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R. MacKAY

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METHOD OF PREPARING PRINTING SURFACES

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FIG.1.

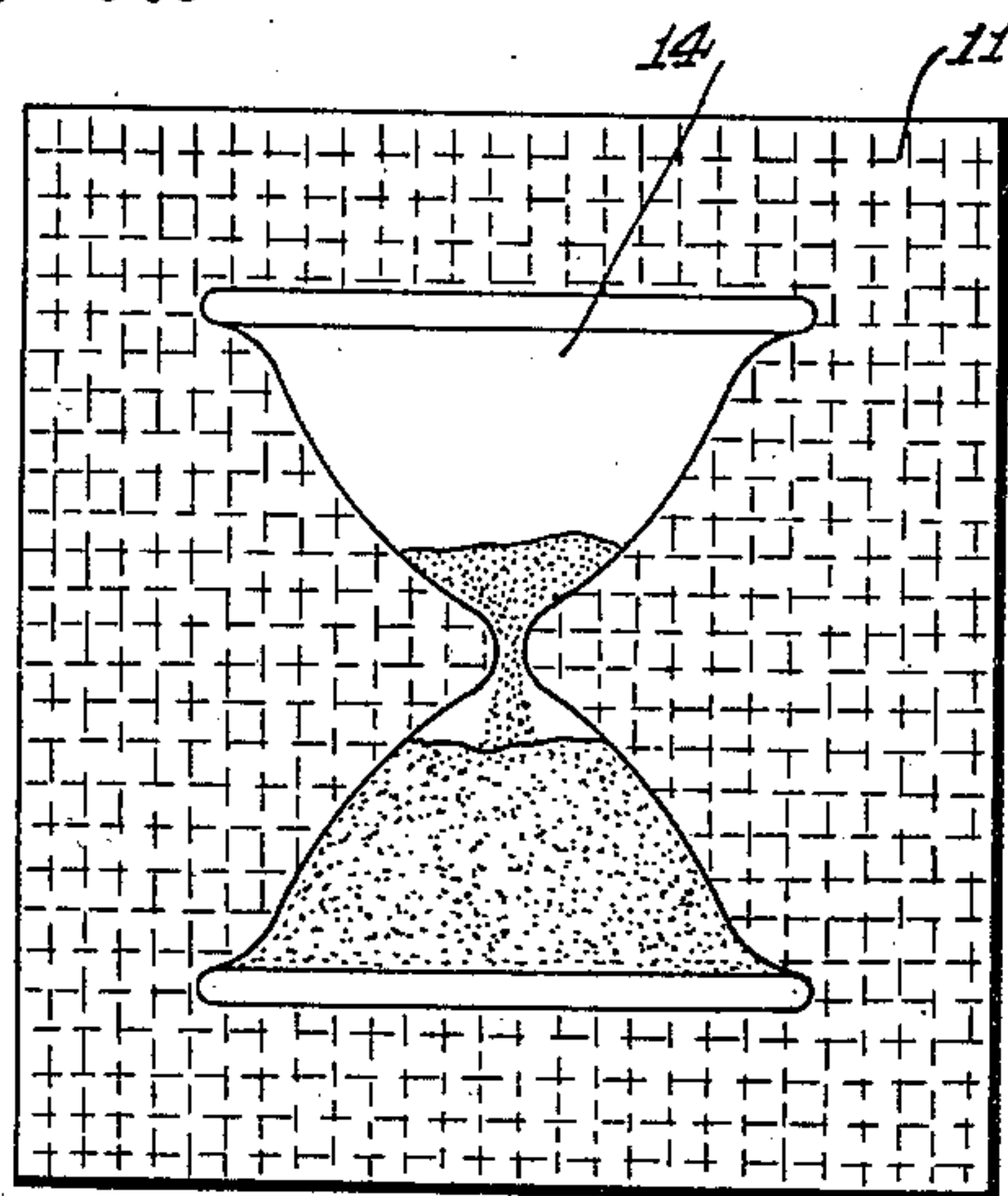


FIG.2.

