

(No Model.)

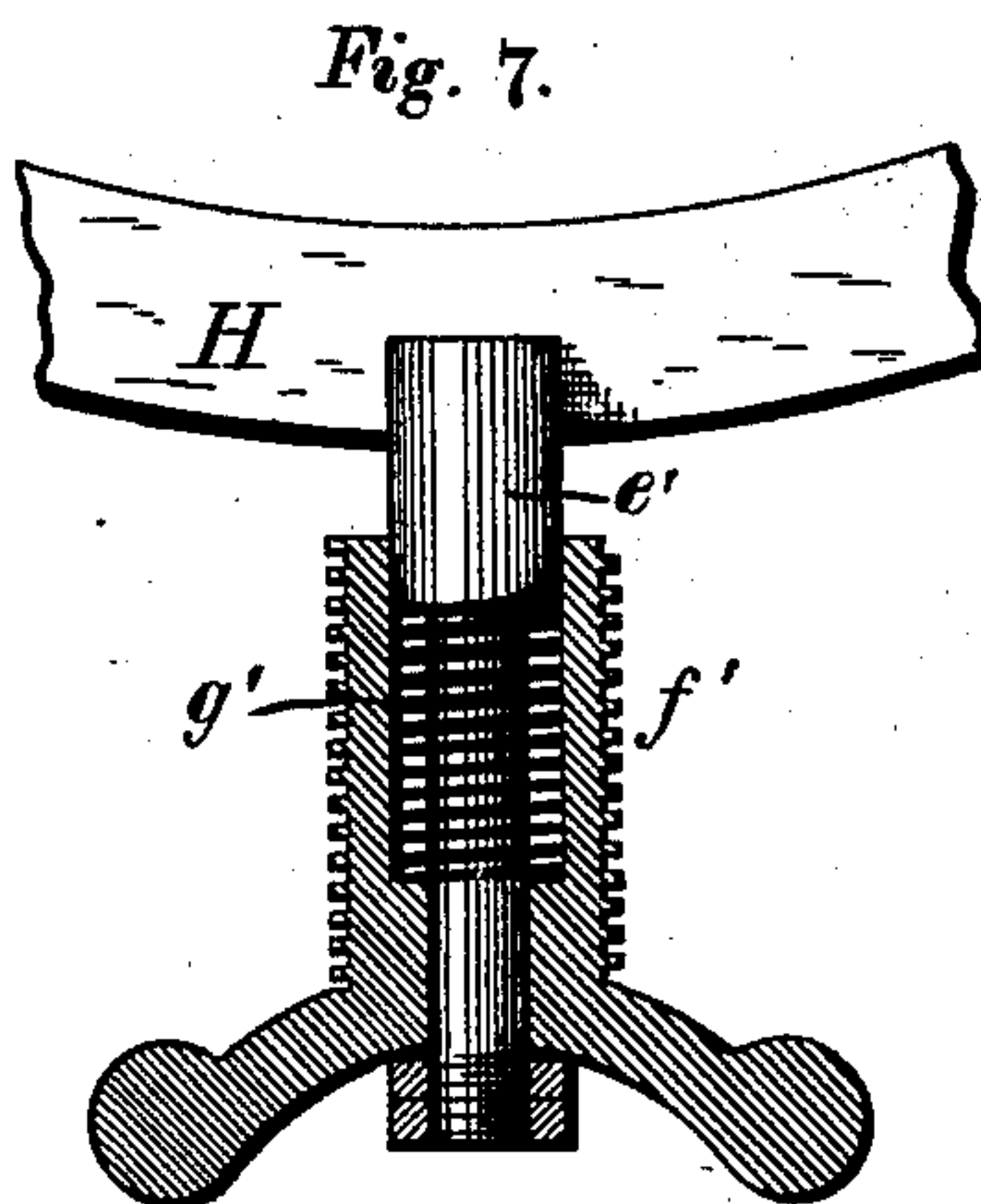
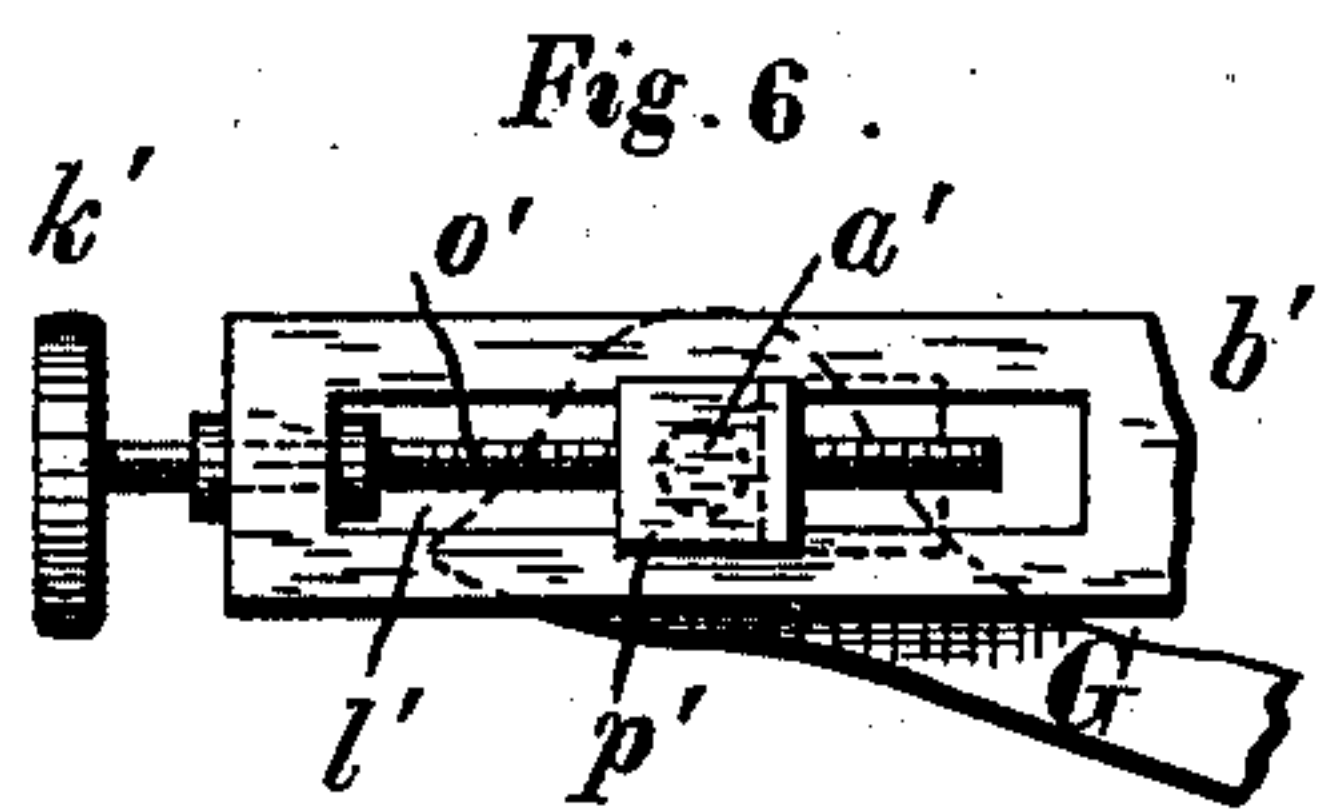
