

(No Model.)

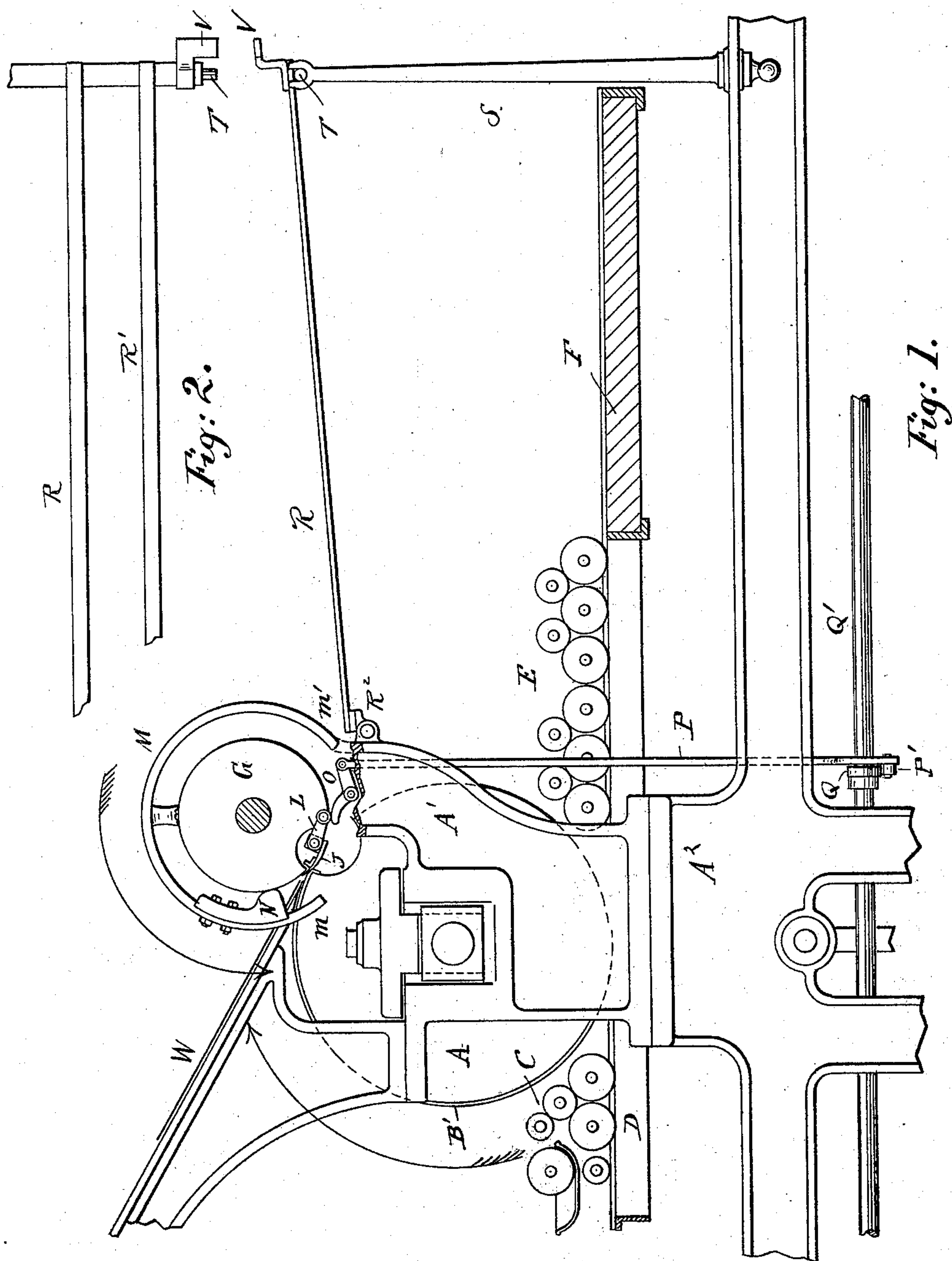
2 Sheets—Sheet 1.