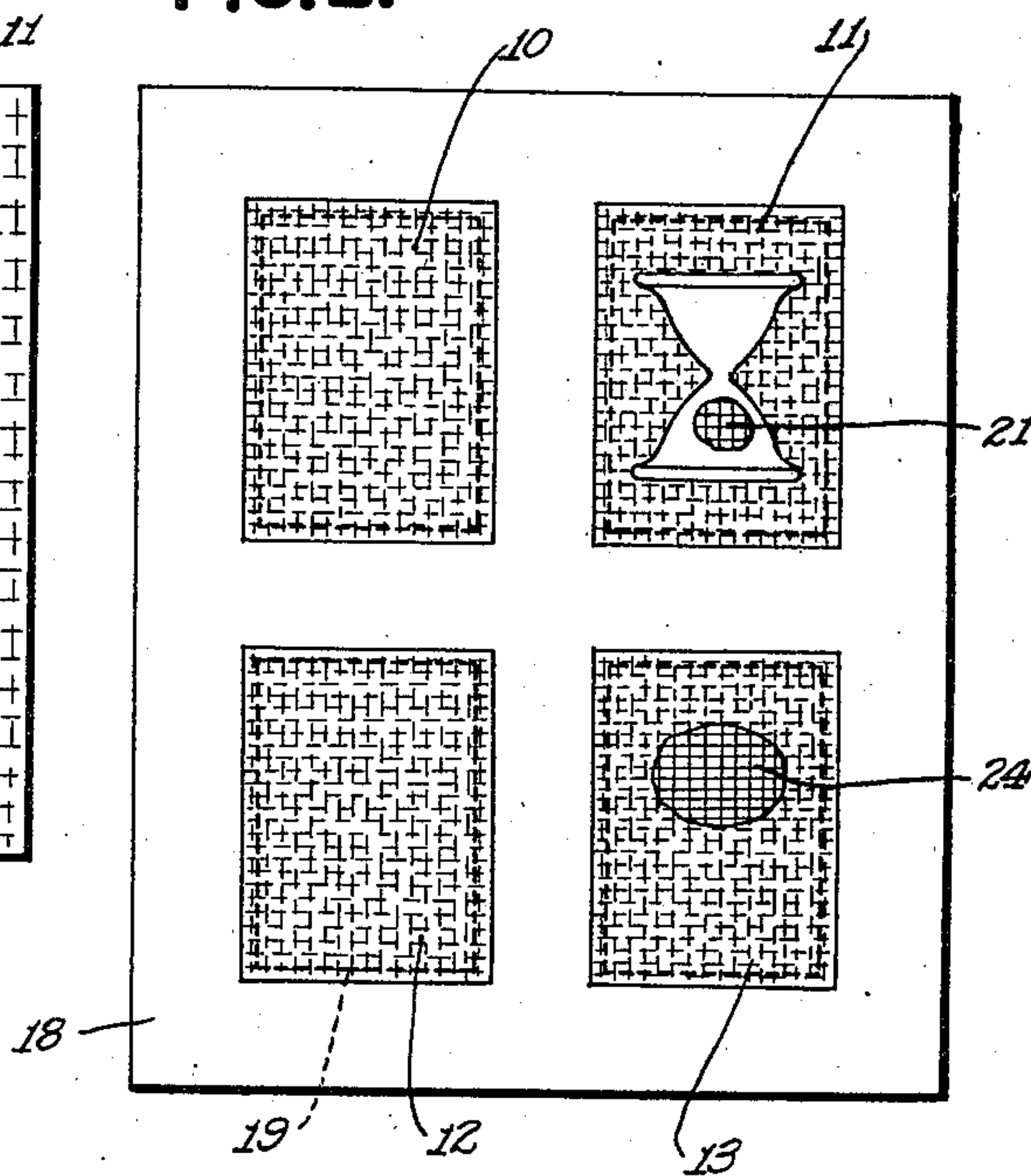


FIG.3.

