

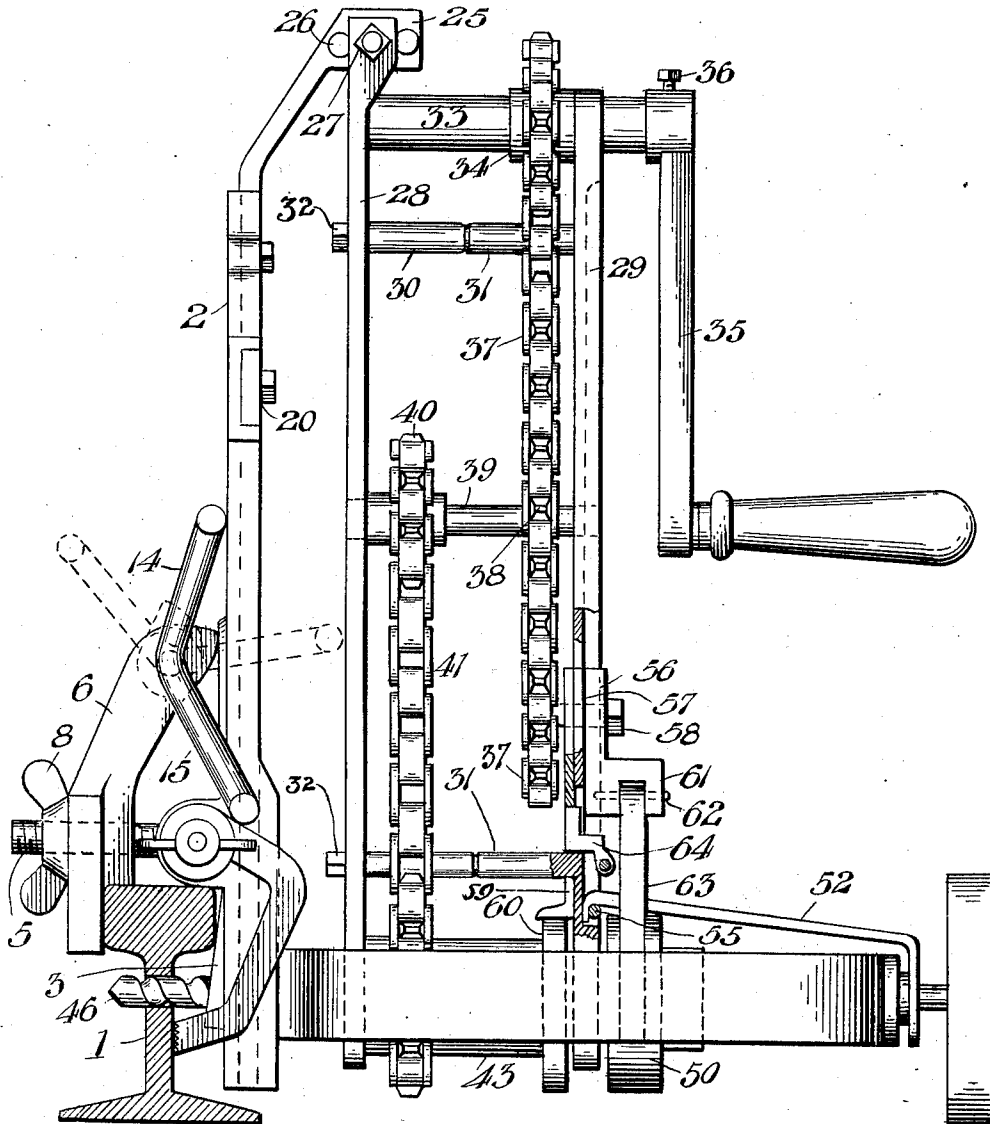
C. J. COULTER.
COMBINED RAIL DRILL AND CLAMP.
APPLICATION FILED MAR. 7, 1910.

1,016,477.

Patented Feb. 6, 1912.

3 SHEETS—SHEET 1.

Fig. 1.



