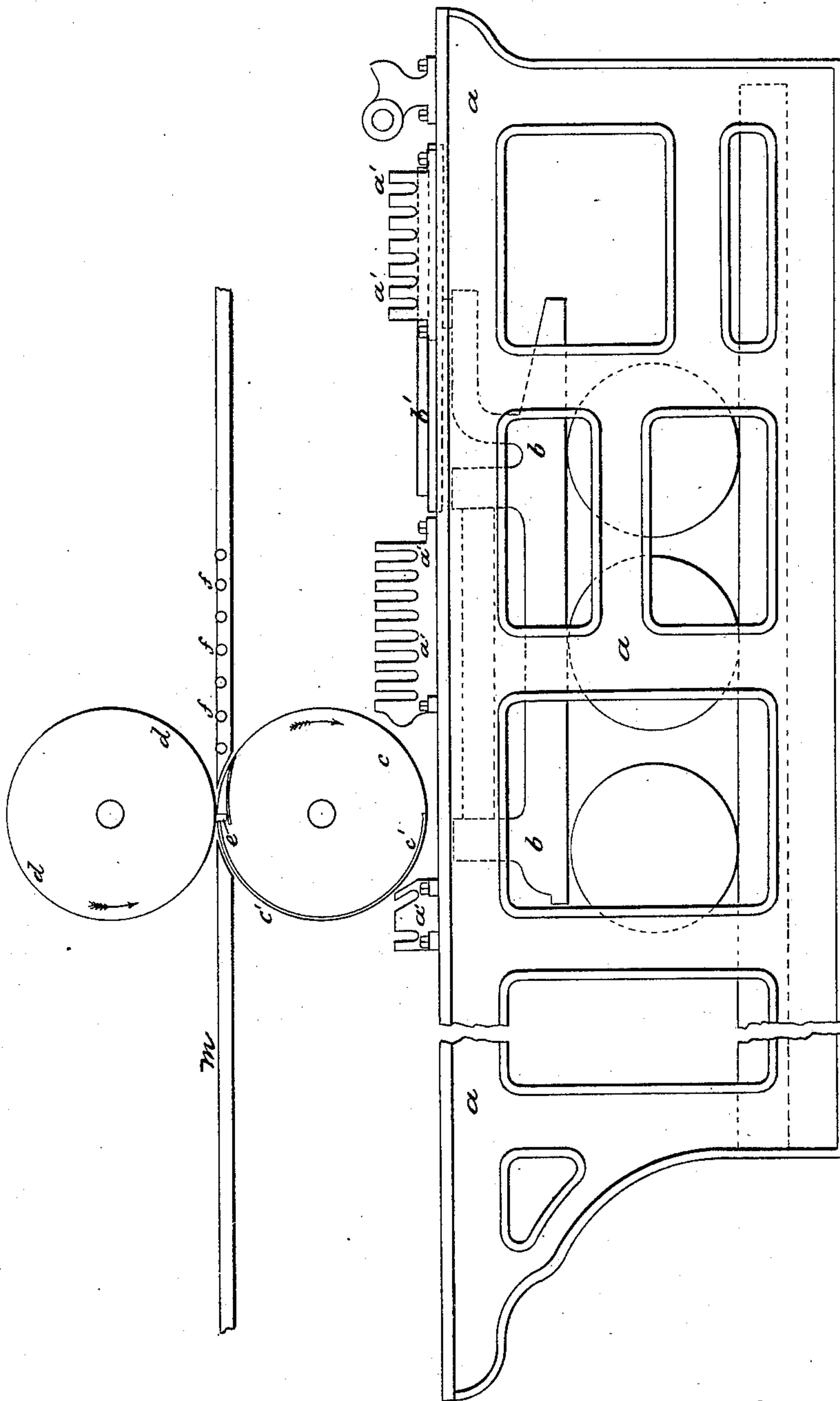


(No Model.)

R. BARCLAY, Dec'd.,
S. A GINNA and R. A. DONALDSON, Executors.
MACHINE FOR PRINTING METAL PLATES, &c.

No. 310.132.

Patented Dec. 30, 1884.



WITNESSES

Eduard Wolff
Herman Gustow

S. A. Ginna & R. A. Donaldson
Executors of -
Robert Barclay, deceased
Chas. A. Hill
By Attorney

UNITED STATES PATENT OFFICE.

STEPHEN A. GINNA, OF PLAINFIELD, N. J., AND RICHARD A. DONALDSON,
OF BROOKLYN, N. Y., EXECUTORS OF ROBERT BARCLAY, DECEASED.

MACHINE FOR PRINTING METAL PLATES, &c.

SPECIFICATION forming part of Letters Patent No. 310,132, dated December 30, 1884.

Application filed June 11, 1884. (No model.) Patented in England July 20, 1875, No. 2,590, and in France November 27, 1875, No. 110,494.

