

(No Model.)

2 Sheets—Sheet 1.

W. P. DAVIS.  
KEY SEATING MACHINE.

No. 518,023.

Patented Apr. 10, 1894.

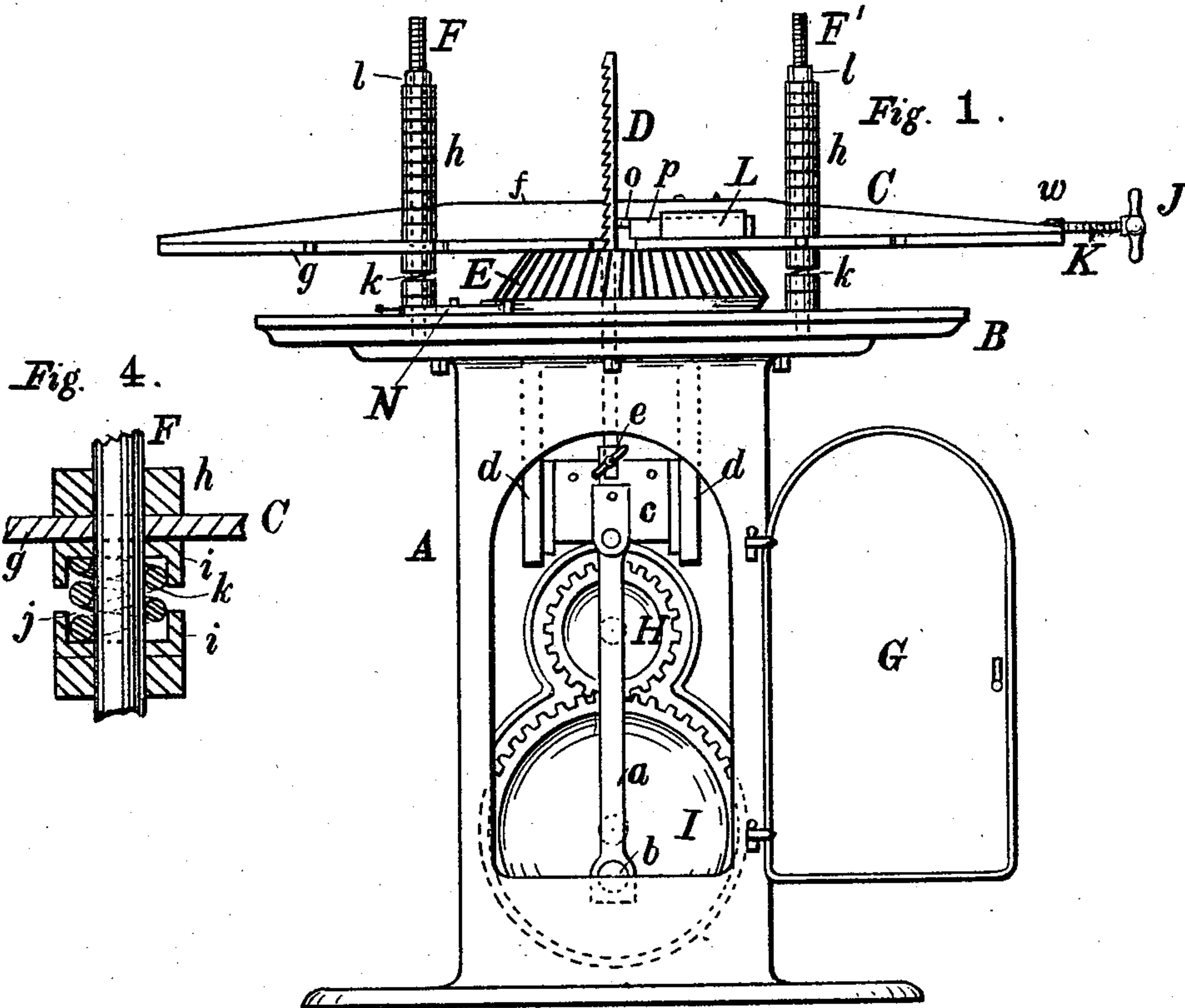


Fig. 4.

