

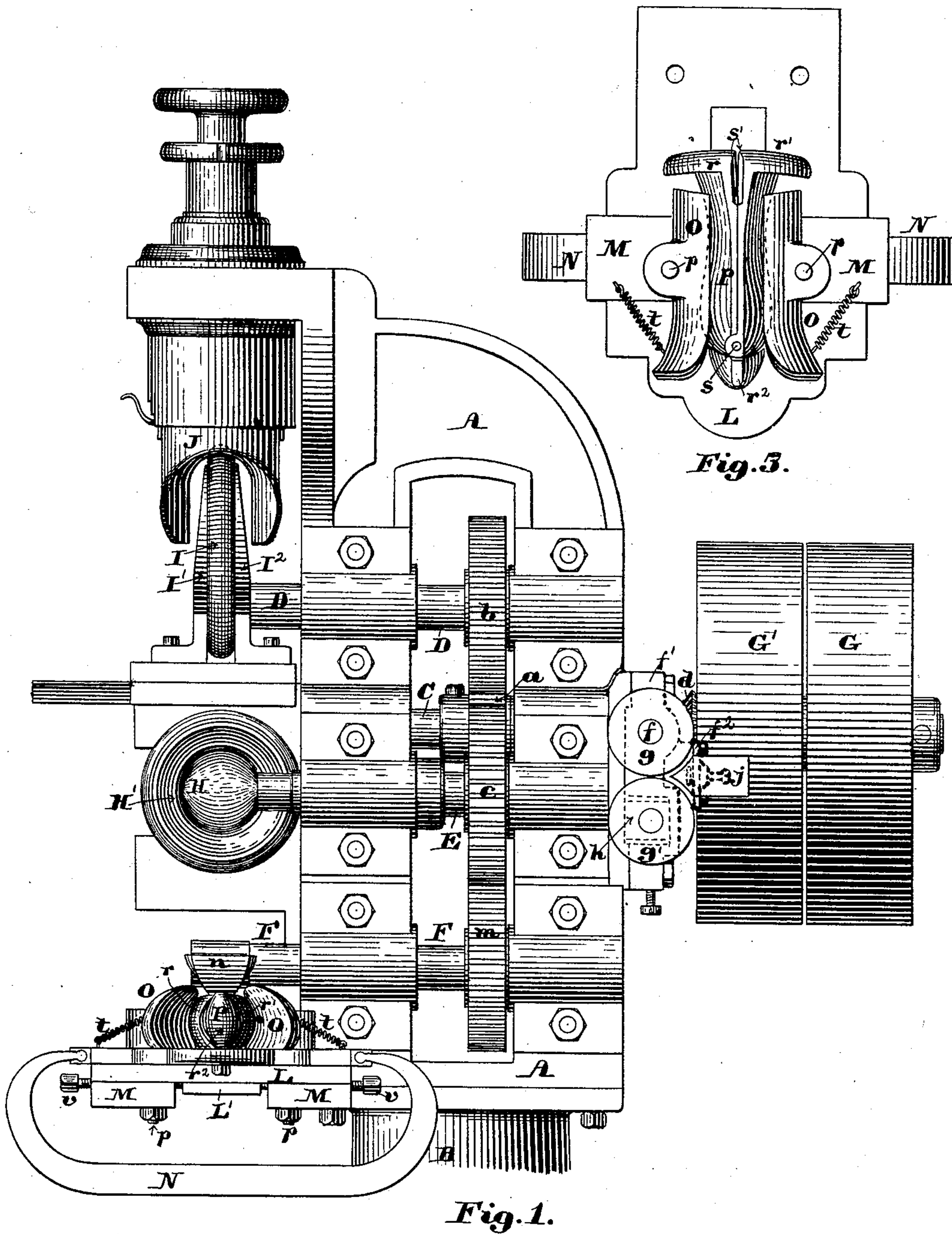
(No Model.)

4 Sheets—Sheet 1.

L. COTÉ.
HEEL STIFFENER MACHINE.

No. 435,481.

Patented Sept. 2, 1890.



Witnesses:
Walter E. Lombard.
C. A. McBlane

Inventor:
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Attorney.

(No Model.)

