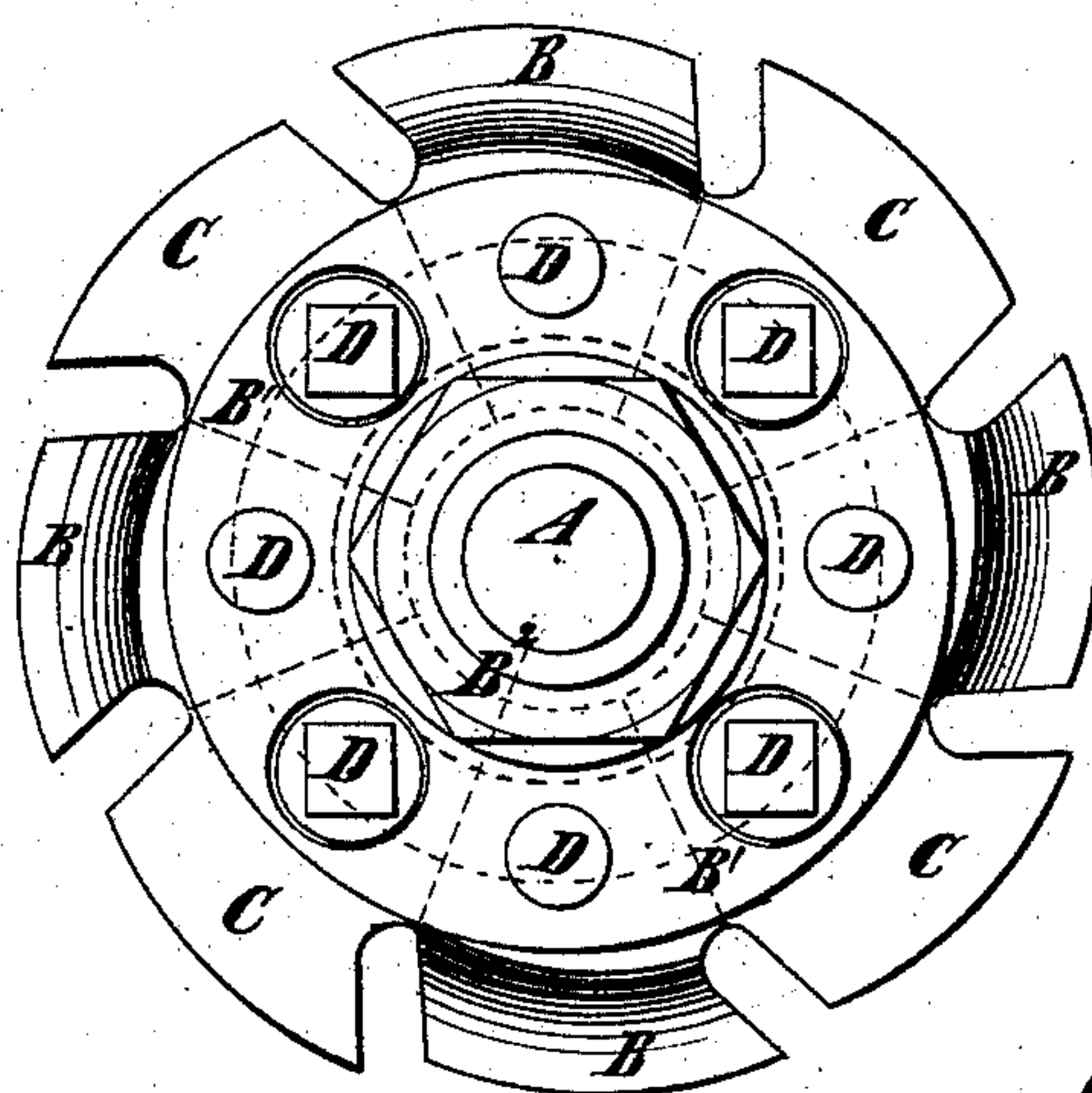
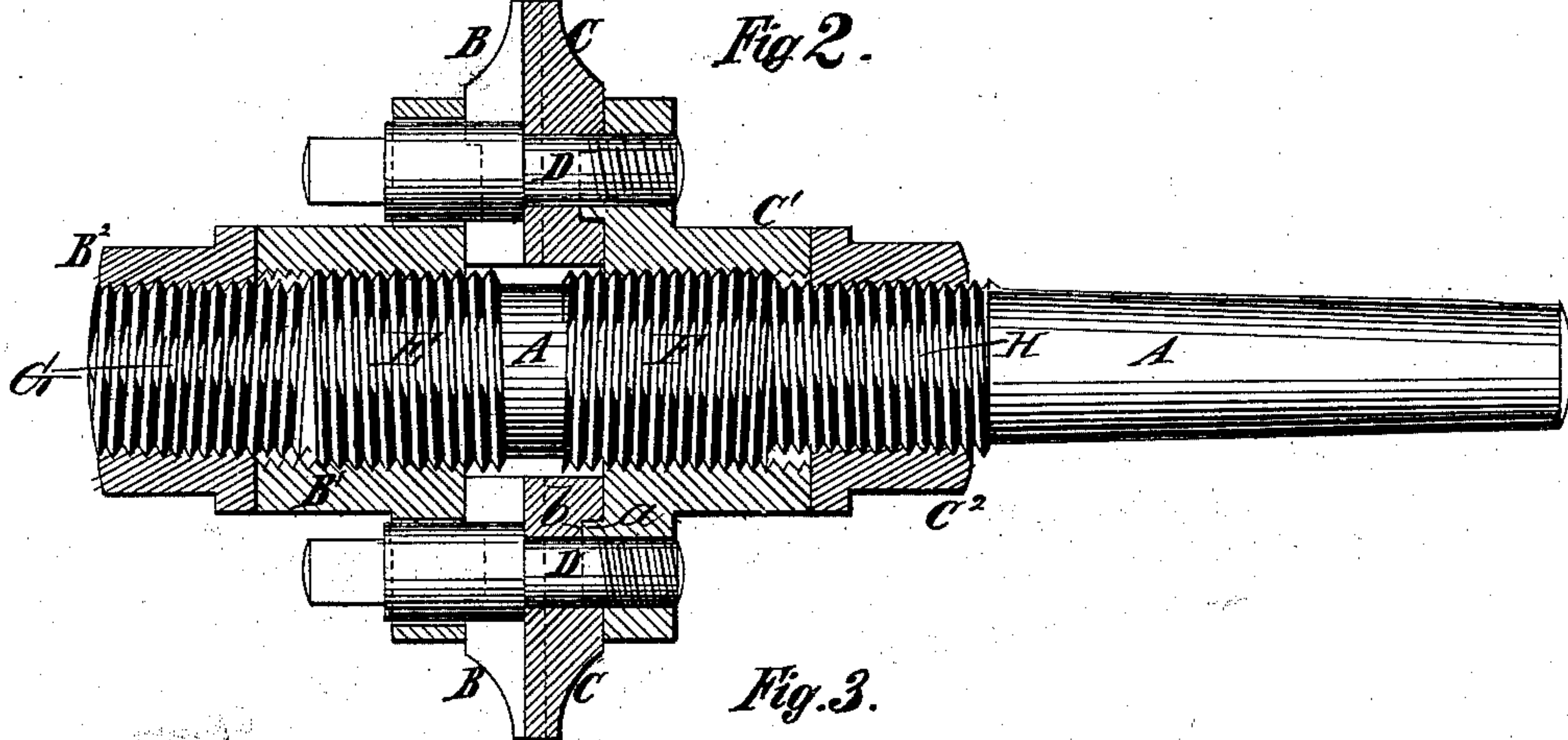
