

No. 620,143.

Patented Feb. 28, 1899.

C. JOHNSON.
WRENCH.

(Application filed June 20, 1898.)

(No Model.)

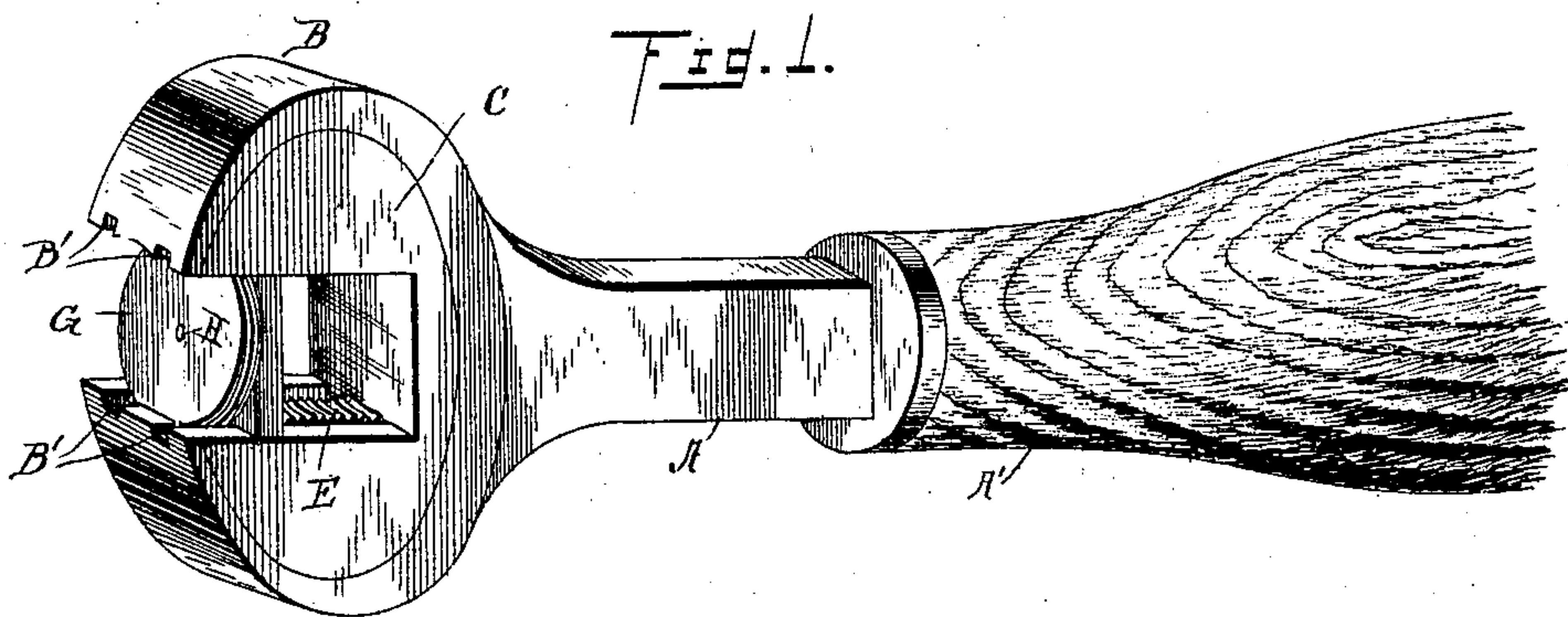


Fig. 2.

