No. 844,356. PATENTED FEB. 19, 1907.

J. HEGERHORST.

RATCHET.

APPLICATION FILED OCT. 10, 1906.

Fig. 1.

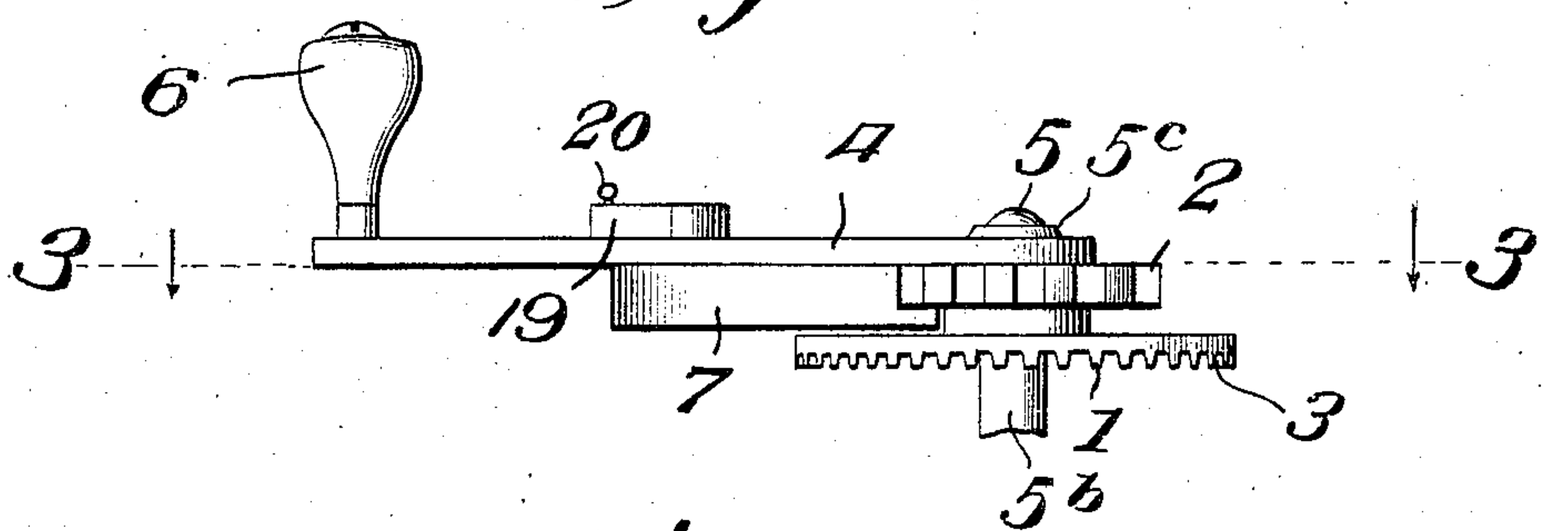


Fig. 2.

