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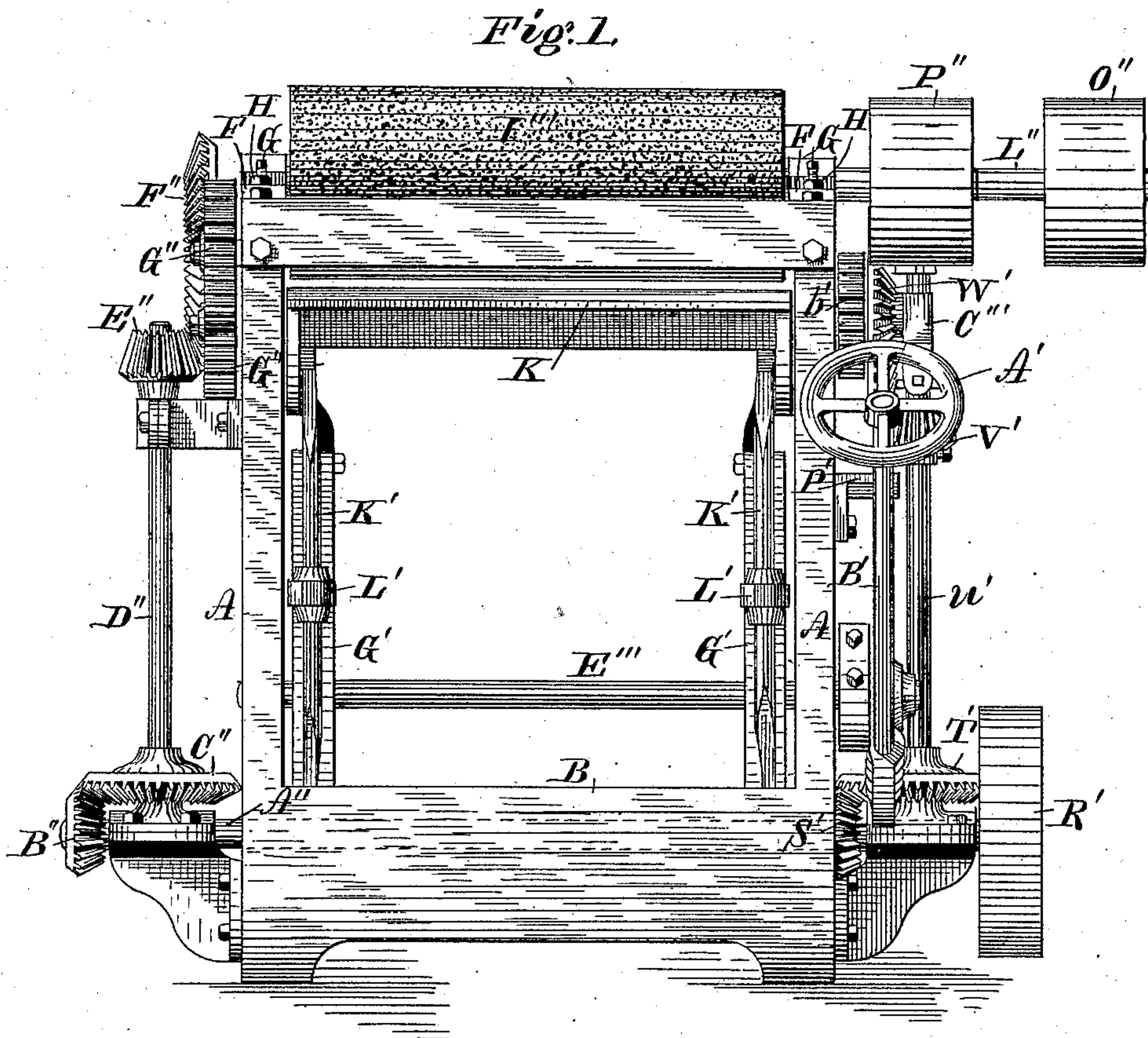
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W. H. ELMER & A. P. BOARDMAN.

WOOD POLISHING MACHINE.

No. 335,117.

Patented Feb. 2, 1886.