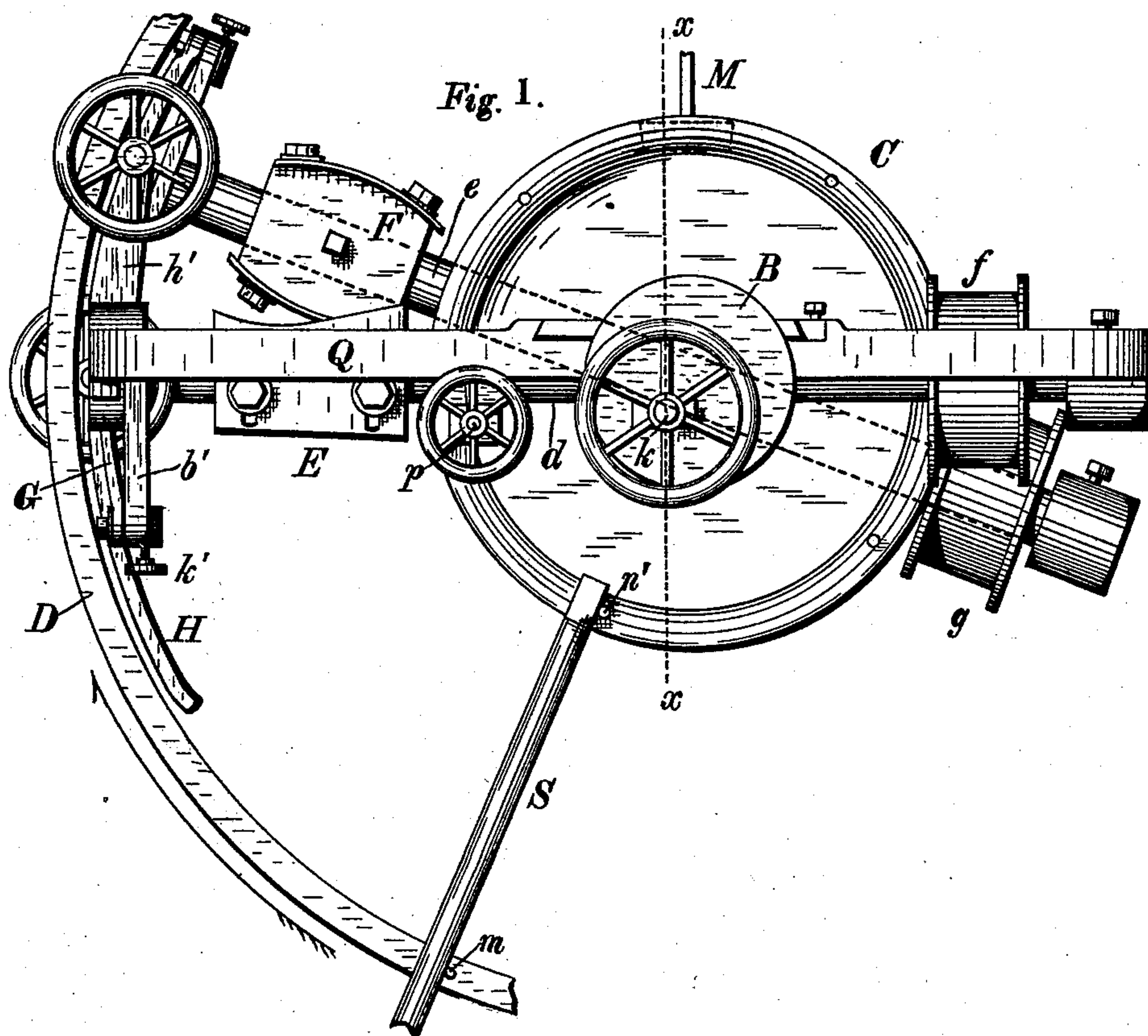
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O. ALLEN.