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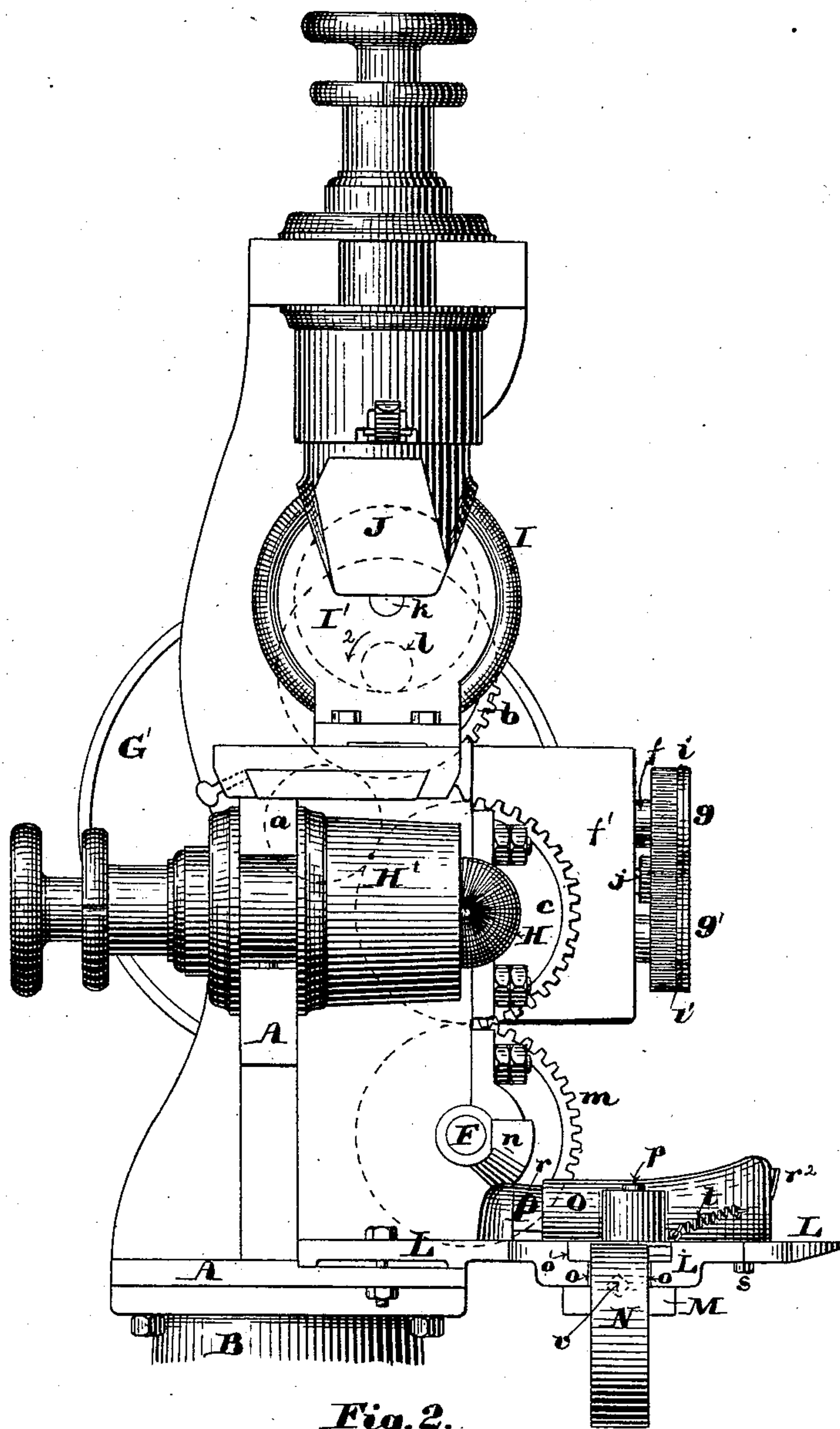


Fig. 2.

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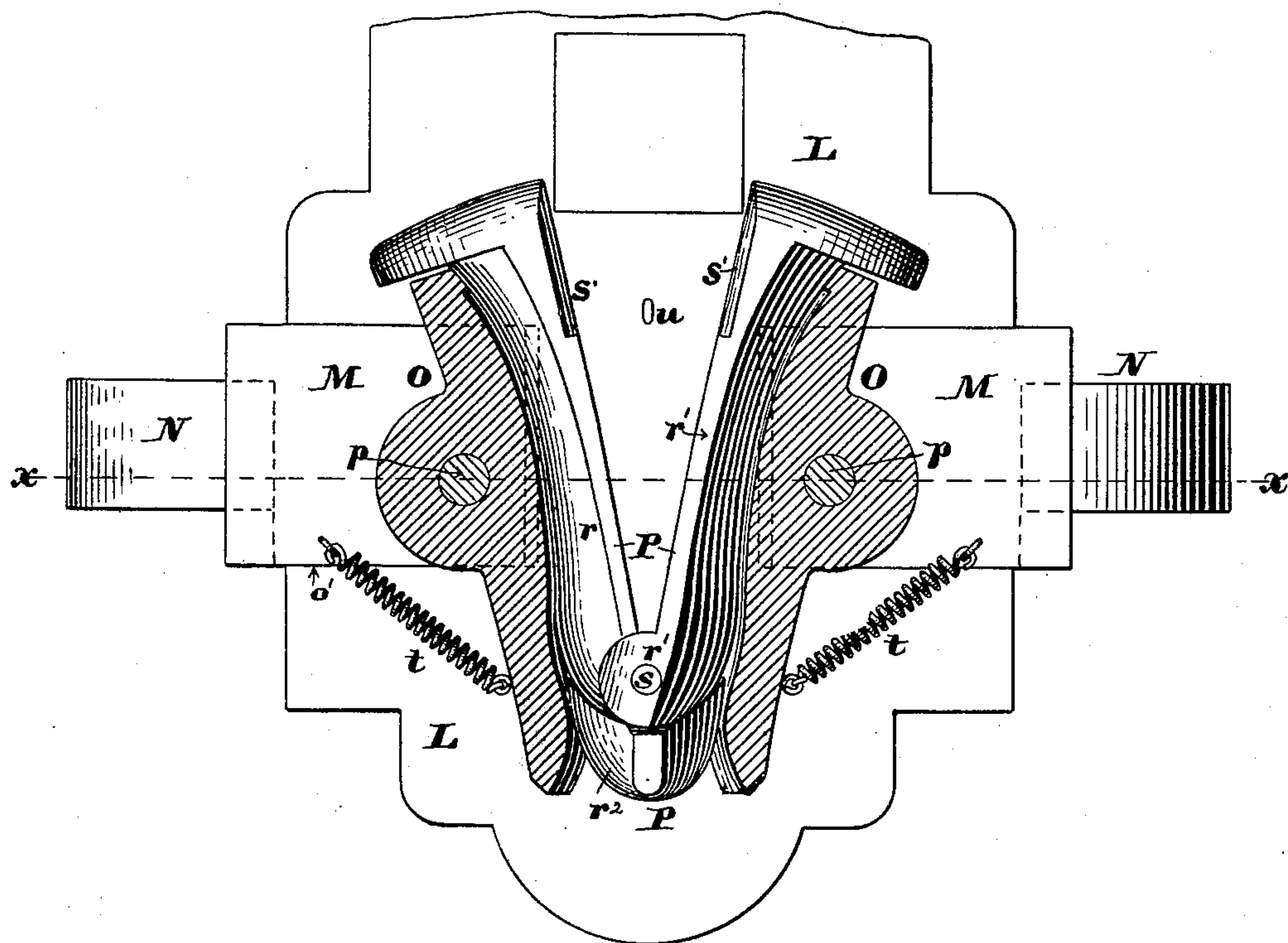


