

(No Model.)

4 Sheets—Sheet 1.

W. H. CURNAYN.  
HEADING DRESSING MACHINE.

No. 445,619.

Patented Feb. 3, 1891.

Fig. 1.

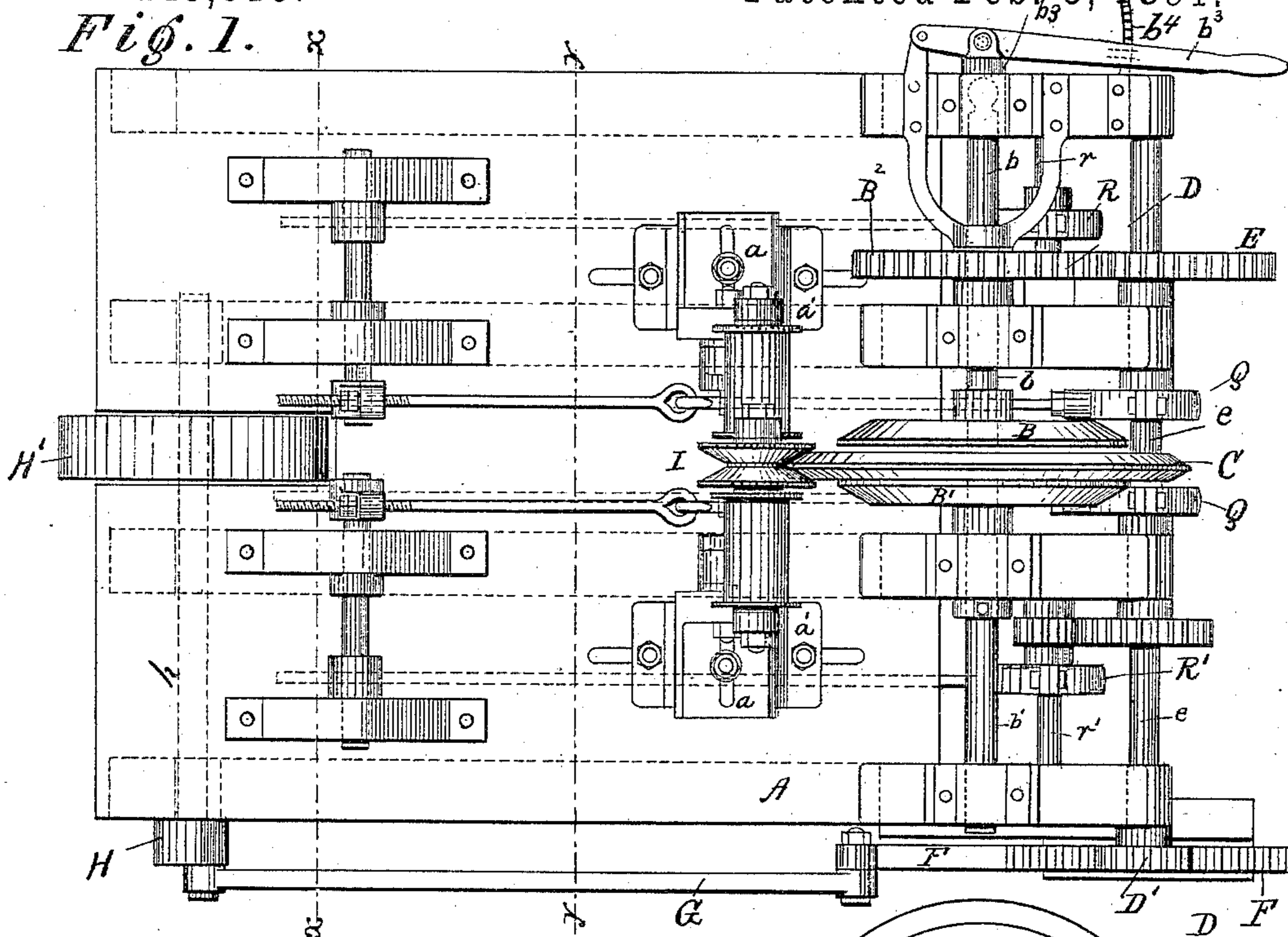
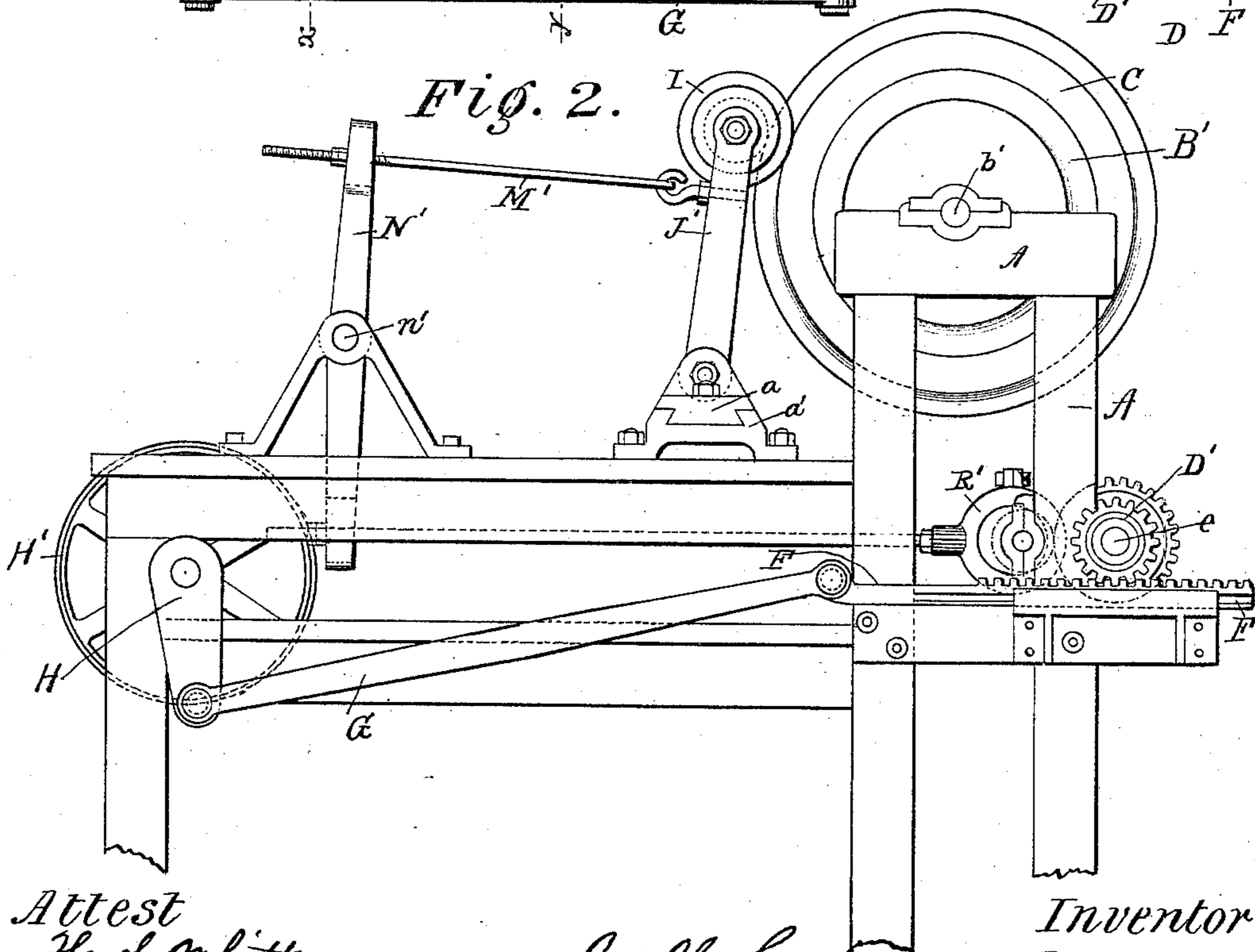