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Attorney

Witnesses

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R. E. Clark

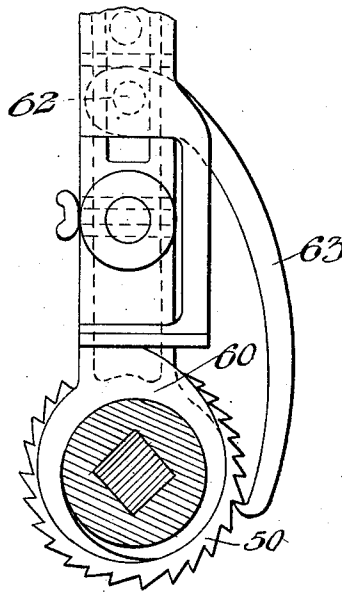
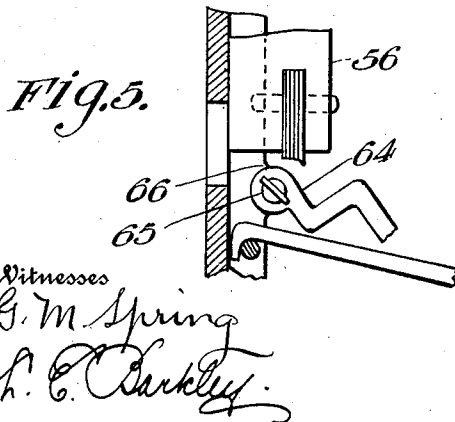
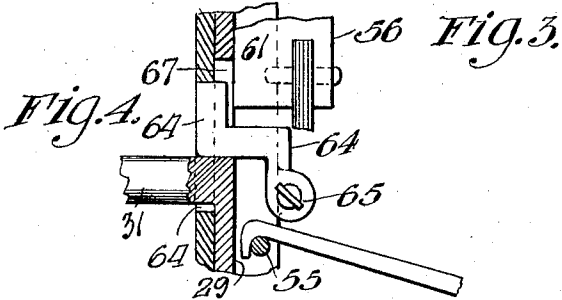
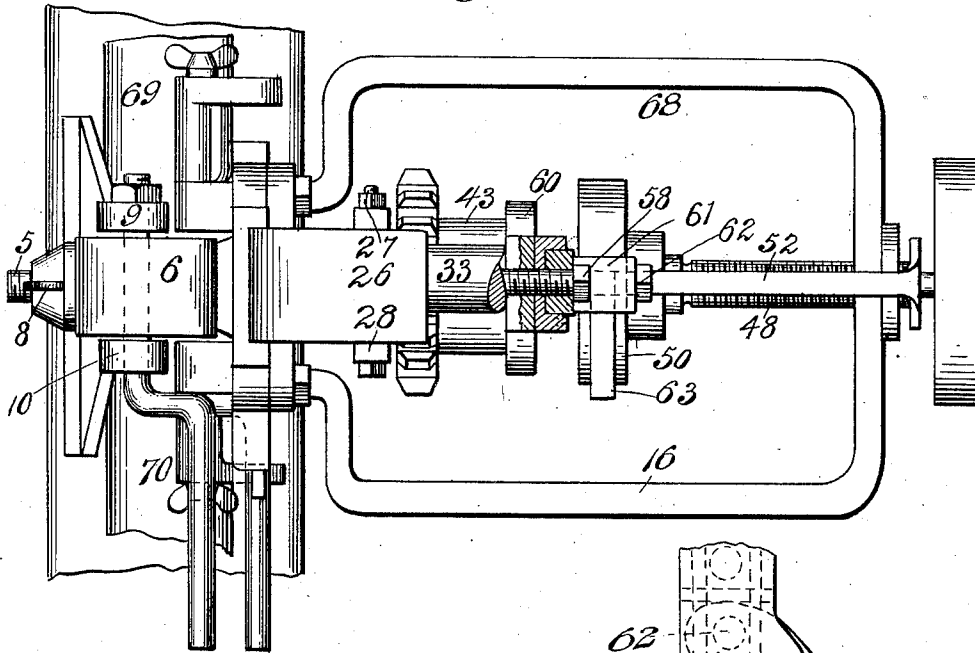
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

