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 (72) Inventor JOHN MORGAN BOYLE



(54) IMPROVEMENTS IN SECURITY DOCUMENTS
 FOR EXAMPLE BANK CHEQUES OR DRAFTS

(71) We, METAL BOX LIMITED, formerly THE METAL BOX COMPANY LIMITED, a Company Incorporated under the laws of Great Britain, of 37, Baker Street, London, W1A 1AN, England, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to security documents, for example bank cheques or drafts, and it is a main object of the invention to improve the security level of such documents by improving the means by which one can detect fraudulent alteration to information applied to the documents either by washable, that is to say solvent non-soluble writing ink or by ball-point pen writing ink.

It is usual to produce bank cheques on paper containing ingredients which are capable of reacting with chemicals such as dilute acids, alkali, or bleaches which can be used to remove washable writing ink, to leave a coloured stain on the surface of the paper. The paper used for the production of cheques sometimes also includes additives capable of reacting in varying degree with solvents which could be used to remove ball-point pen writing ink with the resulting production of coloured flecks on both sides of the paper. The level of solvent sensitivity in such paper does, however, vary quite widely from batch to batch of the paper, within a given sheet area, and differs from virtually no reaction to strong reaction depending on which solvents are used.

It is also known to print a coloured background on bank cheques, the background usually consisting of a linear and/or a micro-lettering design, using what is known as "fugitive ink". Such an ink normally comprises an organic dye-stuff

colour-sensitive to chemicals which may be used to remove washable writing inks, the dye-stuff being ground into an aqueous glycerin/dextrin vehicle. It is readily affected if, e.g. dilute chemical bleaches are applied to remove washable writing ink; however, it is unaffected by solvents used for removing ball-point pen writing ink.

In some countries, however, which of necessity have to use home-produced security paper such paper while it contains ingredients sensitive to acids, alkalis, and bleaches capable of removing washable writing inks, does not contain ingredients sensitive to solvents, and this kind of security paper accordingly affords little safeguard against fraudulent attempts to alter information applied thereto by ball-point pen writing ink.

In the above, as in the remainder of the Specification, the term "colour-sensitive" denotes the characteristic of a printing ink to change colour or tone on contact with a medium used for removing a washable writing ink or a ball-point pen writing ink, as appropriate.

It is a main object of the invention to increase the security level not only of documents provided on paper which includes no solvent colour-sensitive ingredients, but also of documents provided on paper, as mentioned above, which does react to a limited number of such solvents, but only at varying levels of reaction.

According to the invention a method of improving the security level of a document, for example a blank cheque or draft, to facilitate detection of fraudulent alteration to information made thereon in washable, that is to say, solvent non-soluble writing ink or in ball-point pen writing ink, includes the step of printing on the document a background image in two printing inks of contrasting colours, a first of said printing inks being colour-sensitive

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to chemicals capable of removing a said washable writing ink and the second said printing ink being colour-sensitive to solvents capable of removing a said ball-point pen writing ink.

The first printing ink may comprise a colour-sensitive organic dye-stuff ground into an aqueous glycerin/dextrin vehicle, and the second printing ink may comprise a solvent soluble and colour-sensitive organic dye in a resin/glycol vehicle.

The invention also contemplates documents produced by the method.

In one method of putting the invention into effect a cheque is printed with a background image in two printing inks of contrasting colours, upon paper which is one of the kinds of security paper normally used. As is customary, the background image is of linear and/or micro-lettering design. One of the printing inks is of the known kind referred to above and which is colour-sensitive to chemical bleaches and comprises a colour-sensitive organic dye-stuff ground into an aqueous glycerin/dextrin vehicle, and the other of the printing inks is one which is colour-sensitive to solvents, one such ink comprising a solvent soluble and colour-sensitive organic dye dispersed in a medium consisting of a mixture of a glycol soluble synthetic resin (for example, shellac, zein, a rosin modified maleic resin, a fumaric resin, a phenolic resin), a glycol (for example, glycerol, ethylene glycol, di-ethylene glycol, propylene glycol, di-propylene glycol, tri-ethylene glycol, or hexylene glycol), and an alkanolamine (for example, mono-ethanolamine, di-ethanolamine, or tri-ethanolamine). The resin content is preferably in the range of from 5 to 50% by volume of the mixture.