Fig. 2.



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Inventor

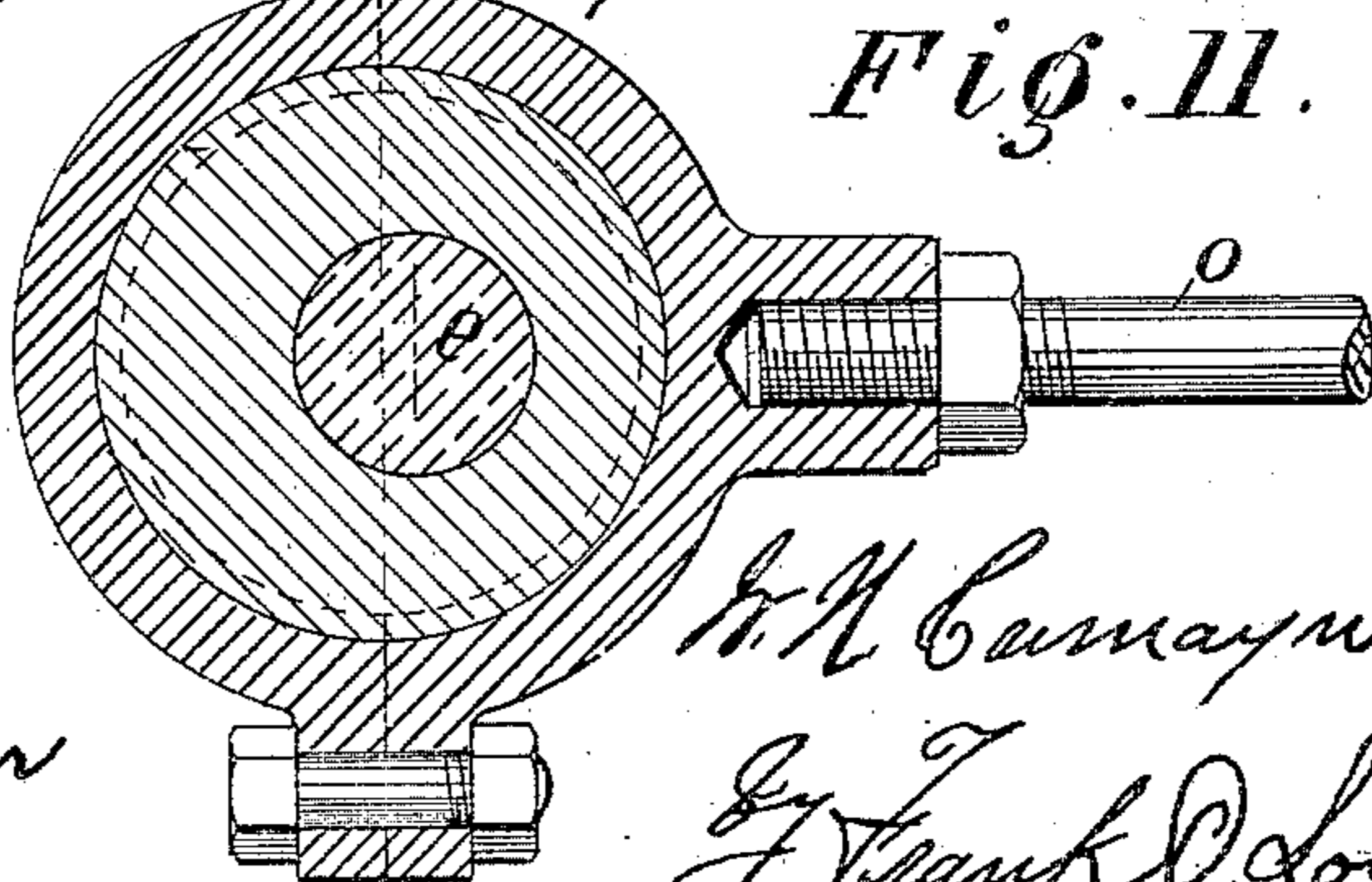
