

**No. 620,890.**

**Patented Mar. 14, 1899.**

**B. F. CURTIS.**

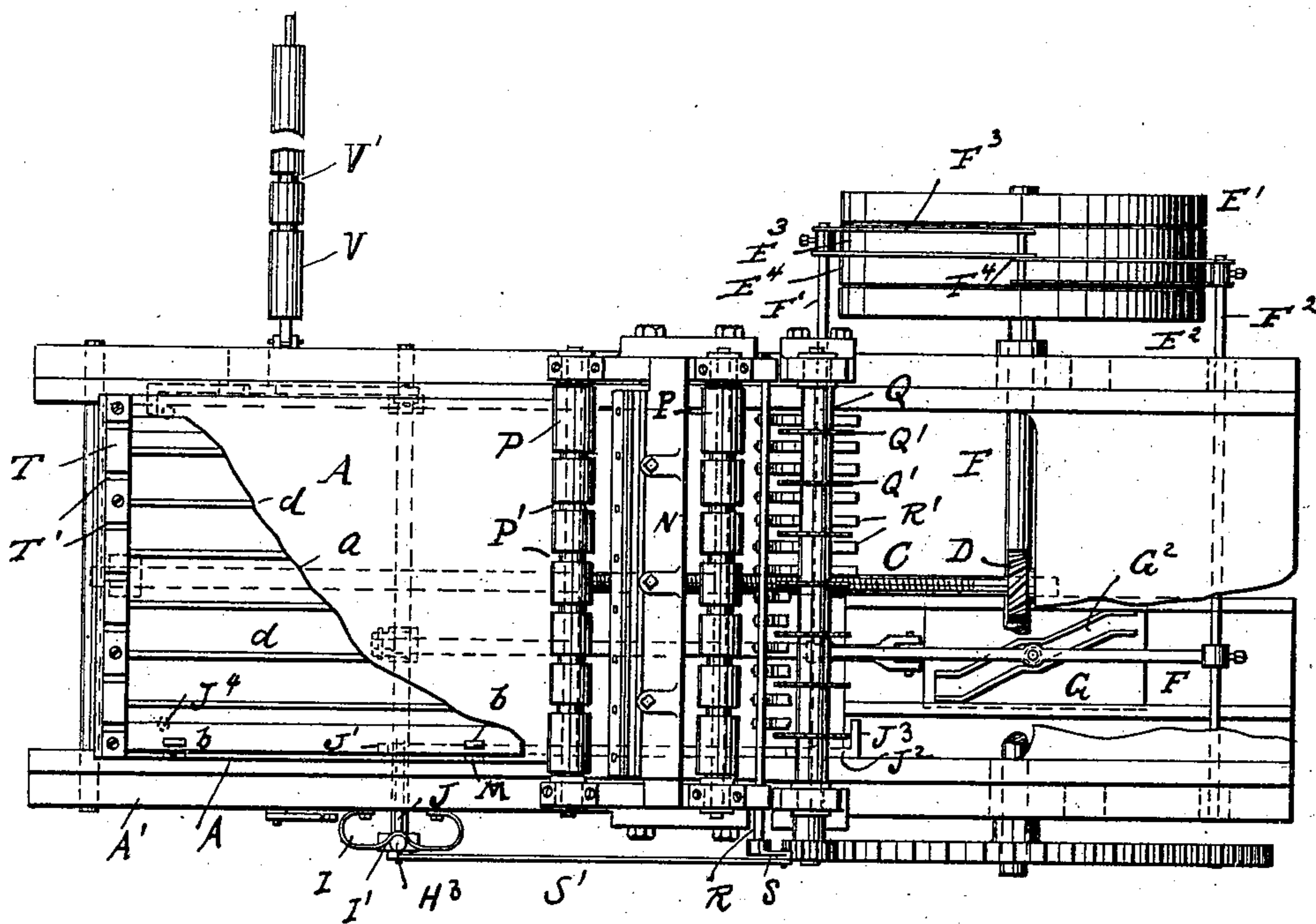
