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NONSMUDGING COPYING INK

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This invention relates generally to ink suitable for use in connection with typewriter ribbons and more particularly to ink suitable for use in typewriter ribbons where it is desirable to make wet press copies from the original characters printed from the ribbon.

The conventional black record ink composed of carbon black ground in oil together with coloring material is not suitable for the making of wet press copies and the usual purple copy ribbon ink using methyl violet dye instead of carbon is highly susceptible to smudging and in addition does not lend itself to use in facsimile telegraph transmission since the optical response of the photo cell to it is very poor. Therefore it is desirable that typewriter ribbons should be impregnated with the type of ink which does not smudge, may be water copied and whose characters may be transmitted in facsimile telegraph systems.

Accordingly the principal object of this invention is to provide a non-smudging ink for impregnating typewriter ribbons.

A further object of this invention is to provide an ink suitable for producing wet press copies of original characters.

Still another object of this invention is to provide typewriter ribbons impregnated with an ink which is highly colored and of a nature to render it suitable for facsimile telegraph transmission.

A further object of this invention is to provide a process of water copying, the product of which consists of reproductions of original characters having suitable coloring for transmission by facsimile telegraph.

In carrying out this invention a commercial form of ink consisting of a pigment mixture of 90% to 95% carbon and 5% to 10% coloring, all ground in mineral oil or other suitable vehicle, such as lard oil, cottonseed oil, or oleic acid, is mixed with approximately 5-25% by weight of a water soluble metallic salt such as iron sulphate, copper sulphate, silver nitrate, or the salts of cadmium, bismuth, molybdenum, aluminum, antimony, tin, lead, zinc or nickel. These salts may be ground in oil and then mixed with the original ink composition, or may be added directly to the carbon and ground in the usual manner. If a black record is not desired a suitable substitute for carbon may be employed.

The usual form of typewriter ribbon may then be impregnated with the above ink resulting from the mixture described above whereby characters printed from such ribbon consist of the usual carbon black and in addition a small amount of water soluble metal salt. The preferred metal salt is iron sulphate.

In making wet press copies of the original

characters the copy tissue may be wetted with a solution of $\frac{1}{2}$ to 1% of an appropriate organic reagent such as tannic acid, nitroso R salt, dimethyl glyoxime, diphenyl carbazide, sulphosalicylic acid, dithio oxamide, nitroso-naphthol and others in water or other solvent if reagent selected is not water soluble. When the copy tissue and original copy are placed together, a reaction will occur between the metallic salt in the original characters and the selected organic reagent to produce on the tissue a highly colored compound which may be readily seen as a copy of the record. Reagents used are those employed for detection of traces of metals in solution by microchemical methods.

This invention results in printed characters which do not smudge, may be water copied and have adequate optical properties to be transmittable by facsimile telegraph apparatus of the known types. There are numerous variations of the compositions which the ink may take, including appropriate salts and organic reagents for producing the wet press copies. Although a few of the possible metallic salts and organic reagents have been described in the specification, it will be obvious to those skilled in the art that there are many other possible combinations which may be used to accomplish the results of this invention. Therefore I desire that my invention shall be limited only to the extent required by the prior art and the appended claims.

What is claimed is:

1. A non-smudging copying ink composition comprising a mixture of a dark, opaque coloring material ground in oil, and a transfer medium comprising a water soluble salt of a metal selected from the group consisting of iron, copper, silver, cadmium, bismuth, molybdenum, aluminum, antimony, tin, lead, zinc and nickel ground in mineral oil, said ink being non-water reactive to avoid smudging, said characteristic being obtained by reason of the fact that the ink is free of a reagent which will react with said transfer medium in the presence of water.

2. A non-smudging copying ink composition comprising a mixture of carbon black and coloring material ground in oil, and a transfer medium comprising a water soluble salt of a metal selected from the group consisting of iron, copper, silver, cadmium, bismuth, molybdenum, aluminum, antimony, tin, lead, zinc and nickel ground in mineral oil, said ink being non-water reactive to avoid smudging, said characteristic being obtained by reason of the fact that the ink is free of a reagent which will react with said transfer medium in the presence of water.

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