

S. N. Baker.

Turning Lathe.

N^o 17,866.

Patented Jul. 28, 1857.

Fig. 1

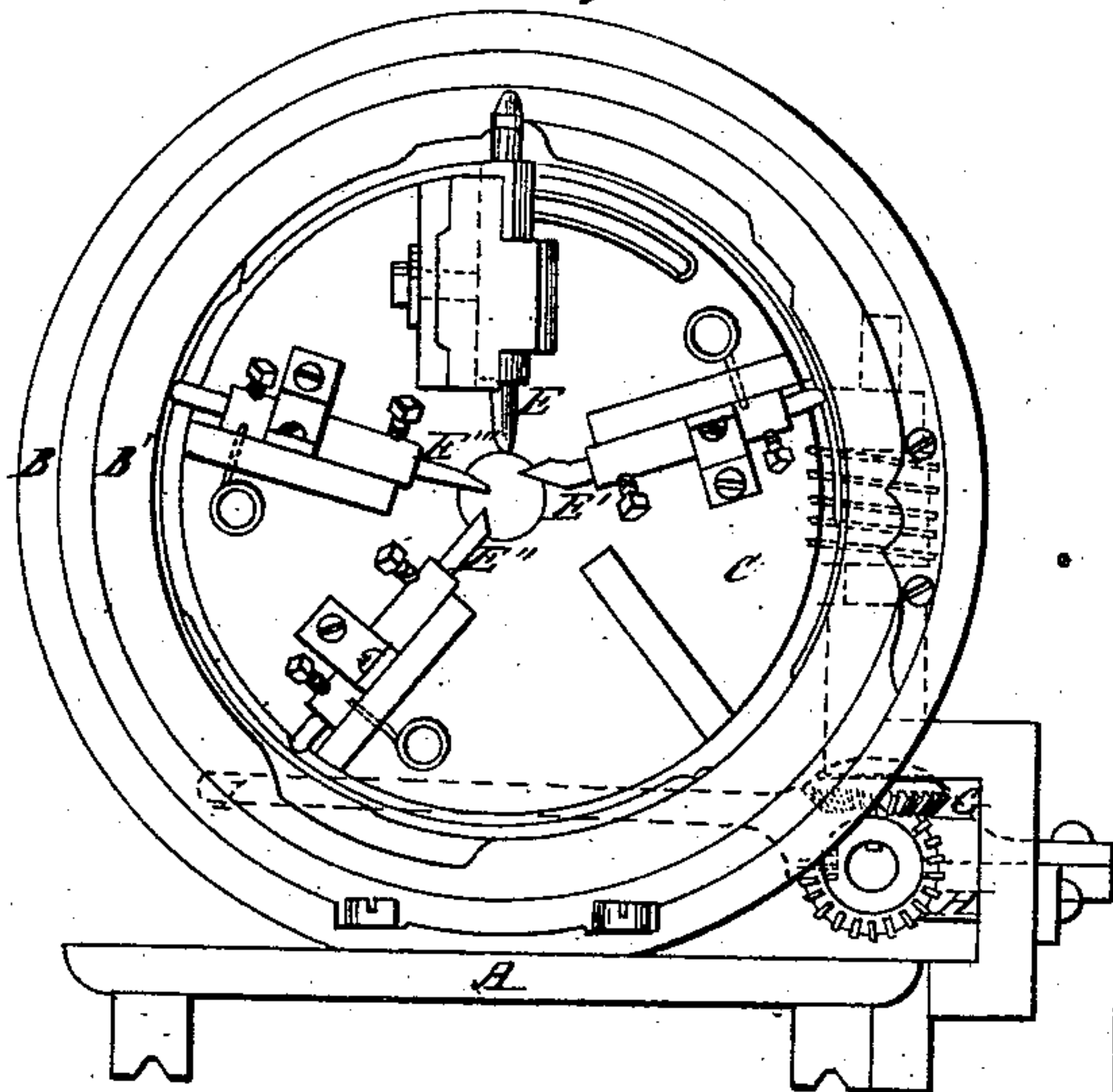


Fig. 2

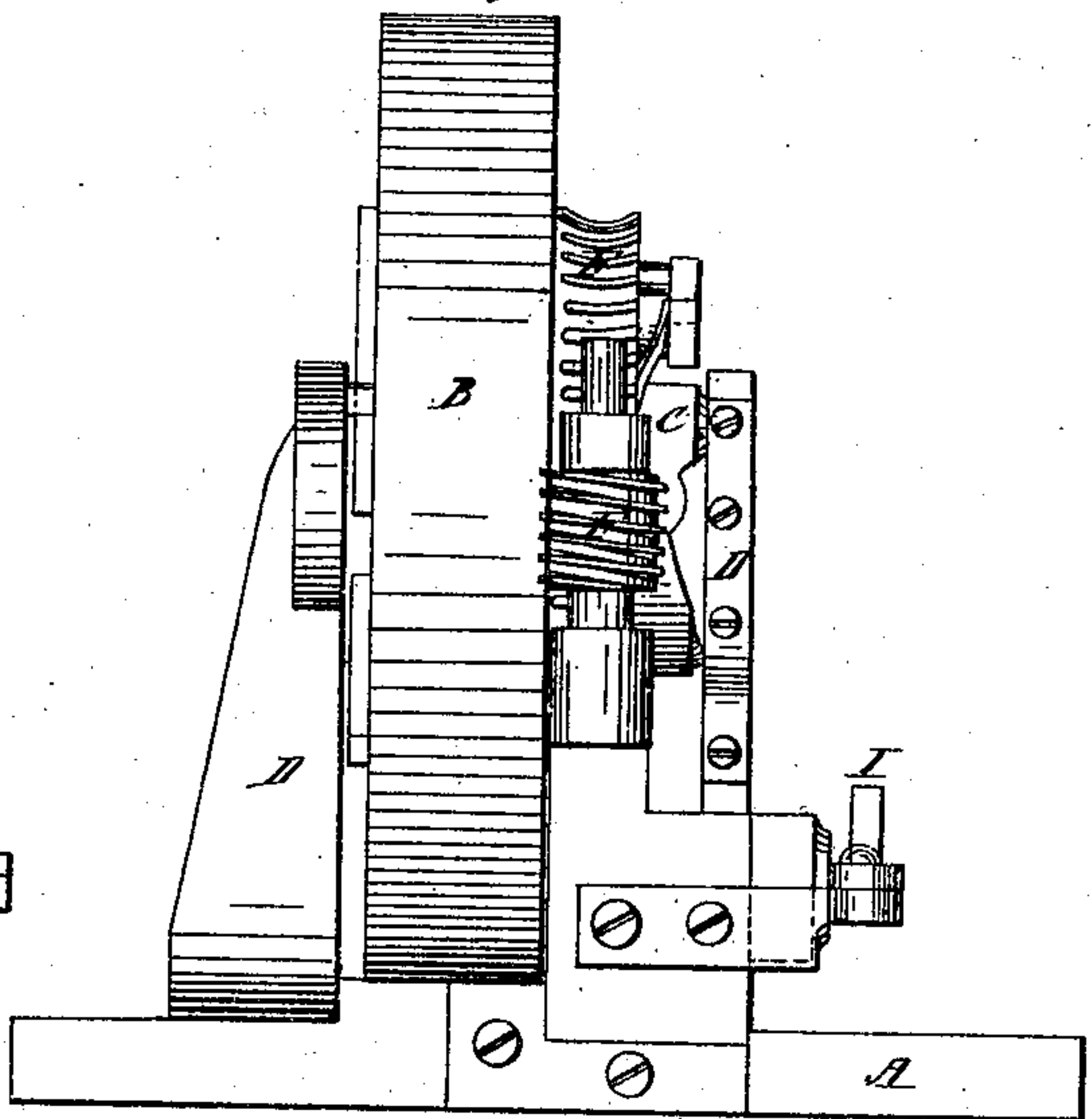


