

(No Model.)

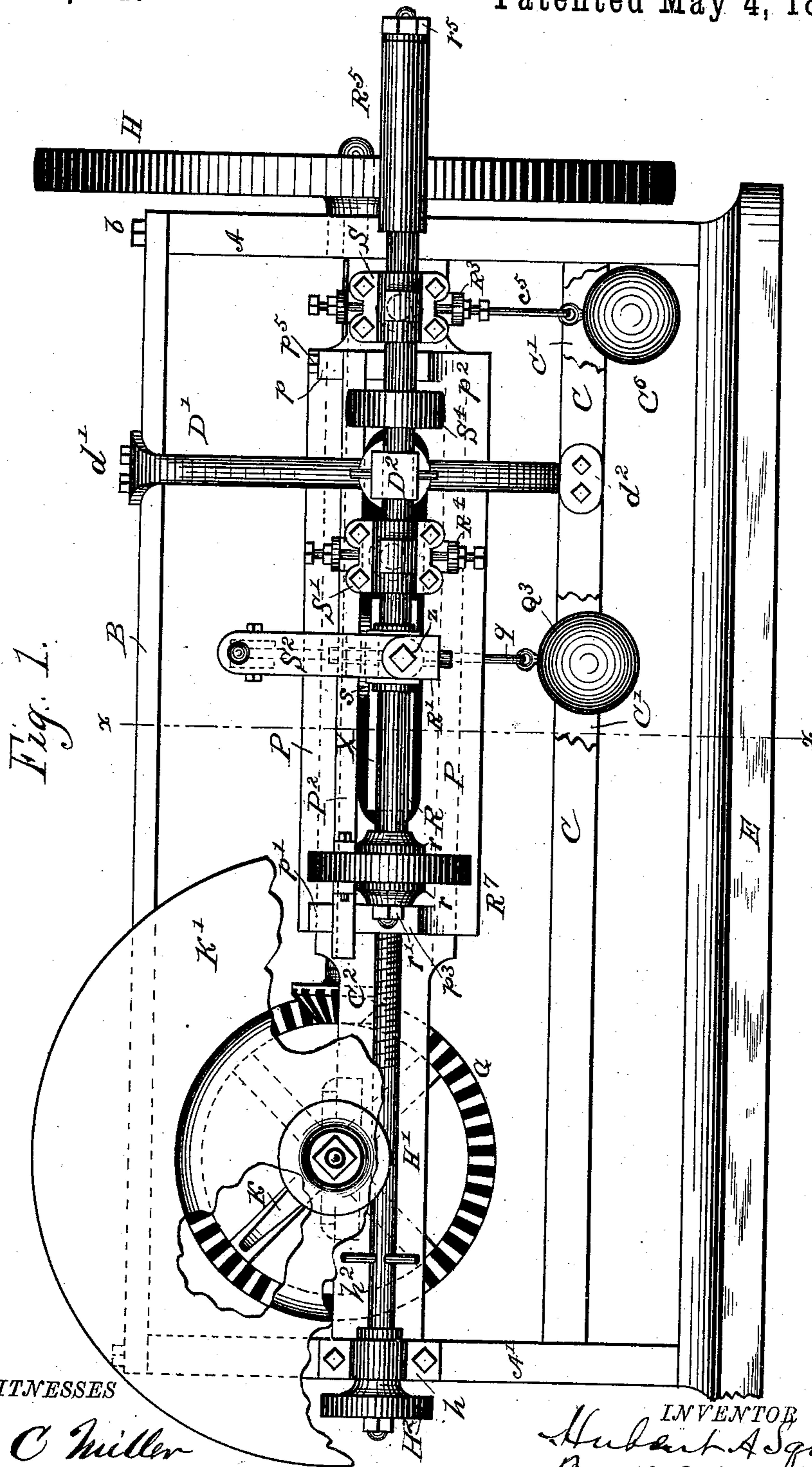
6 Sheets—Sheet 1.

H. A. SQUIRE.

MACHINE FOR GRINDING SHINGLE SAWS.

No. 341,071.

Patented May 4, 1886.



*WITNESSES*

John C. Miller  
Percy White.

INVENTOR

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(No Model.)