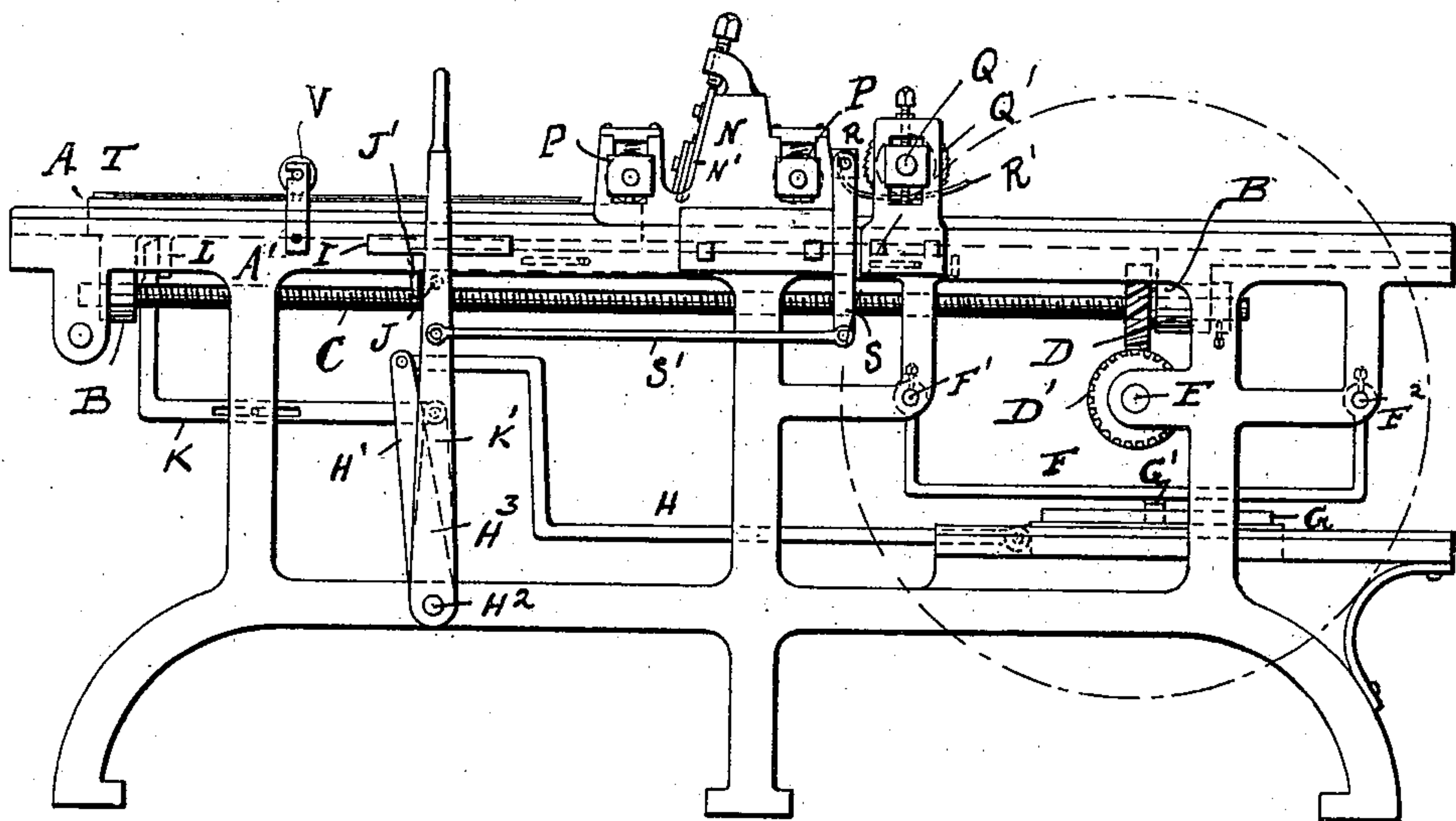
# MACHINE FOR TRIMMING AND FINISHING STEREOTYPE PLATES.