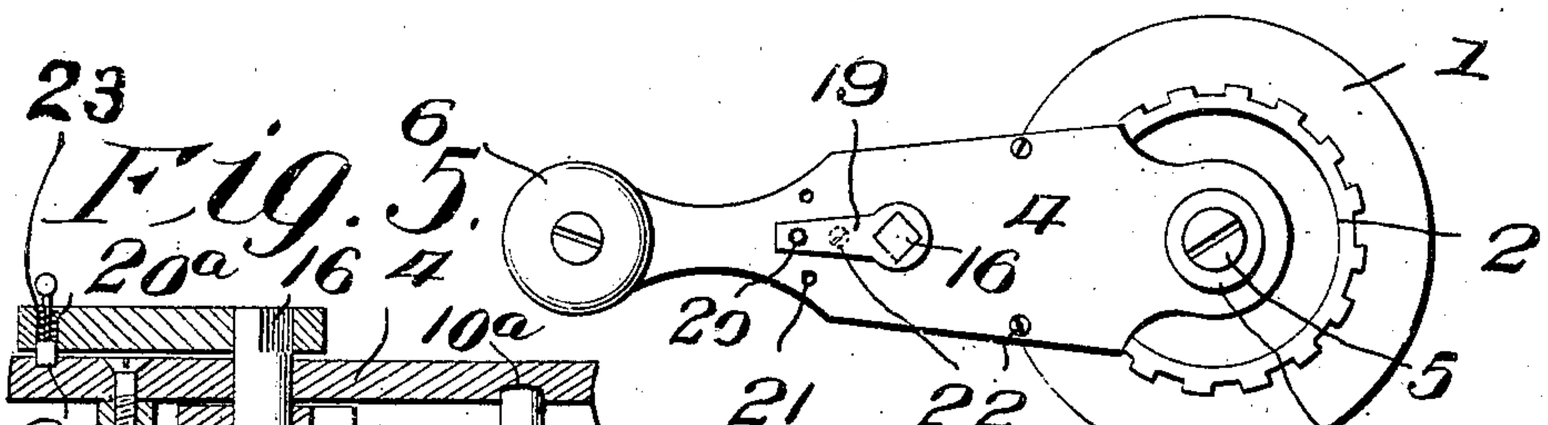


Fig. 3.

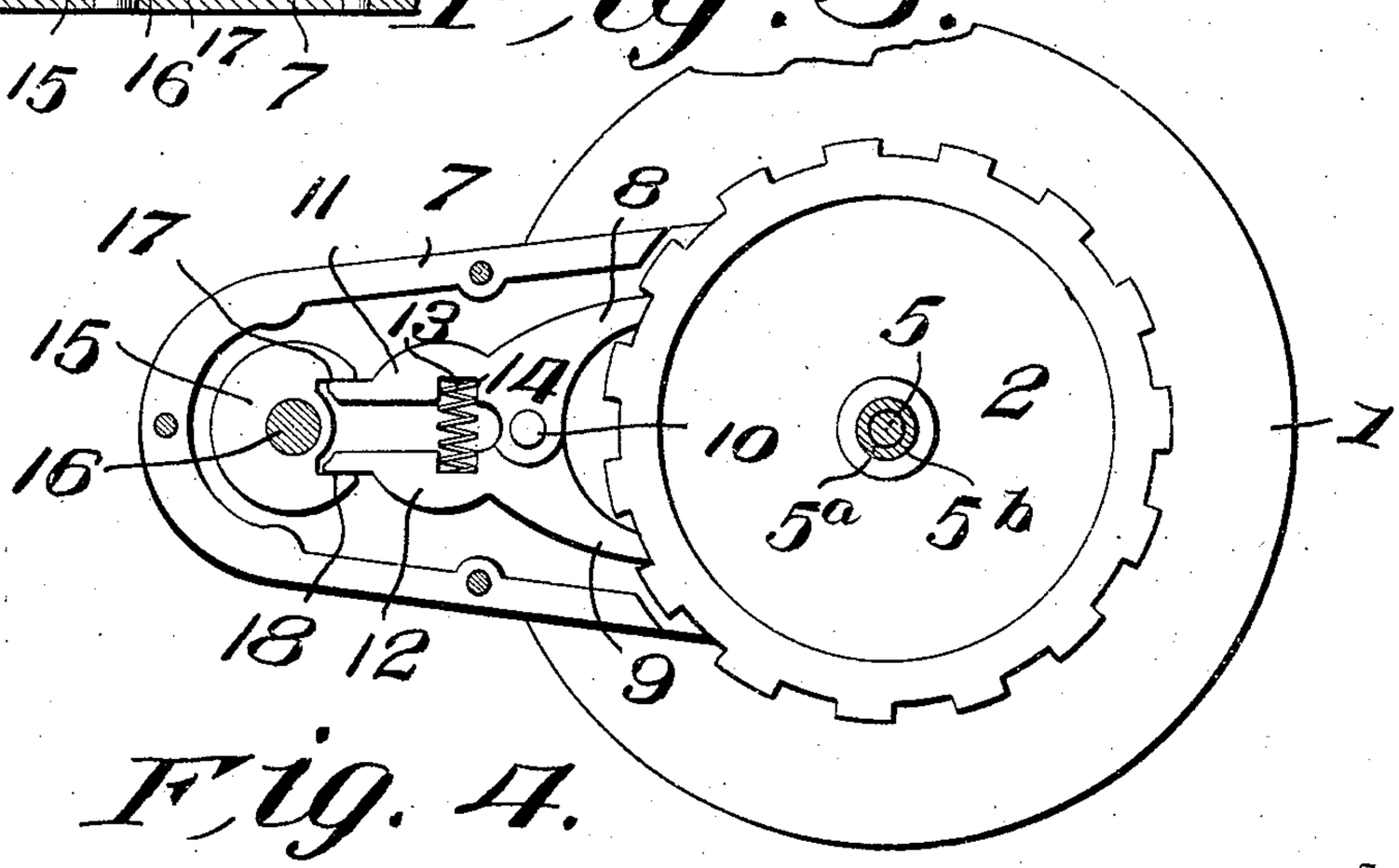
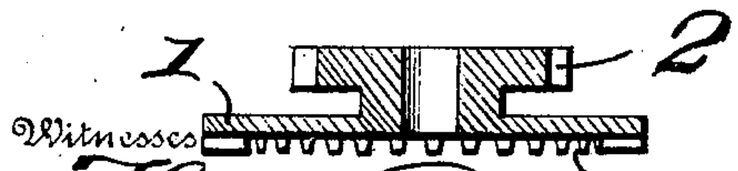


