of section being indicated by the line II II, Fig. 1. Fig. 3 is a view, partly in section and partly in end elevation, of the clamping mechanism. Fig. 4 is a sectional elevation of the lower portion of the drill-stock and the clamping mechanism, the section being indicated by the line IV IV, Fig. 2; and Fig. 5 is a plan view of the drill-lever.

The clamping device consists of two side plates 1 1, one of which is provided with a downwardly-extending horn 2, adapted to project below the flange of the rail when the clamp is applied thereto, and so shaped and arranged as to afford a guide for the attachment of the drill to the rail, as clearly shown in Figs. 1 and 3. The other plate is provided with a downwardly-extending arm 3, which

is provided with a socket 4 for the reception of a hardened-steel bit 5, adapted to bite on the under side of the rail-head when the clamp is applied thereto. The guide-horn 2 is also provided at its upper end with a similar socket and bit 5^a. A movable gripping-jaw 6, having serrations on its under side, is loosely mounted on a pin 7, passing through the side plates 1 of the clamp. A link 8 is loosely connected at one end to the outer end of the jaw 6, while its opposite end is pivotally connected to a lever 9, which in turn is pivoted to a block 10, also mounted on the pivot-pin 7. The lever 9 and link 8 are so arranged and connected as to form a toggle-joint whose abutment is formed by the arm or block 10, and the part to be operated or shifted by such toggle arrangement is the clamping-jaw 6. The abutment or block 10 bears against a rotating disk 11, which is eccentrically mounted upon a pin 12, passing through the side plates 1. As shown in Fig. 3, the side plates are provided with inwardly-projecting bosses, through which the pin 12 passes and which is capable of longitudinal movement in the bosses. This pin is provided with a conical shoulder *a*, fitting in a correspondingly-shaped recess in one end of the hub of the disk 11, and the opposite end of the hub bears against the boss on the other side plate. The nut 13 for drawing up the bolt 12 is provided with wings, so it can be readily returned by hand, and as said nut is turned up on the bolt the conical shoulder *a* is forced into its seat in the hub of the disk 11, and the opposite end of the hub is forced against the boss on the side plate, thereby holding the disk in position as against rotation.

It will be readily understood that by rotating the eccentric disk 11 the abutment or block 10 will be shifted, so that when the toggle-joint is straightened by shifting the lever 9 the gap between the bits 5 and the jaw 6 will be increased or diminished in accordance with the size of the head of the rail to be operated on.

In suitable bearings in the side plates 1 are mounted trunnions 14, provided at their inner ends with square heads 15, and having their outer ends threaded for the reception of

suitable clamping-nuts 16. The lower end of the drill-stock is provided with a square socket or head 17, provided with vertical slots 18 in its sides, adapted to pass over the trunnions 14. On the inner walls of the socket or head are formed square recesses 19 for the reception of the correspondingly-shaped heads 15 on the trunnions. In order to attach the socket to the clamping device, the nuts 16 on the trunnions are slackened, so that sufficient space will be afforded between the heads 15 and the sides of the plates 1 for the passage of the sides of the socket or head 17, and when the said head or socket has been forced down to position over the trunnions the nuts are tightened up, thereby drawing heads 15 into the recesses 19 in the walls of the socket or head, thereby firmly attaching the head to the clamping device, but with a freedom, on a slight slackening of the nuts, of angular adjustment of the head. In a suitable bearing 20 on the stock of the drill is mounted the hub 21 of a bevel-pinion 22, and through this hub is passed the drill-shaft 23, provided with a longitudinal rib 24, which projects into a suitable groove in the hub of the pinion, thereby locking the shaft to the pinion, so that it will rotate with the pinion, but with a freedom of longitudinal movement therein. The shaft 23 is provided at its lower end with a suitable drill-holder 25. In a bearing 26, formed through the bracket portion 27 of the drill-stock, is mounted a short shaft 28, having an operating-handle 29, secured to its outer end, and having attached to its inner end a beveled gear-wheel 30, adapted to intermesh with the pinion 22.