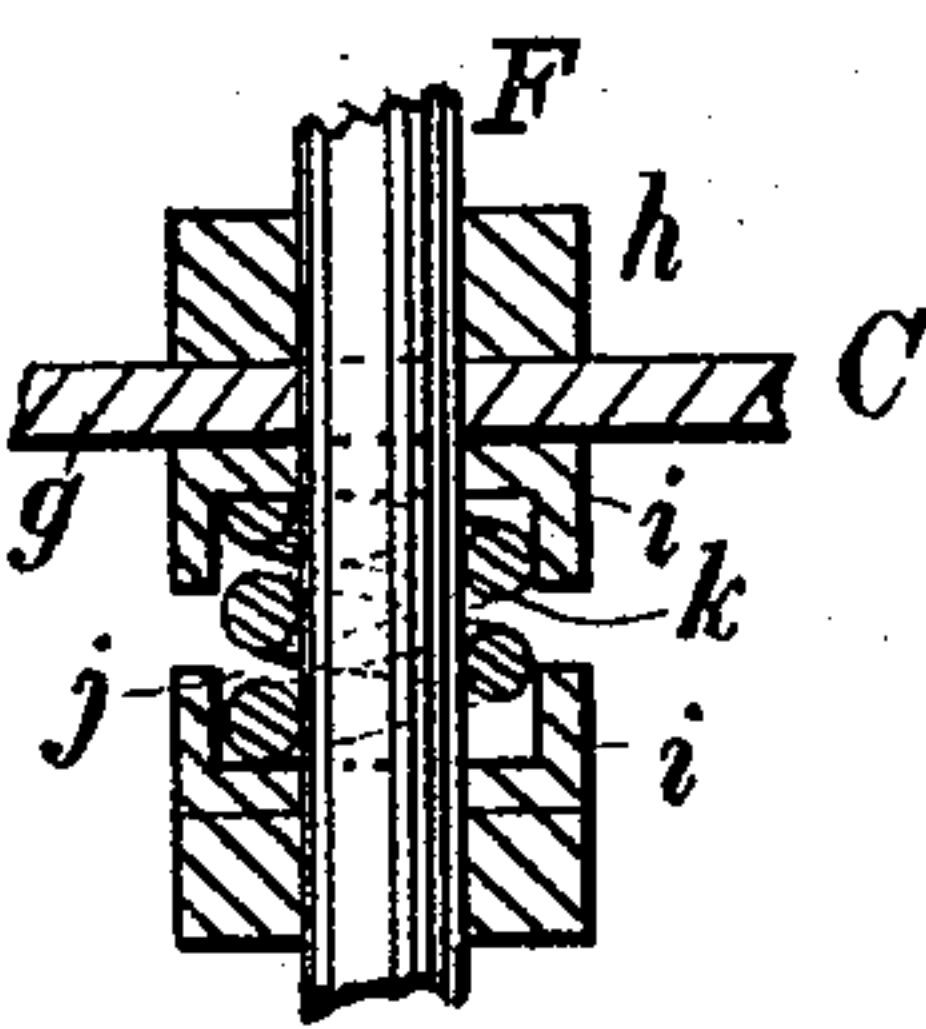


Fig. 2.

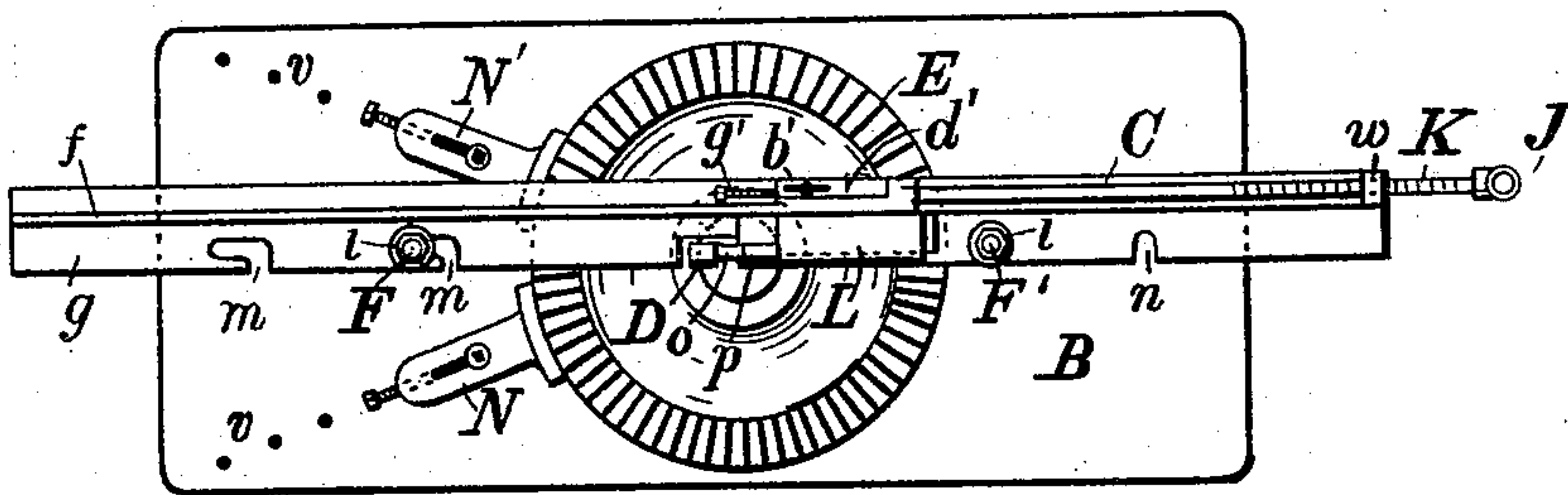


Fig. 3.

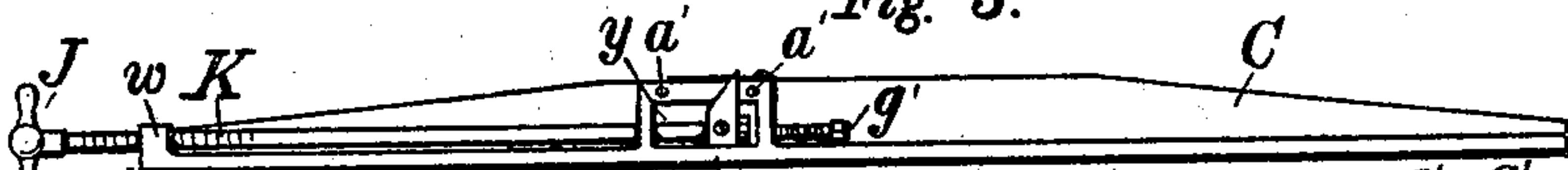


Fig. 5.

