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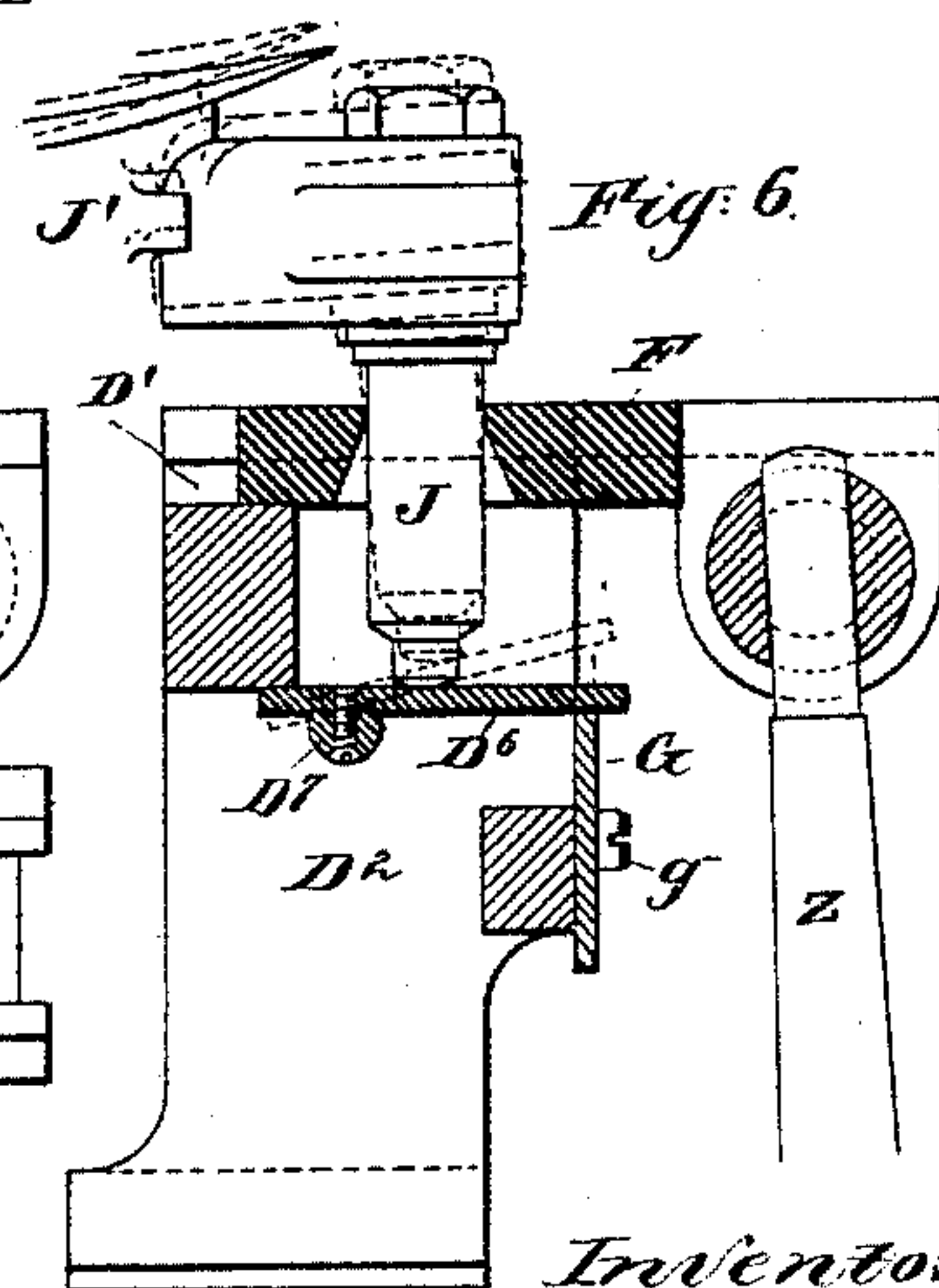
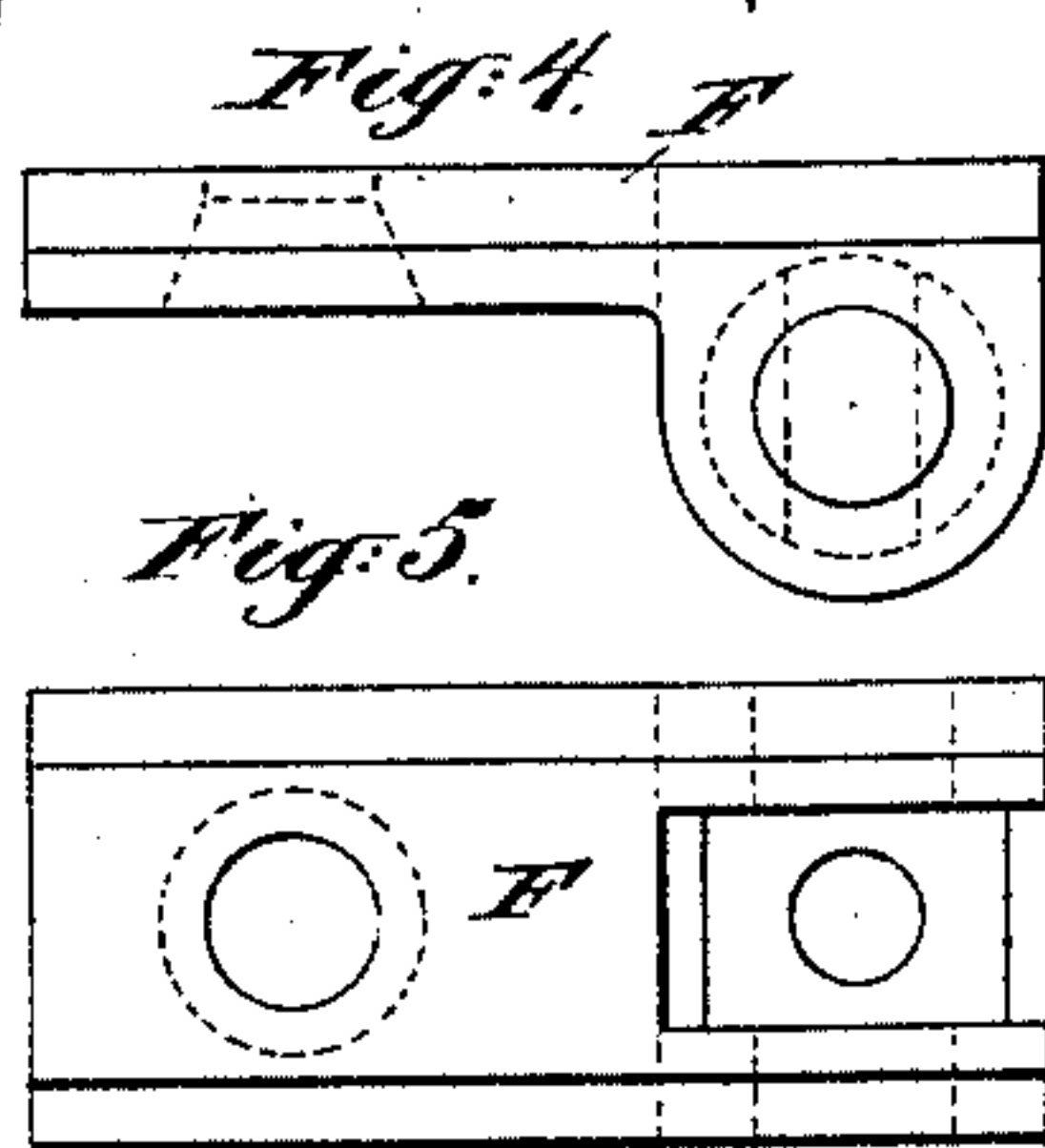
