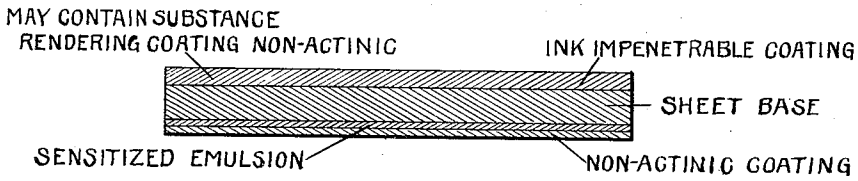
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PHOTOTRANSFER PROCESS

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PHOTOTRANSFER PROCESS

Application filed September 24, 1927. Serial No. 221,853.

This invention relates to a phototransfer process for use in printing or photography.

In the co-pending application of William Heinecke, Serial No. 189,458, filed May 6, 1927, there is described a method of making negatives, or positives, for printing or photographic purposes, comprising pulling an inked impression from lithographic stone, copper plate, type, or the like on the sensitive side of a sensitized sheet or photographic film, plate, or the like, developing the impression, washing off the ink, and fixing.

The present invention differs from the former in that the impression is pulled on the non-light sensitive side of a sensitized sheet of paper, film, or the like, and the sheet then exposed with the printed side toward the light. After or before being developed the ink impression is removed and the sheet or film fixed in a suitable bath, washed and dried.

The present invention provides a simpler and more economical method in that a cheaper grade of sensitized material may be used. We have further provided a special protective coating for the material to prevent actinic action upon the sensitizing agent so that the process may be carried out in daylight or under artificial light, using ordinary or even high speed sensitive emulsions.

Furthermore, the present invention obviates the necessity of reversing the negative when using the negative for printing on sensitized zinc plate for offset printing. Our invention insures closer contact between the negative proper and sensitized side of the zinc plate, thereby resulting in a clearer and more sharply defined print.

It is therefore an object of this invention to provide an improved, safer and more easily handled method for producing negatives, or positives, for printing and photographic purposes without the use of a camera or printing frame and without necessitating a dark room and its safelights.

It is a further object of this invention to provide a method applicable to offset printing, commercial photography and the photographing of finger prints that will result in a considerable saving in time and labor over the practice now in general use.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the appended claims.

Our invention in its preferred form is illustrated on this accompanying sheet of drawing.

The sensitized material that is suitable for our process includes sensitized paper, film or stripfilm, glass and the like, but we prefer to use a paper of fairly cheap stock that is white, or translucent or semi-translucent, closely formed and hard, of about 0.002 to 0.003 inch in thickness. The sensitive coating is comprised of known emulsions of silver halides, ferric compounds, bichromates and other substances, but is preferably an extremely low speed emulsion to enable the operation to be carried out in daylight or artificial bright light.

We can, however, use ordinary or high speed emulsions by employing non-actinic coatings or desensitizers or both to prevent chemical action by ordinary exposure to light in the course of operations. If a fast emulsion, that is, a highly light sensitive one, is used, the sensitized material is protected against light during operations by a coating of a red-colored solution that will readily dissolve in the developing solution and on the paper side of the sheet by a coating of yellow colored gelatine solution or other suitable material.

Our process has thus obvious advantages over the usual photographic processes which require dark rooms, since the printing and proof presses, from which the impressions will be frequently pulled, cannot be installed in dark rooms nor can the usual press rooms be readily converted into dark rooms for this purpose.

The protective non-actinic coating, which is applied to the non-sensitive and/or sensitive side of the paper or other material may be made of various compositions, such

as caramel and gelatine, wax dissolved in benzine, resins like gum dammar dissolved in turpentine and the like. A suitable desensitizer for use in connection with ordinary or high speed emulsions is phenosafranine.

In order to prevent the ink from penetrating into the paper used for pulling the impressions, we prefer to employ a suitable coating, which may be prepared from sodium silicate, lacquer, wax or the like.

There are, however, certain special inks available for our purpose that do not require any such coating. By inks, in general, we intend to include all inks of a fatty or greasy nature or fats and greases opaque in character that are suitable for our purpose.

The ink, of course, prevents any chemical action on the parts of the sensitized sheet or film covered by the ink, and after the ink has been removed by a proper solvent, such as potassium bicarbonate, the free silver is washed out of said parts to produce a perfect negative.

Other solvents, such as benzine, ether, spirits of turpentine and the like may also be used, but we prefer potassium bicarbonate because it readily saponifies the greases or fats of the ink, thereby rendering the operation clean, while other solvents will soil trays and the hands of the operator with ink and will form a film on the fixing bath.

Without limiting our invention to any particular procedure the following method will serve to illustrate our preferred mode of operation.

We start with a sensitized paper such as above described, the unsensitized side of which has been previously coated with a suitable coating to prevent the ink from penetrating the paper and affecting the light sensitive emulsion. Such a coating may be comprised of the following ingredients:

Beeswax	15 grains
Rosin	30 grains
Gum dammar	10 grains
Benzine	5 ounces
Spirits of turpentine	5 ounces

It will be understood that the sensitive emulsion employed must either be of an extremely slow speed type or must be protected by a non-actinic coating, as above described.

An impression is pulled on a proof press, power press, or the like, on the non-light-sensitive side of the sensitized sheet. The sheet is then exposed to light with the printed side turned toward the light. After exposure has been made, the sheet is placed into a suitable developing solution.

For the developer, we preferably use the following formula:

	Ounces
Water	32
Sodium sulphite (dry)	5
Hydrochinone	1
Formalin	1

After developing, the negative is rinsed in clear water having about the same temperature as the developing bath. The ink is then washed off by means of a saturated solution of potassium bicarbonate. The negative is next fixed by placing it in an acid fixing bath, preferably of the following composition.

	Ounces
Water	64
"Hypo"	16
Stock hardener	8

When the fixing operation, requiring about one to two minutes, has been completed, the negative is thoroughly washed in several changes of water of medium temperature and is then ready for use.

It will be appreciated that according to our present invention, the non-sensitive side of the paper having received the inked impression, the negative thus produced will show the type in the same order or arrangement as it occurs on the press. Naturally, if our process is to be used in offset printing, the regular, or non-readable, arrangement of type on the press will be employed so that it will not be necessary to reverse the negative in its subsequent application to a sensitized zinc plate. This is an important feature, as heretofore described, because it results in clearer and more sharply defined print.

Our process is obviously well adapted not only to offset printing, photo-engraving, and kindred arts, but to commercial photography and to the recording of finger prints.

We are aware that many changes may be made, and numerous details of our process may be varied through a wide range without departing from the principles of this invention, and we therefore do not purpose limiting the patent granted hereon, otherwise than necessitated by the prior art.

We claim as our invention:

1. As a new article of manufacture, a sensitized sheet having a non-actinic coating on its light sensitive side and a non-actinic and ink impenetrable coating on its non-sensitized side.

2. As a new article of manufacture, photo-sensitized sheet material comprising a translucent base having a sensitive coating and an outer non-actinic water soluble coating on one side and a non-actinic and ink impenetrable coating on its reverse side.

3. As a new article of manufacture, a sensitized sheet having a non-actinic coat-

ing on its light sensitive side and a yellow, ink impenetrable coating on its non-sensitized side.

4. As a new article of manufacture, a translucent paper having a low speed light sensitive coating on one side and a transparent coating comprising wax, gum dammar, and rosin on the reverse side.

In testimony whereof, we have hereunto subscribed our names at Chicago, Cook County, Illinois.

WILLIAM HEINECKE.
FRIEDA HUNSPERGER.