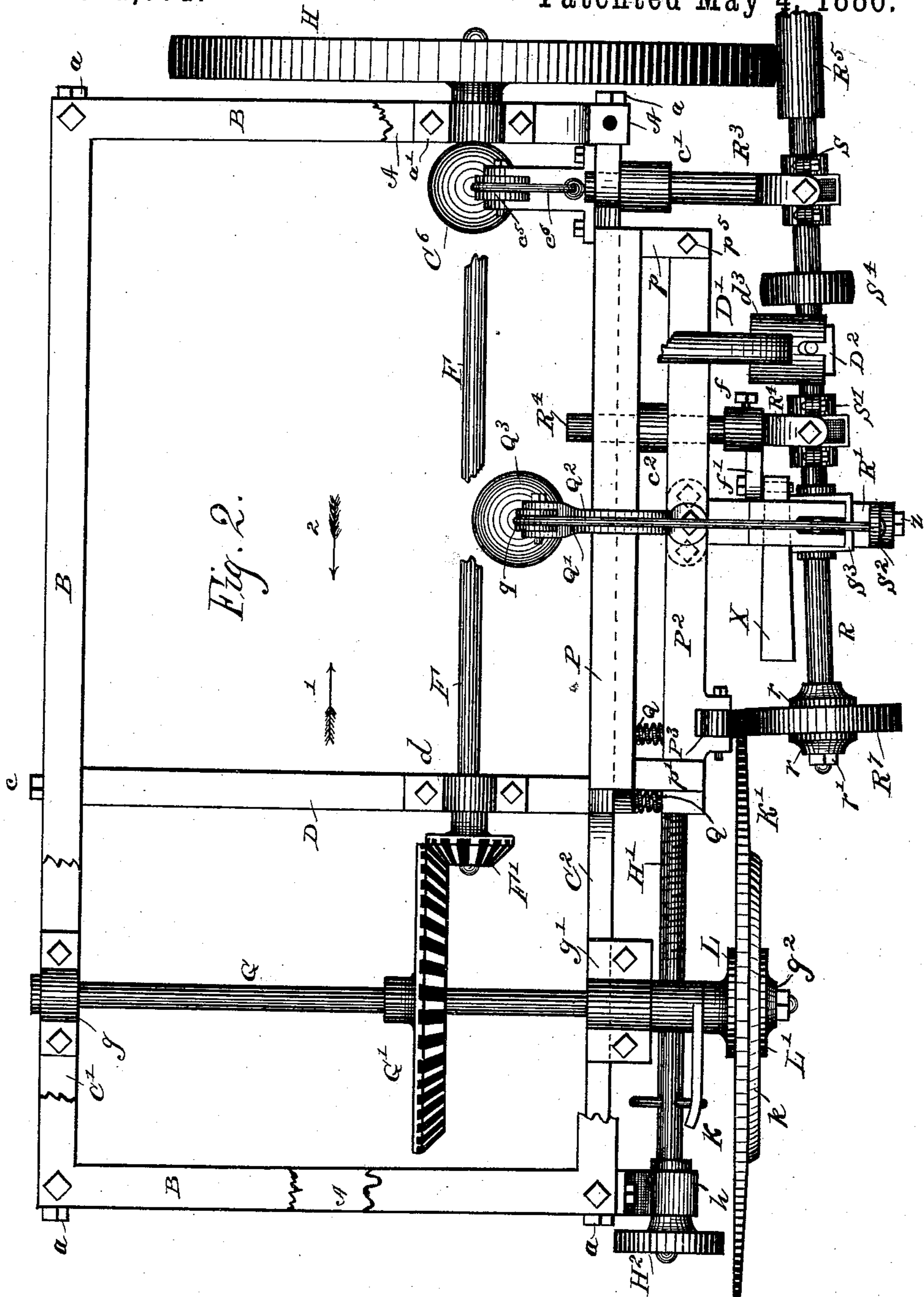
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6 Sheets—Sheet 3.