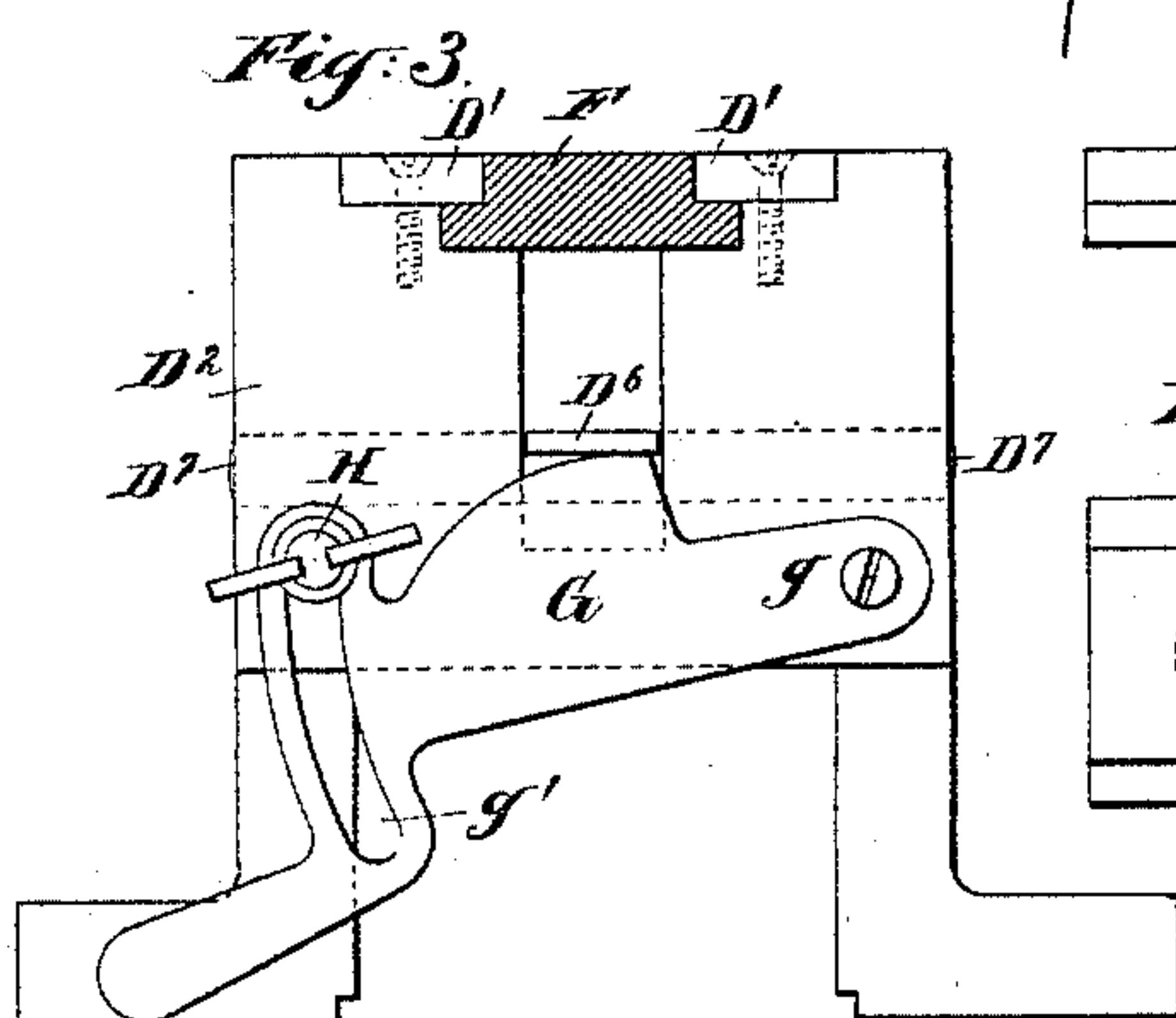
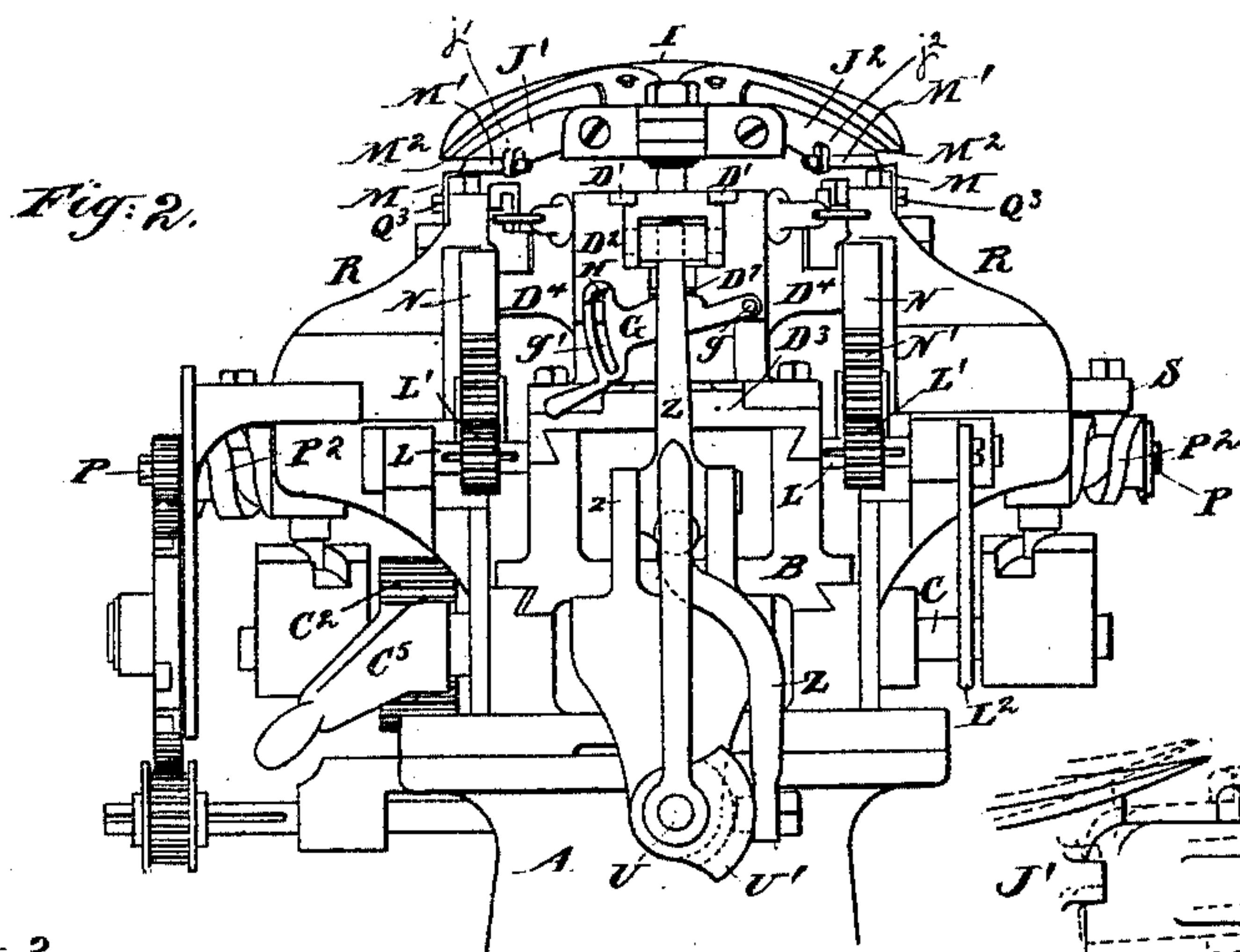
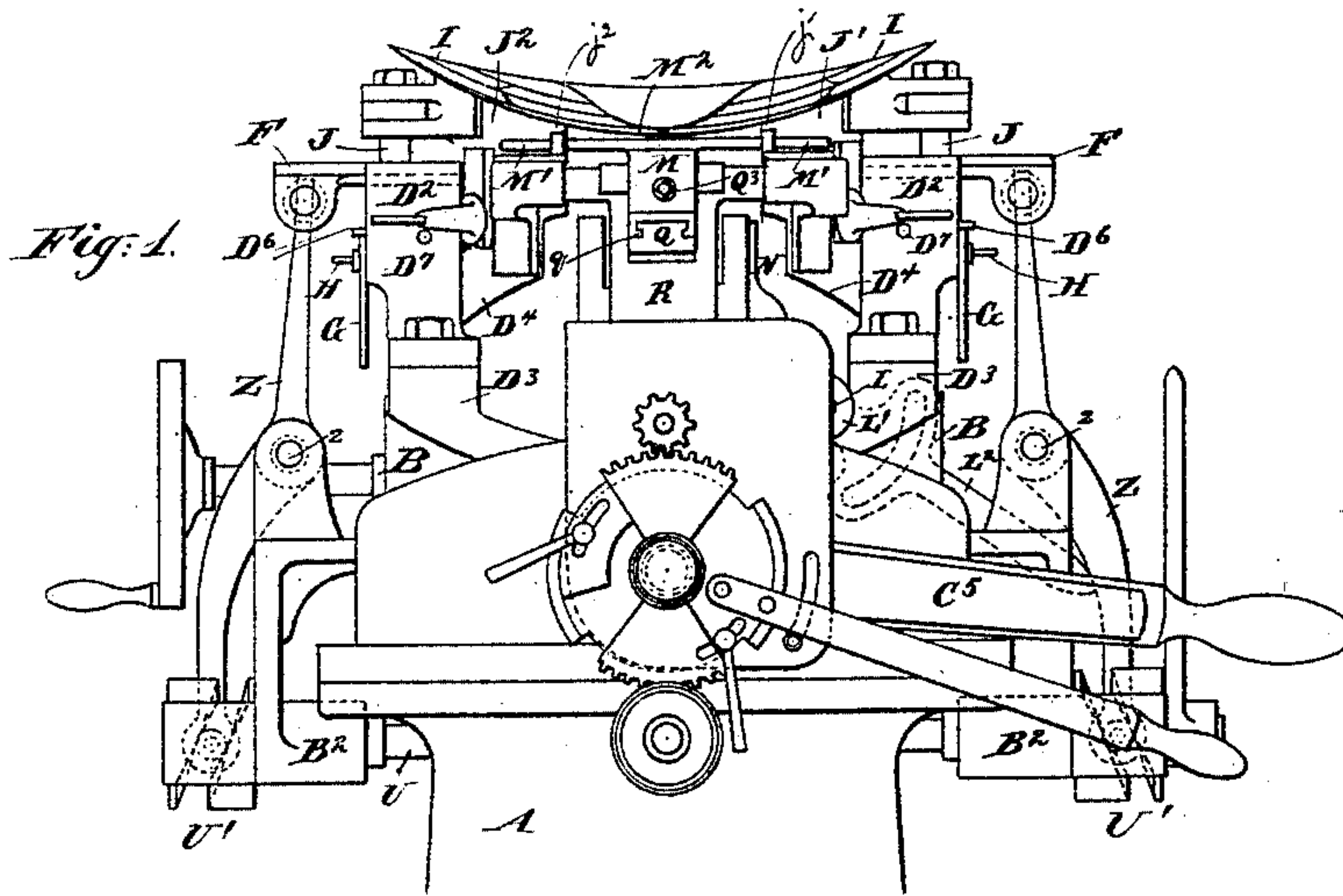
5 Sheets—Sheet 1.

