

No. 641,470.

Patented Jan. 16, 1900.

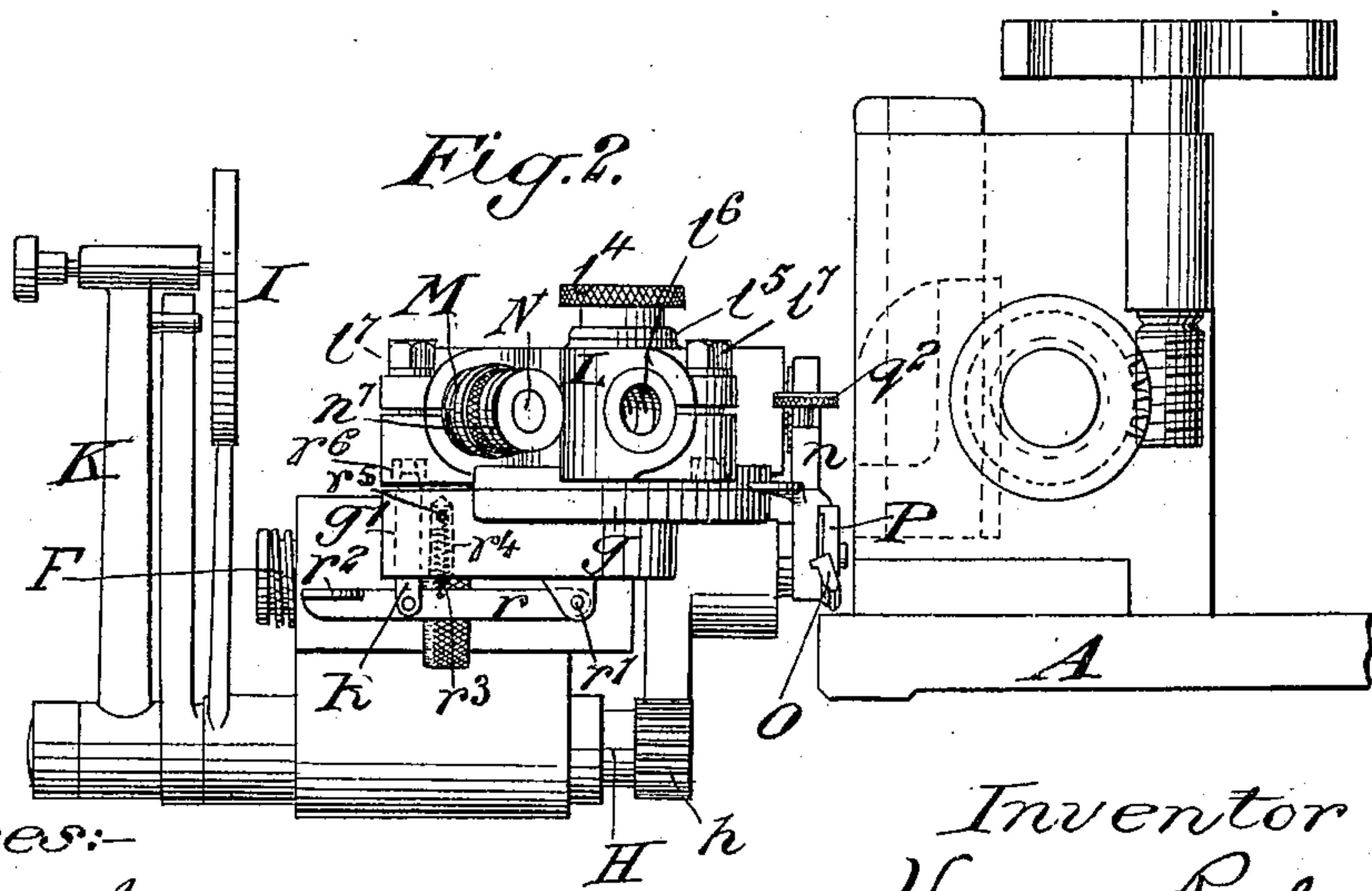
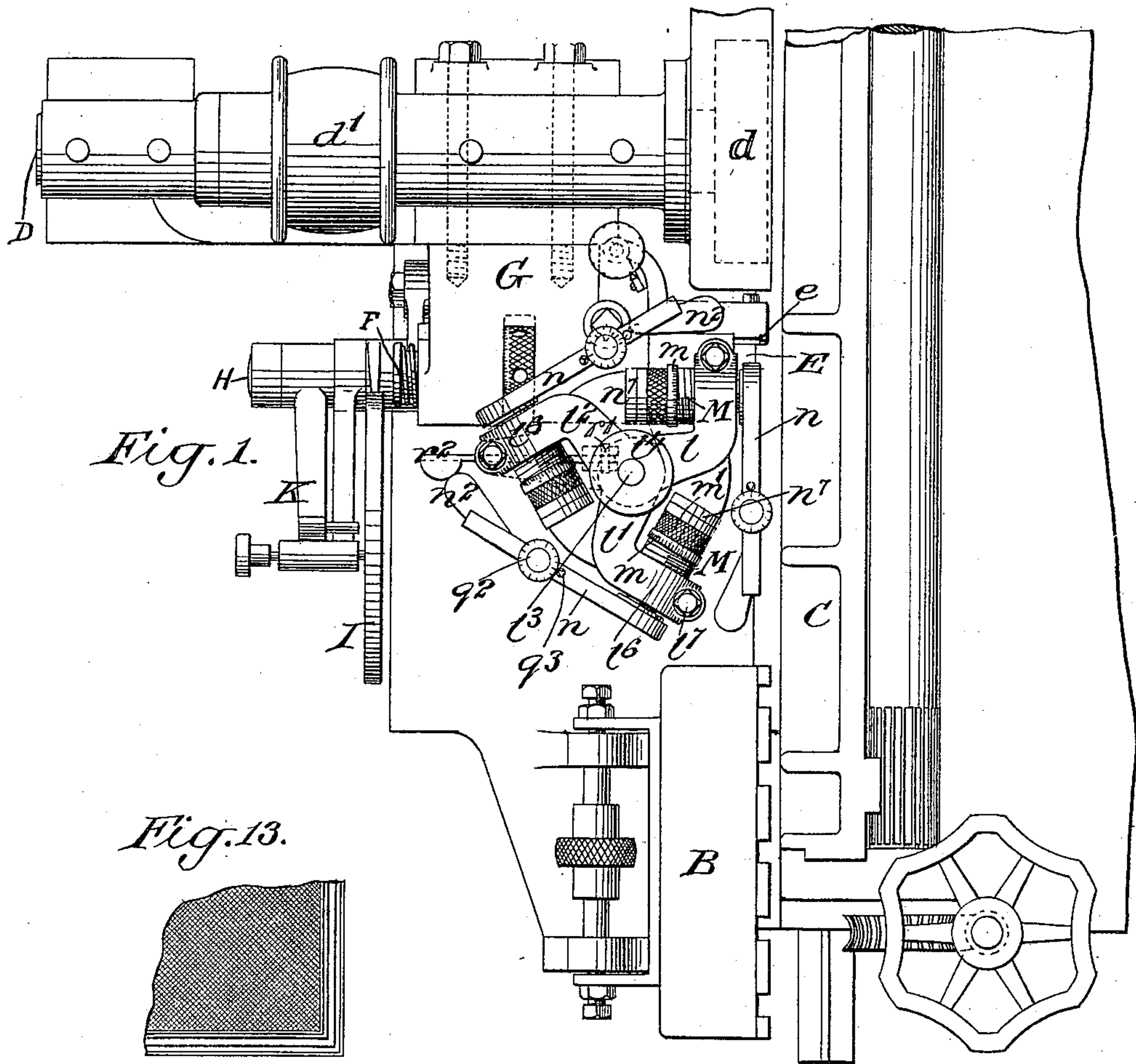
V. ROYLE.