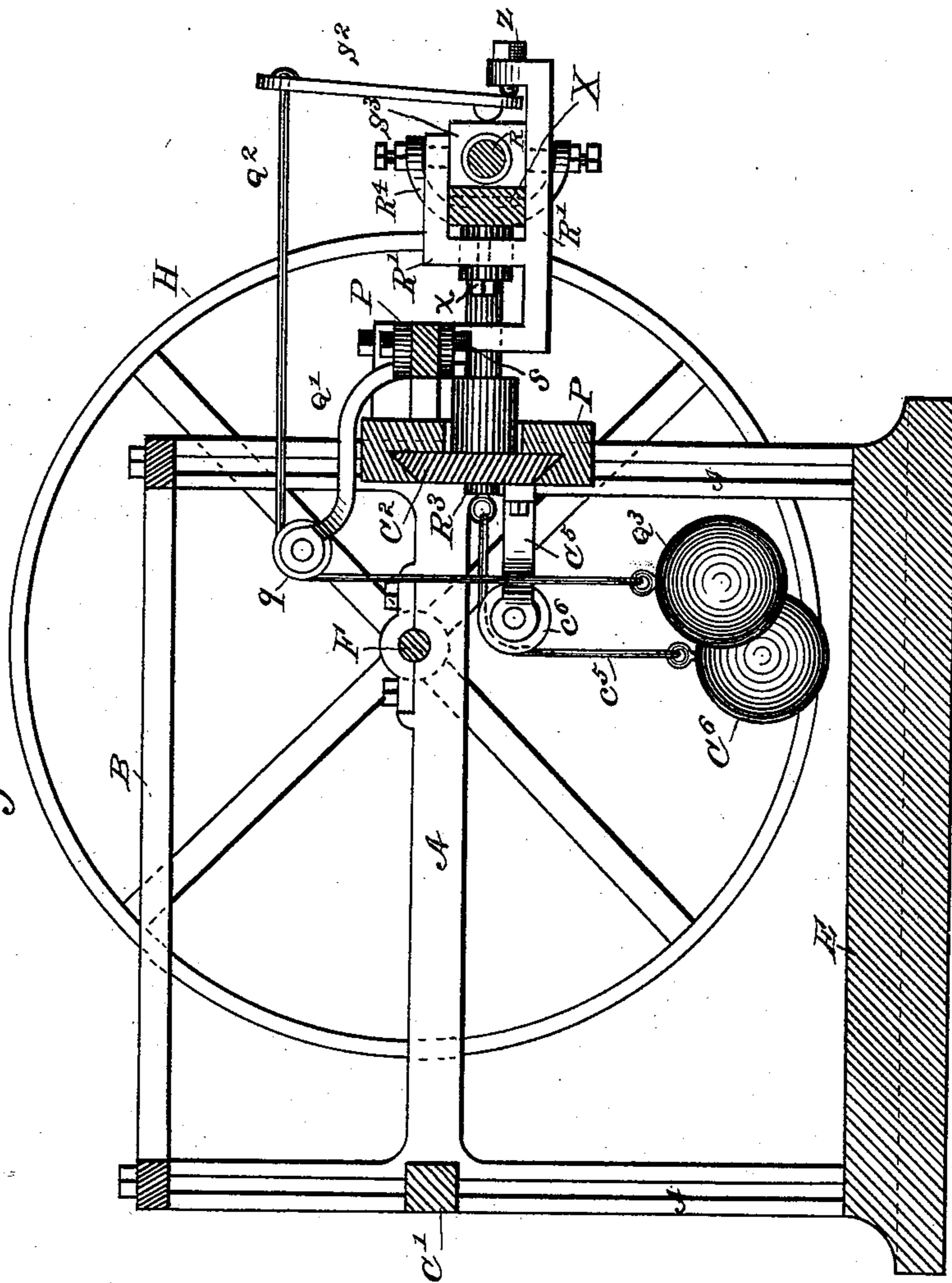
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Fig. 3.