Witnesses

G. M. Gridley
M. Schinner

Wm. H. Elmer
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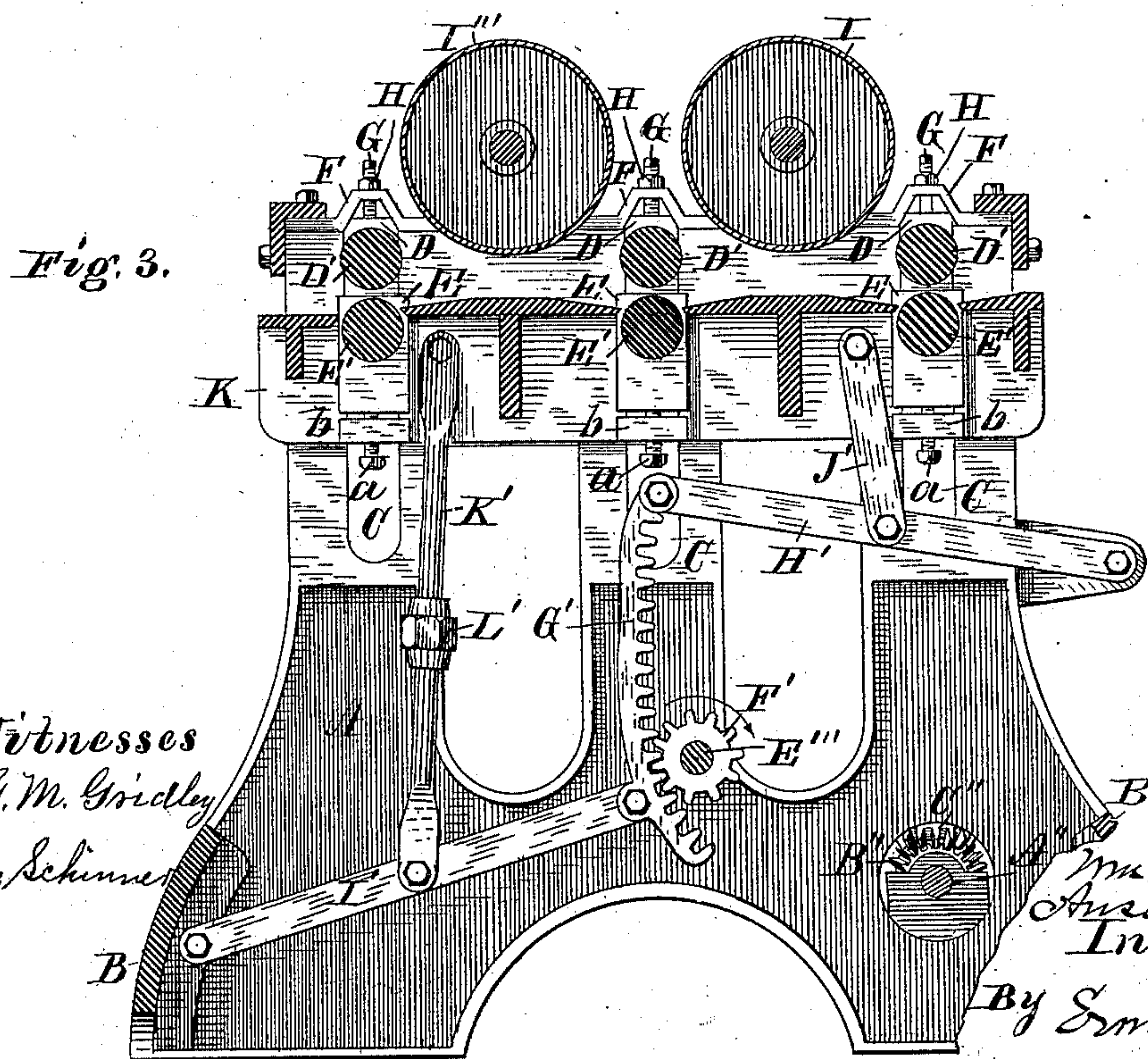
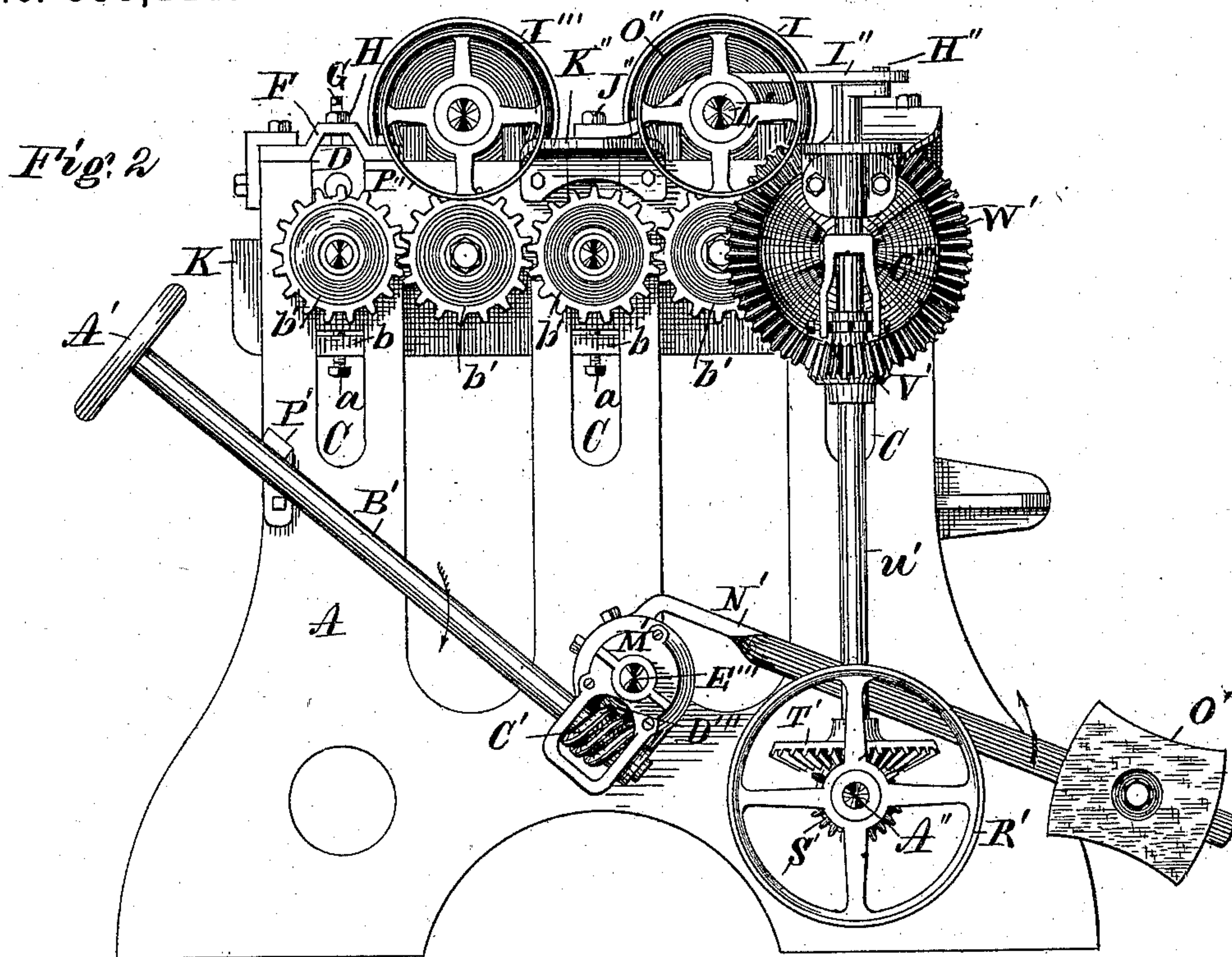
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