O. H. MARTINSEN.

ART OF FORMING PRINTING BODIES.

APPLICATION FILED APR. 4, 1914.

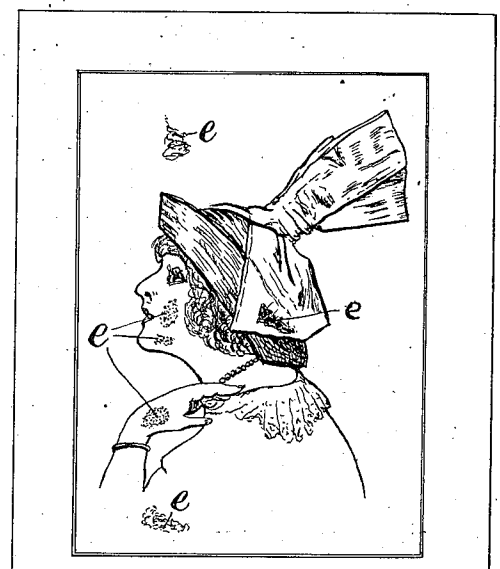
1,219,472.

Patented Mar. 20, 1917.

2 SHEETS—SHEET 1.



a Fig. 1. c



d Fig. 2.

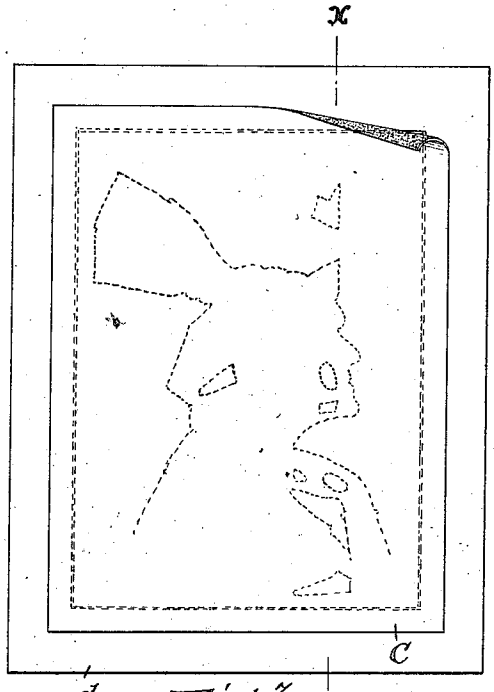


Fig. 3.

WITNESSES

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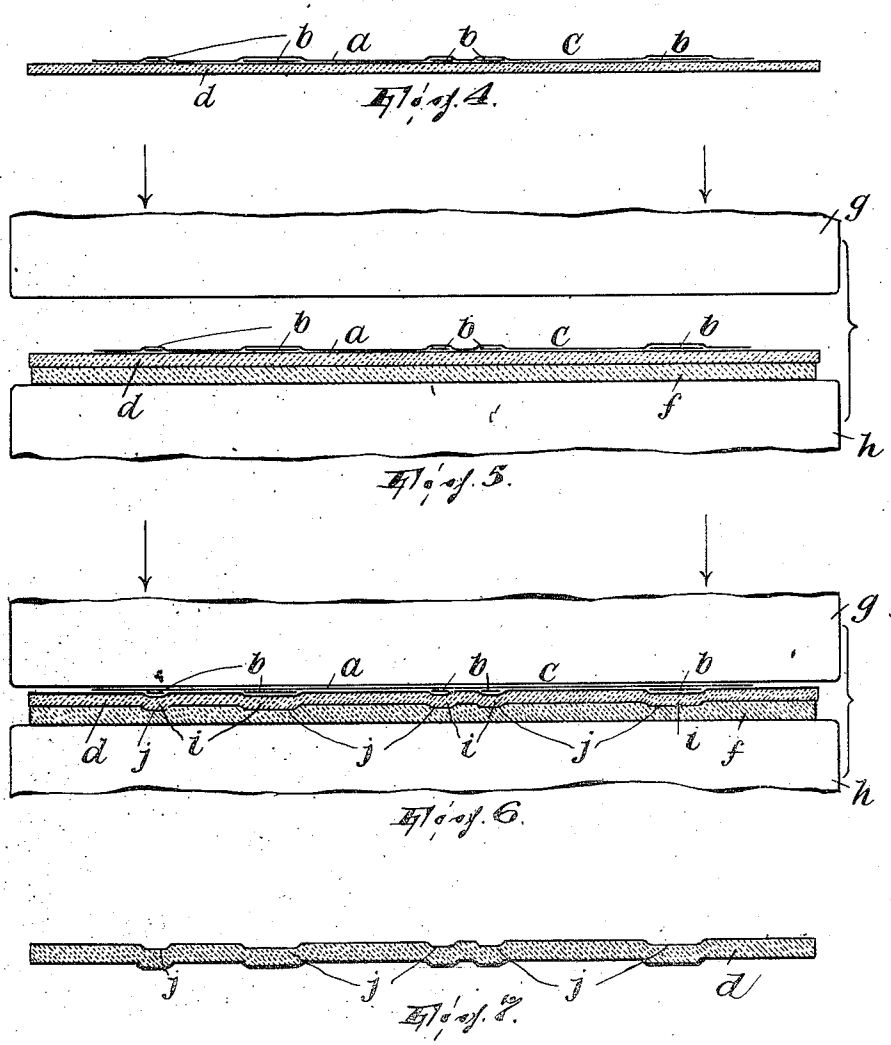
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ART OF FORMING PRINTING-BODIES.