Fig. 4.



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RATCHET.

No. 844,356. Specification of Letters Patent. Patented Feb. 19, 1907.

Application filed October 10, 1906. Serial No. 338,286.

To all whom it may concern:

Be it known that I, JOHN HEGERHORST, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ratchets; 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.

My invention relates to new and useful improvements in ratchets, and more particularly to that class adapted to be used in connection with hand-drills; and my object is to provide a device of this class whereby the operating-handle may be held rigid with the ratchet or set to operate the ratchet in either direction, as desired.

A further object is to provide means for controlling the operation of the connecting mechanism between the ratchet and the operating-handle.

Other objects and advantages will be hereinafter referred to and more particularly pointed out in the claim.

In the accompanying drawings, which are made a part of this application, Figure 1 is a side elevation of my improved mechanism complete. Fig. 2 is a top plan view thereof. Fig. 3 is a sectional view as seen from line 3 3, Fig. 1. Fig. 4 is a detail sectional view of the ratchet-wheel and driving-wheel, and Fig. 5 is a detail sectional view through a portion of the housing and the operating-bar secured thereto.

Referring to the drawings, in which similar reference-numerals designate corresponding parts throughout the several views, 1 indicates a driving-wheel, such as is commonly used in driving a hand-drill, with one side of which is integrally formed a ratchet-wheel 2, while the opposite side of the driving-wheel is provided with cog-teeth 3, which are adapted to mesh with a suitable cog upon a drill-shaft to drive the same. (Not shown.)

In order to successfully operate the ratchet-wheel and driving-wheel, I provide an operating-bar 4, which is pivotally secured to the ratchet-wheel 2 in any preferred manner, as by means of a screw 5, which extends through an opening in the bar and into a bore 5^a in the end of the supporting-shaft 5^b, a washer 5^c being disposed between the head of the screw 5 and the bar 4. The bar 4 extends over the ratchet-wheel and a distance beyond the same and is provided at its outer end with a handle 6.

Disposed upon one side of the operating-bar 4 and in line with one edge of the ratchet-wheel 2 is a housing 7, in which is located coöperating ratchet-levers 8 and 9, said levers being pivotally secured together and having their free ends disposed in the path of the ratchet-wheel 2. The pivot-pin 10 of the ratchet-levers 8 and 9 is secured to the housing 7 and extends into engagement with an opening 10^a in the lower face of the bar 4, thereby holding the ratchet-levers in their proper place.

