(No Model.)

2 Sheets—Sheet 1.

L. J. CRECELIUS.

TRACK DRILL.

No. 514,544. Patented Feb. 13, 1894.

Fig. 1.

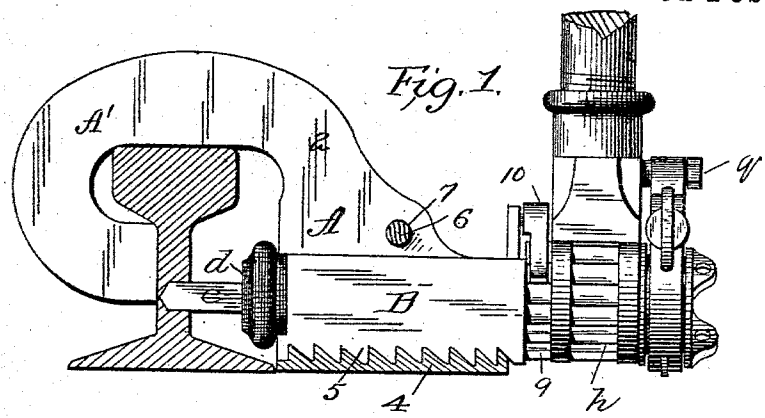


Fig. 2.

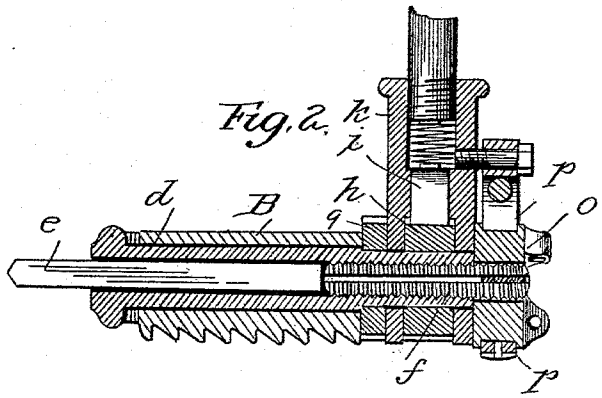
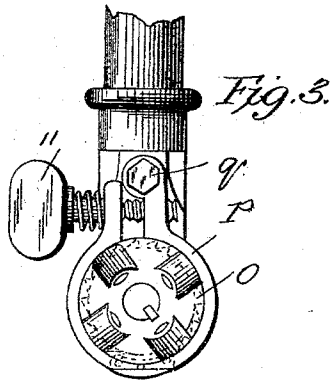


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

L. J. CRECELIUS.

TRACK DRILL.

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Fig. 4.

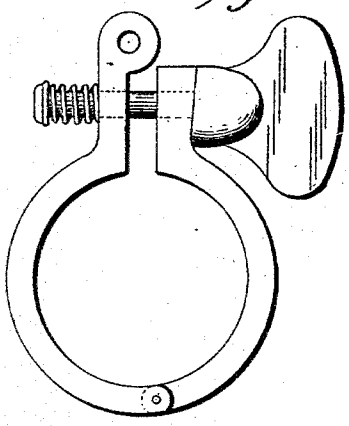


Fig. 5.

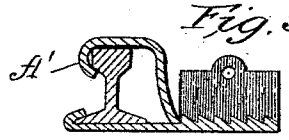


Fig. 6

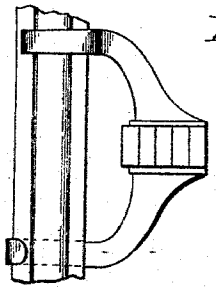


Fig. 8.

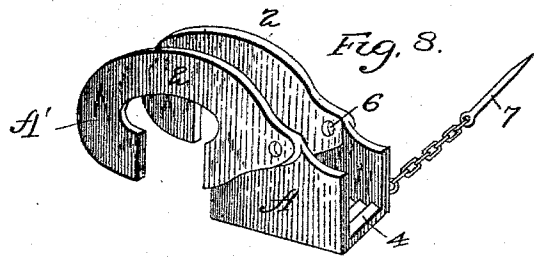
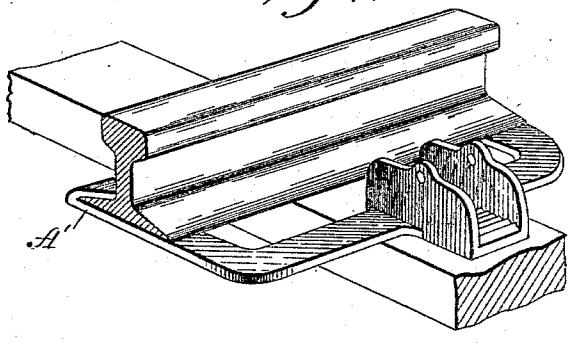


Fig. 7.



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UNITED STATES PATENT OFFICE.

LOUIS J. CRECELIUS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO ANDREW WARREN, OF SAME PLACE.

TRACK-DRILL.

SPECIFICATION forming part of Letters Patent No. 514,544, dated February 13, 1894.

Application filed August 1, 1892. Renewed November 21, 1893. Serial No. 491,578. (No model.)

To all whom it may concern:

Be it known that I, LOUIS J. CRECELIUS, a citizen of the United States of America, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Track-Drills, of which the following is a specification.

The invention hereinafter described, relates to railway track drills, of that class in which the drilling mechanism is mounted in, or adapted to a frame, clamp or other suitable mechanism to hold it to the rail, and in which the drill is rotated and fed forward by a lever.