The upper end of the shaft 23 is provided with a pin or reduced portion 31, fitting into a hollow screw 32. This screw is connected to the shaft 23 by a coupling 33, internally threaded to engage the externally-threaded shoulder on the lower end of the screw 32, and provided with an inwardly-projecting flange to engage a shoulder on the upper end of the shaft 23. The pin 31 fits loosely within the screw 32, and to facilitate the rotation of the shaft anti-friction-rollers 34 are interposed between the shoulder on the shaft 23 and the lower end of the screw, which is held as against rotation.

In the upper end of the stock of the drill is formed a bearing 35, within which is mounted an internally-threaded sleeve 36. This sleeve is held as against longitudinal movement by means of a coupling 37, internally threaded, so as to engage external threads on the drill-stock, and provided with an inwardly-projecting flange resting upon a peripheral rib or collar 38 on the sleeve 36. The hollow screw 32 is held as against rotation, but with a freedom of vertical movement by a projection 39 on a screw 40, fitting into a longitudinal groove in the screw 32, said screw entering the bearing 35 below the sleeve 36, as shown in Fig. 2. On the upper

end of the sleeve 36 is attached a handle 43, whereby the sleeve is rotated. By the rotation of this sleeve, whose internal threads engage the threads on the hollow screw, the latter is moved longitudinally, and with it the drill-shaft 23.

It will be observed that by slackening the screws of the nuts on the trunnions 14 the drill-stock can be detached from its clamping device and shifted either ninety or one hundred and eighty degrees in either direction, as required by the operator, and then secured in such adjusted position to the clamp, and while held in the clamp it can be turned on the trunnions to any desired angular position and there held by tightening the nuts 16, so as to drill a hole at any point between the edge of the flange and its point of junction with the web of the rail.

I claim herein as my invention—

1. In a track-drill, the combination of a clamping mechanism and a drilling mechanism mounted with a capability of angular adjustment around its axis on the clamping mechanism, substantially as set forth.

2. In a track-drill, the combination of clamping mechanism constructed to grasp the head of the rail, a drill mechanism, and means for connecting the drill mechanism to the clamping mechanism in such manner as to permit of an angular adjustment of the drill mechanism in a vertical plane toward and from the rail, substantially as set forth.

3. In a track-drill, the combination of side plates provided with projections for engagement with the under side of the rail-head, a clamping-jaw, a toggle mechanism for forcing the jaw against the rail-head, and a vertical drill mechanism mounted between the side plates, substantially as set forth.

4. In a track-drill, the combination of side plates provided with projections for engagement with the under side of the rail-head, a clamping-jaw, an adjustable abutment or block, a toggle mechanism arranged between the abutment and clamping-jaw for shifting the latter, and a drill mechanism mounted on the side plates, substantially as set forth.

5. In a track-drill, the combination of side plates provided with projections for engaging the under side of the rail-head, a clamping-jaw, a pivotally-mounted block or abutment, an eccentrically-mounted disk for adjusting the block or abutment, a toggle mechanism arranged between the abutment and clamping-jaw for shifting the latter, and a drill mechanism mounted on the side plates, substantially as set forth.

6. In a track-drill, the combination of a clamping mechanism, a drill mechanism and a guide or gage holding and connected to the clamping mechanism, but independent thereof as regards its clamping function, and adapted to regulate the position of the clamping mechanism on the rail, substantially as set forth.

7. In a track-drill, the combination of side

plates, means for clamping the side plates on
a rail, trunnions mounted in the side plates
and a drill-stock provided with a head mount-
ed on said trunnions, substantially as set
5 forth.

8. In a track-drill, the combination of side
plates, means for clamping the side plates on
a rail, trunnions mounted in the side plates,
and a drill-stock having a head provided with

slots adapted to fit over the trunnions, sub- 10
stantially as set forth.

In testimony whereof I have hereunto set
my hand.

JOHN PRESSLEY COLEMAN.

Witnesses:

DARWIN S. WOLCOTT,
M. S. MURPHY.