

(No Model.)

3 Sheets—Sheet 1.

G. E. LLOYD & C. S. PARTRIDGE.

STEREOTYPE PLATE FINISHING MACHINE.

No. 369,192.

Patented Aug. 30, 1887.

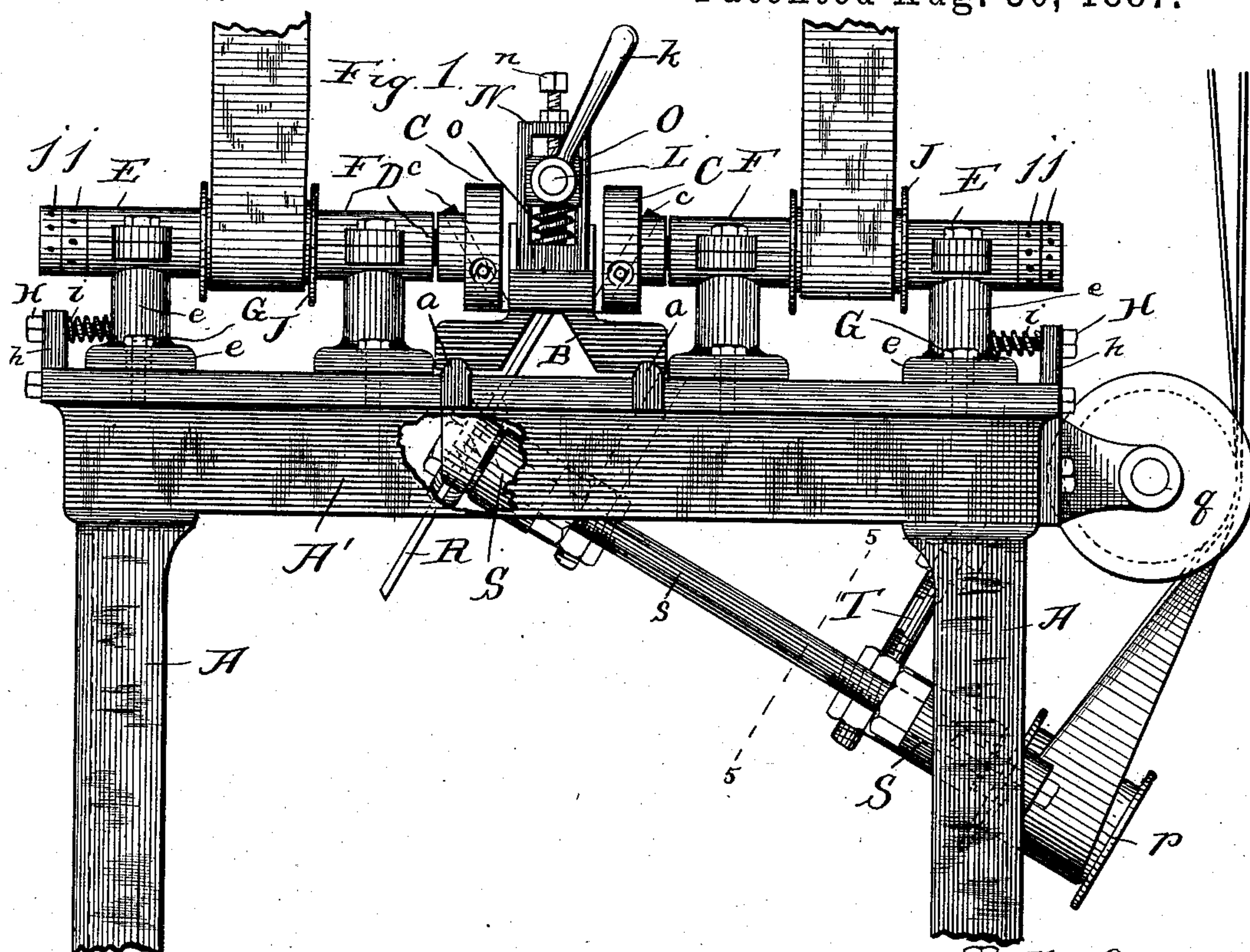
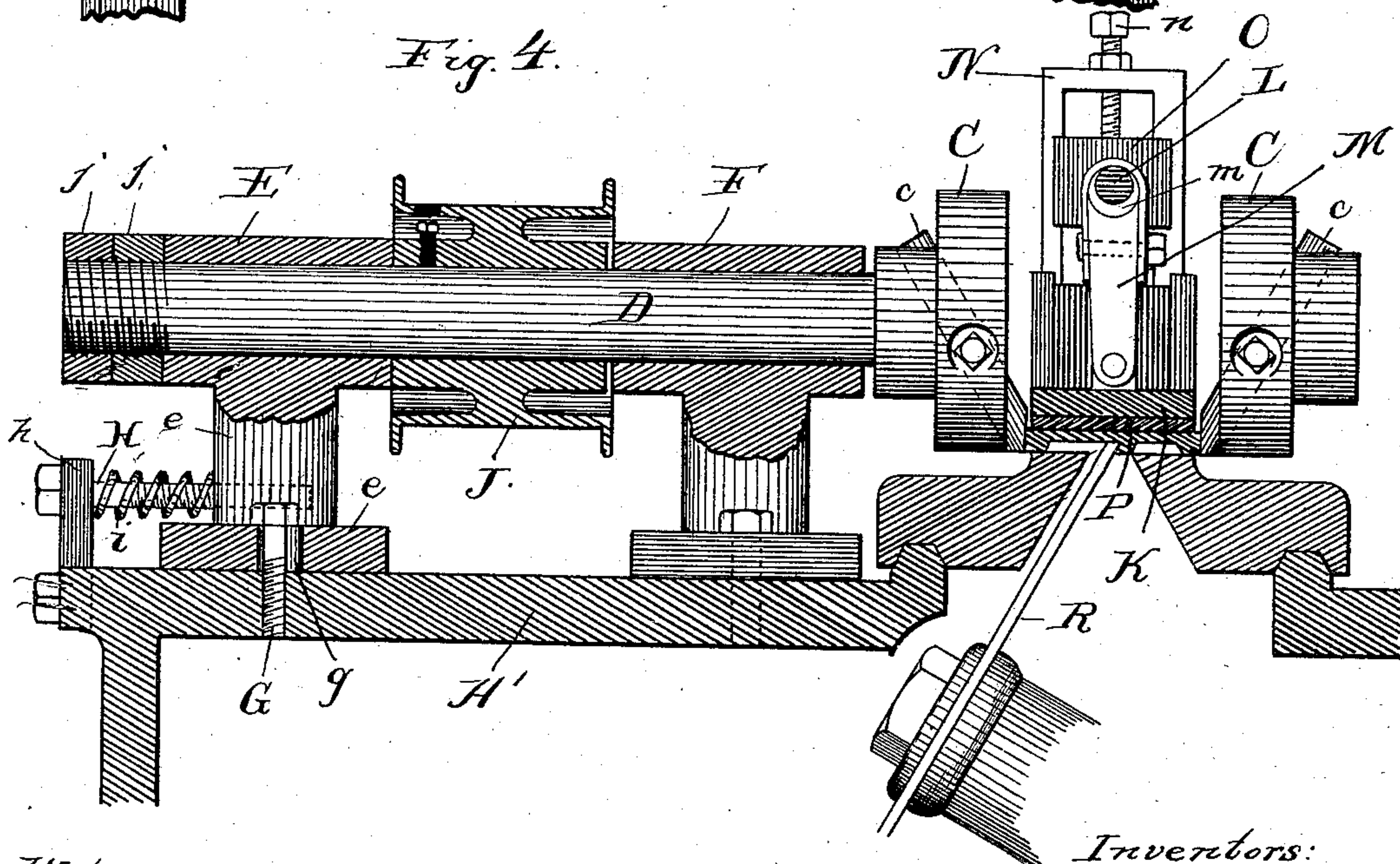