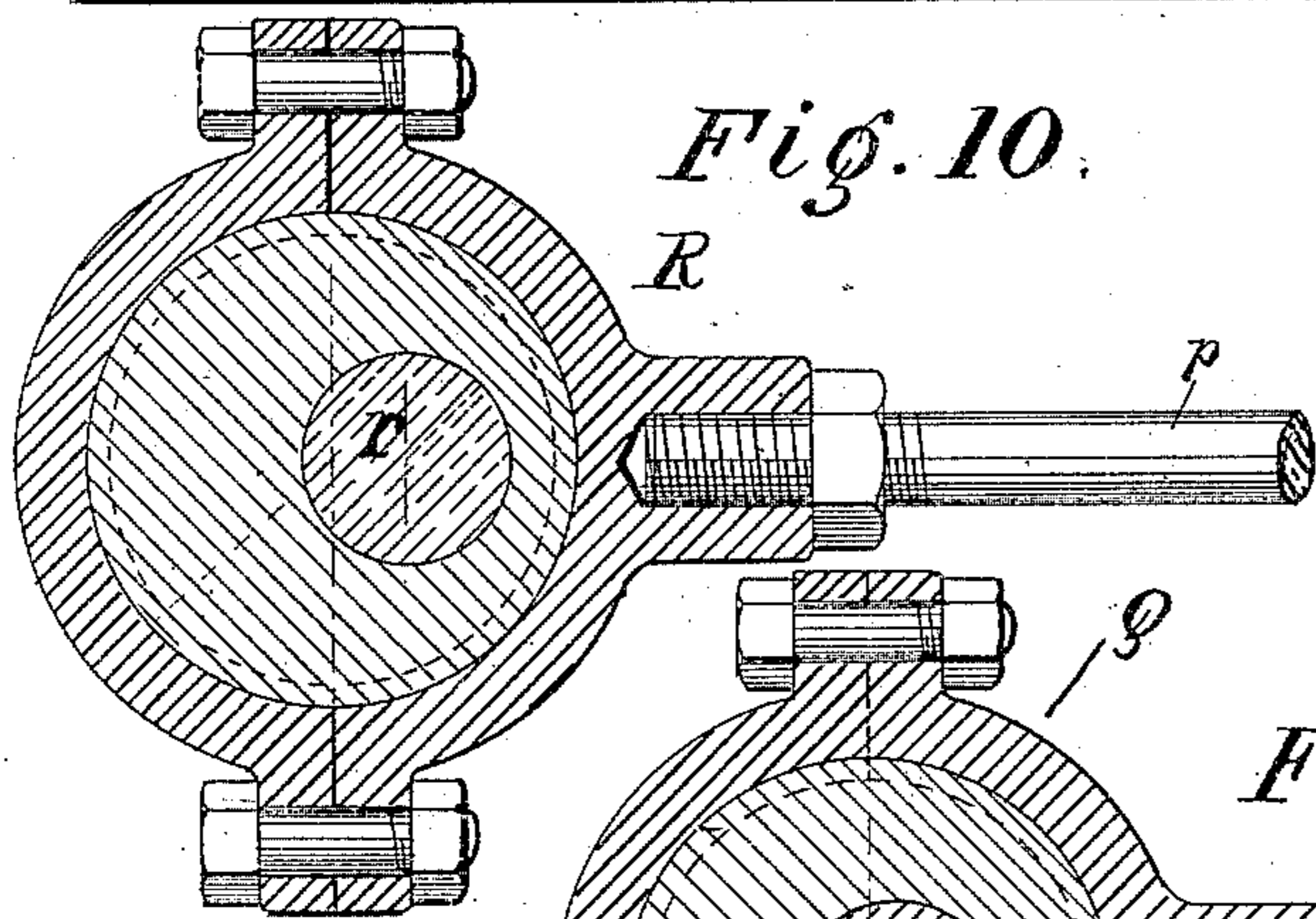
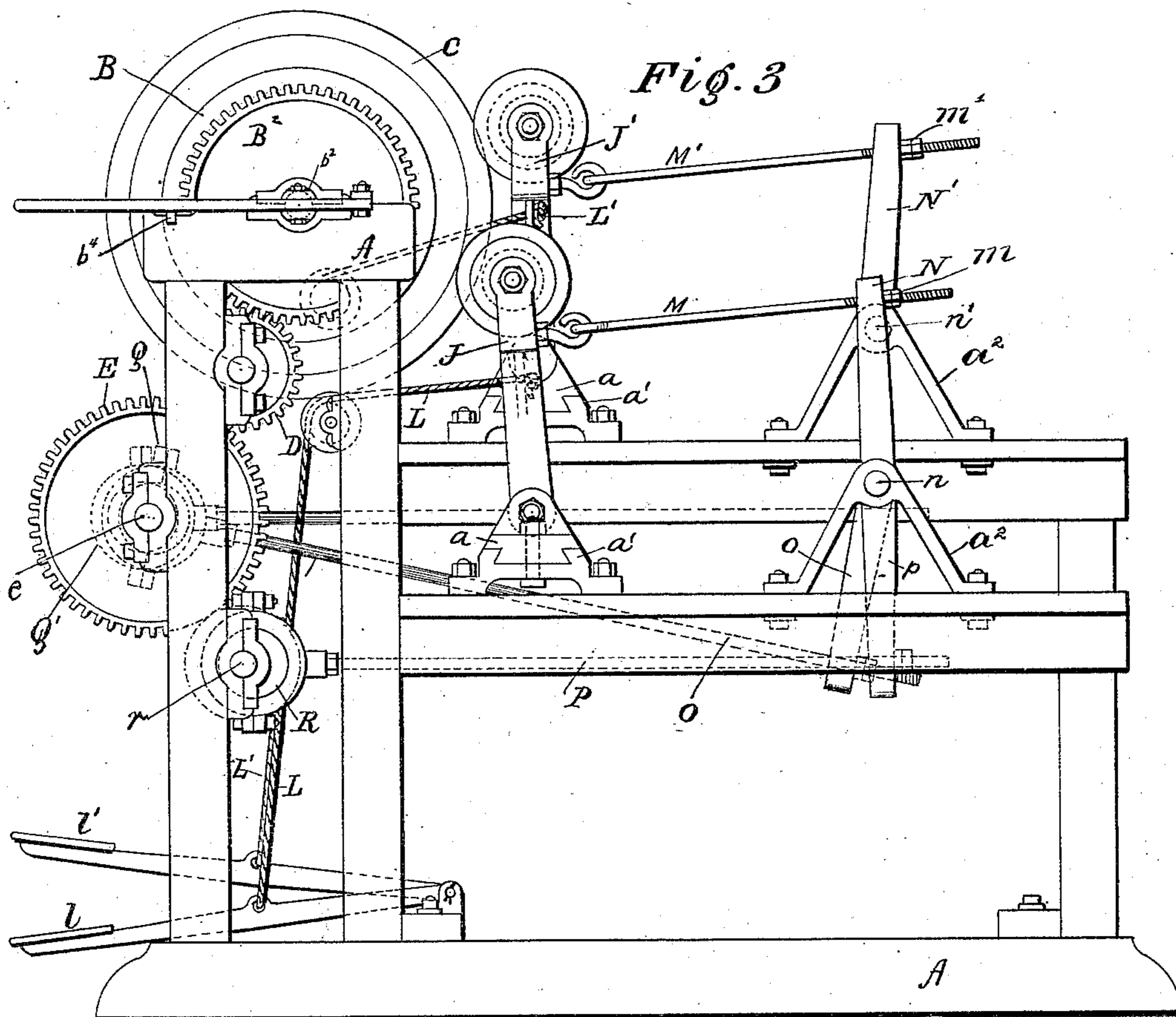
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