LINING ATTACHMENT FOR BEVELING MACHINES.

(Application filed Jan. 19, 1899.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:
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3 Sheets—Sheet 2.

Fig. 3.

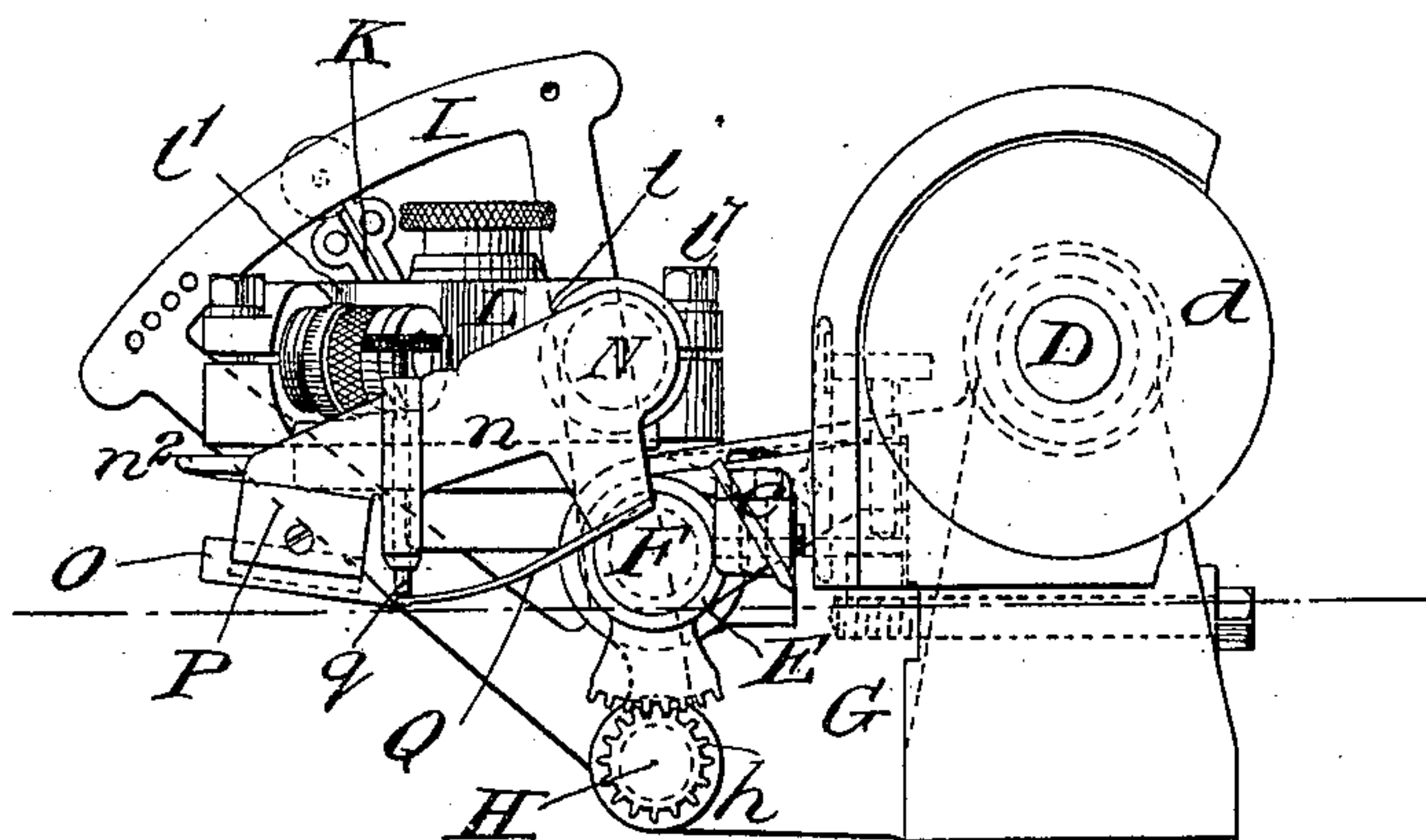


Fig.4. Fig.5. Fig.6

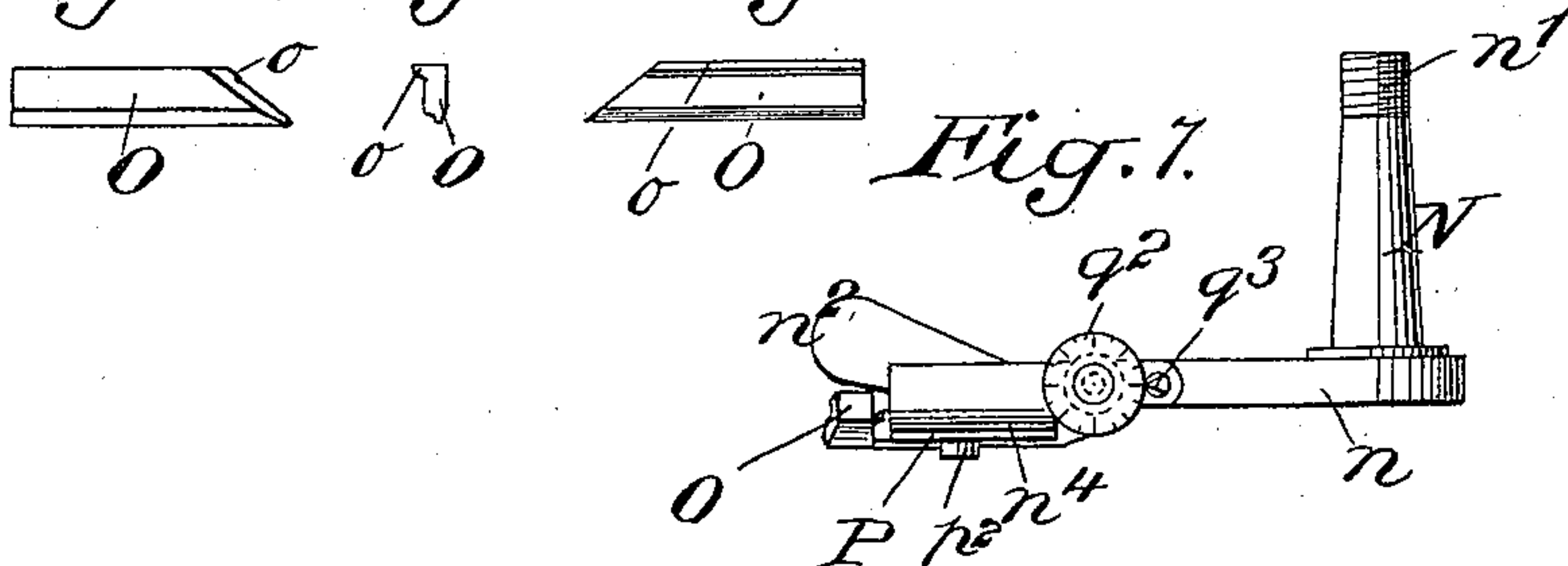


Fig. 8.

