

(No Model.)

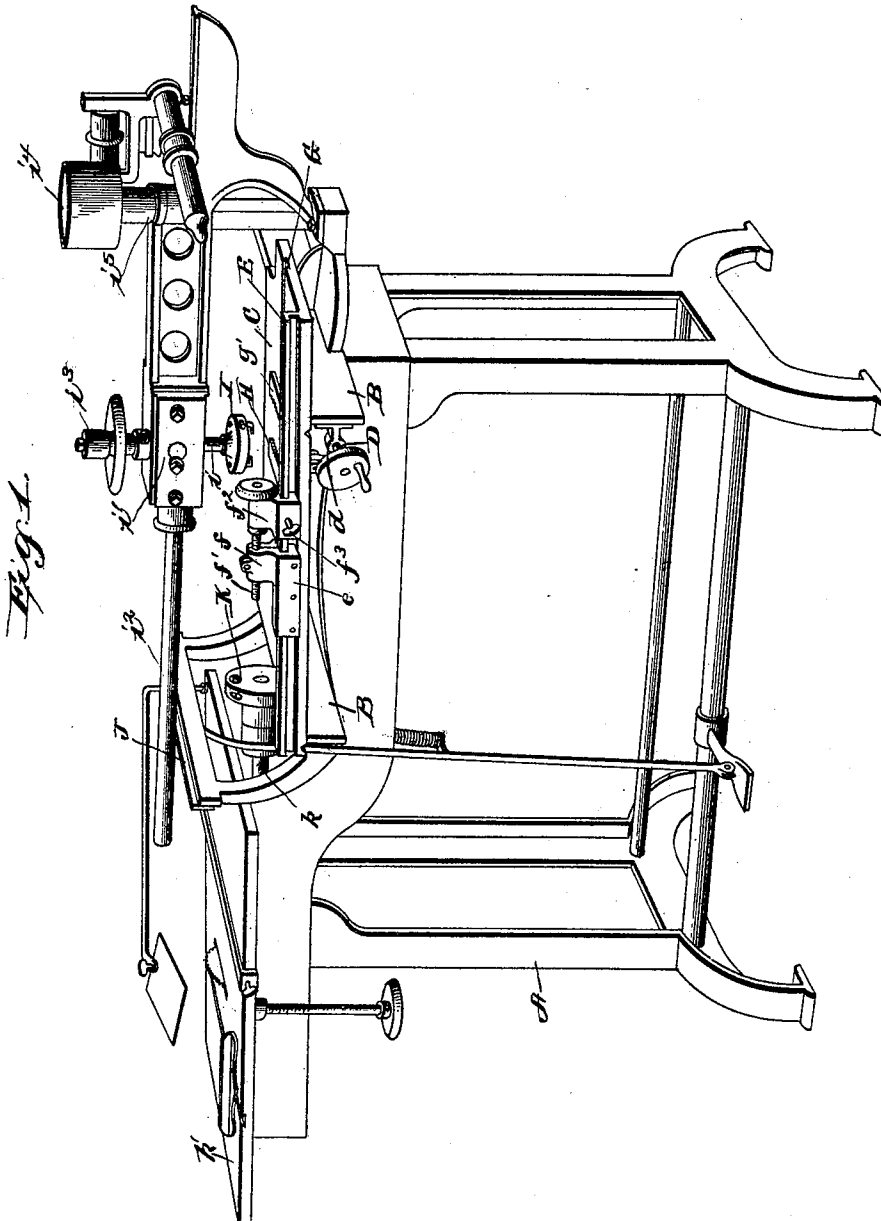
2 Sheets—Sheet 1.

J. E. CAPS.

MACHINE FOR TRIMMING PRINTERS' PLATES.

No. 513,031.

Patented Jan. 16, 1894.



Witnesses

Inventor

E. A. Woodman
D. V. Schumaker

By *his* Attorneys,

John E. Caps

C. A. Snow & Co.

(No Model.)