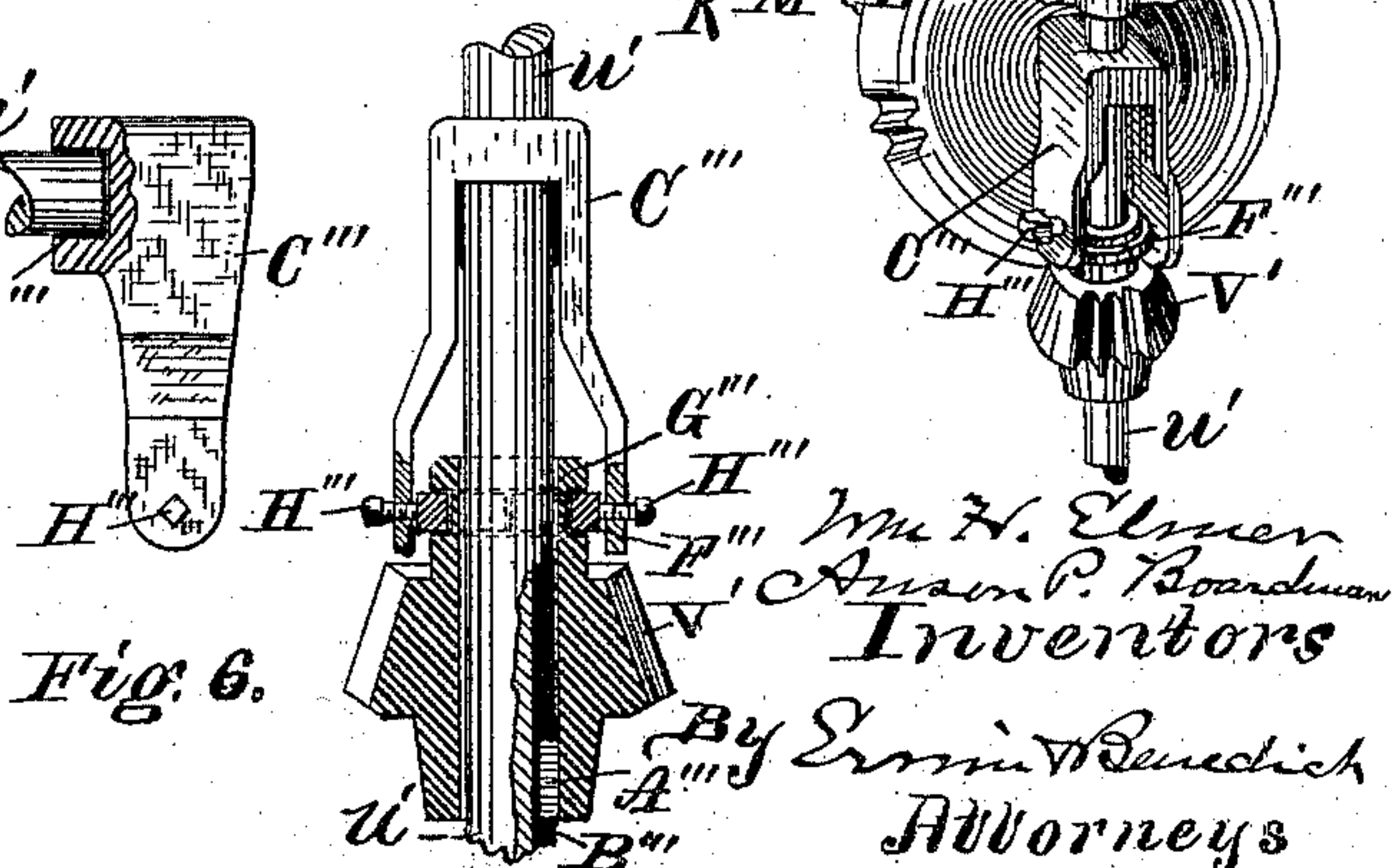
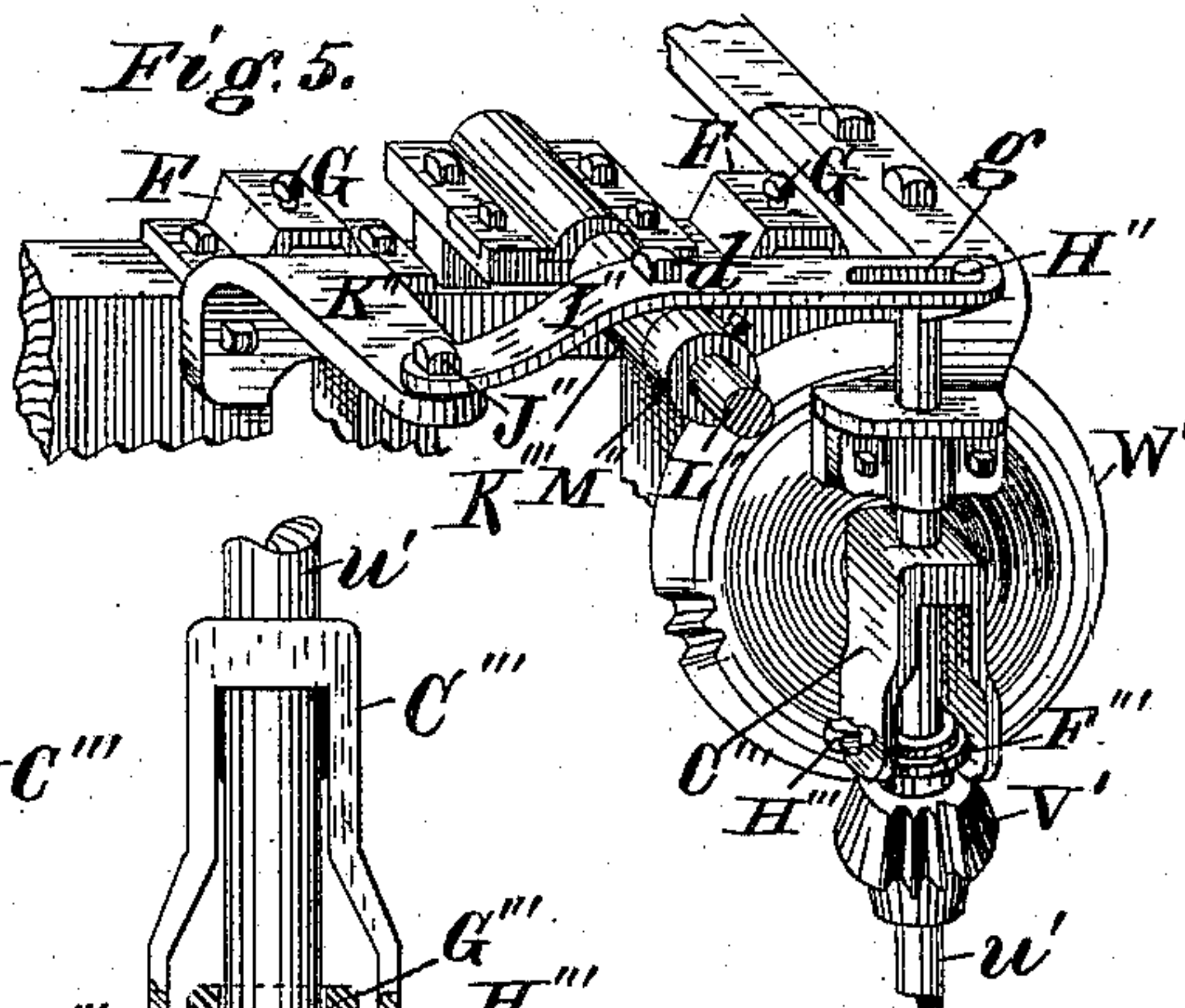
