

March 23 , 1926.

1,577,442

L. BASSANI

METHOD AND APPARATUS FOR MAKING PHOTOMECHANICAL PRINTING PLATES

Filed Dec. 11, 1922

2 Sheets-Sheet 1

Fig.1

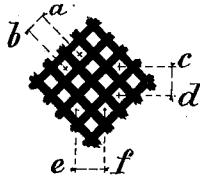


Fig.2

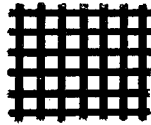


Fig.3



Fig.4

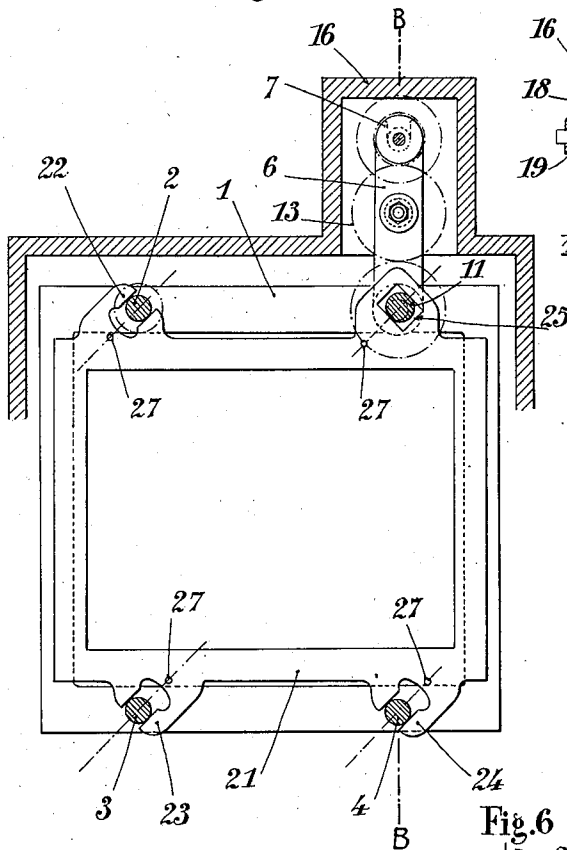


Fig.5

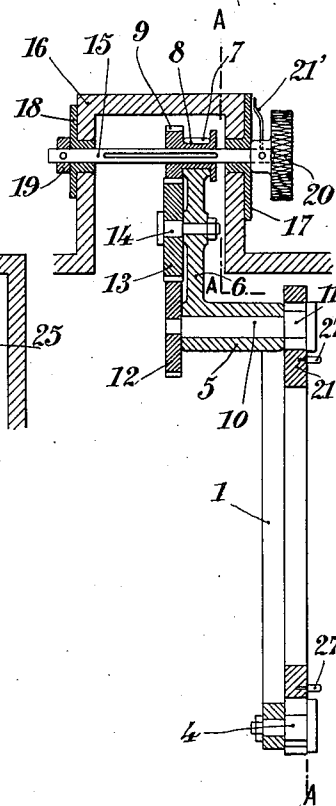


Fig.6

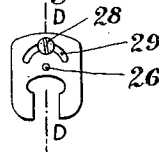
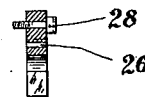


Fig.7



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By *Atto*
his Attorney.

March 23 , 1926.