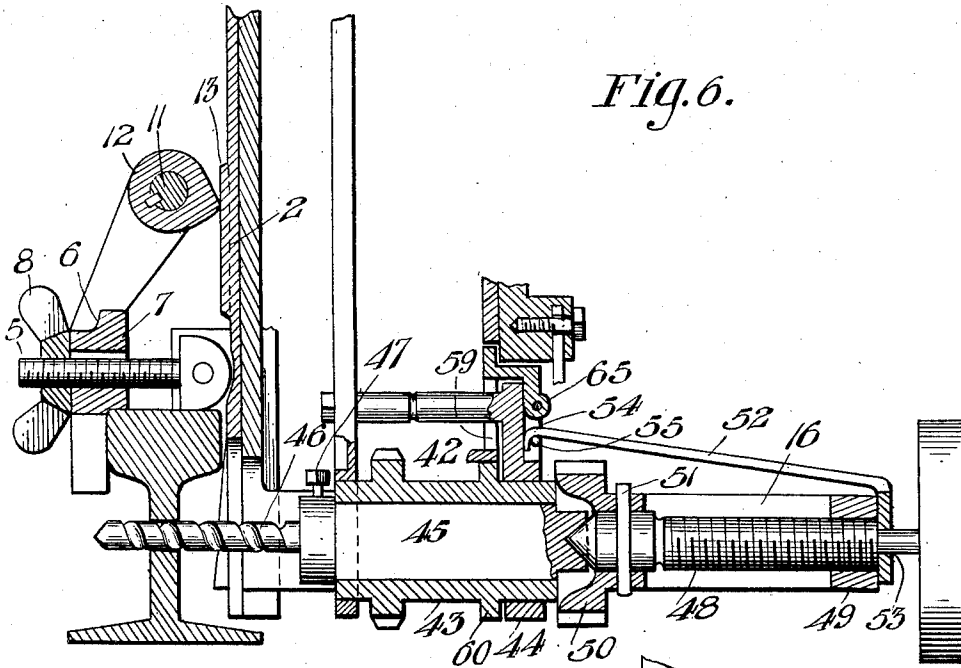


Fig. 6.

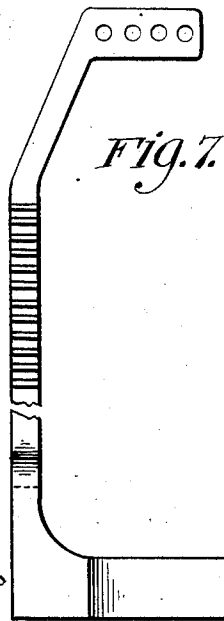


Fig. 7.

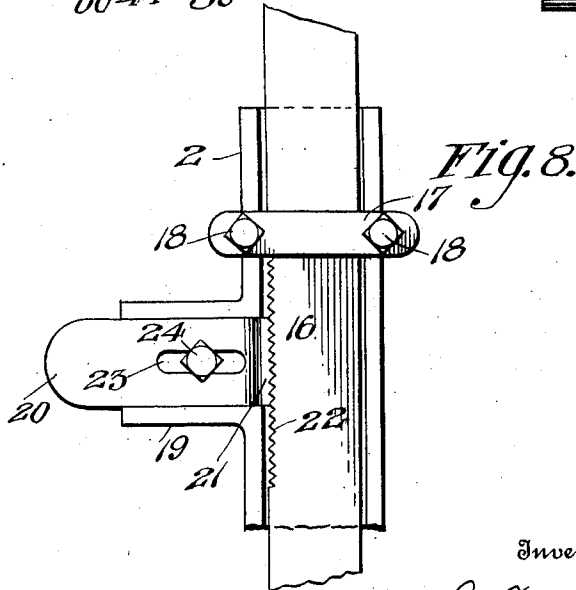


Fig. 8.

Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES J. COULTER, OF HAMMOND, INDIANA.

COMBINED RAIL DRILL AND CLAMP.

1,016,477.

Specification of Letters Patent.

Patented Feb. 6, 1912.

Application filed March 7, 1910. Serial No. 547,812.

To all whom it may concern:

Be it known that I, CHARLES J. COULTER, a citizen of the United States, residing at Hammond, county of Lake, and State of Indiana, have invented a certain new and useful Improvement in a Combined Rail Drill and Clamp, of which the following is a specification.