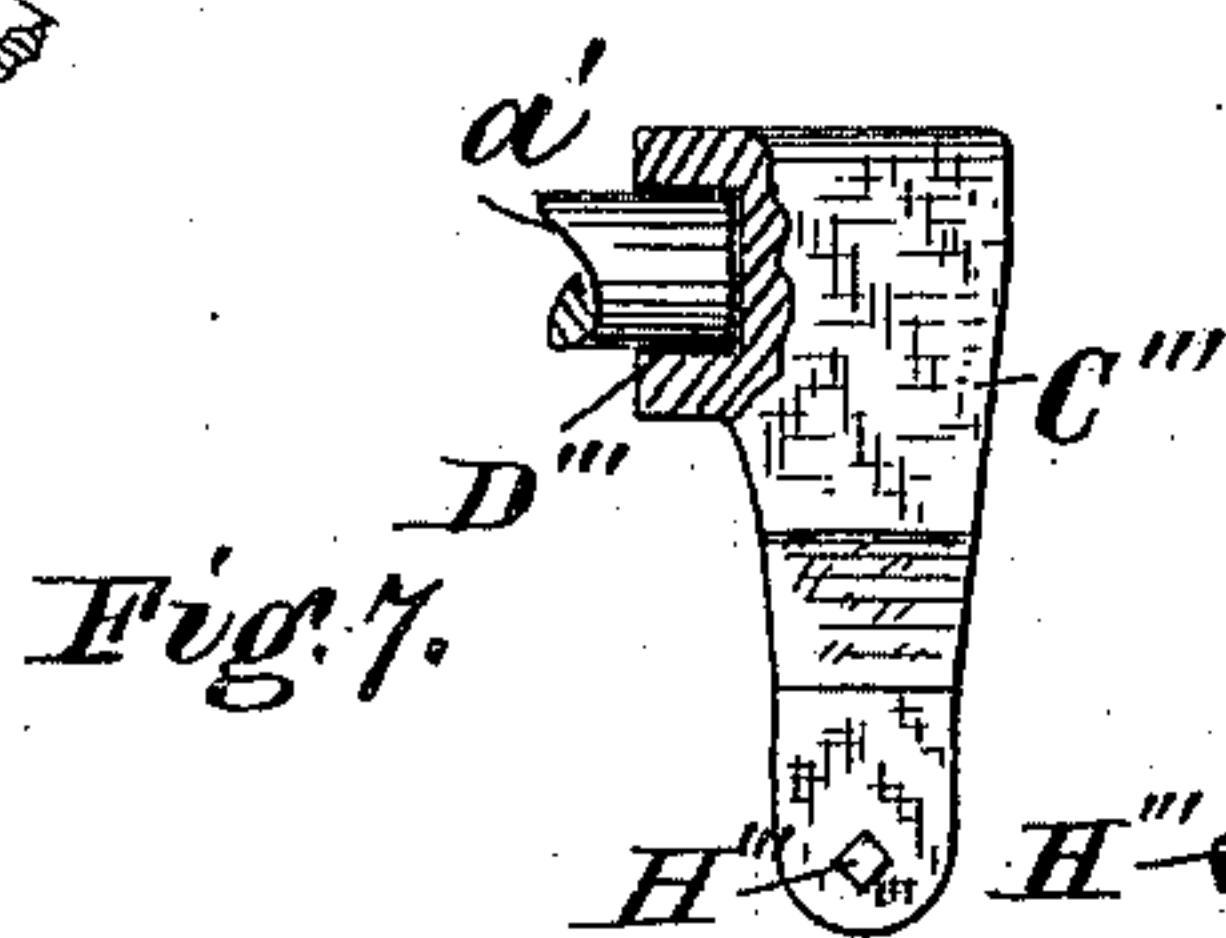
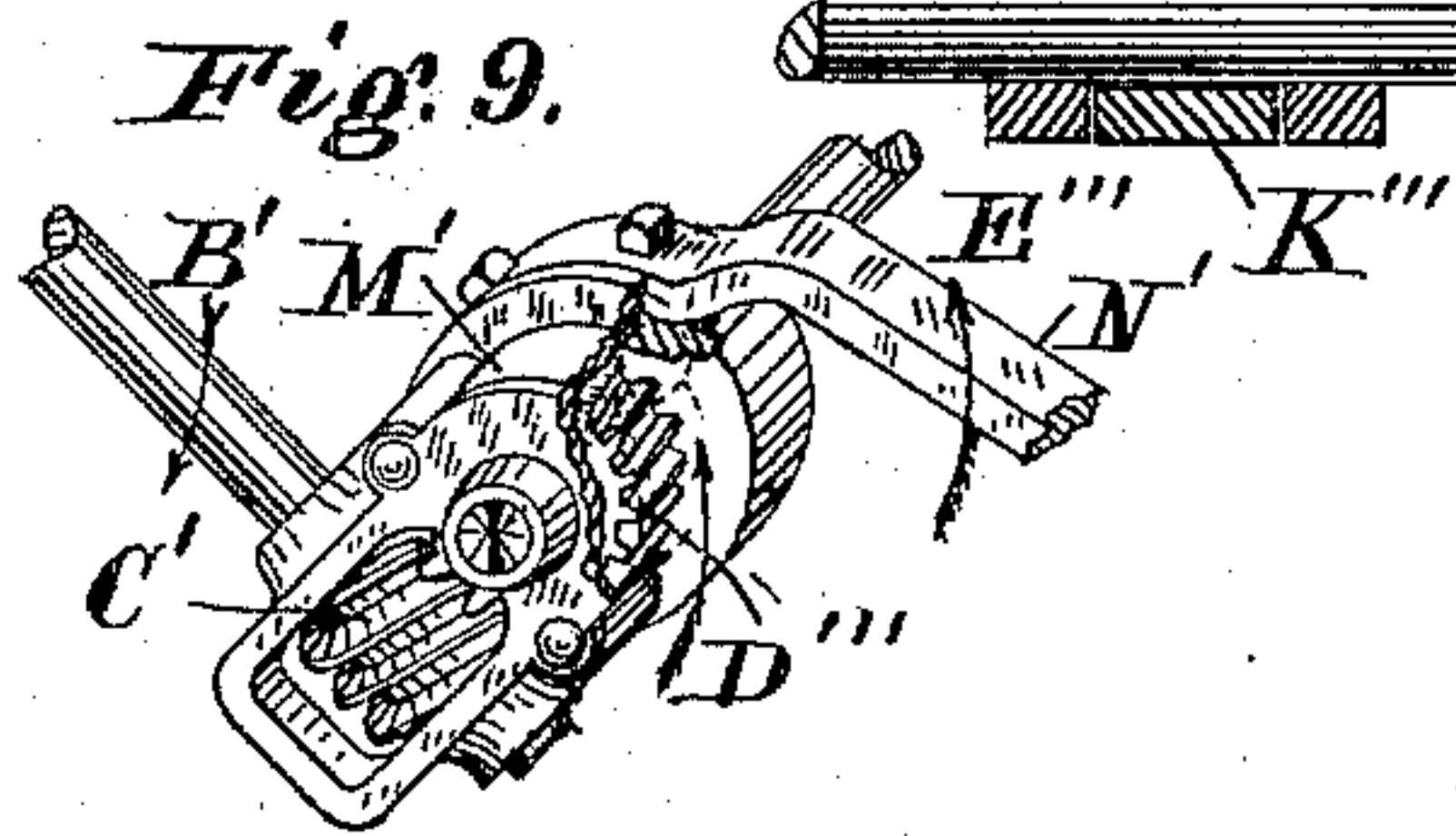
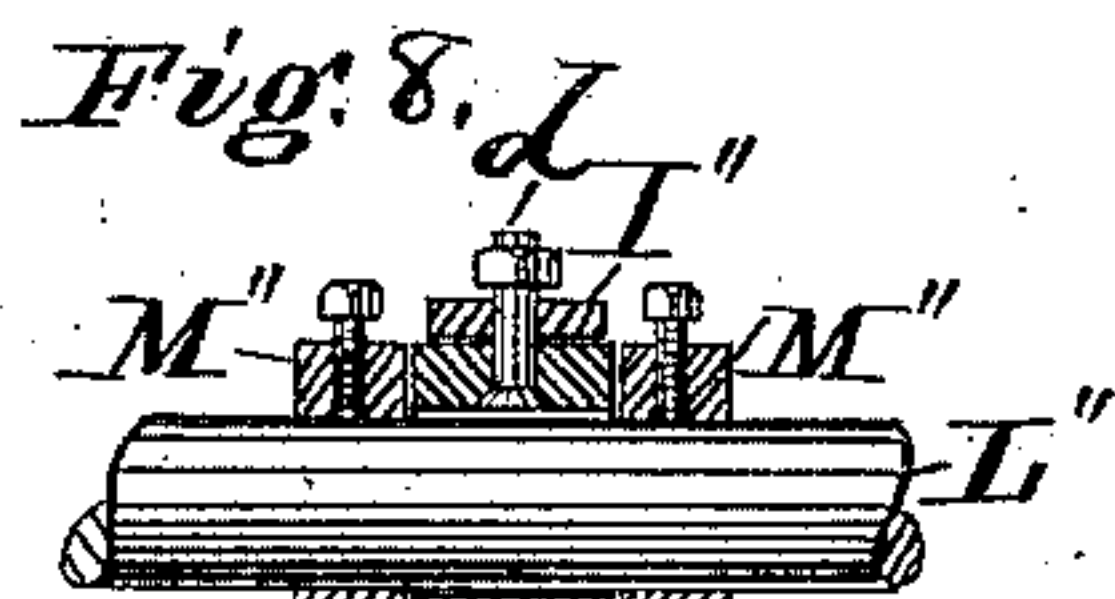