Fig. 5.

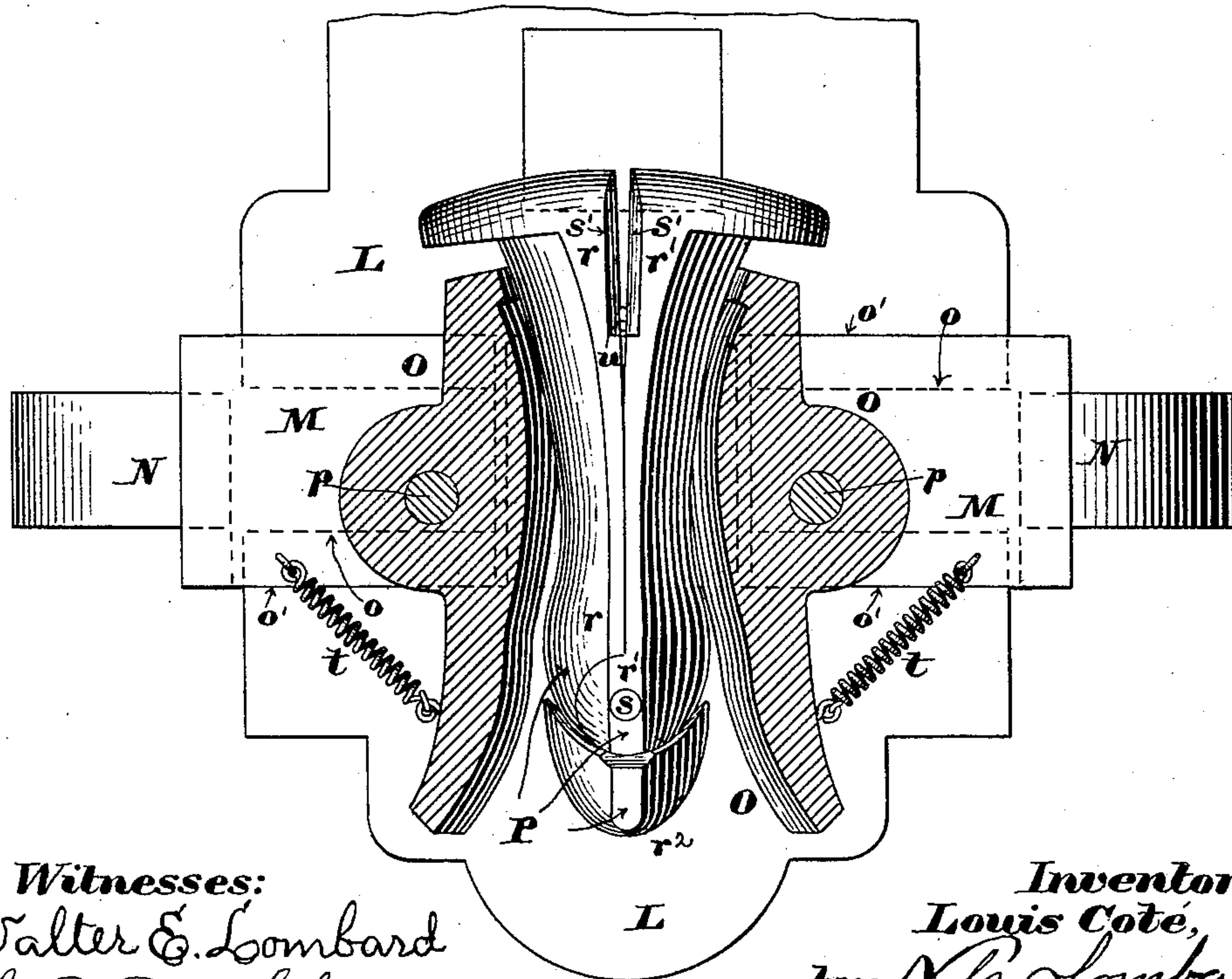


Fig. 4.

