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PLANOGRAPHIC PRINTING ELEMENT

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Fig. 1

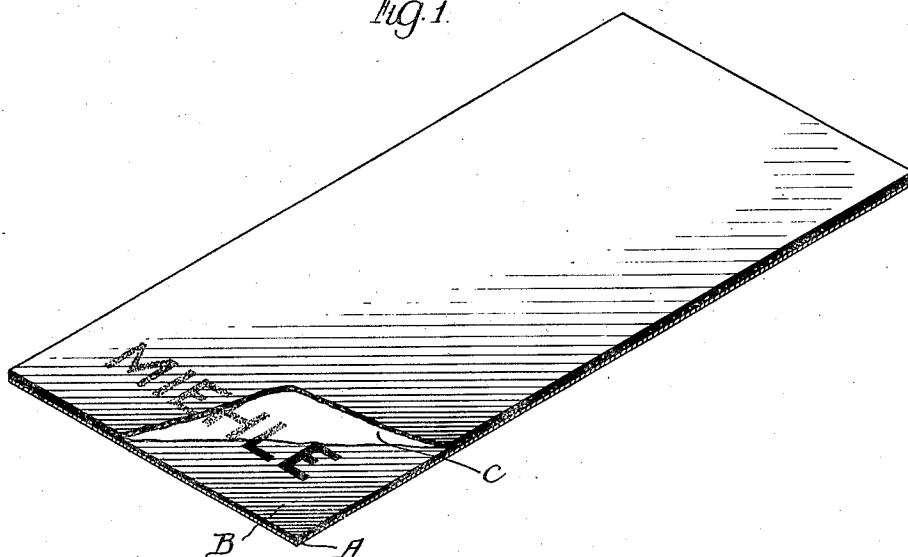
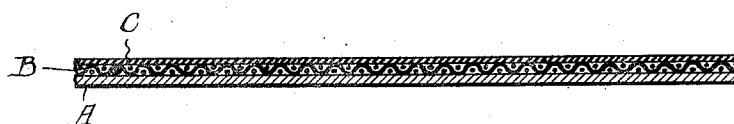


Fig. 2



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UNITED STATES PATENT OFFICE

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PLANOGRAPHIC PRINTING ELEMENT

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4 Claims. (Cl. 154—54.5)

My invention relates to flexible planographic printing elements more commonly referred to in the art as offset blankets or plates and generally used in connection with rotary lithographic printing presses either as an ink transferring i. e. printing medium or as an impression surface.

Heretofore blankets used in lithographic printing consisted of a fabric base, preferably rubber treated, with which a sheet or film of rubber was united so as to present a smooth impression surface suitable also for receiving an impression from a design i. e. printing plate for the purpose of transferring it to the material to be printed. It has been found that a blanket of this class is inclined to "creep" under the rolling pressure to which it is subjected during printing, thereby distorting or stretching the design to be printed and consequently rendering register extremely difficult when printing multicolor jobs.

In order to overcome this difficulty it has been suggested to produce blankets comprising a metal base or backing onto which a film of rubber is cemented direct, also to utilize a resilient backing applied to the opposite side of the metal base to which the film of rubber is applied. It has furthermore been proposed to vulcanize a metal mesh or a perforated sheet of metal into a rubber sheet in order to eliminate "creeping" i. e. stretching of the blanket.

Blankets of this type do eliminate to a certain degree defects which are due to "creeping" or stretching of the rubber. However, extensive tests and experimentations have shown that in a sheet of resilient substance such as rubber obtainable for producing such printing elements, there are considerable irregularities in thickness as well as in density of the substance. While such irregularities usually are minute and might be detected only by accurate measurements, the impressions obtained from such a surface are imperfect and the objectionable defects become readily visible because certain areas of the finished print will have a blurred appearance, in other words, the impression in such areas is not sharp.