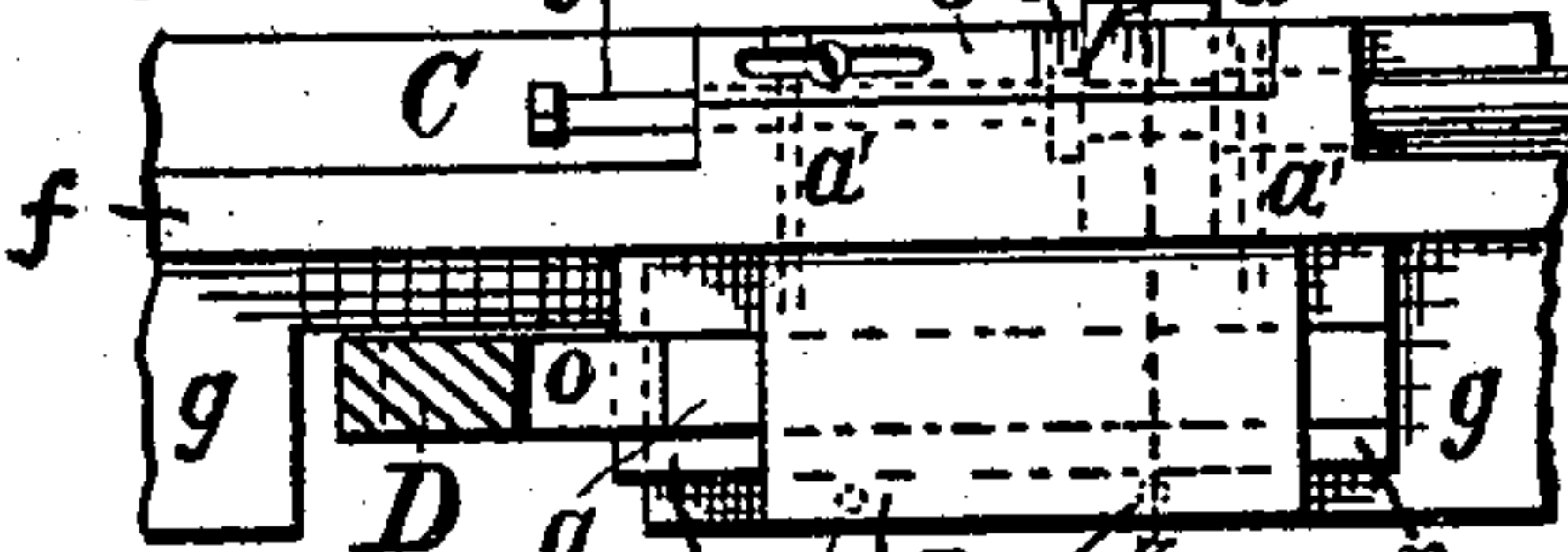


Fig. 6.

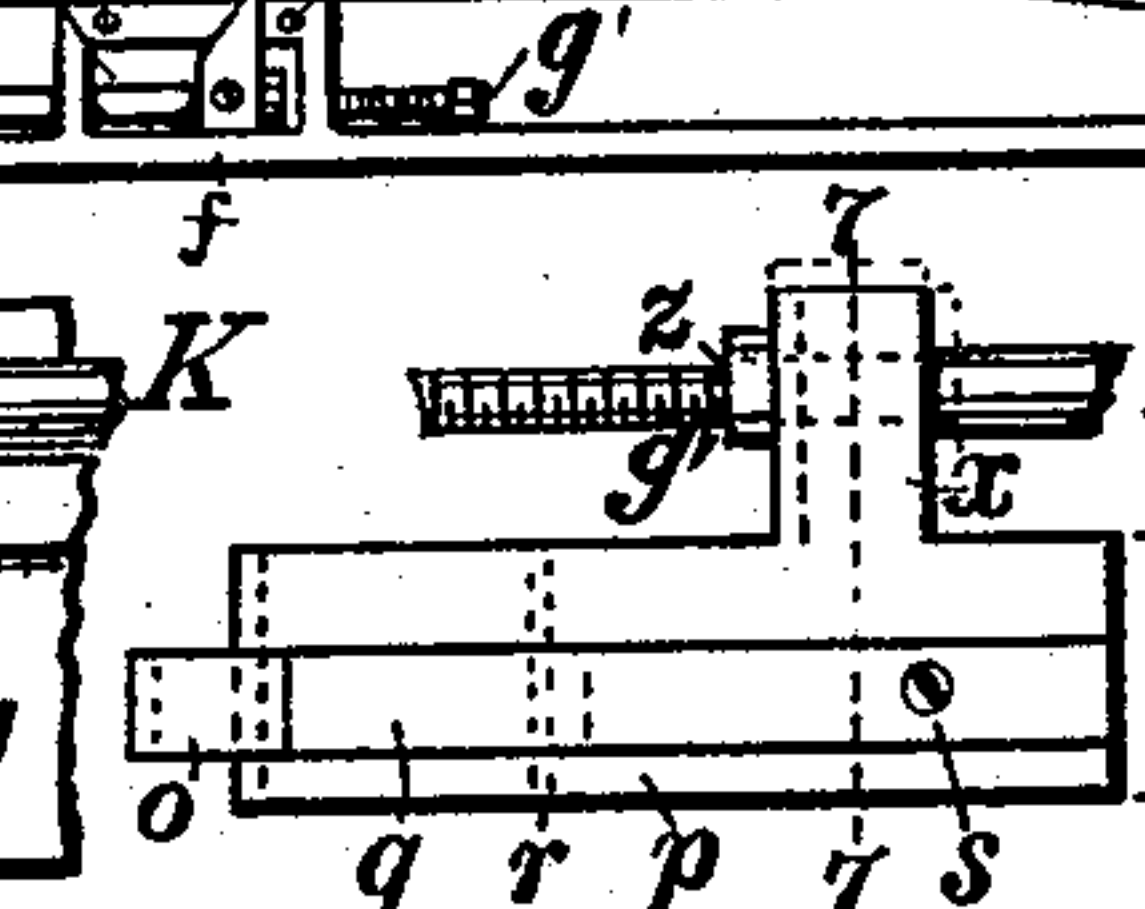
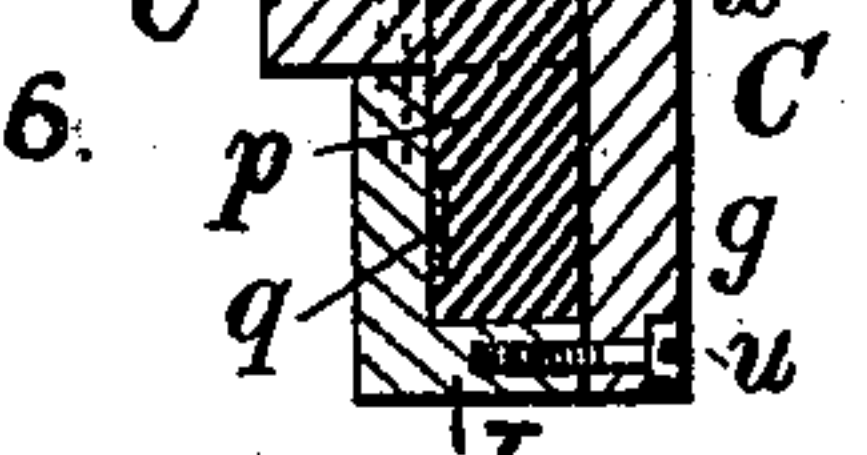
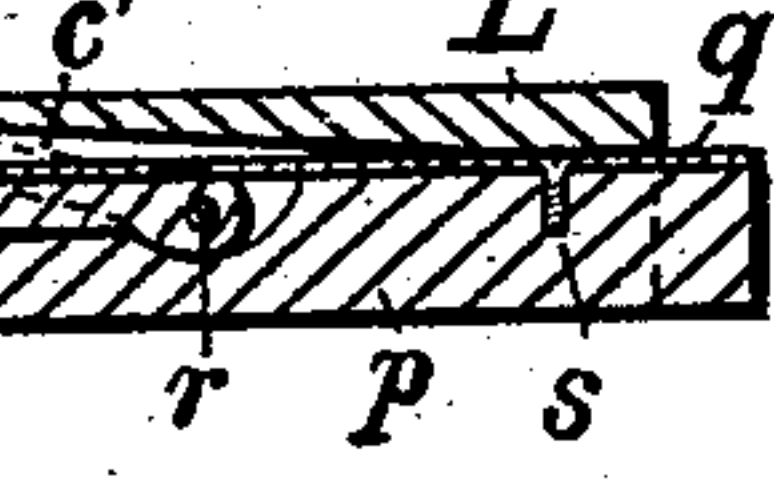


