(No Model.) 4 Sheets—Sheet 1.

C. P. R. THIEL & M. M. AUST.

MACHINE FOR GRINDING THREAD CUTTING TOOLS.

No. 504,000. Patented Aug. 29, 1893.

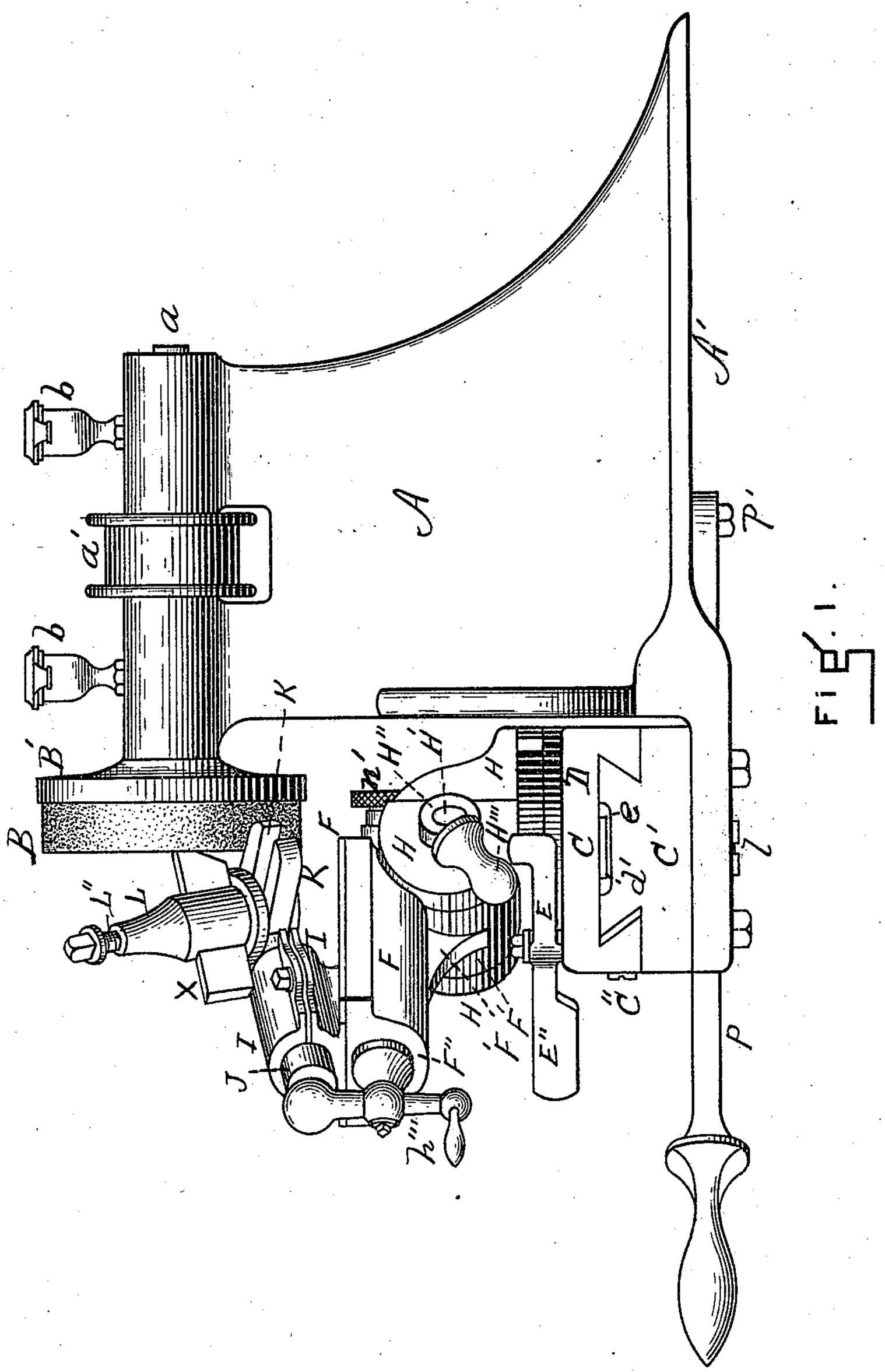

Fig. 1.