Fig. 3

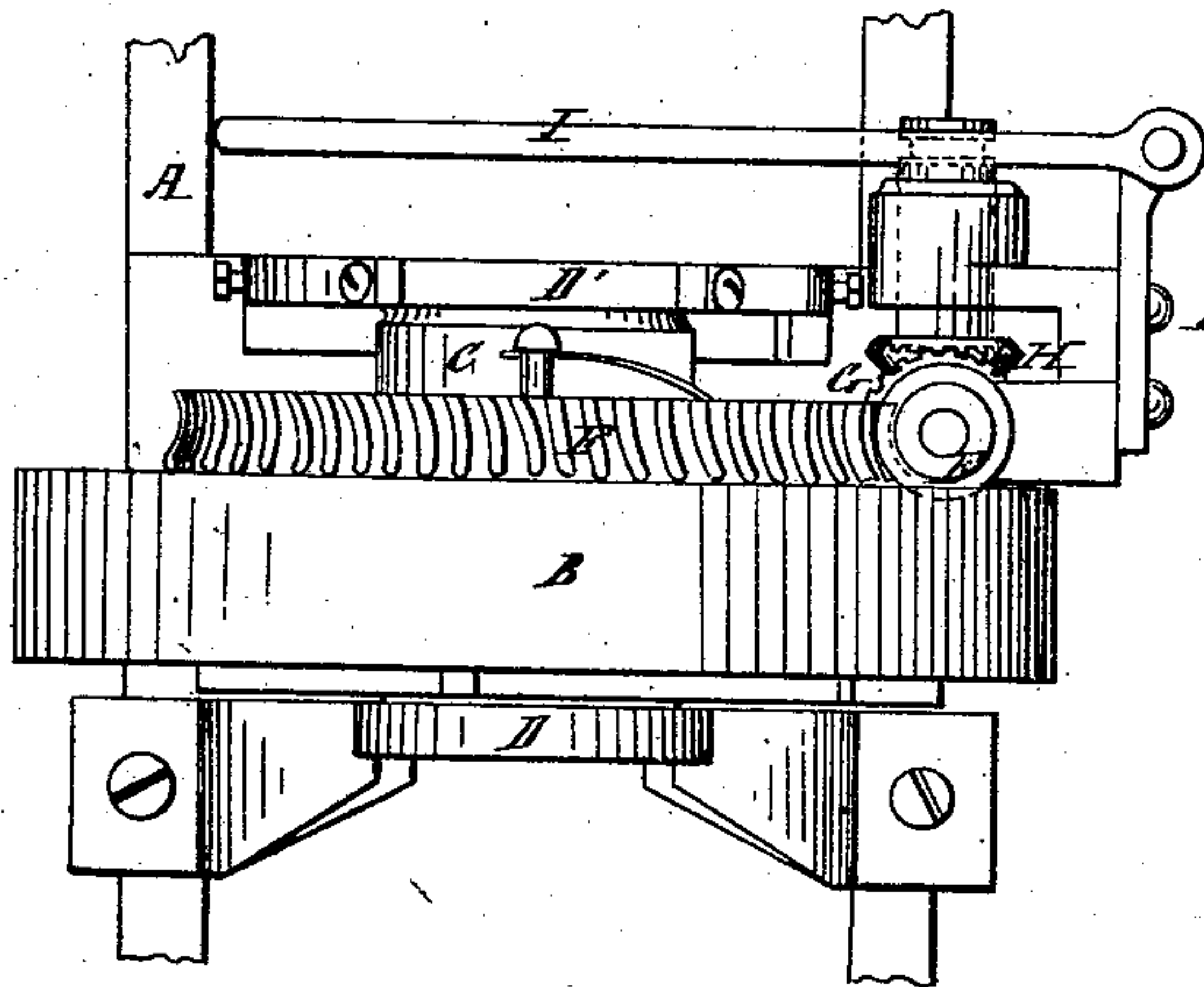


Fig. 4

