March 18, 1924. 1,486,933

C. F. STOLTZ ET AL

RAIL DRILL

Filed Nov. 21, 1921

FIG. 1

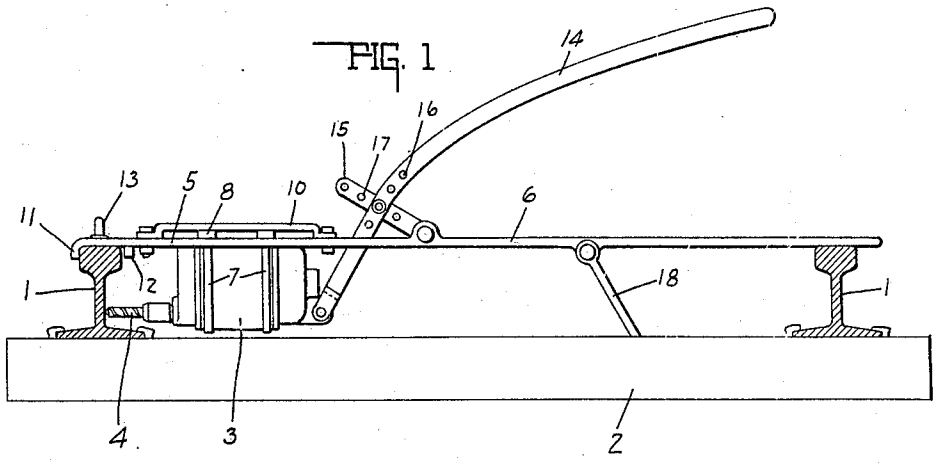


FIG. 2

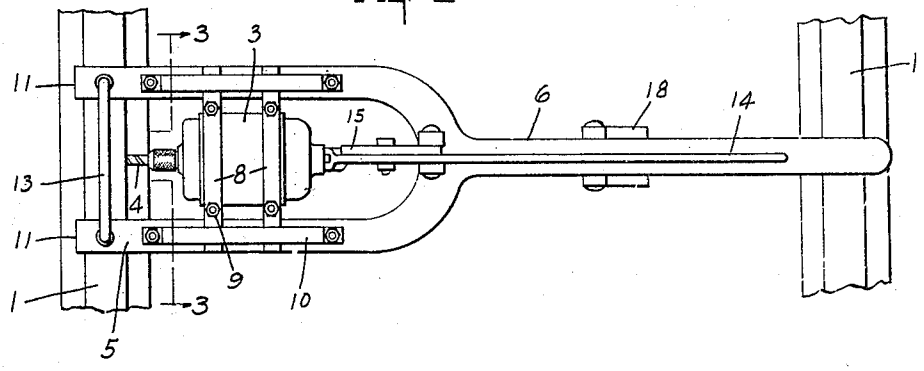
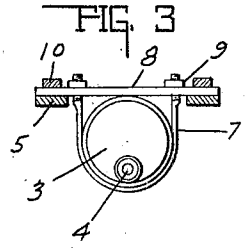


FIG. 3



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UNITED STATES PATENT OFFICE.

CARL F. STOLTZ, OF CINCINNATI, OHIO, AND ARTHUR M. GILBERT, OF MATTOON, ILLINOIS.

RAIL DRILL.

Application filed November 21, 1921. Serial No. 516,651.

To all whom it may concern:

Be it known that we, CARL F. STOLTZ, a citizen of the United States, residing at Cincinnati, in the county of Hamilton, State of Ohio, and ARTHUR M. GILBERT, a citizen of the United States, residing at Mattoon, in the county of Coles and State of Illinois, have invented certain new and useful Improvements in Rail Drills, of which the following is a specification.

This invention relates to rail drills and is designed primarily for drilling openings through railroad and other track rails, and is particularly applicable for drilling bonding openings in the rails after they have been formed into a track. One feature of the invention is the provision of an extremely light structure that may be readily transported from place to place or removed from the track when necessary, and at the same time provide a strong and durable construction.

A further feature of the invention is the provision of a supporting frame upon which a motor is mounted for operating the drilling bit, the motor and bit being movably mounted on the frame so that it may be readily fed to the work.

A further feature of the invention is the provision of a manually operated lever for feeding the bit to its work, said lever being pivotally connected with the motor housing and in direct alignment with the longitudinal axis of the bit so that the pressure of the lever will cause the bit to feed in a straight line.

A further feature of the invention is in so attaching the lever to the motor carrying frame that the pressure applied thereon for feeding the bit to its work will serve to direct downward pressure on the frame and hold the same in proper engagement with one or both of the rails forming the trackway.

Other objects and advantages will be hereinafter more fully set forth and pointed out in the accompanying specification.

In the accompanying drawings,

Figure 1 is a transverse vertical sectional view through a trackway showing the drill applied to use,

Figure 2 is a top plan view thereof, and

Figure 3 is a sectional view as seen on line 3—3, Figure 2.