L. H. HOYT.

MACHINE FOR SHAPING HAT BRIMS.

No. 497,789.

Patented May 23, 1893.



Witnesses:
Charles R. Searle.
Archer Beards.

Inventor:
 Lewis H. Hoyt
 by his attorney
 Thomas Sprad Station

(No Model.)

5 Sheets—Sheet 2.

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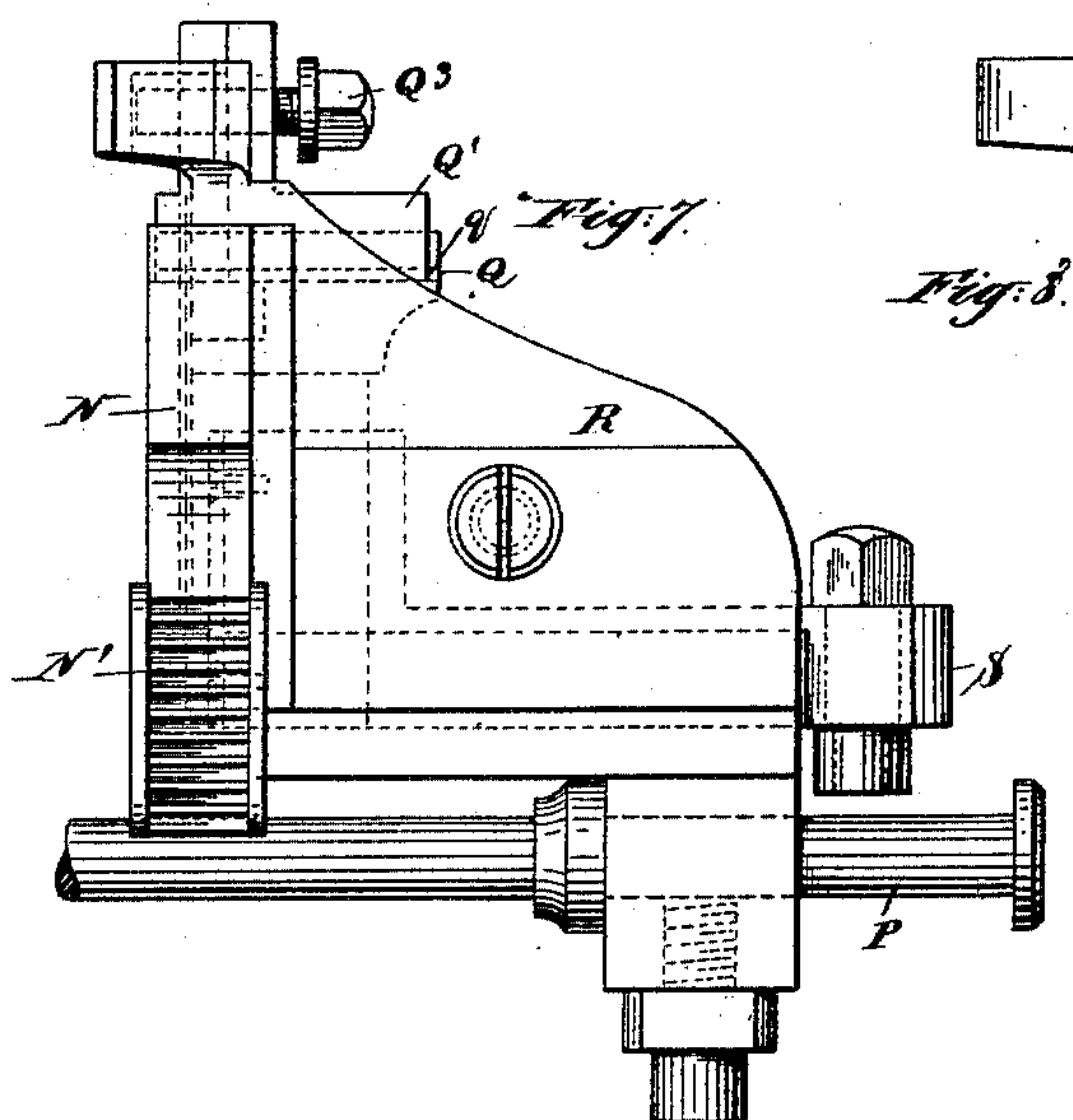


Fig. 8.

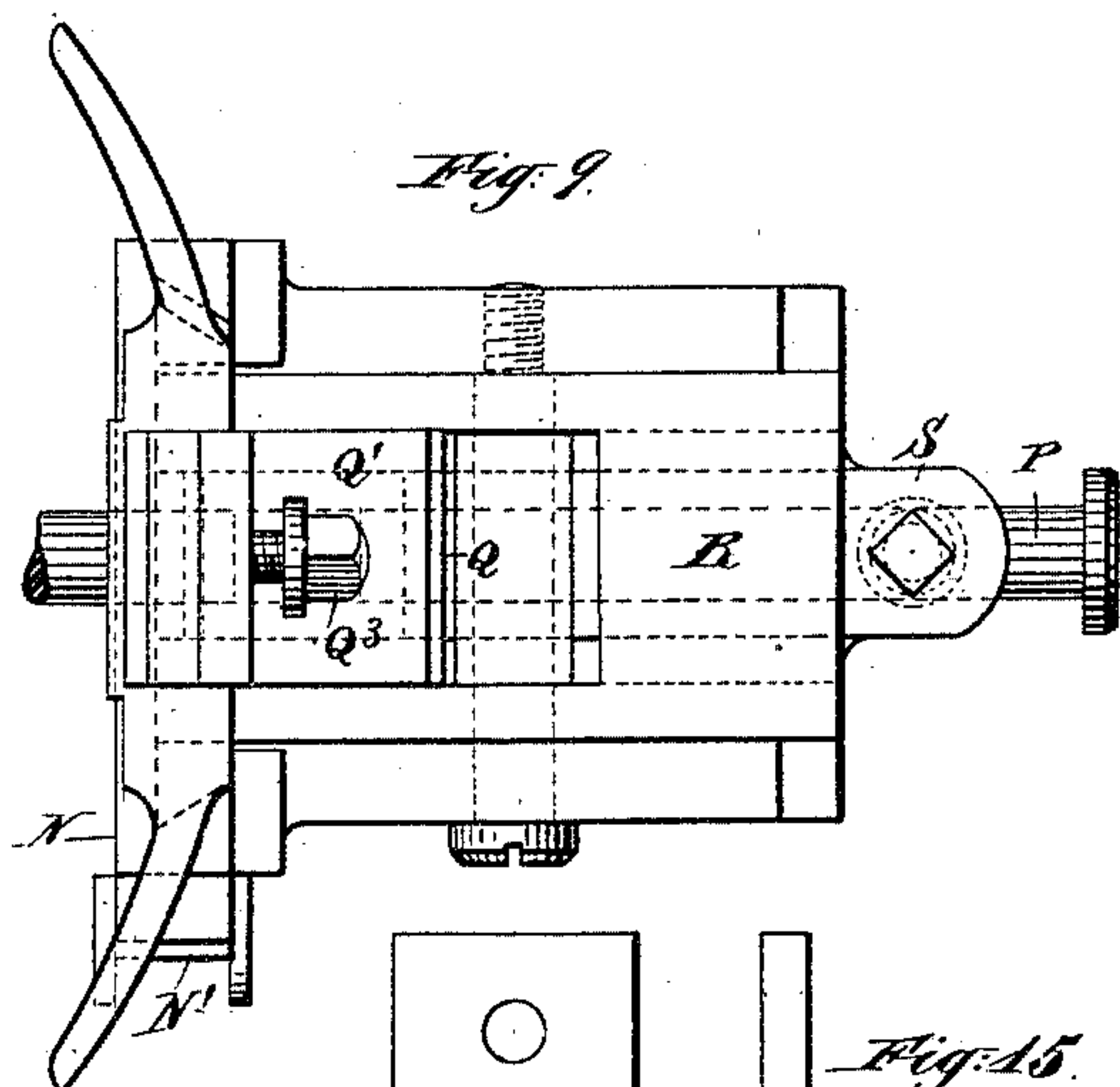
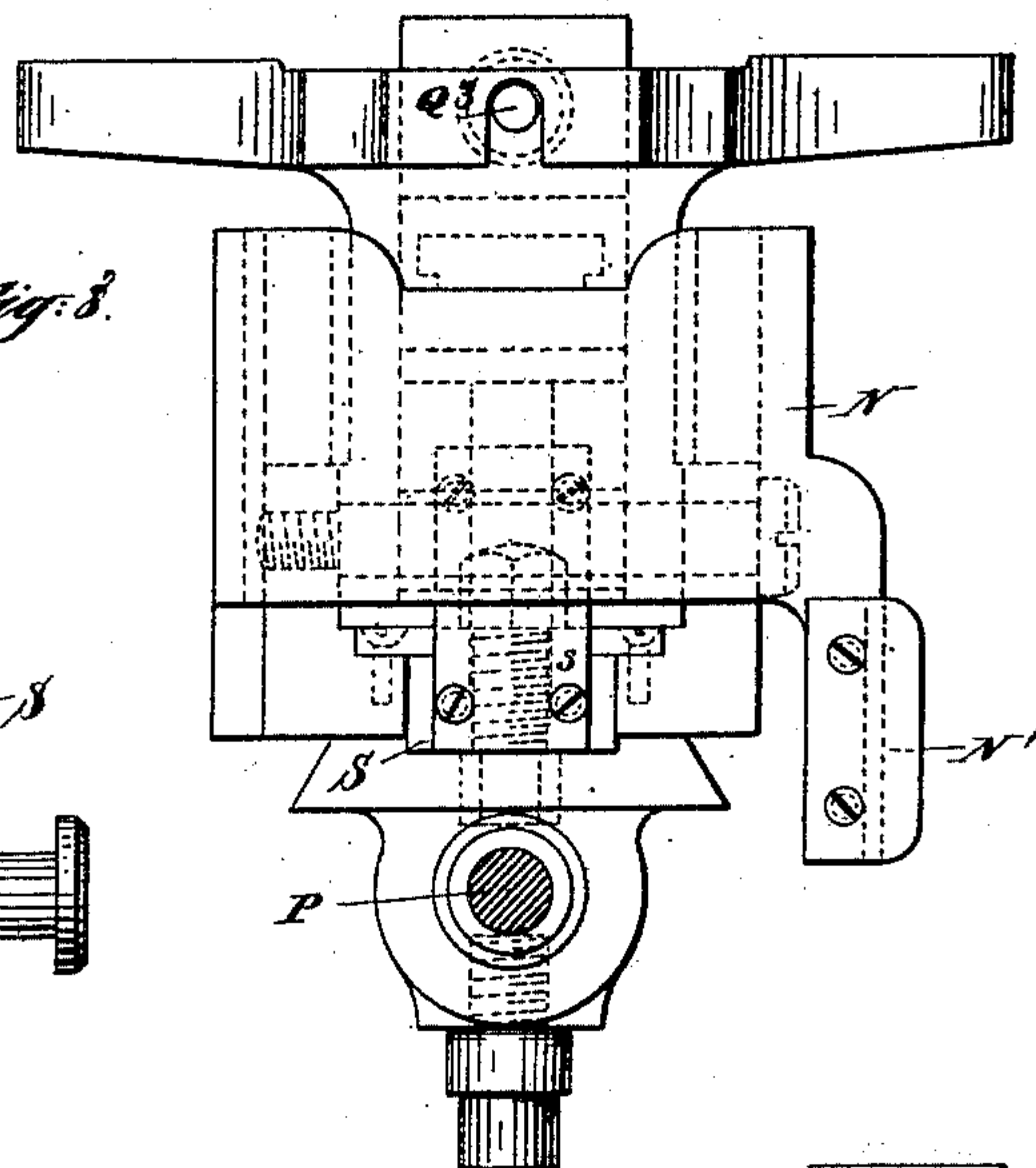


Fig. 10.