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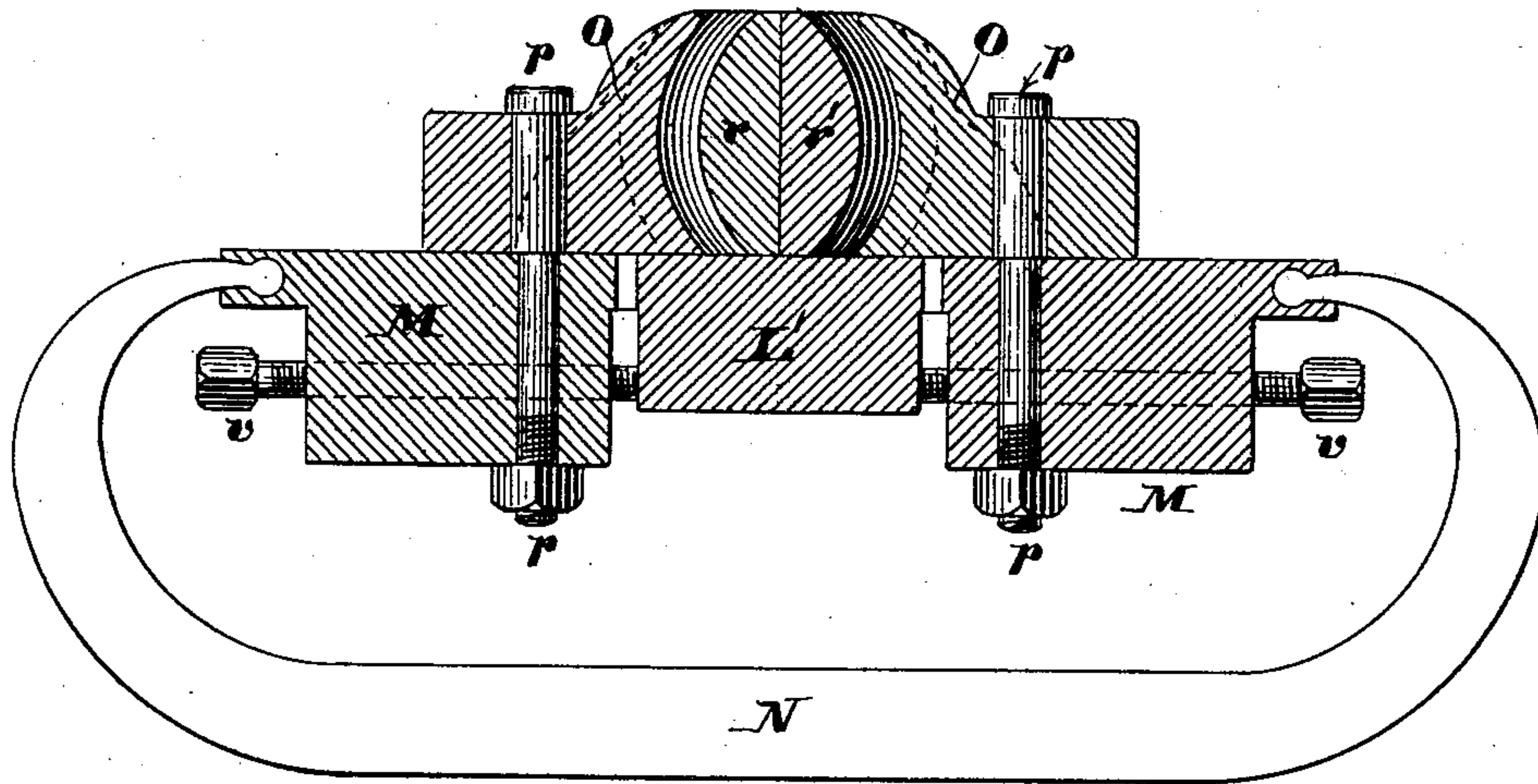


Fig. 6.