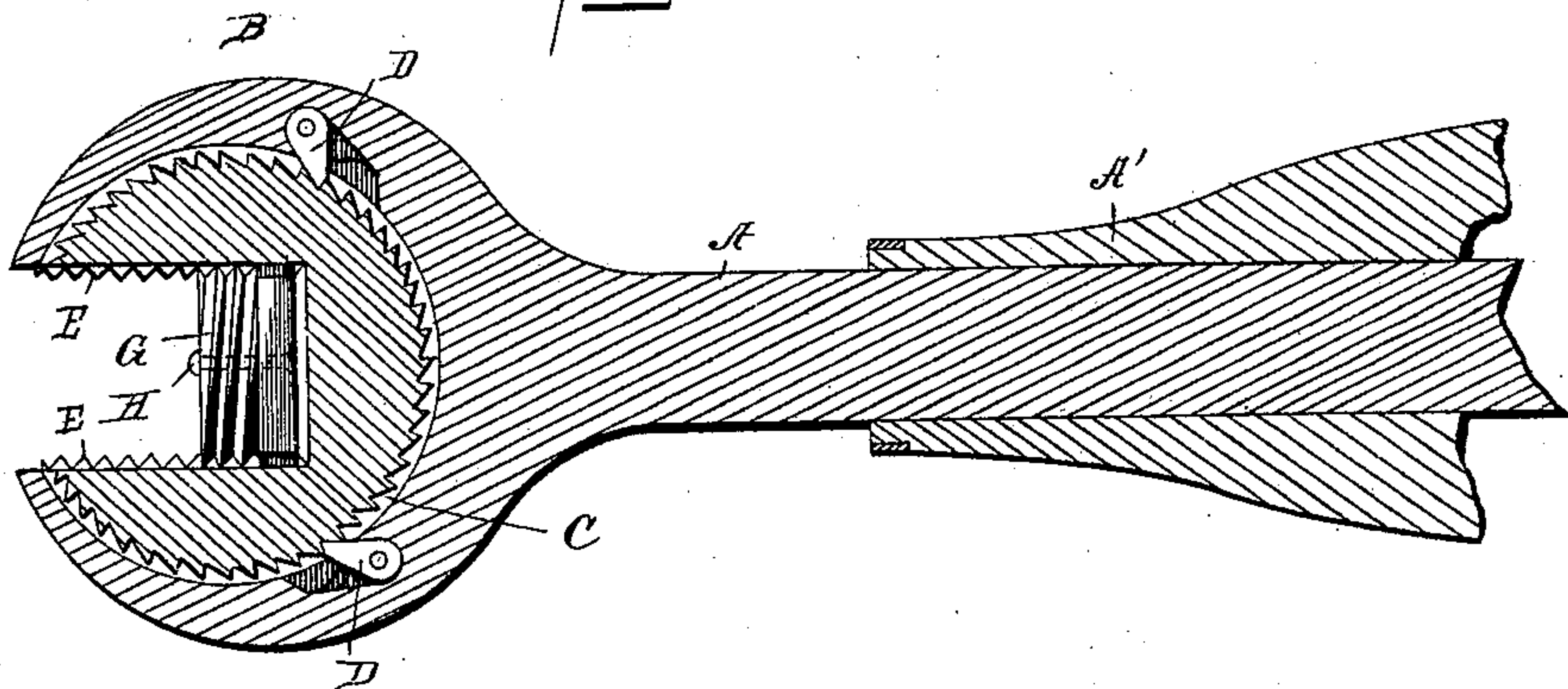


Fig. 3.