SPOKE THROATING MACHINE.

No. 368,868.

Patented Aug. 23, 1887.



Witnesses

H. G. Phillips.  
A. S. Gorge Jr.

Inventor

Oscar Allen

By his Attorney

Geo. B. Selden.

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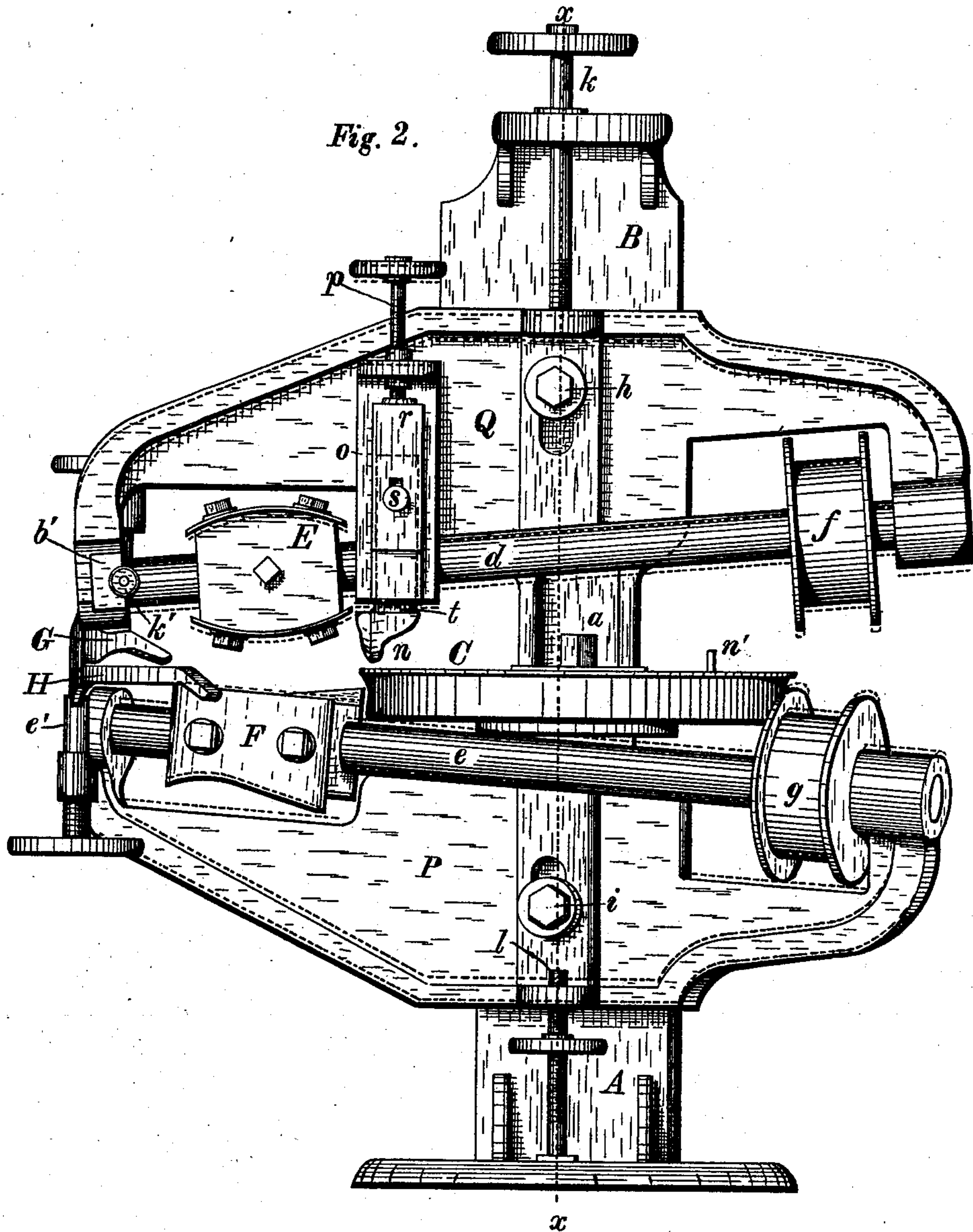
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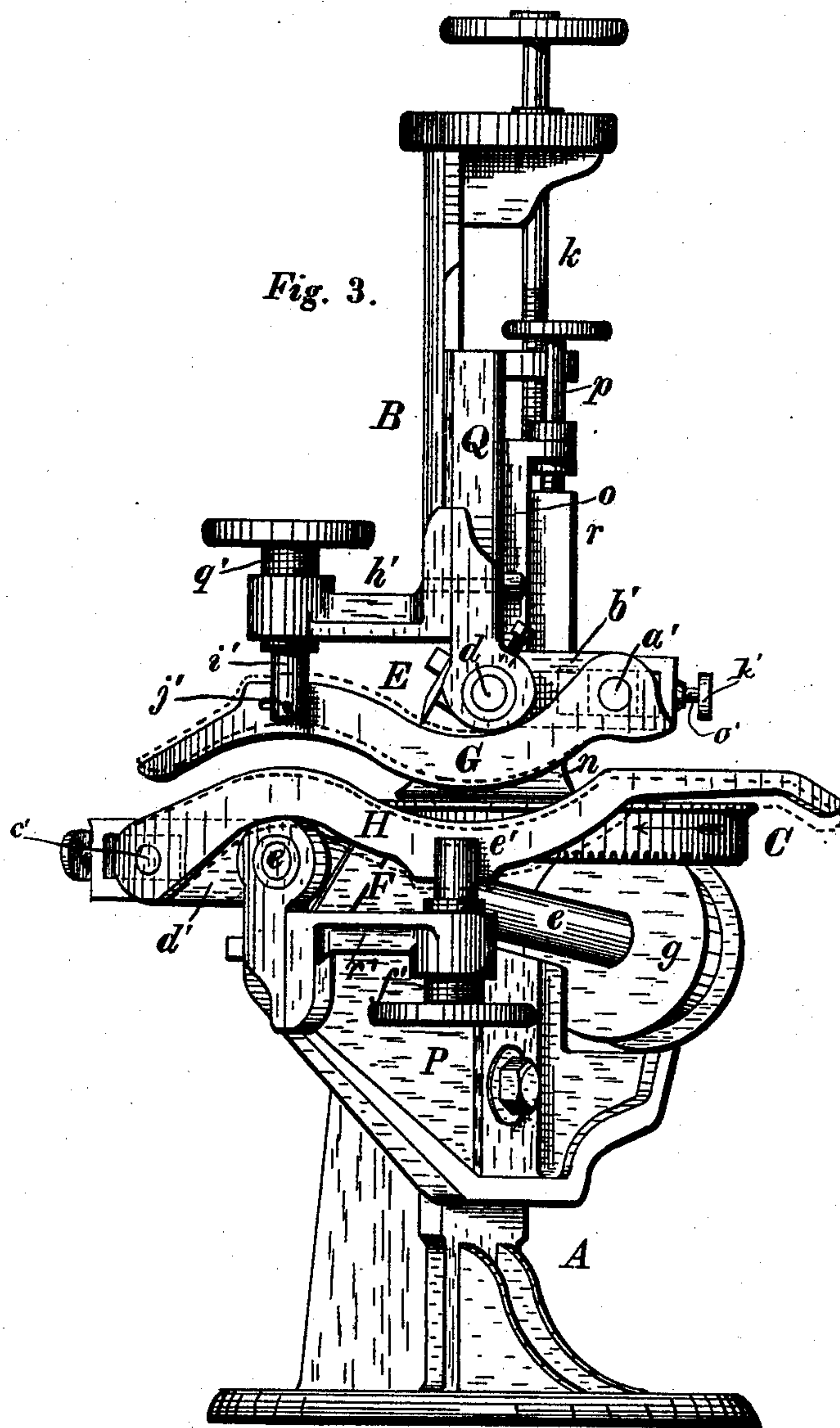
