

(No Model.)

P. A. WHITNEY.
RATCHET DRILL.

No. 292,522.

Patented Jan. 29, 1884.

Fig. 1.

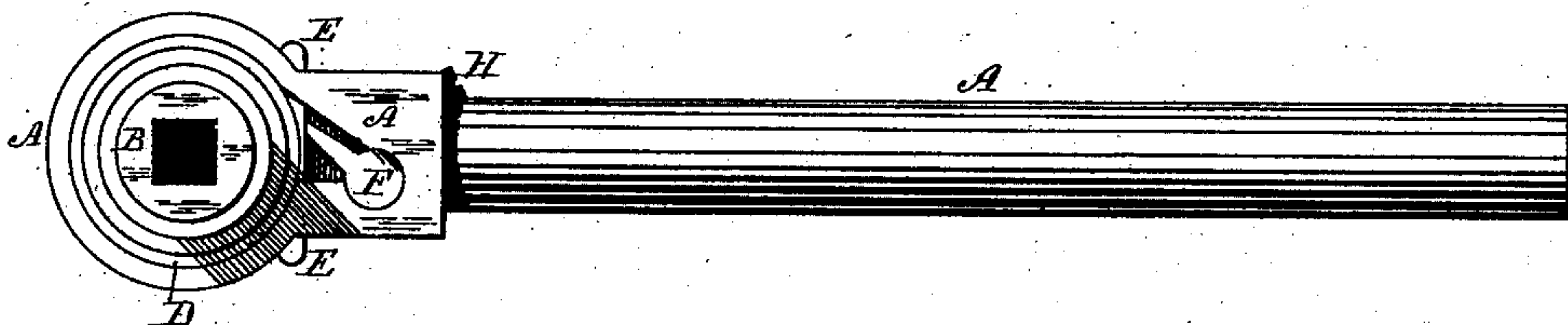


Fig. 4.

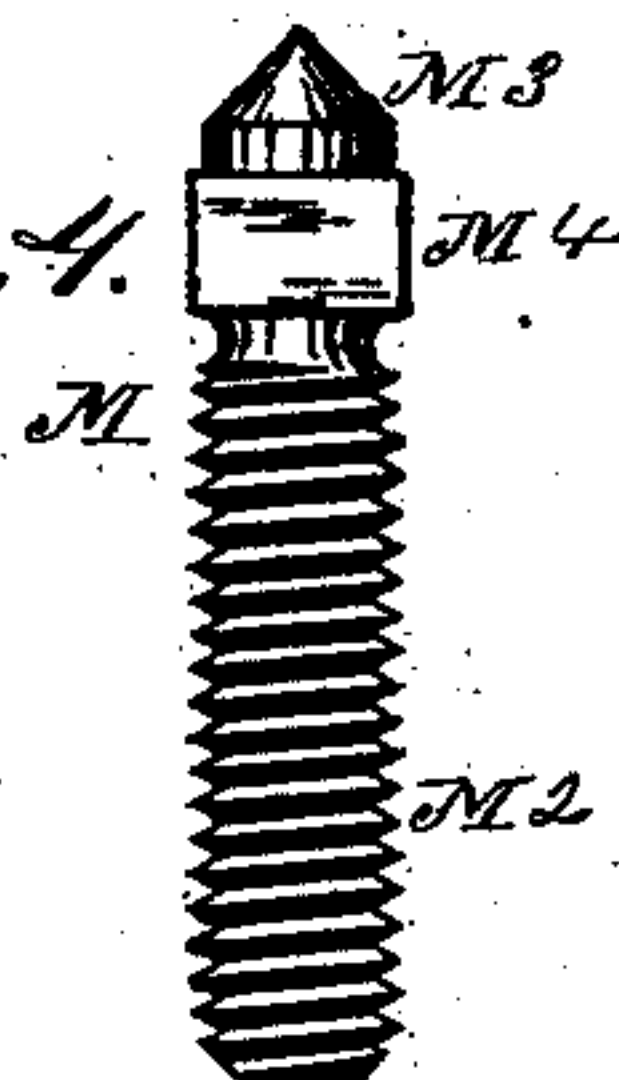


Fig. 3.