Each of the ratchet-levers 8 and 9 is provided with an arm 11 and 12, respectively, which are so constructed that a space is left between said arms, so that either of said arms can be moved inwardly when desired, and to normally hold the levers into engagement with the teeth on the ratchet-wheel 2 a spring 13 is disposed between the arms 11 and 12, said arms being provided with notches 14 to receive the ends of the spring and retain the same in position. In order to readily control the levers 8 and 9, so that both of said levers will be directed into engagement with the ratchet-wheel at the same time, whereby the operating-bar will be held stationary upon the ratchet, or to dispose either of the levers out of engagement with the ratchet-wheel, so that said wheel will be turned in one direction only, I have provided a cam 15, which is located at one end of the housing 7 and held therein by means of a shaft 16. One side of the cam 15 is cut away to form shoulders 17 and 18, with which are adapted to engage the free ends of the arms 11 and 12, respectively, the cut-away portion being of sufficient width to permit of both ratchet-levers being into engagement with the ratchet-wheel when the arms 11 and 12 are parallel with and resting against the shoulders 17 and 18, respectively, and when the parts are so situated it will be seen that the operating-bar 4 will be held stationary with respect to the ratchet-wheel 2 and operate in the same manner as the usual form of fixed handle, this position of the ratchet-levers being clearly shown in Fig. 3 of the drawings. When, however, the tool is being used in a place where a complete revolution cannot be given to the operating-bar 4, the cam 15 is rotated, thereby disposing one of the operating-levers out of engagement with

the ratchet-wheel 2, so that when the operating-bar is moved in one direction the ratchet-wheel will be rotated and left stationary when the operating-bar is moved in the opposite direction, thereby enabling me to operate a drill of this class in a small space.

In order to conveniently operate the cam 15, the shaft 16 is extended through the operating-bar 4 and the upper end thereof provided with a handle 19, so that the cam can be rotated in either direction at will, and the handle 19 is held in its adjusted position by disposing a pin 20 through an opening 20^a in the handle and into engagement with openings 21, disposed at intervals in the surface of the operating-bar 4. The opening 20^a is enlarged at its lower end to receive the enlarged end of the pin 20, and in order to readily depress the pin 20 and retain the same in the openings 21 a spring 23 is disposed around the reduced portion of the pin and between the enlarged portion of the pin and the upper end of the enlarged portion of the opening 20^a. The housing 7 is adapted to move freely around the edge of the ratchet-wheel 2 and is held in position upon the operating-bar 4 by means of bolts or screws 22, which are disposed through the operating-bar and into engagement with the flange upon the housing 7.

In operation should it be desired to give the ratchet-wheel 2 continuous rotation the handle 19 is disposed as shown in Fig. 2 of the drawings, thereby disposing both of the ratchet-levers into engagement with the ratchet-wheel; but should it be desired to rotate the ratchet to the right the handle 19 is moved downwardly, thereby disposing the ratchet-lever 9 out of engagement with the ratchet-wheel 2, and when it is desired to rotate the ratchet to the left the handle 19 is moved upwardly, and thereby disengaging the ratchet-lever 8 from the ratchet and disposing the lever 9 into position to operate the ratchet-wheel.

It will now be seen that I have provided a device which will be positive in its operation and one that can be readily and quickly manipulated to change the operation of the driving-wheel, and it will also be seen that I have provided a cheap and durable construction and one that may be operated in connection with any class of work.

What I claim is—

The combination with a driving-wheel and a ratchet-wheel integral therewith; of an operating-bar pivotally secured over one face of said ratchet-wheel, a housing secured to said operating-bar and adapted to move around the edge of said ratchet-wheel, ratchet-levers pivotally mounted within said housing, arms extending from said levers and spaced apart, a spring disposed between said arms, the ends thereof resting in notches formed in said arms, a shaft extending laterally through said housing, a cam on said shaft, there being shoulders on said cam adapted to extend parallel with said arms when both levers are in engagement with the ratchet-wheel, a handle secured to said shaft above said operating-bar, a pin to hold said handle in its adjusted position, and a spring adapted to depress said pin and hold the same into engagement with openings in the operating-bar.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN HEGERHORST.

Witnesses:

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