Witnesses

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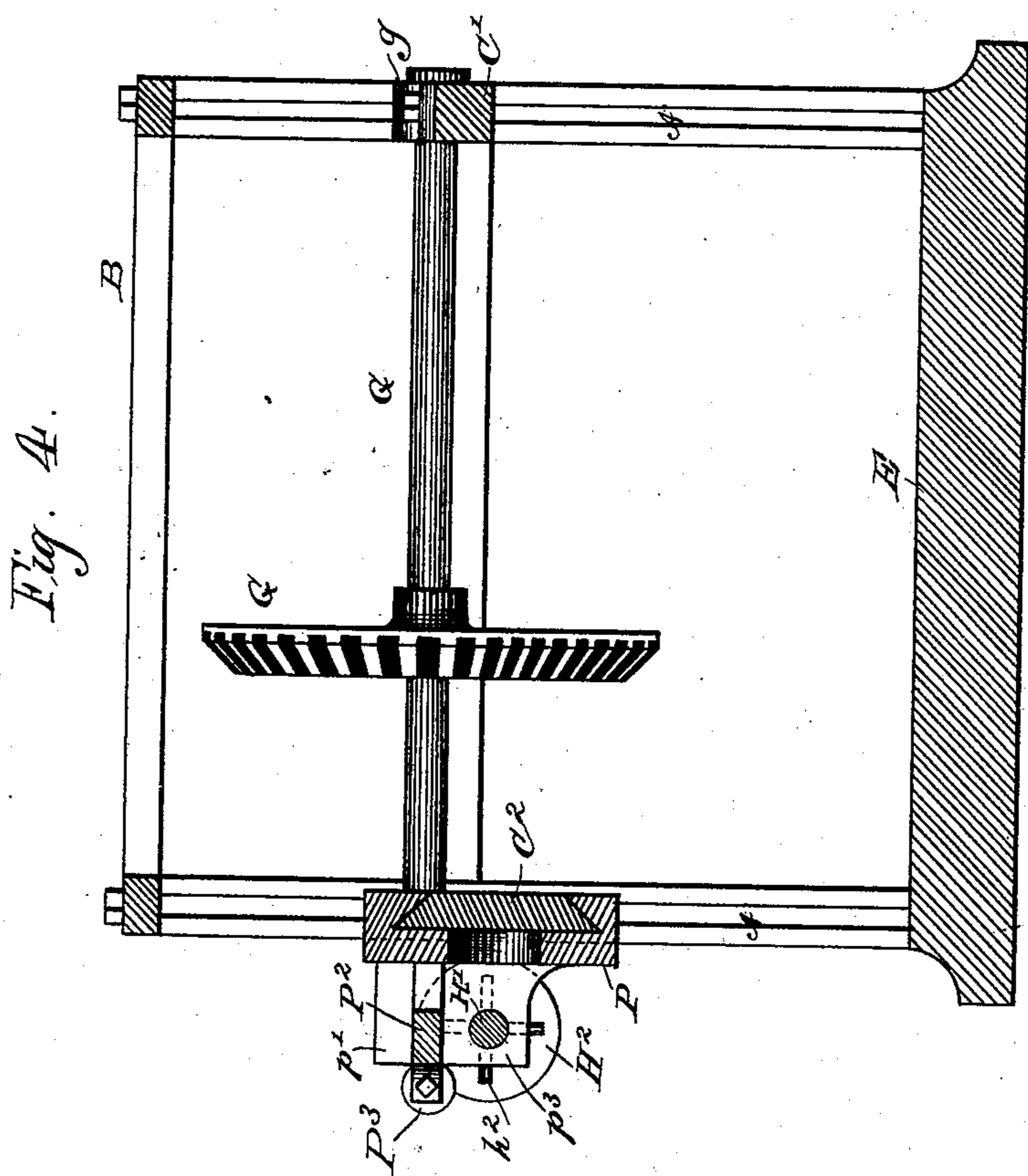
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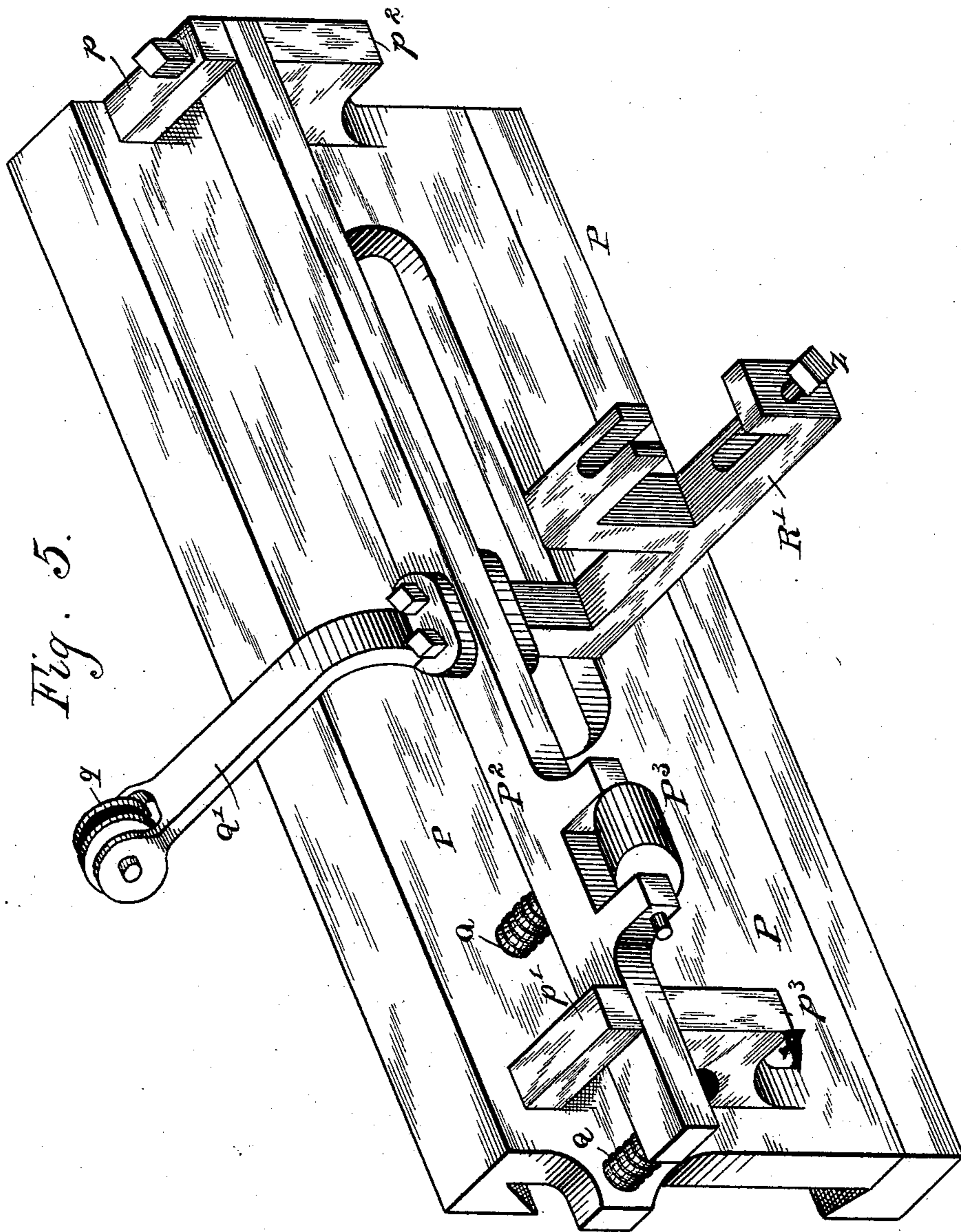
