

(No Model.)

2 Sheets—Sheet 1.

S. B. MINNICH.
CENTERING DEVICE.

No. 380,130.

Patented Mar. 27, 1888.

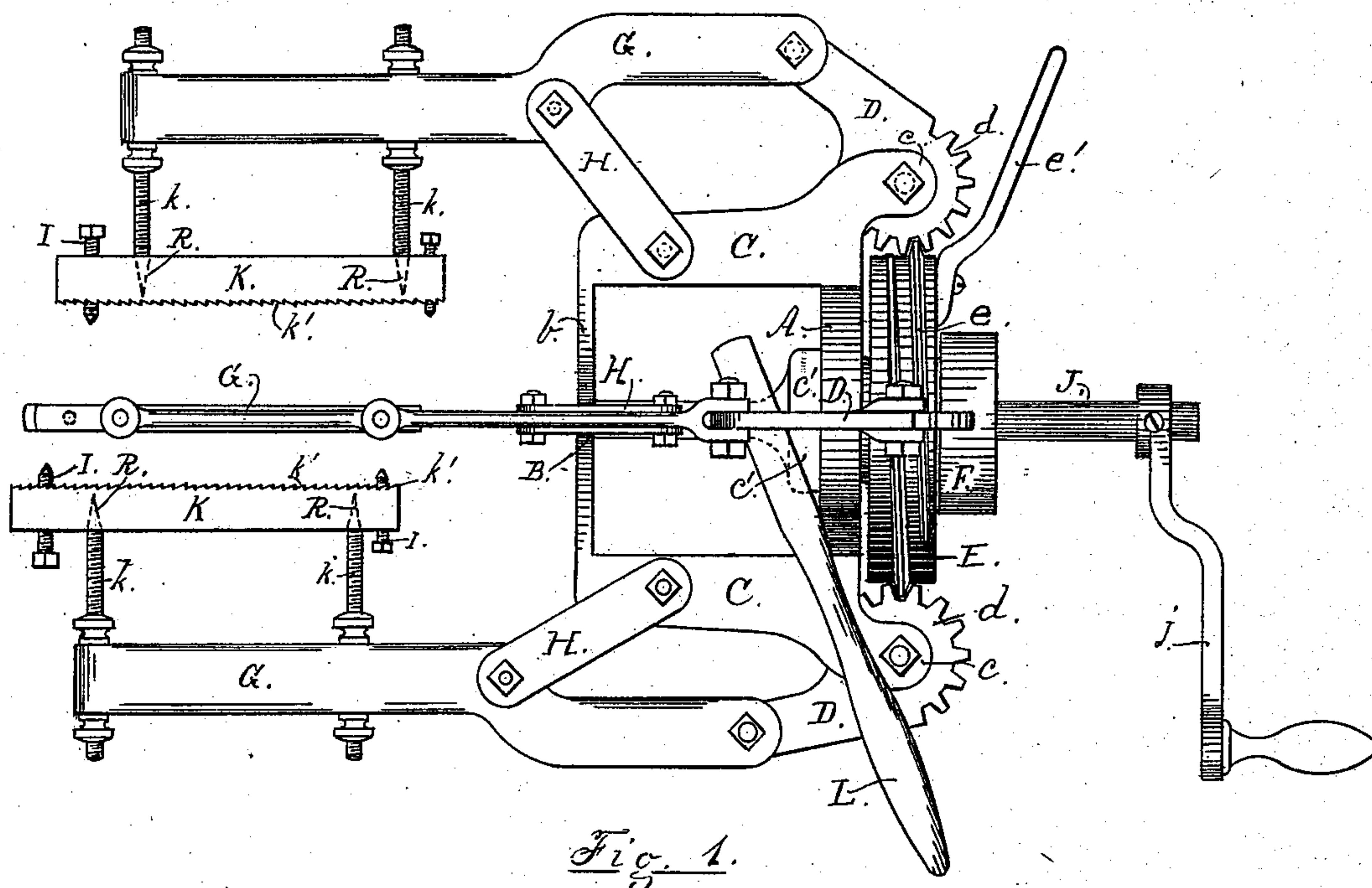


Fig. 1.