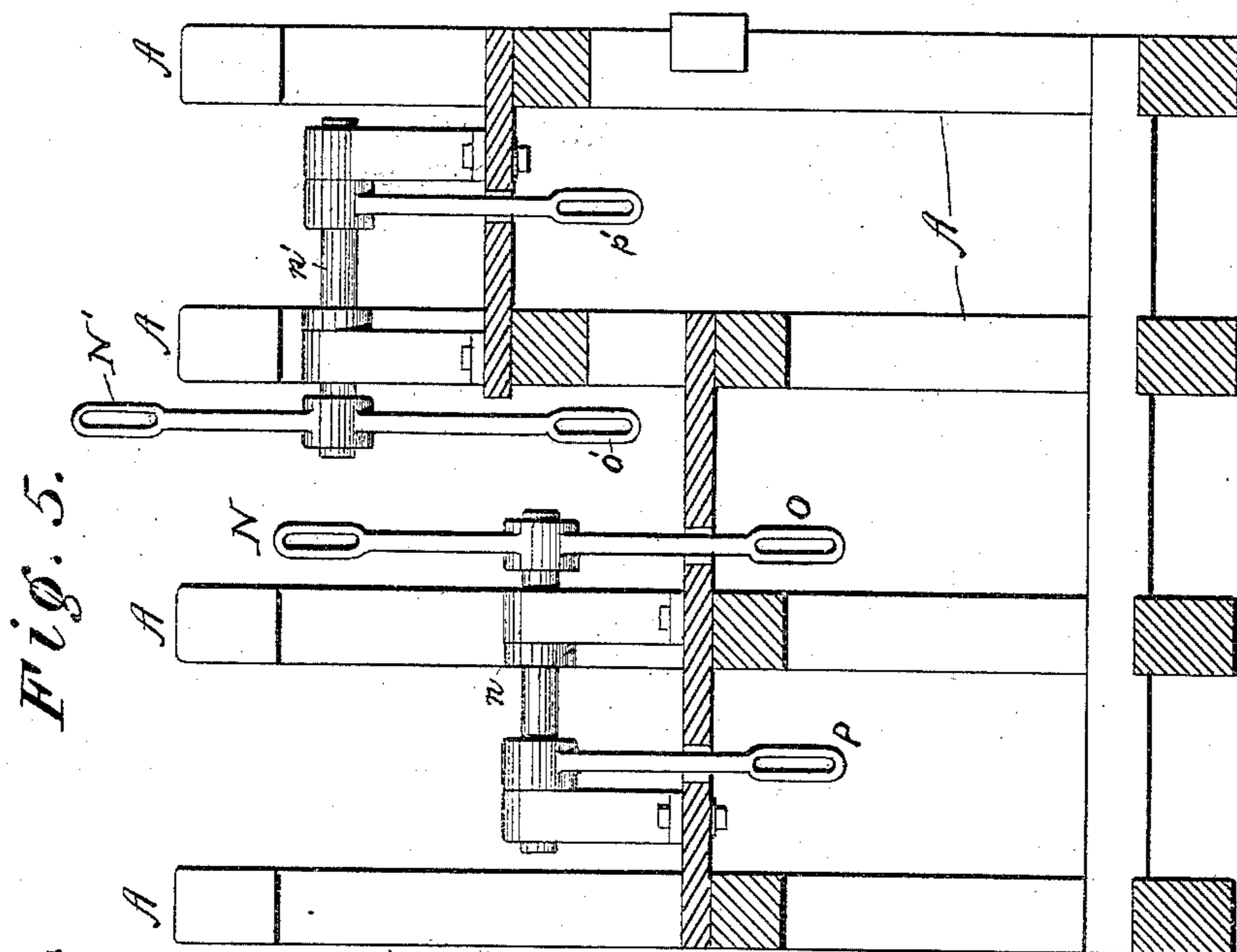
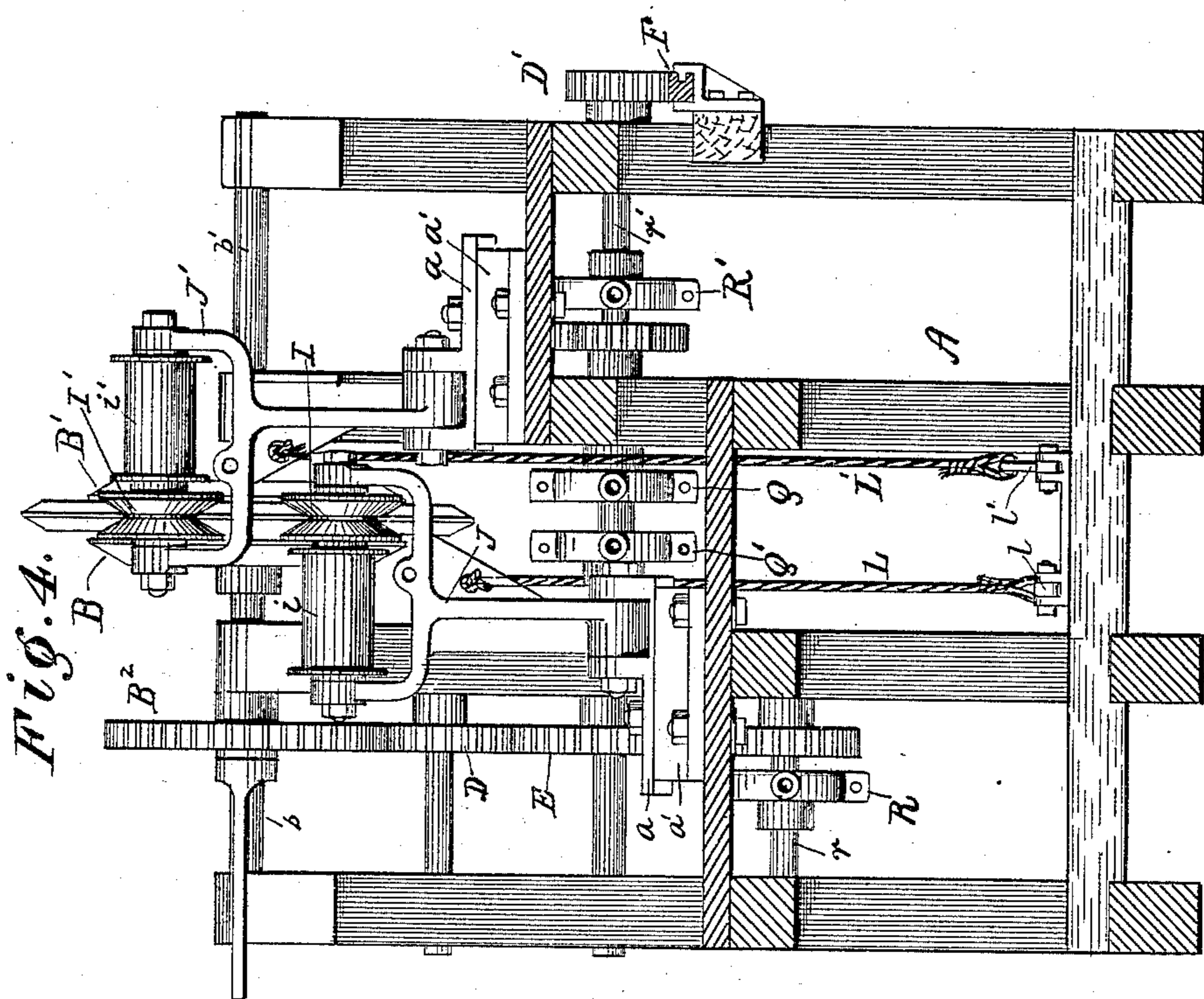
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