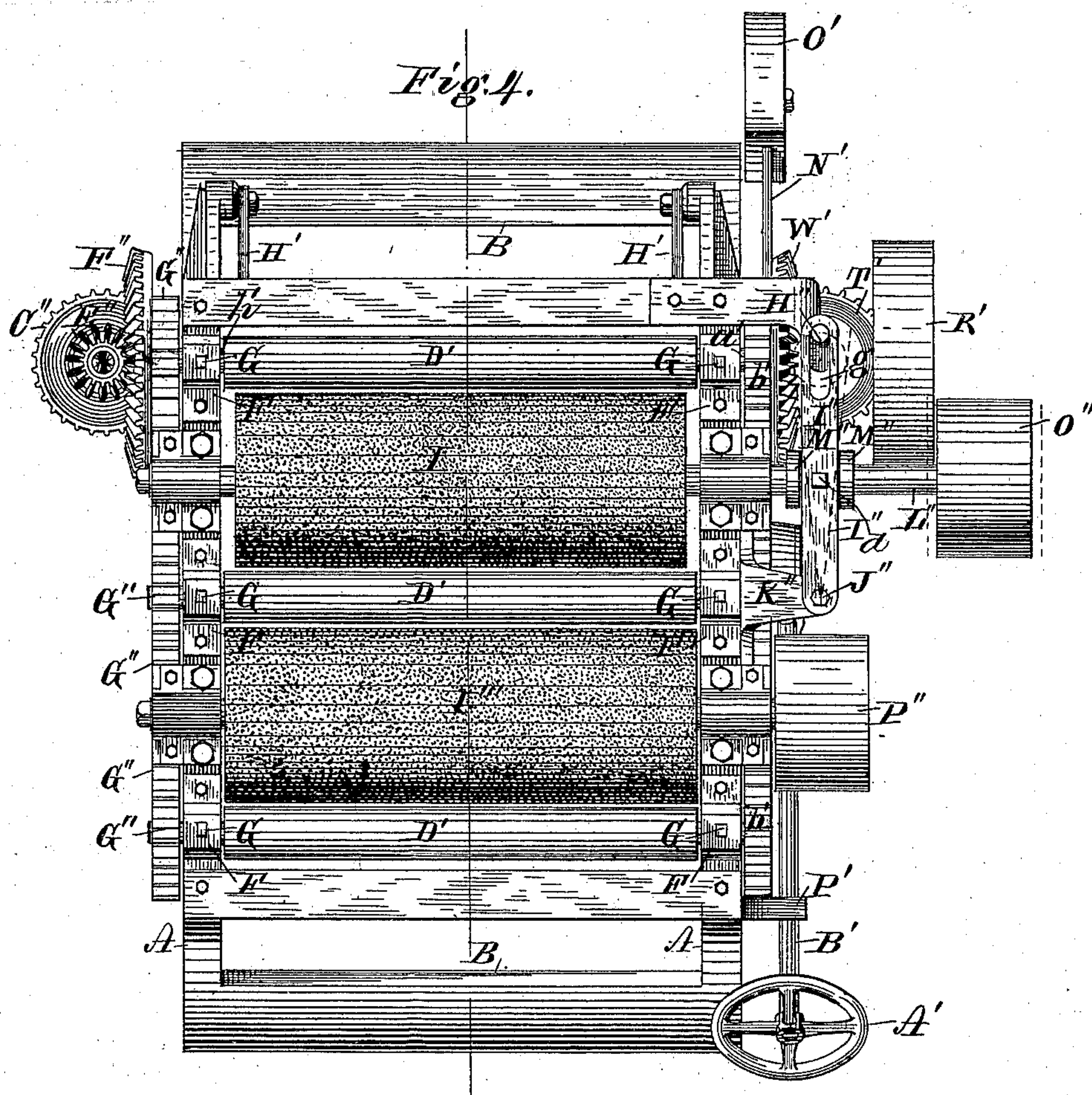
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