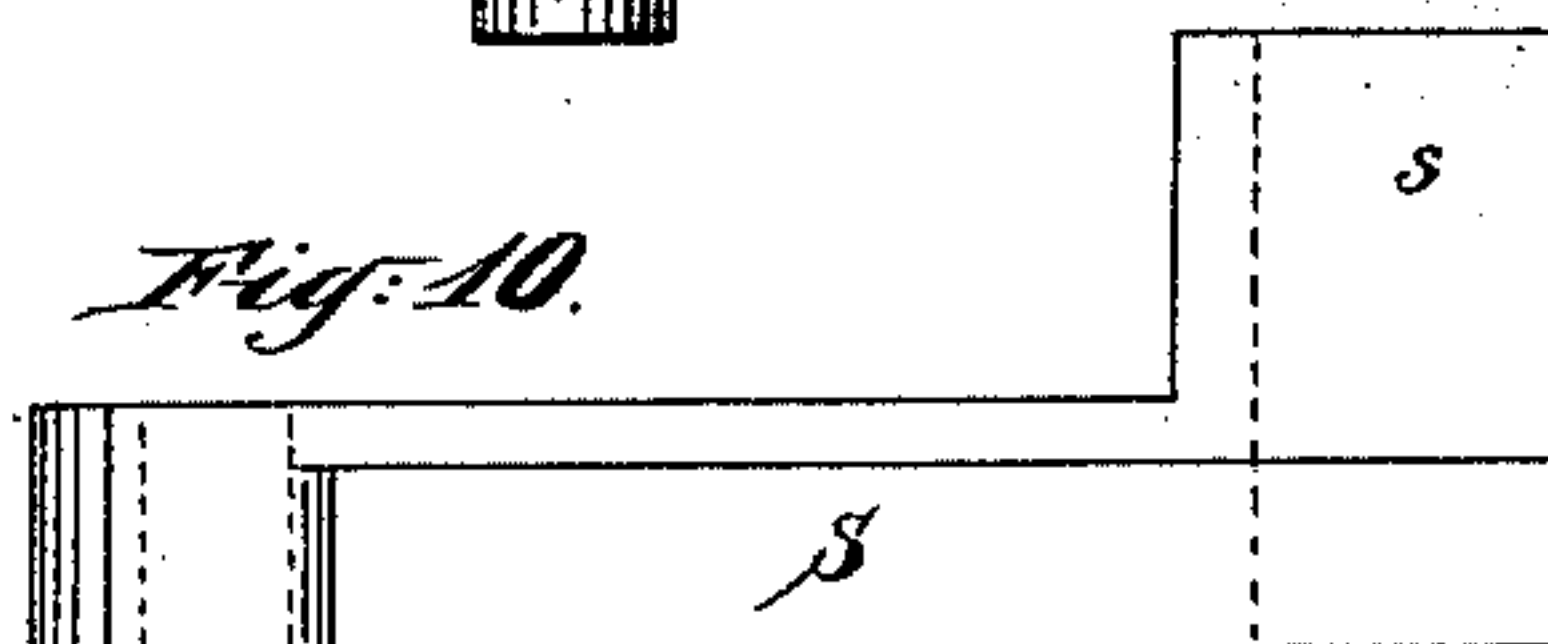


Fig. 11.

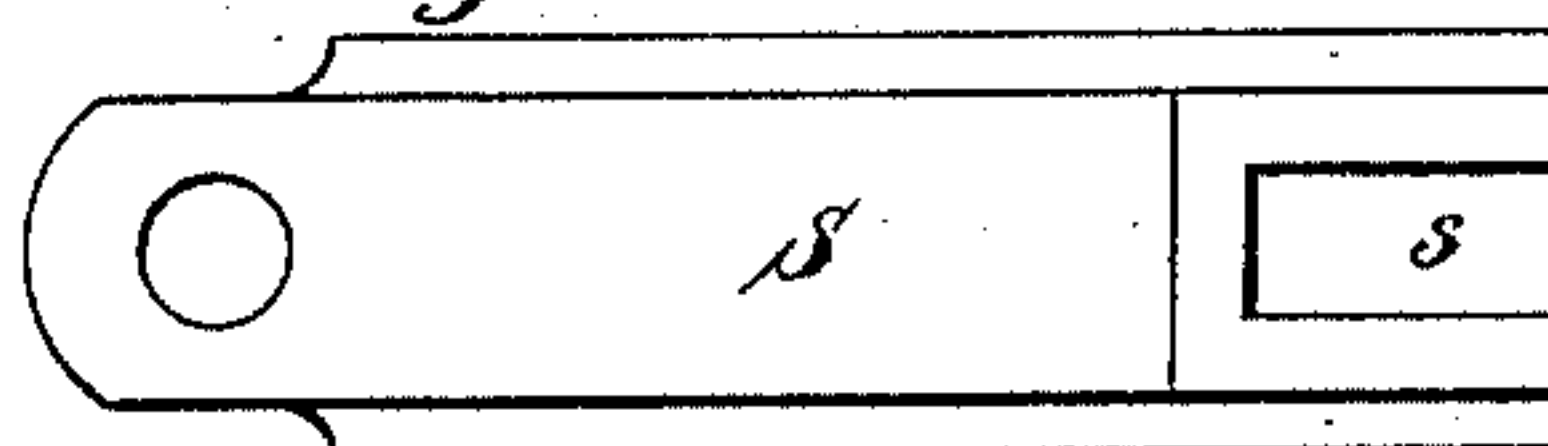


Fig. 12.

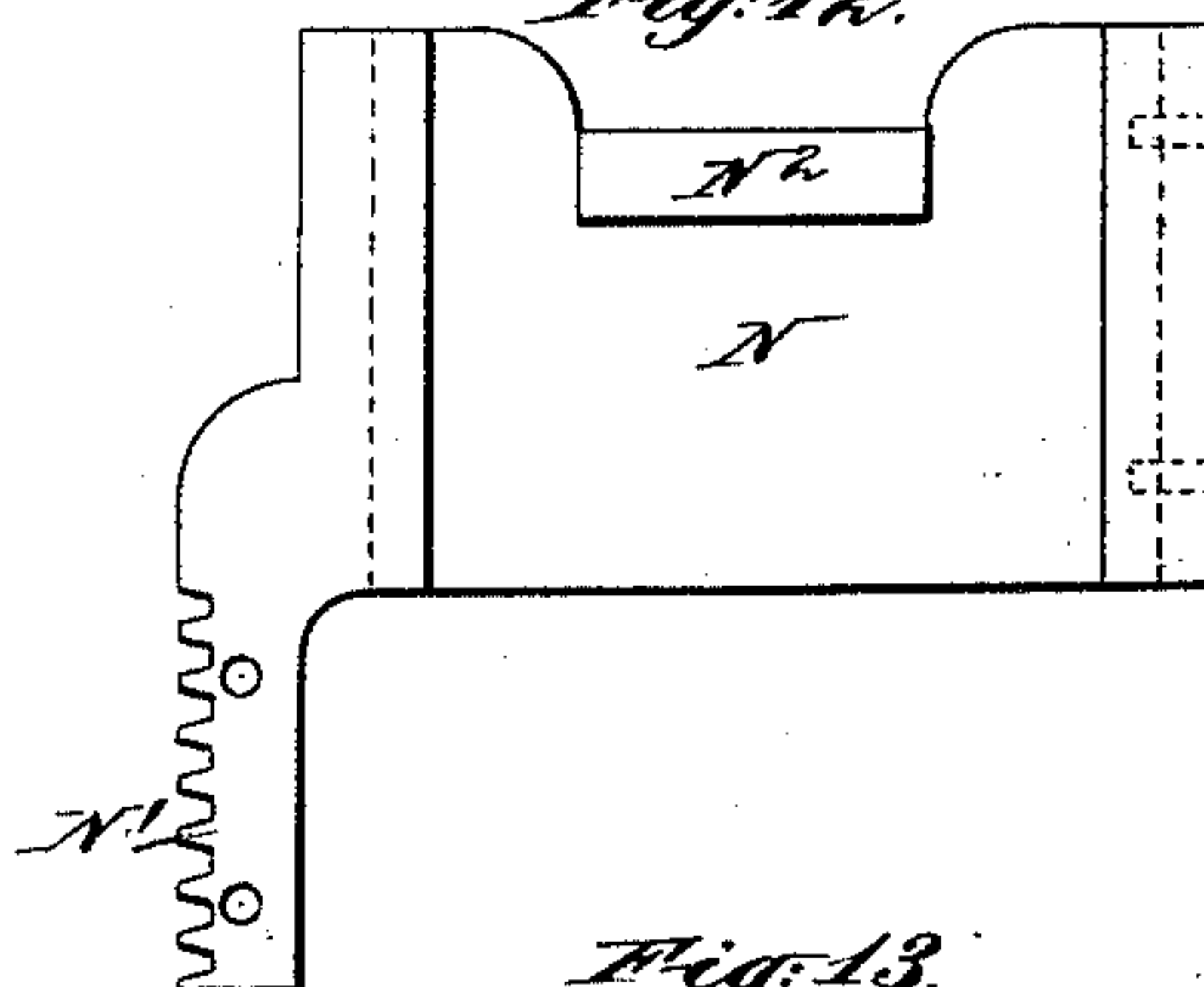


Fig. 13.