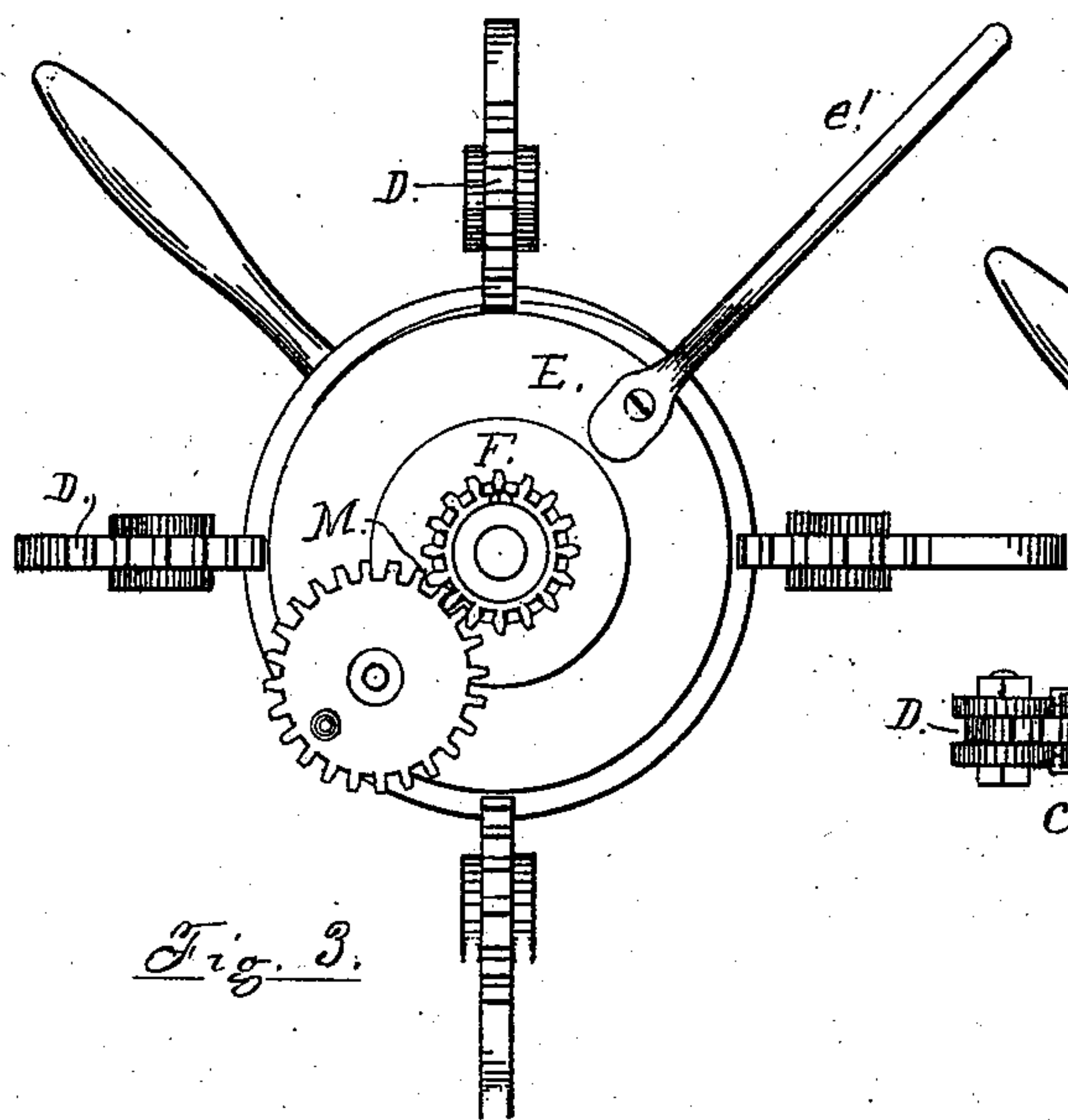


Fig. 3.