WILLIAM H. ELMER AND ANSON P. BOARDMAN, OF BERLIN, WISCONSIN.

WOOD-POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 335,117, dated February 2, 1886.

Application filed October 10, 1884. Serial No. 145,136. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. ELMER, and ANSON P. BOARDMAN, citizens of the United States, residing at Berlin, in the county of Green Lake and State of Wisconsin, have invented certain new and useful Improvements in Wood-Polishing Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in wood-polishing machines, and pertains to the devices for moving and adjusting the bed or table of the machine, the devices for communicating a lateral reciprocating movement to one of the sand-paper cylinders while rotating, and to the general construction and arrangement of the several parts of the machine to co-operate together, as explained by reference to the accompanying drawings, in which—

Figure 1 represents an end view of the machine. Fig. 2 is a side view. Fig. 3 is a vertical section. Fig. 4 is a top view, and Figs. 5, 6, 7, 8, and 9 are details.

Like parts are represented by the same reference-letters throughout the several views.

Our machine is mounted upon a substantial frame, consisting of end pieces, A A, and connecting-girts B B, which parts are rigidly bolted together. Ways C C C are formed in the end pieces, A A, for the reception of journal-boxes D D D and E E E of the feed-rolls.

D' D' D' are the upper feed-rolls. E' E' E' are the lower feed-rolls. F F F are caps, which are bolted to the respective end pieces, A, over the ways C, which caps are provided with adjusting-screws G G G, by which the upper feed-rolls, D' D' D', are adjusted at their respective ends to the desired level, when they are held in place by the lock-nuts H H H. I and I' are sand-paper cylinders.

The journal-boxes E, with their rolls E', are each adjusted at their respective ends independently of each other by set-screws a a a, which set-screws pass through fixed screw-cut bearings b b b, in which they rise and fall with the journal-boxes as they are turned toward

the right or left, whereby said feed-rolls E' E' are adjusted to the same plane with the upper surface of the bed K.

In addition to the devices for producing the independent adjustment of the feed-rolls to each other and the bed, the said several rolls, with their journal-bearings and adjusting-screws, and the bed K are all simultaneously adjusted vertically toward and from the upper feed-rolls, as may be required for the various thicknesses of lumber operated upon, by turning the hand-wheel A' to the right or left.

Motion is communicated from the hand-wheel A' to the bed K, and the several feed-rolls, with their journal-bearings, &c., supported thereon, by the shaft B', worm-gear C', pinion D'', shaft E'', pinions F' F', irregular racks G' G', levers H' H' and I' I', links J' J', link-rods K' K', provided with turn-buckles or extension-nuts L' L'. Thus as the hand-wheel A' is turned toward the right, motion is communicated therefrom through the worm-gear C' and pinion D'' to the shaft E'' and pinion F', whereby said racks G' are thrown up, carrying with them the free ends of the levers H' and I', by which an upward motion is communicated, as mentioned, to the bed K, while, by a reverse movement of the hand-wheel, the bed K is lowered.

M' is an inclosing-case, which is rigidly affixed to the shaft E'' and surrounds the pinion D'', and serves as a journal-bearing for the shaft B', whereby the worm-gear C' is retained in operative contact with the pinion D''. To the case M' is rigidly affixed a lever, N', having on its free end an adjustable weight, O'. Thus it is obvious that as the pinion D'' is turned from right to left, as is required to lower the table, or whenever the material to be operated upon is of such thickness as to force the bed or table downward, the lever N' and weight O' will be thrown upward; but as soon as the material operated upon passes from between the feed-rolls the gravity of the weight O', acting through the lever N', causes the shaft E'', with the pinion F', to turn from left to right, whereby the rack G' is thrown upward with the bed or table K. Thus it is obvious that the gravity of the weight O' serves to press the bed, with the lower feed-rolls and stock operated upon, upward in position to be fed forward by the feed-rolls and in contact

with the lower surface of the sand-paper cylinders.

The shaft B' is supported entirely by its bearings at its lower extremity in the case M'.

5 Thus it is obvious that as the shaft E''' is turned from right to left by the action of the rack G', the shaft B' is inclined downward, while the lever N' is thrown upward. When the feed-rolls and bed K are relieved from pressure, 10 the gravity of the weight O', acting through the lever N' and case M', causes the free end of the shaft B' to be thrown upward in contact with the lug or bracket P', which bracket limits its upward movement.

