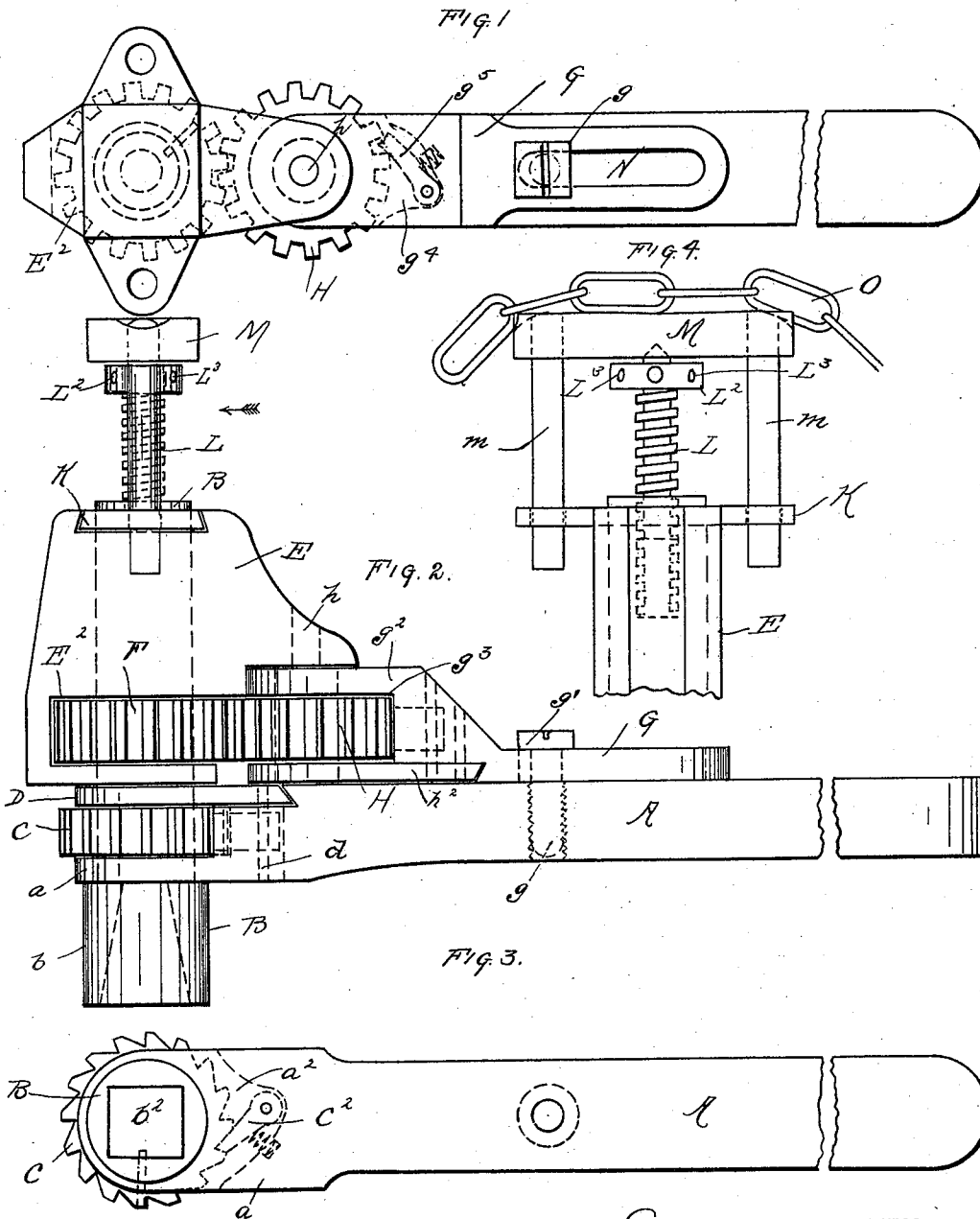


(No Model.)

E. H. ATKINS.
RATCHET DRILL.

No. 576,753.

Patented Feb. 9, 1897.



WITNESS:

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UNITED STATES PATENT OFFICE.

EDGAR HAYWOOD ATKINS, OF RICHMOND, VIRGINIA.

RATCHET-DRILL.

SPECIFICATION forming part of Letters Patent No. 576,753, dated February 9, 1897.

Application filed May 2, 1896. Serial No. 590,042. (No model.)