M. AUERBACH.

DELIVERY DEVICE FOR LITHOGRAPHIC PRESSES FOR PRINTING
METAL SHEETS.

No. 550,813.

Patented Dec. 3, 1895.



Witnesses
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Emil Mueller.

M. Auerbach Inventor
By his Attorney
Oscar T. Gump.

(No Model.)

2 Sheets—Sheet 2.

M. AUERBACH.

DELIVERY DEVICE FOR LITHOGRAPHIC PRESSES FOR PRINTING
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No. 550,813.

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Fig. 4.

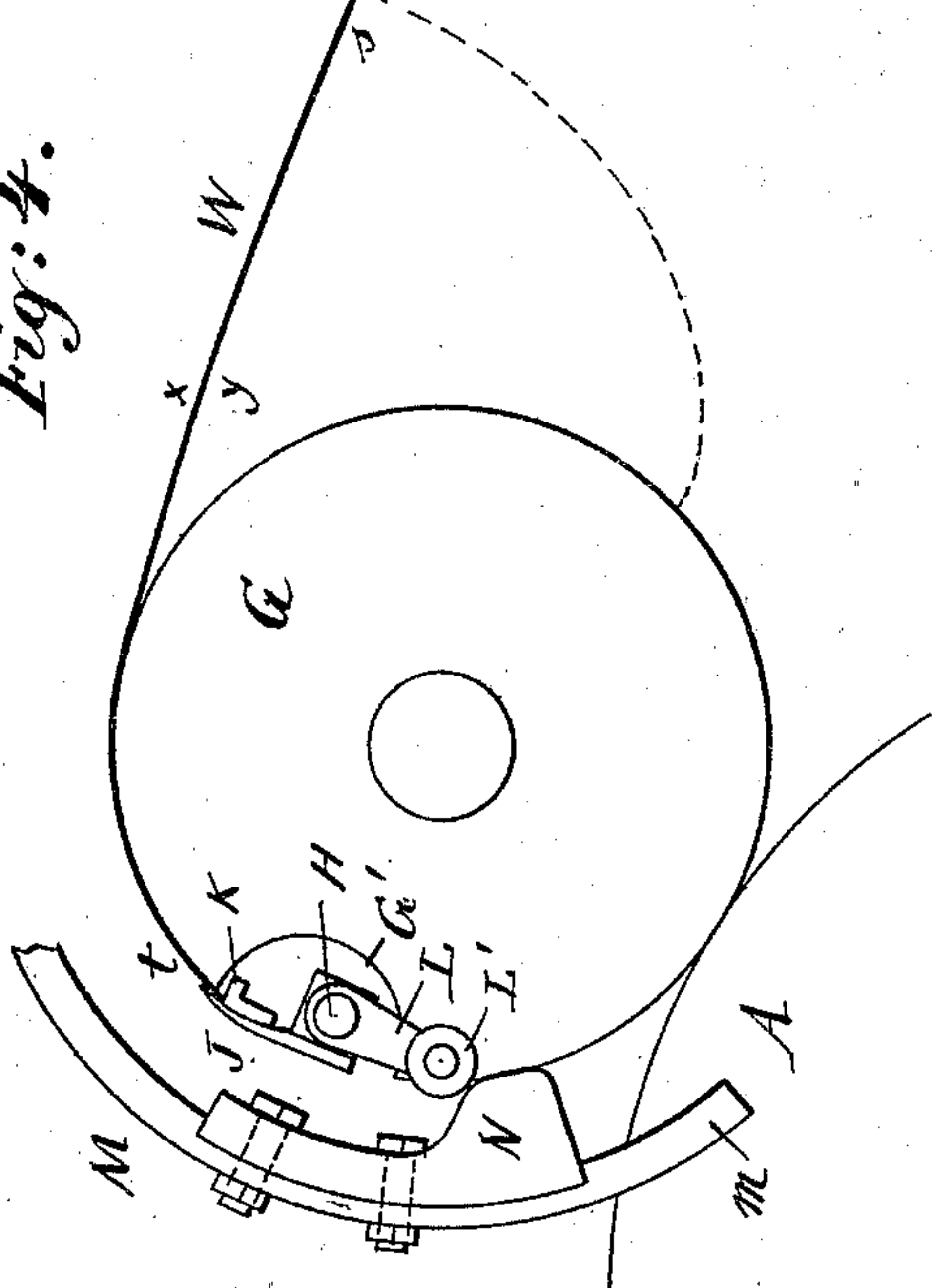


Fig. 5.