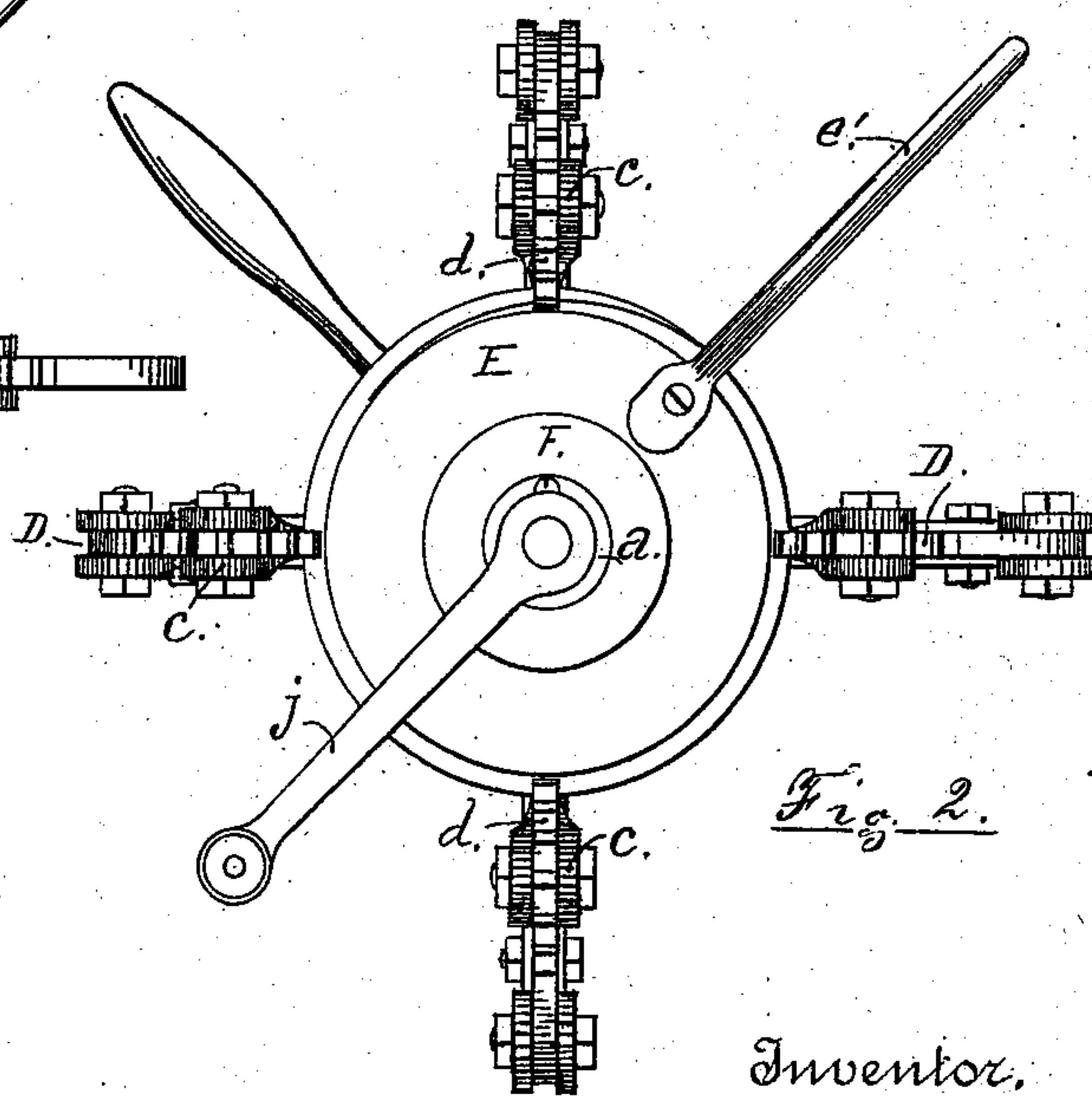


Fig. 2.

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Dan H. Hen.

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By his Attorney,
Wm. R. Gerhart.

(No Model.)