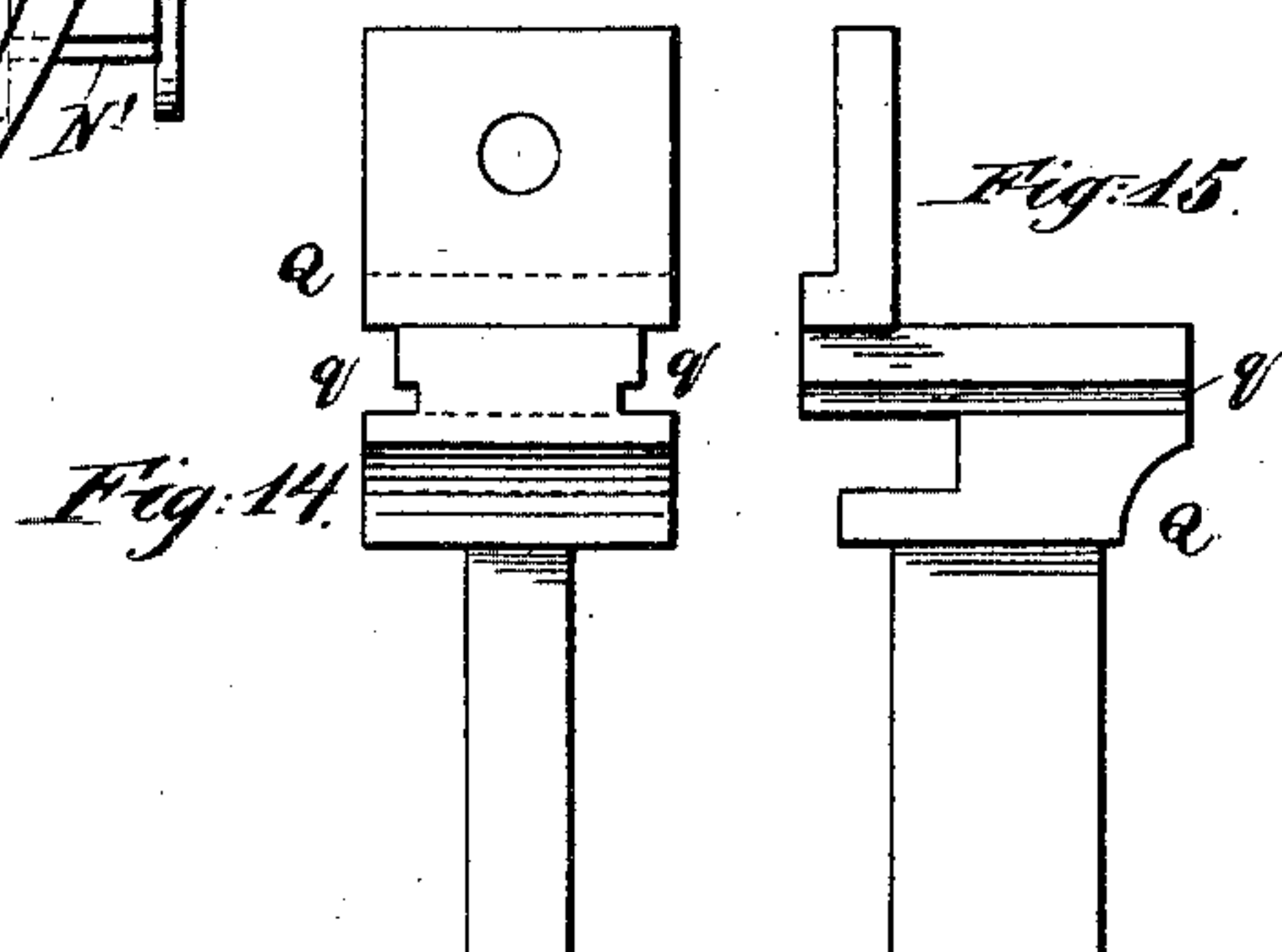
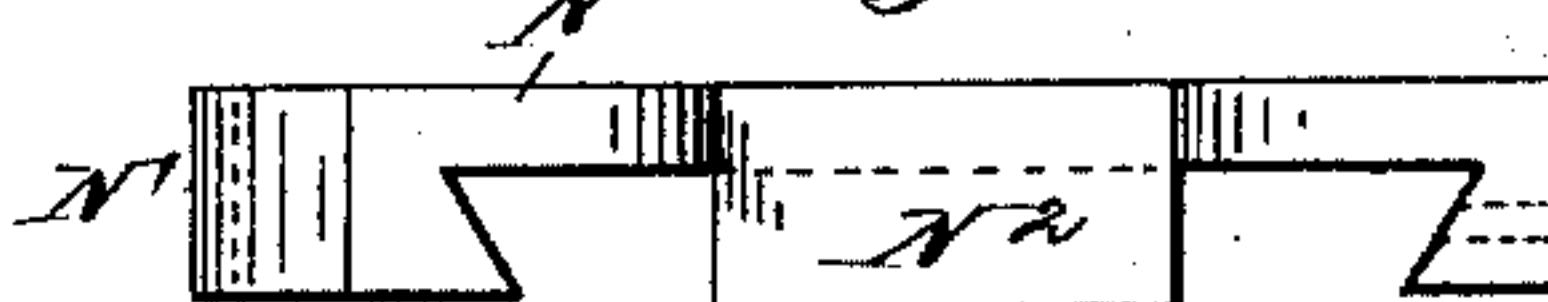


Fig. 15.

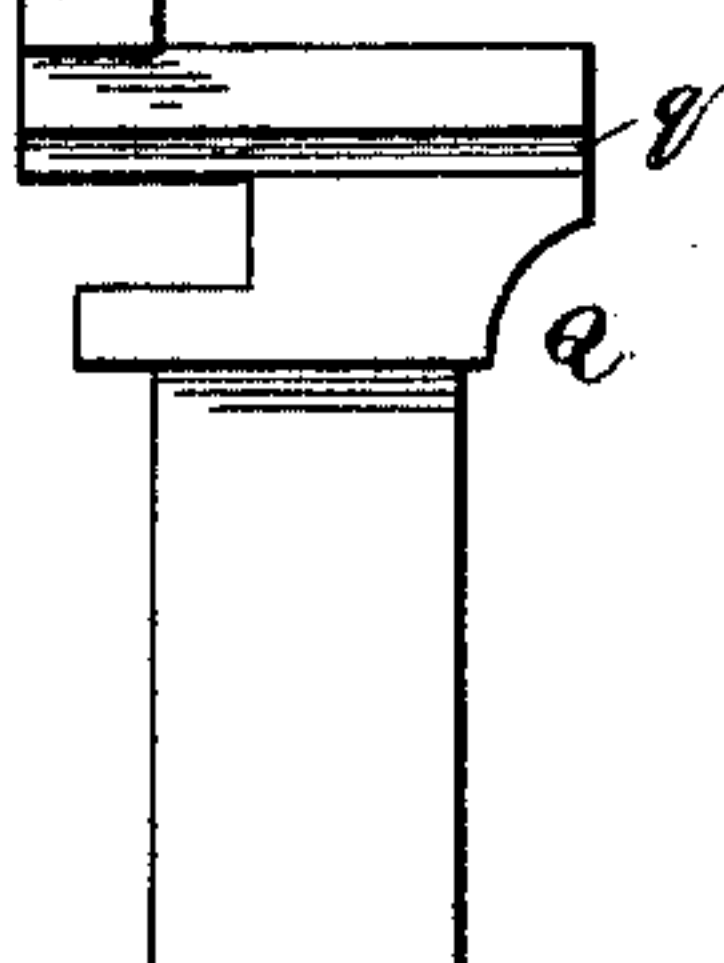


Fig. 16.

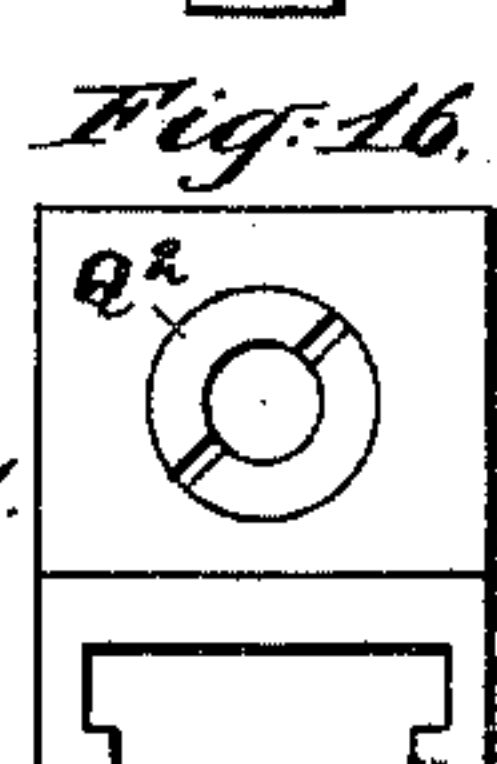
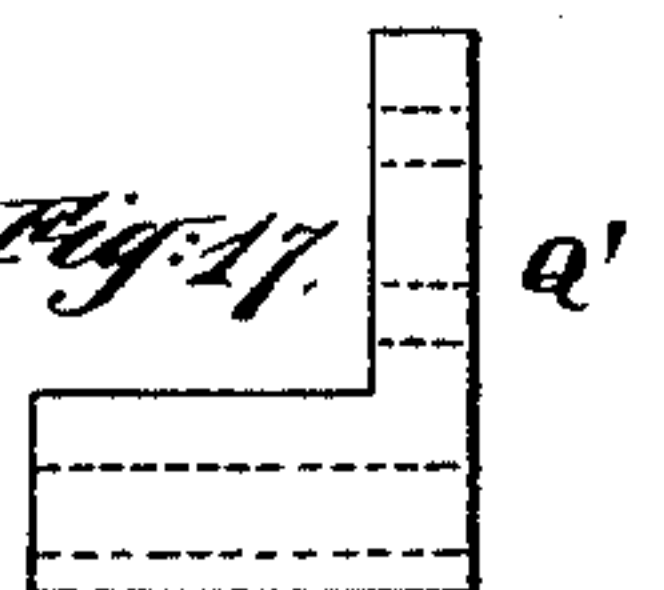


Fig. 17.



