Aug. 10, 1948. P. G. FILMER 2,446,915

PHOTOGRAPHIC PROCESS OF PRODUCING
A PRINTING IMAGE
Filed July 13, 1946



Fig. 1

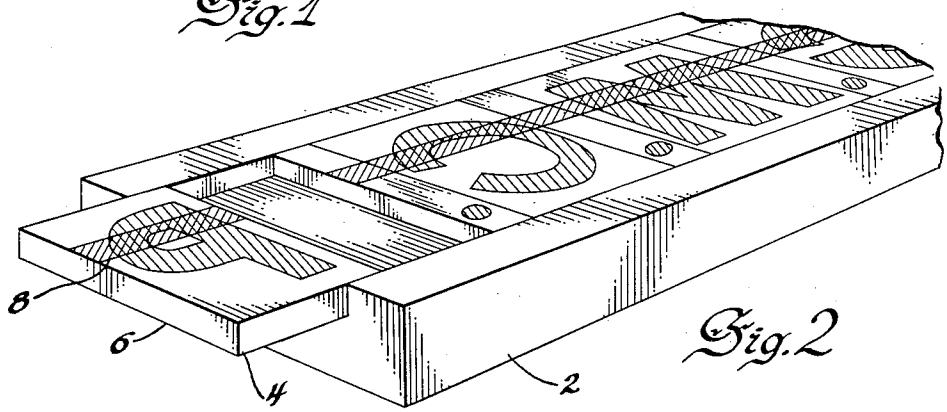


Fig. 2

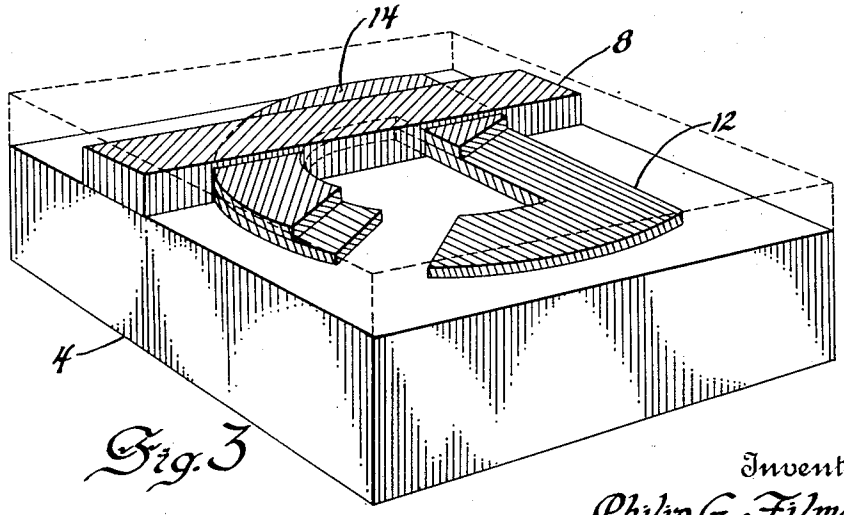


Fig. 3

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PHOTOGRAPHIC PROCESS OF PRODUCING A PRINTING IMAGE

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3 Claims. (Cl. 95—5.6)

1

My present invention relates to a process of and the equipment for photographic printing. More particularly it relates to a photographic type for direct printing on such materials as diazo paper, silver sensitized paper, and plates or paper sensitized with bichromated colloids.

In the production of charts for sales meetings, lectures, or display purposes, a single or relatively small number of reproductions is often required. In such cases the charts are usually hand-lettered by an artist which is both very expensive and time-consuming.

Another method of printing such cards is to set the subject matter in type and make a very small number of printings.

Another method often used in the photographic art is to make negatives by photographing and making enlarged prints from this negative. All these methods are also quite costly and a slower procedure than that contained in the present invention.

It is therefore an object of this invention to produce a means of photographic printing suitable for making show cards and charts.

It is a further object of the present invention to produce plastic type for photographic printing.

It is a further object of the present invention to produce a means of reproduction that will be useful for producing low cost printed matter such as show cards, charts, etc.

It is a further object of this invention to produce photographically opaque type for photographic printing of charts, figures and other images.

Other objects will become obvious as the specification progresses and will be illustrated in the drawing and pointed out in the claims.

In the drawing:

Figure 1 shows the card to be printed.

Figure 2 illustrates the assembled type for printing.

Figure 3 shows the steps in producing the photograph type.

Referring more particularly to Figure 2, 2 is a holder which may be of any suitable transparent material, 4 is a section of type produced by my method which may be assembled in the holder 2 to produce the desired chart, 6 is the image to be printed and 8 is the identification marker to assist in properly assembling the sections of the type.