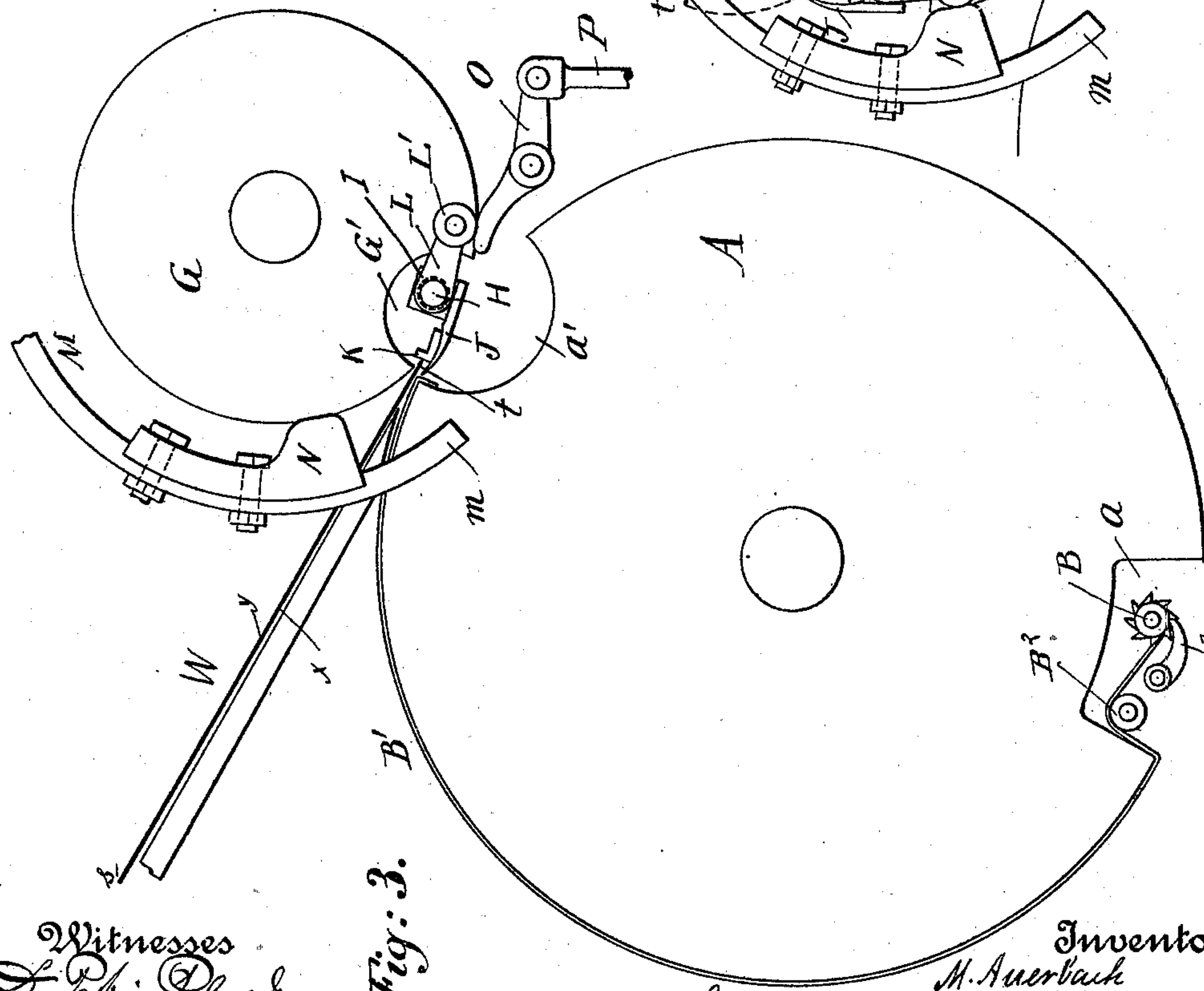