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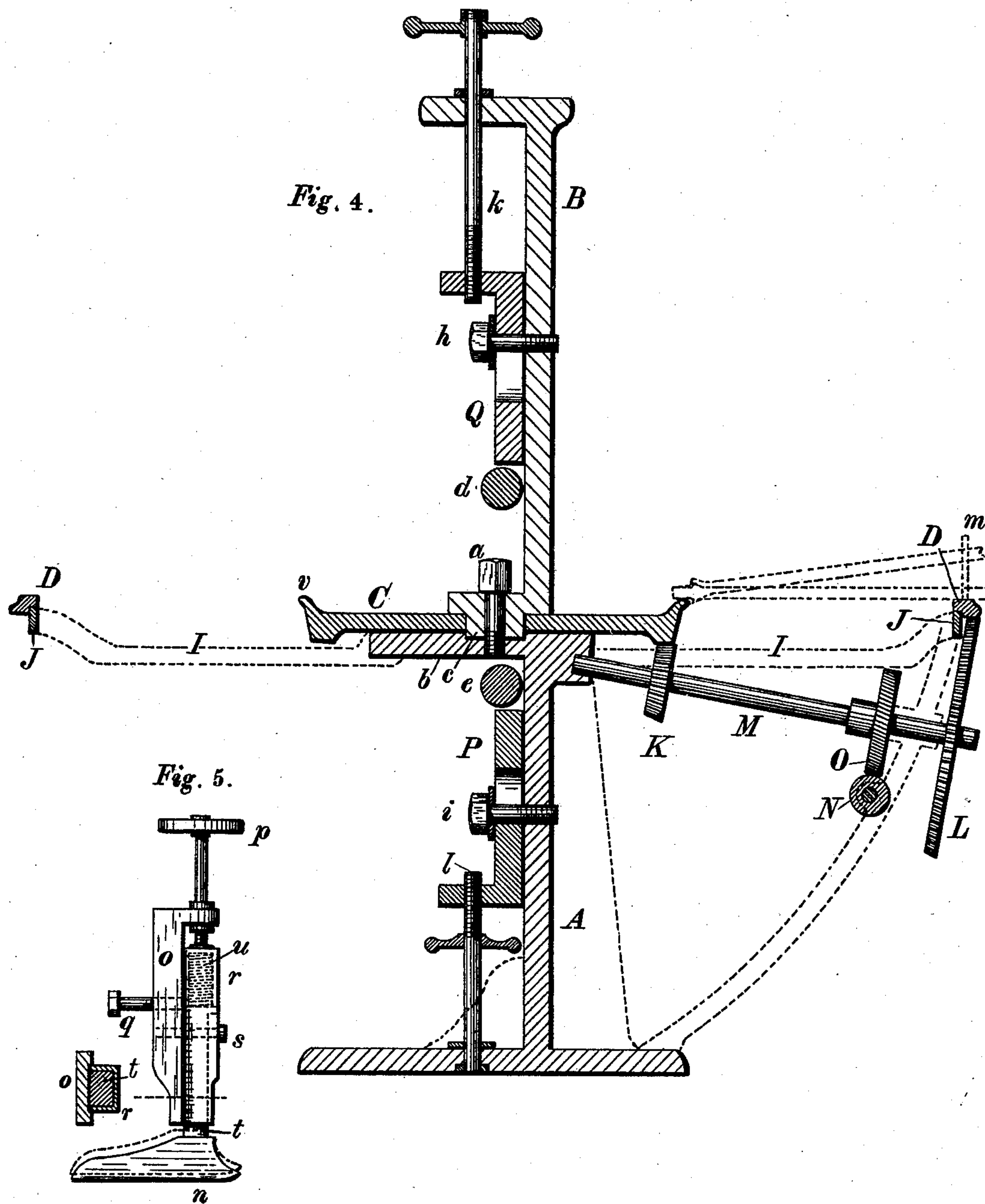
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# UNITED STATES PATENT OFFICE.