To all whom it may concern:

Be it known that I, EDGAR HAYWOOD ATKINS, a citizen of the United States, and a resident of Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Ratchet-Drills, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which
10 similar letters of reference indicate corresponding parts.

This invention relates to ratchet-drills, and the object thereof is to provide an improved device of this class which is simple in construction and operation, a further object being to provide a ratchet-drill which is particularly adapted for use in drilling railway-rails on railroads and for similar purposes; and with this and other objects in view the invention consists in the construction, combination, and arrangement of parts hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 is a plan view of my improved drill; Fig. 2, a side view thereof; Fig. 3, a bottom plan view, and Fig. 4 a side view of the upper part thereof looking in the direction of the arrow X in Fig. 2.

In the practice of my invention I provide a handle-lever A, one end of which is enlarged, as shown at *a*, and through which passes a drill-shaft B, which is enlarged at its lower end, as shown at *b*, and in the lower end of which is formed an opening *b*², which is adapted to receive the head of the drill.

The handle-lever A or the end thereof through which the shaft B passes is cut out, and mounted on said shaft in said cut-away portion of the handle-lever A is a ratchet-wheel C, and pivoted in a recess *a*², formed in the handle-lever adjacent to the ratchet-wheel C, as shown in dotted lines in Fig. 3, is a spring-operated pawl C², which operates in connection with the ratchet-wheel C.

Above the ratchet-wheel C is a plate D, which is rigidly connected with the handle-lever by a pin or bolt *d* or in any desired manner, and above the plate D is a frame E, through which the shaft B passes, as shown in dotted lines in Fig. 2, and in the bottom of

said frame E is a transverse recess E², in which is mounted a gear-wheel F, which is rigidly secured to the shaft B, and I also provide a slotted lever G, which is secured to the handle-lever A by means of a bolt *g* and which passes through the slot in the lever and which is provided with a head *g*¹. The outer end of the lever is cut out to form a recess *g*³, in which is mounted a gear-wheel H.

The gear-wheel H is mounted on a shaft *h*, which passes through the inner part of the frame E and which passes through a plate *h*², secured to the head *g*² of the lever G and flush with the lower side thereof, and formed in the head *g*² is a cavity or chamber *g*⁴, as shown in dotted lines in Fig. 1, in which is mounted a spring-operated pawl *g*⁵, which is adapted to operate in connection with a ratchet-wheel H.

Secured to the top of the frame E and transversely thereof is a plate K, through which passes a screw-threaded bolt L, which is provided at its upper end with a circular head or nut L², and the upper end of the bolt L is conical in form and fits in a cavity or recess formed in a cross-head M, to the ends of which are secured vertical rods or bars *m*, which pass downwardly through the ends of the plate K and are free to slide therein.

The lever G is adapted to swing on the pivot pin or bolt *g*, which passes through the slot N, formed therein, and I also provide a chain O or other device, by means of which the drill is secured in place in the operation thereof or in any desired position, and the head or nut L² is provided in its perimeter with radial openings or holes L³, which are adapted to receive a spike, nail, or other device by which the screw-threaded bolt L is operated, and by allowing said spike, nail, or other device to rest on one of the said rods or bars *m* the cross-head *g*² will hold the bolt L stationary, and the drill will be self-feeding.

It will be understood that the cross-head M is at the rear end of the drill, and the chain O may be fastened to spikes driven in the ties or secured in any desired manner.

The operation will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following statement thereof.

It will be understood that in order to turn the shaft B, which turns the drill, continu-

ously to the right, it is only necessary to move the handle-lever A back and forth. When said handle-lever is pulled toward the operator, the shaft B is turned to the right by the
 5 ratchet-wheel C and the pawl C², and when moved from the operator said shaft is turned to the right by the ratchet-wheel E², the wheel H, and the pawl g⁵, and if the screw-threaded bolt L is held during this operation,
 10 as hereinbefore described, the drill will be fed forward by the above-described movement of the handle-lever, as will be readily understood, this operation being accomplished by means of said bolt L, which enters the end of
 15 the shaft B, and it will thus be seen that I accomplish the object of my invention by means of a device which is simple in construction and operation and which is perfectly adapted to accomplish the result for
 20 which it is intended.

It is evident that changes in and modifications of the construction herein described may be made without departing from the spirit of my invention or sacrificing its advantages,
 25 and I reserve the right to make all such alterations therein and modifications thereof as fairly come within the scope of the invention.