(Application filed Sept. 25, 1897.)

(No Model.)

2 Sheets—Sheet 1.

*Fig: 1.*



*Fig: 2.*

Witnesses  
Peter Albertine Jr.  
Frederick Bugasch.

B. F. Curtis Inventor  
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2 Sheets—Sheet 2.

Fig: 3.

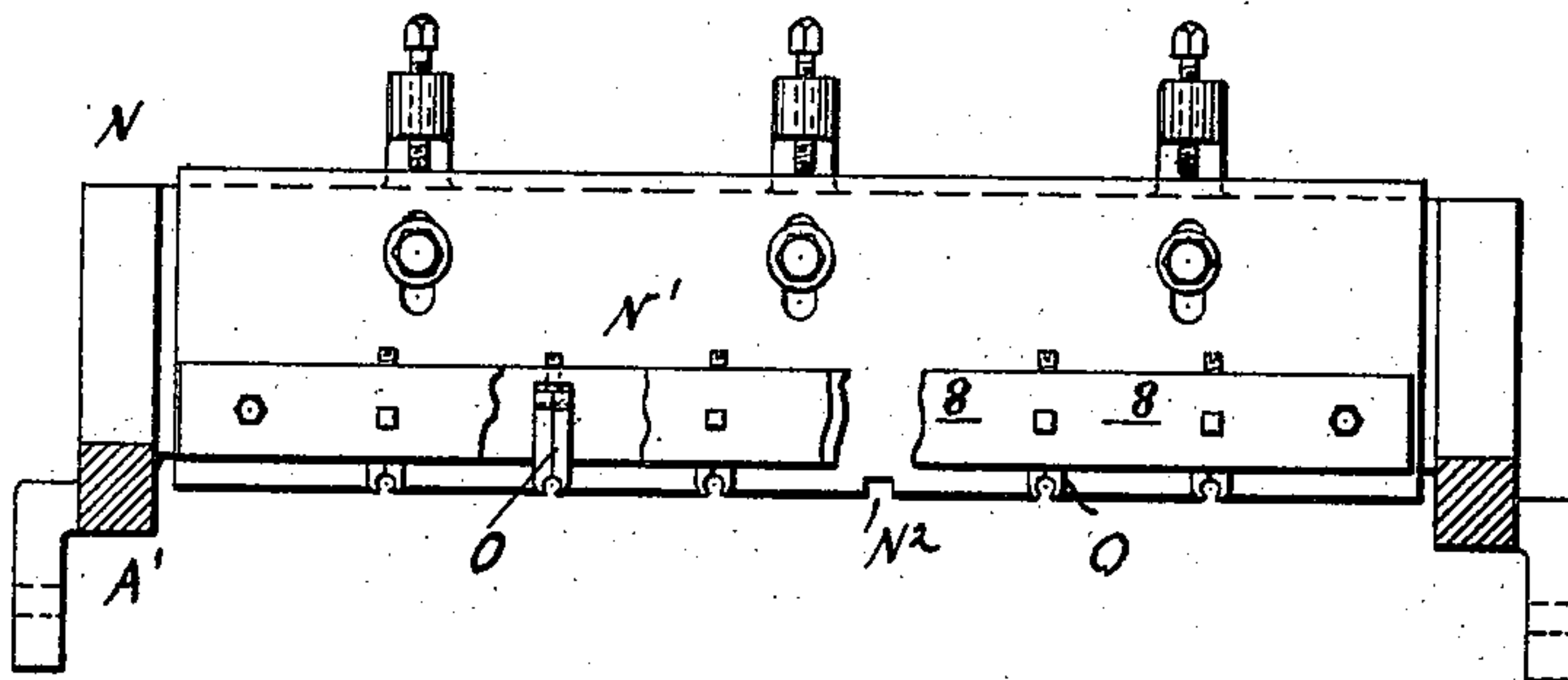


Fig: 4.

