

No. 685,170.

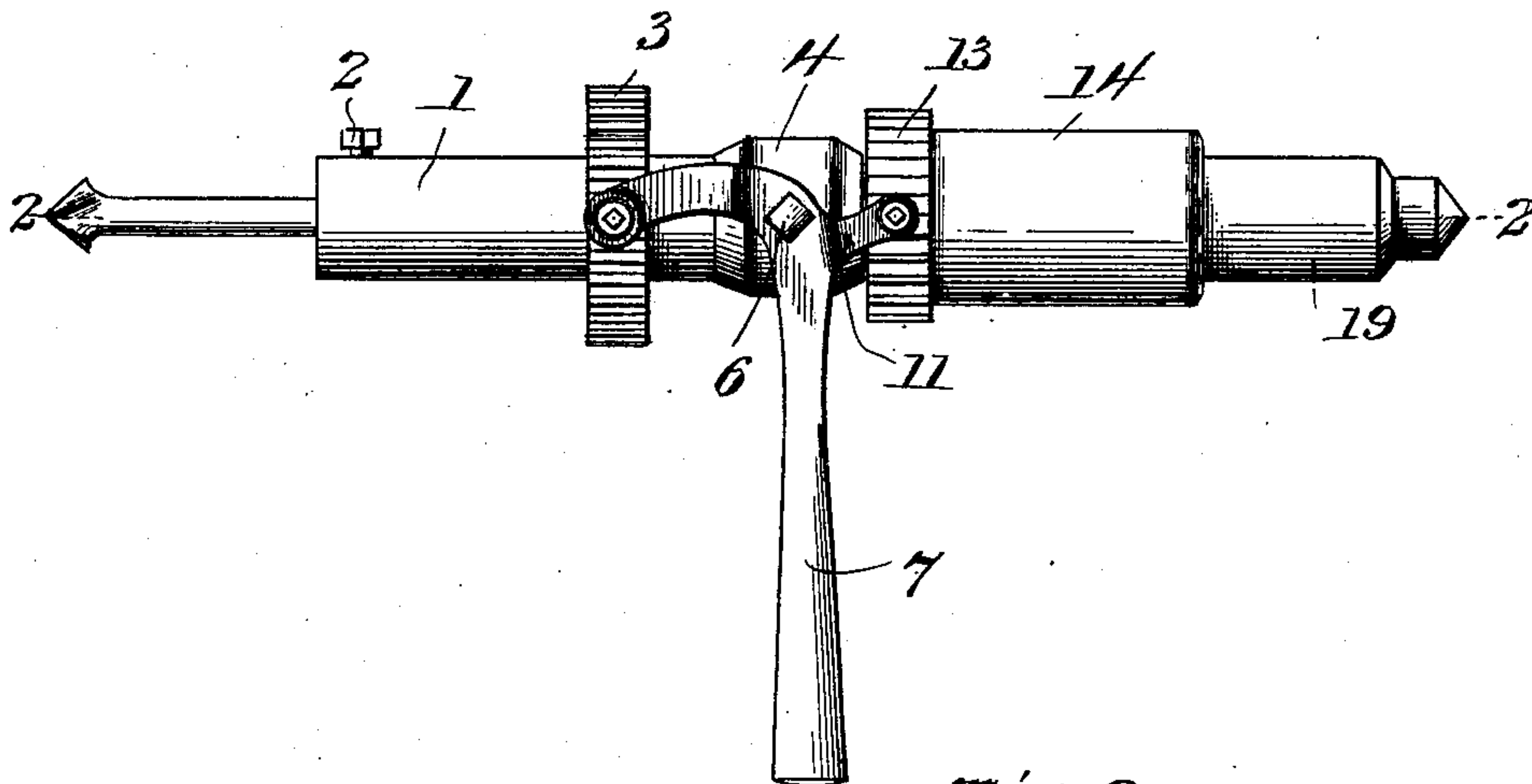
Patented Oct. 22, 1901.