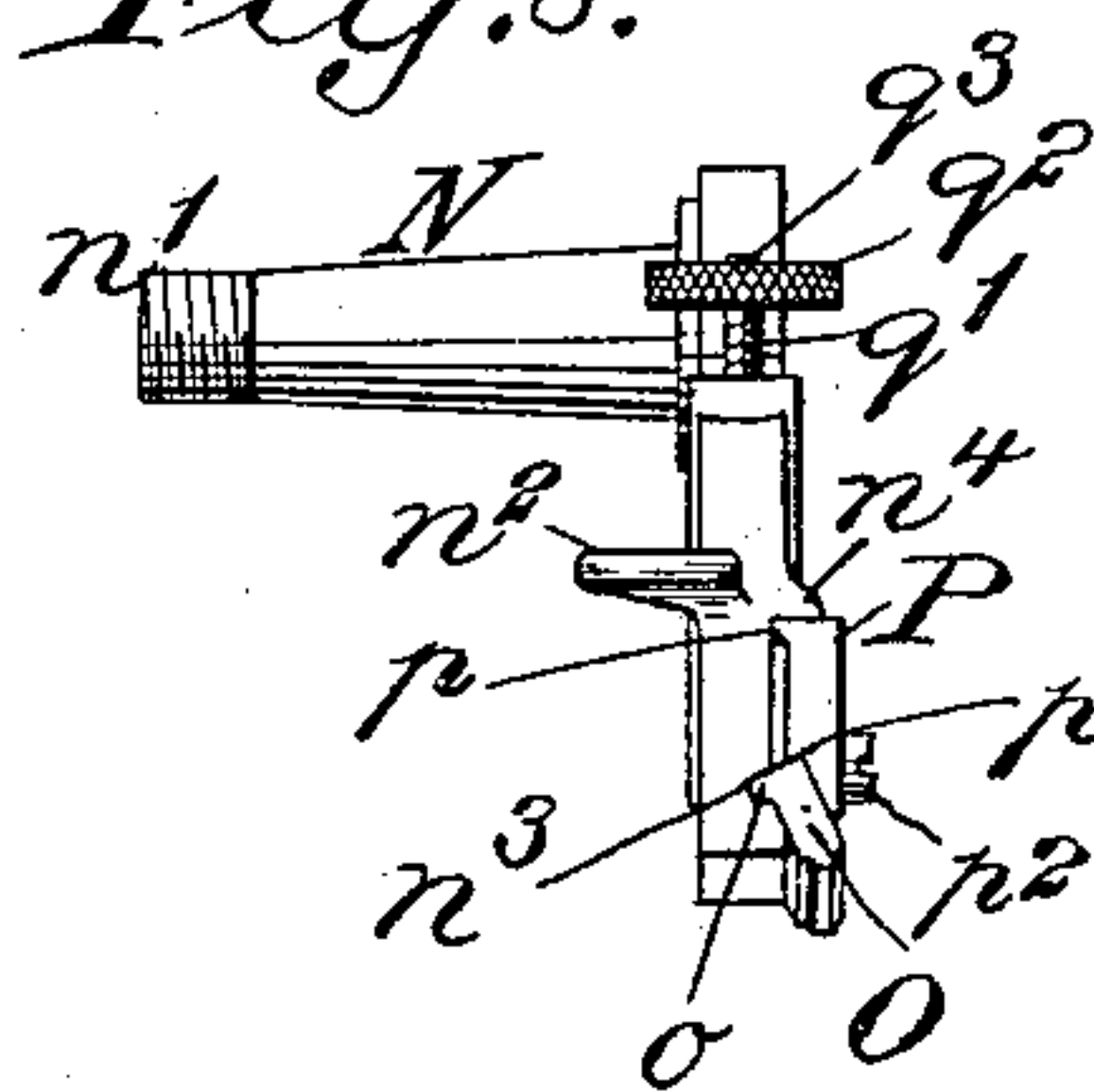


Fig. 9.

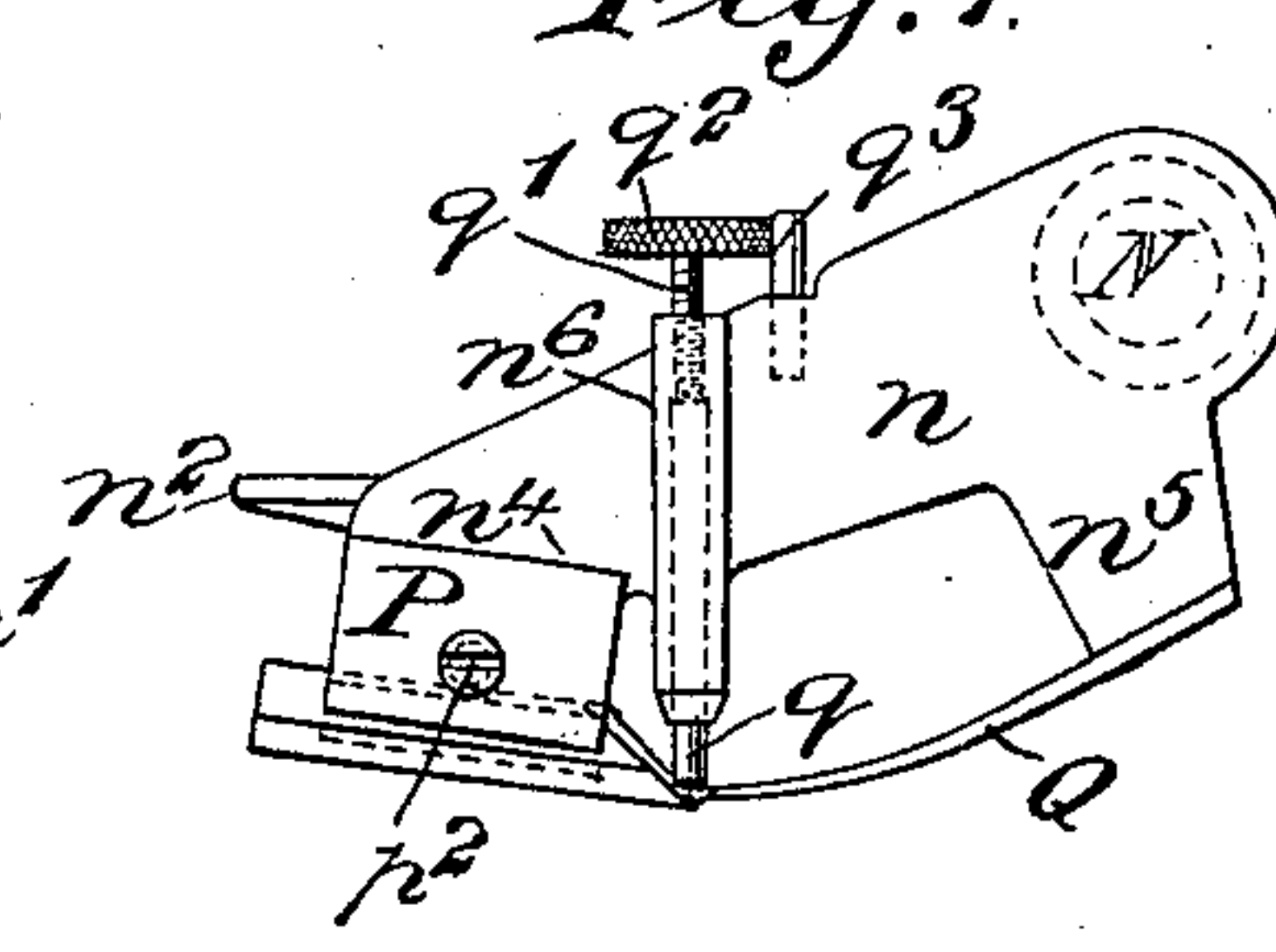
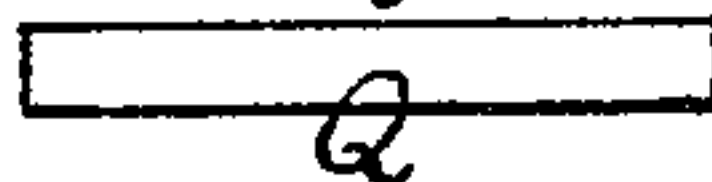


Fig. 14.



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LINING ATTACHMENT FOR BEVELING MACHINES.

(Application filed Jan. 18, 1899.)

(No Model.)

3 Sheets—Sheet 3.

Fig. 10.