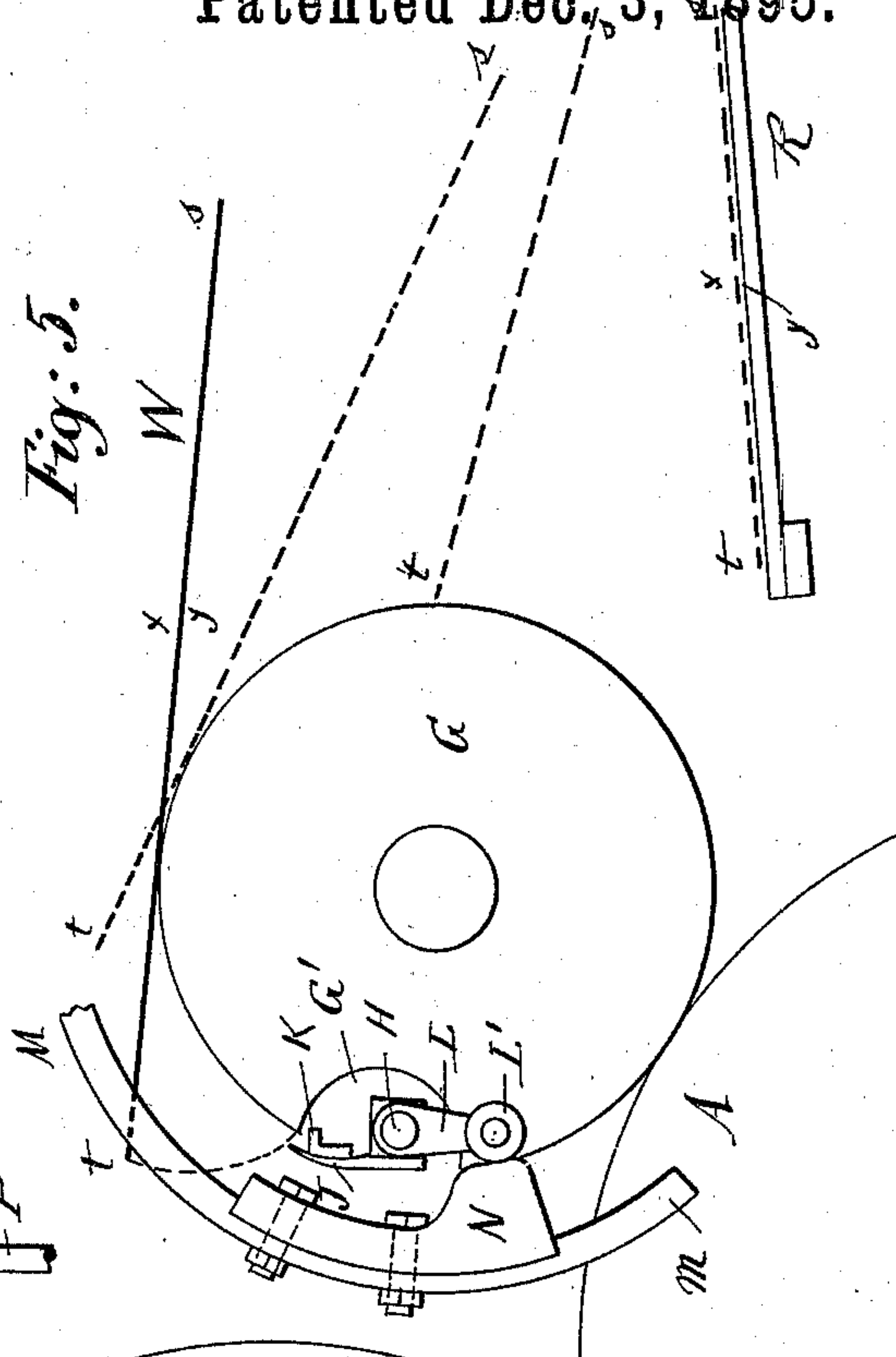