My invention relates to that class of portable drills which are used for drilling bolt holes in the rails for steam and electric railways, and is an improvement over my prior inventions in that line.

The object of my invention is to provide vertical adjustment for the drill and to simplify the construction by doing away with a considerable number of parts, and has for its further object to provide a new means for clamping the mechanism to the rail so it can be almost instantly attached or detached by the foot or hand.

My means of accomplishing the foregoing may be more readily understood by having reference to the accompanying drawings which are hereunto annexed and are a part of this specification, in which:

Figure 1 is a side elevation of my device, part of the swinging frame being shown in section. Fig. 2 is a top or plan view, a portion of the mechanism being omitted for the sake of clearness. Fig. 3 is a fragmentary detail view of the feeding mechanism. Figs. 4 and 5 are enlarged detail views showing the means of regulating the amount of travel of the feeding mechanism. Fig. 6 is a vertical section of the lower part of my improved device. Fig. 7 is a detail view of the one-piece frame. Fig. 8 is a fragmentary detail showing the means for clamping the one-piece frame in the upright channel.

Similar reference numerals refer to similar parts throughout the entire description.

As shown in the drawings, 1 is a section of T rail which is to be drilled, 2 is an upright channel beam, the lower portion of which is provided with an inwardly extending wedge 3, adjacent to and just below the rail 1. A lug 4 is provided to form a shoulder resting upon the top of the rail 1, and has mounted therein, a bolt 5, the outer end

of which extends through the outer clamping member 6 which is splined thereon by a key 7, the outer end of the bolt 5 being threaded and having a thumb or wing nut 8 mounted thereon. The upper end of the outer clamping member 6 is provided with two lugs 9 and 10 which furnish bearings for a shaft 11 which has fixedly mounted thereon, an eccentrically shaped member 12 which is adapted to engage a lug 13 cast or formed upon the inner clamping member 2. The shaft 11 is provided with two laterally extending members 14 and 15 which are preferably formed integral therewith. The channel beam 2, the lower part of which forms the inner clamping member, has vertically slidable therein, my one-piece frame 16 which is held therein by means of a clamping strap 17 as shown in Fig. 8 which may be screwed to the channel 2 by means of holes 18 or by any other suitable or convenient manner. An outwardly extending lug 19 is formed on the side of the upright channel beam 2 and has mounted and slidable therein, a detent 20 the inner end of which is provided with teeth 21 adapted to engage a series of teeth 22 cut upon one side of the upright portion of the one-piece frame 16, thus providing for its vertical movement, and at the same time securely holding it in the desired position, the detent 20 being provided with a slot 23 and a bolt 24 to hold it in position. The one-piece frame terminates at the top in a horizontal portion 25, which is provided with a plurality of holes 26, in one side of which is mounted a bolt 27. From this bolt depends a swinging frame, which is formed in two sections 28 and 29, they being provided with corresponding lugs 30 and 31, which are secured to each other by means of bolts 32 or in any other convenient manner. An upper shaft 33 is located near the top of said swinging frame and with a sprocket wheel 34 mounted thereon, a crank 35 being secured to the outer end of the shaft 33 by means of a set screw 36. A chain 37 extends from said sprocket wheel 34 to a sprocket wheel 38 mounted upon an intermediate shaft 39, the sprocket wheel 38 being of much greater diameter than the

sprocket wheel 34 for the purpose of increasing the leverage exerted on the drill. Another sprocket 40 is mounted upon the shaft 39 and has a chain 41 extending from it to a sprocket 42 which is cast or formed integral with a sleeve 43, carried in bearings 44 formed at the bottom or lower portion of the sections 28 and 29 of the swinging frame. A square shaft 45 is slidably mounted in said sleeve and has means provided at its inner end for securing a drill 46 in position, a set screw 47 being shown for this purpose, but it will be obvious that any suitable means for clamping the drill may be used. The opposite end of the shaft 45 is engaged by the end of the feeding screw 48 which is screw-threaded into the wall 49 of the lower portion of the one-piece frame 16. A ratchet wheel 50 is secured to the inner end of said feeding screw 48 by means of a taper pin 51 or in any other suitable manner. I provide a hook 52, the outer end of which is provided with an opening 53 through which the feeding screw 48 passes. The inner end 54 of this hook is passed over a pin 55, holding the swinging frame in constant relation to the one-piece frame 16.