15 Motion is communicated from the driving-pulley R' to the lower feed-rolls through beveled gears S' and T', shaft U', bevel-gears V' and W', shaft a', and chain of gears b', and from said pulley R' to the upper feed-rolls 20 through the shaft A'', bevel-gears B'' and C'', shaft D'', bevel-gears E'' and F'', shaft h', and chain of gears G'' G'' G'' G'' G'', the two intermediate gears at the respective ends of the rolls serving as idlers for transmitting motion 25 from one roll to another. The upper end of the shaft U' is provided with a crank, H'', which operates in a slot, g, in the free end of the lever I''. The opposite end of the lever I'' is pivoted at a fixed point to the frame by 30 bolt J'' upon bracket K''. The center of the lever I'' is attached to a sleeve, K''', which surrounds the shaft L'', to which it is loosely fitted between the collars M'' M''. Thus it is obvious that as the shaft U' revolves, the free 35 end of the lever I'' is caused to vibrate toward the right and left with each revolution of the crank H'', whereby the shaft L'' is caused to reciprocate longitudinally with the polishing-cylinder I, which is rigidly affixed thereto, 40 while it is being rapidly rotated in contact with the material operated upon, space being left between the respective ends of said cylinder and its supporting-frame to permit of such reciprocating movement, whereby the points 45 of contact of the sandpapered surface of the polishing-cylinder I will be caused to cross and recross those of the other cylinder, I'', and a more perfect finish thereby given to the surface operated upon.

50 A detail of the device for attaching the lever I'' to the shaft L'' is shown in Fig. 8.

A detail of the device for communicating motion from the shaft U' with the lever I'' and shaft L'' is shown in Fig. 5.

55 Motion is communicated from the motive power to polishing-cylinders I I'' by separate belts operating upon pulleys O'' and P''.

The object of the turn-buckles L' is to adjust one end of the bed K higher or lower than 60 the other, as may be required for polishing tapered stock.

To permit of the upward and downward movement of the bed or table of the machine, with its feed-rolls and beveled gears V' and 65 W', without moving the shaft U', it becomes necessary to provide for the upward and downward movements of said pinion V' while be-

ing rotated in contact with the gear W' on said shaft U'. To accomplish this end, the pinion V' is provided with a feather or spline, A''', 70 which operates in a groove, B''', which spline and groove cause said pinion V' to rotate with said shaft U', while it is free to move upward and downward upon it. The gear V' is retained in operative contact with the gear 75 W' at all times by the collar or bracket C'''. The rear side of said bracket C''' is provided with a socket, D''', for the reception of the front end of the shaft a', (shown in Fig. 7,) upon which shaft a' the gear W' is mounted. 80 Shaft U' is loosely fitted so as to freely turn in the upper end of the collar C'''. The lower end of said collar C''' is connected with the gear V' by a collar, F''', which operates in a groove formed in the sleeve G'''. The collar 85 F''' is attached to the bracket C''' by set-screws H''' H'''. The sleeve G''' is cast with said gear V', details of which are shown in Figs. 5 and 6.

Having thus described our invention, what we claim as new, and desire to secure by Let- 90 ters Patent, is—

1. In a wood-polishing machine, the combination, with the polishing-cylinder I and its supporting-shaft L'', of the vibrating lever I'', pivoted at a fixed point at one end to the sup- 95 porting frame or bracket, and centrally pivoted to a collar or sleeve surrounding said shaft between side bearings formed on said shaft, crank H'', operating in a slot in the free end of said lever I'', and shaft U', con- 100 nected by gears with the operating mechanism of the machine, substantially as and for the purpose specified.

2. The combination of the shaft E''', lever N', provided with weight O', pinion D''', worm- 105 gear C', shaft B''', provided with handle or hand-wheel A', pinion F', irregular rack-bar G', levers H' and I', and link-rods J' and K', bed or table K, and lower feed-rolls, E' E' E', substantially as set forth. 110

3. The combination of the shaft U', provided with groove B''', movable pinion V', provided with the feathers or spline A''', and sleeve G''', collar F''', retaining-screws H''' H''', sleeve or 115 bracket C''', provided with socket D''', shaft a', and gear W', all substantially as and for the purpose set forth.

4. In a wood-polishing machine, the device for producing an independent vertical adjust- 120 ment of the lower feed-rolls relatively to each other and the bed or table, consisting of the combination, with the bed K, of the fixed bearings b b b, screws a a a, and movable jour- 125 nal-boxes E E E, substantially as set forth.

5. The combination of a band-pulley, R', 125 located near the base of the machine, horizontal shaft A'', gears S' and T', vertical shaft U', vertically-moving gears V and W', shaft a', and chain of gears L L, said pulley, gears, and shafts being adapted to communicate mo- 130 tion from the driving-belt to the upper feed-rolls, and to permit of their vertical movement, substantially as and for the purpose specified.

6. The combination, with the horizontal shaft A'', provided at one end with the driving-pulley, of the gears B'' and C'', located at the opposite end of said shaft, vertical shaft D'',
5 gears E'' and F'', shaft U', and chain of gears G'' G'', communicating with the lower feed-rolls, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM H. ELMER.
ANSON P. BOARDMAN.

Witnesses:

W. H. JOHNSON,
L. C. SMITH.