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FINGER-PRINT DETECTION

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3 Claims. (Cl. 41—26)

This invention relates to a method of treating material so that marks thereon which are normally invisible may be readily detected.

More specifically, the invention relates to the method of treating paper or like material, or a textile fabric, in such a manner that marks, such as finger marks, inadvertently left on the material may be made clearly visible for comparison or other purposes.

The secretion from the human skin which is transferred to an object with which the skin comes in contact, consists of a small amount, 10 to 15 percent, of a substance called "sebum", sodium chloride and water. "Sebum" which is a secretion of the sebaceous glands is a fatty material and like most fatty substances tends to decompose or oxidize, that is, it is not stable.

The first step of the method of this invention comprises treating the material upon which it is suspected there are marks, such as finger or hand marks, so as to fix the fatty material or sebum of these marks. There are certain fixatives used in histology, one of which, known as Fleming's reagent, is not only a good fixative but is also very delicate. Fleming's reagent consist of a mixture of osmic acid, chromic acid and glacial acetic acid. When sebum is treated with Fleming's reagent it is made permanent, that is, it does not decompose or oxidize and is not soluble in ordinary fat solvents.

When the material is exposed to the vapors of Fleming's reagent or a like mixture, the finger marks develop out becoming a brown print. This print is legible and decipherable but the contrast even on white material is not as great as could be desired.

The next step is to treat the material and print to produce marked contrast. This is done by treating the material with a substance which fluoresces in ultra-violet light. Certain of the coal tar dyes have this property. A dye known as "berberin" also possesses this property as do certain vegetable dyes. One dye that has been found very satisfactory for this purpose is known as "diazine" fast yellow which is substantially colorless. The color of the fluorescence desired will determine the particular dye to be used.

After drying, the material is viewed in ultra-violet light where the prints appear dark against a bright background of fluorescence. The fluorescent dye appears not to affect the print and hence the print itself does not fluoresce but retains the color given to it after treatment with the reagent. An apparatus which is adapted for viewing the materials and prints is disclosed in my copending application, Serial No. 58,763 filed of even date herewith.

What is claimed is:

1. The method of making detectable marks containing a fatty substance which are normally invisible in visible light, which comprises fixing the fatty substance and treating the material containing the marks with a substance which fluoresces in ultra-violet light.

2. The method of making detectable marks containing a fatty substance which are normally invisible in visible light, which comprises treating the marks with a fat fixative until the fatty substance is made permanent and treating the material containing the marks with an aqueous dye which fluoresces in ultra-violet light.

3. The method of making detectable marks containing a fatty substance which are normally invisible in visible light, which comprises exposing the marks to the vapors of Fleming's reagent until the fatty substance is fixed and treating the material containing the marks with diazine fast yellow aqueous dye.

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