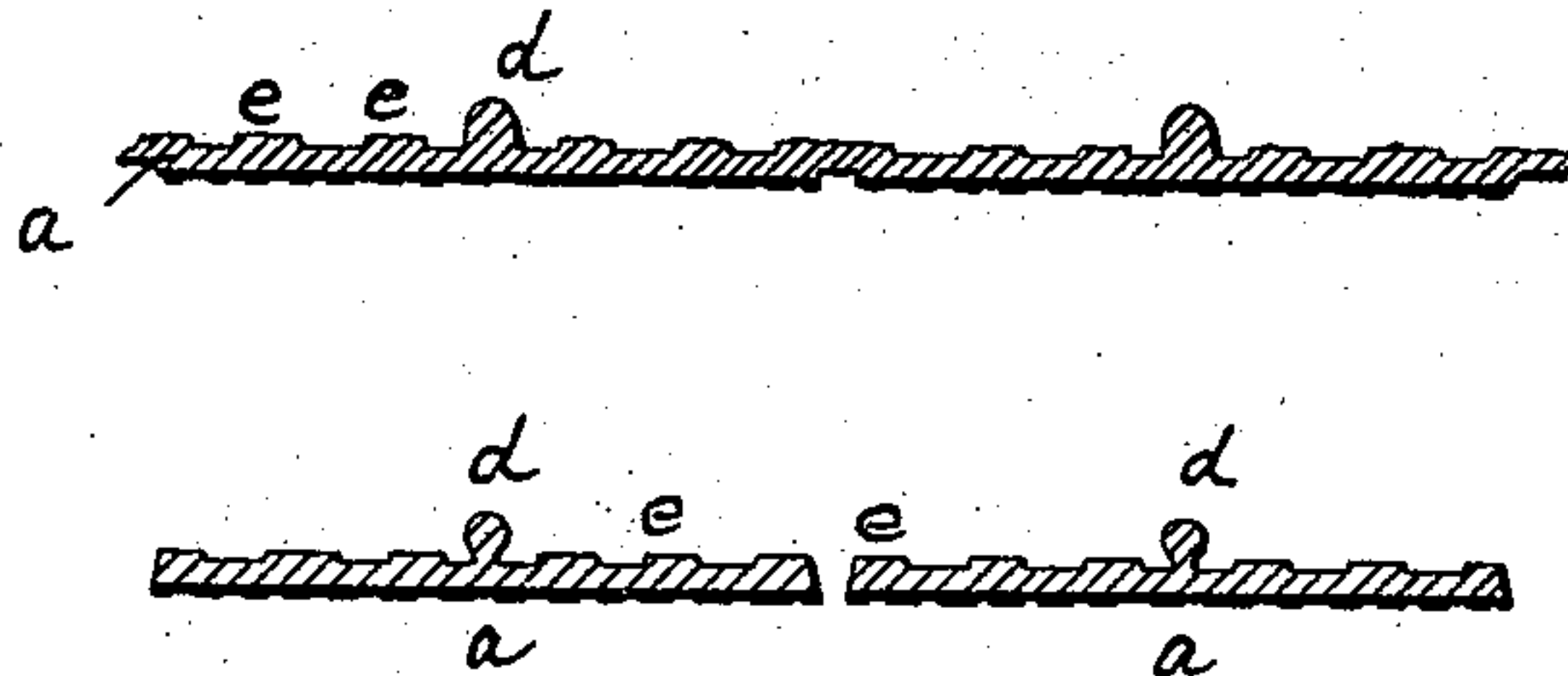


Fig: 5.

Fig: 6.