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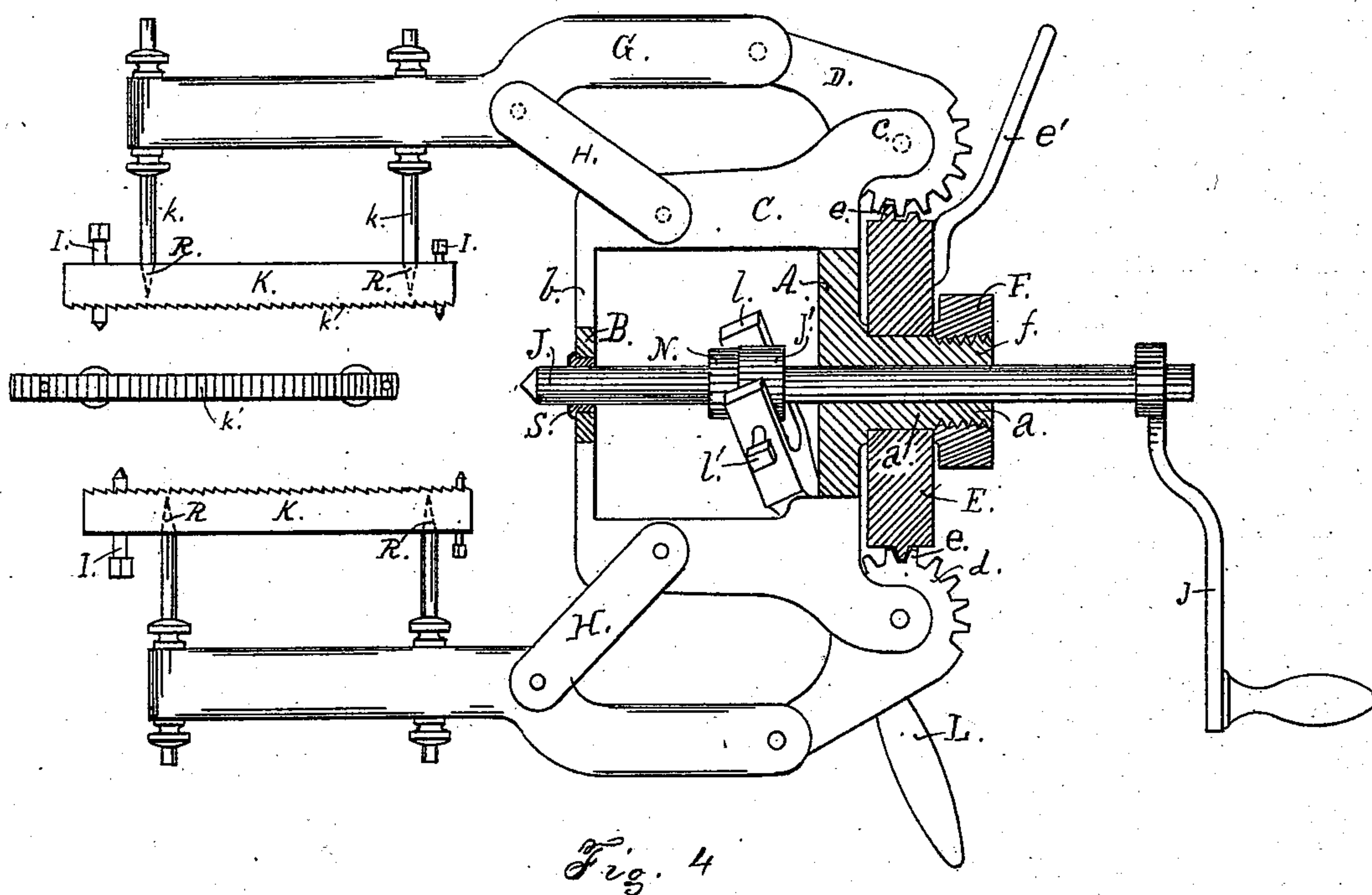