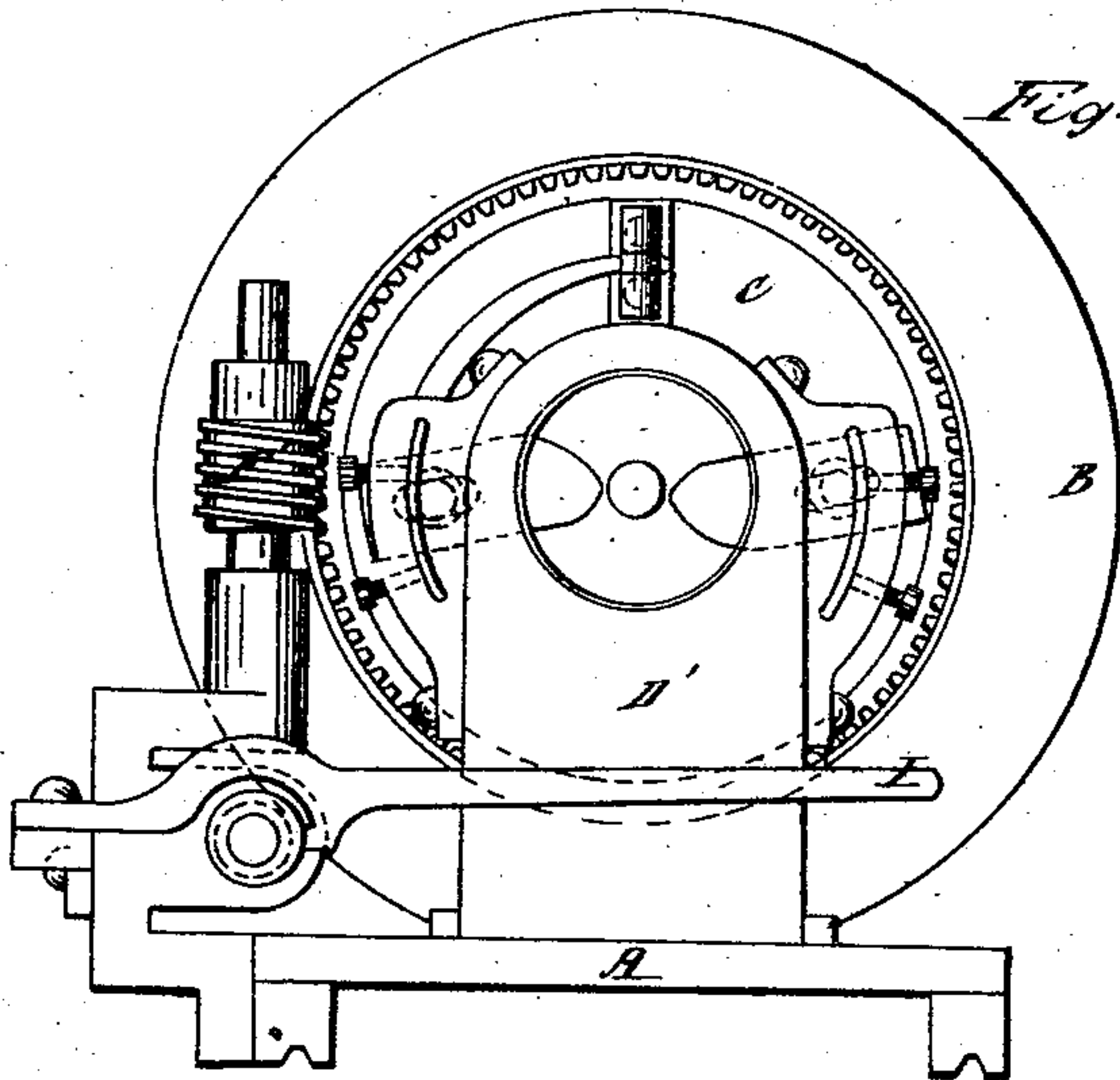
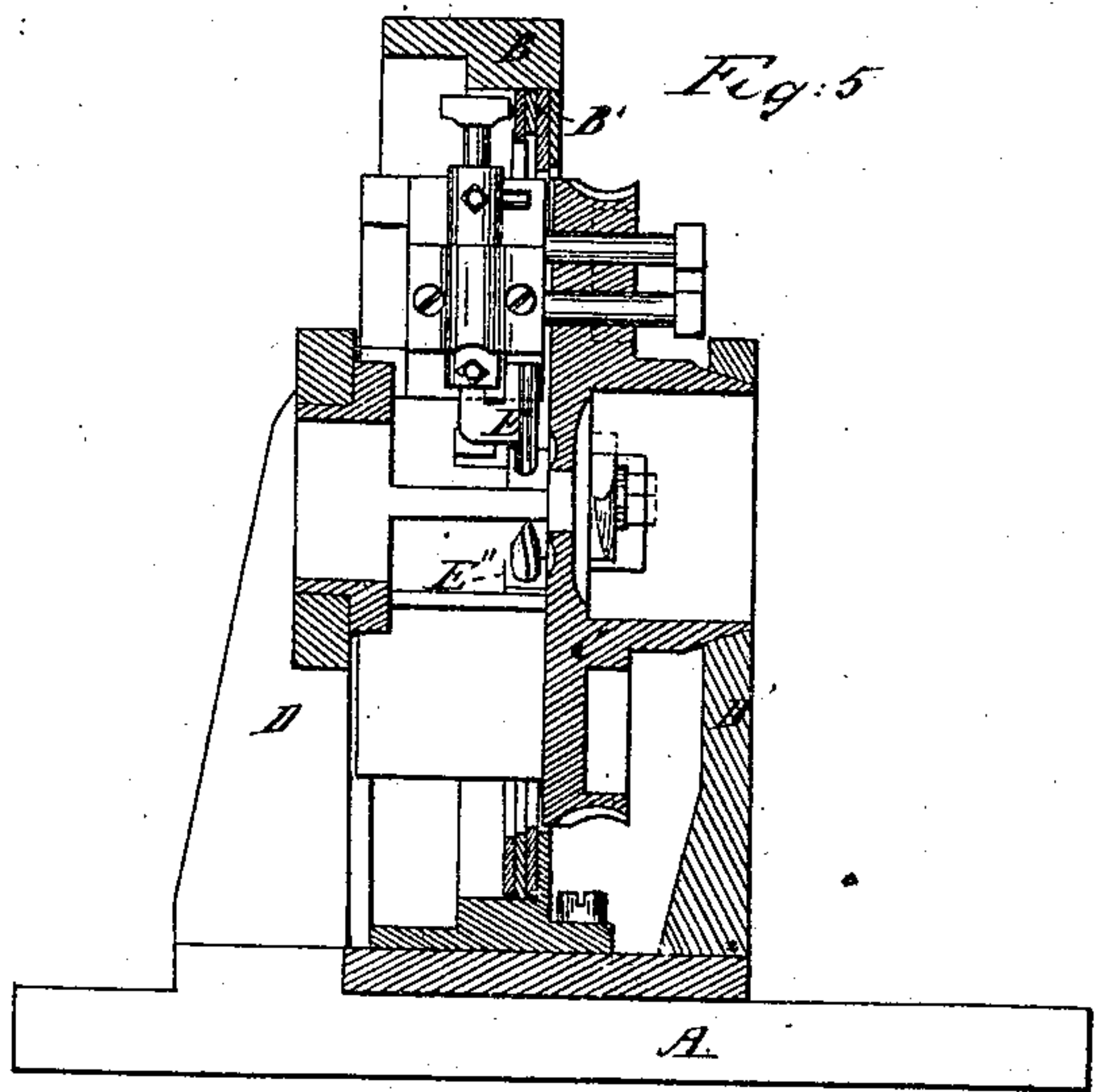