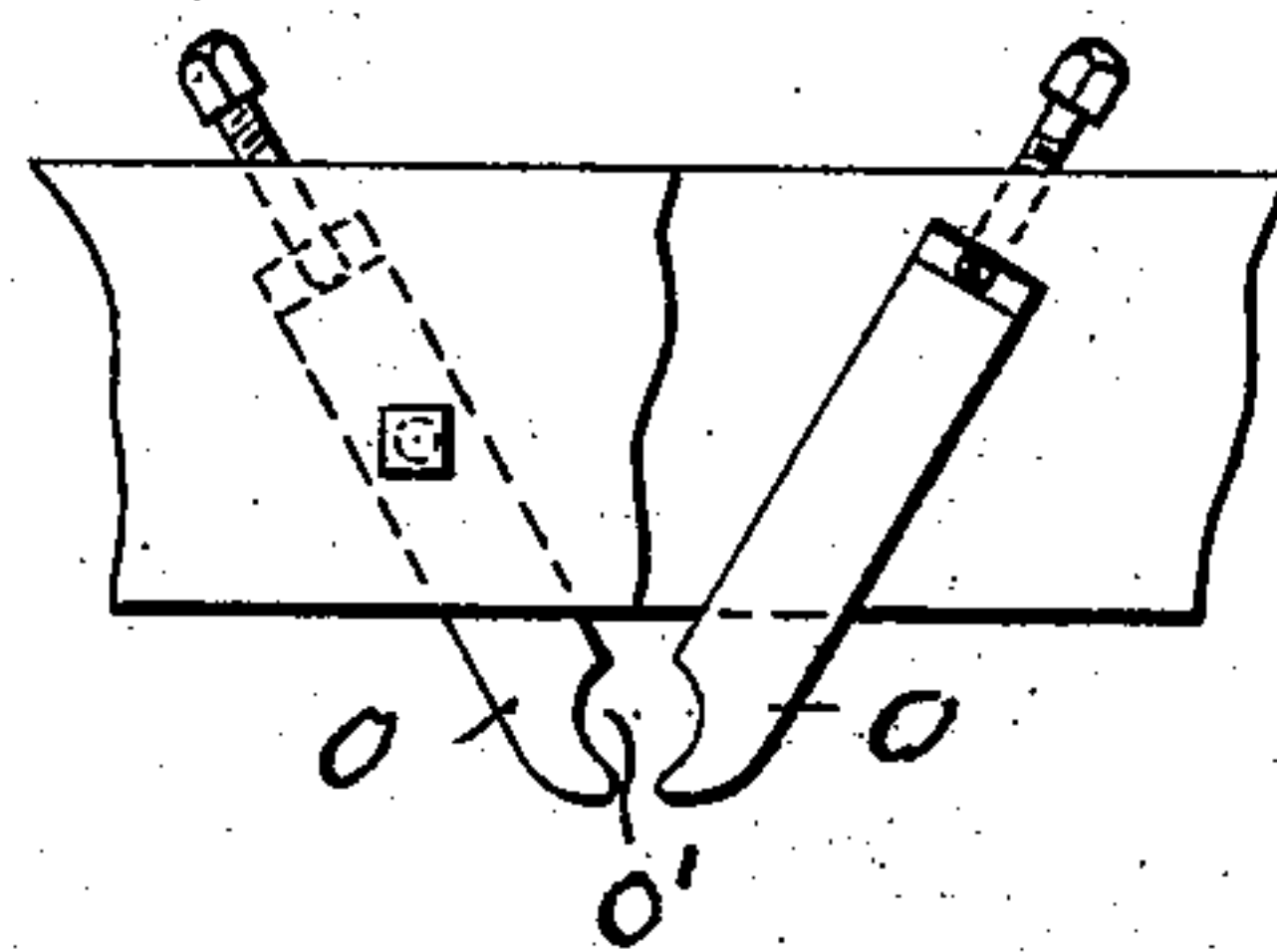


Fig: 7.

Fig: 8.

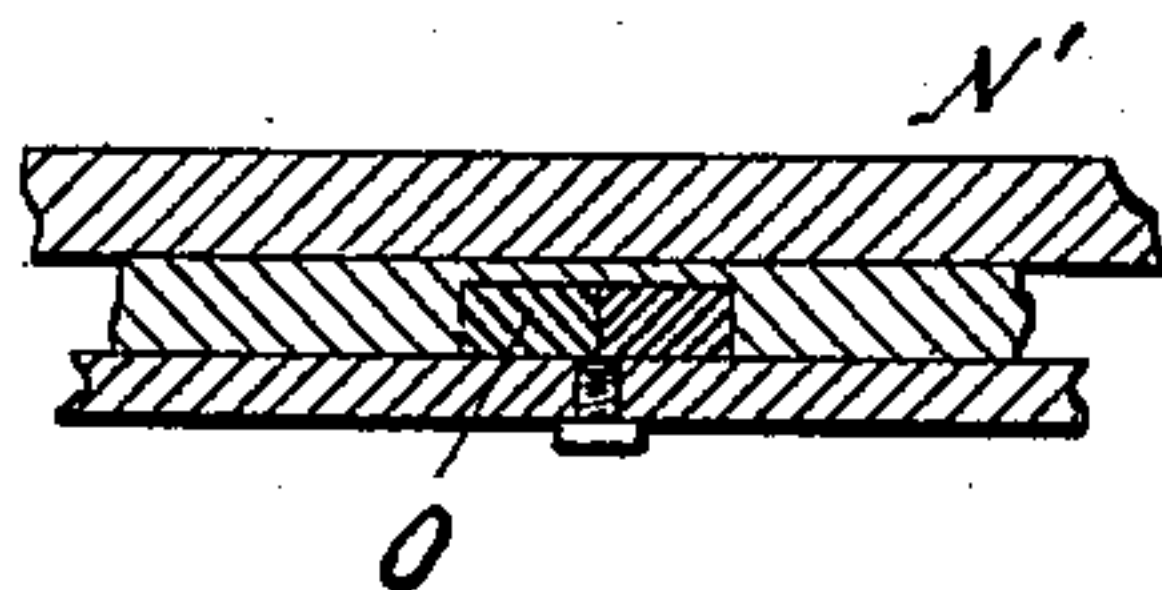


Fig: 10.