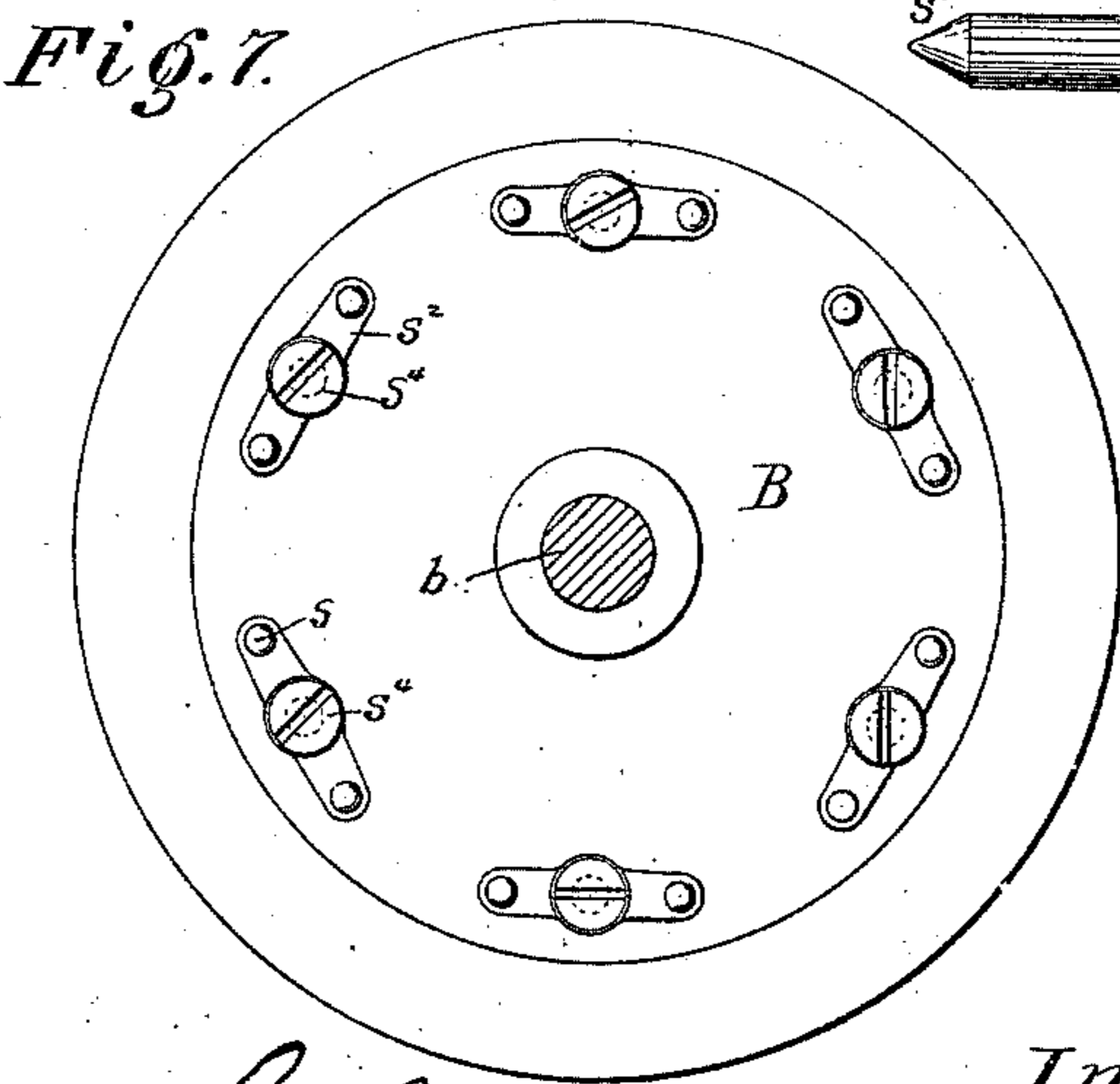
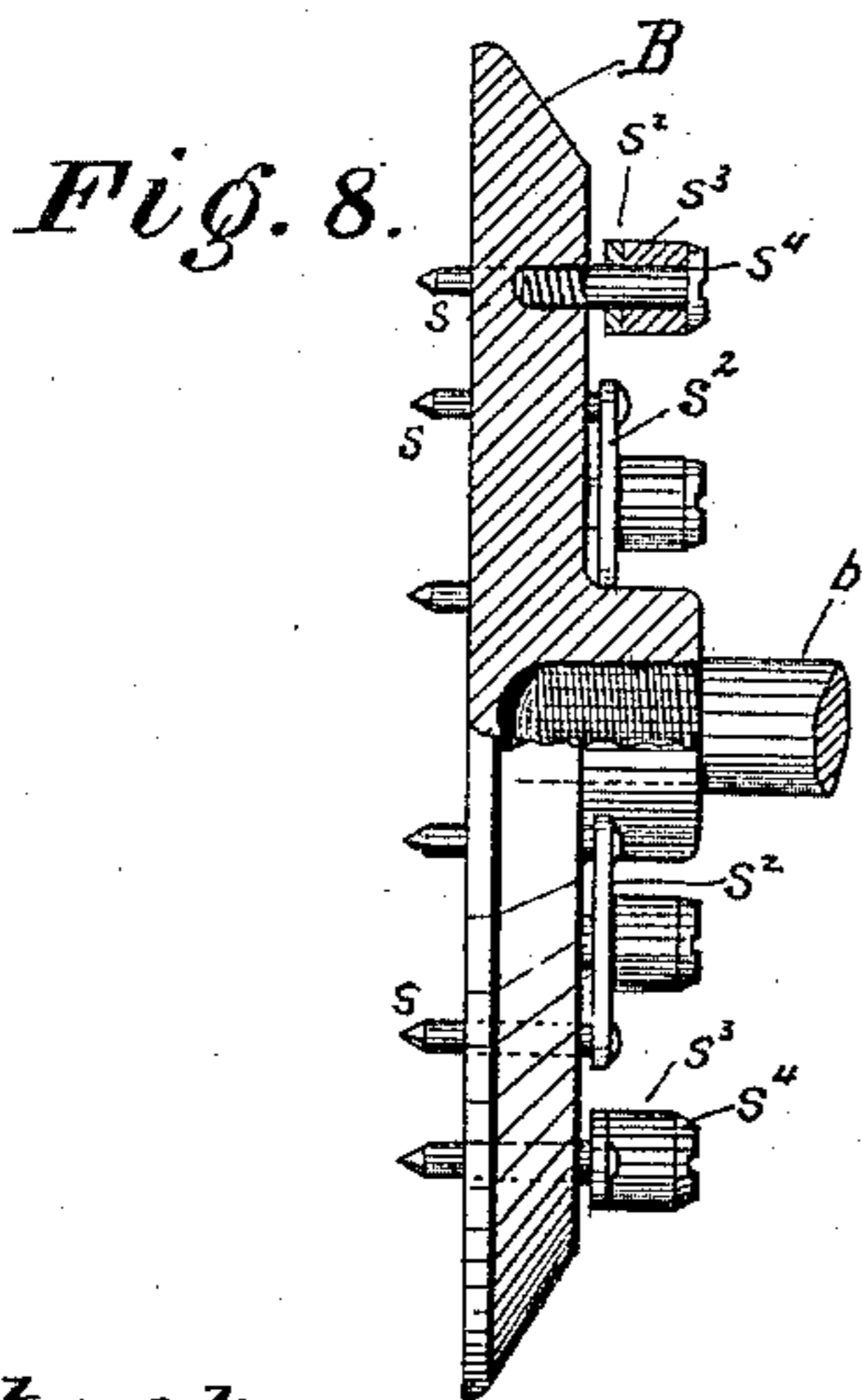
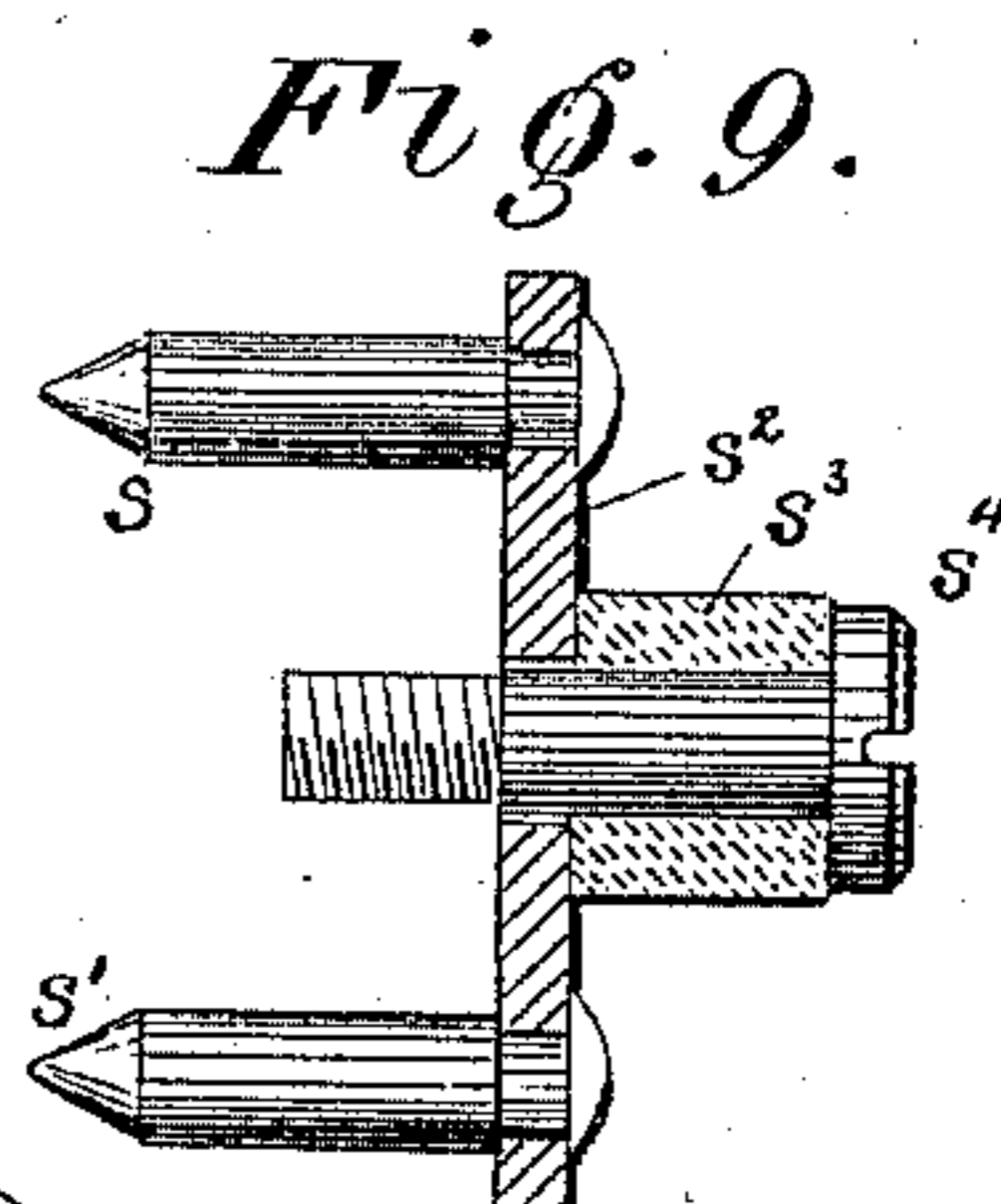