Fig. 7.



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Fig. 8.

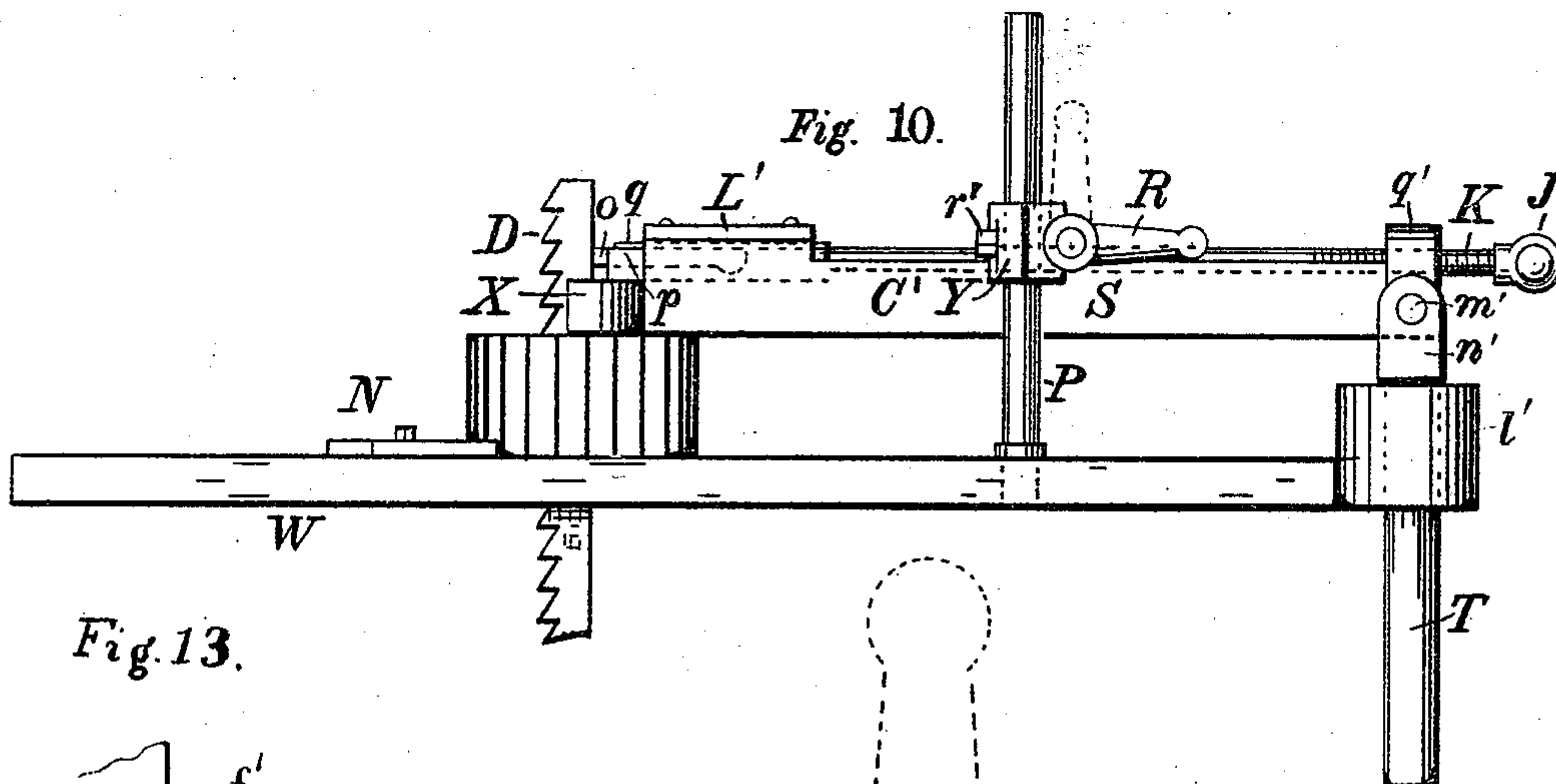
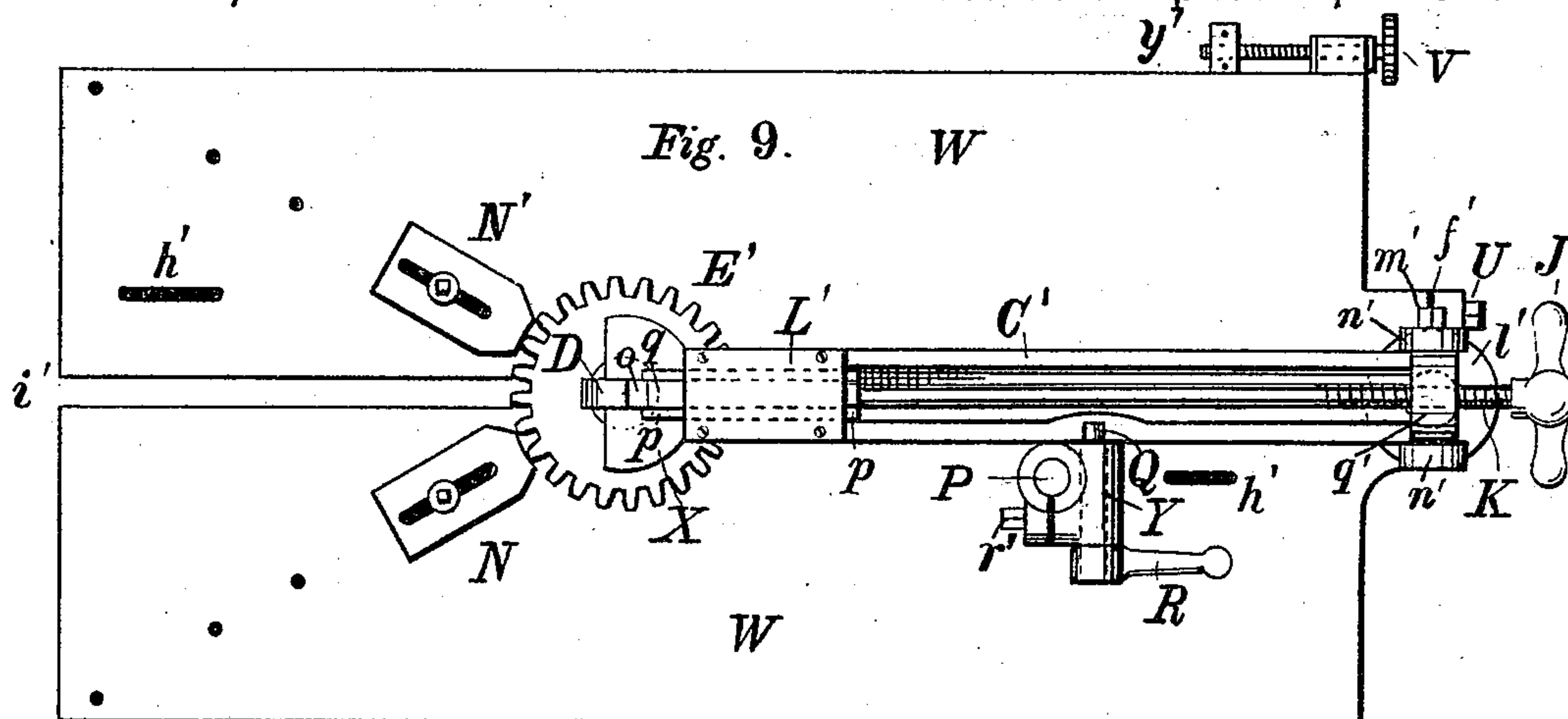