WITNESSES.
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B. N. Williams.

INVENTORS.
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May M. Aust
By their Atty.
Henry W. Williams.

(No Model.)

4 Sheets—Sheet 2.

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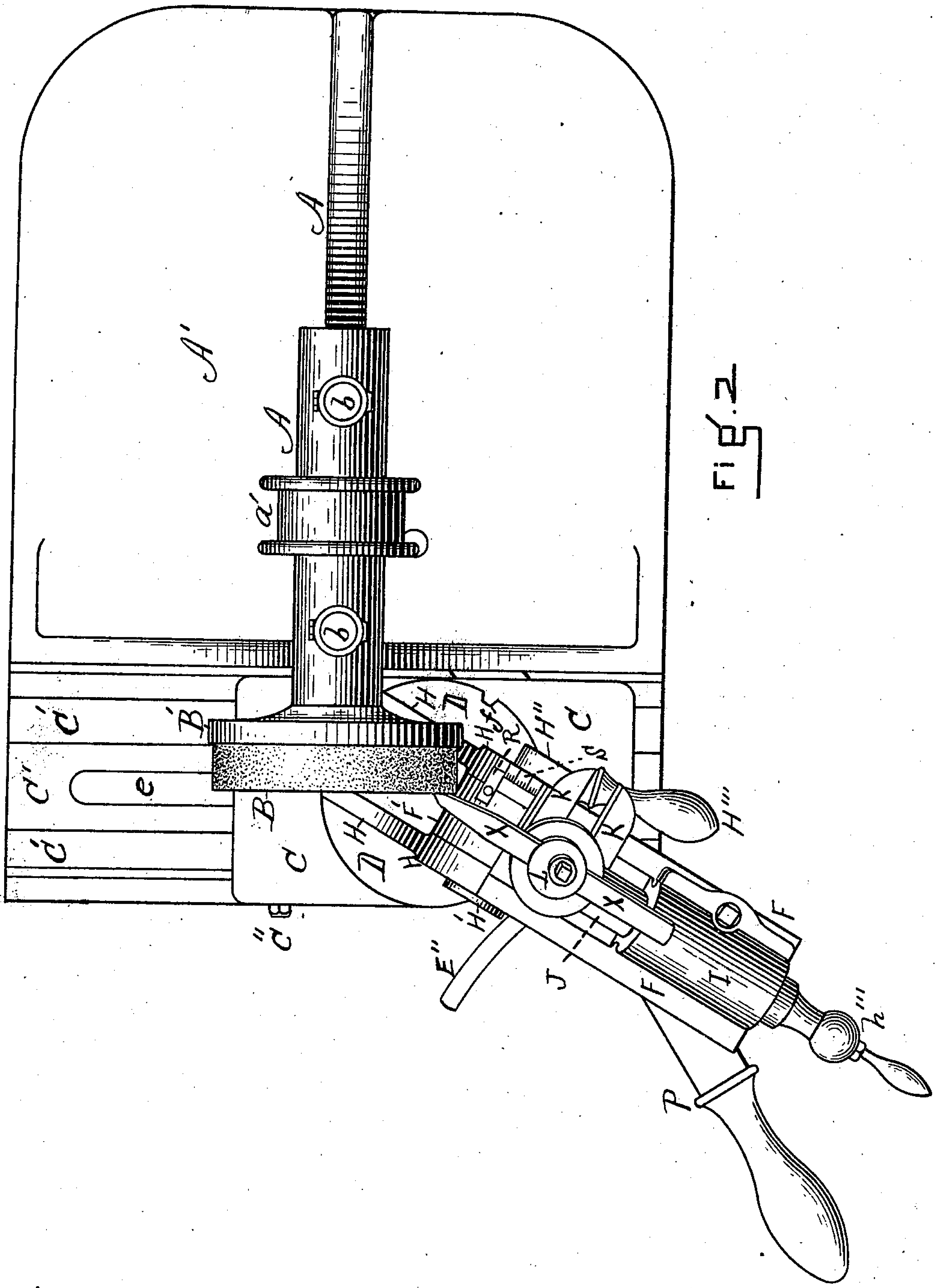