To all whom it may concern:

Be it known that we, STEPHEN A. GINNA, of Plainfield, New Jersey, and RICHARD A. DONALDSON, of Brooklyn, New York, both citizens of the United States, are the executors (appointed by the order dated May 29, 1884, of the Surrogate of New York county) of the last will and testament of ROBERT BARCLAY, deceased, late a subject of the Queen of Great Britain, who invented certain new and useful Improvements in Machines for Printing Metal Plates and in Fixing Durable Colored Impressions upon Metal Plates, (for which said ROBERT BARCLAY received Letters Patent in Great Britain, No. 2,590, dated July 20, 1875, and in France, No. 110,494, dated November 27, 1875,) of which the following is a specification.

This invention has for its object improvements in machinery for printing metal plates and in fixing durable colored impressions upon metal plates. The frame of the machine carries a table to which a to-and-fro motion is given. On the table is fixed a lithographic stone, which by the motion of the table is carried beneath inking-rollers, and also beneath an impression or printing cylinder. To the periphery of this cylinder a sheet of thin card-board or drawing-paper, well sized and highly glazed, is attached, which receives the impression from the lithographic stone. Over the impression or printing cylinder is a second or pressure cylinder, and the tin plates or other metal plates to be printed are passed between the two cylinders. The rotation of the impression or printing cylinder is not continuous, but it pauses for an instant after the card-board has passed over the stone, and during this pause the edge of the metal plate is introduced between the impression or printing cylinder and the pressure-cylinder. The plate is accurately placed against a spring-stop on the periphery of the impression or printing cylinder. When after the pause the cylinders again revolve, the metal plate passes between the cylinders, and the color on the card-board is set off onto the plate. The plate is delivered onto small friction-wheels, which support it without allowing the impression to

be blurred. Several colors may be printed in accurate register, either by different machines or by the same machine, the lithographic stone, the inking arrangement, and the card-board sheet being changed. The same method can be applied to an impression taken from type on wood and metal blocks instead of a lithographic stone, and to impressions in more than one color produced on the cylinder clothed with the highly-glazed drawing-paper or card-board, as before described.

The figure is a side view of a machine constructed according to the invention. The principal parts only are shown.

a is the frame, carrying a reciprocating table, *b*, on which is carried a lithographic stone; or it may be a surface printing-block or other printing-surface.

b' is the portion of the table *b* on which the ink is distributed, the ink-rollers being carried in the racks *a'* on the frame *a*.

c is the impression-cylinder, clothed with card-board or other suitable material, *c'*, over about half its circumference. It rotates in one direction with a surface-speed equal to that of the printing-block, but makes a pause on the completion of each rotation just before it reaches the position shown in the drawing.

d is the pressure-cylinder, revolving in unison with the impression-cylinder.

e is a spring-stop. When the pause takes place, the plate of metal to be printed is fed up to the spring-stops, and when the cylinders commence again to move it is pressed forward and made to follow the stops until the cylinders take hold of it and draw it through, delivering it onto the small rollers *ff*. The feed-board is denoted by the letter *m*. Thus during the first half of each rotation of the impression-cylinder the card-board surface is printed, and during the second half-rotation the color so printed is transferred to or set off on a metal plate. This will be understood from the figure, in which the positions of the table *b* and impression-cylinder *c* are such that upon the usual motions being imparted to the table and cylinder the edge shown uppermost of the yielding surface *c'* and the nearer edge thereto of the part *b'* of the table will come

together centrally below the cylinder *c*, permitting the surface *c'* during the continued motion of the machinery to move over the stone or printing-surface, whereby the surface
5 *c'* receives the impression to be transferred to the tin plates and reassumes the position shown in the figure, the part *b'* of the table *b* being at this time at the rear end of the machine. The cylinder *c* now remains station-
10 ary until the table moves to the front end of the machine, being that illustrated in the figure, at which time the plate will be fed from the board *m* and the cylinders and table *b* set in motion, as before. At every revolution of
15 the cylinder *c* it pauses until the table *b* has moved to the front end of the machine. The cylinders *c* *d* will be provided at their ends with intermeshing gear-wheels, and the sides of the table may be provided with the usual
20 racks, or any other means now well known for giving it the usual reciprocating motion.

The gearing and racks we have omitted from the drawing for clearness of illustration.

25 The metal plates after printing are stoved and varnished, and stoved or varnished and stoved and polished in the usual manner.

Shellac, or copal, or other suitable varnishes are employed.

What we claim as the improvements in machinery for printing metal plates is—

1. In a lithographic machine for printing metal plates, the reciprocating table for carrying the stone or printing-surface, in combination with the impression-cylinder *c*, having a layer of yielding substance, *c'*, to receive
35 the impression from the printing-surface during the movement of the table *b*, and the pressure-cylinder *d*, substantially as set forth.

2. In a lithographic machine for printing metal plates, the impression-cylinder *c*, having a yielding surface, *c'*, and stop *e*, combined
40 with the pressure-cylinder *d* and reciprocating table *b*, substantially as and for the purposes set forth.

Signed at the city of New York this 9th day
of June, 1884. 45

STEPHEN A. GINNA.

RICHARD A. DONALDSON.

Witnesses:

HERMAN GUSTOW,

CHAS. C. GILL.