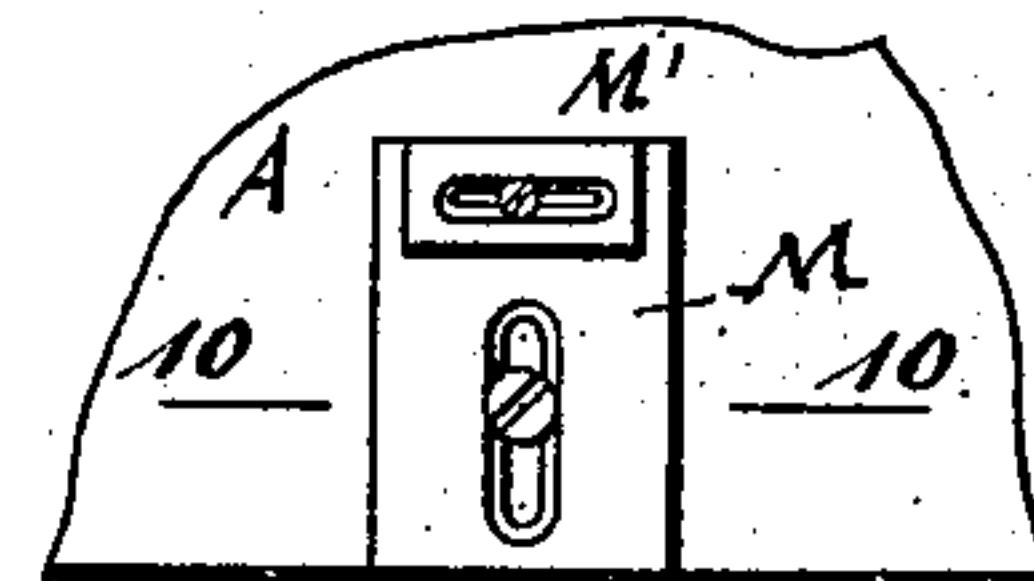
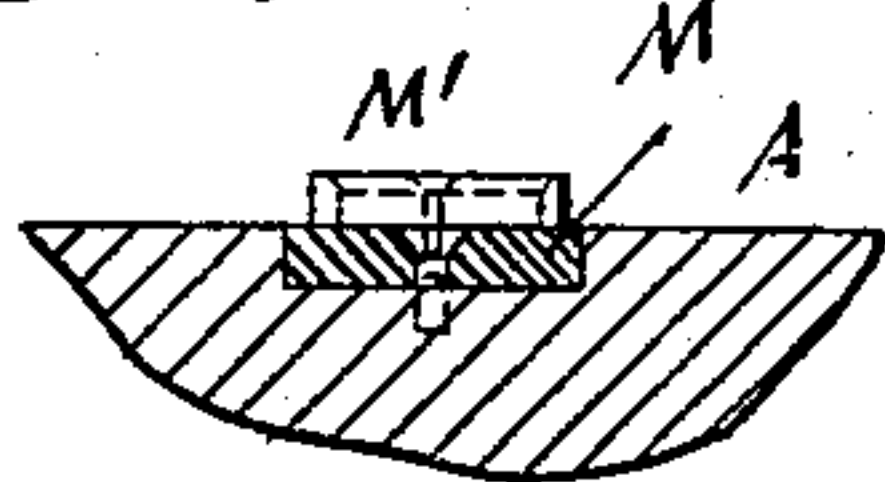


Fig: 9.

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# UNITED STATES PATENT OFFICE.

BENJAMIN F. CURTIS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO  
FERDINAND WESEL, OF SAME PLACE.

## MACHINE FOR TRIMMING AND FINISHING STEREOTYPE-PLATES.

SPECIFICATION forming part of Letters Patent No. 620,890, dated March 14, 1899.

Application filed September 25, 1897. Serial No. 652,978. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN F. CURTIS, a citizen of the United States, and a resident of New York, (Brooklyn,) in the county of Kings  
5 and State of New York, have invented certain new and useful Improvements in Machines for Trimming and Finishing Stereotype-Plates, of which the following is a specification.

10 This invention relates to new and useful improvements in machines for trimming and finishing the under sides of that class of  
15 stereotype-plates that are provided on the under sides with longitudinal ribs or projections which are engaged by the bases for the purpose of holding the plates on the bases; and the object of my invention is to provide  
20 a new and improved machine which in a single operation trims and finishes the longitudinal projections or ribs and trims off uniformly the entire under side of the plate and  
25 at the same time cuts the plate into as many widths as there are columns of type and also finishes the edges of the column-sections thus produced.

In the accompanying drawings, forming a part of this specification, and in which like letters of reference indicate like parts in all the views, Figure 1 is a side elevation of my  
30 improved machine for trimming and finishing stereotype-plates. Fig. 2 is a plan view of the same, parts being broken away. Fig. 3 is a front view of the planing-blade and the trimming-blades thereon, parts being broken  
35 away. Fig. 4 is a cross-sectional view of the stereotype-plate before it is trimmed. Fig. 5 is a similar view after it has been trimmed. Fig. 6 is an edge view of part of one of the routing-disks. Fig. 7 shows a modified arrangement of the trimming-blades. Fig. 8 is  
40 an enlarged detail horizontal sectional view on the line 8 8 of Fig. 3. Fig. 9 is a plan view of the adjustable gage on an enlarged scale. Fig. 10 is a transverse vertical sectional view  
45 on the line 10 10 of Fig. 9.