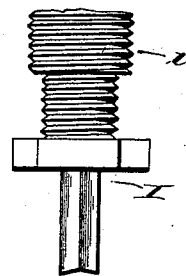
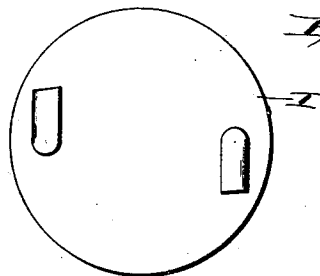
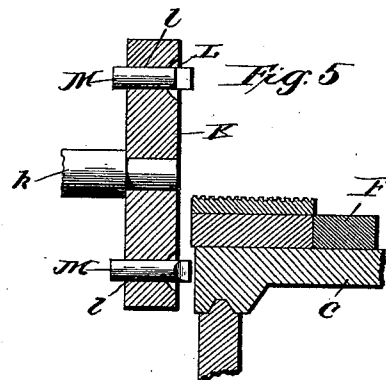
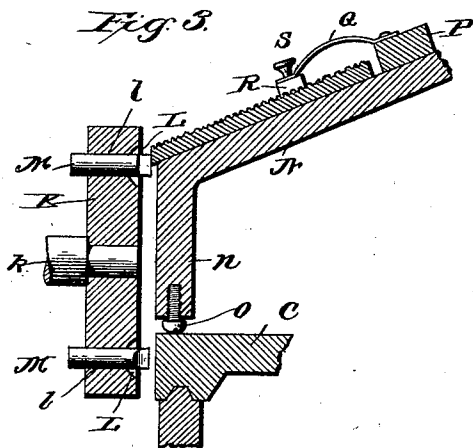
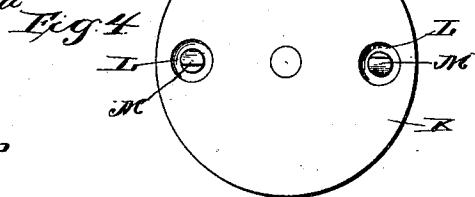
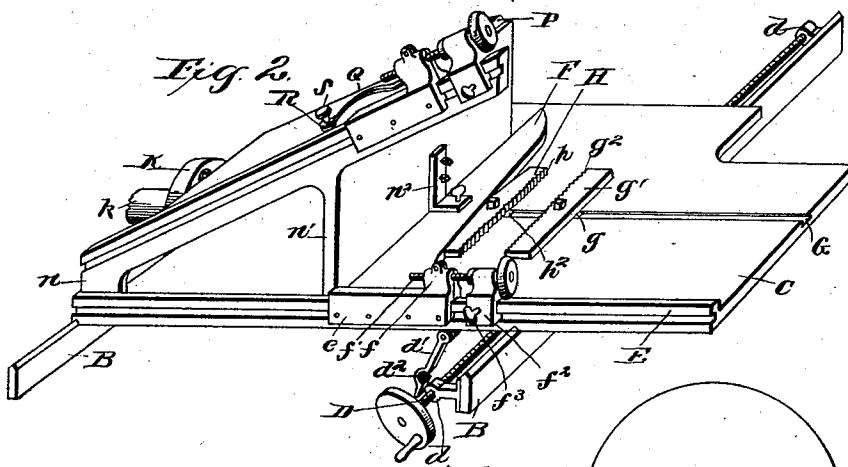
2 Sheets—Sheet 2.

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MACHINE FOR TRIMMING PRINTERS' PLATES.

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UNITED STATES PATENT OFFICE.

JOHN E. CAPS, OF KANSAS CITY, MISSOURI.

MACHINE FOR TRIMMING PRINTERS' PLATES.

SPECIFICATION forming part of Letters Patent No. 513,031, dated January 16, 1894.

Application filed February 28, 1893. Serial No. 464,102. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. CAPS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented a new and useful Finishing-Machine for Printing Plates, of which the following is a specification.

This invention relates to finishing machines for stereotype and electrotype plates; and it has for its object to provide an improved machine of this character, which shall combine in the various parts thereof a machine, by means of which the finishing of printing plates of all characters can be readily, quickly and effectively accomplished.

To this end the main and primary object of the present invention is to not only simplify the process of finishing printing plates, but also to provide certain important improvements in machines for effect the finishing.

In connection with the general objects referred to, the invention particularly contemplates efficient means whereby in a single machine may be combined the planing and routing of the plates with the final trimming thereof.

With these and many other objects in view which fall within the scope of the present invention, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a perspective view of a complete finishing machine constructed in accordance with my invention. Fig. 2 is an enlarged detail in perspective of the trimming table or carriage showing the table clamp, and the beveling support for the plate, attached to the gage arm. Fig. 3 is an enlarged detail sectional view of the trimmer head showing the bit in position and also one end of the printing plate supported in proper position for beveling. Fig. 4 is an enlarged detail in plan of the trimmer head. Fig. 5 is a detail sectional view showing more clearly the relative position of the trimmer head to the trimming table, and the plate being operated upon. Fig. 6 is a detail plan view and elevation of the planing and routing tools, respectively.

