

UNITED STATES PATENT OFFICE

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PROCESS FOR THE DEVELOPMENT OF DIAZO-TYPES

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An application on this invention was filed in Germany, March 24, 1928.

The present invention relates to a process for the development of diazo types.

5 It is known that diazo-compounds are light-sensitive and that by their aid photographic copies can be prepared. For this purpose the diazo-compounds may be applied on a base either alone or in combination with
10 an azo component, such as for instance, a phenol or an amine. The layers thus obtained are exposed to light under a print and then developed by means of an alkali to which, when the first named method is employed,
15 (viz. when the diazo-compound has been applied alone on the base), the azo component must be added.

When developing the layers containing the diazo-compound and azo components,
20 ammonia gas—which may, if desired, be moistened—has been found to be most suitable. In this way sharp pictures are obtained which are dry immediately. The wet process which requires an aftertreatment with
25 an azo component, could, hitherto, not be adopted in practice, because it has various drawbacks. In most cases, for instance, the ground or high light of the picture was not satisfactory and besides this, the sizing of
30 the paper was more or less attacked by the alkaline developing agent. Furthermore, the alkaline developing baths were only stable for a short time. Caustic alkali solutions, and alkaline solutions of phenol or
35 naphthol containing sodium or ammonium begin to discolor after standing for several hours, and in particular, the polyhydroxy compounds of benzene and naphthalene which, otherwise, are very suitable for developing purposes, quickly deteriorate.

The present invention is based on the discovery that weak alkalies, such as borax, disodiumphosphate, or bicarbonate are particularly suitable for developing diazo types.
45 Exceptionally sharp copies are obtained and developing baths remain stable for a sufficient length of time. As compared with the previous method of using ammoniacal baths the process according to the present invention
50 offers the further advantage that the

baths are odorless. However, it only gives good results if the diazo-compounds are capable of uniting quickly with the azo component in an alkaline solution. The following
55 diazo-compounds which are stable and bleach in the light, have proved to be most suitable, namely the diazo-compounds of aminodiphenylamine, aminocarbazol, dianisidine and of derivatives thereof and also the diazo-compounds of similar amines and diamines. 60

Moistening agents, such as for instance saponine or compounds which act favorably upon the stability of the copies and their fastness to light, such as for instance derivatives of thiocarbonic acid, may also be added
65 to the alkaline solutions.

The following examples illustrate the invention, but they are not intended to limit it thereto, the parts being given by weight.

1. A paper prepared with the diazo-compound of amino cabazol is exposed to light
70 under a negative or positive which is to be reproduced, for instance a photographic print, until the parts to which light has access, are bleached out, that is until the contours of the picture have become yellow on a
75 white ground. The paper is then moistened with a solution of 1 gram of β naphthol and 1.5 grams of borax in 100 cubic centimeters of water. The picture appears at once. 80

2. A paper prepared with the diazo-compound of brominated aminodiphenylamine is exposed to light as set forth in Example 1. The picture is developed with a solution of
85 0.5 grams of phloroglucine, 1.5 grams of borax and 2 grams of thiourea in 100 cubic centimeters of water. A brown picture appears at once upon a pure white ground.

The development may also be carried out with a solution of 0.5 grams of phloroglucine
90 and 2 grams of disodium phosphate in 100 cubic centimeters of water or with a solution of 0.5 grams of resorcin, 1 gram of borax and 1 gram of disodium phosphate in 100 cubic centimeters of water or with a solution of
95 0.3 grams of phloroglucine, 0.2 grams of resorcin, 2 grams of thiourea, 1.3 grams of borax and 0.2 grams of sodium carbonate in 100 cubic centimeters of water.

The development may be effected by hand, 100

for instance by means of a wad of cotton wool or in the case of large sized copies by means of a suitable machine.

We claim:

- 5 The process of developing diazo types which comprises subjecting the layer prepared with a diazo-compound after exposure to light to the action of a solution containing an azo dyestuff component and borax.
- 10 In testimony whereof, we affix our signatures.

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