

UNITED STATES PATENT OFFICE.

AUGUST DUPRÉ, OF WESTMINSTER HOSPITAL, BROAD SANCTUARY, COUNTY OF MIDDLESEX, AND OTTO HEHNER, OF HOLBORN VIADUCT, LONDON, ASSIGNORS TO CHARLES SKIPPER & EAST, OF LONDON, ENGLAND.

PREPARATION OF BANKERS' CHECKS, &c.

SPECIFICATION forming part of Letters Patent No. 246,100, dated August 23, 1881.

Application filed May 21, 1881. (No model.)

To all whom it may concern :

Be it known that we, AUGUST DUPRÉ, residing at Westminster Hospital, Broad Sanctuary, in the county of Middlesex, Kingdom of Great Britain and Ireland, (a naturalized British subject,) professor of chemistry, and OTTO HEHNER, residing at Holborn Viaduct, in the city of London, Kingdom of Great Britain and Ireland, (a subject of the Emperor of Germany,) analytical chemist, have jointly invented new and useful improvements in the manufacture, production, or preparation of bankers' checks and other monetary instruments or documents to prevent fraudulent alterations therein, of which the following is a specification.

This invention has for its object improvements in the manufacture or production of bankers' checks and other monetary instruments or documents to prevent fraudulent alterations therein. For this purpose, in the manufacture or production of such instruments, we use a metallic sulphide or sulphides (insoluble in water, but soluble in or acted upon by dilute or weak acid) in admixture with a salt or salts of a heavy metal or metals, which mixture will form (when acted upon by dilute or weak acid) black or dark-colored sulphides not soluble either in dilute acids or in alkaline sulphides. Such a mixture, when brought into contact with chemicals—such as an acid, an alkali, or cyanide of an alkali—which may be (and frequently are) used to erase writing-ink from paper, will immediately yield a sulphide whose intense black or dark color will render apparent the attempted alteration of the check or other document.

In carrying out our invention we prefer the use of ingredients that are white or colorless—for instance, sulphide of zinc and carbonate of lead or salts of bismuth.

The mixture may be applied by incorporating it with the paper in process of manufacture, or by incorporating it with the coloring-paste now employed in the printing of checks or by printing upon ordinary colored checks with a paste containing the protective mixture above described, a pattern or marks or words either identical with or different from those which form the visible printing upon the check, or

by printing upon the back of the document a pattern with a colored or colorless paste containing the mixture, or by a combination of two or more of the above-described methods.

The method of preparing and applying the protective mixture we consider most advantageous is as follows: We mix thoroughly one part of pure precipitated sulphide of zinc with two parts of carbonate of lead or its equivalent of the other metallic salt previously mentioned. To this we add pure glycerine and treacle and solution of gum-arabic, and we work the whole into a perfectly smooth stiff paste of the consistency or ordinary printers' ink; or we may work the whole into a perfectly smooth stiff paste, of the consistency of ordinary printers' ink, with any liquid material free from alum, acid, alkali, or cyanide of an alkali, and suitable for printing.

The white paste produced as just described is used for printing or otherwise imparting an invisible pattern or words or marks over the face or back of the check or other document. This may be effected by printing with our protective mixture in the same manner as ordinary surface-printing is done with ordinary colored paste; or the invention may be carried out by adding to the ordinary colored paste used in check-printing a suitable amount of the mixture of sulphide of zinc and carbonate of lead (or its equivalent of the other metallic salt previously mentioned) in the proportions of one to two, and conducting the printing operation in the ordinary manner. The greater the proportion of protective mixture in the paste the better will be the result. An addition of twenty-five per cent. of protective mixture yields a very sensitive paste. This paste must be free from alum, acid, alkali, or cyanide of an alkali.

If the protective mixture is to be incorporated with the paper itself, it is mixed with the paper-pulp (which must be free from alum, acid, alkali, and cyanide of an alkali, and from excess of hyposulphite) either in the pulp-beating machines or after the pulp is properly beaten in the vats or boxes which feed the paper-machine. The paper-pulp thus becomes equally mixed with the protective mixture. The size used in sizing the paper must be free from alum, acid,

alkali, or cyanide of an alkali. The proportion of metallic mixture added to the paper-pulp is a matter of little importance; but paper containing ten per cent. of the same fully answers the intended purpose.

What we claim is—

1. As a new article of manufacture, paper prepared with a protective mixture, substantially as described, that is insoluble in water, but which, when acted upon by dilute or weak acid or an alkali or cyanide of an alkali, will produce a stain or dark mark or marks not removable by dilute acid or alkaline sulphide, substantially as described.

2. As a new article of manufacture, paper treated with a protective mixture comprising metallic sulphide or sulphides, in combination with metallic salt or salts, and which, when acted upon by dilute or weak acid, or by an alkali, or by cyanide of an alkali, will produce

on or in the paper a stain or dark mark or marks not removable by means of dilute acid, or by alkaline sulphide, thus indicating any attempt to fraudulently alter writing or printing contained on such paper, substantially as described.

3. A protective mixture for paper, consisting of sulphide of zinc or analogous metallic sulphide, in combination with carbonate of lead or analogous salt of heavy metal, (or metals,) substantially as and for the purpose specified.

AUGUST DUPRÉ.
OTTO HEHNER.

Witnesses:

I. C. HARDY,
23 Bush Lane, London, Solicitor.

CHAS. CALVER,
Clerk to Messrs. Vandercorn, Hardy & Oatway, 23 Bush Lane, London, Solicitors.