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att'y

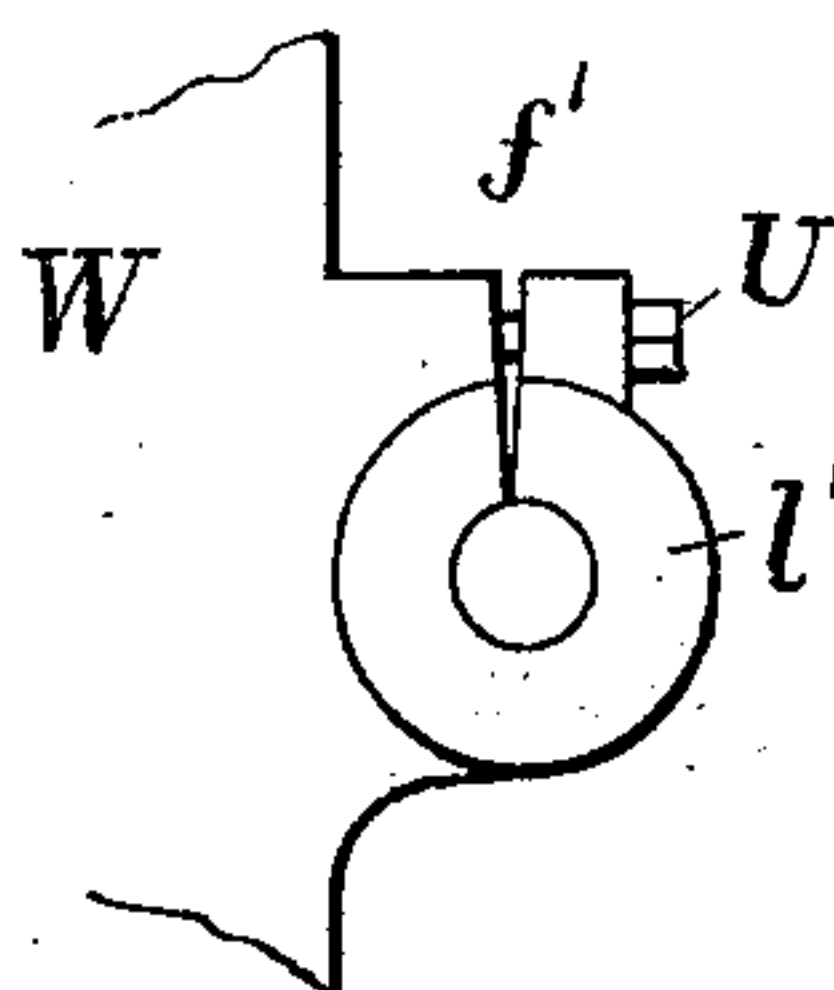
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