Fig. 4.



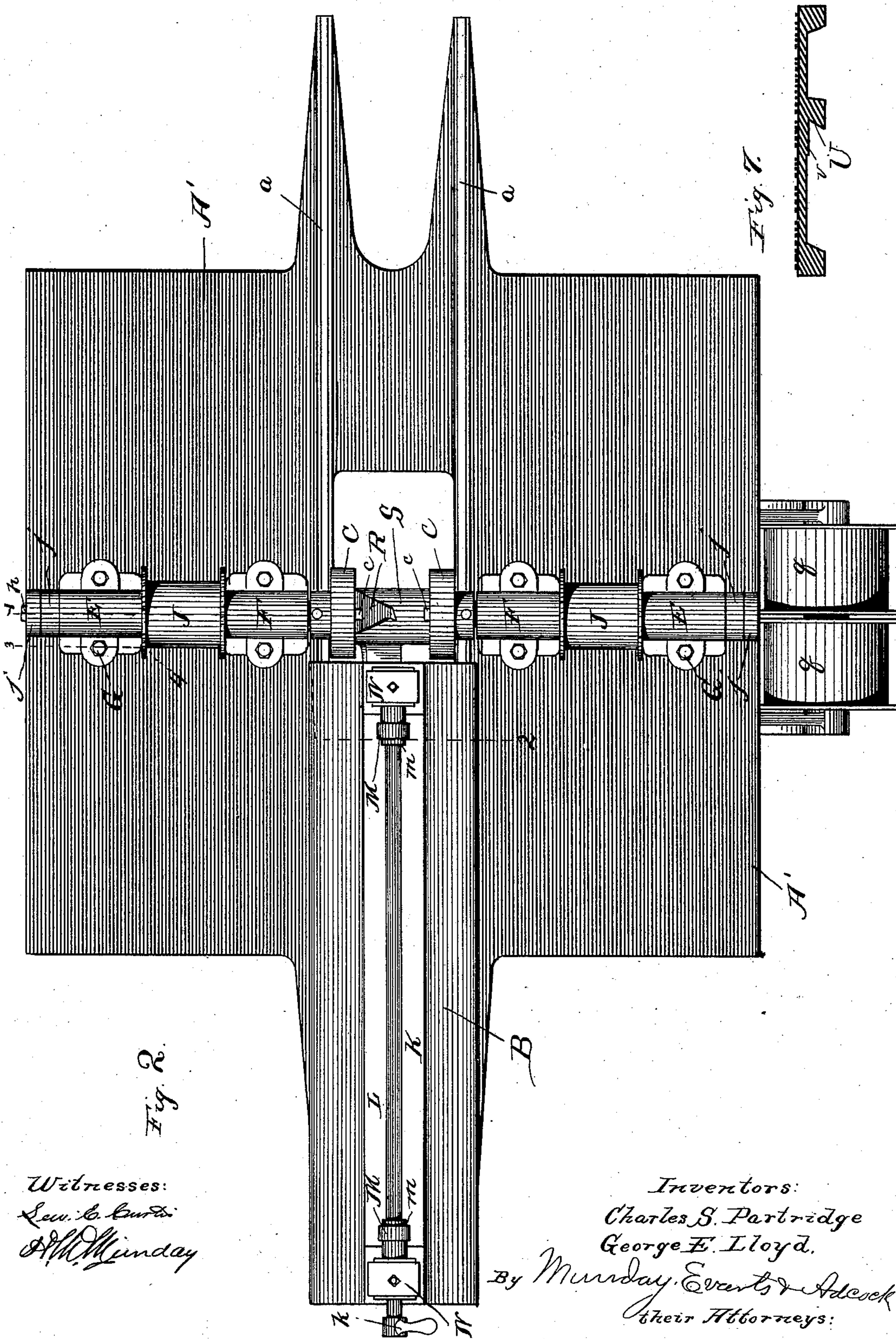
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