Fig. 5



UNITED STATES PATENT OFFICE.

SAMUEL N. BAKER, OF NEW HAVEN, CONNECTICUT.

IMPROVED AUTOMATIC LATHE FOR TURNING IRREGULAR FORMS.

Specification forming part of Letters Patent No. 17,866, dated July 2^d, 1857.

To all whom it may concern:

Be it known that I, SAMUEL N. BAKER, of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Automatic Lathes for turning articles of wood, ivory, or metal with moldings, beads, or other configurations on their surface in the section of their length to a specific shape or pattern; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention relates to the use of a series of cutters attached to a moving head, operated and moved to form the configurations upon the article being turned in the lathe to which the head is attached by revolving the pattern-dies against the cutters or by revolving the cutters against the pattern-dies and giving to the head containing the cutters a motion in the line of the length of the article being turned, for the purpose of giving to the article the required shape through the combined movement of the head and the cutters.

Figure 1 in the accompanying drawings is a front elevation of the cutter-head. Fig. 2 is an end elevation; Fig. 3, a plan, and Fig. 4 a back elevation, of the same. Fig. 5 is a longitudinal vertical section of the same, taken through the line *x x*, Fig. 1.

A is the bed-piece of the cutter-head, having lugs or projections on its under side fitted to slide upon the shears or ways of the lathe to which it is to be attached.

B is a circular case secured to the bed-piece, having a flange projecting a short distance toward its center on its back side, against and upon the face of which flange are secured the pattern dies or guides B', which govern the shape and figure of the configuration to be given to the article to be turned.