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Inventor:
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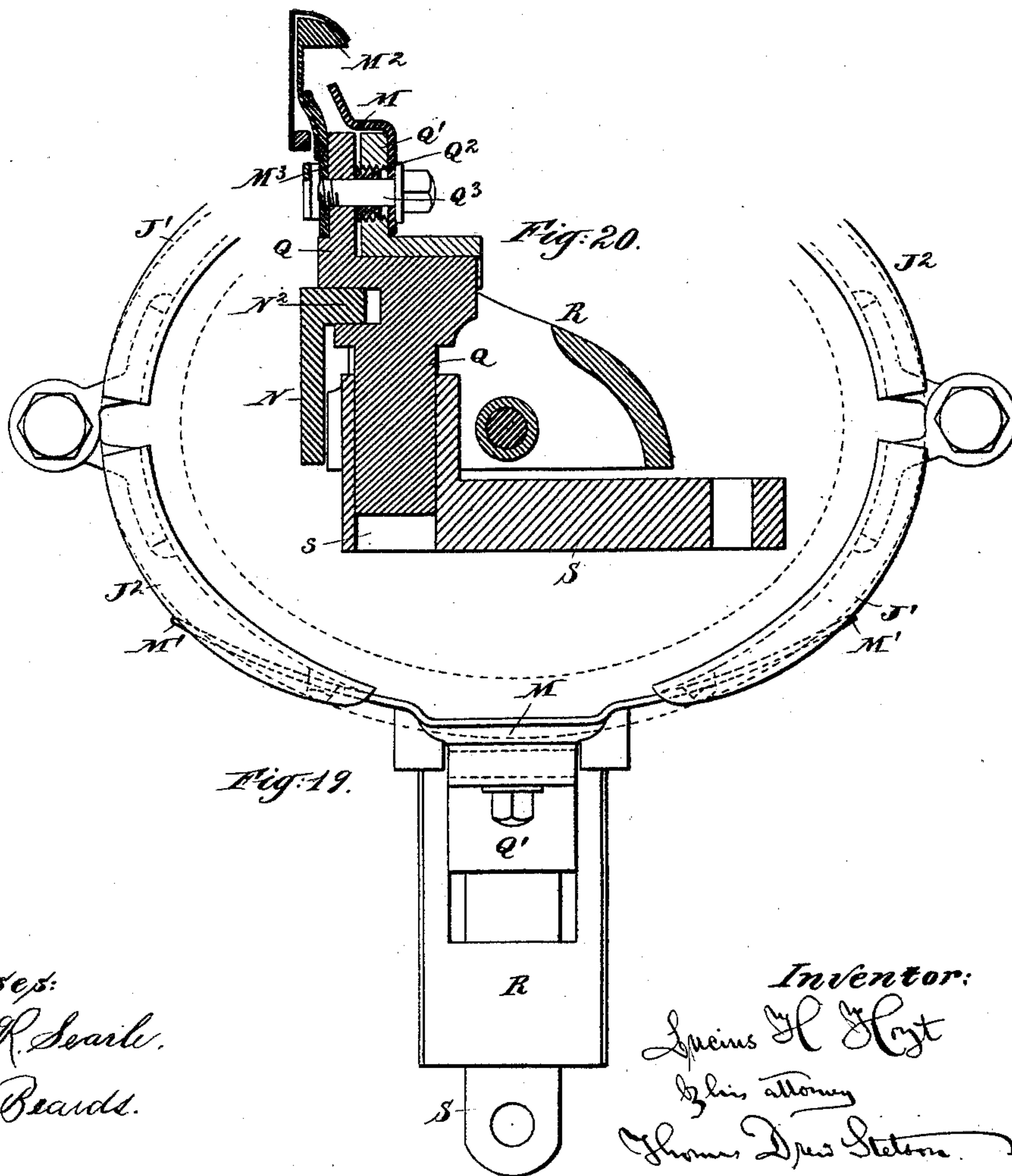
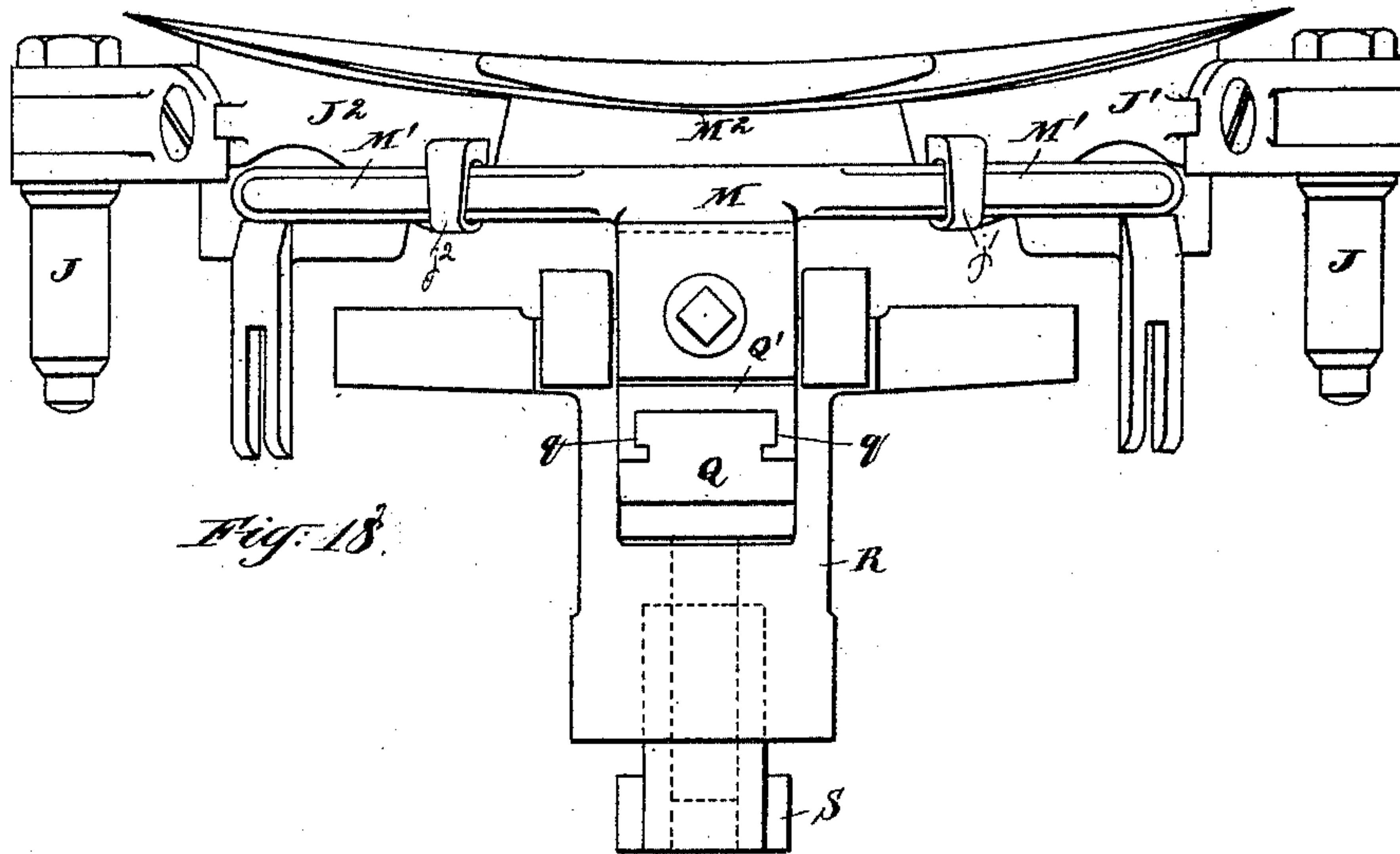
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L. H. HOYT.
MACHINE FOR SHAPING HAT BRIMS.

No. 497,789.

Patented May 23, 1893.



Witnesses:
Charles R. Seale.
Archer Beards.

Inventor:
Lucius H. Hoyt
His attorney
Thomas D. Sisson.