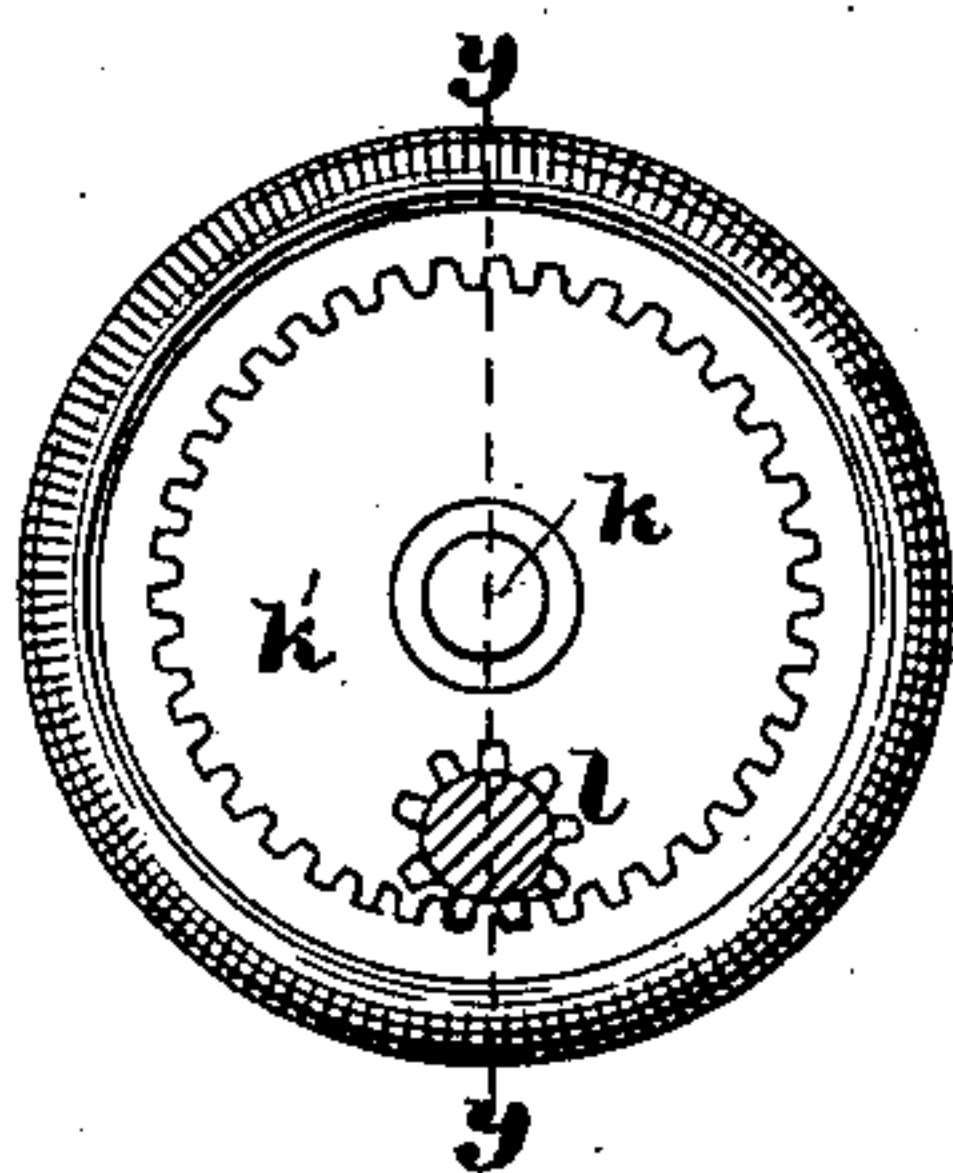


Fig. 7.

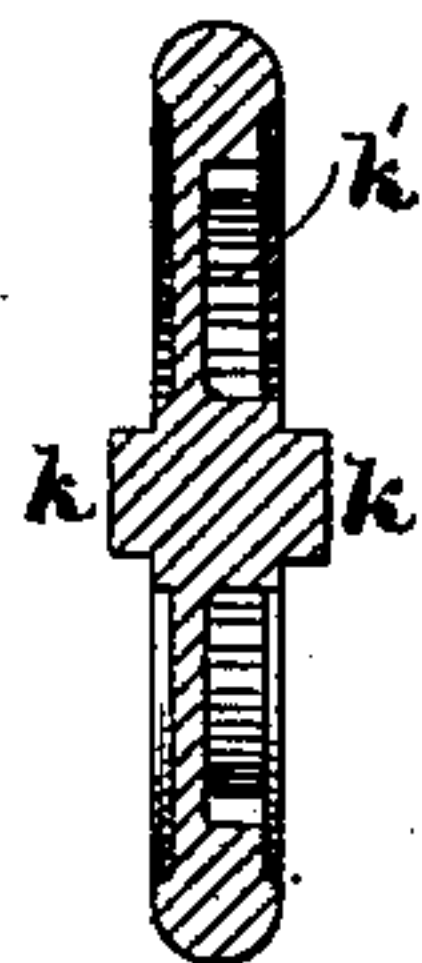


Fig. 8.