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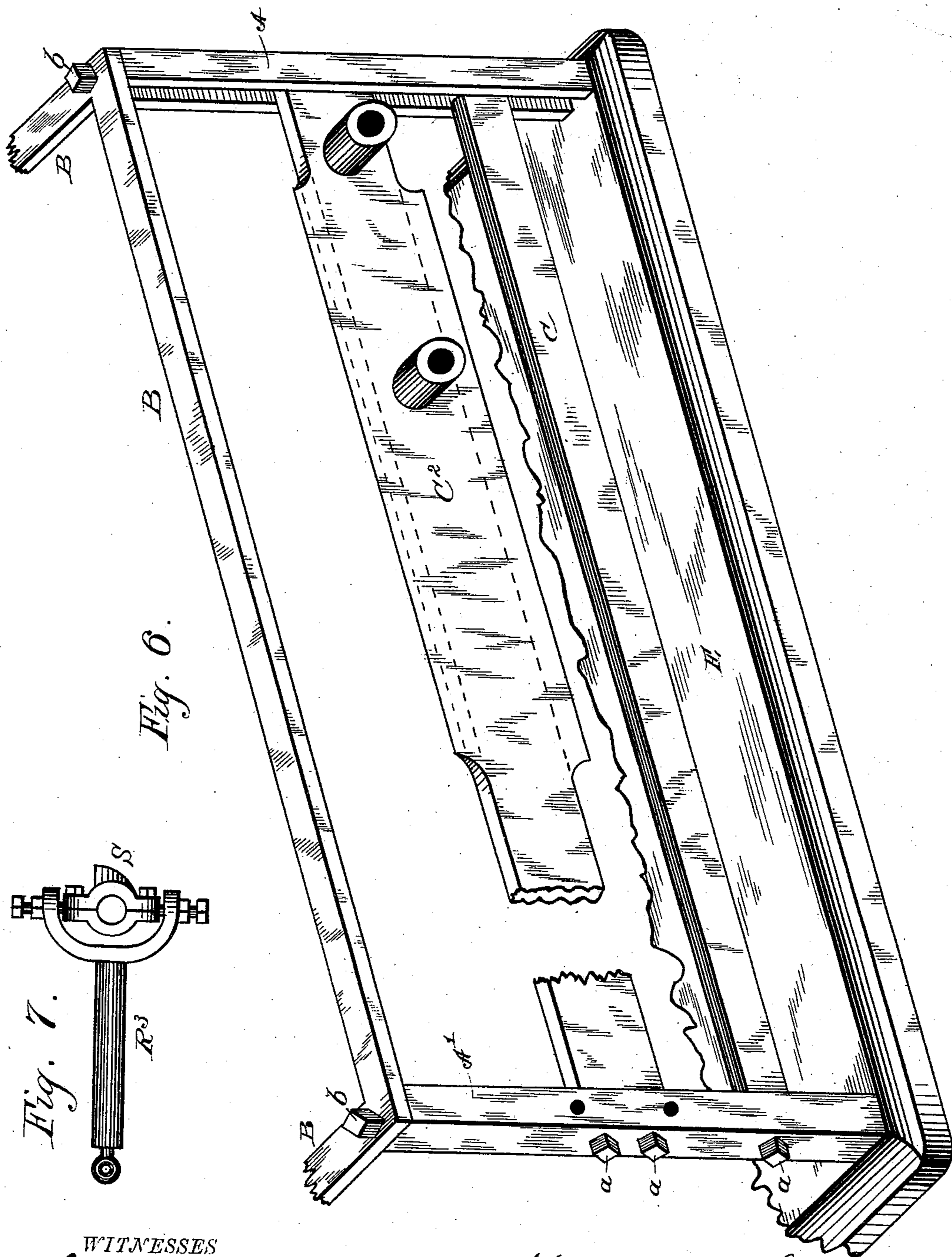
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# UNITED STATES PATENT OFFICE.