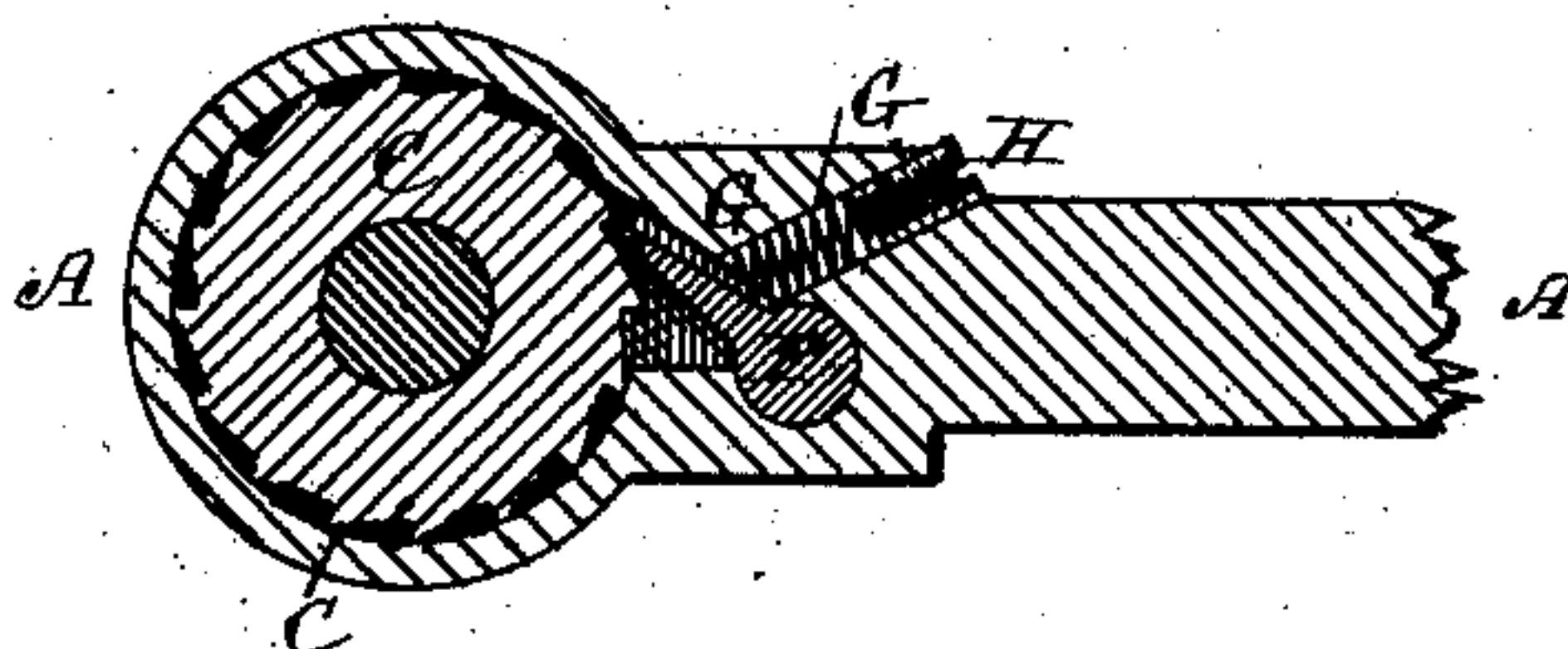
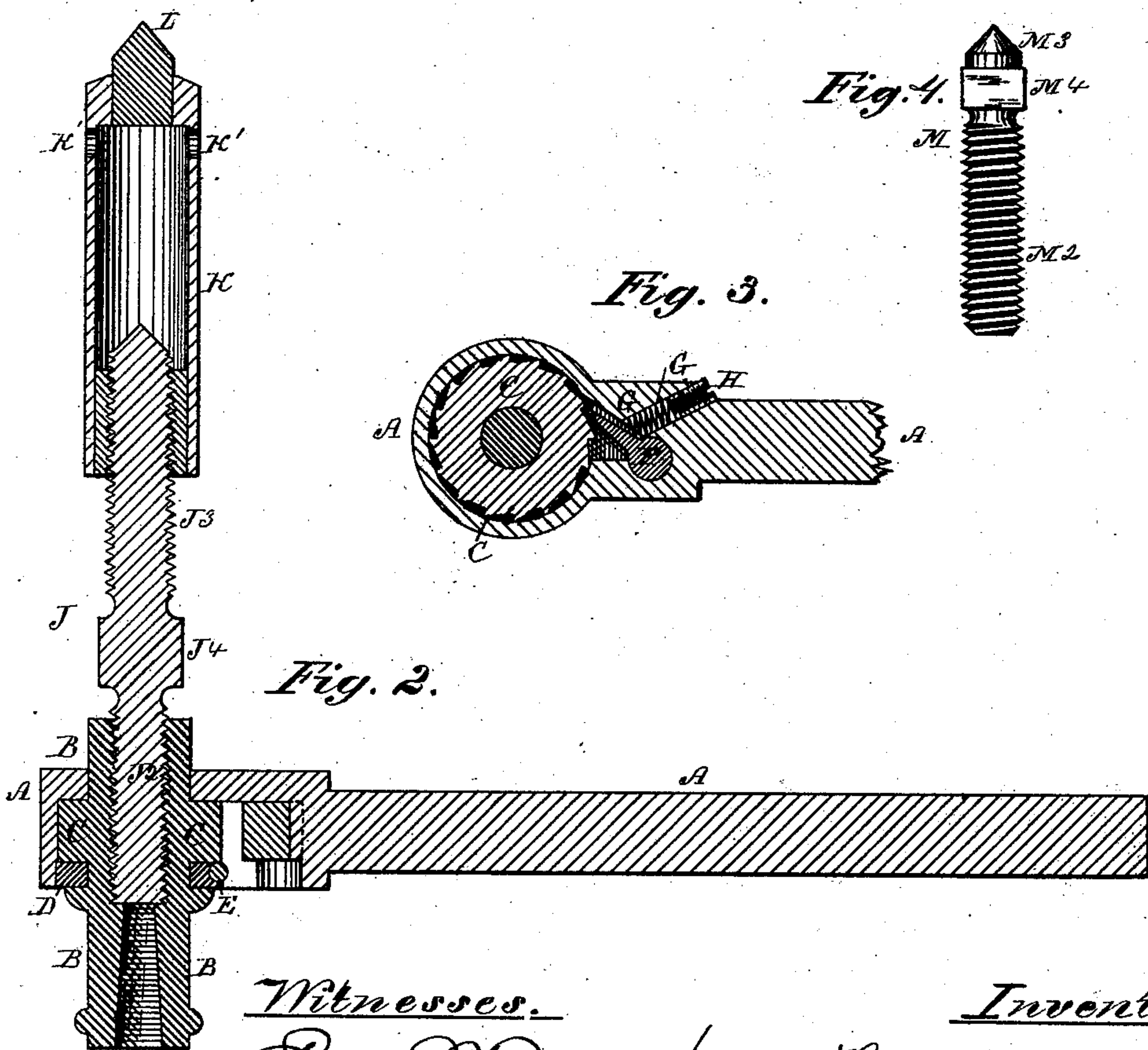


