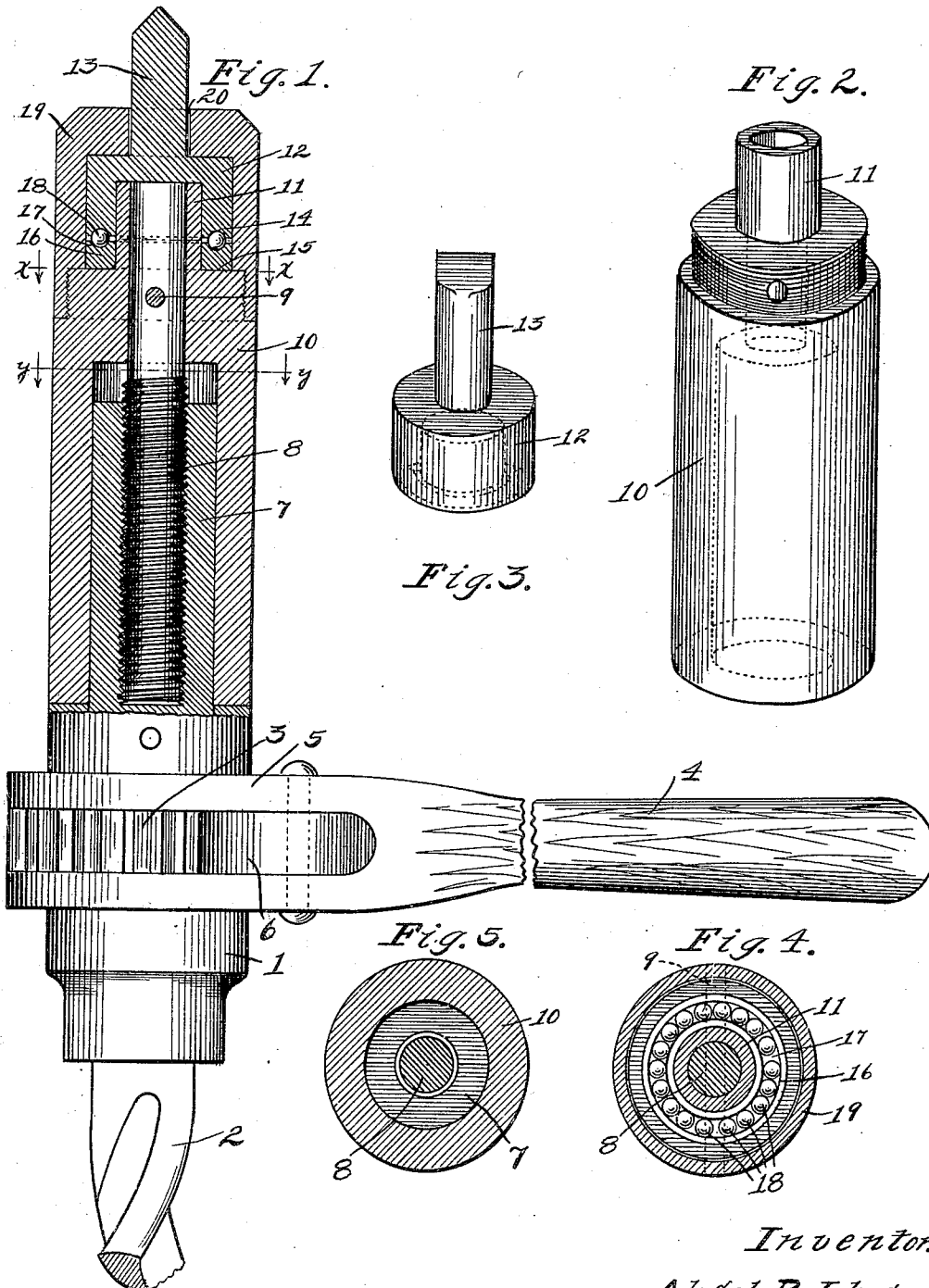


A. P. JOHNSEN.
 RATCHET DRILLING DEVICE.
 APPLICATION FILED DEC. 13, 1909.

971,755.