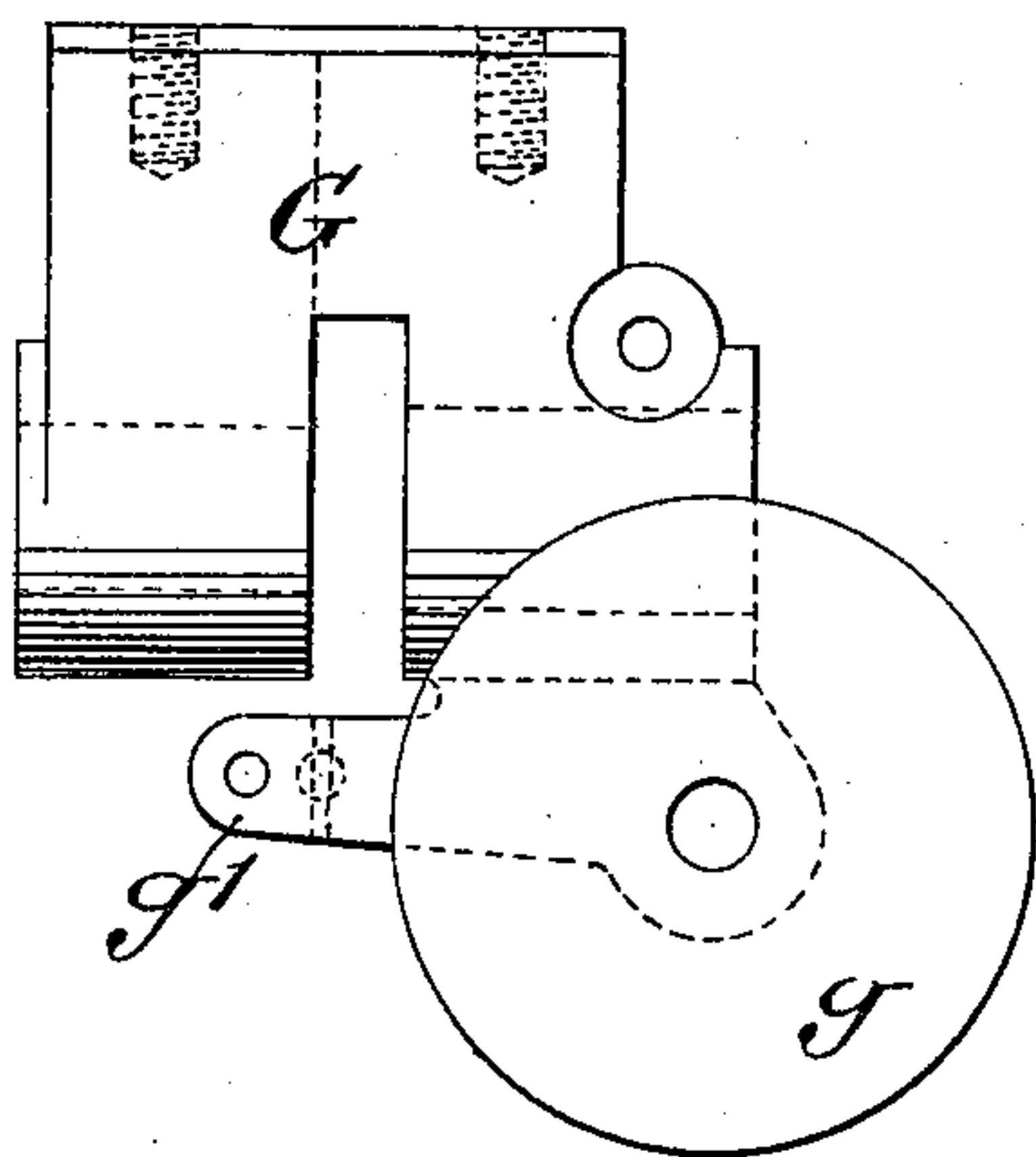


Fig. 11.