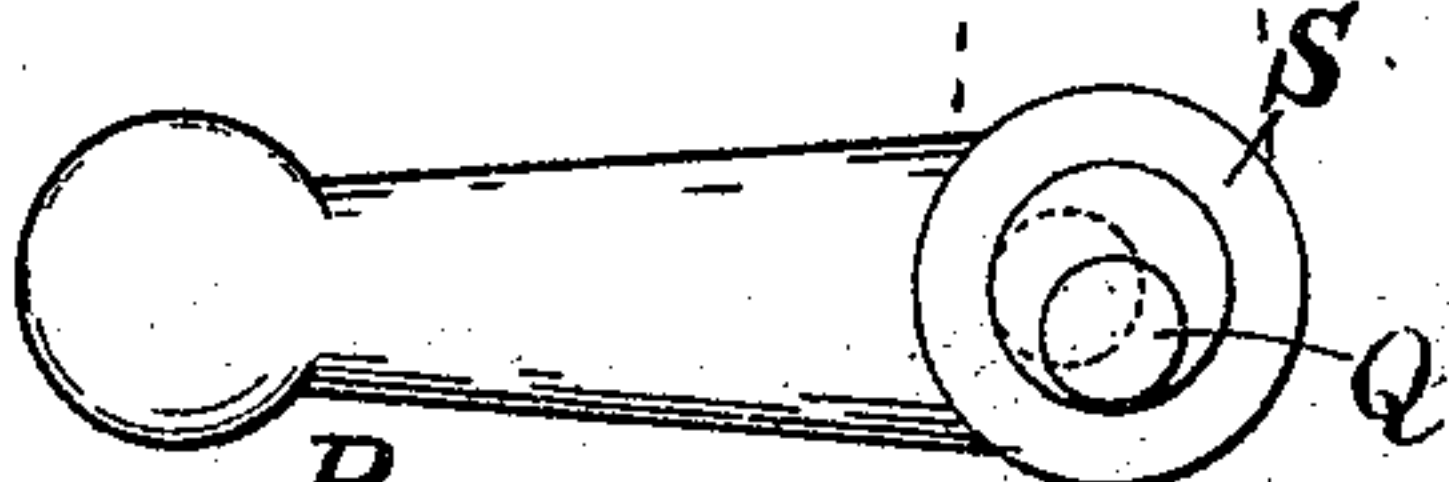
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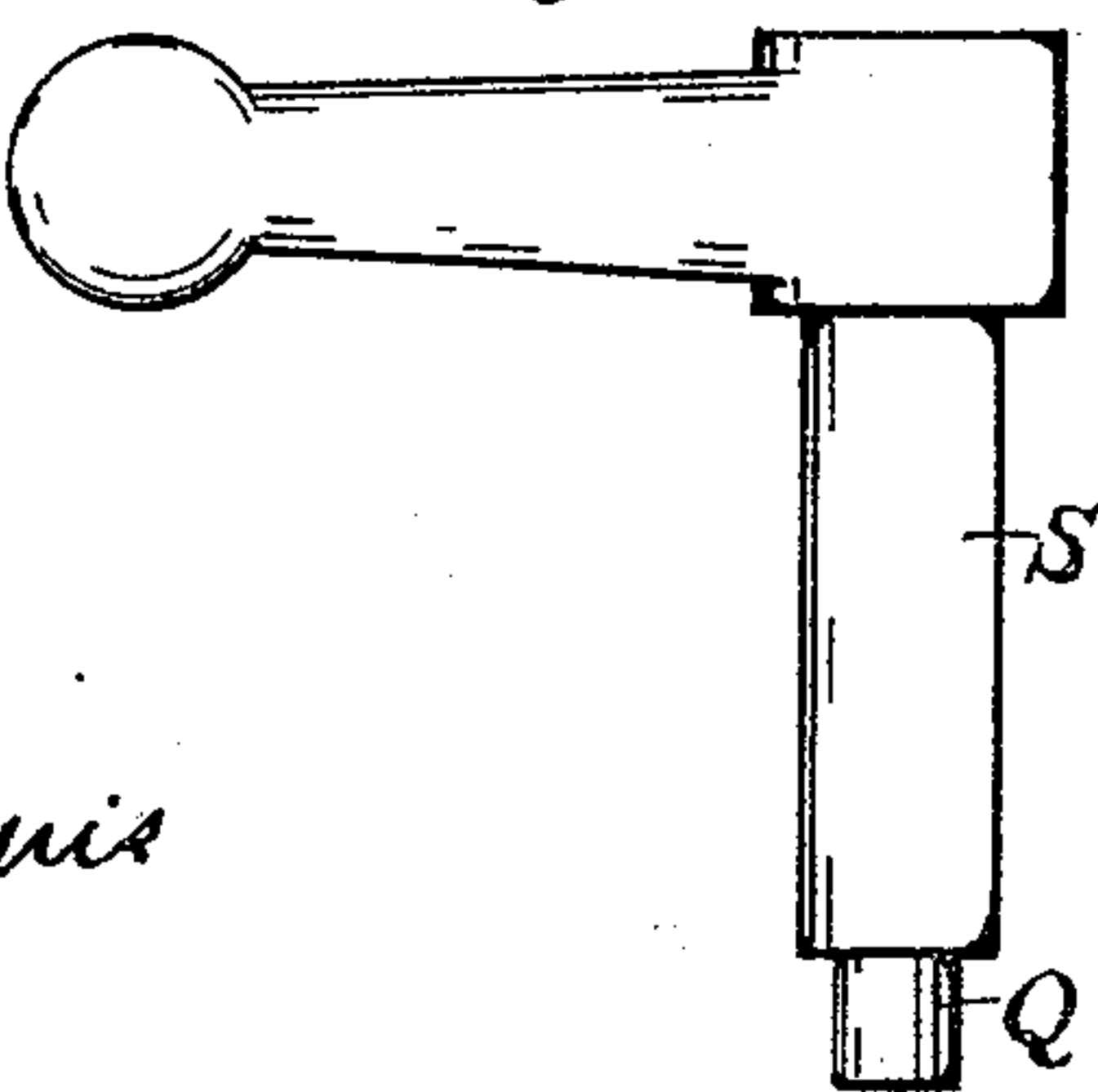
*Fig. 13.*