Patented Oct. 4, 1910.



Witnesses:
 C. E. Wessels.
 A. A. Olson.

Inventor:
 Aksel P. Johnson
 By Joshua R. P. Jones
 his Attorney

UNITED STATES PATENT OFFICE.

AKSEL P. JOHNSEN, OF CHICAGO, ILLINOIS.

RATCHET DRILLING DEVICE.

971,755.

Specification of Letters Patent.

Patented Oct. 4, 1910.

Application filed December 13, 1909. Serial No. 532,973.

To all whom it may concern:

Be it known that I, AKSEL P. JOHNSEN, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Ratchet Drilling Devices, of which the following is a specification.

My invention relates to that class of tools wherein a tool-holder or chuck is so connected with a revoluble operating handle that the latter may be rotated in one direction independently of the holder, but, when said handle is rotated in the other direction, an operative connection will be established between the same and said holder.

My invention has more particular reference to that class of such tools known as ratchet drilling devices or portable drill presses.

In tools of the character mentioned a drill is arranged in one end of the holder or chuck thereof and a centering and supporting point for said drill, and which engages a rigid opposing surface or structure, is provided at the other end of said holder. At the present time these points are so mounted or so connected with the holder, that, upon the rotary or oscillatory operation of the latter the point coöperating therewith turns also, and whereby the same in a comparatively short time wears out necessitating its replacement by a new one.

It is, therefore, the object of the present invention to provide a tool as mentioned in which the point thereof will be so mounted that at all times the same will remain stationary, and whereby the wearing thereof, for reasons as before stated, will be obviated.

A further object is the provision of a tool of the character stated which will be efficient in operation and of strong and durable construction.

Other objects will appear hereinafter.

With these objects in view my invention consists in a tool characterized as above mentioned and in certain details of construction and arrangement of parts all as will be hereinafter fully described and particularly pointed out in the appended claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a sectional side elevation of a

ratchet drilling-device in which is embodied my invention, Fig. 2 is a detail perspective of a sleeve member included in the tool, as shown in Fig. 1, Fig. 3 is a perspective view of the point of the drilling-device detached, and Figs. 4 and 5 are transverse sections taken respectively on lines $x-x$ and $y-y$ of Fig. 1.

Referring now to the drawings 1 indicates the tool holder or chuck of the device in which is rigidly held the drill 2. The holder 1 is cylindrical in form and is provided intermediate its extremities with a series of circumferentially arranged ratchet teeth 3.

4 indicates an operating handle the extremity 5 of which is rotatably mounted upon the holder 1 and by means of a pawl 6 carried by said end of said handle adapted to engage the ratchet teeth 3, operative connection between the holder 1 and said handle is effected when the latter is rotated in a clock-wise direction. Provided at the outer or upper extremity of the holder 1 is a coaxial projecting internally threaded tubular shank 7 formed integral with or rigidly secured to the former. Said shank 7 as seen is preferably of a diameter less than that of the holder. Having its lower end portion loosely threaded into the shank 7 is a screw 8 of a length such that the same occupies the entire threaded interior of said shank and which projects considerably above or beyond the same, as shown. Having its upper end portion rigidly secured as by a pin 9 to the upper end portion of the screw 8 is a depending or inwardly extending sleeve 10, the lower or inner end portion of which embraces, as shown, the upper end portion of the shank 7. Said sleeve 10 is preferably of an exterior diameter the same as that of the holder 1 so that when said sleeve is at its innermost position the lateral surface thereof will be flush with that of the holder 1. The upper end portion 11 of the sleeve 10 is reduced. Having its lower or inner enlarged cup-formed portion 12 rotatably mounted upon said portion 11 is the point 13 of the device, said point as clearly shown in Fig. 3 being preferably chisel pointed. Provided in the lower or inner edge of the cup portion 12 is an annular ball race 14. Arranged adjacent said edge of said point, the same resting upon the shoulder 15 occasioned by the reduction of the outer end of the sleeve 10, is an annular

member 16 bearing in its upper or outer surface an annular ball race 17. Interposed between said surfaces of the members 13 and 16, the same traveling in the races 14 and 17, as clearly shown in Fig. 1, are ball bearings 18.