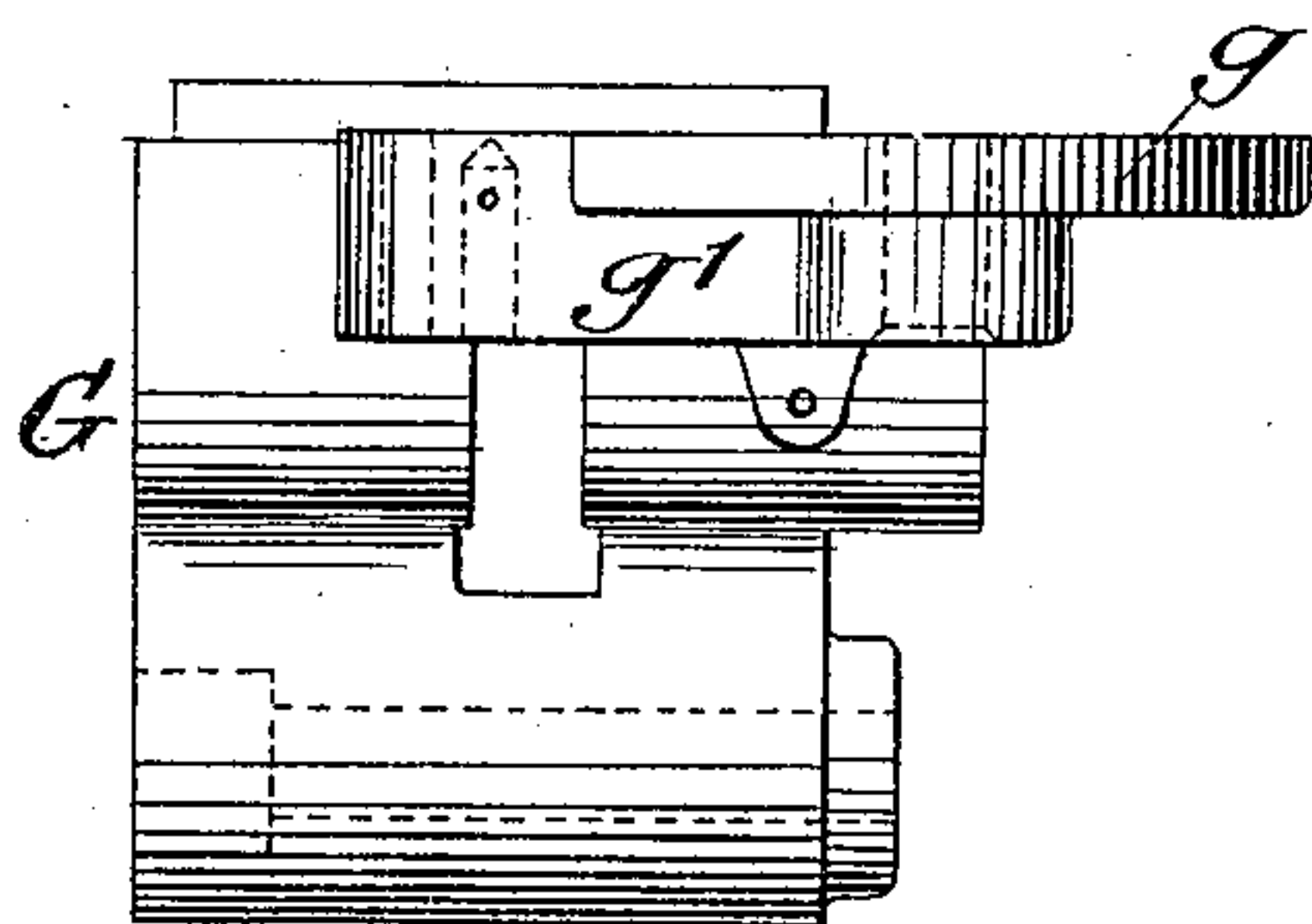
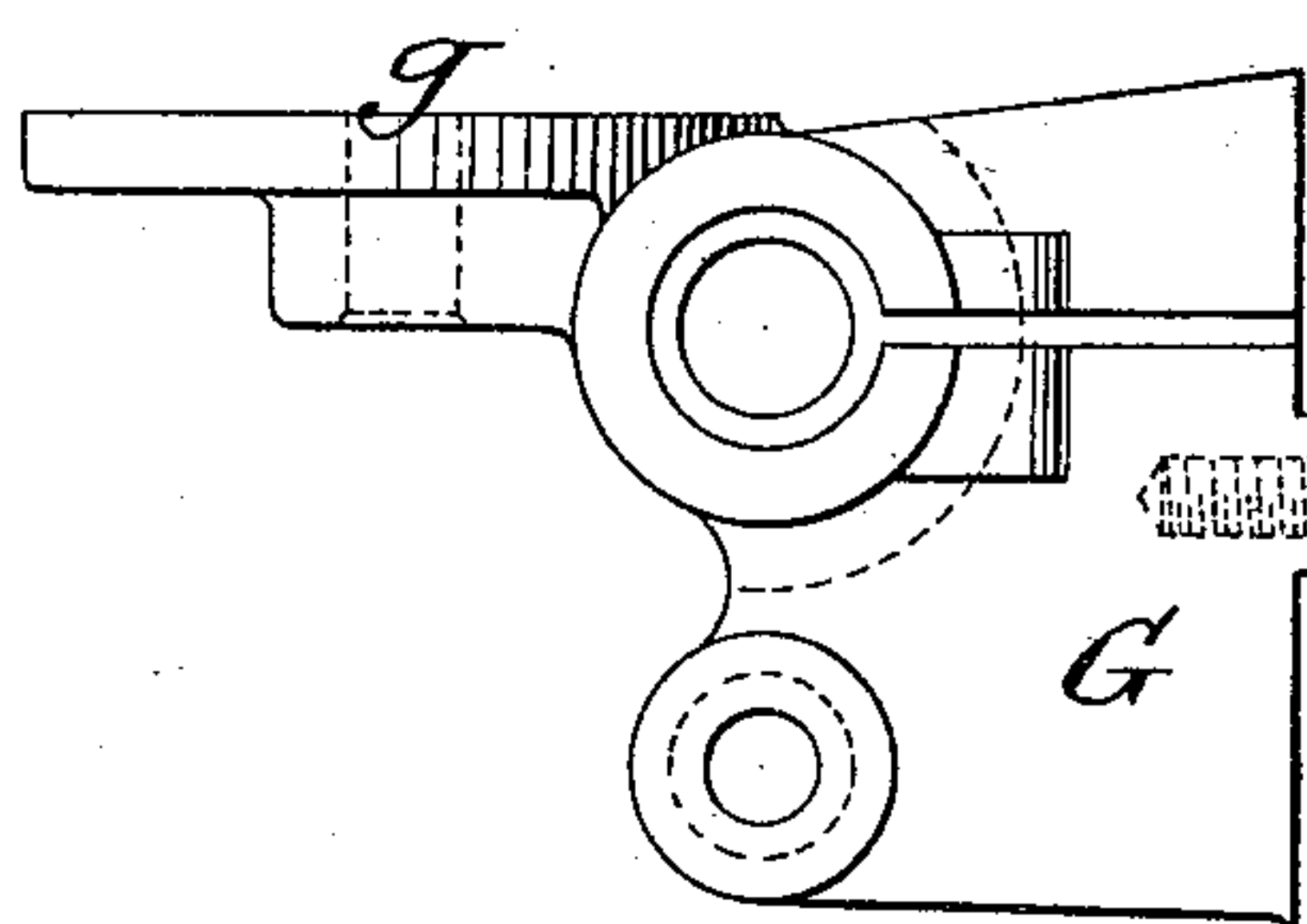


Fig. 12.



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UNITED STATES PATENT OFFICE.

VERNON ROYLE, OF PATERSON, NEW JERSEY.

LINING ATTACHMENT FOR BEVELING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 641,470, dated January 16, 1900.

Application filed January 19, 1899. Serial No. 702,642. (No model.)

To all whom it may concern:

Be it known that I, VERNON ROYLE, a citizen of the United States, and a resident of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Lining Attachments for Beveling-Machines, of which the following is a specification.

My invention relates to lining attachments for beveling-machines, with the object in view of providing simple and effective means for grooving the edges of plates—for example, half-tone plates—to cause them to print a plurality of marginal lines at any desired distance apart.