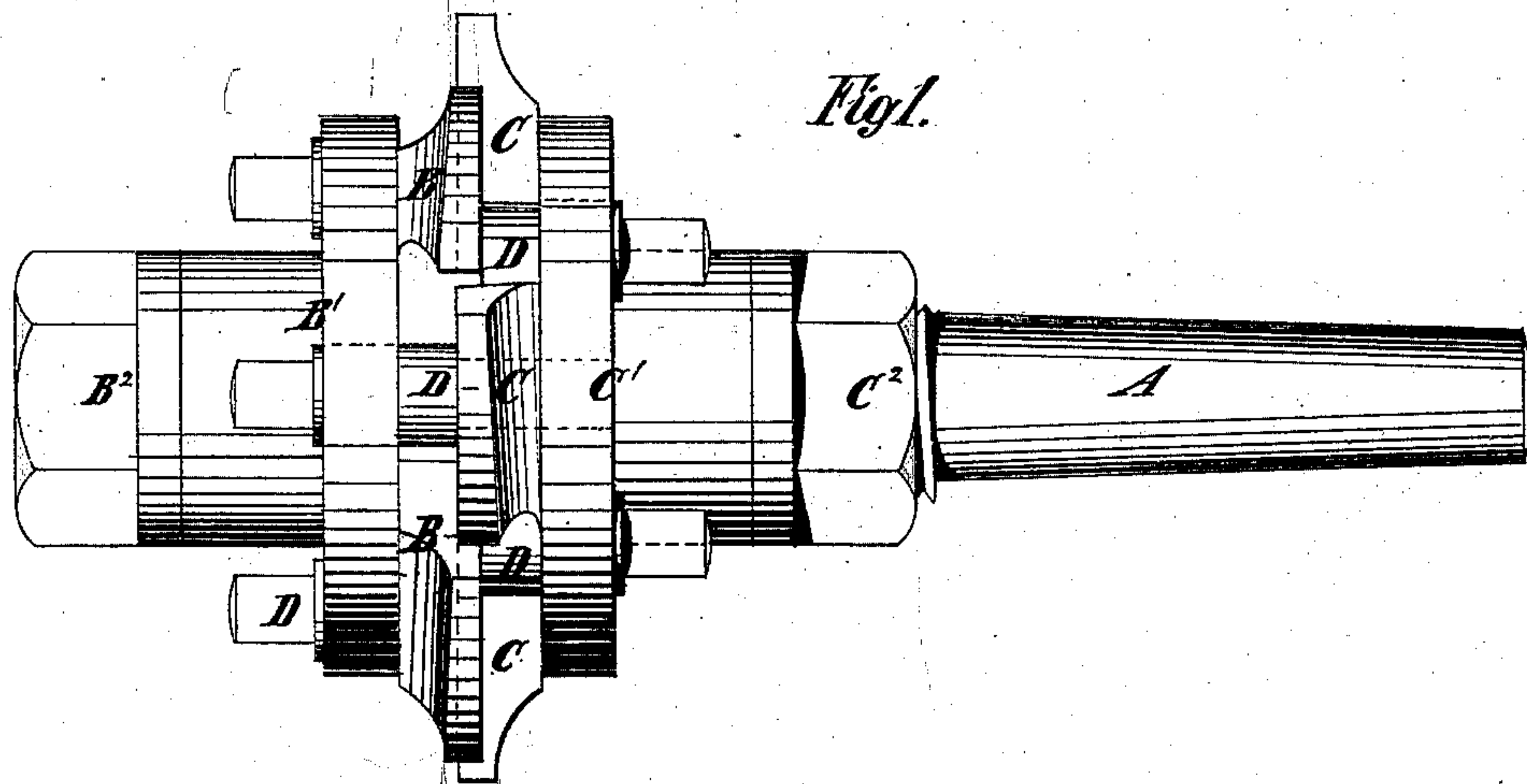