Referring to Figure 3, a view of a printing image made by my method is shown with a backing plate 4. This image consists of a very opaque lacquer coating 12 and an identification coating 14

2

in addition to an assembly marker 8. Various sizes of letters similar to that shown in Figure 3 may be made and assembled to produce the desired printing plate. Also various charts, drawings, or similar images may be made and assembled. To produce this printing image a sheet of any suitable transparent material of convenient thickness may be used. This sheet is coated with a layer or layers of opaque lacquer. I have found it convenient to use black lacquer to produce the very opaque base coat 12 and to use colored lacquers for the second coat 14. This second coat 14 will have a different color for each of the various sizes of type used and therefore will assist greatly in identifying and assembling the printing plate. After the sheet is coated with lacquer, either one or two coats as described above, the sheet is whirled with a light sensitive bichromated colloid coating known in the graphic arts as a deep etch coating. From prepared copy a master negative may be printed on the sensitized lacquered transparent sheet. This may be done by either contact printing or by optical methods, both means of printing being conventional in the graphic arts. Exposure of the sensitized transparent sheet through the negative to an arc lamp or other high intensity light source, coupled with the usual deep etch development, yields a hardened water soluble colloid resist of the image. By applying methyl alcohol and other anhydrous organic solvents, all the lacquer is removed except that protected by the image resist. The colloid resist may then be removed with water leaving only the lacquered letters or other image on the transparent backing plate.

To facilitate the easy identification of different sizes of letters, it is very desirable to use two layers of lacquer, the first layer or coating for opaqueness and the second coat the identifying color. In addition to these coatings produced as described above, to further facilitate assembly, a visible but non-actinic directional image may be produced over the combined lacquer images. This directional image is designed to prevent the characters becoming inverted during assembly. It is, of course, necessary that this directional image have high transmission qualities with respect to blue, violet and ultraviolet rays. This is necessary to prevent the printing of this directional image, for example the line shown in Figure 3, as 8, from appearing on the printed card or chart. After the lacquered letters and directional image is produced, it is desirable, but not necessary, to coat the backing plate with a protective coating of transparent material. After

the letters are produced on a sheet they may be cut into individual letters for assembly in the desired sequence. This cutting may be done by any of the conventional methods of cutting plastics.

The printing of the composed type is effected by placing a sheet of sensitized material over the transparent frame containing the type, obtaining contact between the surface of the type and the surface of the sensitive material by either mechanical or vacuum means and providing the necessary exposure. Several different types of material may be printed on. A diazo paper or foil after exposure and the usual ammonia fume development will yield a positive reading, positive color image. Additional copies may be easily made by making prints consecutively or by printing from foil the requisite number of times in any suitable contact printing machine. The type produced by my invention may also be used for printing on silver sensitized material or silver emulsion paper which, after processing, yields a positive reading, negative color image. Bichromated colloid coatings also may be utilized to produce prints or plates which may be run on offset presses.

It is to be understood also that although the invention has been described with specific reference to a particular embodiment thereof, it is not to be so limited, since changes and alterations therein may be made which are within the full intended scope of this invention as defined by the appended claims.

I claim:

1. A method of producing a photographic printing image including coating of a transparent backing plate with an opaque lacquer, applying an identification coating of colored lacquer to the first coat of opaque lacquer, applying a coating of light sensitive colloid to the lacquer, exposing the light sensitive coating to light rays under a master negative and developing to remove the colloid from the light affected areas over the lacquer, removing the lacquer over the area where the colloid is removed by dissolving with a lacquer solvent, and then removing the remaining colloid with water.

2. A method of producing a photographic printing image as claimed in claim 1 including the applying of a protective coating of transparent material to the surface of the printing image after the image is formed.

3. A method of producing a photographic printing image as claimed in claim 1 including the applying of a marker line of visable but non-actinic material having high conductance of short light waves symmetrically across the face of said printing image to facilitate the identification of said image.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
240,770	Sargent	Apr. 26, 1881
786,199	Dodge	Mar. 28, 1905
992,898	Payne	May 23, 1911
1,079,402	Cornwall	Nov. 25, 1913
1,657,437	Shinohara	Jan. 24, 1928
1,777,144	Innes	Sept. 30, 1930
1,861,872	Murray	June 7, 1932
1,957,433	Bassist	May 8, 1934
2,257,143	Wood	Sept. 30, 1941
2,259,238	Bernhardt	Oct. 14, 1941