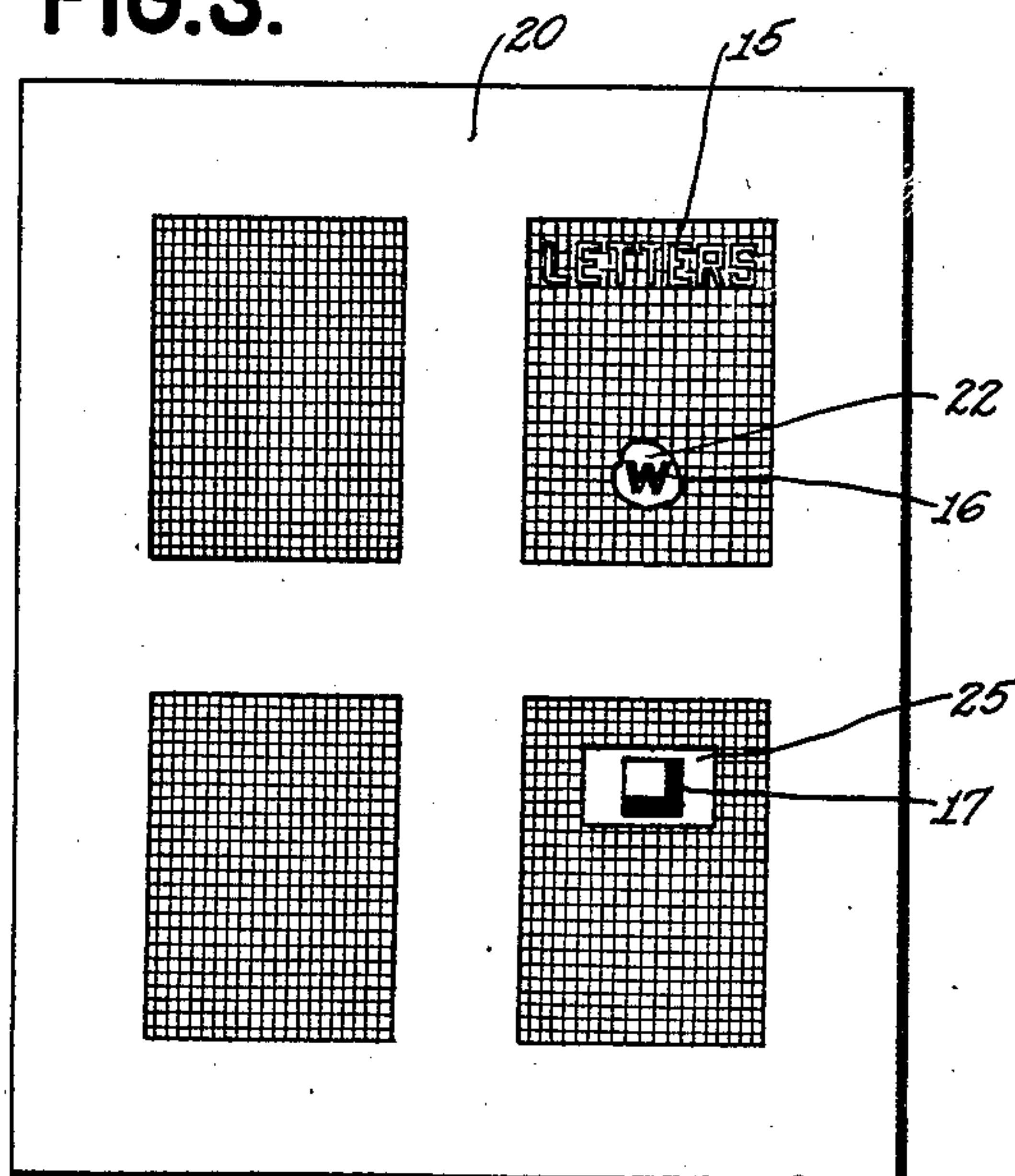
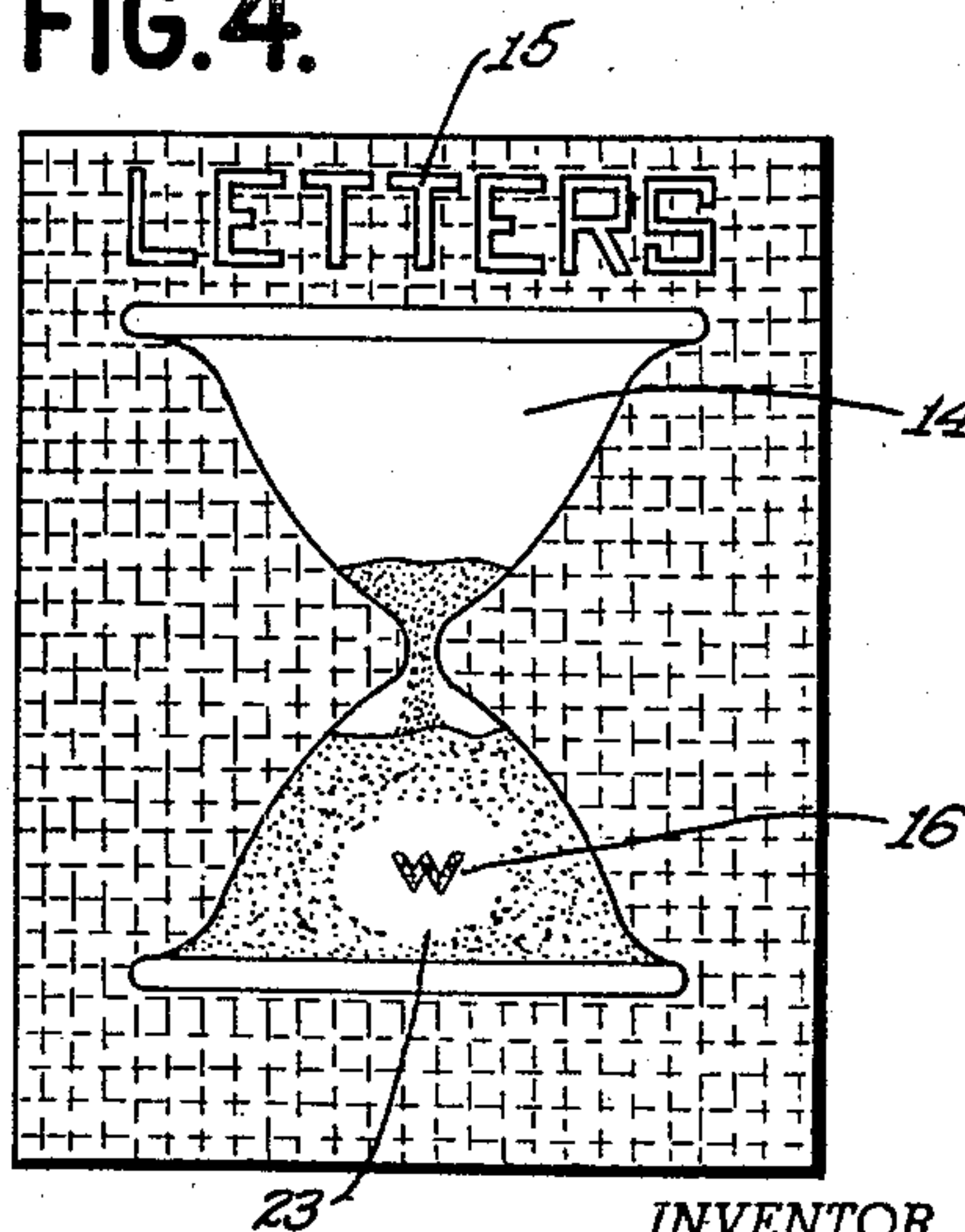