J. A. PEER.  
Cutting Instrument or Tool.

No. 205,296.

Patented June 25, 1878.



Witnesses:  
Charles Hall  
Thomas C. Birch

Inventor.  
John A. Peer  
by his attorney  
Edwin H. Brown



# UNITED STATES PATENT OFFICE.

JOHN A. PEER, OF SAN FRANCISCO, ASSIGNOR OF ONE-HALF HIS RIGHT TO  
RUFUS SMITH, OF OAKLAND, CALIFORNIA.

## IMPROVEMENT IN CUTTING INSTRUMENTS OR TOOLS.

Specification forming part of Letters Patent No. 205,296, dated June 25, 1878; application filed  
November 22, 1877.

*To all whom it may concern:*

Be it known that I, JOHN A. PEER, of the city and county of San Francisco, and State of California, have invented certain new and useful Improvements in Cutting Instruments or Tools, of which the following is a specification:

These improvements relate to a cutter embraced in Letters Patent No. 153,370, bearing date July 21, 1874, and a cutter which is embraced in an application for Letters Patent filed by me August 23, 1877. Each of these cutters is composed of two separate and intervening series of cutters arranged on one and the same shaft of a machine, which is specially constructed to provide for the adjustment of the two series of cutters relatively to each other.

The object of the present improvements is to provide a cutting instrument or tool comprising two similar series of intervening adjustable cutters, and means for adjusting the same entirely independent of the machine in which such cutting-tool may be used, whereby the cutting-tool is rendered complete in itself, and may be used in an ordinary machine for cutting gear-teeth and for performing analogous work.

The invention consists in the combination, in a cutting instrument or tool, of two series of cutters capable of being adjusted laterally upon a spindle or arbor by devices forming part of the cutting instrument or tool, whereby the said cutters are enabled to perform work, such as cutting gear-teeth or slots of different widths or shapes, and the cutting instrument or tool of which they form part is enabled to take the place of a number of cutting instruments or tools of different sizes.

The invention also consists in details of construction hereinafter explained.

In the accompanying drawings, Figure 1 is a face view of a cutting-instrument embodying my improvements. Fig. 2 is a central longitudinal section thereof, and Fig. 3 is a side view thereof.

A designates a spindle or arbor, forming part of the tool, and adapted to be secured in machinery wherein the cutting-tool is to be

used in any suitable manner. B C designate two series of cutters, which are entirely separate and independent of each other, and which, in this example of my invention, are respectively mounted on two separate and independent sleeves, B<sup>1</sup> C<sup>1</sup>, arranged on the spindle or arbor A, so that they may be adjusted laterally toward and from each other.