My invention may be conveniently applied to a machine of the general type shown, described, and claimed in Letters Patent No. 563,886, granted to me on the 14th day of July, 1896, and hence a specific description of the main parts of the machine itself will be omitted, as they are assumed in the present embodiment of my invention to be substantially similar to those shown and described in the patent referred to.

In the accompanying drawings, Figure 1 is a top plan view of the lining attachment and so much of the machine as is necessary to show its operation in connection therewith. Fig. 2 is a front view of the same, a portion of the lining attachment being omitted in order to more clearly disclose the parts behind it. Fig. 3 is a partial view in side elevation, also omitting a part of the lining attachment to more clearly disclose the parts. Figs. 4, 5, and 6 represent in detail one of the cutters, Fig. 4 showing the cutter in side elevation, Fig. 5 in end elevation at the heel end, and Fig. 6 a reverse side elevation. Fig. 7 is a top plan view in detail of one of the cutter-carrying arms with the cutter in position. Fig. 8 is an end view of the same. Fig. 9 is a view of the same in side elevation. Fig. 10 is an enlarged top plan view in detail of the supporting-bracket on which the lining attachment is mounted. Fig. 11 is a view of the same in front elevation. Fig. 12 is a view of the same in side elevation. Fig. 13 is a top plan view of one corner of a plate, representing three marginal grooves at its edge for producing a corresponding number of marginal lines on the print taken from the

plate; and Fig. 14 is a top plan view of the spring guard or arm for regulating the depth of cut.

The table which supports the plate to be operated upon is denoted by A, the gage for determining the line of bevel by B, and the clamping-plate, vertically movable with respect to the table A, by C. These parts, together with the spindle D, carrying the cutter-head *d* and driven by means of a band-pulley *d'* from a suitable source of power, (not shown,) may be of any well-known or approved form such as are at present known in the art. In like manner the longitudinally-sliding bar or spindle F, on which the rocking head E is mounted, the latter carrying the cutter-head *e* and driven by the pinion *h* on the end of the shaft H with the operating-lever K and sector-bar I, may be constructed and arranged to operate quite similar to the corresponding parts shown, described, and claimed in Letters Patent No. 563,886 above referred to.

For the purposes of my present invention I construct the supporting-bracket G (see Figs. 10, 11, and 12) not only with reference to supporting the spindle F and shaft H, but also with a plate *g* and arm *g'* for supporting the multiple cutter lining attachment to which my present invention is particularly directed.

A support for a plurality of lining-cutters is mounted on the plate or table *g* in rotary adjustment, so as to bring any one of the several cutters into cutting position at pleasure. The support consists in the present instance of a hub L, provided with branches radiating therefrom, three branches being shown, denoted by *l l' l''*, their outer portions turned at an angle to their inner portions, so as to occupy positions substantially at right angles to the radii of their support. The hub L is secured in position by means of a stud or axle-pin *l³*, headed at its lower end to engage the countersink in the lower end of the perforation in the plate or support *g* (see dotted lines, Fig. 11) and screw-threaded at its upper end to receive the nut *l⁴*. A washer *l⁵* may be inserted between the nut *l⁴* and the upper end of the hub for the purpose of causing the hub to turn more or less freely on its axle-pin, as may be desired. The end of each of the branches or arm *l l' l''* is provided with an interiorly-screw-threaded split socket *l⁶*

and with the draw-bolt l' for closing and opening the socket at pleasure. Within each socket l^6 there is mounted an exteriorly-screw-threaded sleeve M, provided with a taper bore 5 corresponding to the taper on the spindle N of the swinging cutter-support. The sleeve M is conveniently provided with a micrometer-gage m and with a knurled portion m' for convenience in turning it.

10 The swinging cutter-support n is made integral with or fixed to its spindle N, and the end of the spindle N is provided with a screw-thread n' for receiving the nut n^7 to hold the spindle N in its sleeve M, giving it a sufficient 15 frictional contact with the interior of the sleeve to insure the steadiness of the cutter when in action and for conveniently retaining the arm n , which carries the cutter in such swinging adjustment as it may be placed in by 20 the operator when the cutter is out of engagement with the plate. The free end of the arm n is conveniently provided with a thumb-piece n^2 for the convenience of the operator in pressing the cutter down to its work and 25 also with a slanting groove n^3 for the reception of an offset o on the cutter O. The offset o on the cutter extends longitudinally along one side of the cutter—in the present instance its inner side—and permits the cutter 30 to be slid longitudinally along the groove n^3 in the free end of the arm n in an oblique direction toward and away from the position of the plate to be operated upon, so as to bring the point only of the cutter into engagement 35 with the plate. The cutter is held in its position on the arm n by means of a clamp or cheek piece P, the upper end of which has an offset p on its inner face to hold the body of the clamp away from the adjacent portion of 40 the arm n , and at its lower end the cheek-piece P is provided with a V-shaped groove p' , adapted to engage the outer face of the cutter O and a portion of the back of the cutter. The clamp or cheek piece P is clamped 45 to the arm n by means of a set-screw p^2 . The cheek-piece P is further held positively against displacement edgewise in a direction away from the cutter by means of an offset n^4 on the arm n .

50 The depth of the cut is regulated to the greatest degree of accuracy by means of a spring-guard Q, secured at one end to a depending lug n^5 on the arm n and having its free end in proximity to the cutting-point of 55 the cutter O. The free end of the guard Q normally assumes a position under its spring tension above the point where it is to determine the depth of cut, and it is depressed into its working position and there held by 60 means of a plunger q , working in a socket-piece n^6 , fixed to or made a part of the arm n and actuated by means of a screw q' , having a threaded engagement in the upper portion of the socket n^6 , the said screw being provided 65 with a thumb-nut q^2 , having a micrometer-gage on its upper face arranged to work

in conjunction with a pin q^3 , set in the arm n , with an edge in proximity to the periphery of the nut q^2 .