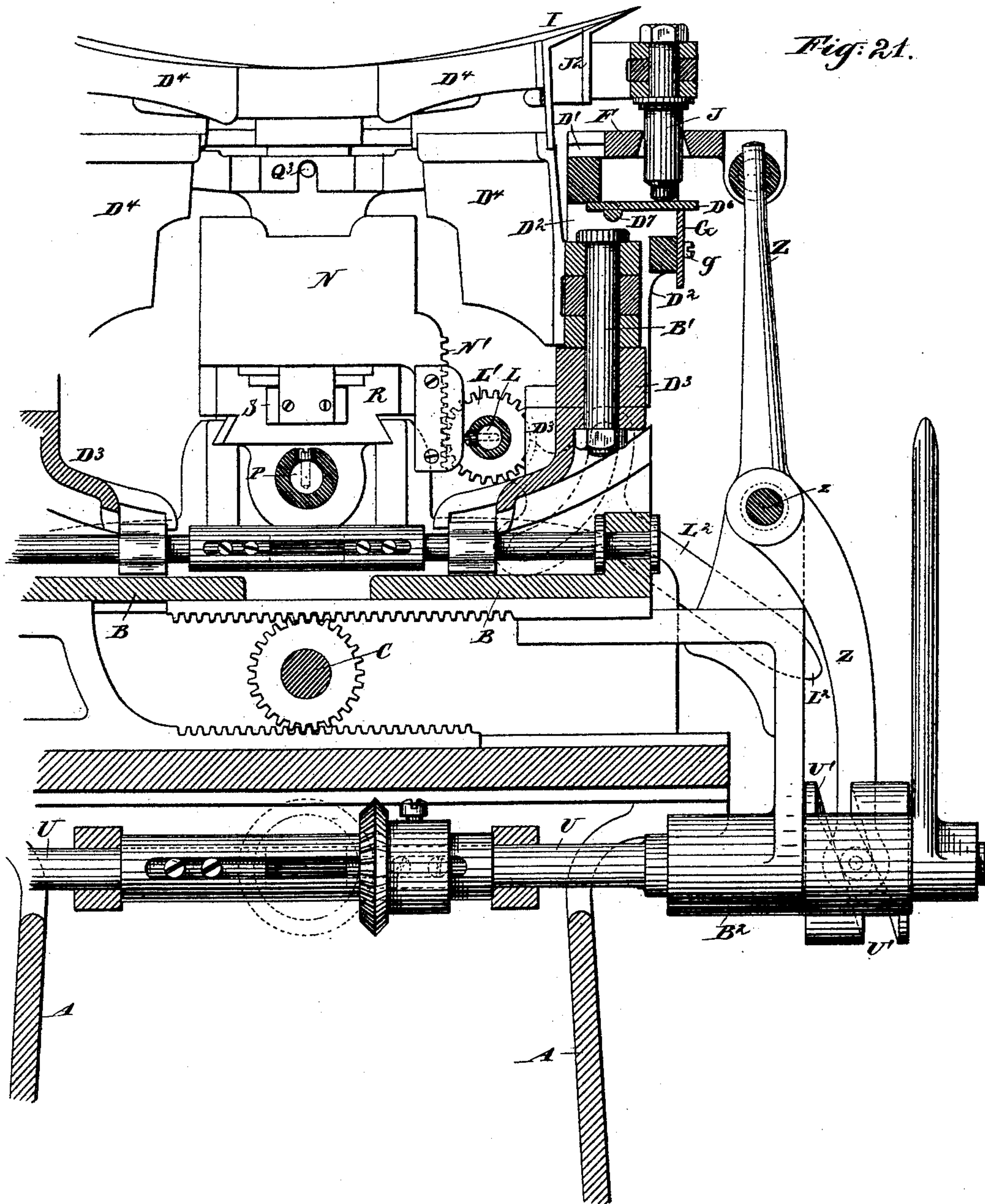
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L. H. HOYT.
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No. 497,789.

Patented May 23, 1893.



Witnesses
Charles R. Seale.
Jose L. Fingleton.

Inventor
L. H. Hoyt.
By his Attorney
Thomas S. Sisson

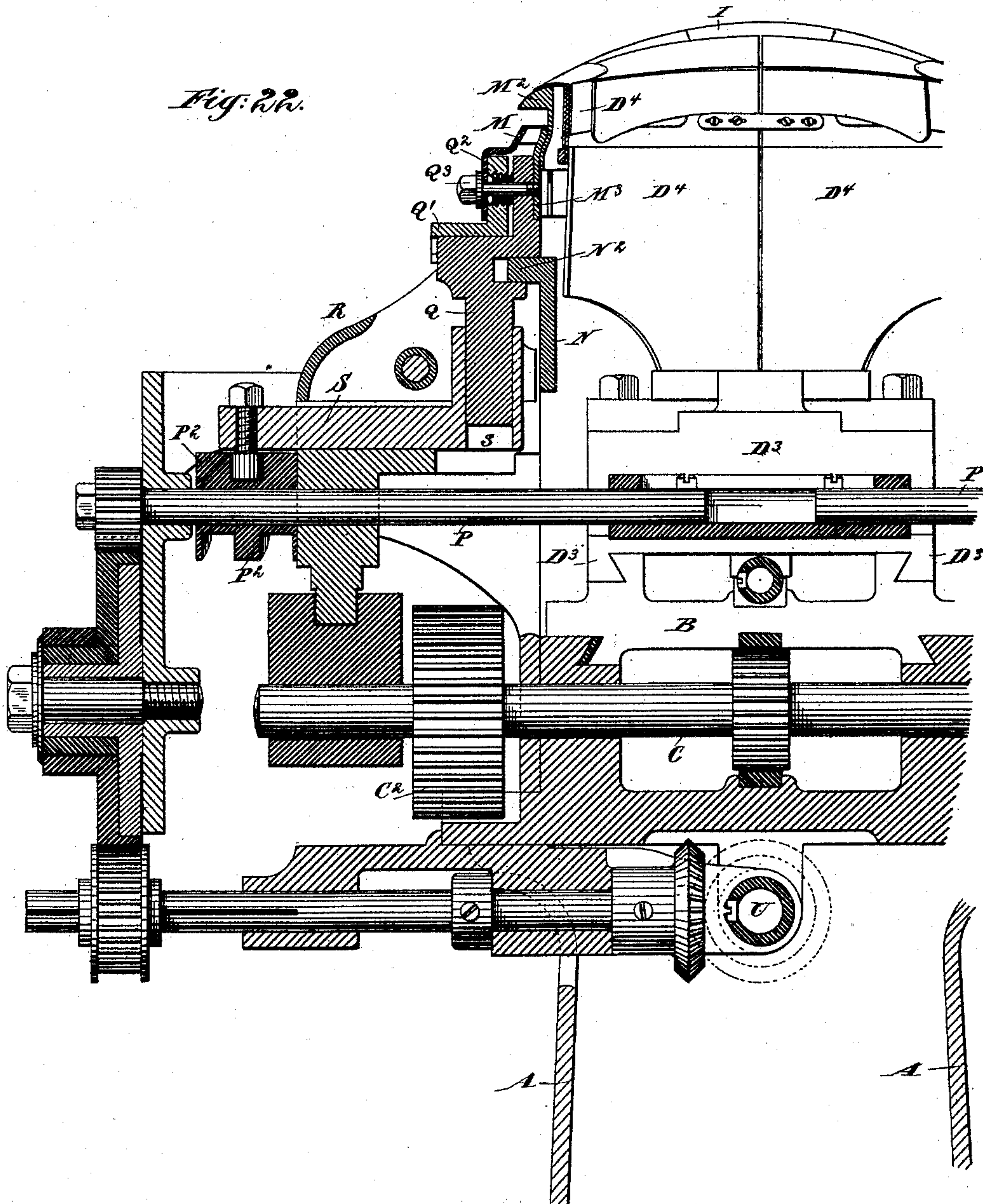
(No Model.)

5 Sheets—Sheet 5.

L. H. HOYT.
MACHINE FOR SHAPING HAT BRIMS.

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Patented May 23, 1893.



Witnesses
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Inventor
L. H. Hoyt
By his Attorney
Homer D. S. Searle

UNITED STATES PATENT OFFICE.

LUCIUS H. HOYT, OF DANBURY, CONNECTICUT, ASSIGNOR TO THE HOYT
BRIM SHAPING COMPANY, OF SAME PLACE.

MACHINE FOR SHAPING HAT-BRIMS.

SPECIFICATION forming part of Letters Patent No. 497,789, dated May 23, 1893.

Application filed March 16, 1892. Serial No. 425,088. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS H. HOYT, a citizen of the United States, residing at Danbury, in the county of Fairfield, State of Connecticut, have invented certain new and useful Improvements in Machines for Shaping Hat-Brims, of which the following is a specification.

It is desirable in hat manufactories to avoid the necessity for manufacturing and storing an immense number of shaping blocks in order to be ready to shape brims of hats of different styles and sizes. I do this by providing machines which are capable of being adapted to correctly shape the brims of hats of a wide range of modifications in size and style.

I have in Letters-Patent issued to me, dated August 28, 1888, No. 388,492, described mechanism whereby variations in the size and form of a brim may be attained by certain adjustments of overlapping pieces which apply against the lower surface when the hat is in the ordinary inverted position. And I have in a later patent to me dated June 17, 1890, No. 430,523, set forth means by which one movement communicated by the operator to one part of the machine effects the proper changes of position of the other parts, and I have also in such patent shown and described provisions for varying at will the extent of the movements of one set of parts as the parts shaping the sides, relatively to another set, as the parts shaping the front and rear.

The present invention relates to mechanism of the same general class. I have made improvements which contribute greatly to the perfection of the result, and somewhat to the facility of use.

It will be understood that the hat brim has been previously curled, and that immediately before its treatment in this machine it is softened by heat, and that the parts of the machine which are presented under the brim are cold, or nearly so, and that the sand-pan or other yielding surface which is applied above to press the hat-brim upon the shaping surfaces is also cold. Holding the material in exactly the correct position for a brief period between cold surfaces sets the brim perma-

nently so that taking care not to distort the hat in the removal, it will permanently retain its graceful contour. I provide exchangeable heads, carrying each a different set of shaping parts to match on a single set of adjustable mechanism substantially as described in my said patents of 1888 and 1890. The removable heads apply directly to the softened hat-brim and give shape thereto by means of their thin metallic parts which may overlap one upon another to varying extents and with varying inclinations, after the manner of the feathers of a bird. My present improvements apply partly to the construction of the heads but more to the mechanism in the main body of the machine through which the required changes of position are communicated to the several parts of the head.

The improved machine, in common with the form set forth in my said previous patents, has capacity for certain adjustments which are properly attended to at the commencement of the treatment of any given lot of hats, and which are not changed during such treatment. There are other changes which are repeated during the treatment of each hat. My present invention applies to the mechanism by which some of these latter changes are effected.

The machine described in my said previous patents provided for varying the pitch of the front and rear and for varying the rise of the curl at the sides; but they effected the movements at inclinations which complexed the problem of imparting any particular motion, and introduced difficulty in describing and recording any special adjustment. In the present machine the motions for expanding the sides are communicated through slides or carriages which move in straight lines horizontally from the center line of the machine outward. On these I mount mechanism which allows the brim-shaping parts at the sides to be raised or lowered by a movement which performs that function alone. The motions for expanding the brim at the front and rear are communicated through slides which move horizontally frontward and rearward. There are provisions for varying the droop at the front or rear, or both. These are platforms

which may be set at various inclinations, and which guide the brim-shaping parts so that they move at corresponding inclinations. The entire mechanism allows the force of the hand of the operator applied to a single part to cause the hat-brim to be stretched smoothly and to exactly the required degree at the front and rear and at the sides and quarters.