It will be seen that the cutters B of one series intervene between those of the other series, and that the entire number of cutters in the cutting-instrument alternate one with another throughout said instrument. The cutters are shown as specially adapted for cutting teeth of gear-wheels, and have receding peripheries and lateral tapers, like cutters embraced in an application for Letters Patent lately filed by me. These cutters are shown as being secured in place by means of arc-shaped grooves *a* in their shanks fitting upon ribs *b* on the faces of their supporting-sleeves B<sup>1</sup> C<sup>1</sup>, and by bolts D passing through their shanks and engaging with screw-sockets in the sleeves. The heads of these bolts preferably are elongated sufficiently to extend into bearings in the opposite sleeves, so as to receive support therefrom, to preclude any transverse or lateral vibration of the cutters during their work.

The sleeves B<sup>1</sup> C<sup>1</sup> are represented as respectively provided internally with a right and left hand female screw-thread, and as respectively engaging with corresponding right and left male screw-threads E and F on the spindle or arbor A. When thus combined with a spindle or arbor they may be readily adjusted laterally toward and from each other, to spread or contract the two series of cutters for the purpose of adapting them to work of different widths—such, for instance, as the cutting of gear-wheel teeth of different widths.

B<sup>2</sup> C<sup>2</sup> designate nuts applied to the spindle or arbor A outside or beyond the ends of the sleeves B<sup>1</sup> C<sup>1</sup>. These nuts respectively engage with screw-threads G H, inclined reversely to the screw-threads of the spindle or arbor A, with which the sleeves B<sup>1</sup> C<sup>1</sup> engage. The object of thus combining these nuts with the spindle or arbor A is to enable them to



serve as stops for holding in any position the sleeves  $B^1 C^1$  and their series of cutters  $B C$ .

It will be understood that the resistance offered to the cutters during their work will tend to turn the sleeves  $B^1 C^1$  upon the screw-threads with which they engage until they are precluded from any further movement by contact with the nuts  $B^2 C^2$ , and that, as these nuts can only move along the spindle or arbor by turning in a direction reverse to that in which the sleeves turn in their lateral movement, these sleeves will not effect the turning of the said nuts, but will be held firmly and securely by the latter.

It will be understood that the screw-threads with which the nuts  $B^2 C^2$  engage are smaller in diameter than those with which the sleeves are engaged, and that therefore, after the removal of these nuts from the spindle or arbor, the sleeves may be slipped from the threads with which the nuts engage, and may hence be removed from the said spindle or arbor.

The two series of cutters may advantageously be severally provided on opposite sides with different-shaped cutting-faces, for then they may be used for two different kinds of work. For instance, with the cutters shown in this example of my invention, and having on one side a cutting-face shaped correspondingly to one side of a gear-tooth, and having on the other side a flat cutting-face, gear-teeth may be cut by adjusting the cutters so that the gear-cutting faces will project on opposite sides; or plain slotting or grooving may be performed by adjusting the teeth so that their flat faces project on opposite sides.

It will be seen that by my invention I provide a cutting tool or instrument adapted for cutting gear-teeth, for slotting, grooving, and other milling, as well as performing work in wood, wherein the cutters may be adjusted so as to adapt said instrument for work of different sizes and characters, and that hence I enable one tool to perform work hitherto requiring a number of separate and independent tools or instruments.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a cutting instrument or tool, with a supporting spindle or arbor, of two separate and independent series of cut-

ters capable of adjustment laterally on said spindle or arbor by means forming part of the cutting instrument or tool, substantially as and for the purpose specified.

2. The combination, in a cutting instrument or tool, with a spindle or arbor, of two series of separate and independent cutters laterally adjustable by means of devices forming part of the cutting instrument or tool, the cutters of one series intervening between those of the other series, substantially as and for the purposes specified.

3. The combination, in a cutting instrument or tool, with a spindle or arbor, of two series of separate and independent cutters mounted on sleeves capable of adjustment toward and from each other by means of devices forming part of the cutting instrument or tool, substantially as and for the purpose specified.

4. The combination, in a cutting instrument or tool, with a spindle or arbor, of two separate and independent series of cutters mounted on two separate and independent sleeves provided internally with right and left female screw-threads engaging with right and left male screw-threads on the spindle or arbor, substantially as and for the purpose specified.

5. The combination, in a cutting instrument or tool, with the spindle or arbor, of two series of separate and independent cutters mounted on sleeves provided internally with right and left female screw-threads engaging with right and left male screw-threads on the spindle or arbor, and nuts applied to the said spindle or arbor outside said sleeves, and engaging with screw-threads inclined reversely to the screw-threads with which said sleeves engage, substantially as and for the purpose specified.

6. The combination, in a cutting instrument or tool, with two series of separate and independent cutters mounted on laterally-adjustable sleeves, of bolts securing said series of cutters to the sleeves, whereon they are mounted, and having heads fitting in bearings in the opposite sleeves, substantially as and for the purpose specified.

J. A. PEER.

Witnesses:

OWEN PRENTISS,  
THOMAS E. BIRCH.