A. PETERSON.  
RATCHET DRILL.

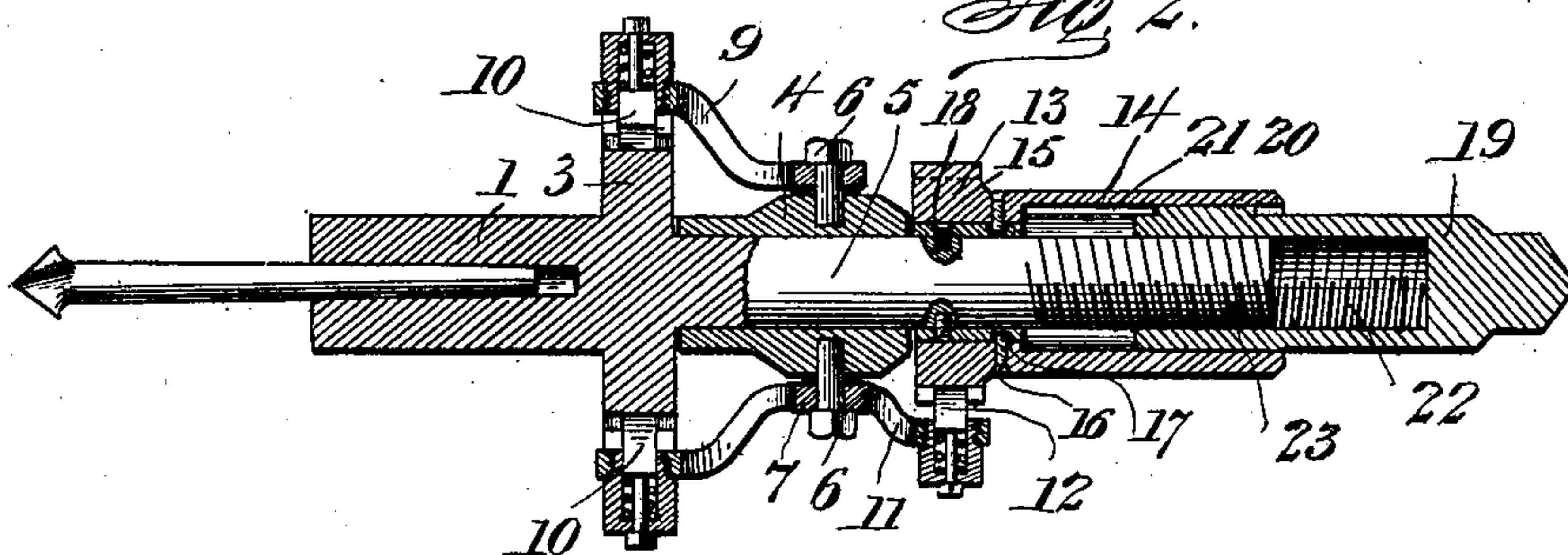
(Application filed Apr. 27, 1901.)

(No Model.)

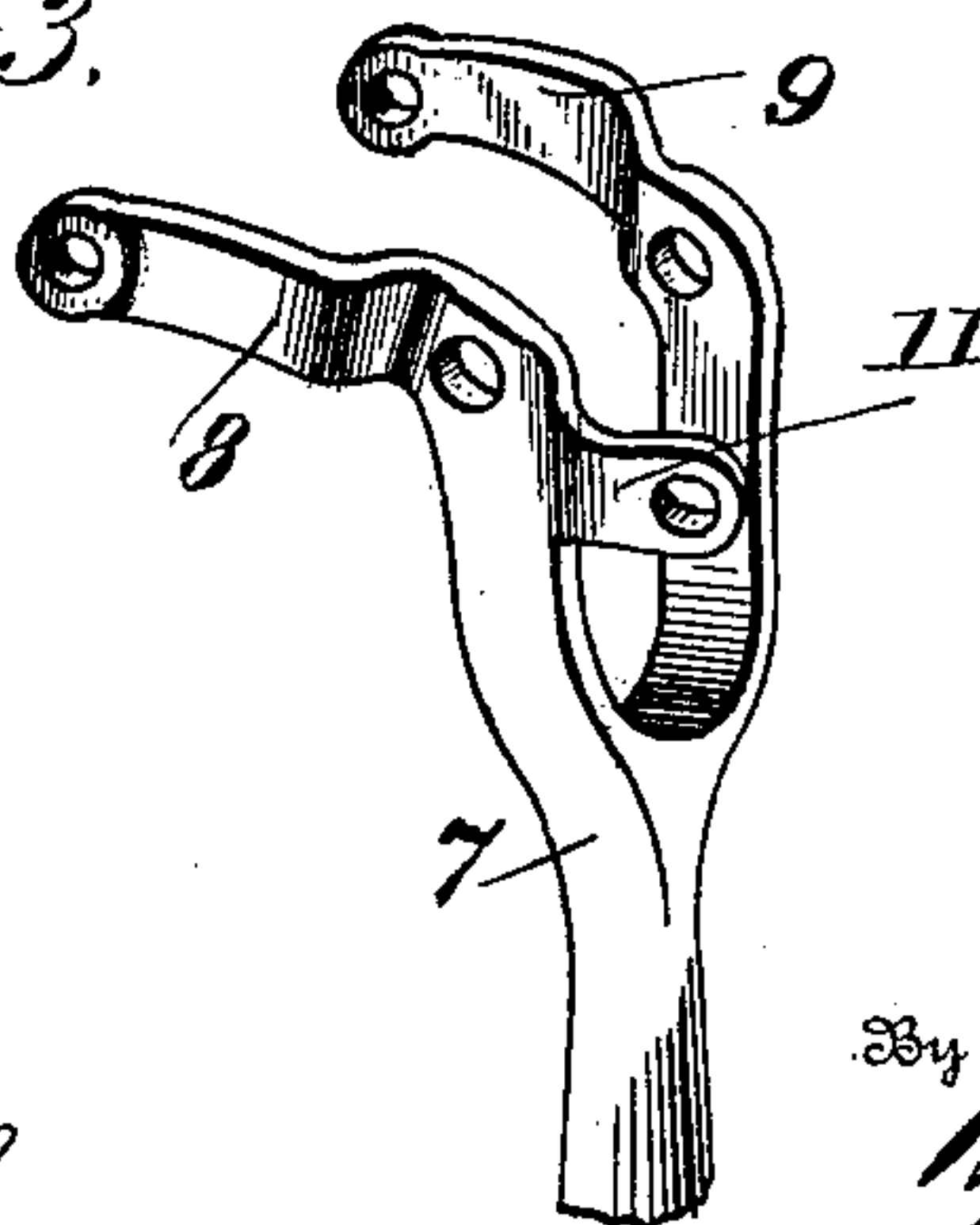
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses  
*Anton Stelt*  
*A. B. Curranagh*