HUBERT A. SQUIRE, OF LUDINGTON, MICHIGAN.

## MACHINE FOR GRINDING SHINGLE-SAWS.

SPECIFICATION forming part of Letters Patent No. 341,071, dated May 4, 1886.

Application filed January 5, 1886. Serial No. 187,724. (No model.)

*To all whom it may concern:*

Be it known that I, HUBERT A. SQUIRE, a citizen of the United States of America, residing at Ludington, in the State of Michigan, have invented certain new and useful Improvements in Machines for Grinding Shingle-Saws, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of this improvement is to provide a machine that is adapted to grinding shingle-saws without removing them from their collars. These results are attainable by the mechanism illustrated in the drawings, herewith filed as part hereof, in which the same letters of reference denote the same parts in the different views.

Figure 1 is a side elevation, partly in section, representing a shingle-saw-grinding machine embodying the features of my improvement. Fig. 2 is a top view of the same, with parts broken away for the purpose of more fully showing the construction and relation of other parts. Fig. 3 is a transverse section taken on the line  $xx$  of Fig. 1, and seen from the direction of the arrow 1, Fig. 2. Fig. 4 is a transverse section taken on the same line, but seen from the direction of the arrow 2, Fig. 2, and with some of the parts removed that are fully shown in other figures. Fig. 5 is an enlarged perspective representation of one of the parts detached. Fig. 6 is a perspective representation of the supporting-frame with parts broken away and removed. Fig. 7 is a detail side elevation.

A, A', B, C, C', C<sup>2</sup>, and D are distinct parts of a metal supporting-frame made in any appropriate form, and suitably secured to each other by bolts, substantially as shown at  $a b c$ .

E is a base for the supporting-frame.

F is a longitudinal shaft, having ordinary bearings in the frame-pieces A D, to which it is secured in the usual manner by the journal-caps  $a'$  and  $d$ .

G is a transverse shaft, having ordinary bearings in the longitudinal frame-pieces C' C<sup>2</sup>, to which it is secured by journal-caps  $g g'$ , as shown in Fig. 2.

F' and G' are bevel-gears fixed to the shafts FG in the usual manner, and arranged to mesh with each other, for a purpose hereinafter set forth.

H is a friction-wheel suitably secured to the shaft F. Adjacent to the bearing  $g'$  of the shaft G is an arm, K, having an integral hub, as shown, by means of which it is keyed to the shaft G, for a purpose hereinafter set forth.

L is a perforated hubbed disk or circularly-flanged collar keyed to the shaft G, or otherwise affixed thereto, adjacent to the arm K.

K' is a shingle-saw, the body of which is inclined from the saw-collar  $k$ , as shown. The saw K' is set on the shaft G, and secured in its position by flanged collars L L' and nut  $g^2$ .

P is a sliding frame or carriage provided with integral rectangular projections  $p p' p^2 p^3$  on its front side, as more fully shown in Fig. 2, and at its rear side formed to fit the beveled edges of the frame-piece C<sup>2</sup>, as shown in Figs. 3 and 4, and slide upon the same, as hereinafter set forth. The body of the sliding carriage is provided with a longitudinal recess for clearing the sliding shaft-supporting bracket located centrally therewith, as shown in Figs. 3 and 4.