Referring to the drawings, 1 indicates the rails forming a trackway and 2 indicates the usual form of tie on which the rails are mounted, and while the form of rails shown in the drawings are designed to carry railroad trains it will be understood that the drill may be used in connection with rails for electric trains, or for various other purposes.

In carrying out the invention an electrically operated motor 3 is provided for driving a drill bit 4, and in order to position the drill bit so that it will have a direct drive from the motor, the motor is suspended between the bifurcated arms 5 of a frame 6 through the medium of substantially U-shape straps 7 and cross-bars 8. The upper ends of the straps 7 are threaded and extend through the cross-bars 8 and are fixed to the cross-bars by introducing nuts 9 onto the threaded ends of the straps, while the ends of the cross-bars project over and slide upon the bifurcated arms 5, said ends being entered through guides 10 on said arms, the length of the guides being such that the motor and bit carried thereby may have longitudinal movement on the frame. The free ends of the arms 5 are bent substantially at right angles to the arms and overhang the head of one rail, while the opposite end of the frame rests upon the head of the opposite rail, the downwardly extending ends 11 of the arms 5 holding the frame 6 against movement in one direction, while pins 12 are extended downwardly from the arms 5 on the opposite face of the head of the rail from that of the depending ends 11, thereby holding the frame against movement in the opposite direction. The arms 5 are securely held in spaced relation and rendered more rigid by connecting their free ends through the medium of a cross-rod 13, said rod also serving as a handle for lifting the end of the frame containing the motor and drill. After the frame has been properly positioned on the rails, current is applied to the motor 3 and the motor and bit then fed towards one of the rails to be drilled, the guides 10 permitting of this movement of the motor, and in the present instance the feeding of the bit towards its work is accomplished through a lever 14, the lower end of which passes between the bifurcated arms 5 and is pivotally connected with the motor housing at a point in direct alignment with the longitudinal axis of the drill bit, thereby imparting a

straight feed or pressure against the bit while the upper end of the lever is slightly curved so as to extend somewhat in a horizontal plane, consequently when downward pressure is applied thereon for feeding the bit to its work, such pressure will be directed against the frame and will serve to securely hold the frame in position on the rails. The lever 14 is pivoted to a link 15, one end of which is in turn pivotally connected to the frame 6, the lever 14 and the link 15 having a plurality of openings 16 and 17 respectively, so that said parts may be adjusted with respect to each other for obtaining different movements of the motor and bit carried thereby.

In some instances a supporting foot 18 may be pivoted to the frame 6, and this foot may be used for elevating the frame for bringing the bit to a true horizontal position, or if preferred the frame 6 may end at the point of pivotal connection of the foot with the frame, in which event the foot will be used for supporting one end of the frame.

The present form of drill is substantially a one man drill and while it will perform the same functions as a heavier construction the entire weight thereof is such that one man can readily apply it to use or lift it from off the track, and if desired the end of the frame farthest from the bifurcated end may be swung upwardly until the opposite end slips from off its respective rail so that the entire structure may be rested upon the downwardly extending ends 11, and dragged over the ground similar to a sled, although the weight of the device is such that it may be readily carried.

The elevation of the bit may also be readily controlled by loosening the nuts 9 on the threaded ends of the straps 7 and the motor given a slight rotating motion, the connection between the lever 14 and link 15 being such that a certain amount of movement of the motor may be effected without interrupting the operation of the lever.

It will also be seen that by providing the adjustable pivot points between the lever and link, motors and bits of varying lengths may be accommodated, and also added or decreased pressure applied against the motor casing for feeding the bit forwardly while in operation.

Having thus fully described our said invention, what we claim as new and desire to secure by Letters Patent, is:

1. A rail drill comprising a frame for engagement with the rails said frame carrying U-shaped suporting means, a motor drill having a circular casing with the drill mounted eccentrically thereof said casing suported by the U-shaped supporting means whereby a rotary adjustment of the casing in the straps adjusts the drill longitudinally and vertically of the rail web, substantially as set forth.

2. A motor drill comprising a frame for engagement with the rails, a motor drill supported beneath the frame the drill being eccentrically mounted relative to the motor axis, a link pivoted on the frame, a lever for feeding the drill said lever being pivoted to the link and engaging the motor drill in line with the axis of the drill, substantially as set forth.

3. A motor drill comprising a frame for engagement with the rails, a drill supported beneath the frame, means for preventing movement of the frame in either direction across the rail, a supporting foot pivoted to the frame for elevating the frame said foot being of such a length whereby in vertical position it will extend below the bottom of the rail, substantially as set forth.

In witness whereof, we have hereunto set our hands and seals at Indianapolis, Indiana, this 17th day of November, A. D. nineteen hundred and twenty-one.

CARL F. STOLTZ. [L. S.].
ARTHUR M. GILBERT. [L. S.].

Witnesses:
CAREY S. FRYE,
M. L. SHULER.