FIG.4.



INVENTOR
ROBERT MACKAY
BY *Hughes, Terry & Campbell*
ATTORNEY

UNITED STATES PATENT OFFICE

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METHOD OF PREPARING PRINTING SURFACES

Robert MacKay, Cook County, Ill., assignor
Alco-Gravure Division of Publication Corporation,
New York, N. Y., a corporation of New York

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4 Claims. (Cl. 95—5.1)

The present invention relates to methods of preparing printing surfaces and embodies, more specifically, an improved photographic operation by means of which the preparation of printing surfaces may be facilitated.

More specifically, this invention embodies an improved method by means of which the size and location of art work may be readily and accurately established in the preparatory work prior to the etching operation. It is of particular utility in connection with the preparation of printing surfaces which include a plurality of separate elements which must be located in a certain spaced relation on the print. For example, where it is necessary to include several pieces of art work in a certain desired spaced relationship, the invention provides a method by means of which the several component parts of the print formed by the several pieces of art work may be accurately positioned and formed of the proper size.

The present method is of particular utility in connection with multi-color printing wherein separate printing elements must be made for each of the colors forming component parts of the print and is also of special importance in connection with operations wherein inserts are to be made within the outline of a picture or other piece of art work.

Heretofore the edges of pictures or other art work have been located and trimmed by hand in the following manner. Assuming that a color page has five separate pieces of color art to be assembled into a given position and that all five pieces require cropping or trimming to fit the various positions designated for them on the print, separation negatives are set up in register from a master and positives are made. The edges of the pictures on one of these color positives are scraped by hand to fit the finished layout and, from this positive, a photographic image is made on film. This film is positioned over each remaining positive and is used as a guide in trimming the plates by hand.