H' is a screw-threaded shaft supported at its outer end by a pillow-block or hanger,  $h$ , bolted to the frame-piece A', and connected at its screw-threaded end with the correspondingly-perforated and threaded projection  $p^3$  of the carriage P. The shaft H' is provided, as shown at  $h^2$ , with four radial arms, the object of which will be explained when the operation of the machine is set forth.

P<sup>2</sup> is a bar pivoted to the sliding-carriage projection  $p$ , as shown at  $p^5$ , and supported in the position shown by the rectangular projections  $p^2 p^3$  of the carriage P.

P<sup>3</sup> is a roller supported by an axial bolt or rod set through perforated projections of the bar P<sup>2</sup>, as shown in Fig. 2.

The bar P<sup>2</sup> is provided at its free end with one or more spiral springs, Q, which bear against the body of the carriage P and hold the roller P<sup>3</sup> against the saw, as shown, so that should the saw be buckled or crooked the spring or springs will force the roller out into the crooked parts thereof, for a purpose hereinafter explained.

R is an adjustable shaft supported by a fixed bracket, R', and brackets R<sup>3</sup> R<sup>4</sup>, arranged to slide in perforations  $c'$  and  $c^2$  of the frame-piece C<sup>2</sup>. The sliding brackets R<sup>3</sup> R<sup>4</sup> are provided with boxes S S', which are supported

by set-screws, as shown, and form bearings for the shaft R. By reason of this arrangement of the boxes the shaft R may be adjusted to an angular position, as shown in Fig. 2.

5 The bracket R' is bolted to the bar P<sup>2</sup> of the carriage P, as shown at s, Figs. 1 and 3.

D' is a bracket affixed to the frame-pieces C and B, and provided with a recessed and slotted enlargement, d', for the reception of a perforated block, D<sup>2</sup>, set on the shaft R, as an additional adjustable bearing for the same. The block D<sup>2</sup> is provided with perpendicular extensions, as shown in Fig. 1, which fit the slots in the bracket-enlargement d', and hold the block in its position, but allow it to take an angular position corresponding to that of the shaft R.

R<sup>5</sup> is a paper or other suitable friction-bearing set over a reduced portion of the shaft R, to which it is secured by nut r<sup>5</sup>.

R<sup>7</sup> is an emery-wheel affixed to the shaft R in the usual manner by collars r' r' and nut r'.

The bracket D' and bearing-block D<sup>2</sup> may be dispensed with, if deemed advisable.

25 Set in the fixed bracket R' as an additional adjustable bearing for the shaft R is a box, S<sup>3</sup>, made in half-sections, doweled to each other, and provided with perpendicular extensions, as indicated by the dotted lines in the bracket-frame in Fig. 3. These perpendicular extensions are set in slots in the upper and lower parts of the bracket, and hold the box S<sup>3</sup> in place, but allow it to take an angular position corresponding to that of the shaft R, the same as the block or bearing D<sup>2</sup> in the bracket D'. The shaft R is provided with a shoulder, as shown, on each side of the box S<sup>3</sup>, for a purpose hereinafter set forth.

40 S<sup>4</sup> is the driving-pulley, which is to be provided with a feather fitting a corresponding groove in the shaft R, in order that the shaft R may, while being turned by pulleys S<sup>4</sup>, move toward the saw K', for a purpose hereinafter explained. As nothing is claimed for this feature of the construction, it is not shown in the drawings.

50 Q' is a bracket, bifurcated, as shown in Fig. 3, and bolted to the carriage-piece P<sup>2</sup>, and provided with a roller, q, which forms a bearing for a rope or chain, Q<sup>2</sup>, which connects a weight, Q<sup>3</sup>, with a lever, S<sup>2</sup>, supported by the bracket R', and provided with a lug adjacent to the box S<sup>3</sup>, as shown.

55 C<sup>5</sup> is a bifurcated bracket bolted to the frame-piece C<sup>2</sup>, and provided with a roller, c<sup>6</sup>, which forms a bearing for a rope, c<sup>5</sup>, which connects a weight, C<sup>6</sup>, with end of the sliding bracket R<sup>3</sup>, as seen in Fig. 2.

60 The sliding bracket R<sup>4</sup> is provided with an adjustable collar, f, having an arm, f', which is connected by means of a bolt-pin, as shown in Fig. 2, with a bar, X, having an inclined front side agreeing with the inclination of the saw-plate K' toward its periphery. This inclined bar X is supported by the bracket R', through which it slides, as hereinafter explained.

70 The bracket R' is provided with a set-screw, x, for moving the inclined bar X outward, as shown in Fig. 3, for a purpose hereinafter set forth.