Fig. 2

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4 Sheets—Sheet 3.

C. P. R. THIEL & M. M. AUST.

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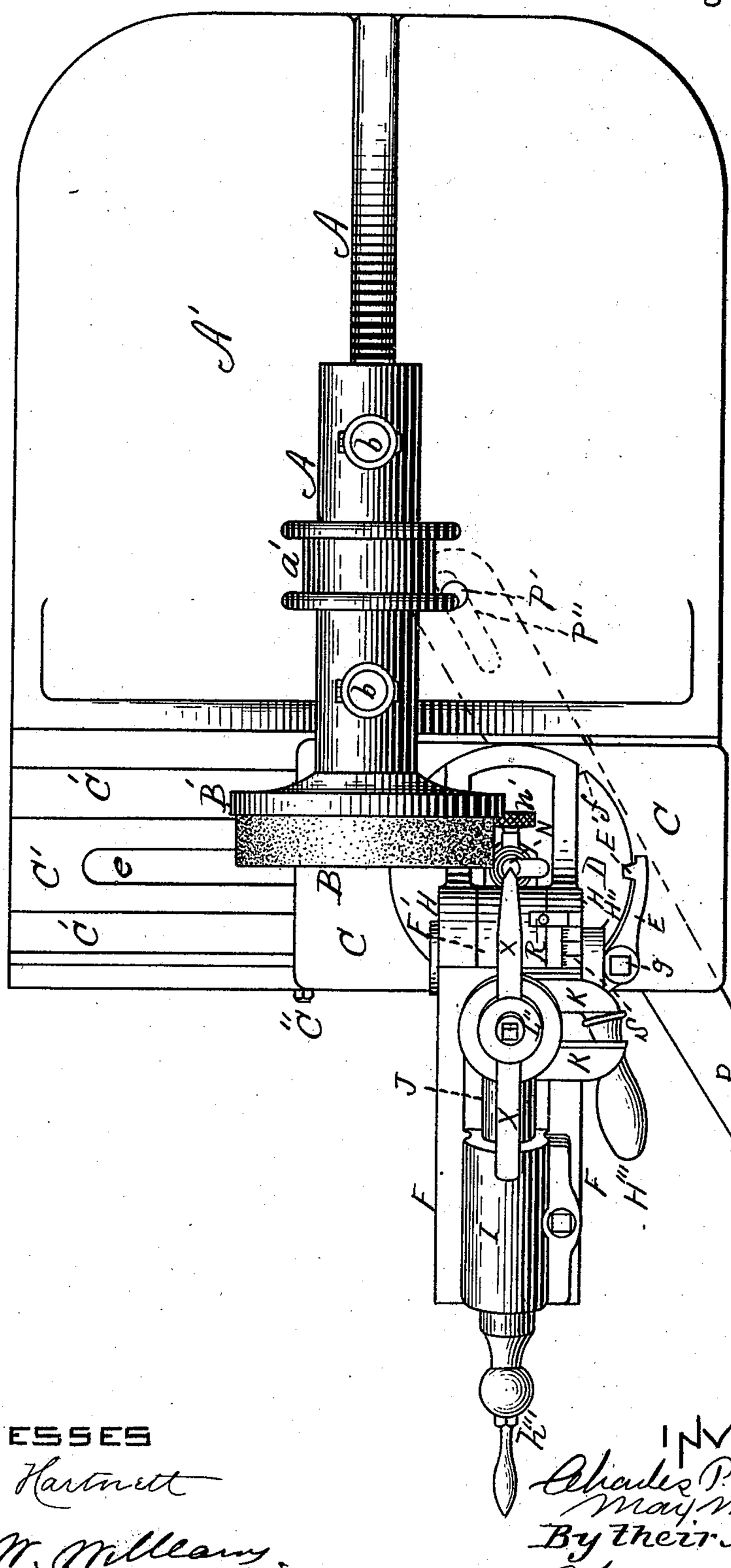