Referring to the accompanying drawings, A represents a leg frame carrying on the bed

thereof the opposite parallel ways or guides B, on which is mounted to slide a trimming table C. Ordinarily, the trimming table C, is moved back and forth on the supporting guides or ways by hand, but in certain classes of work requiring especial accuracy and steadiness, I employ the table adjusting screw D. The screw D, is mounted to turn in the unthreaded bearing lugs *d*, projecting from one side of one of the guides or ways B, and in order to bring the screw into use, the same is designed to be engaged by the hinged arm *d'*, hinged at one end to the bottom of the table C, and provided in one edge with the threaded notch *d*². By holding the arm against the screw D and manipulating the latter the table can be moved back and forth as the special character of the work may require.

The trimming table C, is provided at its front edge with the grooved guide rib E, upon which is mounted to slide the arm sleeve *e*, from which projects the ordinary gage arm F, adapted to move flat on the table C, and to line up the work to the trimming device in the ordinary manner. The arm sleeve *e*, is provided with a threaded bearing *f*, which receives one end of the adjusting screws *f'*, working through the upper bearing end of the moving clamp *f*², working over the guide rib E, at the front end of the table, and held firmly in any set position by means of the set screw *f*³ passing through one side thereof and impinging against said guide rib. The gage arm and the adjusting devices therefor are not only employed in their ordinary capacity in the present application, but also in connection with an auxiliary clamp used for holding the work during planing and routing, as will now be described.

In the present invention, the trimming table C, is provided with a transverse dove-tail groove G, which receives the dove-tailed block *g*, to which is clamped the stationary clamping jaw *g'*. The stationary clamping jaw *g'*, is provided with a straight serrated clamping edge *g*², and is held stationary on the flat trimming table by the means just described, and directly opposite the stationary jaw is designed to work the corresponding sliding jaw H. The sliding jaw H, is also provided with a straight serrated clamping edge *h*, facing

that of the stationary plate, and is attached to the sliding block h^2 , moving in the table groove G. The sliding or movable jaw H, is adjusted and clamped in position by means of the gage arm and its operating devices, said gage arm being designed to have one side thereof bear against the sliding jaw. Now it will be apparent that in clamping the printing plate in position to be operated upon, it is only necessary to place the same on the trimming table against the stationary jaw. By sharply sliding the gage arm in one direction the sliding or movable jaw is brought up to the printing plate or block, so as to hold the same between said stationary and movable jaws. The moving clamp f^2 , is now set stationary by means of the set screw f^3 , and the adjusting screw f' , manipulated. This draws the gage arm more tightly against the moving jaw, and clamps the same more tightly against the printing plate or block, so as to hold the same as tightly in position as the requirement of the work may demand.

A stereotype or electrotype plate clamped upon the trimming table between the jaws of the table clamp, as just described, is in a proper position to be operated upon by the planing or routing tool adapted to work directly thereover.

Either a planing or routing tool I, is detachably attached to the lower end of the vertically adjustable tool stock i . The vertically adjustable tool stock i , which carries interchangeable planing and routing tools I, turns in the bearing i' , on the swinging bearing arm i^2 , and carries at its upper end the pulley i^3 , which receives its motion from a suitable belt passing therefrom and over the pulley i^4 , at one end of the frame. The bearing arm i^2 , is pivoted at one end, as at i^5 , so as to allow the other end free to be moved back and forth over the support J, at one side of the frame, so that the planing and routing of the printing plate can be readily accomplished. It will be readily apparent that when motion is transmitted to the vertically adjustable rotary tool stock, the printing plate can be planed off type high, and protruding and defective surfaces eliminated by routing, if necessary, thus combining a tool stock capable of carrying either a planing or routing tool.

After the printing plate has been planed to the desired height, and has been routed if necessary, it is next necessary to trim off the edges of the plate before the same is ready for printing purposes. The plate which is ready to be trimmed is transferred from the table clamp to one side of the gage arm F, and rests flat on the trimmer table C, so as to be adjusted up to one edge of the same adjacent to which turns the rotary trimming head K. The trimming head K, is mounted on one end of the arbor k , which receives its motion from suitable belting and is arranged adjacent to the ordinary saw table k' . The trimming head K, is a circular disk and is

provided in one face thereof near its periphery with the indented chip pockets L, from which lead the tool openings l , in which are fitted the cutting or trimming tools M, so that their cutting ends will project out of the chip pockets. The trimming tools M, are held stationary in the head by any suitable means, and are designed to have their cutting ends project but a slight distance beyond the face of the head K, and travel in very close proximity to one edge of the trimming table C. As clearly illustrated in Fig. 5. of the drawings, it will be seen that by reason of having the chip pockets or indentations L, in one face of the head K, the trimming tool cannot only be adjusted to project but a slight distance beyond the base of the head, but the head itself can be arranged in close proximity to the trimmer table and much nearer than the trimming heads now in use.