Fig. 2.



Witnesses.

Edwin D. Dimock
Chas. L. Burtett

Inventor.

Pardon A. Whitney
by Theo. G. Ellis,
Attorney.

UNITED STATES PATENT OFFICE.

PARDON A. WHITNEY, OF CLEVELAND, OHIO.

RATCHET-DRILL.

SPECIFICATION forming part of Letters Patent No. 292,522, dated January 29, 1884.

Application filed January 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, PARDON A. WHITNEY, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and
5 useful Improvements in Ratchet-Drills; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accom-
10 panying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My improvement relates to ratchet-drills
15 which are used for boring holes in metal by hand by the alternate swinging movement of the handle, which turns the drilling-tool in one direction and moves back over a ratchet in the other. Such drills are commonly pro-
20 vided with a feeding-screw for advancing the drill as the metal is bored. They are used with a blocking which holds them to their work. For drilling boilers a very short and compact drill-stock is required, as the block-
25 ing must be short; but for ordinary purposes and general work as long a run as possible in the feeding-screw is desirable.

The object of my invention is to provide a
30 drill which can be used either as a boiler or a common drill and have a longer run in the feeding-screw than has heretofore been obtained with the same length of drill-stock, and also to provide a better arrangement and construction of the working parts of the drill-
35 stock than have heretofore been in use.

In the accompanying drawings, illustrating my invention, Figure 1 is a bottom view of my improved ratchet-drill. Fig. 2 is a vertical
40 section through the middle of the tool, with the drilling-bit omitted, any ordinary drilling-tool being applicable to my invention. Fig. 3 is a horizontal section through the middle of the ratchet, part of the handle being omitted. Fig. 4 is a view of a short separate
45 screw, which is used when the tool is converted into a boiler-drill.

A is the swinging handle. It is made of a convenient length in the customary manner, and has an enlarged part at the drill end, in
50 which is formed a suitable socket to hold the ratchet and pawl.