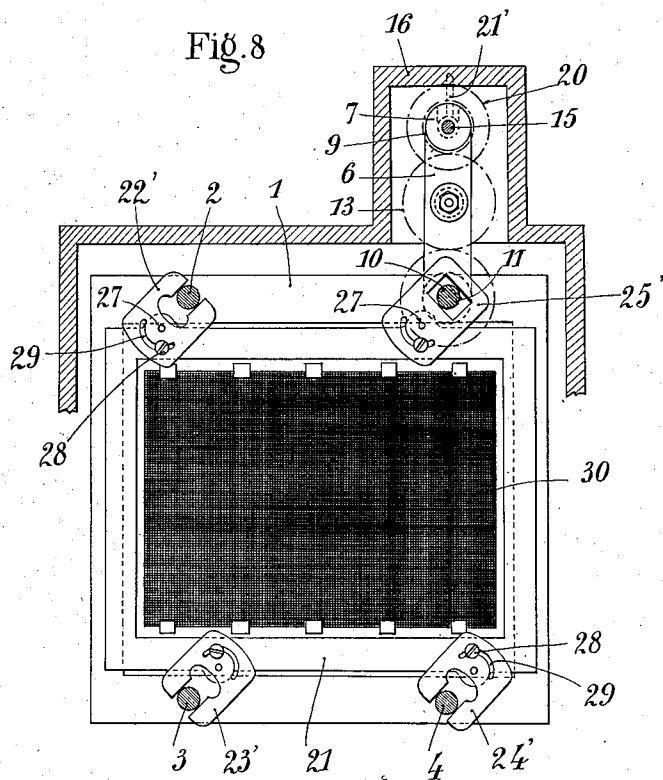
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METHOD AND APPARATUS FOR MAKING PHOTOMECHANICAL PRINTING PLATES

Filed Dec. 11, 1922

2 Sheets-Sheet 2



Laurent Bassani
INVENTOR;

By *Attorney*
his Attorney.

UNITED STATES PATENT OFFICE.

LAURENT BASSANI, OF CORBEIL, FRANCE, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
BASSANI PROCESSES, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

METHOD AND APPARATUS FOR MAKING PHOTOMECHANICAL PRINTING PLATES.

Application filed December 11, 1922. Serial No. 606,078.

To all whom it may concern:

Be it known that I, LAURENT BASSANI, subject of the King of Italy, residing at Corbeil, Seine-et-Oise, in the Republic of France, have invented new and useful Improvements in Methods and Apparatus for Making Photomechanical Printing Plates, of which the following is a specification.

It has already been proposed to use a method for photomechanical printing according to which two reticulated printing surfaces are used and two superposed prints are successively taken by means of said printing surfaces, respectively, upon the paper or other receptive surface to be printed upon. One of said printing surfaces is obtained by the usual means and the other is obtained by means of a reticulated photographic plate, which latter is itself obtained in such manner that the reticulated screen is displaced during the exposure in its own plane, i. e. in a plane at right angles to the optical axis of the apparatus. Said known method is more particularly adapted for lithographic printing in black or in colors. In the case of color printing, two printing surfaces are used for each color as is well known.

It has been discovered that in the case of typographic printing, the first printing surface mentioned above may be omitted, and use is made only of the second printing surface i. e. that obtained by means of the special reticulated photographic plate which is itself obtained by a displacement of the reticulated screen during the exposure.

The present invention consists in a method for photo-typographic printing according to which the single printing surface used is obtained by means of a reticulated photographic plate, which is itself obtained by displacing the reticulated screen in its plane during the photographic operation. The displacement of said reticulated screen is preferably effected in a direction at an angle with the lines on the screen.

The invention also comprises a device which may be used with advantage for effecting said displacement of the reticulated screen.

In the accompanying drawing given by way of example:

Fig. 1 shows a portion of a reticulated screen formed by opaque lines crossed at

right angles and inclined at 45° to the horizontal.

Fig. 2 shows a portion of screen wherein the crossed opaque lines are vertical for one set and horizontal for the other.

Fig. 3 shows a portion of screen wherein the opaque lines are crossed at an angle of any predetermined value.

Fig. 4 is a vertical section along the broken line A—A of Fig. 5, of a device according to the invention.

Fig. 5 is a section of the same on the line B—B of Fig. 4.

Fig. 6 shows a yoke member with adjustable setting.

Fig. 7 is a section of the same on the line D—D of Fig. 6.