There are several objections to the foregoing operation, chief of which is that the hand operation is accomplished with a knife and ruler and is laborious and constantly susceptible to the introduction of faults into the product. A further objection resides in the fact that the film used as a guide in scraping frequently changes size before the work is finished on all of the plates.

In accordance with the present invention, an improved method is provided by means of which the trimming and positioning is accomplished

photographically and with a high degree of accuracy.

An object of the present invention, accordingly, is to provide an improved photographic method of preparing printing surfaces by means of which the location and size of individual pieces of art work or component parts of the final print may be accurately maintained.

A further object of the invention is to provide a method of the above character wherein the use of inserts within other picture or similar areas may be greatly facilitated.

Further objects will be readily apparent as the invention is described in greater detail and to illustrate the invention more fully, reference will be made to the accompanying drawing, wherein:

Fig. 1 is an illustration of what will be called an original to be reproduced, together with other art work, in a print wherein all of the pieces of art work are properly assembled.

Fig. 2 is a diagrammatic illustration of a layout composed of four pieces of art work, assembled in a desired relation, but in which the various pieces are not of correct size.

Fig. 3 is a diagrammatic illustration of a burning or trimming plate utilized in connection with the method of the present invention.

Fig. 4 is an illustration of the art work of Fig. 1, in the form of a final print which will be one of the elements of the composite print.

Referring to the drawing, it is assumed, in the illustration therein given, that the finished print is to consist of four pictures 10, 11, 12 and 13. These pictures are to be arranged in a desired spaced relationship and to be of a predetermined exact size or sizes. Moreover, each of the pictures is assumed to be formed of a plurality of component colors. As illustrated in Fig. 1, the picture 11 includes a design or figure 14 and to illustrate the various uses to which the present invention can be put, it is to be assumed that certain desired letters 15 are to appear on the picture 11 above the figure 14. These letters may be white, that is the color of the paper upon which the print is made, or they may be formed of any desired color. It is also assumed that the letter W is to appear in the lower portion of the figure, as illustrated at 16.

Also, to illustrate the manner in which the invention may be utilized, the picture 13 is to have inserted therein a design such as illustrated at 17 in Fig. 3.

With the foregoing in mind, the color separation negatives and positives of each of the pictures are made in the usual way, allowing the

edges to come as they will, so that the edges of all pictures on all plates extend beyond the size desired in the final print. The assembled positive is then used to make the carbon print which is to serve as the resist in the operation of etching the printing surface. Such a positive is illustrated at 18 in Fig. 2 and, to illustrate what has just been described, the final or desired edges of the various pictures are illustrated by dotted lines at 19.

In order that the final print may show the various pictures in the proper size and relationship, a wet plate negative is made from the customer's layout which is usually drawn in ink and to accurate size. This negative is illustrated at 20 in Fig. 3 and is formed with the exact picture areas in black while all other areas are transparent so that light may pass through. The resulting negative is termed a burning or trimming plate because through it, the proper sizes of the pictures are obtained. After the exposure of the positive 18 upon the carbon tissue, the trimming plate 20 is placed in register over the carbon tissue and a second exposure made. This results in light passing through the transparent areas of the burning plate and hardening the carbon tissue under such areas so that no etching will take place on the copper surface beneath such hardened areas. It will thus be apparent that the edges of the pictures are trimmed photographically to the exact size desired. The result is that all of the various color impressions will occur in perfect register and sharply trimmed to the exact size desired.

To illustrate further uses of the invention, it will be observed that the burning plate 20 is formed with letters 15 as transparent areas in the desired position so that they will appear over the figure illustrated at 14, in Figs. 1 and 4. These transparent areas on the burning plate will cause the carbon tissue to be hardened and, as a result, will prevent any etching beneath such areas. If no other color is applied in these areas, the result will be that the picture 11 will be formed with the white letters 15 appearing sharply therein in the desired position. If a different color is to be used for the letters 15, the desired color cylinder or plate will be etched in the areas corresponding to the letters 15 so that the final print will appear with the letters 15 in the desired color.