Fig. 4

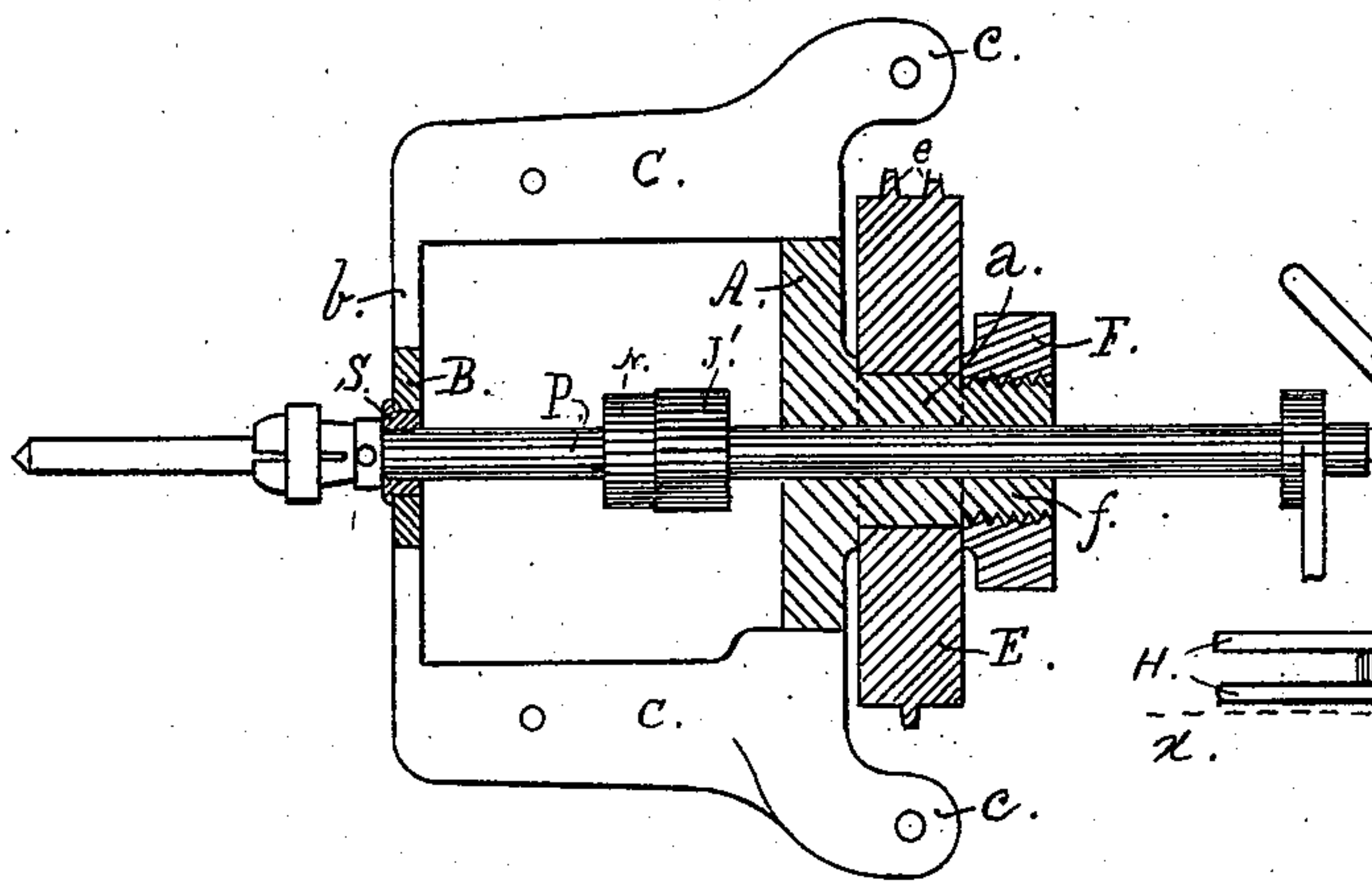


Fig. 5.