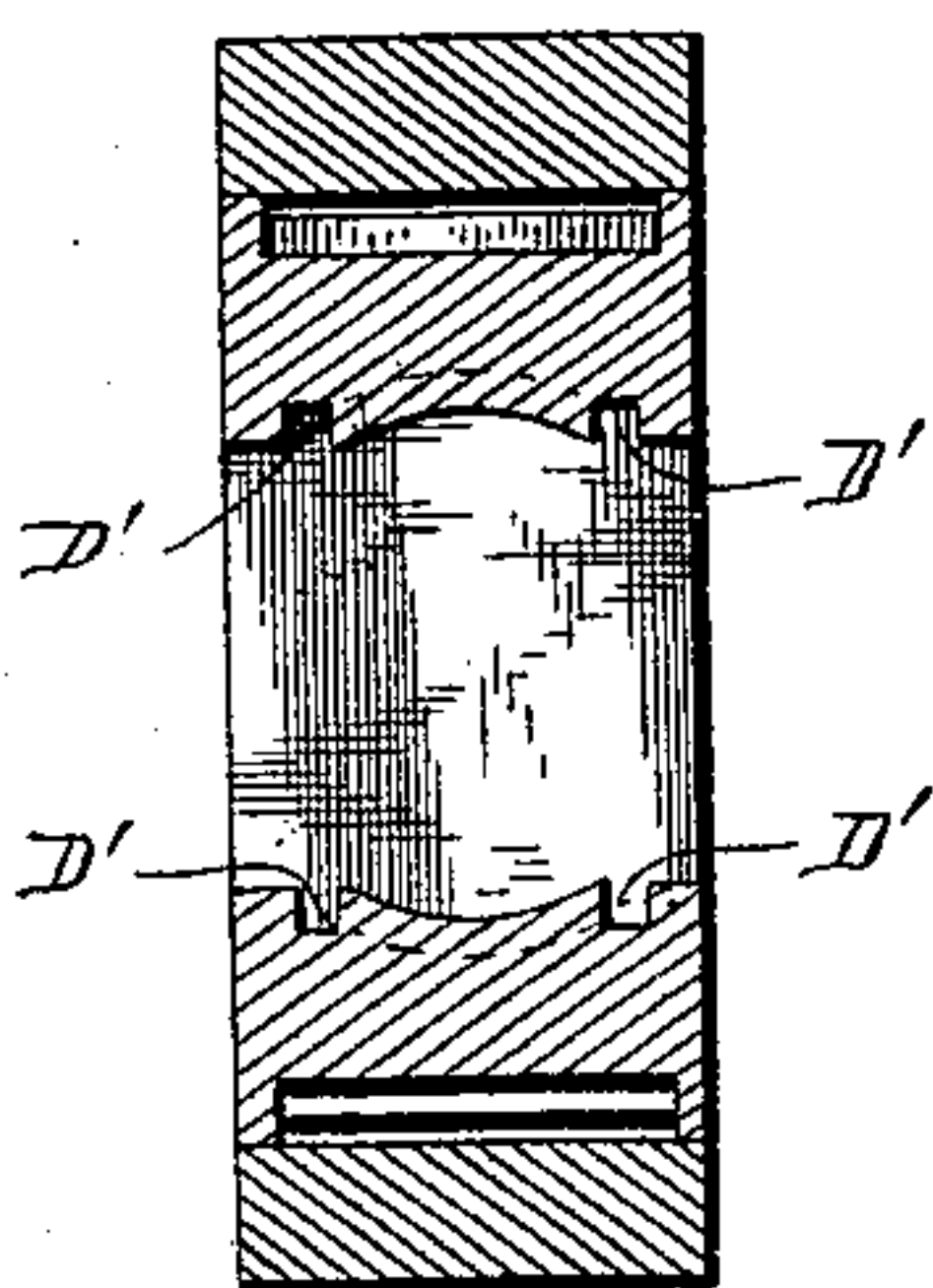


Fig. 4.