The table A is guided in a suitable manner to move lengthwise horizontally in the frame A', and said table is provided on its under side with two lugs or bosses B, in which the screw-  
50 spindle C is mounted to rotate axially, and on

said spindle a worm-wheel D is mounted, which has a screw-threaded central hole through which the screw-spindle C passes. The worm-wheel D engages a toothed wheel D', fixed on a transverse shaft E, mounted in  
55 the machine-frame A', which shaft carries at its outer end two fixed pulleys E' and E<sup>2</sup> and between them two adjacent loose pulleys E<sup>3</sup> and E<sup>4</sup>, over which a straight belt and a crossed belt pass.

Two rods F' and F<sup>2</sup> are guided in the frame A' to slide transversely, and each carries a belt-shifting fork F<sup>3</sup> and F<sup>4</sup>, respectively. The rods F' F<sup>2</sup> are connected with the ends of  
60 a U-shaped rod F, having a pin G', located within an irregular diagonal groove G<sup>2</sup> in a plate G, mounted to slide longitudinally in the machine-frame A', and which plate is connected by a rod H with an arm H' of a rock-  
65 shaft H<sup>2</sup>, mounted transversely in the machine-frame and having a handle-lever H<sup>3</sup>, which bears against a bow-spring I, provided with a recess I' and secured to the outside of the frame A.

A pin J projects inward from the handle-  
75 lever H<sup>3</sup> and can be acted upon by the downwardly-projecting arm J' on one end of a rod or bar J<sup>2</sup>, mounted to slide longitudinally on the frame A', the opposite end of said sliding  
80 bar or rod having an inwardly-extending arm J<sup>3</sup>, on which a downwardly-extending pin J<sup>4</sup> on the table A can act.

An L-shaped bar K is suitably guided on the frame A' to move horizontally and has one end pivotally connected with an upwardly-  
85 extending arm K' of the rock-shaft H<sup>2</sup>, the other end of said bar being in the path of a lug L on the under side of the table A at the end of the same.

At one edge of the table A two slides M are  
90 mounted to slide transversely to the length of the table and are provided with suitable devices for locking them in place, and each slide carries at its inner end a gage M', which  
95 can be shifted on said slide in the direction of the length of the table, and is also provided with suitable devices for locking it in place on the slide, so that the gages can thus be  
100 adjusted in relation to the length and width of the table. (See Figs. 9 and 10.)



The stereotype-plates *a* which are to be trimmed are each provided on the under side, along one edge, with slots or recesses *b* for receiving said gages *M'* for the purpose of insur-  
 5 ing the correct position of the plate on the table in relation to the mechanism to be described hereinafter.

A heavy cross-piece *N* is secured on the top of the frame *A'* about midway of the length  
 10 of the same, and on the cross-piece the planing-blade *N'* is held vertically adjustable by means of suitable screws. The planing-blade *N'* is provided in its bottom or planing edge with as many recesses *N<sup>2</sup>* as there are ribs *d*  
 15 on the stereotype-plate *a* to be trimmed, and in each recess a pair of trimming-blades *O* is held, each provided at its lower end and inner edge with a sharp-edged recess *O'* of the desired shape of one side of the rib *D* of the  
 20 type-plate. Said blades may be arranged vertically, as shown in Fig. 3, or at an angle to each other, as shown in Fig. 7. At each side of the planing-blade *N'* a pressure-roller *P* is mounted, which is provided with as many  
 25 circumferential grooves *P'* as there are ribs *d* on the stereotype-plate *a*, which rollers serve for pressing down and holding in place the plate *a* and prevent any lateral shifting of the same.

30 On a transverse shaft *Q* above the table as many circular routers *Q'* are fixed as there are ribs *d* on the plate *a*, plus one, for the purpose of routing out the metal between each  
 35 two type-columns and trimming off the outer edges of the outermost type-columns.

The edges of the routing-disks *Q'* are beveled on both sides, as shown in Fig. 6, for the purpose of giving the edges of the type-columns a slight bevel, as shown in Fig. 5.

40 On a rock-shaft *R* a series of curved spring-fingers *R'* are secured, which exert a downward pressure on the plate *a* between the routing-disks and serve to hold the plate in place while it is being severed into type-columns.  
 45 umns.

An arm *S* of the rock-shaft *R* is connected by a link *S'* with the handle-lever *H<sup>3</sup>* of the rock-shaft *H<sup>2</sup>*.

50 The plate *a* rests against a transverse pushing and gage bar *T*, which is provided with recesses *T'* of sufficient depth to permit the routing-disks *Q'* to pass without cutting into the said gage-bar.