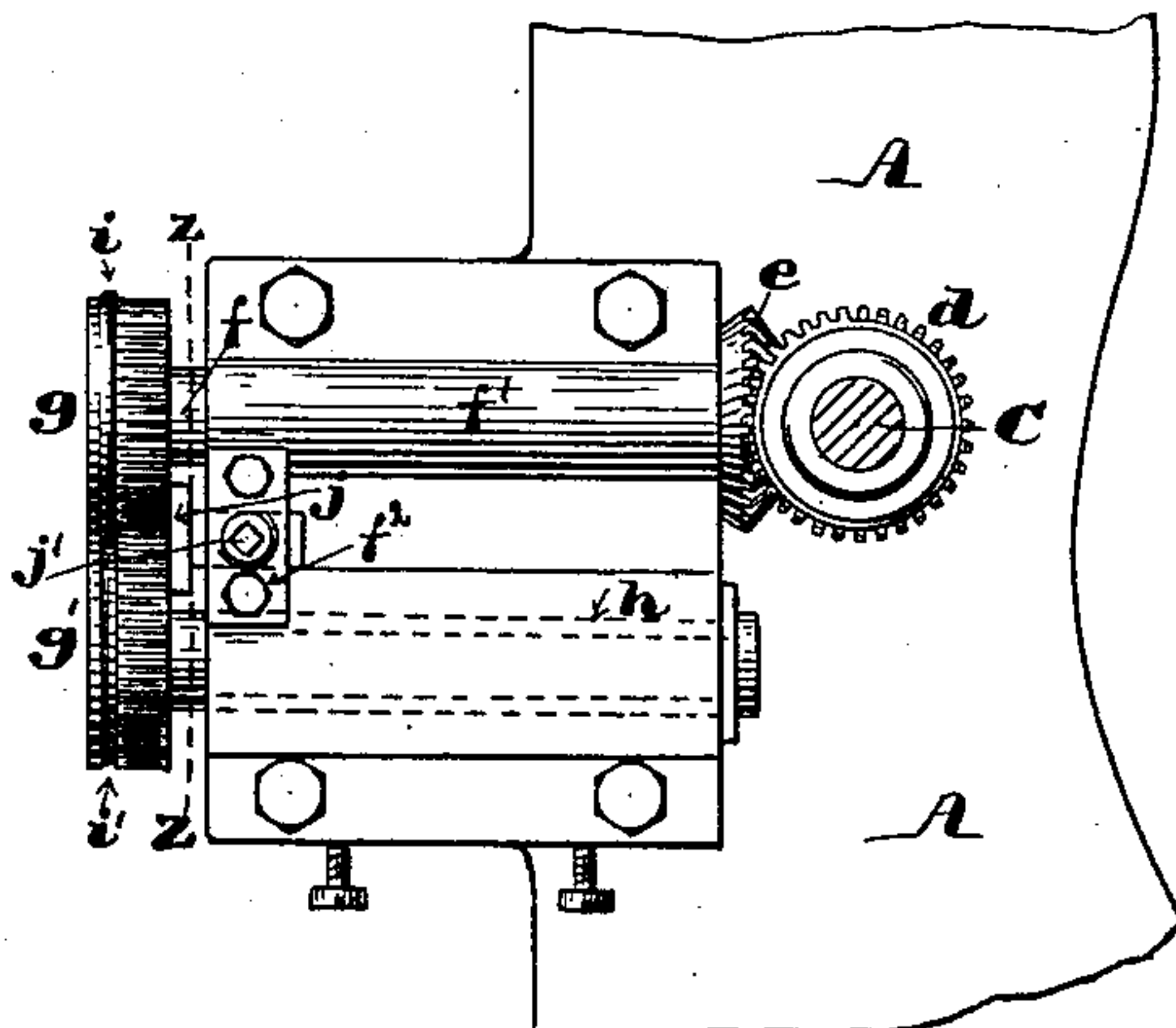


Fig. 9.

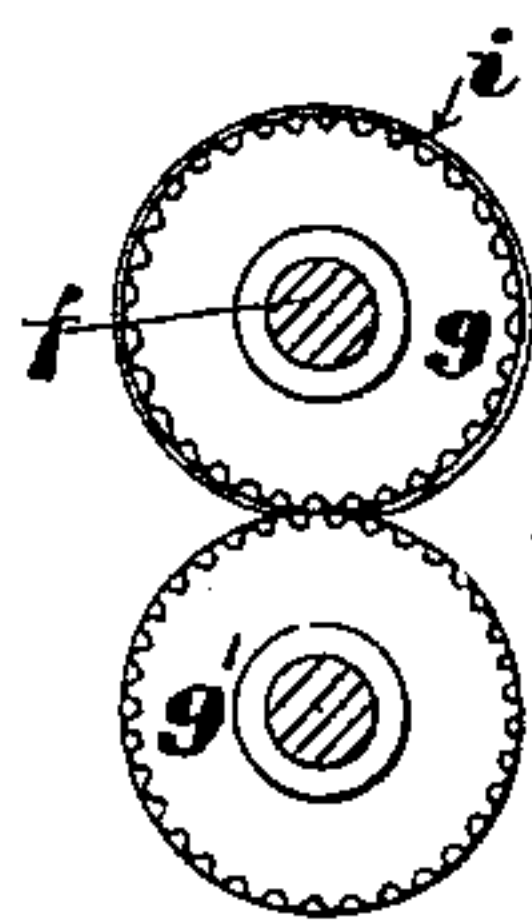


Fig. 10.

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UNITED STATES PATENT OFFICE.

LOUIS COTÉ, OF ST. HYACINTHE, CANADA.

HEEL-STIFFENER MACHINE.

SPECIFICATION forming part of Letters Patent No. 435,481, dated September 2, 1890.

Application filed May 10, 1890. Serial No. 351,261. (No model.)

To all whom it may concern:

Be it known that I, LOUIS COTÉ, of St. Hyacinthe, in the Province of Quebec and Dominion of Canada, have invented certain new and useful Improvements in Machines for Forming Boot or Shoe Counters, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to machines for forming boot or shoe counter stiffeners; and it consists in certain novel features of construction, arrangement, and combination of parts, which will be readily understood by reference to the description of the drawings, and to the claims hereinafter given, in which my invention is clearly pointed out.