In my said invention the drill is fed by means of a screw, substantially as shown in Letters Patent of the United States, granted to me on the 27th day of December, 1887, and numbered respectively 375,669 and 375,670.

The first part of my invention concerns the adjustment of the drill mechanism in relation to the rail; the second part to the rotating and feeding mechanism for the drill.

My said invention will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of the frame, with the drill block and handle with attached parts in elevation. Fig. 2, is a section through the block and attached parts. Fig. 3, is a rear view of the device. Fig. 4 shows a modified form of the friction strap. Figs. 5, 6 and 7 are views of modified forms of frames for holding the drill block. Fig. 8 is a perspective view of the frame of Fig. 1.

In the drawings the frame is shown at A, having hooks or extensions A′ whereby it may be detachably connected with the rail or other article to be drilled. In this form it is provided with a box or channel, having side walls 2, arranged to be at right angles to the rails, when the frame is in place for work. In this box or channel is arranged the block B, which carries the drill and its operative mechanism, the box being fitted to hold the block in place at any required distance from the rail. For this purpose the box is provided with mechanism for holding this block adjustably. This mechanism may be of various forms, of which a simple and effective kind is shown, consisting of transverse teeth, or corrugations 4, in the bottom, adapted to like teeth or corrugations 5, upon the periphery of the block, a bolt 6, passing through the holes 7 in the side walls, securing the block in place. Thus the block carrying the drill and its operating mechanism is adjustable upon the frame which holds it to the rail, and when the frame is connected with the block, may be placed thereon with the drill set against the web, and the tool is ready for its work, without the slow adjustment of turning it up by means of the ordinary feeding mechanism. The box may be a rigid part of a suitable frame or movable thereon.

The block B is bored out longitudinally and carries a drill spindle *d*, having an axial hole, square, or of some equivalent form in cross section, at the front end, to hold the drill, and circular and threaded at the rear end, for the feed screw. The drill *e*, and the feed screw *f*, are shown in place, the screw abutting against the drill shank. This arrangement of screw and drill is substantially the same as in my aforesaid patents. When the screw turns with the spindle, the drill rotates without advancing. When the screw is held from turning and the spindle is turned to the right, the screw is advanced and the drill fed to its work. In rotating the spindle, I may use any of the well known mechanism devised for the purpose. The screw may have either a right or left thread and this will determine which way the spindle must be turned in order to advance the screw.

I have shown a ratchet wheel *h*, fixed upon the spindle, and operated by a working pawl *i*, carried in the handle socket *k*. This socket has the ordinary straps which connect it with the spindle, embracing the spindle on each side of the wheel. Upon the spindle is also fixed a holding ratchet 9, and a holding pawl 10 is pivoted on the block to engage therewith and hold the spindle, while the lever which is set in the socket moves back for a new hold. This action intermittingly rotates the spindle and drill.

The advance of the drill is caused by a frictional holding mechanism. By reason of this arrangement of the block, this may be placed as I have shown it, in the rear of the block. It consists, as shown, of a wheel O, which is

splined on the feed screw, and abuts against the socket casting. The periphery of this wheel is fitted for a strap *p*, made as shown, in two parts joined together, but which may be of one flexible piece. One end is held by a screw *q* to the socket, and the other is connected to the fixed end by a pressure screw 11, passing through one part and threaded into the other, so that by turning the screw the pressure of the strap upon the wheel may be regulated. Supposing the wheel to be held by the strap, the screw is thereby held from turning with the sleeve, and the spindle therefore turns upon the screw. The threaded portion of the spindle, with which the screw engages, forces the screw forward. This is done on the backward movement of the hand lever. The force of the feed depends upon the amount of friction put upon the wheel by the strap. Instead of a screw 11, I may use a nut, with a cam face bearing on a fixed cam face on the strap, as in Fig. 4.

I do not limit myself to the special construction of the frictional holding device for the screw. It is required to be of such construction as to give the proper amount of pressure, as may be required, and to relieve the drill should it become crowded.

I have shown different forms of frames, in Figs. 5, 6, and 7, with the clamps or hooks above and below the rail.

The instrument is adapted to drills of different lengths and it is compact and easily handled.

I claim as my invention—

1. In combination, the drill with its block and operating mechanism, the frame for receiving the block, said block and frame having interlocking parts to allow the block to be adjusted forward and backward and to hold the block in any desired position, said frame having sides extending up outside the drill carrying block to inclose and hold the same directly and the device to hold the block with the interlocking parts of the block and frame together, substantially as described.

2. In combination, the drill spindle *d*, having a socket at its front end and a threaded bore at its rear end, the drill adapted to move lengthwise in the socket, the screw extending through the threaded rear end of the spindle to move lengthwise therein and to bear on the drill, the ratchet on the spindle, the hand lever and pawl for operating said spindle, and the friction device on the screw connected with the handle substantially as described.

3. In combination, the spindle having the socket for the drill and the threaded opening the screw adapted to said opening, the ratchet wheel on the spindle, the hand lever and pawl for operating the same, the friction device engaging the screw and connected with the hand lever and the means for holding the spindle against backward movement consisting of the holding ratchet thereon the block B, surrounding the spindle and the holding pawl supported by said block and engaging the holding ratchet, substantially as described.

4. In combination, the spindle having the ratchet thereon and the socket and screw threaded opening, the drill fitted to said socket, the screw fitted to the screw threaded opening, the hand lever and pawl for operating the spindle ratchet, the friction wheel splined to the rear extension of the screw and the friction strap passing around said wheel and connected with the hand lever, substantially as described.

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

LOUIS J. CRECELIUS.

Witnesses:

C. D. GREENE, Jr.,

ART. D. GREENE.