C is the cutter-plate, having hollow axles, which run in suitable boxes in the standards D D', upon which it is rotated when needed. To the face of this plate are attached the series of chisel-pointed cutters E E' E'' E''' in clamps which permit them to have a motion to and from the line of the center of the plate. Each cutter is provided with a spring to keep its heel or outer end in contact with the edge of

the pattern die belonging to it. The outer edge of the back part of the cutter-plate is formed into cogged teeth F, to fit into the vertical worm-wheel F', which worm-wheel is placed upon a shaft, to the lower end of which is attached the miter-wheel G.

H is a miter-wheel gearing into the wheel G, secured to a horizontal hub which allows it to be thrown in and out of gear by the lever I, as may be required. The hub to which it is secured is bored out to receive a shaft which runs horizontally on the back part of the lathe, and which is of a length equal to the length of the latheways, and is driven and revolved from the lathe-mandrel or other attachment for that purpose. A feather in the hub of the wheel is fitted to a groove cut in the shaft, so that the wheel may be moved along on the shaft and be operated by it at any and every point at which it may be placed. A steadiment-plate equal in diameter to the largest projection on the article to be turned may be inserted in the aperture in the back of the hollow axle of the cutter-plate to hold the article steady and prevent its shaking or trembling, and roughing or shaping cutters may be placed behind it to rough-shape the article to size.

For certain descriptions of work cutters of a circular-saw shape and having cutting-teeth on their periphery may be substituted for the chisel-cutters described, the same being more durable than the single cutters, from the greater number of cutting-points brought in contact with the article being turned, so that they will operate for a greater length of time before becoming dulled and before they require to be removed to be sharpened. They may be revolved on their axis either by a gear-wheel placed on the shaft which receives the pinion H or by belting from a counter-shaft, as may be suited best to the particular shape, and are moved in and out to follow the form of the pattern-die by having a stud or arm attached to the box in which they revolve, to operate as and in place of the heel of the cutters, as described.

The operation of my improvement is as follows: The article to be turned being placed in the lathe and the cutter-head being placed on the lathe-shears close up to the standing head, motion is communicated to the lathe-mandrel

and also to the shaft upon which the pinion H is placed. The cutter-head is moved toward the sliding head of the lathe by an attachment upon it working upon an endless screw operated by the lathe-mandrel or other means. The feed or motion of the cutting-head upon the shears is adjusted in proportion to the size and nature of the material of the article to be turned and also to the configuration of the pattern required. The miter-wheels are kept out of gear with each other while the cutters are turning the part of the article which requires to be plain and of uniform size; but when the part is reached upon which the ornament, molding, or configuration is to be turned they are placed in gear and the cutter-plate C is rotated and the cutters upon it are moved toward and from the center, in accordance with the shape of the pattern-dies against which their heels or outer ends come in contact, so that the feed-motion communicated to the cutter-plate and the speed at which the cutter-plate is rotated in proportion to the feed given to it, combined with the particular shape given to the edges of the pattern dies, tend to form and give shape and pattern to the configurations to be turned, and that form and shape may be changed and varied either by changing the figure of the pattern-dies or by altering the speed of the revolution of the cutter-plate or the speed of the feed-motion of the cutter-head, or all of them combined, or either two

without the other, so that a great variety of patterns may be turned by the use of one set of pattern-dies.

I do not claim the use of cutters moved and adjusted by a pattern die or guide to give shape, form, and figure to moldings or other configurations upon articles to be turned in a lathe; but

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

1. The use of a series of cutters secured to a cutting-head standing at right angles to the article being turned, the said cutters being operated by being revolved within the circular case B, as and for the purposes set forth.

2. The use of a pattern guide or die, or of a series of them, placed at right angles to the article being turned within a circle struck from the center of the lathe and having a movement in the direction of the length of the lathe coincident with that of the cutters described, and against which the cutters in their revolution come in contact, as and for the purposes set forth.

3. The use of a sliding cutter-head containing both the cutters to perform the operation of turning and the pattern dies or guides to control the movements of the cutters, as described, and for the purposes set forth.

SAMUEL N. BAKER.

Witnesses:

SIDNEY LOW,
FRANCIS S. LOW.