Figure 1 of the drawings is a front elevation of a machine embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a plan of the former and the side molds for reshaping the forward end portions of the counter-stiffener. Fig. 4 is a sectional plan of the same parts as are shown in Fig. 3, but drawn to an enlarged scale. Fig. 5 is a similar section with the parts in the positions they assume when the segmental wedge has separated the free ends of the pivoted sections of the former. Fig. 6 is a vertical section on line $x x$ in Fig. 5. Fig. 7 is an elevation of the disk for reshaping the rear of the counter-stiffener and the gearing for revolving the same. Fig. 8 is a section of said disk on line $y y$ in Fig. 7. Fig. 9 is an elevation of the corrugating-rolls and their supports and the gear for operating them, looking in a direction opposite to Fig. 2; and Fig. 10 is a section on line $z z$ in Fig. 9, and showing the corrugating-rolls in elevation.

In the drawings, A is the frame of the head of the machine, which is mounted upon a column B or other suitable support, and has mounted in suitable bearings formed thereon the horizontal shafts C, D, E, and F, as shown in Figs. 1 and 2.

The shaft C has mounted upon its right-hand end the tight and loose pulleys G and G', respectively, and between its two bearings the pinion a , which engages with and imparts motion to the spur gear-wheels b and c , mounted, respectively upon and firmly secured to the shafts D and E, as shown. The shaft C also has firmly secured thereon near the pulley G'

the miter gear-wheel d , which engages and imparts motion to a corresponding miter gear-wheel e , firmly secured upon one end of the shaft f , which is mounted in a bearing f' , (see Figs. 1 and 9,) and has firmly secured upon its other end the corrugating-roll g , which co-operates with another corrugating-roll g' , mounted upon a shaft having a bearing in a vertically-adjustable box h , (shown in dotted lines in Figs. 1 and 9,) for the purpose of corrugating that portion of the counter-blank which is to form the flange or heel-seat when the counter-stiffener is built into the boot or shoe.

One of the corrugating-rolls has an annular bead or rounded projection i formed thereon, while the other roll has a corresponding annular depression i' formed thereon, said annular bead and depression operating to form upon the counter-blank a longitudinal corrugation at the desired distance from the edge of the blank, which serves to determine the line of fold for the flange or heel-seat.

That portion of each of the rolls g and g' between its circumferential bead or groove and rear end has formed thereon a series of rounded teeth arranged parallel to its axis of revolution, as shown in Fig. 10, which serve to crimp or corrugate that part of the blank that is to form the flange or heel-seat.

A gage j is mounted in a bearing j^2 in the stand or bearing f' so as to be adjustable therein, and is secured in the desired position by the set-screw j' , whereby the width of blank to be corrugated may be readily regulated.

The shaft E has formed upon or secured to its left-hand end a spherical or spheroidal former H, which revolves partly within and co-operates with the hemispherical mold H', to curve the counter-blank both longitudinally and transversely to arcs of circles, or to form what is known in the trade as a "clam-shell counter," said former and mold being constructed and operating substantially the same as shown and described in Letters Patent No. 279,717, granted to me June 19, 1883, and therefore need not be further described here.

I is a metal disk having a rounded edge and mounted in bearings in the two side stands I' I² so as to be revoluble therein.

J is an adjustable mold partially surround-

ing and inclosing the upper portion of the disk I, and provided with a flaring mouth to facilitate the introduction of the counter-stiffener between it and the disk I after the clam-shell shape has been given to the blank by passing it between the former H and the mold H'.

The office of the disk I and mold J is to reshape the rear or central portion of the counter-stiffener by passing the clam-shell transversely between them, the operation and the construction of the parts being the same as shown and described in the before-cited patent, except as relates to the manner of applying power to said disk.

In my prior patent the disk was mounted directly upon the end of its operating-shaft, which was all right for reshaping the short counters then in use; but since the grant of said patent counter-stiffeners of considerably greater length have come into use, which could not be reshaped upon the disk as constructed in my prior patent without making the disk of such an increased diameter as to make the curve of the rear of the counter-stiffener from top to bottom of two great a radius. To obviate this difficulty, I provide the disk with two short journals or trunnions k , which have bearings in the stands $I' I^2$, and form in the right-hand side of said disk an annular chamber k' , in the outer wall of which is formed an internal gear, with the teeth of which the teeth of the pinion l , mounted on the left-hand end of the shaft D, engage to impart to said disk a rotation in the direction indicated by the arrow 2 in Fig. 2. By this method of applying power to rotate the disk I the disk can be made of the proper diameter to give to the rear of the counter-stiffener the desired curvature from top to bottom, and the top of said disk will be sufficiently distant from the top of the shaft D to permit the long counter-stiffeners now in use to be reshaped without difficulty.

The gear-wheel c , mounted on the shaft E, engages with and imparts motion to the gear-wheel m , firmly secured on the shaft F between its bearings in the frame A, as shown in Figs. 1 and 2.

The shaft F has secured upon its left-hand end the segmental wedge-shaped arm n , the purpose of which will presently appear.

To the base of the frame A, or to the top of the column B, as may be preferred, is firmly bolted the table L, having formed in its upper surface two rectangular slots o , extending from opposite sides thereof toward the center, with a rabbet o' along each side to receive an H-shaped sliding block M, the upper surface of which is flush with the upper surface of the table L.

N is a heavy spring-bar bent into a shape somewhat resembling the letter C, and arranged to engage at each end with one of the slide-blocks M, so as to press them toward each other, as shown in Figs. 1, 2, 4, 5, and 6.