OSCAR ALLEN, OF MOUNT MORRIS, NEW YORK.

## SPOKE-THROATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 368,868, dated August 23, 1887.

Application filed August 12, 1886. Serial No. 210,632. (No model.)

*To all whom it may concern:*

Be it known that I, OSCAR ALLEN, of Mount Morris, Livingston county, New York, have invented an Improved Spoke-Throating Machine, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improved spoke-throating machine, which is fully described and illustrated in the following specification and accompanying drawings, and the novel features thereof specified in the claims annexed to the said specification.

My improved spoke-throating machine is represented in the accompanying drawings, in which—

Figure 1 is a plan view. Fig. 2 is a side elevation. Fig. 3 is a side elevation taken at right angles to Fig. 2. Fig. 4 is a vertical section on the line *x x*, Figs. 1 and 2. Fig. 5 represents the yielding pressure-bar, as seen from the outside. Fig. 6 represents the device for adjusting the curved spoke-guides lengthwise. Fig. 7 represents the spring and adjusting-screw at the ends of the curved spoke-guides.

My improved spoke throating machine consists, essentially, of an upright standard, A B, supporting the adjustable cutter-heads E and F, the revolving rings C and D, which carry the spokes between the cutter-heads, and the guides G and H, by which the spokes are guided while passing between the cutter-heads, so that the throat is given the proper form. While passing through between the cutters, the outer end of the spoke is given a vertical oscillation, as indicated by the dotted lines in Fig. 4, so that the cutters are caused to act first on one side of the spoke and then on the other, so as to remove the wood on the proper lines to form the throated spoke.

The standard consists of the two parts A and B, the lower section, A, being provided with a suitable foot, and the upper section being attached thereto by the bolt *a*, Figs. 2 and 4, passing through a suitable flange. The division of the standard permits the inner ring, C, to be formed in one piece. The upper end of the lower standard is provided with a flange, *b*, on which the ring C revolves, and to which, also, the arms I I of the spider J are attached. The spider supports the outer ring, D, which

is caused to revolve simultaneously with the inner ring by means of the bevel-gears K and L, Fig. 4, on the shaft M, which gears mesh with suitable teeth on the rings. The shaft M may be driven in any convenient manner—as, for instance, by the worm N and worm-gear O, Fig. 4. The upper standard, B, is provided with a circular lug or projection, *c*, Fig. 4, which fits a recess in the lower standard to keep the two in the proper relative positions.