Fig. 5.

WITNESSES

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4 Sheets—Sheet 4.

C. P. R. THIEL & M. M. AUST.

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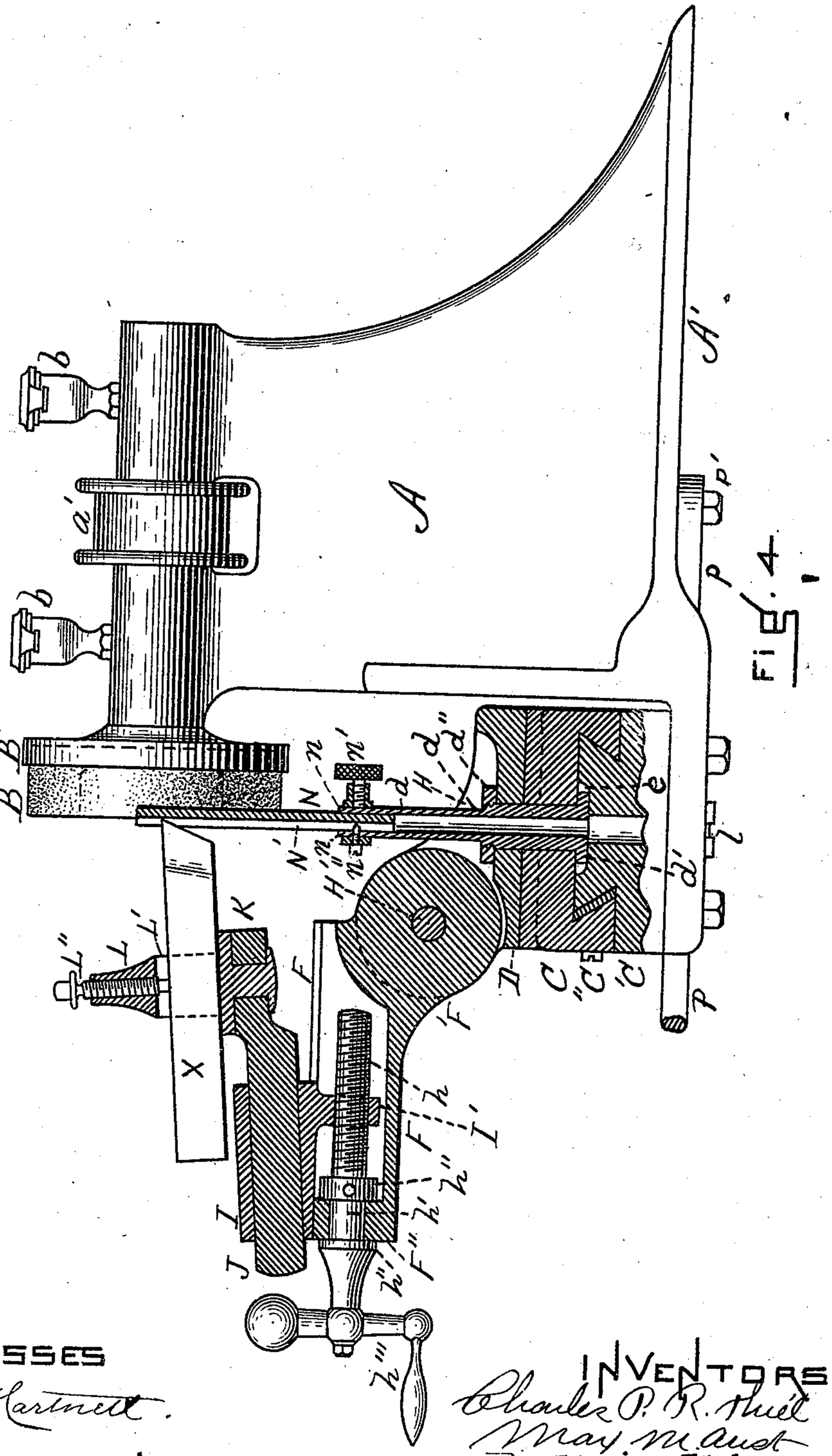

