

No. 844,162.

PATENTED FEB. 12, 1907.

E. MERTENS.

APPARATUS FOR PRODUCING PRINTING SURFACES.

APPLICATION FILED MAY 1, 1905.

2 SHEETS—SHEET 1.

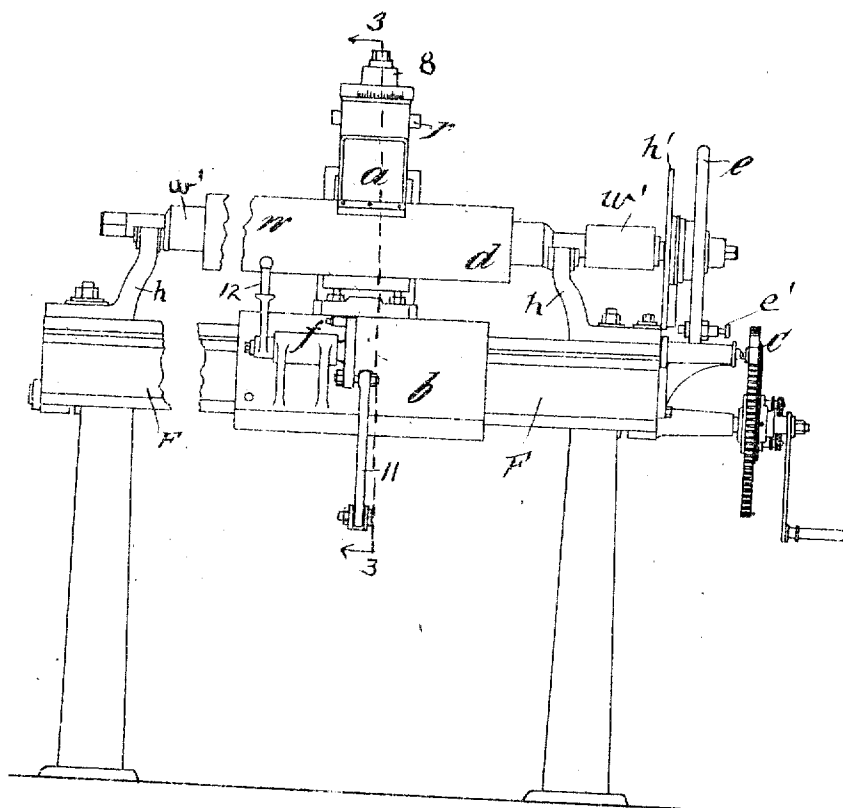


Fig. 1.

Witnesses:
Hart Blumberg
Hans Müller

Inventor:
Edward Mertens

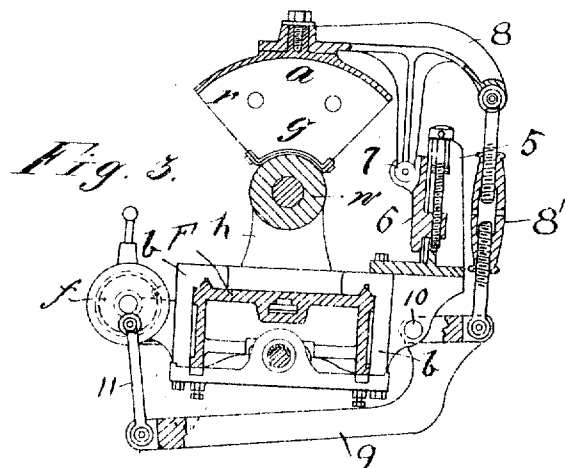
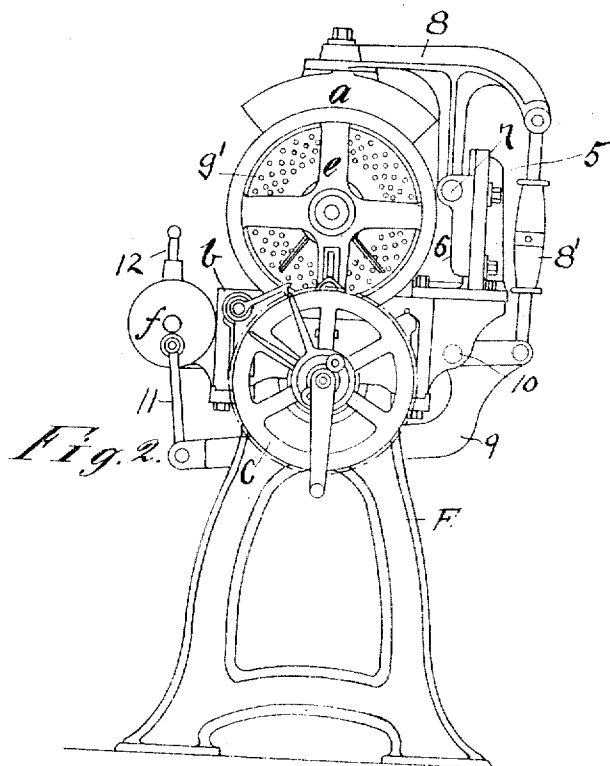
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Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

EDUARD MERTENS, OF BERLIN, GERMANY.

APPARATUS FOR PRODUCING PRINTING-SURFACES.

No. 844,162.

Specification of Letters Patent.

Patented Feb. 12, 1907.

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To all whom it may concern:

Be it known that I, EDUARD MERTENS, a subject of the Emperor of Germany, residing in Berlin, Germany, have invented certain new and useful Improvements in Apparatus for Producing Printing-Surfaces, of which the following is a specification.