*Fig. 11.*



*Fig. 12.*



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# UNITED STATES PATENT OFFICE.

WILLIAM P. DAVIS, OF ROCHESTER, NEW YORK:

## KEY-SEATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 518,023, dated April 10, 1894.

Application filed July 26, 1893. Serial No. 481,488. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM P. DAVIS, a citizen of the United States, residing at Rochester, in the county of Monroe, in the State of New York, have invented certain Improvements in Key-Seating Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to certain improvements in the construction of machines for cutting key-seats in gears, pulleys, collars, &c.,—which improvements are fully described and illustrated in the following specification and the accompanying drawings,—the novel features thereof being specified in the claims annexed to the said specification.

In the accompanying drawings representing a key-seating machine embodying my improvements,—Figure 1 is a front elevation. Fig. 2 is a plan view. Fig. 3 represents the pressure or clamping bar as seen from the rear side. Fig. 4 is a central vertical section of the collars and spring on the clamping rods. Fig. 5 is a plan view of the central portion of the clamping bar. Fig. 6 represents the sliding back and other support detached. Fig. 7 is a section on the line 7—7, Figs. 5 and 6. Fig. 8 is a vertical section representing the operation of the cutter-support. Fig. 9 represents a modified manner of attaching the clamping bar on an enlarged scale, the table not being shown. Fig. 10 is a plan view of the same. Figs. 11 and 12 represent the eccentric and handle for clamping the bar. Fig. 13 is a plan of a sectional detail.

A, Fig. 1, represents a suitable supporting frame, which is made in the form of a pillar, provided with the door G, and inclosing the gearing H I, by which motion is transmitted to the reciprocating toothed bar or cutter D.

B is the table, supported on the pillar A, and provided with the threaded stud bolts F F', and the pressure or clamping bar C.

E represents a gear clamped in place on the table by the bar C, in position to have a key-seat cut in the opening in its hub by the cutter D.

Power is applied to the machine by means of suitable pulleys on the shaft of the gear H, which meshes with the gear I, carrying the crank pin b and communicating motion by the pitman a to the cross-head c. Suitable

guides d d are arranged inside the pillar, in which the cross-head reciprocates. The cutter D is attached to the cross-head by the bolt or screw e. The cutter passes through suitable guides in the table. The stud-bolts F F' are screwed or otherwise inserted in the table,—provision being made for placing them at different distances apart, to adapt the machine for handling large or small gears.