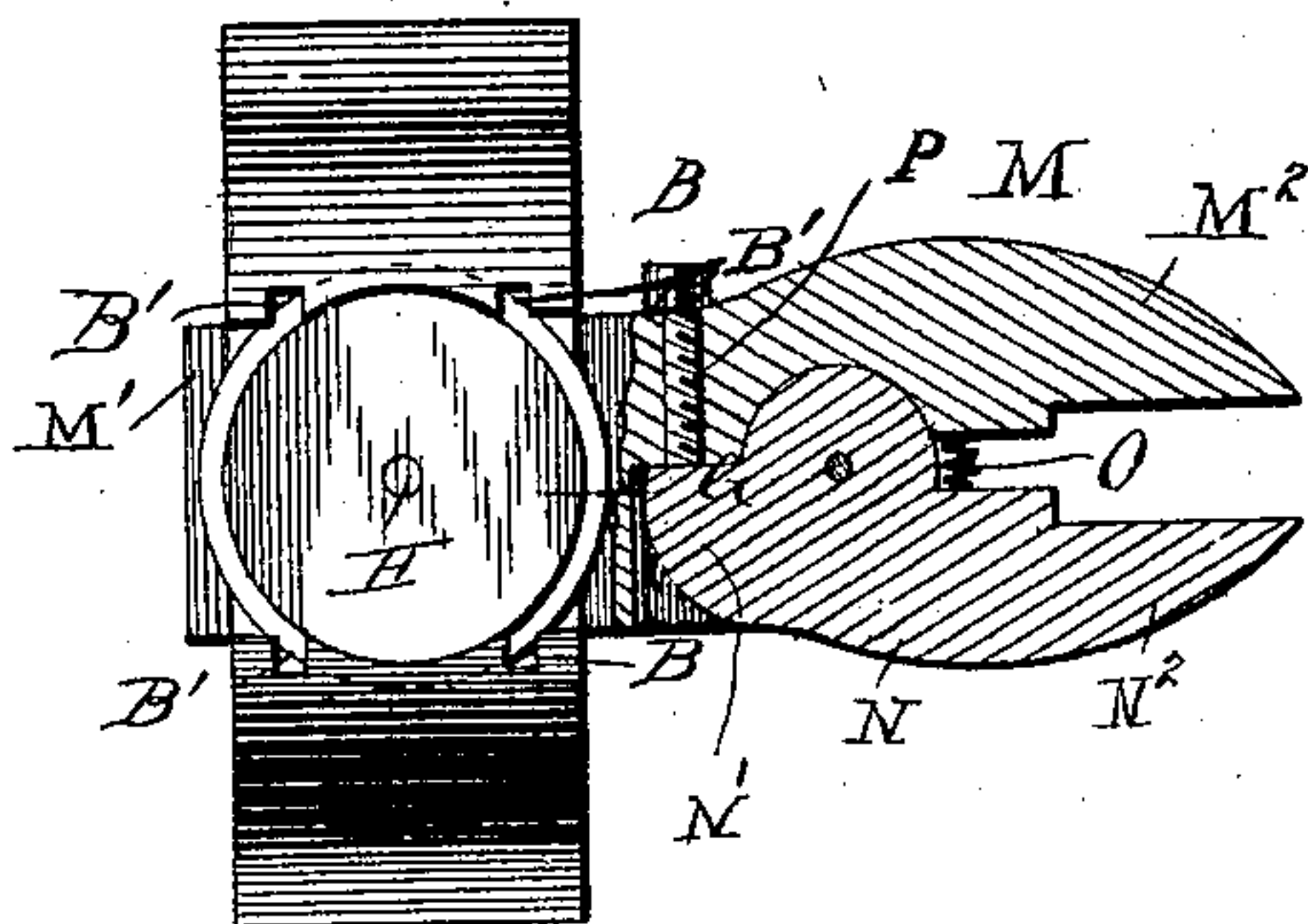
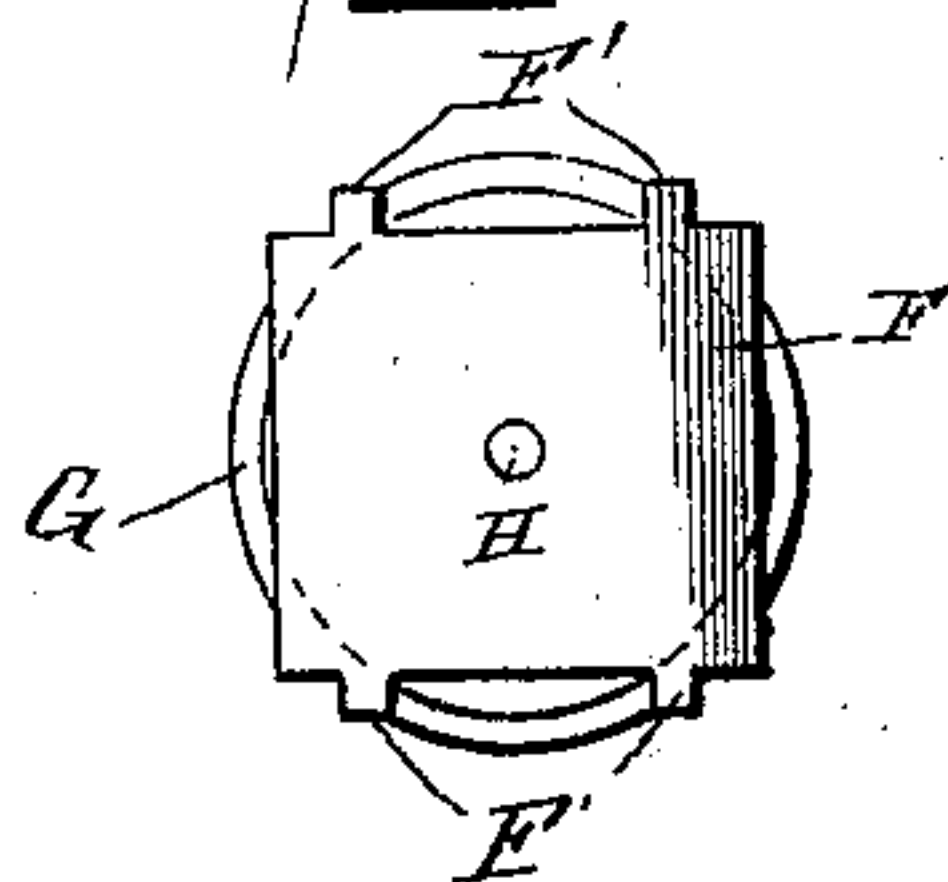


