

# UNITED STATES PATENT OFFICE

2,114,792

## METHOD OF PREVENTING OFFSET

Bruce A. Young, Chicago, Ill., assignor to R. R. Donnelley & Sons Co., Chicago, Ill., a corporation of Illinois

No Drawing. Application December 9, 1935,  
Serial No. 53,675

6 Claims. (Cl. 101-420)

My invention relates to the preventing of the offsetting of ink from freshly printed sheets or webs, as for example of paper, during operations which immediately follow the printing, such as folding or winding in rolls in the case of webs, or piling in the case of sheets.

The offsetting of freshly printed ink onto whatever the printed sheets or webs may come into contact has always been a source of trouble in printing, particularly in the production of better grades of printed work. As for example, the ink may be offset onto parts of the press, such as the rollers, folding mechanism, etc., thereof, and is then transferred to the sheets or webs which later pass through the press; or it may be offset onto other sheets when piled, or onto other portions of the same sheet when folded or wound into a roll.

Many different expedients have been provided with a view to satisfactorily preventing offset. However, such expedients have either involved excess expense, or other objections, in practicing them.

It is therefore an object of my invention to provide for the prevention of offset by novel material and by a novel method which may be practiced with the maximum economy and without the objections resulting from methods hitherto proposed.

In accordance with my novel method I apply to the printed face of the freshly printed sheet a mixture of a neutral liquid and material in powdered form and of such character that at least the greater part thereof is insoluble in the liquid and may be maintained in a suspended condition in the liquid as for example by stirring it with stirring means in the supply tank.

The liquid may be of any suitable kind, as for example, water or oil. Likewise, any suitable powdered material may be used, such, as for example, powdered talc, powdered mica, powdered magnesia, powdered aluminium hydrate, or starch, particularly corn starch as commonly provided, corn starch having been found, in practice to be very desirable for this purpose.

The liquid and powdered material may be used in any suitable proportions, the proportion of the powdered material to the liquid, by weight, being preferably about 2% to about 17% of the powdered material to about 83% to about 98% of the liquid depending on the speed at which the presses operate, the kind of paper used and the time which elapses between the printing and the stacking or folding of the sheets or web. When, by way of example, the powdered material used

is corn starch and the liquid is water which should be unheated, as for example at about the temperature of ordinary cold service water, and the mixture is to be used on highly calendered sheets printed on a cylinder flat bed press and which thus move slowly past the means which spray the offset-preventing mixture to the sheets, about 2% of corn starch will preferably be used; where the mixture is to be used on sheets which move faster, as in the case of sheet rotary presses, about 3½% of corn starch will be preferred; and where the mixture is to be used on webs printed on web-presses, the webs being of comparatively rough paper as for example news print, and the presses operating to drive the paper web at high speeds and fold the web almost immediately after printing, from about 11% to about 17% of corn starch, depending on the speed of the press, preferably is used.

The mixture of liquid and powdered material may be applied to the printed faces of the sheets or webs against the freshly applied ink, in any suitable way, such as for example by spraying it thereon as by means of spraying mechanism positioned to direct the spray against the sheet or web as the latter feeds through the press, or by roller means to which the mixture is supplied and contacting the sheet or web.

Where the mixture is to be sprayed any suitable spraying means may be used. As for example, a liquid atomizing device, in which case it is preferred that the atomizing nozzle be of such construction that practically all of the liquid is atomized before it reaches the printed surface.

As will be understood, the application to the freshly printed surface of the mixture referred to causes the solid particles of material of the mixture to be distributed over the surface which thus serve to mechanically separate the surface to which it is applied from a sheet or web flatwise positioned against such coated surface, it having been found in practice that a relatively small amount of powdered material properly distributed over the surface, as above provided for, and which, when the liquid is evaporated or has been absorbed by the sheets or webs does not present any perceptible excess to cause trouble in subsequent handling of the sheets or webs, will effectually prevent offset.

Since the solid material, upon the evaporation or absorption of the neutral liquid by the sheet or web, returns to its original form of dry powder, it does not form dense or hard coatings on surfaces onto which it may fall. When it falls on printing rollers or ink fountains it mingles

with the ink and in fact is of the same nature as materials frequently incorporated in the ink itself when made. When it falls on moving parts of the press it does not tend to accumulate in objectionable dense masses, and may be easily dislodged.

It is furthermore desirable to obtain the best results that the powdered material used be of such character, as for example, as in the case of the various solid materials above mentioned, that they will not become softened by heat and will withstand considerable pressure applied against them as when the printed sheets are piled up to a height of several feet.

The liquid of the mixture serves to control the application of the powder to substantially evenly distribute it over the surface in a way not possible if the powder were dry. Furthermore, the liquid has an immediate, though temporary, effect in preventing offset. The particles of powder adhere to the inked surface and serve to hold a film of liquid over the ink at the time the latter is most easily offset, viz., immediately after printing.

What I claim as new, and desire to secure by Letters Patent, is:

1. The method of preventing the offsetting of ink from a freshly printed surface, comprising applying in a mist form to such surface a mixture consisting substantially entirely of a liquid and powdered material at least the greater portion of which is insoluble in the liquid.

2. The process which consists in applying to a freshly printed surface a mixture of a fugitive liquid and a powdered material, at least the greater portion of which is insoluble in the liquid.

3. The process which consists in applying to a freshly printed surface an essentially aqueous fugitive liquid and powdered starch, at least the greater portion of which is insoluble in the liquid.

4. The method as set forth in claim 3 in which the starch is corn starch and it comprises from 2 to 17% of the liquid.

5. The process which consists in applying to a freshly printed surface an essentially aqueous fugitive liquid and powdered material, at least the greater portion of which is insoluble in the liquid.

6. The method as set forth in claim 2, in which the moisture is applied in a mist.

BRUCE A. YOUNG.