Fig. 3.

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UNITED STATES PATENT OFFICE.

MORITZ AUERBACH, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE FUCHS & LANG MANUFACTURING COMPANY, OF SAME PLACE.

DELIVERY DEVICE FOR LITHOGRAPHIC PRESSES FOR PRINTING METAL SHEETS.

SPECIFICATION forming part of Letters Patent No. 550,813, dated December 3, 1895.

Application filed January 8, 1895. Serial No. 534,235. (No model.)

To all whom it may concern:

Be it known that I, MORITZ AUERBACH, a citizen of Germany, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Delivery Devices for Lithographic Presses for Printing Metal Sheets, of which the following is a specification.

This invention relates to a new and improved attachment for lithographic presses used for printing on sheet metal; and the object of my invention is to provide an attachment for throwing off the printed metal sheet in such a manner that the printed face of the same appears at the top, thus preventing the defacing of the printed matter by sliding the printed face upon or over the receiving-table.

The invention consists in the combination, with a printing-cylinder and an impression-cylinder above the same, of a gripper-shaft mounted in the impression-cylinder, an arm on one end of the gripper-shaft, a circular track fixed at one end of the impression-cylinder concentric therewith, and a cam held adjustably on said track for the purpose of tripping the arm of the gripper-shaft and opening the grippers shortly after that end of the sheet opposite the one held by the grippers is released from between the printing-cylinder and the impression-cylinder.

The invention also consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and finally pointed out in the claim.

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 view of a lithographic printing-press provided with my improved sheet-delivery attachment, parts being in section and parts omitted. Fig. 2 is a plan view of part of the hinged receiving-table. Figs. 3, 4, and 5 are diagram end views of the cylinder and gripping devices, showing the parts in different positions.

The printing-cylinder A is mounted in the side standards A' of the frame A² in the usual manner. This cylinder is provided with longitudinal recesses or grooves *a* and *a'* almost diametrically opposite each other, and in one of the same a shaft B is mounted longitudi-

nally, on which one edge of a sheet of rubber B' is fastened, the opposite edge of the rubber blanket being held on the edge of the recess or groove *a'*. The rubber sheet passes over a roller B² in the groove *a* adjacent to the shaft B, as shown in Fig. 3. By means of a suitable key the shaft B is turned so as to wind the blanket B' on it, whereby the said blanket is stretched firmly and snugly on about one-half of said printing-cylinder, the blanket being held in this position by a ratchet-and-pawl device *b* in the groove *a* and connected with the shaft B.

The impression-cylinder G is mounted in the machine-frame above the printing-cylinder and in contact therewith. The cylinder G is provided with a longitudinal recess or groove G', in which a shaft H is mounted longitudinally and which is arranged to open and close grippers J. From the shaft H a series of grippers J project, which extend beyond the edge of the groove or recess G' and can rest their free ends on the periphery of the cylinder G. An L-shaped abutment or stop K is fastened to the top edge of each gripper a short distance back from the free end and in such a manner that said abutments or stops pass within the recess or groove G' when the grippers rest against the periphery of the cylinder G. The shaft H is provided at one end with an arm L, extending in the reverse direction of the grippers and provided with an antifriction-roller L' at its free end.

A circular track M is arranged concentrically with the cylinder G at that end of the same at which the arm L is located, and on said track a cam N is held adjustably, so that it can be fastened or locked in place on any part of the circular track.

A lever O is pivoted to the press-frame in such a manner that one end of the same can act on the free end of the arm L on the shaft H, and to the opposite end of said lever a rod P is pivoted, which extends downward and carries a roller P', on which a cam Q can act that is fixed on a shaft Q', driven by any suitable gearing (not shown) from the main shaft of the press.