Each of the printing inks may be printed by any one of the methods known respectively as letterpress flatbed or rotary machine, as dry-offset, as gravure, or as flexography. Either of the two printing inks may be printed before the other on single colour printing presses or on multi-colour printing presses.

WHAT WE CLAIM IS:—

1. A method of improving the security level of a document, for example a bank cheque or draft, to facilitate detection of

fraudulent alteration to information made thereon in washable, that is to say, solvent non-soluble writing ink, or in ball-point pen writing ink, which method includes the step of printing on the document a background image in two printing inks of contrasting colours, a first of said printing inks being colour-sensitive to chemicals capable of removing a said washable writing ink, and the second said printing ink being colour-sensitive to solvents capable of removing a said ball-point pen writing ink.

2. The method according to Claim 1, wherein the said first printing ink comprises a colour-sensitive organic dye-stuff ground into an aqueous glycerin/dextrin vehicle, and the said second printing ink comprises a solvent soluble and colour-sensitive organic dye in a resin/glycol vehicle.

3. The method according to Claim 2, in which the said second printing ink comprises a solvent soluble and colour-sensitive organic dye dispersed in a medium consisting of a mixture of a glycol soluble synthetic resin, a glycol, and an alkanolamine.

4. The method according to Claim 3, wherein the resin content is in the range of 5 to 50% by volume of the mixture.

5. A document produced by the method according to any one of Claims 1 to 4.

6. A bank cheque or draft having thereon a background image in two contrasting colours printed respectively one by a printing ink colour-sensitive to chemicals capable of removing washable, that is to say, solvent non-soluble writing ink, and the other by a printing ink colour-sensitive to solvents capable of removing ball-point pen writing ink.

7. A method of improving the security level of documents substantially as herein described.

PAGE, WHITE & FARRER,

Chartered Patent Agents,

27, Chancery Lane,
London WC2A 1NT.

Agents for the Applicants.

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The invention also contemplates documents produced by the method.

In one method of putting the invention into effect a cheque is printed with a background image in two printing inks of contrasting colours, upon paper which is one of the kinds of security paper normally used. As is customary, the background image is of linear and/or micro-lettering design. One of the printing inks is of the known kind referred to above and which is colour-sensitive to chemical bleaches and comprises a colour-sensitive organic dye-stuff ground into an aqueous glycerin/dextrin vehicle, and the other of the printing inks is one which is colour-sensitive to solvents, one such ink comprising a solvent soluble and colour-sensitive organic dye dispersed in a medium consisting of a mixture of a glycol soluble synthetic resin (for example, shellac, zein, a rosin modified maleic resin, a fumaric resin, a phenolic resin), a glycol (for example, glycerol, ethylene glycol, di-ethylene glycol, propylene glycol, di-propylene glycol, tri-ethylene glycol, or hexylene glycol), and an alkanolamine (for example, mono-ethanolamine, di-ethanolamine, or tri-ethanolamine). The resin content is preferably in the range of from 5 to 50% by volume of the mixture.

Each of the printing inks may be printed by any one of the methods known respectively as letterpress flatbed or rotary machine, as dry-offset, as gravure, or as flexography. Either of the two printing inks may be printed before the other on single colour printing presses or on multi-colour printing presses.

WHAT WE CLAIM IS:—

1. A method of improving the security level of a document, for example a bank cheque or draft, to facilitate detection of

fraudulent alteration to information made thereon in washable, that is to say, solvent non-soluble writing ink, or in ball-point pen writing ink, which method includes the step of printing on the document a background image in two printing inks of contrasting colours, a first of said printing inks being colour-sensitive to chemicals capable of removing a said washable writing ink, and the second said printing ink being colour-sensitive to solvents capable of removing a said ball-point pen writing ink.

2. The method according to Claim 1, wherein the said first printing ink comprises a colour-sensitive organic dye-stuff ground into an aqueous glycerin/dextrin vehicle, and the said second printing ink comprises a solvent soluble and colour-sensitive organic dye in a resin/glycol vehicle.

3. The method according to Claim 2, in which the said second printing ink comprises a solvent soluble and colour-sensitive organic dye dispersed in a medium consisting of a mixture of a glycol soluble synthetic resin, a glycol, and an alkanolamine.

4. The method according to Claim 3, wherein the resin content is in the range of 5 to 50% by volume of the mixture.

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