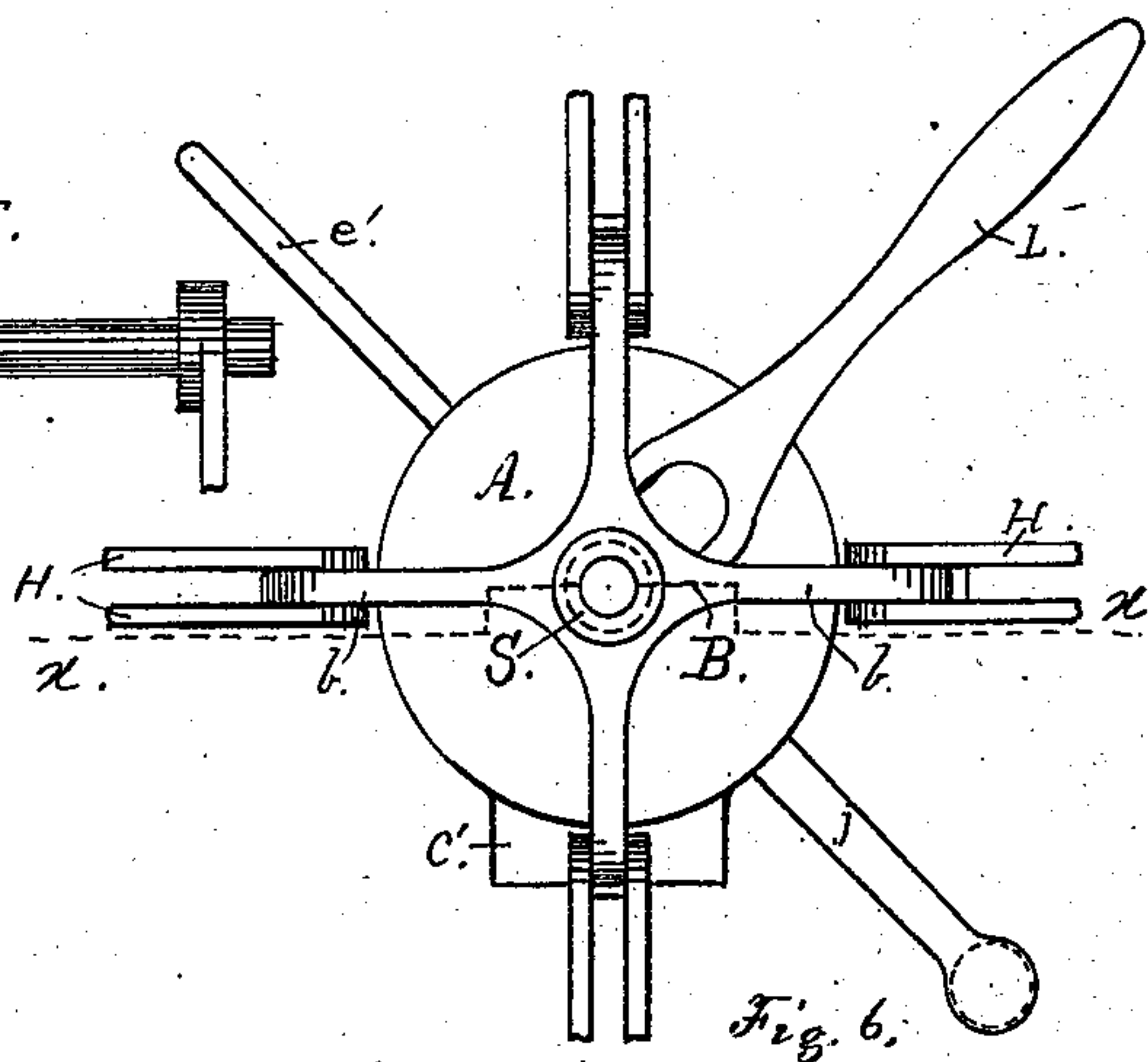


Fig. 6.

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UNITED STATES PATENT OFFICE.

SIMON B. MINNICH, OF LANDISVILLE, PENNSYLVANIA.

CENTERING DEVICE.

SPECIFICATION forming part of Letters Patent No. 380,130, dated March 27, 1888.

Application filed April 29, 1887. Serial No. 236,535. (No model.)

To all whom it may concern:

Be it known that I, SIMON B. MINNICH, a citizen of the United States, residing at Landisville, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in Centering Devices, of which the following is a specification.

This invention relates to improvements in centering and boring machines, and the object is to produce a light portable device for centering and boring smaller work, which can be secured in one place to be operated or carried about and fixed on any article upon which it is to be used.

The invention consists of a frame composed of front and rear bearings for the shaft carrying the bits, connected by arms placed at right angles with the faces of said bearings, a tubular spindle on the outer face of the rear bearing supporting a worm-wheel which engages and imparts motion to pivoted arms actuating clamps which grip the article to be operated upon in front of the forward bearing, with means for turning the worm and turning and feeding the bit-shaft, as will be more specifically described, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and in which—

Figure 1 is a top or plan view of my improved centering-machine; Fig. 2, an elevation of the rear end; Fig. 3, an elevation showing a part of the same, but with different means for imparting motion to the shaft; Fig. 4, a longitudinal section of the whole device on the line *xx*; Fig. 5, a partial longitudinal section showing shaft and bit; Fig. 6, a front elevation of the spider.

Similar letters indicate like parts throughout the several views.