The cutters are supported on the shafts *d* and *e*, arranged to revolve in suitable boxes in the adjustable brackets P and Q, attached to the standard by gibs or bolts, so that they may be moved up or down to adapt the machine to different sizes of spokes. As indicated in the drawings, the shafts *d* and *e* are placed at an angle with each other in the horizontal direction, so that the spoke may pass around the upper cutter before being subjected to the action of the lower cutter. The shafts are also preferably located at an angle with each other in the vertical direction, as indicated in Fig. 2.

Provision is made for driving the cutter-head shafts by means of belts passing around the pulleys *f* and *g* and around pulleys on a suitably arranged counter shaft or shafts. The shaft of the worm-gear is driven from the counter-shaft in any convenient manner. The brackets P and Q are provided at their ends with suitable boxes or bushes, in which the cutter-head shafts revolve.

The brackets P and Q are attached to the standards by the bolts *h* and *i*, passing through slots, so that the brackets may be adjusted up and down, as indicated by the full and dotted lines in Fig. 2. The adjusting-screws *k* and *l* may also be employed to secure the proper relative positions of the cutters. The knives on the cutter-heads are made of a curved form adapted to give the proper shape to the throats of the spokes.

The outer and inner rings are provided with the pins *m* and *n'*, against which the spokes rest while passing through between the cutters. The pins on the outer ring, D, should be of sufficient length to sustain the spokes during the oscillating movement of their outer ends imparted to them by the guides G and H. The inner ends of the spokes are held down on the inner ring, C, while passing through between the cutters, by an elastic or yielding



pressure-bar, *n*, attached to the upper bracket, Q. The construction of the pressure-bar and the slide which supports it will be understood from an examination of Fig. 5, which represents the same as seen from the outside. *o* is an arm attached to the bracket by the screw *q*, and *t* a slide projecting upward from the pressure-bar and arranged to move up and down in a recess in the guide *r*, which is secured to the arm *o* by the screw *s*. A spring, *u*, in the recess in the guide at the upper end of the slide *t* forces the pressure-bar down against the tenon of the spoke resting on the inner ring. The slide *t* is made square in section, and the screw *s* passes through a slot in it. The guide *r* is also slotted where the screw *s* passes through it, so that both the pressure-bar and the guide may be adjusted up and down by the adjusting-screw *p* without varying the force of the spring *u*. As will be perceived from Fig. 4, the inner ring, C, is provided with an upwardly-projecting rim or flange, *v*, which permits the oscillating movement of the spoke in the vertical direction. The lower edge of the pressure-bar *n* is curved to correspond with the rim *v*.

The shape of the guides G and H will be understood from an examination of Fig. 3. The upper guide, G, is pivoted at *a'* to an arm, *b'*, extending outward from the bracket Q. The other end is provided with a spring arranged in any suitable manner, so that it may yield upward to accommodate spokes of different dimensions, as indicated by the dotted lines. The lower guide, H, is pivoted at *c'* to an arm, *d'*, attached to the lower bracket, P.

It will be observed that the guides are pivoted at their opposite ends, so that the free or movable end of one is opposite the pivoted end of the other, which construction permits spokes of differing thickness to pass through between the guides. The lower guide rests in a slot in the plunger *e'*, which passes downward through the screw *f'*, a spring, *g'*, being inserted in the screw for the purpose of allowing the yielding movement of the guide. The screw *f'* enters a threaded opening in the arm *r'*, and by turning it up or down therein the guide H may be adjusted in vertical position. By inserting the spring in the screw I am enabled to adjust the position of the guide without altering the strength of the spring. At its lower end the plunger *e'* may be provided with a pair of jam-nuts or other suitable device. The upper guide, G, is attached to the arm *h'*, Fig. 3, in a manner similar to that described with reference to the lower guide, by the screw *q'* and the plunger *i'*, in the lower end of which a pin, *j'*, is inserted through a slot in the guide, to prevent its falling from its own weight.