19 is a cap the inner extremity thereof being preferably threaded upon the outer end portion of the sleeve 10 and rigidly secured thereto by the pin 9. The outer end of said cap is provided with a central circular opening 20 for the reception of the outer reduced end portion of the point 13. The interior dimensions of said cap are such that the point 13 will be free to rotate therein, said cap serving merely as a means of holding the same in position. The sleeve 10 at the place of connection of the cap 19 therewith is preferably reduced in order that said cap may be of a diameter the same as that of said sleeve, and whereby the lateral surfaces of said cap and sleeve will be flush. There is no particular advantage in this construction except that it adds to the appearance of the device.

With the provision in a device of the character described of a point mounted therein, as shown and described, the point, in the operation of the device, may evidently be held stationary without in any way retarding or affecting the operation of the other parts of the device. With a device of this construction the upper end portion thereof, that is the screw 8 and the parts connected thereto will normally rotate with the tool holder 1, hence said screw will normally remain inoperative, that is it will not feed the drill 2. Upon desiring to feed the latter it is only required to grasp the cap 19 or the sleeve 10 by the hand and to hold the same rigid. Upon so doing, it is evident, that the screw 8 will also be held rigid and that upon the opposite rotation of the shank 7 thereon the latter and hence the drill 2 will be fed outwardly into the work operated upon.

While I have shown what I deem to be the preferable form of my device I do not wish to be limited thereto as there might be various changes made in the details of construction and the arrangement of parts described without departing from the spirit of the invention comprehended within the scope of the appended claims. And although I have shown my improvement as embodied in a ratchet drilling-device the same may be incorporated in any other similar tool to which it is applicable.

Having described my invention what I

claim as new and desire to secure by Letters Patent is:

1. The combination with a tool holder and an operating handle therefor in operative connection therewith, of a feeding screw in threaded connection with one end of said holder, a sleeve having its outer end fixed to the outer extremity of said screw, the inner end portion of said sleeve encompassing said end of said holder, the outer end portion of said sleeve being reduced, a point having an enlarged cup portion at its inner end receiving said reduced end of said sleeve, a ball race being formed in the mouth or inner edge of said cup, a cooperating ball-race-bearing member arranged adjacent said edge of said cup portion, ball bearings arranged in said ball races, and a cap having an opening in its outer end receiving the outer end portion of said point, said cap being fixed at its inner extremity to said sleeve, substantially as described.

2. The combination in a ratchet drilling-device of a tool holder and an operating handle, a pawl and ratchet connection between said tool holder and operating handle, the inoperative end of said holder being provided with a co-axial tubular internally threaded elongate shank, a feeding screw in threaded connection with said shank, a sleeve having its outer end pinned to the outer extremity of said screw, the inner end portion of said sleeve encompassing said shank of said holder, the outer end portion of said sleeve being reduced, a chisel pointed point having an enlarged cup-formed inner end portion, said cup receiving said reduced end of said sleeve, a ball race being formed in the mouth or inner edge of said cup, an annular member arranged adjacent said edge of said cup having a cooperating ball race in the outer end surface thereof, ball bearings arranged between and traveling in said ball races, and a cap arranged over said cup-formed inner end portion of said point, the outer end of said cap having a circular opening for the reception of the outer end of said point, the inner end of said cap being pinned to the outer end of said sleeve, substantially as described.

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

AKSEL P. JOHNSEN.

Witnesses:

HELEN F. LILLIS,
JOSHUA R. H. POTTS.