Inventor  
*August Peterson.*

By *Mason Finwick Lawrence*  
*and Jas. Watery* Attorneys

# UNITED STATES PATENT OFFICE.

AUGUST PETERSON, OF DULUTH, MINNESOTA.

## RATCHET-DRILL.

SPECIFICATION forming part of Letters Patent No. 685,170, dated October 22, 1901.

Application filed April 27, 1901. Serial No. 57,753. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST PETERSON, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Ratchet-Drills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in hand drilling-machines of that character in which the drill is caused to rotate by means of a ratchet propelled by a lever operated by hand.

The object of this invention is to provide a drill which is of simple and durable construction, which may be used in any position, and wherein any movement of the actuating-lever when oscillated longitudinally of the drill will produce a continuous forward turning of the drill without the lost motion generally required to bring back and reset the ratchet, and will produce an intermittent rotary motion when said lever is operated transversely of the drill.

A further object is to provide a mechanism wherein the movement of the operating-lever will automatically feed the drill.

To attain the desired end, the invention consists of a drill chuck or holder having a ratchet mounted thereon, said ratchet being engaged by spring-pawls mounted in the ends of the arms of a pivoted bifurcated operating-lever, said operating-lever being provided on one side and to the rear of the pivotal point with a rearwardly-extending lug or projection, said lug having a pawl engaging with a second ratchet for the purpose of automatically feeding the drill.

It also consists of certain other novel combinations and arrangements of parts, as will hereinafter be fully described, and set forth in the claims.

Referring to the accompanying drawings, Figure 1 is a side elevation of an implement embodying my invention. Fig. 2 is a longitudinal sectional view taken on the line 2 2 of Fig. 1. Fig. 3 is a perspective view showing the bifurcated head of the operating-lever detached.

Similar characters designate like parts in all of the figures.

1 designates the drill-holder and body of the instrument provided with a set-screw, as at 2, for holding the shank of the drill or bit securely in place. The drill-holder may be of any preferred sort. To the main shaft or body portion of the drill is secured the ratchet 3. 4 is a hollow sleeve or collar which fits over and incloses the part 5 of the main shaft. This collar 4 is adapted to revolve freely upon the part 5 of the main shaft when the operating-lever is moved transversely of the drill. Pivoted to the collar 4 by means of pintles 6 6 is the actuating-lever 7. This lever is bifurcated, as shown in Fig. 3, being provided with arms, as at 8 and 9. To the end of each of the arms of the lever is secured a spring-actuated pawl, as at 10 10, these pawls being normally adapted to engage with the teeth of the ratchet 3. Formed integral with the arm 8 of the lever 7 and to the rear of the pivotal point thereof is the apertured lug or projection 11. This lug or projection is provided at its free end with a pawl 12, said pawl normally engaging with the teeth of the ratchet-wheel 13. This ratchet 13 is formed by providing the enlarged end of the revoluble collar 14 with teeth. This collar or sleeve 14 is secured to the interior concentric collar 15 by means of the pinions 16 16, passing through the revoluble collar or sleeve 14 and engaging the annular groove 17, formed in said interior collar 15. This collar 15 is keyed or pinned to the part 5 of the main shaft by any suitable means, such as screws 18 18.

19 is the feeding spindle or tube sliding in the collar 14 and held against rotation by the key or spline 20, engaging a longitudinal slot 21, formed in the interior of said sleeve 14. The feed spindle or tube 19 is screw-threaded upon its interior, as at 22, for the purpose of engaging the threaded portion 23 of the part 5 of the main shaft.