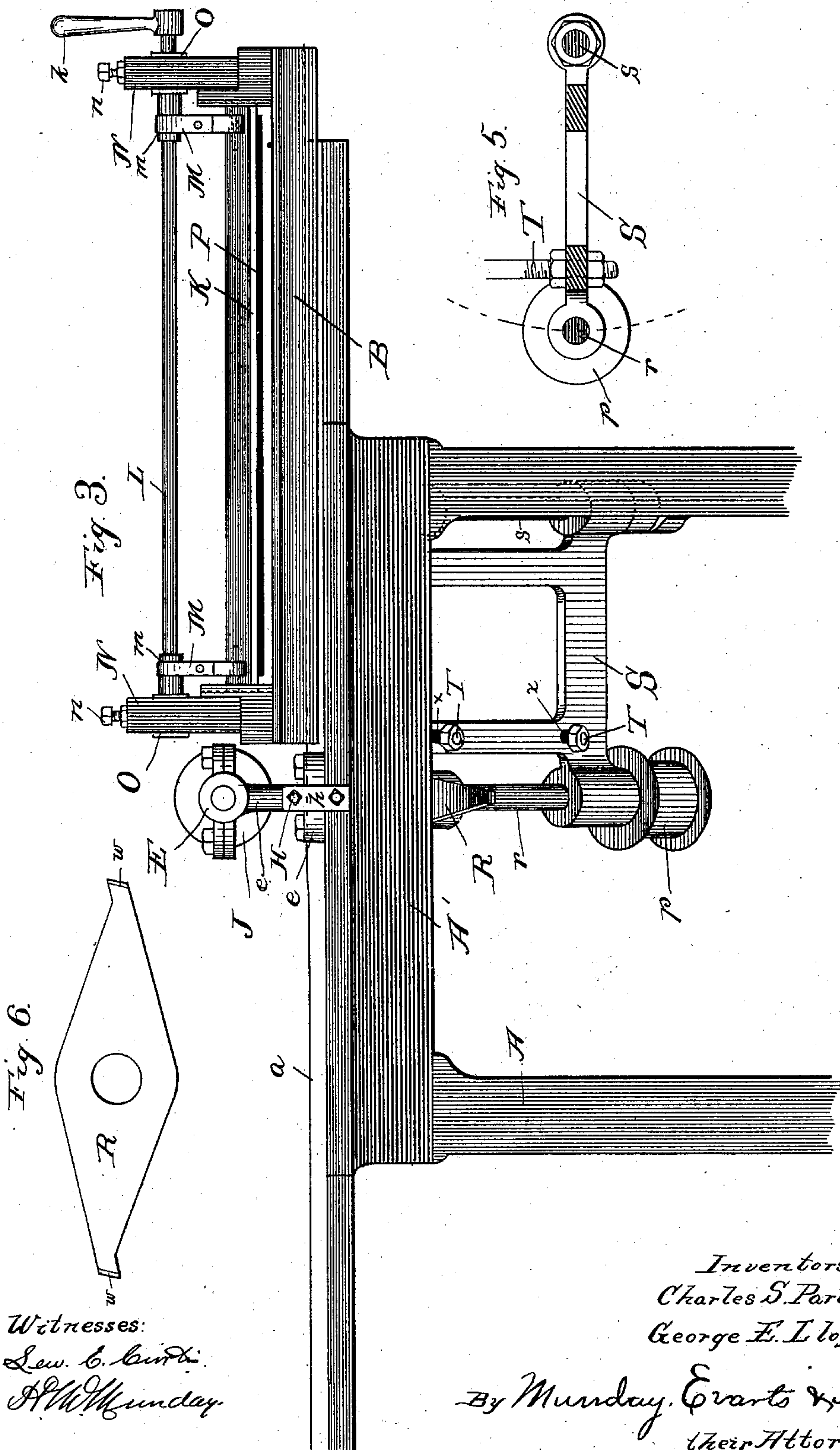
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UNITED STATES PATENT OFFICE.