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES JOHNSON, OF WEST SUPERIOR, WISCONSIN.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 620,143, dated February 28, 1899.

Application filed June 20, 1898. Serial No. 684,031. (No model.)

To all whom it may concern:

Be it known that I, CHARLES JOHNSON, residing at West Superior, in the county of Douglas and State of Wisconsin, have invented a new and useful Wrench, of which the following is a specification.

My invention relates to wrenches, and more particularly to that class known as "ratchet-wrenches," the object of the invention being to provide a wrench of this class simple in construction and cheap to manufacture, having adjusting devices and removable parts, whereby the wrench is adapted for engaging different sizes of nuts or other objects.

With this object in view the invention consists in a suitable handle provided with spring-actuated pawls, a ratchet-block mounted in the head of the wrench, having teeth in engagement with the said pawls and provided with an opening in which to receive the nut or other object to be turned, sections of threads being formed on each side of the opening, but sunk below the surface, so as not to contact with the nut when turning, a sliding block adjusted in the opening, and a worm-disk pivoted to the sliding block and engaging the sunken threads.

My invention further consists in the improved construction, arrangement, and combination of parts, hereinafter fully described and afterward specifically pointed out in the appended claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, having reference to the accompanying drawings, in which—

Figure 1 is a perspective view of a wrench constructed in accordance with my invention, the outer portion of the handle being broken away and the sliding block being illustrated in its outer adjustment. Fig. 2 is a longitudinal section through the same, the sliding block being in its inner adjustment. Fig. 3 is a transverse vertical section through the head of the wrench and the ratchet-block, with the sliding block removed. Fig. 4 is an end elevation of the front of the wrench as shown in Fig. 1, showing in section an attachment for special purposes. Fig. 5 is a de-

tail view in elevation of the sliding block and adjusting-worm detached from the wrench.

Like letters of reference indicate the same parts wherever they occur in the various figures of the drawings.

Referring to the drawings by letters, A indicates the body of the wrench, provided with a wooden handle A'. These parts may be made integrally, if desired, the wooden handle being dispensed with and the body A being extended to any suitable length.