The operation of my device is as follows: To rotate the drill, the pawls are mounted in the free ends of the arms of the operating-lever in such manner that when the handle 7 is pushed forward in the direction of the drilling-bit such motion will be imparted as will cause the pawl 10 of the arm 8, which is in



engagement with the ratchet 3, to turn said ratchet in the direction of the arrow, Fig. 1. The other pawl 10 of the arm 9, being out of working engagement, will slip or pass freely over the teeth of the ratchet. When the lever has reached the limit of its forward movement, it is retracted. This serves to cause the pawl 10 of the arm 9 to engage the ratchet and the pawl 10 of arm 8 to pass freely over the teeth thereof, the ratchet-wheel turning continuously in one direction. The movement of forcing the operating-handle backward will cause the pawl 12, mounted in lug 11, to engage with the ratchet 13, turn the same, and thus feed the tube or spindle 19 outward and backward, and consequently expanding the drill. When the handle is moved in the opposite direction or forward, the pawl 12 will slip over the surface of the ratchet 13.

When it is desired for any purpose to change the drill from a double-acting to a single-acting implement, and thus obtain an intermittent rotary motion instead of the continuous rotary motion, the handle or lever 7 is oscillated transversely of the drill-body, this transverse movement being permitted by the collar 4, revolving upon the part 5 of the main shaft. It will be apparent that this transverse motion of the lever will cause both pawls of the bifurcated arms 8 and 9 to engage and pull and push the ratchet-wheel simultaneously. When the lever is moved in the opposite direction, both pawls will slide idly over the face of the ratchet. Of course on every upward movement of the lever the pawl 12 will engage and turn the ratchet 13, thus expanding the drill, and when the lever is brought down the pawl will slide over the ratchet.

The many advantages resulting from a drill of this character will be readily apparent, it being especially adaptable for use in corners and cramped positions. The construction is such that great strength and durability of parts are obtained, the implement being also economically manufactured and embodying great simplicity and ease of operation.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a ratchet-drill or similar mechanism, the combination of a main body portion or shaft having a drill-socket formed at one end, a ratchet-wheel mounted on said main shaft, means for rotating said ratchet, said means comprising a bifurcated lever the arms of which are pivoted to opposite sides of a sleeve revolubly mounted on said main shaft, said lever having the free ends of its arms provided with spring-actuated pawls for engaging the teeth of the ratchet.

2. In a mechanism of the class described, the combination of a main body portion or shaft, a ratchet-wheel mounted on said shaft a bifurcated actuating-lever having its arms

pivoted to opposite sides of a sleeve revolubly mounted on said main shaft in rear of said ratchet, said lever being provided with spring-actuated pawls, the construction and arrangement of the parts being such that when the operating-lever is oscillated longitudinally of the main body portion of the implement a continuous rotary motion is imparted to the drill, and when the lever is oscillated transversely of the main body portion an intermittent motion is imparted thereto.

3. In a mechanism of the class described, a main shaft or body portion, a ratchet formed thereon, a collar rigidly secured to the shaft, a casing revolubly secured to said fixed collar, a ratchet formed on one end of said casing, a hollow feeding-spindle keyed to the interior of said casing, said spindle being screw-threaded on its interior to receive the threaded portion of the main shaft, a revoluble collar interposed between the two ratchet-wheels, a bifurcated operating-lever pivoted to said collar, the arms of said lever being provided with spring-actuated pawls for engaging the ratchet on the main shaft, one of said arms being provided with a rearwardly-extending lug carrying a pawl for actuating the ratchet formed on the casing.

4. In a mechanism of the class described, the combination of a main shaft having one end screw-threaded, ratchet devices, for rotating the shaft, operated by means of a lever, a collar rigidly secured to said main shaft, a sleeve revolubly secured to said fixed collar, a ratchet formed on said sleeve, a hollow feeding-spindle splined to the interior of the sleeve, said spindle being screw-threaded on its interior surface to engage the threaded portion of the main shaft, and means, consisting of a lug formed on the operating-lever and provided with a spring-actuated pawl for engaging and rotating the ratchet on the sleeve, the construction being such that when the lever is actuated the threaded spindle will be intermittently fed outward.

5. In a drill of the class described, the combination with a main body portion of two ratchet-wheels mounted thereon, a revoluble sleeve interposed between the ratchets, and means pivoted to said hub for rotating both ratchets simultaneously, said means consisting of a bifurcated lever provided with spring-actuated pawls for engaging and rotating the ratchet which operates the drill, the lever being also provided with a rearwardly-extending lug having a pawl for engaging and rotating the ratchet which operates the feed-spindle.

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

AUGUST PETERSON.

Witnesses:

JAMES T. WATSON,  
JOHN J. SHUSE.