GEORGE E. LLOYD AND CHARLES S. PARTRIDGE, OF CHICAGO, ILLINOIS,
ASSIGNORS TO THE A. N. KELLOGG NEWSPAPER COMPANY, OF SAME
PLACE.

STEREOTYPE-PLATE-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 369,192, dated August 30, 1887.

Application filed January 17, 1887. Serial No. 224,554. (No model.)

To all whom it may concern:

Be it known that we, GEORGE E. LLOYD and CHARLES S. PARTRIDGE, citizens of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Stereotype-Plate-Finishing Machines, of which the following is a specification.

This invention is designed more especially to be used in the preparation or finishing for the form of that class of stereotype-plates having one or more longitudinal legs with inclined side faces, whereby they may be locked in the form to bases having one or more upward projections adapted to engage the inclined faces of the leg. The operations to be performed by the machine are the trimming of the side edges of the plate, the trimming of the inclined face of the leg or legs, and also the formation of a horizontal under bearing-surface upon the cored or hollow part of the plate. These operations are all simultaneous, and the plate, after undergoing them in the most approved form of our machine, is finished ready for use. Some features of the invention are, however, well adapted for use in trimming plates which employ other modes of fastening than that mentioned and in which the longitudinal leg with the inclined side face is not present.

The invention consists, first, in the combination of two rotary cutter-heads adapted to trim the plate edges, placed opposite each other and at a distance apart corresponding to the width desired for the plate, and an inclined rotating cutter or cutters located to operate upon the side face of the under leg or legs of the plate, with a carriage for moving the plate up to the cutters; second, in the combination of two independent rotary cutter-heads adapted to act upon the edges of the plate, placed opposite to each other and at a distance apart corresponding to the width desired for the plate, with a reciprocating carriage adapted to move the plate up to said cutters and provided with a clamp for holding the plate while it is being operated upon; third, in combination with the carriage for moving the plate, an inclined rotating knife of the character hereinafter set forth; fourth, in

the combination, with side-trimming rotary cutters mounted upon arbors longitudinally adjustable to or from each other, of the carriage adapted to move the plate to said cutters; fifth, in a plate-finishing machine having an inclined rotary cutter located under the path of the plate and adjustable, as hereinafter set forth; sixth, in the combination, in a plate-finishing machine and with the carriage for moving the plate, a rotary cutter located and otherwise adapted to form a horizontal under bearing-surface upon the cored or hollow part of the plate. These and other features of the invention are fully described below, and illustrated in the accompanying drawings, in the latter of which—

Figure 1 is a front elevation of our improved machine. Fig. 2 is a plan thereof. Fig. 3 is a side elevation. Fig. 4 is a partial vertical section upon the lines 1 2 and 3 4 of Fig. 2. Fig. 5 is a detail section of the supporting-frame of the inclined under cutter. Fig. 6 is a view of the inclined cutter detached; and Fig. 7 is an enlarged view of the plate, for finishing which the machine is more especially designed.

In the accompanying drawings, in which similar letters of reference indicate like parts, A represents the frame, and A' the table of the machine. Across the center of the latter are two slideways, *a*, upon which is reciprocated the carriage or plate-holder B. At either side of the carriage-path are located the independent rotating cutter-heads C, by which the side edges of the plate are trimmed, such heads being accurately positioned, so they may reduce the plate to the exact width required. Each head is provided with an adjustable tool or knife, *c*, and is carried upon the end of an arbor, D, supported in bearings E F, one of which, and preferably the outer one, is adjustable to and from the carriage-path. This adjustability is obtained as follows: First, we provide the base of the block *e*, by which the outer bearing, E, is supported from the table, with elongated slots *g* for the passage of the attaching-bolts G. We also employ an adjusting-screw, H, secured in the fixed upright *h*, for shifting the block *e*, and a spring, *i*, encircling said screw, the pressure whereof is constantly exerted upon

the block in a direction away from said up-right. It will be seen that by loosening the bolts G the block *c* and its bearing E may be moved either to or from the point of cutting in one direction by the spring and in the other by the adjusting-screw. The arbors are each held against longitudinal play by the driving-pulley J at one side of the bearing and the nuts *j* at the other side thereof, one of said nuts acting to lock the other. Both bearings may be adjustable, if preferred.

The plate-holding carriage is slotted throughout such portion of its length as is covered by the plate, as shown at Fig. 4, to give access to the under cutter, the plate straddling the slot. A vertically-acting clamp, K, co-extensive with the plate in length, is mounted upon the carriage and is used to hold the plate rigidly during the time it is being trimmed. This clamp is operated from a rod, L, rotated by the lever-handle *k* by means of the pitman M at either end, which encircle eccentrics *m*, formed in or upon said rod L, and are pivotally joined to the clamp, the rod L being supported in up-rights N at either end of the carriage. The boxes O, in which the rod L is journaled, may be depressed by the set-screws *n*, and are sustained by the springs *o*.

To prevent injury to the printing-faces of the stereotypes the bottom of the clamp K is faced with a sheet of rubber, P.