The frame to which the movable parts of my machine are attached is composed of an annular plate, A, having a rearwardly-projecting tubular spindle, *a*, and a spider, B, placed a short distance in front of the plate A, and having the outer ends of the arms *b* thereof rigidly connected with the plate by bars C. Jaws *c* rise outwardly and rearwardly in planes radial from the center of the plate from the ends of the bars C and form bearings for levers D, having cogged ends *d*, for engaging the worm-wheel E.

The worm-wheel E revolves upon the spin-

dle *a*, is kept in place by the nut F, screwed up against it on the threaded end *f* of said spindle, and has a worm-thread, *e*, on its periphery, which engages with the cogs on the ends *d* of the levers D. Motion is imparted to the worm-wheel by means of the handle *e'*, bolted to its face.

Pivoted to the front ends of the levers D there are forwardly-projecting arms G, connected with the spider ends of the bars C by double links H, pivoted to both the arms and the bars. These arms have clamps K secured to their inner edges by set-screws *k*, passing through them from the outer edge radially toward the center line of the machine. Each clamp is held by two screws, one located near each end, so as to produce uniform pressure throughout its entire length upon any surface against which it may be brought to bear. The inner or bearing face, *k'*, of each clamp is serrated or roughened to give it a better hold on the surface against which it bears. In addition to this roughening of the bearing-surface there is a set-screw, I, at each end of the clamps, working through them parallel with the screws *k*, and having the inner ends pointed to bite into any surface against which they may be forced. There may be three or four clamps with their actuating mechanism—preferably using three for round work and four for angular.

If preferable, the clamps K may be dispensed with and the set-screws, pointed at the end, as shown by dotted lines at R, Figs. 1 and 4, alone used.

A spindle with a bit, J, at the forward end passes through openings in the center of the plate A and spider B to center and bore work held by the clamps, being operated by a crank, *j*, as shown in Fig. 2, or cog-gearing M, as illustrated in Fig. 3. This spindle is fed forward by a feed-lever, L, embracing and pivoted between its jaws *l* by set-screws *l'* to the loose sleeve *j'*. In feeding the bit forward the handle of the lever is thrown back against the edge of the plate A, thus forcing the sleeve *j'* forward against a rigid collar, N, adjustable longitudinally on the spindle to regulate the length of its throw. If desirable, instead of the spindle and bit, a shaft, P, with an opening in the forward end to receive bits of various sizes, may be used. As the opening in the spider

through which the bit passes is subject to more or less wear, I bush it with a nut, S, which can be replaced upon the sides of the hole through the same becoming worn.

- 5 In order to secure this machine in a vise or other similar device the rear end of the lower bar C is provided on each side under the plate A with a square-ended lug, *c'*, to afford bearing for a secure grip.
- 10 As will be readily understood, the shaft or other article to be acted upon is introduced between the clamps, which are closed upon it by revolving the worm-wheel E, after which the bit is brought to act on the end by turning the crank *j* and using the feed-lever L. The machine can be made to act upon any point other than the center of the material to be bored by adjusting the clamps K to set at different distances from the center line of the same.
- 15 The machine can also be carried to any shaft intended to be centered, it being pushed on the end of said shaft, receiving it in the space between the clamps, which are closed upon it in the same manner as first described.
- 20 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the frame, of the worm-wheel E, levers D, engaging said worm-wheel and arms G, arms G, supporting clamps

K and links H, and said clamps K, constructed and operated substantially as specified.

2. The combination, with the arms G, pivoted to the frame by the links H and levers D, said levers being actuated by the worm-wheel E, and the worm-wheel E, of the clamps K, each secured to the arm G at two points, substantially as and for the purpose specified. 35

3. The combination, with the plate A and spider B of the frame and the bit working through the same, of the feed-lever L, connected with said bit to feed it forward, substantially as specified. 40

4. The combination, with the frame, of the worm-wheel E, levers D, engaging said worm-wheel and arms G, arms G, carrying clamping devices for holding articles to be centered, and links H, substantially as and for the purpose specified. 45

5. The combination, with the bit-holding frame, of forwardly-projecting arms, each pivoted to the said frame at two points and carrying clamping devices, and mechanism attached to the bit-holding frame for adjusting said arms simultaneously, substantially as and for the purpose specified. 55

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Witnesses:

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