The receiving-table R of the press is composed of a series of united slats R', which table is pivoted at R², where the cylinders A

and G approach closest to each other, to the standards A' and at the opposite end rests on the two standards S, projecting upward from the frame of the press, the free end bar of the table having pivot-pins T, which can pass into the forked upper ends of the standards S. V is a handle-lug on the free end of the table. By mounting the table in the manner described the operator is enabled to raise the same when the stone F is to be cleaned or adjusted, so that the table will be entirely out of the way of the operator, but can be brought into its proper position ready for receiving sheets by merely swinging it down until its free end rests upon the standards S again.

The operation is as follows: When the cylinders A and G are in the position shown in Fig. 3, the rod P is pulled downward by the cam Q, and thereby the arm O is pressed upward and the grippers J are moved from the periphery of the cylinder G sufficiently to insert the edge *t* of a sheet-metal plate or sheet W between the cylinder and the upper surfaces of the grippers. The sheet W can only be inserted until it strikes against the abutments or stops K on the grippers, which form a gage for holding each and every sheet in precisely the same position on the cylinder G. Immediately after the sheet has thus been introduced the free end of the lever O is moved downward, permitting the grippers J, under the action of the coiled gripper-spring I, (shown in dotted lines in Fig. 3,) to grip the edge *t* of the sheet and hold it firmly against the cylinder. The metal sheet W is now drawn along by the cylinder G, and in so doing is pressed in contact with the previously-linked rubber blanket B' on the cylinder A, whereby the ink is transferred from said rubber blanket upon the metal sheet W. The metal sheet is carried around by the cylinder G until the edge *s* of the metal sheet passes from between the cylinders A and G, and at that moment the spring-tension in said metal sheet causes the free end *s* of the same to swing outward and upward from the cylinder G about as shown in Fig. 4, the opposite end *t* of the sheet W being still held by the grippers J. By this time the cylinder G has rotated so far that the roller L' on the arm L strikes against the cam N on the curved track M, and thereby said arm is swung toward the center of the cylinder G and the grippers are swung in the direction from the periphery of the cylinder, and the end *t* of the metal sheet is released, permitting the sheet, under its spring-tension, to assume the position (for a moment) shown in full lines in Fig. 5, and then the sheet slides, as shown in dotted lines

in Fig. 5, upon the receiving-table—that is, with the printed surface *x* to the top and the unprinted surface *y*, which rested against the cylinder G, to the bottom. As the printed face does not come in contact with the receiving-table, it is not defaced, but remains clean and perfect. According to the length of the metal sheet W, the cam N must be adjusted on the curved track M, longer sheets requiring the same to be set nearer the end *m* of said track and shorter sheets requiring it to be set nearer the end *m'*. The cam N can also be so set that the grippers release the sheet an instant after the sheet has been released from between the two cylinders, or the cam can be so set that the grippers release the sheet a greater or less time after the sheet has been released from between the cylinders; but in all cases the sheet must be released from between the two cylinders before it is released from the grippers.

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

In a press for printing sheet-metal plates, the combination with a printing-cylinder, of an impression cylinder parallel with and in very close proximity thereto, the impression cylinder being above the printing-cylinder and said impression cylinder being provided with a longitudinal groove, grippers on a rocking-shaft in said groove, a fixed circular track at one end of said impression cylinder and concentric therewith, a cam mounted adjustably on said track, an arm on the rocking-gripper shaft, which arm can be tripped by the cam on the circular track, a feed-table extending down to within a short distance of the point of approach of the printing cylinder and impression cylinder, and a receiving table, the cam being held on the circular track on that half of the track toward the feed-table, so as to hold that end of the sheet that first entered in between the impression cylinder and printing cylinders, by means of the grippers, until it had passed toward the feeding table beyond the vertical longitudinal plane of the impression cylinder and until the rear end of the sheet had passed from between said cylinders, substantially as herein set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 6th day of December, 1894.

MORITZ AUERBACH.

Witnesses:

OSCAR F. GUNZ,
D. PETRI-PALMEDO.