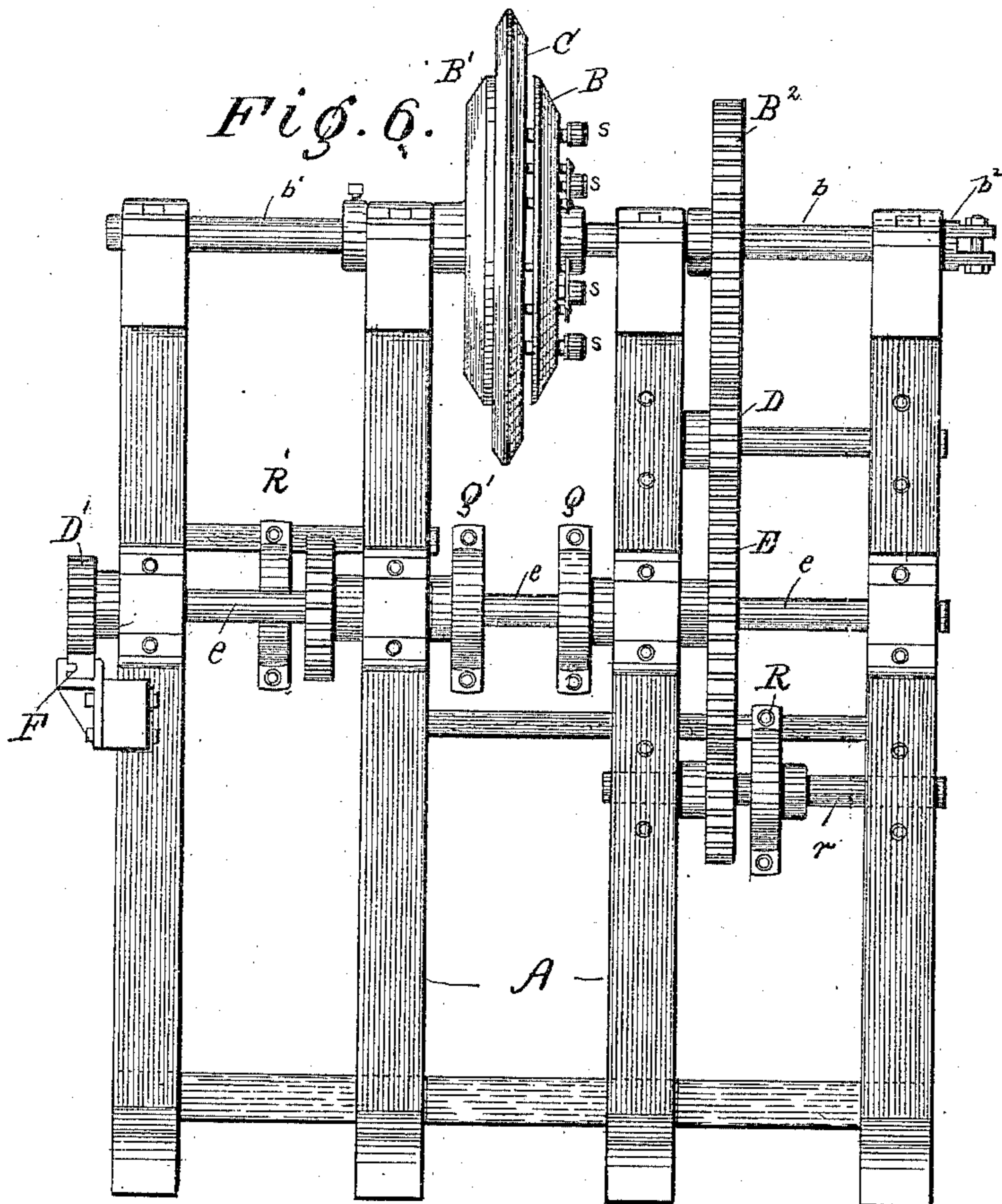
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# UNITED STATES PATENT OFFICE.