A pressure bar or roller *V*, having circumferential grooves *V'* for the passage of the ribs *d*, is hinged to one side of the frame *A'*, and means are provided for locking the other end to the frame for the purpose of holding the plate *a* in place until the same is held by  
 60 the first roller *P*.

The router-shaft *Q* may be driven by gearing from the shaft or by a separate belt, as may be desired.

65 The operation is as follows: The type-plate *a* is placed face down on the bed *A* in such a manner that the gages *M'* on the bed *A* pass

into the slots or recesses *b* of the type-plate *a*, and said type-plate rests against the transverse gage-bar *T*. The handle-lever *H<sup>3</sup>* is then moved to the left, whereby the belt-  
 70 shifters *F<sup>3</sup>* and *F<sup>4</sup>* are so adjusted that the table *A* is moved on the frame *A'* toward the right, Fig. 2, and the front end of the type-plate passes under the first roller *P*, which presses it down, and then the front end of the  
 75 plate is forced under the planing-blade *N'*, which planes and trims off the intermediate ridges *c* on the under side of the plate *a* to a uniform height, and at the same time the trimming-blades *O* trim off the sides of the  
 80 ribs *d* and give said ribs all the same shape and height. As the front end of the type-plate *a* passes from under the blade *N'* it passes under the second roller *P*, and then the routing-disks *Q'* cut the plate into column-  
 85 sections and finish, trim, and bevel the edges of the same, as shown in Fig. 5, and the several column-sections are held down by the curved spring-fingers *R'*. By the time the rear end of the type-plate *a* has passed the  
 90 routing-disks *Q'* the pin *J<sup>4</sup>* on the bed *A*, striking against the inwardly-extending arm *J<sup>3</sup>* of the sliding bar *J<sup>2</sup>*, moves the same to the right, and by means of the pin *J* and the arm *J'* of the bar *J<sup>2</sup>* the handle-lever *H<sup>3</sup>* is moved to the  
 95 right, and from the same the sliding plate *G* is moved in the same direction, whereby the belt-shifters *F<sup>3</sup>* and *F<sup>4</sup>* are moved in such a manner as to throw the belts on the loose pulleys *E<sup>3</sup>* and *E<sup>4</sup>*, and the machine comes to a  
 100 standstill. The column-sections are then removed and the handle-lever *H<sup>3</sup>* moved to the right, whereby the belt-shifters *F<sup>3</sup>* and *F<sup>4</sup>* are moved in such a manner that the bed *A* is propelled by the screw to the left and keeps  
 105 up this movement until the lug *L* strikes against the rod *K*, whereby the belt-shifters are moved to such an extent as to throw the belts upon the loose pulleys. A fresh plate is placed upon the bed and the above-de-  
 110 scribed operation is repeated. When the handle-lever *H<sup>3</sup>* is thrown to the left to start the machine, the spring-fingers *R'* are swung down and remain in this position until the handle-lever is thrown to the right by the slid-  
 115 ing rod *J<sup>3</sup>*, and thereby the spring-fingers *R'* are thrown up and remain raised during the time the bed moves back in the direction toward the left, and thus do not slide on the top of the bed during the return movement of the  
 120 latter.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for trimming and finishing  
 125 stereotype-plates, the combination with a frame, a movable bed thereon and mechanism for moving the bed, of a planing-blade held transversely on the frame for planing the under side of the plate, which blade is provided  
 130 in its cutting edge with a series of recesses and blades held on the planing-blade and ex-



tending into said recesses for trimming the ribs on the under side of the stereotype-plate, substantially as herein shown and described.

2. In a machine for trimming and finishing  
5 stereotype - plates, the combination with a frame, a movable bed thereon and means for moving the bed, of a blade for planing the under side of the plate, blades for trimming ribs on the under side of the plate, a series of rotary routers for cutting the plate into sections  
10 fingers between the routers and means for automatically lowering and raising said fingers, substantially as herein shown and described.

3. In a machine for trimming and finishing  
15 stereotype - plates the combination with a frame and a movable bed thereon and mechanism for moving the bed, of a planing-blade for planing the under side of the stereotype-plate, blades for trimming ribs on the under  
20 side of the stereotype-plates, a series of rout-

ers for cutting the plate into sections and a pressure bar or roller having circumferential grooves for the passage of the rib formed on the under side of the stereotype-plate, which roller is mounted on the frame to be swung  
25 over and rest upon that part of the stereotype-plate on the movable bed that has not been acted upon by the planing and trimming blades and means for locking said roller in lowered position, substantially as herein set  
30 forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 10th day of September, 1897.

BENJAMIN F. CURTIS.

Witnesses:

OSCAR F. GUNZ,  
A. SCHROEDER.