N N' represent adjustable gages which may be provided with adjusting screws, and attached to the table by bolts inserted in some of the series of holes v in the table, by which means the gears of different sizes may be set in suitable relations with the cutter. The gages serve to locate the gears in the proper positions on the table. The clamping bar C is made with the flanges f and g,—the horizontal flange g being provided with a series of notches m and n, through which the studs F F' pass. The stud-bolts F F' are provided with a series of collars, h, through which the pressure of the nuts l is transmitted to the clamping-bar C, which is thus caused to hold the gear firmly against the table. Below the bar, the stud-bolts F F' are provided with the washers i i, having recesses j on their opposing faces, and inclosing the springs k, which serve to raise the bar C when the nuts l are loosened, and thus facilitate the insertion and removal of the gears. The springs serve to adapt the bar to any thickness of work. The flange g is notched or recessed where the cutter passes through it. The bar C supports a sliding block p, which carries the pivoted cutter-support o, which bears against the back of the cutter during the downward stroke, and swings upward during the up stroke, so as to relieve the cutter, as indicated by the full and dotted lines in Fig. 8. The sliding block and cutter-support are arranged to be adjusted lengthwise of the bar by means of the screw-rod K, provided with the hand-wheel J, and passing through the threaded boss w. The inner end of the rod is fitted to a lug, x, Figs. 6 and 7, attached to one side of the sliding block, and arranged to move in a suitable recess y, Fig. 3. The shaft is reduced in size where it passes through the lug, and has a nut z, Fig. 6, on its end. The sliding block p is secured in place on the bar against the flanges f and g, by the angular plate L, which is fastened in



place by the screws *u*, Fig. 7, having countersunk heads and passing upward from below the bar *g*, and the screws, *a'*, passing horizontally through the flange *f*. The cutter-support *o* is  
 5 pivoted at *r* in a slot or recess in the upper part of the block *p*. A recess, *c'*, Fig. 8, is formed in the lower side of that portion of the angular plate *L* which passes over the sliding block, to permit the movement of the support  
 10 *o*. A leaf spring, *q*, is secured to the upper side of the sliding block *p* by the screws *s*, and bears on the top of the support *o*. *b'*, Fig. 5, is a plate adjustably secured to the bar and carrying a scale *e'*. A pointer, *d'*, attached  
 15 to the block *x*, passes over the scale as the sliding block is adjusted by the screw rod *K*. An adjustable stop is arranged to limit the movement of the sliding block, to determine the depth of the key-seat. The screw *g'* Figs.  
 20 2, 5, and 6 serves conveniently for such stop. This screw is inserted in the bar *C* in a threaded hole, being arranged so that its point comes opposite the end of the threaded adjusting rod *K*, and it arrests the inward travel of the  
 25 rod and the sliding block at any desired point. In Figs. 9 and 10 the clamping bar *C'* is supported by the shaft *T* and the rod *P*, carrying the eccentric *Q*, by which the bar is forced against the gear *E'*. In this arrangement of  
 30 the bar, it may be attached directly to the table *B*, but is preferably carried by the plate *W*, which is provided with openings *h'* for bolts by which it is secured in place on the table. The plate *W* has a slot *i'* in which  
 35 the cutter *D* plays. It is also provided with an adjusting screw *V*, which passes through a lug on the plate, and also through a threaded block *y'* secured to the table. (Not shown.) The shaft *T*, passes through a boss *l'*, which  
 40 is split on one side. The split is extended through the connected part or projection of the table as indicated in Figs. 9 and 13 and is provided with screw *U*, by which the shaft is clamped in the boss in any position in  
 45 which it may be set, to adapt the machine to different thicknesses of gears or pulleys. The bar *C* is pivoted on the bolt *m'* in the yoke *n' n'* on the upper end of the rod *T*. The bar is channeled on its upper side to receive the  
 50 threaded rod *K*, to the inner end of which the sliding block *p* is attached in any suitable way, so that it is drawn backward and forward by turning the rod. The block slides in a recess in the bar, being held in place by  
 55 the plate or cap *L'*. The block carries the piv-

oted cutter-support *o*, which is pressed down by the spring *q*. The inner end of the bar is provided with the extension or bearing piece *X*, which is slotted to receive and guide the  
 60 cutter *D*. The threaded rod *K* passes through a threaded boss *q'* on the end of the bar *C*. The rod *P* is inserted in the table, in suitable relation with the bar *C*, so that the eccentric *Q* may bear on the upper surface of the bar, and  
 65 force the piece *X* against the gear. The eccentric *Q* is carried by the spindle *S*, provided with the handle *R* and arranged to revolve in the block *Y*, which slides up and down on the rod *P*, being provided with the clamping-screw *r'*. By turning the handle *R* from the  
 70 position indicated by the dotted to the full lines in Fig. 10, the eccentric is caused to clamp the bar and gear in place. The screw *V* serves to adjust the plate *W* on the table of the machine, so that any desired taper or  
 75 bevel may be given the key-seat.

I claim—

1. The combination, in a key-seating machine, of the supporting table, the reciprocating cutter, the clamping bar *C*, having  
 80 flange *f*, the sliding block *p* carrying cutter-support *o* and spring *q*, the angular plate *L* and the adjusting screw *K*, substantially as described.

2. The combination, in a key-seating machine, of the supporting table, the reciprocating cutter, the clamping bar, and pivoted  
 85 cutter support, of the threaded rods *F F'*, recessed washers *i* and spring *k*, substantially as described.

3. The combination, in a key-seating machine, of the supporting table, the clamping bar, the recessed sliding block *p*, pivoted cut-  
 90 ter-support *o*, and spring *q*, attached to the sliding block and bearing on the support, and the adjusting screw *K*, substantially as described.

4. The combination, in a key-seating machine, of a suitable support, the reciprocating cutter, clamping bar *C* carrying pivoted cut-  
 100 ter support *o* and spring *q*, the shaft *T* supporting the outer end of the clamping-bar, the rod *P*, adjustable block *Y* and the eccentric *Q*, and the adjusting screw *K*, substantially as described.

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Witnesses:

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