1,219,472. Specification of Letters Patent. Patented Mar. 20, 1917.

Application filed April 4, 1914. Serial No. 829,503.

To all whom it may concern:

Be it known that I, OTTOCAR H. MARTINSEN, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in the Art of Forming Printing-Bodies, of which the following is a specification.

In the art of printing with printing plates, and especially in the printing of pictures, it is well known that the plate as formed is rarely, if ever, serviceable without modification of its printing action for producing printed impressions in which the lights and shades are developed so as to give the best effects. To modify the action of the plate as formed it is usual to resort to what is known in the printers' arts as "make-ready". That is to say, having taken a trial impression from the plate and determined, for instance, in what parts the high lights require modification, such parts are cut out of the sheet on which the trial impression is made and this sheet then placed, as so-called "overlay", under the sheet on which the final impression is to be made, care being exercised to have the trial sheet (now constituting the make-ready) register with the engraved field of the plate, so that the openings therein, formed by cutting out parts thereof as aforesaid, will exactly oppose the defective parts of the plate; the result of the printing operation will then be the development of the high lights in the proper degree on the second-named or final sheet (and all others printed by the same method), the plate obviously not printing with the same intensity where the openings come in the make-ready as elsewhere. Preparing make-ready is a branch of the art of picture printing requiring great skill and care in its performance and where, as is frequently the case, the printer is required to modify by make-ready the action of each of a number of plates, duplicates of each other, considerable time is lost in preparing to print.

The principal object of this invention is to save to the printer the time thus lost by providing means whereby any number of printing bodies may be formed each in a state in which the desired conditions for producing proper light and shade effects in the picture or other image printed therefrom will be already developed.

The invention consists, first, in the herein-disclosed method of changing the elevation of a limited part of the impression portion of a plate having a picture or other image-impression formed therein so as to alter the impression in respect to light and shade, without or with the forming also of a printing body.

In the accompanying drawings,

Figure 1 shows a sheet of paper bearing a printed picture and having make-ready pieces applied to the picture to produce what I herein term the "make-ready" or "former";

Fig. 2 is a view of the obverse face of a plate which is to be treated in accordance with this invention;

Fig. 3 is a reverse view of said plate, with the former affixed to the back thereof;

Fig. 4 is a sectional view of the plate on line *x*—*x*, Fig. 3, with the former affixed thereto;

Fig. 5 shows in section said plate with the former affixed thereto and the plastic body to form the printing body interposed between the coacting members of a press before pressure is applied;

Fig. 6 is a similar view during application of the pressure; and,

Fig. 7 shows the normal condition of the plate, in the preferred performance of the invention, after the first use thereof to produce a printing body.