A lug 56 is mounted and slidable in the channel formed in the section 29 of the swinging frame, a slot 57 being provided to permit of its vertical movement, a bolt 58 extends through said lug and holds in position a member 59, the lower end of which is engaged by a cam 60 formed upon the sleeve 43. The lug 56 is provided with an outwardly extending portion 61 which has a pin or pivot 62 mounted therein, from which depends a dog 63 which is adapted to engage the teeth of the ratchet wheel 50. I provide means for regulating the vertical movement of the lug 56 which consists of a stop 64 which is rigidly secured to a pin 65 mounted in bearings 66 formed upon the sides of the channel beam 29, this pin 65 terminates in a thumb or wing nut and has rigidly attached thereto the stop 64, the inner end of which rests in a slot 67 formed in the inner wall of the section 29. When in its normal position it permits the lug 56, and in turn the dog 63, to move a sufficient distance to engage one of the teeth of the ratchet wheel 50. If, however, a more rapid feed is desired, by turning the stop 64 into the position shown in Fig. 5, it becomes apparent that the lug 56 can move downwardly a correspondingly greater distance, enabling the dog 63 to carry over two of the teeth of the ratchet wheel, thus providing a simple and quick means to change the feed, and at the same time one which will not be dislodged easily in use. It will be apparent that the drill, sleeve, square shaft and lower ends of the swinging frame are permitted to

swing freely within the rectangular loop 68 formed by the lower part of the one-piece frame 16, thus providing for the movement of the drill as it passes through the rail 1. In some instances, it may be found desirable to provide additional clamping members 69 and 70 which are mounted upon the outer faces of the top of the rail and the inner clamping member, these lugs being particularly desirable to assist in clamping certain shapes of rails.

The operation of my device is as follows: The shoulder 4 is placed upon the top of the rail, the outer clamping member engaging the top of the rail and the outer wall thereof. The foot of the operator is placed upon the laterally extending members 14 and 15, which occupy the position indicated by the dotted lines in Fig. 1. The member 15 being depressed, it will be obvious that it carries with it the eccentrically shaped member 12, thereby exerting an enormous clamping effect upon the rail 1, the member 15 being depressed until the point of the eccentrically shaped member 12 shall have passed the center, when the entire device is securely clamped to the rail. The drill 46 is then placed in the shaft 45, the crank 35 being rotated, the power is transferred through the chains 32 and 41 and causing the rotation of the sleeve 43, the rotation of this sleeve causing the alternate elevation and depression of the member 59, and in turn the lug 56, this elevation and depression causing the tooth of the dog 63 to engage one of the teeth of the ratchet wheel 50, and for each rotation of the sleeve, it is advanced one tooth, the advancement of the wheel operating to turn the feeding screw 48 in the threads cut in the end wall of the rectangular portion 68 of the one-piece frame 16, and this motion continuing, the drill is advanced until the hole has been drilled through the rail 1. If the drill is of a size to permit of an increased feed, the stop 64 may be turned down, thus allowing the dog 63 to move through a relatively greater distance and to advance the screw a correspondingly greater degree. By the provision of the holes 26 in the horizontal portion of the one-piece frame, I provide for maintaining the correct center for the drill mechanism. The detent 20 provides a secure and positive means for holding the frame in position as well as permitting the raising and lowering of the one-piece frame 16, thereby enabling the operator to drill holes in the rail having their centers in different planes.

Having described my invention what I regard as new and desire to secure by Letters Patent, is:

A device of the character described com-

prising the combination with an upright
channel beam, of a one-piece frame verti-
cally adjustable therein, means to secure and
hold said frame in an adjusted position,
5 there being a horizontal series of holes
through the top portion of said frame, a
bolt adapted to be secured in any one of said
holes, a swinging frame depending from

the said bolt and a portable drill carried by
said frame.

In testimony whereof, I have signed the
foregoing specification.

CHARLES J. COULTER.

Witnesses:

C. M. BAUMEISTER,

H. S. COWAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