I claim—

1. In a spoke-throating machine, the combination, with the rotating cutter-heads mounted rigidly on the main frame, of a suitable rotating spoke-support and suitable stationary curved spoke-guides arranged with

their guiding-surfaces substantially parallel with a portion of the operating-surface of the cutters, substantially as described.

2. The combination, with the cutter-heads, of the curved co-operating guide-pieces pivoted at opposite ends with their free ends pressed toward each other by spring-pressure, said guides being so arranged as to guide the spoke below one cutter and above the other, substantially as described.

3. The combination, with the main frame, the angularly-arranged brackets secured rigidly thereto, in which the cutter-heads are located, the curved guides for supporting the spokes during the throating operation, arranged with their guiding-surfaces substantially parallel with the cutters, so as to cause the spoke to pass partially around the same during the cutting operation, substantially as described.

4. The combination, with the angularly-arranged brackets P and Q, supporting the cutter-heads E and F, of the curved guides G and H, pivoted at their opposite ends to suitable arms on the brackets, and provided with springs at their free ends, substantially as described.

5. The combination, with the angularly-arranged cutter-heads E and F, of the curved guides G and H, pivoted at their opposite ends, and provided at their free ends with springs and means for adjusting their relative positions, substantially as described.

6. The combination, with the angularly-arranged cutter-heads E and F, of the inner and outer revolving rings, C and D, yielding pressure-bar *n*, and curved guides G and H, pivoted at their opposite ends and arranged to yield at their free ends to permit the passage of the spokes between them, substantially as described.

7. The combination, with the main frame of the angularly-arranged brackets supporting the cutter-heads adjustably secured to the standard, of the guide-pieces pivoted at opposite ends, pressed toward each other at their free ends, and arranged to guide the spoke below one cutter-head and above the other, substantially as described.

8. The combination, with the cutter-heads E and F, arranged at an angle with each other, of the curved yielding pivoted guides G and H, and means for adjusting the pivotal points of the guides lengthwise, substantially as described.

9. The combination, with the cutter-heads E and F, arranged at an angle with each other, of the curved guides G and H, pivoted at their opposite ends and provided with springs at their free ends, and means for adjusting the pivotal points of the guides lengthwise and for adjusting the ends of the guides relatively to each other, substantially as described.

10. The combination, with the standard constructed in two parts adjustably secured together, the two angularly-arranged brackets



supporting the cutters, one secured in each part of the standard, of the yielding spoke-guides having their guiding-surfaces in planes parallel with the axes of the cutters, so arranged as to guide the spokes partially around the surfaces of the cutters during the cutting operation, substantially as described.

11. The combination, with the angularly-arranged cutter-heads E and F, of the guides G and H, pivoted at their opposite ends and provided at their free ends with springs  $g'$  and adjusting-screws  $f'$ , substantially as described.

12. In a spoke-throating machine, the combination, with the rotating cutters mounted rigidly in bearings on the main frame, of stationary guides for the spokes with their guiding-surfaces in planes parallel with axes of the cutters, so arranged as to guide the spokes partially around the cutters during the cutting operation of the spoke-feeding mechanism consisting of the outer and inner rings, the latter having the projecting flange  $v$ , substantially as described.

13. The combination, with the cutters, of guides for the spokes consisting of two sections pivoted at opposite ends, the free ends

of each being pressed toward the other by spring-pressure, substantially as described.

14. The combination, with the rotating cutters mounted rigidly in the frame, of the carriage for the spokes, the yielding guides for the ends of the spokes having their guiding-surfaces in planes parallel with the axes of the cutters, so arranged as to guide the spokes partially around the same during the cutting operation, and the spring-pressed presser-foot for holding the rear end of the spoke, substantially as described.

15. The combination, with the main frame, the rotating cutters mounted rigidly thereon, of the curved guides for the ends of the spokes being operated upon, with their guiding-surfaces in planes parallel with the axes of the cutters, so arranged as to guide the spokes below and partially around one cutter and above and partially around the other cutter, substantially as described.

OSCAR ALLEN.

Witnesses:

GEO. B. SELDEN,  
H. G. PHILLIPS.