B is the rotating head which holds and turns the drilling-tool. It is furnished with a socket to hold the drill in the customary manner, and revolves in bearings in the enlarged part
55 of the handle A.

C is the ratchet-wheel, which is made in one piece with the part B, and of larger diameter than the bearings of B in the handle, so that when the wheel C is placed in its socket it
60 holds the part B in the handle.

D is a ring which fits into a groove in the part B, and also has its exterior circumference of such a diameter as to fit into and close the socket in the handle A, provided for the
65 wheel C. This ring is split, so that it can be placed in the groove in B; and then, with the part B, it is passed into the socket in the handle, which binds the two parts of the ring together. The pin E is then passed through the
70 sides of the handle and a notch in the rim of D to hold it from being withdrawn. This holds the parts A and B securely together.

F is a pawl having a cylindrical rear end which fits into a cylindrical socket in the han-
75 dle to form its hinge. Its forward end swings freely in an enlarged part of the socket in the handle A and engages with the ratchet C. This pawl is inserted in the handle before the part B and ring D are inserted, and is pre-
80 vented from falling out by the ring D and the pin E.

G is a spring pressing upon the pawl to hold it against the ratchet-wheel C, and H is a screw for holding the spring in its socket
85 and regulating its pressure upon the pawl.

J is a double screw-spindle composed of the three parts J² J³, and J⁴.

J² is a screw fitting into a threaded socket in the drill-head B, which extends through
90 the middle of B to the top of the socket provided for the upper end of the drill.

J³ is a screw turning in a threaded socket in the sleeve K, and passing into this sleeve as far as the center point, L.
95

J⁴ is a square between the two screws for the purpose of applying a wrench to turn them. The sleeve K, with the point L, forms the upper support of the tool, which acts
100 against the blocking in the customary manner to advance the point of the drill when the screw J or the sleeve K is turned.

M is a separate screw composed of the three parts M^2 , M^3 , and M^4 .

M^2 is a screw corresponding to J^2 , and fitting, like it, into the hollow thread in the head B.

5 M^3 is a center point corresponding to L, and serving as a point of support against the blocking.

M^4 is a square for turning the screw by means of a wrench.

10 By means of the special arrangement of the socket-bearing sleeve and the double screw-spindle shown in Fig. 2, having the lower screw, J^2 , working in the socket in the part B, I am enabled to remove the sleeve and the
15 spindle and substitute the screw M, when it is desired to use the drill in a confined space, where the longer part would be inconvenient or impossible to use, as when the tool is used as a boiler-drill, and at the same time provide
20 a drill which shall have a great range of feed when required for ordinary work.

By making the double screw-spindle in the form shown, in addition to the ordinary range of feed-screw, which is represented by the
25 screw J^3 , as such drills are commonly constructed, I get the additional length of the screw J^2 , working in the socket in B.

By my improved construction I utilize the entire length of the tool from the end of the
30 drilling-bit to the inside of the center point, L, for the feed-screw.

In using my improved ratchet-drill, the tool is set up, with the screws J^2 and J^3 of the double screw-spindle both turned into their res-
35 pective sockets in the part B and the sleeve K as far as possible. The feed is then obtained by turning the sleeve K by a pin inserted in holes K' , or in any other convenient manner, until the screw J^3 is nearly out. The spindle

is then turned by a wrench applied to the square part J^4 , which turns the spindle and parts above it together and advances the drill by means of the thread of the screw J^2 withdrawing from the socket.

By means of my improvements I am enabled to combine a common ratchet-drill and a boiler-drill with only the separate screw M, and to provide a drill having a greater length of feed for the same length of drill than has heretofore been in use. 50

What I claim as my invention is—

1. The combination of the double screw-spindle J, having the intermediate head, J^1 , with the threaded sleeve K and the head B, provided with a threaded socket for the lower
55 end of the screw-spindle, all substantially as described.

2. Jointly with the head B, having the threaded socket, the interchangeable parts, screw M and double screw-spindle J, all sub-
60 stantially as described, and for the purpose set forth.

3. The combination of the revolving head B, provided with the wheel C, the handle A, socketed for the reception of said head and
65 wheel, the ring D, and the pin E, substantially as described.

4. The combination of the handle A, provided with sockets for the ratchet C, and pawl F, the head B, provided with the ratchet C,
70 the pawl F, provided with a cylindrical bearing, and the ring and pin D E, by which the parts are secured in place, substantially as described.

PARDON A. WHITNEY.

Witnesses:

L. H. TREADWAY,
CHAS. I. JENKINS.