WILLIAM H. CURNAYN, OF RIVERSIDE, OHIO.

## HEADING-DRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 445,619, dated February 3, 1891.

Application filed June 20, 1890. Serial No. 356,165. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. CURNAYN, a citizen of the United States, residing at Riverside, in the county of Hamilton, State of Ohio, have invented a new and useful Improvement in Heading-Dressing Machines, of which the following is a specification.

Owing to the differential compression of wood when force is applied to it on all sides, as in forcing hoops on casks, heading is usually made slightly elliptical or oval in shape, the longest diameter being at substantially right angles to the grain of the wood, so that the periphery of the head will take the form of a circle when compressed into its position in the cask by forcing on the hoops.

My invention consists in a machine for shaping, frizzing, and dressing heading and other similar work.

Referring to the drawings, Figure 1 is a top plan view of a machine embodying my invention. Figs. 2 and 3 are elevations of opposite sides of the same. Fig. 4 is a vertical section on line Y Y, Fig. 1. Fig. 5 is a vertical section on line X X, Fig. 1. Fig. 6 is a front elevation. Figs. 7, 8, and 9 are details of the clutch-block. Figs. 10 and 11 are details of the eccentrics.

A is the frame of the machine.

B B' are clutch-blocks adapted to support and rotate the heading C while being operated upon. The clutch-blocks are mounted upon shafts *b b'*, respectively, and actuated by means of a gear-wheel B<sup>2</sup>, mounted upon the shaft *b*, intermeshing with an intermediate gear-wheel D, which intermeshes with a gear-wheel E on a main shaft *e*. By employing the intermediate gear-wheel the distance between the main shafts and the clutch-block shaft is increased to admit of dressing heading of larger diameter than otherwise could be done.

The shaft *b* is mounted in the frame and provided with a sliding-box bearing *b*<sup>2</sup>, so that when the sliding box is moved longitudinally with the shaft by means of lever *b*<sup>3</sup> it carries clutch-block B toward and away from its corresponding clutch-block B'. The lever *b*<sup>3</sup> is adapted to engage a rack *b*<sup>4</sup> to hold it in any desired position.

Shaft *e* is actuated by means of a pinion D',

mounted thereon and operated by a rack F, to which a forward and backward motion is given by pitman G, crank-wheel H, shaft *h*, driving-pulley H'. The rack and pinion give a reciprocating rotary motion to the clutch-blocks—i. e., rotate the clutch-blocks once and then reciprocate the same by rotating them in the reverse direction.

The bevel or friz is cut upon the heading by cutters I I', mounted upon arms J J', hinged to brackets *a a'* on the frame. These brackets are preferably made in two parts and dovetailed together and adjustable longitudinally and transversely of the machine by means of bolts taking through slots. The cutters are rotated by belts taking around pulleys *i i'*. The cutters are forced into engagement with the heading by a cord or chain L L' and treadles *l l'*. By using two cutting-cylinders rotated in opposite directions and giving the heading a reciprocating rotary motion the knives may be made to cut always with the grain of the wood. Rods M M' connect the cutters with slotted lever-arms N N', fixed on shafts *n n'*, mounted in brackets *a'' a'''* on the frame. The rods are adjustable by means of the nuts *m m'*. To the shafts *n n'* are fixed arms *o o' p p'*, each provided with a slot near its extremity. These arms serve as levers to withdraw the cutters, either partially or wholly, from engagement with the heading, as hereinafter described.