The inclined under cutter, R, is mounted upon an arbor, *r*, supported in a frame, S, and may be driven by pulley *p* through the medium of a belt passing over idle-pulleys *q q*. The arbor-frame S is rigidly held at one side by a pivotal rod, *s*, secured to the frame of the machine, and at the other side by suspension-bolts T, depending from the machine-frame, and it is adjustable in two directions. Thus by changing the nuts upon the pivot *s* the entire frame is raised or lowered in a line parallel with pivot *s*, or by moving the nuts upon the bolts T the frame is swung upon said pivot *s*. These adjustments enable us to move the cutter in the longitudinal line of its arbor to compensate for its loss in diameter by wear and sharpening, and also to change the planes of its action either vertically or laterally.

The cutter R is novel in its construction. While an ordinary saw would answer some of the purposes of our invention, yet the form of cutter shown we regard as much preferable. It is provided with two operating ends, and these ends are formed not only to give the inclined face U to the leg of the plate, but also to finish the bearing-surface *v* in the roof of the cored part of the plate at one and the same operation. For this latter purpose each of the cutting ends of the tool is beveled off, as shown at *w*.

The machine we have shown is provided with but one of the inclined cutters; but it is obvious that this cutter might be duplicated, also that an oppositely-inclined one could be added. These additions would enable the cutting of the inclined faces of two plate-legs or

the cutting of both faces of a single leg. The tension-bolts T pass through lengthened openings *x*, to permit one of the adjustments of the frame S, which we have described.

The carriage we have illustrated is designed to be reciprocated by manual power. We do not, however, wish to be limited in this regard, as it obviously can be moved automatically.

We claim—

1. The combination, in a stereotype-plate-finishing machine, of two rotary cutter-heads adapted to trim the plate edges, placed opposite each other and at a distance apart corresponding to the width desired for the plate, and an inclined rotating cutter or cutters located to operate upon the side face of the under leg or legs of the plate, with a carriage for moving the plate up to the cutters, substantially as specified.

2. The combination, in a stereotype-plate-finishing machine, of two rotary cutter-heads mounted upon the adjacent ends of two independent arbors and placed at a distance apart corresponding to the width desired for the plate, with a reciprocating carriage adapted to pass between the arbors and provided with a clamp, essentially such as described, for holding the plate, substantially as set forth.

3. The combination, in a stereotype-plate-finishing machine and with a slotted carriage for moving the plate, of an inclined rotating knife formed with two operating ends beveled off at *w*, substantially as described.

4. In a stereotype-plate-finishing machine, the combination, with the two side-trimming rotary cutters, each of which is mounted upon an independent arbor longitudinally adjustable in both directions, of a carriage adapted to move the plate to said cutters, substantially as specified.

5. In a stereotype-finishing machine, the combination, with the slotted carriage for moving the plate, said carriage being provided with a clamp for securing the plate in proper position over its slot, of an inclined rotating cutter acting upon the under side of the plate and supported in operative position under the slot of the carriage, substantially as specified.

6. The combination, in a stereotype-plate-finishing machine, and with the slotted carriage thereof for moving the plate, of an inclined rotating knife located under the path of the carriage and projecting through the slot thereof, said knife being beveled at its ends, whereby the horizontal under bearing-surface is formed upon the cored part of the plate, substantially as specified.

7. The combination, with the carriage of a stereotype-plate-finishing machine, of a clamp for holding the plate, having a bearing-surface faced with rubber, substantially as specified.

8. The combination, with the carriage, of the clamp K, and its operating devices consisting of the rod L, its lever-handle *k*, pitman M, eccentric *m* upon the rod, and the supports for said rod, substantially as specified.

9. The combination, with the carriage, of the clamp K, the rod L, pitman M, the eccentrics upon the rod, and the boxes in which said rod is provided, the latter being adjustable, as set forth, substantially as specified.

10. The combination, with the carriage, of the clamp K, the rod L, pitman M, eccentrics upon the rod, and the boxes in which said rod is provided, the latter being sustained upon springs, substantially as set forth.

11. The slotted carriage having the vertically-moving rigid clamp K, for holding the plate over the slot, in combination with an under cutter for operating upon the under surface of the plate, substantially as specified.

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