In the photochemical production of design rollers and plates for printing purposes it is of importance when one and the same design is to be repeated several times on the printing-form that the same parts are photographed in absolute correspondence on the form. For this purpose I employ the photograph only of one or of a few of the like parts of which the printing-surface is to be composed, and I copy this photograph (negative, half-tint, autotype, or the like, obtained in any desired manner, or a drawing or impression on transparent material) in succession on the printing-form, either one copy beside the other or above the other the number of times required to produce the complete design. It is necessary in so copying that each part design shall repeat or join on exactly to the adjacent one, so that the straight line or other junctions between the parts are not visible or not prominently visible.

My invention may be applied to the production of either flat or cylindrical or other curved printing-surfaces. For illustration, I have shown my invention in the accompanying drawings as applied to an apparatus for producing the designs on a cylindrical printing-surface.

In these drawings, Figure 1 is a part elevation of a machine constructed to embody my invention. Fig. 2 is an end elevation of the same; and Fig. 3 is a section on the line 3-3, Fig. 1.

In these views, *w* is the cylindrical body upon which the desired printing-surface with repeated design is to be produced by photochemical means. This cylinder, which has its surface photographically sensitized, is mounted by its axis *w'* upon brackets or supports *h*, set upon a frame *F*, which is like the frame of a milling-machine or lathe. To one end of the axis *w'* (the right in Fig. 1) is secured a hand-wheel *e*, by which the cylinder *w* may be adjusted rotarily and secured after such adjustment by means of a pin *e'* in the wheel *e* being set into the proper one

of the numerous holes in the stationary gage *h'* on the frame.

On horizontal guides of the bed-plate of the frame *F* is mounted the traveling carriage *b*, which can be moved longitudinally on the bed-plate by any suitable feed-motion, such as used in milling-machine, and lathes and under the control of a hand-wheel *C*. On this carriage, at the back thereof, is an upright *5*, carrying a vertically-adjustable block *6*, on which is pivoted at *7* a lever *8*, carrying at its forward end the photographic-printing frame *a*, Fig. 3. The rear end of the lever is connected by a link *8* to a bell-crank lever *9*, pivoted at *10* to the carriage and connected by a link *11* to a crank-disk *f* on a shaft having a hand-lever *12*. By manipulating this hand-lever backward or forward the photographic-printing frame can be raised from *a* depressed onto the surface of the cylinder or other object *w* on which the part design is to be photographed, but of course I do not restrict myself to the particular devices shown for manipulating the printing-frame. So far as concerns the printing-frame itself this may be of any suitable shape, being in the present instance shown as a closed segmental casing, adapted to contain electric-lighting lamps or tubes *r* and to hold at its lower face the sheet *g*, which is curved to fit closely over any portion of the cylinder and which may be a photographic negative or positive or a more or less transparent tracing carrying the section or portion of the design to be produced on the sensitized surface of the cylinder or plate *w*. The illuminating means *r* may conveniently be mercury-vapor lamps.

After photographically printing the portion of the design upon the exposed sensitive surface of the printing-surface *w* the table carrying the printing frame is adjusted longitudinally on the bed by means of the feed-motion operated by the hand-wheel *C* to bring the printing-frame to proper position longitudinally of the roller to repeat the design in register with the first. Where the repeat is to be obtained by adjustment in one direction perpendicular to the above-mentioned adjustment, or, in other words, circumferentially of the roller, the latter may be turned by the hand-wheel *e* to the desired position. By these means I secure accurate positioning of the photographic-printing

frame *a* upon the surface *w* for the repetition of the design.

When the design has thus been photographically impressed on the whole of the printing-surface *w*, it is subjected to any usual or convenient chemical treatment to prepare it to take printers' ink for the printing of the complete design.

I claim as my invention—

1. The combination of a main frame and means for holding thereon a printing-body having a sensitized surface, with a table, a photographic-printing frame thereon and means to adjust the table on the frame for the repetition of the photographic printing.

2. The combination of a main frame and means for holding thereon a printing-body having a sensitized surface, with a table, a photographic-printing frame thereon, means to adjust the printing-frame to and from the sensitized surface and means to adjust the table on the main frame for the repetition of the photographic printing.

3. The combination of a main frame and means for holding thereon a printing-body having a sensitized surface with a table a photographic-printing frame thereon, means to adjust the printing-frame to and from the sensitized surface, means to adjust the table longitudinally on the main frame and means to adjust the printing-body in a direction perpendicular to the direction of adjustment of the table.

4. The combination of a main frame and means for holding thereon a printing-cylinder having a sensitized surface with a table, a photographic-printing frame thereon, means to adjust the printing-frame to and from the cylinder, means to adjust the cylinder rotarily and means to adjust the table longitudinally.

5. The combination of a main frame and means for holding thereon a printing-body having a sensitized surface, a photographic-printing frame carrying the design to be printed and lighting devices, means to adjust the printing-frame to and from the sensitized surface and means to bring different parts of printing-body into position under the printing-frame for the repetition of the design.

6. The combination of a main frame and means for holding thereon a printing body having a sensitized surface, a photographic-printing-frame carrying the design to be printed and lighting devices, means to adjust the printing-frame to and from the sensitized surface and means, including a feed-motion, to bring different parts of printing-body into position under the printing-frame for the repetition of the design.

In testimony whereof I affix my signature in presence of two witnesses.

EDUARD MERTENS.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.