O O' are rods taking through the slots in the arms *o o'* and connecting them with double eccentrics Q Q', mounted on the main shaft. The function of these eccentrics is to withdraw the cutter during certain portions of the revolution of the heading from the center of the heading to form the oval. By varying the relative lengths of the arms—that is, by moving the connecting-rods up and down in the slots—the relative lengths of the major and minor diameters of the heading may be changed, or, in other words, a different-shaped oval made.

P P' are rods taking through the slots in the arms *p p'*, respectively, and connecting them with single eccentrics R R'. These eccentrics are mounted upon shafts *r r'*, respectively, and are rotated by gear connection with the main shaft. The eccentrics R

R' are adapted to make two revolutions and the eccentrics Q Q' to make one revolution for each revolution of the heading.

The function of the eccentrics R R' is to withdraw the cutters from engagement with the heading during certain portions of the revolution of the same. The distance of withdrawal may be regulated by means of the nuts on the end of the connecting-rods for various-sized heading.

The clutch-blocks consist of two corresponding disks B B', provided with dogs s s', mounted in pairs on an arm s<sup>2</sup>, which arm is supported against an elastic cushion s<sup>3</sup>, through which takes a tap s<sup>4</sup> into the disk. By this construction it is obvious that if the heading differs in thickness in different portions of its surface the dogs are free to move in and out and securely hold the heading to prevent its turning or any part of it moving in the clutches.

The operation of the machine is as follows: A heading is placed between the clutch-blocks and dogged by forcing clutch-block B toward its corresponding clutch-block by means of lever b<sup>3</sup>. The cutters are rotated very rapidly. The driving-wheel H' is connected by belt with motive power and the heading rotated, as hereinbefore described. One of the cutters is brought into engagement with the heading by means of the treadle and for a quarter of a revolution of the heading dresses it. It is then withdrawn by means of the eccentric R or R', as the case may be. No cut is made upon the heading during the second quarter of its revolution. The cutting-cylinder is then made to again engage the heading by means of the treadle for one quarter of a revolution, and is then withdrawn, as before. No cut is made upon the heading during the fourth quarter of its revolution. The motion of the heading is then reversed and the other cutting-cylinder is made to cut the omitted sections in the same manner as the first cutting-cylinder did during the direct motion of the heading, and is withdrawn by the eccentrics controlling it. The eccentrics Q Q' withdraw the cutters to form the oval, as hereinbefore specified. By this arrangement it is obvious that I can dress an oval heading, that I can dress heading with different ovals, that I can dress heading of different diameters and of various sizes, that I can cut the heading always with the grain of the wood, that my machine may be adjusted to a mechanical nicety, and that work done upon it is more accurate and better finished than when done by hand.

I claim—

1. The combination, in a heading-dressing machine, of a clutch-block having a reciprocating rotary motion and two reciprocating cutters, substantially as and for the purpose specified.
2. The combination, in a heading-dressing machine, of a clutch-block having a reciprocating rotary motion and two reciprocating

cutters adjustable longitudinally of said machine, substantially as and for the purpose specified.

3. The combination, in a heading-dressing machine, of a clutch-block having a reciprocating rotary motion and two reciprocating cutters adjustable transversely of said machine, substantially as and for the purpose specified.

4. The combination, in a heading-dressing machine, of a clutch-block having a reciprocating rotary motion and two reciprocating cutters adjustable transversely and longitudinally of said machine, substantially as and for the purpose specified.

5. The combination, in a heading-dressing machine, of a clutch-block having a reciprocating rotary motion and two reciprocating cutters automatically adjusted to dress an oval surface, substantially as and for the purpose specified.

6. The combination, in a heading-dressing machine, of a clutch-block having a rotary motion, two reciprocating cutters, and eccentrics, whereby each cutter is automatically alternately forced toward and withdrawn from the clutch-block at alternate quarters of each rotation of the clutch-block, substantially as and for the purpose specified.

7. The combination, in a heading-dressing machine, of a clutch-block having a reciprocating rotary motion, eccentrics, each having a motion relative to that of the clutch-block, and two reciprocating cutters controlled thereby, substantially as and for the purpose specified.

8. The combination, in a heading-dressing machine, of a clutch-block having a reciprocating motion, cutters, lever-arms adapted to automatically withdraw the cutters, eccentrics actuating the arms, and means for forcing the cutters into engagement with the heading, substantially as and for the purpose specified.

9. The combination, in a heading-dressing machine, of a clutch-block having a reciprocating rotary motion, cutters, lever-arms adapted to withdraw the cutters, and eccentrics actuating the arms, substantially as and for the purpose specified.

10. The combination, in a heading-dressing machine, of a main shaft to which a reciprocating rotary motion is given by means of a rack and pinion, a clutch-block operated thereby, cutters, and an eccentric whereby the cutters are adjusted, substantially as and for the purpose specified.

11. The combination of disks B B', dogs s s', mounted on arms s<sup>2</sup>, and an elastic bearing for said arms, substantially as and for the purpose specified.

12. The combination, in a heading-dressing machine, of disks B B', one of which is provided with dogs s s', mounted on elastic arms s<sup>2</sup> s<sup>2</sup>, shaft b, adapted to move disk B toward and away from disk B', and a lever b<sup>3</sup>, substantially as and for the purpose specified.

13. The combination, in a heading-dressing machine, of a frame A, clutch-blocks B B', a main shaft e, pinion D', rack F, cutters I I', arms J J', a chain or cord L, treadle L', and 5 eccentrics Q Q', whereby the cutters are adjusted to dress an oval surface, substantially as and for the purpose specified.

14. The combination, in a heading-dressing machine, of frame A, clutch-blocks B B', having a reciprocating rotary motion, cutters I I', 10 rods M M', arms N N', arms o o', rods O O', and eccentrics Q Q', substantially as and for the purpose specified.

15. The combination, in a heading-dressing machine, of a frame A, clutch-blocks B B', 15 having a reciprocating rotary motion, cutters I I', rods M M', arms N N', arms p p', rods P P', and eccentrics R R', substantially as and for the purpose specified.

16. The combination, in a heading-dressing machine, of a frame A, clutch-blocks B B', 20 having a reciprocating rotary motion, cutters I I', rods M M', arms N N', arms o o' p p', rods O O' P P', and eccentrics Q Q' R R', substantially as and for the purpose specified. 25

17. The combination, in a heading-dressing machine, of a frame A, clutch-blocks B B', shaft e, pinion D', rack F, cutters I I', arms J J', a chain or cord L, treadle L', rods M 30 M', arms N N', arms o o' p p', rods O O' P P', and eccentrics Q Q' R R', substantially as and for the purpose specified.

W. H. CURNAYN.

Witnesses:

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WILHELM GÖRLICH.