Fig. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES P. R. THIEL AND MAX M. AUST, OF LAWRENCE, MASSACHUSETTS.

MACHINE FOR GRINDING THREAD-CUTTING TOOLS.

SPECIFICATION forming part of Letters Patent No. 504,000, dated August 29, 1893.

Application filed May 27, 1893. Serial No. 475,761. (No model.)

To all whom it may concern:

Be it known that we, CHARLES P. R. THIEL and MAX M. AUST, citizens of the United States, residing in Lawrence, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Machines for Grinding Thread-Cutting Tools, of which the following is a specification.

This invention relates to machines for grinding tools to be used particularly in cutting screw-threads to the American standard, or worms, although it may be arranged to cut other angles, and it consists in the novel construction and arrangement of parts hereinafter described.

In the accompanying drawings, in which similar letters of reference indicate corresponding parts, Figure 1 is a side elevation of our improved machine. Fig. 2 is a plan view of the same. Fig. 3 is a plan view with the carriage moved into a position to gage the work. Fig. 4 is a view partly in vertical section, and partly in side elevation.

A is a frame or upright supported by a base A′, and sustained by this upright is a shaft *a* driven by a pulley *a′*, and having fixed on it a cupped emery wheel B which is furnished with a brass flange B′ for purposes of safety.

b b are ordinary oil-cups.

C is a horizontally sliding saddle-block moving on the slide-bed C′ supported by the frame of the machine, said saddle-block sliding on a line which is beneath and parallel with the face of the emery wheel, and being adapted to be held in any desired position by set screws C″. A vertical tube *d* extends up through this saddle-block, as shown in Fig. 4, and its lower end extends into a slot or groove *e* extending longitudinally and centrally in the slide-bed C′, a flange *d′* preventing it from vertical movement.

Mounted on the saddle-block and swiveled on the tube is a substantially circular block or plate D, whose periphery is provided with notches or recesses *f* spaced off at the angle required to grind the tool square such as the standard American thread tools require. A nut *d″* is placed on the upright tube *d* and set against the upper surface of the swiveled block D.

E is a catch or stop-finger pivotally secured at *g* to the slide-C and adapted to engage in one of the notches *f* by means of its projection E′ (Fig. 3), and to be disengaged by its handle E″ (Figs. 1 and 2).

F is a slide-bed or carriage, integral with the hub F′ fitted between two lips H extending up from the swiveled plate or block D, said lips, and hub in connection with the bolt H′, constituting a joint whereby vertical adjustment of the carriage is had, useful in grinding the front clearance of tools.

H″ is the adjusting nut actuated by the handle H‴. The end wall F″ of this carriage or slide-bed is perforated to receive the plain portion *h′* of the horizontal screw *h*, provided with annular shoulders *h″* and adapted to be rotated by the counterweighted handle *h‴*. This screw engages a downward projection or nut I′ integral with the split bearing I, which rests and slides on the slide-bed F and sustains adjustably the sliding feed J, to which is fitted the tool-post fork K, within whose bifurcation is set the tool-post or tool-holder L provided with the opening L′ and set-screw L″, by means of which the tool, as *x*, for cutting the thread, is held adjustably.