The slide-blocks M have each pivoted there-

to by a vertical pivot p a mold-jaw O, the inner face of which is curved convexly in the direction of its length and concave in the direction of its height, so as to conform substantially to the outer sides of the two parts r and r' of the former P, which are pivoted together and to the table L at s , as shown in Figs. 3, 4, and 5.

To complete the former and serve as a gage to locate the counter-stiffener when placed thereon for reshaping its sides, the heel-section r^2 is attached to the table L in a fixed position, the outer end of which is shaped to conform to the shape of the rear or heel end of the counter-stiffener after it has been subjected to the action of the disk I and mold J, and its inner end is curved to fit around the pivoted ends of the parts r and r' , as shown.

The inner upper corners of the parts r and r' at their free ends are beveled, as shown at $s' s'$, to facilitate the entrance of the point of the segmental wedge n between said parts r and r' to force them apart and into contact with the counter-stiffener and compress it between said parts and the mold-jaws O O, in doing which the jaws O O are moved about their pivots against the tension of the springs $t t$, as shown in Fig. 5.

A stop-pin u is set in the table L in the proper position to limit the inward movement of the parts r and r' and properly register them so that the point of the segmental wedge n will enter between them at every revolution thereof.

A set-screw v is fitted to a threaded hole in each of the sliding blocks M, so that its inner end will bear against the lug or boss L' , projecting downward from the under side of the table L, to limit the inward movement of the sliding blocks M, as shown in Figs. 1 and 6. The movements of the blocks M are very slight, and are only necessary to compensate for varying thicknesses of stock, and as a considerable pressure is required to properly reshape the counter-stiffeners the yoke-like spring must be very heavy, as shown.

Heretofore the manufacture of counter-stiffeners by machinery has been confined to factories fitted up especially for the purpose, instead of in the shoe-factory, for the reason that a different machine had to be employed for each different style of counter-stiffener, thus making the plant too expensive to be set up in the shoe-factory.

By the employment of my improved machine and the process of operation, which forms the subject-matter of another application of mine filed May 10, 1890, and serially numbered 351,262, counters of all styles can be made upon a single machine, thus rendering it practical for boot and shoe manufacturers to make their own counter-stiffeners without fitting up an expensive plant.

The operation of my improved machine is as follows: The blank, cut to the desired shape from leather-board or leather, is first passed between the corrugating-rolls g and g' to cor-

rugate that portion of the blank which is to form the flange or heel-seat. The blank is then passed endwise between the former H and the mold H' to curve it both lengthwise and widthwise to arcs of circles and form what is known in the trade as a "clam-shell counter." This clam-shell counter is then passed transversely between the rounded edge of the disk I and the mold J, so as to reshape the rear portion of the counter and give it a quicker bend in the direction of its length. The counter-stiffener is then placed between the former P and the side mold-jaws O O, with its lower edge resting on the table L, when the action of the segmental wedge *n*, passing repeatedly between the free ends of the parts *r* and *r'* of the former P as the shaft F is revolved, causes the sides of the counter-stiffener to be repeatedly compressed between the outer molded surfaces of the parts *r* and *r'* and the molds O O to reshape the sides or forward ends of the counter-stiffener and partially straighten them in the direction of their length and impart thereto a quicker curve in the direction of the height of the counter.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for forming boot or shoe counter stiffeners, the combination of a former composed of a fixed heel-section and two side sections pivoted together and to the bed or table at a point near the heel end of said former, two mold-like jaws having their inner faces shaped to conform to the longitudinal and vertical curves of the side sections of said former and pivoted at or near the middle of their lengths to slides, one upon each side of said former, a spring or springs arranged to press said slides toward each other, and a revolving wedge constructed and arranged to pass between the free ends of the pivoted side sections of the former and move them about their common fulcrum and compress the forward portions of the counter be-

tween said side sections of the former and the mold-jaws.

2. The combination of the bed L, a former composed of the fixed portion *r*² and the two pivoted portions *r r'*, having a portion of their inner or contiguous faces beveled, as at *s' s'*, the slides M, fitted to guideways in said bed, the spring N, the mold-sections O O, pivoted to the slides M M, the springs *t t*, the revolving shaft F, and the segmental wedge *n*, mounted upon said shaft and constructed and arranged to act upon the inner beveled sides of the pivoted sections of the former and move them in opposite directions, substantially as and for the purposes described.

3. The combination, in a machine for forming boot or shoe counter stiffeners, of a pair of fluted rolls for corrugating one edge of the blank, a revolving spherical or spheroidal former and a fixed mold for imparting to the blank longitudinal and transverse curves in the form of arcs of circles, a revolving disk having a semicircular edge and a fixed mold co-operating therewith to reshape the rear portion of the counter-stiffener, a mechanism for reshaping the forward part of the counter-stiffener, comprising a former in sections, two of which are pivoted together at one end, two side molds pivoted to slides pressed toward each other and said former by a spring or springs, and a segmental revolving wedge constructed and arranged to intermittently act upon said pivoted sections of the former and force them apart and press the forward portions of the counter-stiffener between said former and the side molds and reshape them.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 28th day of April, A. D. 1890.

LOUIS COTÉ.

Witnesses:

N. C. LOMBARD,
WALTER E. LOMBARD.