It will be seen that the chip pockets or indentations L, receive the chips cut by the tool or bit, so that such chips will not clog between the tools and the head, thus providing for clean and effective work. A further point to be observed is that by the adjustment of the cutting ends of the trimming tools close to the face of the head, it is impossible for the tools or bits to throw the printing plate off of the table, as is generally the case where the cutting bits project materially beyond the face of the cutter head, and in case the printing plates were to slip beyond the edges of the trimming table, the same would rest flat against the trimming head, and still the cutting bits would not project sufficiently so as to throw the plate off, thereby preventing accidents.

In certain classes of work it is necessary to bevel the edges of the trimming plate and below the plane of the type, and in order to provide for this I employ the inclined beveling support N. Clearly shown in Figs. 2 and 3 of the drawings. The inclined beveling support N, is provided with a front and rear supporting leg n and n' , the rear leg n' of which is suitably secured at n^2 , to the gage bar F, so that the other lower end of the support can be properly adjusted up to the trimming edge of the table. The front or outer leg n of the inclined support rests on the combined adjusting and supporting screws O, which rest on top of the trimming table and are adjusted so as to support the printing plate in a position in which the type is above the circle of cut of the trimming cutters, as clearly shown in Fig. 3 of the drawings. The inclined beveling support carries an adjustable gage arm P, similar to that described for the trimming table and adjusted by similar devices. Pivotaly attached at one end to the arm P, is the spring retaining arm Q, the other end of which carries a cushioned tip R, which is adapted to be held onto the top of the printing plate so as to hold the same in proper position when the trimming cutters are bevel-

ing the edges of such plate. A thumb flange S is formed at one end of the retaining arm to provide means for manipulating the same. As illustrated, the beveling support can be readily attached to and detached from the trimming table.

From the foregoing it is thought that the construction, operation and many advantages of the herein described finishing machine for printing plates, will be readily understood without further description, and I will have it understood that changes in the form, proportion and the minor details of construction as embraced within the scope of the appended claims, may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a finishing machine for printing plates, the combination with a flat trimming table having a transverse dovetail groove, and the ordinary adjustable gage arm sliding flat on said table, of a table clamp comprising a stationary clamping jaw having a dove-tail block clamped in the groove of the table, and a straight serrated clamping edge, and an opposing sliding clamping jaw having a sliding block moving in the table groove, and a straight serrated clamping edge, said sliding jaw being adapted to be forced toward the stationary jaw and to be clamped in position on the work by means of sharply sliding the ordinary gage arm there-against, and adjusting the same by its adjusting devices, substantially as set forth.

2. In a finishing machine for printing plates, the combination with a sliding trimming table, and an adjustable gage arm moving thereon; of a table clamp arranged on the trimming table and controlled by said gage arm, interchangeable planing and routing tools arranged to rotate above the table clamp, and a trimming device, substantially as set forth.

3. In a finishing machine for printing plates, the combination with the sliding trim-

ming table; of a rotary trimming head mounted to turn adjacent to one edge of said table and provided with chip pockets or indentations in one face, and trimming tools mounted in said head and having their cutting ends projecting out of the chip pockets, substantially as set forth.

4. In a finishing machine for printing plates, the combination of the trimming table mounted for sliding movement, a planing or routing tool arranged to rotate above the table, a trimming tool arranged to work adjacent to one edge of the table, and an adjustable beveling support adapted to be mounted on said table adjacent to the trimming tool, substantially as set forth.

5. In a plate finishing machine, the combination with the sliding trimming table, the adjustable gage arm mounted thereon, and the rotary trimming tool working adjacent to one edge of the table; of an inclined beveling support adapted to be attached to said gage arm at one end, means for adjusting the other end of the support on the trimming table, an adjustable gage arm arranged on the support, and a swinging spring retaining arm pivoted at one end to the gage arm on the support and having a cushion tip at its other end adapted to bear on the printing plate, substantially as set forth.

6. In a finishing machine for printing plates, the combination of the parallel guides one of which is provided with unthreaded bearing lugs, an adjusting screw mounted in said unthreaded bearing lugs, the trimming table mounted to slide on said guides, a hinged arm attached to the trimming table and having a threaded notch in one edge adapted to be placed into engagement with the screw, and planing or routing, and trimming devices, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN E. CAPS.

Witnesses:

JOHN H. SIGGERS,
A. J. JONES.