Fig. 8 is a view similar to Fig. 4 showing the reticulated screen as well as the adjustable yoke-members in position.

It is known that the photo-mechanical plates now used for the typographic printing for instance of papers, magazines and the like necessitate numerous retouchings if fineness together with strength are desired for the image. If it is desired to obtain all the details of the photographed object, the screen appears in the white parts of the image, these white parts are impure and the plate lacks in vigour. The retouching operation has for its main object to suppress the black points left by the reticulated screen in the white parts in such manner as to purify the latter, while conserving all the plastic character of the plate. The operation must be carried out by clever workmen and is long and expensive.

The method according to the present invention makes it possible to do away substantially with all hand made retouching and to replace the latter by a very simple mechanical operation consisting in the shifting of the screen in its plane during the exposure.

According to the invention, the drawing, engraving, image or the actual object is photographed by means of a screen photographic apparatus, of the same kind as those now on wear. If it is supposed that the exposure lasts 10 minutes, the object is photographed in the usual manner during say 6 minutes, the screen is then slightly shifted in its plane and the exposure continues during 2 minutes, the screen is shifted again

and the exposure carried out during the 2 last minutes, the above numbers being, of course, given solely by way of example. It has been observed that, under these conditions, the screen disappears from the white parts of the final image without injuring the plastic character of the latter; the printing plate thus mechanically obtained and substantially without any retouching, presents the same qualities as a plate retouched throughout by hand as now prepared.

The displacement of the screen in its plane is preferably effected in a direction at an angle to the opaque lines of said screen.

It is known that the ruled screens normally used in photo-mechanical processes may be constituted in different manners; they may be constituted by opaque lines crossed at right angles and inclined at 45° to the horizontal (Fig. 1), or by two series of opaque lines crossed at right angles whereof one series is vertical and the other horizontal (Fig. 2) or again, by opaque lines crossed at any predetermined angle (Fig. 3). According to the invention, when the screen has the form shown in Figs. 1 and 3, said screen will be moved preferably either horizontally or vertically; when the screen has the form shown in Fig. 2, it will be displaced preferably in the direction at 45° to the horizontal. Such displacement will ensure the perfect suppression of the screen at the desired places. The displacement of the screen may be obtained by using the device shown in Figs. 4 and 5. Said device comprises a frame 1 upon which are secured the supporting journals 2, 3, 4. This frame is provided with a sleeve part 5 ending in a support 6 whose upper end 7 is fork-shaped and engages the collar 8 of the driving pinion 9 of the device.

The frame 1 is itself secured to a carriage movable in the horizontal direction and generally disposed in all the photographic apparatus constructed for the use of screens in photo-mechanical processes. The frame 1 can be therefore moved horizontally with said carriage in the conditions required to permit the execution of the usual photographic operations.

A shaft 10 which turns in the sleeve 5 is provided at one end with an eccentric collar 11 and at the other end has a pinion 12 keyed thereon engaging a pinion 13 which turns on a stud shaft 14 and engages the driving pinion 9. The driving pinion 9 is mounted on the shaft 15 by a sliding key arrangement which permits the lengthwise movement of pinion 9 along said shaft.

A casing 16 disposed upon the rear part of the apparatus serves as a support for the shaft 15 which turns in the bearings 17 and 18. This shaft is provided at one end with a stop ring 19 and at the other end with a milled head 20 carrying a pointer 21'. By

means of said pointer 21' the different angular positions of the head 20 may be read from graduations provided on the face of the bearing 17.

The device comprises also another frame 21 which is in relation with the frame 1 by means of the yoke members 22, 23, 24, 25 disposed at 45° and which embrace the journals 2, 3, 4 and the collar 11, respectively.

On the frame 21 are suitably secured the usual necessary bars supporting the reticulated screen which is thus displaced at the same time as said frame 21.