Having fully described my invention, I claim as new and desire to secure by Letters
 30 Patent—

1. In a ratchet-drill, the combination with a handle-lever, of a shaft which passes through one end thereof, a ratchet-wheel mounted on said shaft in a recess formed in one end of the
 35 handle-lever, a spring-operated pawl connected with said handle-lever, and adapted to operate in connection with said ratchet-wheel, a frame mounted on said shaft above the end of said handle-lever and provided with a recess in its lower side, a gear-wheel mounted
 40 on said shaft, and located in said recess, a slotted lever pivoted to the handle-lever and provided with a head on which is mounted a gear-wheel which is adapted to operate in connection with the wheel mounted in the frame,
 45 and which is also provided with a spring-operated pawl, said shaft being enlarged at its end, and adapted to receive the head of the drill substantially as shown and described.

2. In a ratchet-drill, the combination with a handle-lever of a shaft which passes through one end thereof, a ratchet-wheel mounted on said shaft in a recess formed in the end of the handle-lever, a spring-operated pawl connected with said handle-lever, and adapted
 50 to operate in connection with said ratchet-wheel, a frame mounted on said shaft above the end of said handle-lever and provided with a recess in its lower side, a gear-wheel mounted on said shaft and located in said recess, a slotted lever connected to the handle-lever, and provided with a head in which is mounted a gear-wheel which is adapted to
 55 operate in connection with the wheel mounted in the frame, and which is also provided with a spring-operated pawl, said shaft being enlarged at its end, and adapted to receive the

head of the drill, and said shaft being projected through said frame, and through a cross-plate secured thereto, and a screw-threaded bolt which passes into the end of
 70 said shaft, and through said cross-plate, and which is provided at its end with a circular head having holes or openings in its perimeter, substantially as shown and described. 75

3. In a ratchet-drill, the combination with a handle-lever of a shaft which passes through one end thereof, a ratchet-wheel mounted on said shaft in a recess formed in the end of the handle-lever, a spring-operated pawl connected with said handle-lever, and adapted
 80 to operate in connection with said ratchet-wheel, a frame mounted on said shaft above the end of said handle-lever, and provided with a recess in its lower side, a gear-wheel mounted on said shaft, and located in said recess, a lever connected with the handle-lever and provided with a head in which is mounted a gear-wheel which is adapted to
 85 operate in connection with the wheel mounted in the frame and which is provided with a spring-operated pawl, said shaft being enlarged at its end and adapted to receive the head of the drill, and said shaft being projected through said frame, and through a
 90 cross-plate secured thereto, and a screw-threaded bolt which passes into the end of said shaft and through said cross-plate and which is provided at its outer end with a head or nut having holes or openings in its perimeter, the end of said bolt being conical in form and adapted to enter a recess formed in a cross-head which is provided with rods or bars which pass through the plate secured to the frame, substantially as shown and described. 105

4. In a ratchet-drill, the combination with a handle-lever, of a shaft which passes through one end thereof, a ratchet-wheel mounted on said shaft in a recess formed in the end of the handle-lever, a spring-operated pawl connected with said handle-lever, and adapted
 110 to operate in connection with said ratchet-wheel, a frame mounted on said shaft, above the end of said handle-lever, and provided with a recess formed in its lower side, a gear-wheel mounted on said shaft, and located in said recess, a slotted lever connected with the handle-lever, and provided with a head in which is mounted a gear-wheel, which is adapted to
 115 operate in connection with the wheel mounted in the frame, and which is also provided with a spring-operated pawl, said shaft being enlarged at its end, and adapted to receive the head of the drill, and said shaft being projected through said frame, and through a
 120 cross-plate secured thereto, and a screw-threaded bolt which passes into the end of said shaft and through said cross-plate and which is provided at its end with a circular head having holes or openings in its perimeter, the end of said bolt being conical in form, and adapted to enter a recess formed in a cross-head which is provided with rods or bars which pass through the plate secured to the 130

frame, and a chain or other device which
passes over said cross-head, and the ends of
which are adapted to be secured in position
so as to hold the drill, as and for the purpose
5 set forth.

In testimony that I claim the foregoing as
my invention I have signed my name, in pres-

ence of the subscribing witnesses, this 27th
day of April, 1896.

EDGAR HAYWOOD ATKINS.

Witnesses:

JAS. LEON MCCARTNEY,
LUTHER THOMAS PAGE.