I have found that by interposing a layer of substantially resilient, i. e. yieldable material between the non-stretchable base and the resilient top sheet, any irregularities in the latter can be effectively overcome, more especially so if the three elements are joined i. e. cemented together under pressure so that the thicker areas of the top sheet will embody themselves into the intermediate layer, therewith a perfectly smooth top surface will be obtained.

While my invention may of course be used in connection with a metal base, it will also be understood that a blanket which has a metal backing is necessarily somewhat rigid and consequently is not so convenient to handle as a blanket which does not include a layer of metal. I therefore propose to use in preference to a metal backing a base of non-stretchable and yet substantially flexible material.

The primary object of my invention is to provide an improved flexible planographic printing element which will be non-stretchable and which will eliminate any possibility of "creeping".

A further object of my invention is to produce a blanket which shall overcome defects due to irregularities in the substance of which the top surface consists.

These and other objects will be accomplished by the combination of elements indicated in the accompanying sheet of drawings in which I have shown two views of my improved planographic printing element, Figure 1 being a top view of the element with the upper layer partly stripped from the intermediate layer, while Figure 2 shows a cross section through the printing element.

As indicated above, I propose to use a non-stretchable base or backing A which preferably may be of some fibrous substance such as for example manilla stock, commonly used in the printing art as a packing for impression cylinders. However, any other material of similar qualities might of course be employed for the base of my improved printing element. Onto the base A, I apply a layer B consisting of substantially resilient i. e. yieldable material, that is to say, material which when under pressure will give to a certain degree, such as a sheet of fabric, or possibly wire meshing embedded in rubber or the like substance.

Onto such layer B, I join by way of cementing, or by any other desired methods, a top surface C of resilient, preferably non-porous substance. While in practice rubber is generally used for the impression i. e. printing surface of the blanket, I am aware that other material, such as gutta-percha, etc. could also produce very satisfactory results, and therefore I do not wish to limit myself to the application of rubber to constitute the top surface C.

By providing an intermediate layer B I eliminate such defects as referred to hereinabove and which are caused by irregularities in the top surface of the blanket.

It will be readily understood that when the ink is being transferred from a design or subject

carrying printing element to a transfer blanket, or when the impression so applied to a blanket is in turn transferred to the material to be printed, any high part in the surface C will be permitted
5 to embed itself into the yieldable layer B along the line of contact between the respective cylinders i. e. printing couple, thereby making possible a perfect impression. Furthermore, I have found that when the different layers or elements
10 are joined together under pressure by using a suitable substance as a binder, such high parts in the top surface C will remain embedded in the intermediate layer so that a permanently smooth impression surface will be had.

15 In Figure 1 I have indicated a method by which the manufacturer's name or a trade mark may be permanently applied to my improved printing element by imprinting such name or mark onto the top surface of the intermediate layer
20 B, in which case the top layer C would of course be made of transparent or substantially transparent material such as a light color rubber, guttapercha or the like.

I have found that the printing element herein-
25 above described is well suited for use as a design, i. e. subject carrying medium. To accomplish this purpose the top surface C is provided with a coating of sensitized emulsion adapted to be exposed and developed as is well known in the art
30 of making printing plates.

Furthermore, in the event that a backing of fibrous material, such as manilla stock is used, it might be desirable to treat or coat such stock with a suitable substance in order to render it
5 water or oil proof.

It is therefore my intention to cover in the appended claims any such modifications of construction or variations in the use of my printing element as will come within the general scope
10 and meaning of the claims.

I claim:

1. A flexible planographic printing element, comprising a base or backing of paper, a sheet of fabric united therewith, and a top sheet of rubber cemented thereon.
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2. A flexible planographic printing element, comprising a base or backing of manilla stock, a sheet of fabric united therewith, and a top sheet of rubber cemented thereon.

3. A flexible planographic printing element, 20 comprising a base or backing of manilla stock, a sheet of rubber treated fabric united therewith, and a top sheet of rubber cemented thereon.

4. A flexible planographic printing element 25 comprising a base or backing of paper, a sheet of fabric united therewith, and a sheet of rubber stretched thereover and cemented thereto.

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