It is further assumed that the letter W is to be inserted within the figure 14, appearing in the picture 11. This is accomplished by blacking out the corresponding area at 21 in the positive shown in Fig. 2. As a result, the gelatin in the carbon tissue beneath the area 21 will not be hardened. The burning plate 20 is formed with a transparent area 22 within which the letter W appears as opaque. This is illustrated at 16 in Fig. 3. When the exposure is made through the burning plate, the transparent area 22 causes the hardening of the unexposed area 20 so that there will be no color applied in that area as illustrated at 23 in Fig. 4. However, the opaque letter W in Fig. 3 prevents the hardening of the carbon tissue beneath such letter so that the area of the printing surface corresponding to such letter may be etched to apply the color desired. This results in the letter W as illustrated at 16 in Fig. 4 appearing on the final print.

A further use of the invention is in placing designs and the like within picture areas. This is accomplished by providing an opaque section 24 in the positive 13 in Fig. 2. The gelatin will thus

not be hardened under this area. The burning plate, within the area of the picture 13, is formed with a transparent area 25 within which the design 17 is received, the design being opaque. As a result, the area 25 on the carbon tissue will be hardened so that no etching will occur beneath it, whereas the areas corresponding to the design 17 will not be hardened and, accordingly, the design will be printed because of the desired etching accomplished beneath such area upon the exposure of the positive upon the carbon tissue.

From the foregoing, it will be apparent that the invention depends essentially upon the use of the customer's layout as a means for providing the photographic burning or trimming which accomplishes the exact size and space relationship of the various component parts of the prints. The operation is accomplished effectively and accurately and results in sharp and exact trimming to the desired size in each instance. The method also provides means for using inserts and the like which are to be superimposed upon or included within the picture areas and, while it has been described with reference to the specific disclosure herein and illustrated in the drawing, it is not to be limited save as defined in the appended claims.

I claim:

1 The method of preparing printing surfaces formed to reproduce desired subject matter in a desired size, comprising preparing a set of transparent photographic color separation prints of the subject matter, preparing a layout of the print, forming a transparent photographic print of the layout in which the area corresponding to the desired subject matter is opaque and of the correct size, exposing each color separation print on a separate carbon tissue and exposing said photographic print of the layout in succession on said carbon tissues whereby the photographic print of the layout will trim the area of the subject matter to the desired size, and preparing a printing surface therefrom in a known fashion.

2. The method of preparing printing surfaces formed to reproduce a plurality of desired subjects in desired sizes and space relationships comprising preparing a set of transparent composite photographic color separation positives containing the subjects in approximately correct sizes and space relationship, preparing a layout of the finished print, preparing a photographic print of the layout in which the areas corresponding to the desired subjects are opaque and of correct size and the remaining area is transparent, exposing each positive on a separate carbon tissue and exposing said photographic print on said carbon tissues whereby the photographic print will trim the areas of the subjects to the desired sizes, and preparing a printing surface therefrom in a known fashion.

3. The method of preparing printing surfaces formed to reproduce desired subject matter in a desired size and with other subject matter inserted therein, comprising preparing a set of photographic color separation transparencies of the desired subject matter, preparing a layout of the print with the inserted subject matter thereon in the desired position, forming a photographic print of the layout in which the area corresponding to said desired subject matter is in the form of a transparency of said inserted subject matter, exposing the color separation transparencies on separate carbon tissues and exposing said photographic print on at least one of said

tissues whereby said inserted subject matter will be exposed in the desired area of said desired subject matter and preparing a printing surface therefrom in a known fashion.

4. The method of preparing printing surfaces 5 formed to reproduce desired subject matter in a desired size and with other subject matter inserted therein, comprising preparing a set of photographic color separation positives of the desired subject matter, preparing a layout of the print with the inserted subject matter and back- 10 ground thereon in the desired position, forming a photographic print of the layout in which the area corresponding to said desired subject matter is opaque except in the areas corresponding to 15

the location of said inserted subject matter and of the correct size and said inserted subject matter is in the form of a positive print, opaquing out areas in said color separation positives that are to receive said inserted subject matter, exposing the positives on separate carbon tissues, and reexposing said carbon tissues through said photographic print whereby the photographic print will trim the area of the subject matter to the desired size, and said inserted subject matter will be exposed in the desired areas of said desired subject matter and preparing a printing surface therefrom in a known fashion.

ROBERT MACKAY.