It is to be understood that each of the 70 branches $l' l^2$ is provided with a cutter-holder and its adjustments, similar to that hereinabove described, and shown in detail in Figs. 4 to 9, inclusive, and by turning the supporting-hub L to bring any one of these several 75 swinging cutter-supports into alinement with the plate the cutter carried by such swinging support may be depressed by the operator into position to engage the plate as the latter 80 is fed with the carriage A. Thus when it is desired to operate upon a plate or series of plates and make provision for two or three lines at its margin—for example, a margin 85 like that represented in Fig. 13—the sleeves M in the several branches $l' l^2$ may be set in their sockets, so as to bring their respective cutters at different distances away from the center of the hub L—that is, so that they will 90 engage the plate being operated upon at different distances from its edge, the distance to be accurately determined by the adjustments of the several sleeves before beginning the operation. This having been accomplished a plate or series of plates may be operated 95 upon consecutively without further changing the positions of the sleeves M in the branches, the operator being simply required to rotate the hub L to bring the cutters successively into position to operate upon 100 the plate as the latter is drawn beneath them.

For holding the hub L in its adjusted position and providing for its ready release in order to rotate it step by step, I find it convenient to employ a catch-pin R, working vertically through a perforation in the arm g' of 105 the support and connect it at its lower end with a lever r , pivoted at r' to a lug depending from the supporting-arm g' and provided at its free end with a thumb-piece r^2 for depressing it. I further provide a spring r^3 , 110 attached at its lower end to the lever r and conveniently housed within a socket r^4 in the under side of the arm g' , the upper end of the spring being removably secured in the socket by means of a pin or screw r^5 . The spring r^3 115 is intended to be of sufficient power to hold the lever and the catch-pin normally elevated, with the upper end of the catch-pin R in engagement with the socket r^6 in the under side 120 of each of the branches $l' l^2$.

In providing the several advantageous adjustments hereinabove described for the cutters it is a matter of great importance that there should be no lost motion and that the cutter should be firmly and conveniently held 125 positively in position. It is to this end that I have provided the cutter with the longitudinal offset, which when received in its corresponding groove in the support and pressed home by the clamping-cheek furnishes a very 130 secure holder for the cutter, preventing it from any liability to chatter and at the same

time permitting its ready adjustment in a longitudinal direction as it becomes worn by use and grinding.

It will further be observed that the lining attachment hereinabove described is so constructed and arranged that it may be applied to beveling-machines already in use, as well as those made particularly for receiving it, and that the attachment may be removed and applied to the machine at pleasure, according as the machine is required to simply do the work of beveling or both beveling and lining.

It is evident that changes might be resorted to in the form and arrangement of the several parts without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the structure herein set forth; but

What I claim is—

1. In combination a cutter for beveling, a cutter for lining and a sliding work-support arranged to bring a plate into engagement with the said beveling and lining cutters and means coacting with the lining-cutter and arranged to depend upon the plate to regulate the depth of cut of the lining-cutter, substantially as set forth.

2. In combination a lining-cutter, a work-support arranged to present the work to the cutter and means coacting with the lining-cutter and arranged to rest upon the work to determine the depth of cut of the lining-cutter, substantially as set forth.

3. In combination a lining-cutter, a support for the cutter free to move toward and away from the work, a reciprocatory table for supporting the work in position to engage the cutter and a cutter-guard arranged to rest upon the surface of the work to determine the depth of cut of the cutter, substantially as set forth.

4. In combination a rotary cutter for beveling the edge of the plate, a lining-cutter, means coacting with the lining-cutter and arranged to depend upon the surface of the plate to determine the depth of cut of the lining-cutter, a set-gage for indicating the line of cut and a sliding table and clamp for presenting the work to the beveling and lining cutters, substantially as set forth.

5. The combination with a plate-support, of a plurality of independent cutters, a main support common to the several cutters and independent supports one for each cutter, the said common support being arranged to bring the cutters on the independent supports into positions to engage the plate at different distances from the edge of the plate, substantially as set forth.

6. The combination with a reciprocatory plate-support, of a plurality of cutters, a rotatably-adjustable support common to the several cutters and means for adjusting the cutters at different distances outwardly from the center of the rotary support to bring them

into working positions at different distances from the edge of the plate, substantially as set forth.

7. The combination with a reciprocatory plate-support, of a plurality of cutters, a rotatably-adjustable support common to the several cutters and individual cutter-holders having a swinging engagement with said rotary support, substantially as set forth.

8. The combination with a reciprocatory plate-support, of a plurality of cutters, a horizontal rotatably-adjustable support common to the several cutters and vertically-swinging individual cutter-holders carried by said rotatably-adjustable support, substantially as set forth.

9. The combination with a plate-support, of a rotary cutter-support provided with a plurality of branches, an adjustable sleeve located in each of the branches, a cutter-holder having a spindle secured in the adjustable sleeve for permitting a swinging movement of the cutter relative to the said rotary support and means for locking the said rotary support in its various rotary adjustments, substantially as set forth.

10. The combination with the swinging cutter-support and means for securing the cutter thereto, of a spring-guard for determining the depth of cut and means for holding the said spring-guard in varying positions with respect to the point of the cutter, substantially as set forth.

11. A lining attachment for beveling-machines comprising the cutter-holder provided with a seat for the reception of the cutter, the cutter provided with an offset along its side, a clamp or cheek piece having its lower edge engaged with the side and back of the cutter and its upper edge engaged with the offset on the holder and means for holding the clamping-piece removably in position, substantially as set forth.

12. The combination with the swinging cutter-support, the cutter and a spring-guard for determining the depth of cut, of a micrometer-screw for holding the spring-guard in the desired operative position with respect to the point of the cutter, substantially as set forth.

13. In combination a suitable supporting-frame, a rocking cutter-head, a shaft and connecting mechanism for operating the rocking cutter-head, a lining-cutter, a bracket forming a common support for the said rocking cutter-head, shaft and lining-cutter, and means for connecting the said bracket with the supporting-frame, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 17th day of January, 1899.

VERNON ROYLE.

Witnesses:

D. B. VAN BUREN,
HEBER ROYLE.