I provide a special mechanism for adjusting the breadth of the brim at the quarters relatively to the breadth at the sides.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a side elevation, and Fig. 2 an end elevation. The remaining figures are on a larger scale and show certain parts detached. Fig. 3 is an end elevation, partly in vertical section. Fig. 4 is a side view and Fig. 5 a corresponding plan view of a slide to be fully described below. Fig. 6 is a central longitudinal vertical section. Fig. 7 is an end elevation. Fig. 8 is a corresponding side elevation as seen from the interior, and Fig. 9 a plan view of certain parts assembled together which aid in shaping the brim at one side. It will be understood that the mechanism on the two sides are counter-parts of each other. Fig. 10 is an elevation and Fig. 11 a plan view of a horizontally moving slide only partially shown in Figs. 7, 8 and 9. Fig. 12 is an elevation showing clearly another part, a vertically moving slide, only partially shown in the said figures. Fig. 13 is a plan view of the same part. Figs. 14 and 15 are elevations at right angles showing clearly another piece partially shown in the said figures. Fig. 16 is a side view and Fig. 17 an end view of one of the parts which support the end-shaping mechanism. Fig. 18 is a side view of certain parts. Fig. 19 is a plan view of the same. Fig. 20 is a vertical section on the central line in Fig. 18. Fig. 21 is a vertical longitudinal section of half the machine complete, and Fig. 22 is a vertical cross-section of half, complete.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

The general construction and mode of operation of the machine resemble that of the machine set forth in the said patent of 1890.

It will be understood that parts not specifically described in either patent may be of any ordinary or suitable construction.

After the adjustments have been properly made, the changes of position of the parts required to introduce and remove a hat and to properly shape the brim, are made by turning the proper levers as each hat is treated. As in the machines of 1888 and 1890, the parts which come in immediate contact with the brim are removable together, and are collectively termed a head. When it is desired to greatly change the size and breadth of brim, the head is removed, and another head adapt-

ed to the new size is put in position for use in the machine, and is firmly held by pinching screws.

As in the previous machine referred to, the fixed foundation A, of cast iron or other suitable material, supports two separate parts B, B, with a spur gear wheel on a transverse shaft C, turning on fixed bearings for adjusting them endwise relatively to each other in straight longitudinal ways. The tops of these are formed into a hollow track on which are traversed blocks D³, which form the supports for the front and rear shaping portions. Also, as in the said previous machine, there are side carriages R, moved apart and together by spiral cams on the same shaft C, which operates the longitudinally moving carriages B. I mount in each carriage R, a slide S, guided so as to move only horizontally outward and inward as it is operated by the spiral cam P², fixed on the shaft P, which shaft, like several others in the machine, is sleeved so that it may extend and contract longitudinally. I equip the inner end of this slide S, with a socket s, which receives a slide Q, capable of only vertical motion therein. This slide Q, is provided with a horizontal groove in its inner face which receives a horizontal lip N², carried on a vertical slide N, which is guided in the carriage R. When by turning to a sufficiently small extent, the lever C⁵, which gears with the wheel C², on the shaft C, the latter shaft is slightly rotated in one direction or the other, it induces by the means described the outward or inward movement both of the carriages B, which carry the parts for shaping the ends, and of the carriages R, which carry the parts for shaping the sides. After the hat has been inserted and the shaft C, has been turned to close the parts around the body, and the previously heated and softened brim has been pressed down by hand upon the proper shaping surfaces of the brim-shaping head, and the curl at the edge of the brim has been engaged over the outer edges of the latter, the attendant gives a partial rotation to the shaft P, and thereby moves outward the slides S, and the latter carry the parts M², which shape the brim bodily outward, giving a smooth horizontal extension to the entire side or roll of the brim. If it be desired to also stretch the brim upward (or in its inverted position downward,) the attendant operates the handle L², and gives a partial rotation to the shaft L, and thus by the gear wheel L', which engages the rack N', lowers the slide N, which latter by means of its lip N², and the interposed slide Q, similarly lowers the side-shaping pieces M².

The arrangement makes it easy to impart any required amount of horizontal or vertical movement either simultaneously or in immediate succession.

A pivot B', is set firmly in a central position in each carriage B, as in the patent of 1888, on which pivot are knuckled parts D⁴, which extend upward and inward and practically

determine the contour of the interior of the brim. When the carriages B, are moved apart by turning the shaft C, these parts D⁴, open and allow the hat to be introduced. When the shaft C, is rocked in the opposite direction, these parts close together and gently but firmly embrace the hat body immediately adjacent to the brim, and support the inner edge of the brim in a fixed position during the stretching and shaping which is to follow.

The parts which extend and shape the brim at the front and back of the hat are operated by a longitudinal shaft U, which is made in two parts sleeved together and each part carried in a bearing B², supported on the longitudinally moving carriages B. A helical cam U', on each part of the shaft U, gives motion through a suitable roller to the lower end of the corresponding lever Z, which turns on a center z, carried in the carriages B, B, and engages by its upper end in a slide F, which latter is capable only of a longitudinal motion backward and forward, being guided in horizontal longitudinal ways D'. These ways are formed in a hollow block D², which is bolted firmly on the block D³, before described.

In a vertical hole in each slide F, is received a pin J, the lower end of which is rounded and rests on a platform D⁶, supported in the piece D², which platform is capable of being set at various inclinations. Its inner edge is supported in a transverse shaft D⁷, carried in bearings in the block D³, and capable only of a rocking motion therein. Its outer edge is raised or lowered by a lever G, which extends transversely to the line of motion and is capable of turning on a center g, being held by a clamping screw H, engaged in the slot g'. Each pin J, forms a center on which are knuckled two parts J', J², one pair of which extends across the front and another pair across the back of the hat as in the patent of 1888. Each of these parts J', J², extends somewhat beyond the quarter, a point midway between the front or rear and the side of the hat, and there embraces by the pocket j' or j², see Fig. 18, a wing M', which is formed on the corresponding side piece M.

When the attendant operates the lever U², he partially turns the shaft U, and thereby rocks the lever Z, and moves the slide F, outward at each end. This correspondingly moves the pin J, and the connected parts J', J², bodily outward, such motion being allowed by the support by the pin J and the platform D⁶, and by the loose engagement of a pocket on each wing or part J' with a wing M', carried on the side-shaping parts and the motion may be either horizontal or at various inclinations according as the platform D⁶, is set giving a corresponding droop to the brim at the front and rear.

The pins J, support a greater or less number of thin over-lapping shaping parts I, which come into contact with the brim at the front and rear respectively, and shape it. The traversing of each slide F, outward by the

rocking of the lever Z, extends or stretches this portion of the brim. The inclination of the platform D⁶, determines the droop of the hat brim, and the direction of the stretching motion imparted to the brim at the front and rear.

The parts may be set to make the brim wider or narrower at the quarters without affecting the width at the sides or ends by setting the side pieces M, carrying the wings M', outward and inward relatively to the side shaping pieces M². See Fig. 20. Each side piece M, is mounted on a block Q', which is supported in ways q, in the slide Q. A short hollow screw Q², is tapped through a vertical lip on the block Q', and allowed to press against the adjacent face of a lip on the slide Q. A bolt Q³, is extended through the screw Q², into the side shaping piece M³, to hold the block Q', and the piece M, carrying the wings M', firmly together. By temporarily removing the bolt Q³ and the piece M, and turning this hollow screw Q², in one direction the latter presses against the lip or slide Q, and forces the block Q', outward after which the parts are replaced and bolt Q³, is again tightened. The wings M' thus adjusted are carried outward and inward with the carriage R, in the required adjustable relations thereto, and the connected ends of the shaping pieces J', J², carried outward and inward therewith give by the swelled or curved edge at the quarter a greater or less breadth to the brim at the quarter according as the screws Q², are set.

When the brim is, by the means above described, properly attached and held in the required position, a sand pan, which may be a sand pan as described in my said patent of 1888, is lowered to press upon the brim and hold it firmly between the relatively cold surfaces of the sand pan and the immediate shaping parts. A few seconds will suffice to set the brim, after which the sand pan is raised and the exterior portion of the brim-shaping parts again drawn inward, the clamping of the hat by the lever C⁵, relaxed, and the curl of the new shaped brim being dexterously disengaged from under the shaping parts M², the hat is lifted out and the machine is ready to receive another.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. It will be understood that with this, as with my previous inventions, a thin sheet of vulcanized rubber or other flexible material may be applied over the metallic shaping parts to lie between them and the brim of the hat.

I claim as my invention—

1. In a hat-brim shaping machine, the main carriages R the laterally moving carriages S for opening and closing the brim-shaping mechanism at the sides, and means for moving them outward and inward on such main carriages, in combination with the carriages Q stiffly supporting the side brim-shaping

parts M^2 and carried in the carriages S, and capable only of a vertical movement therein, and the slides $N N^2$, and means for operating them to raise and lower the said carriages Q
5 independently of their lateral movement, all arranged for joint operation as herein specified.

2. In a hat-brim shaping machine, a set of movable parts for shaping the brim at the
10 ends, mounted on carriages, in combination with means for moving such carriages outward and inward, and with platforms D^6, D^6 , mounted on transverse shafts D^7 and with means as the lever G and clamping-screw H
15 for setting such platforms at various inclinations, and with the pin J connected to the shaping parts J', J^2 , and guided by such platforms, all arranged for joint operation substantially as herein specified.

3. In a machine for shaping hat-brims, the 20 wings M' carried with the side-shaping parts, and means for adjusting such wings outward and inward relatively to such parts, in combination with the end-shaping parts $J' J^2$, having pockets $j' j^2$ receiving such wings, ar- 25 ranged substantially as shown, so that the movement of the side-shaping parts outward in treating each hat will, through the said wings and said pockets, widen the brim-shaping surfaces at the quarters relatively to the 30 sides, substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

LUCIUS H. HOYT.

Witnesses:

DAVID BEERS,

HENRY M. ROBINSON.