The operation is as follows: When the milled head 20 is actuated, the eccentric collar 11 is rotated by means of the pinions 9, 13, 12. This operation is effected from the outside of the apparatus irrespectively of the position occupied in the horizontal direction by the supporting frame 1. The angular displacement of the eccentric journal 11 effects, by means of the yoke members 25, the displacement of the frame 21, which, guided by the journals 2, 3, 4 will move according to the direction of the yoke members 22, 23, 24, the amount of this motion being determined by the position of the pointer 21' on the graduated face of the ring 17.

It is advantageous that the direction of the displacement of the screen may be changed if desired. This result is obtained by mounting the yoke members in such manner that their angular position may be adjusted with respect to the frame 21, as shown in Fig. 8. These yoke members may be of the form shown in Figs. 6 and 7; they are provided with holes 26 which are adapted to engage corresponding pivots 27 secured to the frame 21 the yoke members shown at 22', 23', 24', 25' in Fig. 8 are thus adapted to swing on the pivots 27 so as to be placed in the proper direction. They are then secured to the frame 21 by screws 28 which extend through arcuated slots 29 and screw into tapped holes in the frame 21.

Various constructional modifications in detail may be obviously made in the device described without departing from the invention.

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

1. A method for preparing printing surfaces for photo-typographic printing which consists in reproducing upon the surfaces to be prepared reticulated photographic plates obtained by the displacement of the screen in its plane during the exposure.

2. A method for preparing printing surfaces for photo-typographic printing which consists in reproducing upon the surfaces to be prepared reticulated photographic plates obtained by the displacement of the screen in its plane during the exposure, in a direc-

tion at an angle with the direction of the opaque lines of said screen.

3. A method for photo-typographic printing which consists in printing each image by means of a single reticulated printing surface obtained by means of a reticulated photographic plate, itself obtained by shifting the screen in its plane during the exposure.

4. An adjusting device for photographic cameras comprising a supporting frame movable in a direction at right angles to its plane, a reticulated screen, a screen holder parallel to said supporting frame, an eccentric member on the supporting frame in engagement with the screen holder and adapted to displace the same in its plane, means for rotating said eccentric member in all positions of the supporting frame and guiding means on said supporting frame for guiding the screen holder in a certain direction.

5. An adjusting device for photographic cameras comprising a supporting frame movable in a direction at right angles to its plane, a reticulated screen, a screen holder parallel to said supporting frame, an eccentric member on the supporting frame in engagement with the screen holder and adapted to displace the same in its plane, means for rotating said eccentric member in all positions of the supporting frame, guiding means on said supporting frame for guiding the screen holder in a certain direction and adjusting means for varying the angular position of said guiding means.

6. An adjusting device for photographic cameras, comprising a supporting frame movable in a direction at right angles to its plane, a reticulated screen, a screen holder

parallel to said supporting frame, an actuating shaft parallel to the above stated direction, indexing means for ascertaining the angular position of said shaft, a pinion splined on said shaft, an adjusting shaft rotatably mounted in the supporting frame, toothed wheels for operatively connecting said adjusting shaft to said pinion, an eccentric part on said adjusting shaft, in engagement with the screen holder and adapted to displace the same in its plane, guiding pins on the supporting frame, and yoke members on the screen holder having slots in which said pins are engaged respectively.

7. An adjusting device for photographic cameras, comprising a supporting frame movable in a direction at right angles to its plane, a reticulated screen, a screen holder parallel to said supporting frame, an actuating shaft parallel to the above stated direction, indexing means for ascertaining the angular position of said shaft, a pinion splined on said shaft, an adjusting shaft rotatably mounted in the supporting frame, toothed wheels for operatively connecting said adjusting shaft to said pinion, an eccentric part on said adjusting shaft, in engagement with the screen holder and adapted to displace the same in its plane, guiding pins on the supporting frame, yoke members on the screen holder having slots in which said pins are engaged respectively and means for adjusting the angular position of said yoke members upon the screen holder.

In testimony whereof I have signed my name to this specification.

LAURENT BASSANI.