

UNITED STATES PATENT OFFICE.

CHARLES A. SCHMITT, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE CARTER'S INK COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

INK.

1,050,236.

Specification of Letters Patent.

Patented Jan. 14, 1913.

No Drawing.

Application filed February 14, 1912. Serial No. 677,541.

To all whom it may concern:

Be it known that I, CHARLES A. SCHMITT, of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Inks, of which the following is a full, clear, and exact description.

My invention relates essentially to stamping or printing inks and especially to an ink for typewriter ribbons.

Inks of the above character as hitherto made have employed a soluble color and while the primary sheet exhibited a somewhat sharply defined mark or letter yet the press copy obtained by the application of water to the sheet has usually been poorly defined and both the primary sheet and the press copy are apt to become blurred owing to the solubility of the ink especially if too much water be used. It is the soluble colors and especially the anilin colors which give the best results upon a primary sheet. If an attempt be made to render these colors insoluble prior to their application to the sheet practically no press copy could be obtained, and such action would tend to so change or modify the color that its distinctiveness, so necessary to a primary sheet, would become lost.

It is accordingly among the objects of my invention to provide an ink of the above character capable of making a properly defined primary mark or letter from which if desired a press copy can be made upon the application of water to the mark or letter and which mark or letter upon the application of water thereto in making the press copy or otherwise will become even more clearly and sharply defined with a substantially insoluble fixed color as also the press copy made therefrom.

It is a further object of my invention to provide an ink having the advantages above recited together with the added advantage that the mark or letter upon the primary sheet will be as clear and sharply defined as can be obtained by the use of a soluble or anilin color.

The ink comprising my invention consists of an unhydrated mechanical mixture composed of a "carrier" and separate ingredients adapted to chemically combine and form a substantially insoluble fixed color upon the application of water to a print

made from the ink as in making a press copy or otherwise, and by the term "carrier" as used herein and in the appended claims is meant any liquid-mixing agent other than water and especially an animal, vegetable or mineral oil or other oleaginous agent which will mix with the other ingredients and in the mixture thus formed will not chemically combine with the other ingredients or effect a chemical combination between the same. The "carrier" preferably employed is lard oil.

One of the principal elements of my ink is a metallic salt, preferably iron sulfate, and mixed therewith in the presence of the "carrier" is such other element or elements as will effect a chemical combination therewith when water is applied to the print made from the ink as aforesaid. Such other element or elements mixed with the metallic salt should consist of some vegetable compound such as tannic acid, its compounds or compounds containing the same, logwood, or its compounds. The ingredients are combined preferably in about the proportions of equal parts of metallic salt and vegetable compound, a sufficient amount of "carrier" being added to effect a proper mechanical mixture between the ingredients and produce a paste of somewhat soft consistency. In order that a proper mixture may be obtained between the ingredients they are reduced before mixing to a powdered condition and after mixing the mixture is ground for a protracted period of time and preferably for not less than one hour for each pound of the mixture.

An ink consisting of a metallic salt (preferably iron sulfate), a vegetable compound (preferably tannic acid or logwood) and a "carrier" while making a most excellent print and press copy and one possessing great fixity of color is improved in the fixity to light by the addition of gallic acid. In such case the parts are combined in the mixture preferably in about the proportions of 40% metallic salt, 40% vegetable compound and 20% gallic acid, a sufficient amount of "carrier" being added to give to the mixture proper consistency as aforesaid.

The color of the ink is very much improved especially when used upon typewriter ribbons by combining with the mixture of the metallic salt, vegetable com-

pound or compounds and "carrier" as above described some soluble color and preferably an anilin color. In such case the normally passive nature of the ingredients other than the soluble color does not affect it in the mixture and the primary sheet receives the imprint thereof. When, however, water is added to the imprint on the sheet, as in the making of a press copy or otherwise, a change immediately takes place. The normally passive agents or ingredients consisting of the metallic salt and the vegetable compound or compounds immediately become active and chemically combine and act to precipitate and fix the primary color on the sheet; in other words, they act as a mordant to form an insoluble or substantially insoluble color compound or lake and serve to produce on both the primary sheet and press copy a fixed color, that on the primary sheet being even better than the initial color thereon before the water was applied, while that on the press copy is of great excellence.

In practice when a soluble or anilin color is used as a part of the ink mixture I have employed and prefer to employ about one to two parts of the soluble color to one part of the other ingredients in about the proportions above indicated; in other words, to one or two parts of the soluble color there is added another part consisting of about 50% metallic salt and 50% vegetable compound or compounds. In the event that gallic acid be used with the vegetable compound, then to one or two parts of the soluble or anilin color is added another part consisting preferably of about 40% metallic salt, about 40% vegetable compound and about 20% gallic acid, compounded in the manner before described.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States:—

1. An ink consisting of an unhydrated mechanical mixture having in combination a "carrier" and separate ingredients adapted to chemically combine and form a substantially insoluble fixed color upon the application of water to a print made from

said ink in forming a press copy or otherwise.

2. An ink consisting of an unhydrated mechanical mixture having in combination a carrier and separate ingredients comprising a metallic salt and a vegetable compound adapted to chemically combine and form a substantially insoluble fixed color upon the application of water to a print made from said ink in forming a press copy or otherwise.

3. An ink consisting of an unhydrated mechanical mixture having in combination a carrier and separate ingredients comprising a metallic salt, a vegetable compound and gallic acid adapted to chemically combine and form a substantially insoluble fixed color upon the application of water to a print made from said ink in forming a press copy or otherwise.

4. An ink consisting of an unhydrated mechanical mixture having in combination a primary soluble color, a "carrier" therefor, and matter adapted to chemically combine and render said color substantially insoluble upon the application of water to a print made from said color in forming a press copy or otherwise.

5. An ink consisting of an unhydrated mechanical mixture having in combination a soluble color, a carrier and separate ingredients comprising a metallic salt and a vegetable compound adapted to chemically combine and render said color substantially insoluble upon the application of water to a print made from said ink in forming a press copy or otherwise.

6. An ink consisting of an unhydrated mechanical mixture having in combination a soluble color, a carrier and separate ingredients comprising a metallic salt, a vegetable compound and gallic acid adapted to chemically combine and render said color substantially insoluble upon the application of water to a print made from said ink in forming a press copy or otherwise.

CHARLES A. SCHMITT.

Witnesses:

JOHN E. R. HAYES,
M. E. FLAHERTY.