75 The machine is put in motion by a belt applied to the pulley S<sup>4</sup>. The weights C<sup>6</sup> and Q<sup>3</sup>, connected with sliding bracket R<sup>3</sup>, and through the lever S<sup>2</sup>, and with the sliding box S<sup>3</sup> in the fixed bracket R', will pull the shaft inward and cause the friction-bearing R<sup>5</sup> to engage with the friction-wheel H, and the emery-wheel R<sup>7</sup> to engage with the saw K'. The springs Q on the carriage-bar P<sup>2</sup> will cause the roller P<sup>3</sup> to constantly bear toward the saw and enter any crooked parts of the same, and by giving a corresponding outward movement to the shaft R and emery-wheel R<sup>7</sup> maintain a uniform thickness for the saw. The contact of the friction-bearing R<sup>5</sup> with the friction-wheel H will cause the latter to turn and give motion to the saw through the geared shafts F and G. As the saw turns with the shaft G the arm K will engage with the radial arms of the screw-threaded shaft H' and cause the same to turn in the part p<sup>3</sup> of the carriage, as more fully shown in Fig. 4, and draw the carriage P toward the saw K', and the box S<sup>3</sup> in the bracket R', affixed to the carriage P, will engage with the adjacent shoulders on the shaft R and cause the same to move with the carriage. As the carriage moves toward the saw the inclined bar X, fixed to the bracket R<sup>4</sup>, will slide through the fixed bracket R' and cause the emery-wheel R<sup>7</sup> to move outward and grind away the body of the saw at a corresponding inclination. The set-screw x in the rear of the bracket R' may be operated as occasion may require, for the purpose of giving the inclined bar X rearward adjustment, for the purpose of compensating for the wear of the emery-wheel, and it may be also adjusted for the purpose of setting the bar X farther out when a new emery-wheel having a greater periphery is applied to grinding the saw. The set-screw z in the front of the fixed bracket R' is used for setting the lever S<sup>2</sup> in as the emery-wheel on the shaft is worn away, in order that the lug on the lever may press against the box S<sup>3</sup> and hold the emery-wheel against the saw.

115 In a full-sized machine the friction-wheel H is thirty-six inches in diameter, and the friction-bearing R<sup>5</sup> is two and one-half inches in diameter, and as the feed-screw H' will make but one-quarter of a turn to each revolution of the saw K' the emery-wheel will approach the collar of the saw slowly and effectively grind the saw away at an inclination, as shown.

125 After the feed-screw H' has drawn the carriage the proper distance for giving the saw the inclination required, the feed may be operated in the reverse direction by the hand-wheel H<sup>2</sup>, and the carriage quickly returned to the position shown, and the operation described repeated as often as required.

130 Having explained the construction and operation of the machine, it is to be understood that the same may be modified in many particulars without departing from the scope of the invention.

eration of my improvement, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the sliding carriage, the feed-screw provided with arms, substantially as shown, and the saw-supporting shaft provided with an arm for engaging the arms of the feed-screw and operating the sliding carriage, and the emery-wheel-supporting shaft, as specified.

2. In combination with the adjustable bar of the sliding carriage, the shaft-supporting bracket fixed thereto, and provided with oscillating box or bearing for the shaft, and tension-lever and weight for operating the shaft toward the saw, substantially as specified.

3. The sliding brackets provided with adjustable boxes, in combination with the driving-shaft and sliding-carriage support, as and for the purpose set forth.

4. The weight, in combination with the sliding bracket and driving-shaft, as and for the purpose set forth.

5. In combination with the adjustable bracket supported by and arranged to slide transversely in the sliding carriage-supporting frame-piece, and the bracket fixed to the ad-

justable bar of the sliding carriage, the inclined bar fixed to the transversely-sliding bracket, and arranged to slide in the bracket fixed to the carriage as the latter is operated by the feed-screw, substantially as specified, for the purpose set forth.

6. The combination of the driving-shaft, the geared shaft provided with the friction-wheel, and the geared shaft provided with the arm for operating the feed-screw, as and for the purpose set forth.

7. The combination of the inclined bar, the adjustable collar affixed thereto, and the adjacent sliding shaft-supporting bracket, as and for the purpose set forth.

8. The bar pivoted to the sliding carriage and provided with a spring or springs, and a roller for engaging with the saw and operating the shaft provided with emery-wheel, as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HUBERT A. SQUIRE.

Witnesses:

A. H. HOAG,  
J. M. COATS.