At the outer end of the body A is formed the head B, which is circular in contour and provided with a circular opening, part of the front of the wrench being omitted and notches B' being cut in the walls of the opening thus provided. Seated in the circular opening of the head B is a ratchet-block C, the teeth of which are all pointed in one direction and engage spring-actuated pawls D, pivoted in recesses in the inside of the opening of the head.

The ratchet-block C is provided with a rectangular opening extending into it beyond its center, said opening being of a width equal to the opening left in the outer face of the head B and the wall of said opening being formed with grooves D', which when the opening in the block registers with the opening in the head B will register with the notches B'. Threads E are formed on the inner surface of the ratchet-block between the grooves D'.

F indicates a sliding block substantially rectangular in form and provided on each side with projecting lugs F'. A worm-disk G is pivotally and centrally secured to the block F by means of a pin H.

The block F is of a size to permit of its sliding through the opening in the front of the wrench-head B and into the opening in the ratchet-block, the lugs F' passing through the notches B' and engaging in the grooves D', whereby the block F is prevented from turning. After the block has been started into position the worm-disk G engages the threads E in the wall of the opening in the ratchet-block, whereby by turning the worm-disk the sliding block F may be moved inward or outward as a smaller or larger opening to fit the object to be turned is required. The opening having been thus adjusted the

wrench is placed upon the object to be turned and moved to the right, the spring-actuated pawls D forcing the ratchet-wheel around in the same direction. When the handle is swung back, the pawls slide over the teeth of the ratchet-block ready to take another hold in the usual manner. When it is required to turn the object to the left, the wrench will be reversed, bringing the lower side up.

For some purposes where the wrench cannot be operated I use an attachment, as shown in Fig. 4, which consists in a bar M, having a head M' to be clamped in the wrench, and a bar N, pivoted thereto, both bars being provided with jaws, as at M² N², and the bar N being formed with a shoulder N', projecting beyond the pivot in the rear. A spring O between the bars M and N outside of the pivot tends to hold the jaws open, and a set-screw P, threaded through bar M and bearing upon shoulder N', serves to close the jaws together.

From the foregoing description of the construction and operation of my invention it will be seen that I have provided a cheap, simple, and effective wrench which fulfils all intended objects, and while I have illustrated and described what I consider to be efficient means for carrying out my invention I do not wish to be understood as restricting myself to the exact details of construction shown and described, but hold that any slight changes or variations, such as might suggest themselves to the ordinary mechanic, would properly fall within the limit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a wrench, a suitable handle or body, provided with a circular head having a circular opening therethrough, the front of the

head being cut away, forming a communication or opening into the circular opening, in combination with a circular ratchet-block seated in the opening in the head and provided with an opening extending into it, adapted to be brought into register with the opening in the front of the wrench-head, partial threads formed in the walls of the opening in the ratchet-block, a sliding block fitted in the opening in the wrench-head and ratchet-block, and a worm lever or disk centrally pivoted to the sliding block and engaging the partial threads, substantially as described.

2. The combination with the wrench-head having the circular opening through it and the front opening, with notches formed in its walls, of the ratchet-block seated in the circular opening, the spring-actuated pawl pivoted in recesses inside of the wrench-head and engaging the teeth of the ratchet-block, the ratchet-block being formed with an opening adapted to coincide with the front opening in the wrench-head and having grooves to register with the described notches, the partial threads in the walls of the opening in the ratchet-block, the sliding block adapted to pass through the front opening in the ratchet-head and into the opening in the ratchet-block, side projections or lugs on the sliding block adapted to fit the notches in the walls of the front opening of the wrench-head and the grooves in the walls of the opening in the ratchet-block, and the worm-disk centrally pivoted to the sliding block and adapted to engage the threads formed in the walls of the opening in the ratchet-block, substantially as described.

CHARLES JOHNSON.

Witnesses:

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