In said drawings, *a* is a sheet of paper or other sheet material bearing a printed picture or other image, and *b* make-ready pieces of paper or the like which have been cut to the proper shape and size and pasted or otherwise affixed upon the picture over parts thereof which require modification either to cure defects in or improve the picture, in respect to light and shade, which is to be produced from the printing body to be formed in the practice of this invention. This constitutes what I shall hereafter term a "make-ready" sheet, designated as a whole by *c*, and having elevations (as *b*), in the present instance giving the former increased thickness where they occur.

d is a matrix plate having impressed therein the same picture which appears on the former *c*, it having been formed by pressing it against the identical plate from which the picture on the former *c* was print-

ed. At *e* on this plate are indicated portions of its working field which, in the plate from which it was made, would produce undue shade in any picture made therefrom (for instance, the portions in the picture on sheet *a* appearing covered by the pieces *b*). Plate *d* is composed of some material which, while tough and durable, will yet respond to pressure requiring it to yield in places, for instance, when somewhat heated; it is preferably transparent for a reason which will appear, and with this and other desirable qualities in view it may be composed of celluloid or the like, although any other material, such as lead, which will give the plate the essential quality of yielding to pressure locally under the action of a make-ready sheet with the plate supported by some impressionable material may be used.

f is the element which is to become the printing body. It is composed of some substance, which, either normally or when heated (for instance, celluloid or the like), is impressionable.

g and *h* are the coacting members of a press.

In the preferred practice of my invention I proceed as follows:

I paste or otherwise affix the make-ready sheet *c* to the back of the plate *d*, being careful to bring the pieces *b* in exact registry with the portions *e* of the impression therein, which will of course be possible to a nicety if the plate is transparent.

Plate *d*, with the make-ready sheet affixed thereto, and body *f* are then introduced between the members *g* and *h* of the aforesaid press, the body *f* being adjacent the acting or impression face of plate *d*. If body *f* is not in the normal state more impressionable than the plate *d* it is first softened by heat. Pressure is then applied, with the result that not only is an impressed replica of the impression in the plate formed in the body *f*, detail for detail and inclusive of the portions *e* on the plate, but depressions are produced in the body *f* conforming in location and substantially in shape and size with said portions, this being due to the pieces *b* overlying said portions forcing the corresponding portions *i* of plate *d* out of their original plane into the more impressionable body *f*. Pressure member *h* affords an unyielding support throughout the whole area of body *f*, so that where the depressions come body *f* is thinned, as shown in Fig. 6, leaving said body perfectly flat at the back, whereby it is adapted at once for the press in the printing of pictures and is not subject in use to having its depressions obliterated by the pressure applied at the back thereof.

So far as the body *f* is concerned the result is the production of a printing body having not only all the details of the impression of plate *d* developed therein but also depressions, as *j*, Fig. 6, which, on using said body for printing, will produce the desired high lights at the corresponding places in the printed picture. Any number of printing bodies, exactly alike, may be formed in the same way.

So far as the plate *d* is concerned it will more or less permanently retain the changed shape effected by the displacement of the portions *i* (especially if it be composed of a material which the heat derived from the body *f* or otherwise will somewhat soften and it be allowed to cool while still in the press); this is shown by Fig. 7. Although this is not material so far as the use of plate *d* in producing other printing bodies is concerned so long as the former *c* remains attached thereto, I reserve the idea of shaping in the way explained a plate having a printed impression therein, and thereby producing a matrix from which printing plates may be formed that will develop the desired light and shade effects in pictures printed from them.

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

1. The method herein described consisting in placing a planiform body of plastic material flatwise on a support substantially unyielding throughout a predetermined area of said body, placing a plate having a printing impression formed therein flatwise upon and with its obverse face toward the said body, and placing upon said plate in registry with a selected and more or less limited part of said impression make-ready material conforming in size and shape with said part, and thereupon exerting on said plate and the make-ready material pressure toward the support and substantially uniformly throughout said area.

2. The method herein described consisting in placing a planiform body of plastic material flatwise on a support substantially unyielding throughout a predetermined area of said body, placing a plate having a printing impression formed therein flatwise upon and with its obverse face toward the said body and placing upon said plate a make-ready sheet having a part thereof registering, and conforming in size and shape, with a selected and more or less limited part of said impression thickened-up, and thereupon exerting on said plate and the make-ready sheet pressures toward the support and substantially uniformly throughout said area.

3. The method herein described consisting in printing on a piece of sheet material a picture and forming in an impressionable plate of transparent material a picture-impression constituting an impression-counterpart of the picture, thickening up the piece of sheet material in a part thereof

conforming in size and shape with a selected part of the picture-impression and thereby forming a make-ready sheet, then placing the make-ready sheet against the reverse side of said plate with the picture on said sheet registering with the picture-impression in the plate and the obverse side of the plate against an impressionable support, and then subjecting sheet, plate and support to pressure.

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

OTTOCAR H. MARTINSEN.

Witnesses:

GEO. F. BRELSFORD,

JOHN W. STEWARD.