N is a vertical spindle (Fig. 4), fitting within the tube *d*, and provided with a V shaped groove N′ comprising an angle of about sixty degrees. This spindle is a center-indicator whereby the proper position of the point of the tool is indicated. The spindle is adapted to be raised and lowered and held in any desired position by means of the collar *n* and screws *n′* and *n″*, the latter of which is forced into the V shaped groove.

P is a lever or handle slotted at P″ (Fig. 3), and pivotally secured thereby to the base at its inner end by means of a bolt P′. This lever engages a bolt *l* which extends from the saddle-block C down through the slide-bed C′, and thus the saddle-block is moved on said slide-bed, the slot P″ allowing the necessary play to the lever at its fulcrum.

R is an indicator or finger secured to the carriage or slide-bed F and extending over the graduation scale S on the lip H of the swiveled plate D, whereby the amount of front clearance of the tool is determined.

The adjustments whereby the tool is ground at the proper angles and places are as follows:

By the horizontal movement of the saddle-block C on the slide-bed C′ by means of the lever P, the line of such movement being under and parallel with a line drawn horizontally across the face of the emery wheel; by the rotary movement of the swiveled block in a horizontal plane; by the rotary movement of the slide-bed F in a vertical plane; by the sliding of the split bearing I and feed J by means of the screw *h;* by the transverse sliding of the tool-holder in the forked tool-post K; and by the adjustment of the tool in the slot in the tool-holder.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a thread tool grinding machine, the combination of the frame having the grinding wheel mounted thereon and set to grind with its face, the slide-bed C′ secured to the frame, the saddle-block C sliding on said bed on a line beneath and parallel with a horizontal line drawn across the face of the grinding wheel, the plate or block D swiveled on the saddle-block and adapted to make a partial rotation horizontally thereon and provided with peripheral openings *f* for engagement with a stop-finger secured to the slide C, the carriage or slide-bed F integral with the hub F′ and moving in an arc in a vertical plane and supported by said hub which is adjustably held between the lips H extending from the plate D, said slide-bed being provided with the perforated outer end wall F″, the horizontal screw *h* provided with the annular shoulders *h′ h″*, the plain portion of said screw lying in said end wall, the handle *h‴* for actuating said screw, the split bearing I provided with the integral nut or projection I′ sliding on the slide-bed F, and the sliding feed J supporting the tool-post fork and tool-holder, substantially as set forth.

2. In a thread tool grinding machine, the combination of the frame having the grinding wheel mounted thereon and set to grind with its face, the vertical tubular post *d* having its lower end secured in the horizontal slot or groove *e* in the slide-bed C′ and adapted to move in said slot or groove horizontally beneath and parallel with a line drawn horizontally across the face of the grinding wheel, said tube constituting a pivot for the block or plate D, the vertical spindle or center-indicator N fitting and sliding vertically in said groove and provided with the V shaped groove N′, the collar *n* on said tube near its upper end and provided with screws *n′* and *n″*, the former securing the center-indicator in the desired position in the tube and the latter extending into the said V shaped groove, substantially as described.

3. In a thread tool grinding machine, the combination of the frame having the grinding wheel mounted thereon and set to grind with its face, the inclined sliding feed J, the substantially horizontally bifurcated tool-post fork K fitted to the sliding feed, the tool-post or tool-holder L set within the bifurcation in the fork and provided with the opening L′ and set screw L″ for adjustably holding the tube, the slide-bed or carriage F having a swinging connection with the sliding feed J and sustained by the hub F′ fitted between the lips H extending up from the swiveled plate D, said lips being provided with a graduated scale and said slide-bed being provided with an indicating finger, the block or plate D swiveled on the saddle-block C and the slide-bed C′, substantially as set forth.

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MAX M. AUST.

Witnesses:
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J. M. HARTNETT.