

UNITED STATES PATENT OFFICE.

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TRANSFER INK FOR PRODUCING INDELIBLE MARKINGS.

No Drawing.

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To all whom it may concern:

Be it known that we, TROWBRIDGE MARSTON and WINTHROP STANLEY LAWRENCE, citizens of the United States, residing at 37 Mt. Kemble Ave., in the city of Morristown, county of Morris, State of New Jersey, and 55 Hanson Place, Brooklyn, in the city of New York, county of Kings, State of New York, respectively, have invented certain new and useful Improvements in Transfer Inks for Producing Indelible Markings, of which the following is a specification.

This invention relates to a new and improved transfer ink for producing indelible markings upon fabrics of various colors and upon articles made from fabrics, such as towels and the like.

One of the objects of this invention is to provide a transfer ink which can be used for making transfers whereby an indelible design of any desired kind can be produced upon towels and other objects, so as to identify them, to serve as trade marks or for other purposes.

Another object of this invention is to produce a fusible solid or semi-solid indelible transfer ink which is softened and taken up by any fabric when the said ink is heated.

Another object of this invention is to provide a transfer ink containing a dye stuff which is precipitated in or on the fibre of the fabric to be marked during the first washing operation.

Another object of this invention is to provide a transfer ink having a dye stuff of a basic nature combined with a base or carrying medium of an acid nature.

Another object of this invention is to provide a transfer ink having such a medium which is soluble in or is removed by soap solutions or other alkaline solutions.

Other objects of this invention will be set forth in the following description which will illustrate some preferred embodiments thereof.

At the present time there are no simple processes for marking linen and cotton goods, which will quickly and cheaply give an indelible mark or design of any desired nature and which can serve as a trade mark or to identify the article in the laundry or the like.

The method of marking linen by embroidery or the like is expensive and limits the

complexity of the design which can be employed. The use of a marking ink with a rubber stamp or metal die or type enables the use of different designs but the permanency of the mark depends entirely upon the character of the ink used. The use of an ordinary pen does not produce a neat mark or design and does not permit the rapid and cheap application of a complex design.

According to this process, a heavy viscous ink is secured which can be readily used for the manufacture of transfers of the type which yield a mark or design when heat is applied thereto, as, for example, by means of an ordinary hot flat iron. Transfers of this type are well known, but a satisfactory indelible ink therefor has not yet been developed.

This process consists in uniting, either physically or chemically, a dye which is resistant to the washing fluid used in laundry work, with a carrying medium which is separable from said dye when acted upon by said fluids, so as to produce a fusible ink which can be used in making transfers.

It has been discovered for example, that if a dye of a basic nature, such as induline base, or nigrosine base, is mixed with an acid such as stearic acid or the like, that this mixture, which is believed to consist of a true compound, can be used for making a fusible ink which is indelible and does not smear when the transfer is applied or when the article to which the transfer is applied, is washed and ironed. When the transfer is heated in contact with the fabric, the ink is taken up by the fibres of the article to which the transfer has been applied.

When the article is washed in the laundry, it is treated with alkaline solutions of various kinds and the stearic acid is substantially or completely removed from the article in the first washing, leaving the dye stuff precipitated in or on the fibre of the article. The dye stuff acts as an indelible and non-smearing pigment or coloring matter.

The preferred formula is made from one part by weight of stearic acid and one and one half parts of induline base. It is preferred to use a double pressed stearic acid which is sold in the trade under that name and this should be free from grit or dirt

and of a gray to white color. The induline base is preferably of a blue shade and it should be clean and insoluble in water.

The mixture may be made in various ways but it is preferred to melt the stearic acid and dissolve the induline base therein, while stirring very vigorously and rapidly. When the induline has been thoroughly incorporated, the color is panned for use. It can be kept hot for a couple of hours if necessary.

Instead of the stearic acid, above mentioned, it is obvious that many other fatty acids could be substituted therefor, as, for example, suitable acids of the paraffin or olefine series and indeed, any suitable fusible substance of an acid nature could be substituted. For example, oleic, lauric or myristic acids could be substituted.

In addition to the induline and nigrosine before mentioned, it is obvious that many other suitable dye stuffs could be used if they are resistant to said washing fluids and capable of being mixed with a vehicle or medium of the type before mentioned. These washing fluids are so strongly basic that they separate the dye from the carrying medium.

As the induline, which is the coloring matter, is dissolved in the stearic acid, which is the carrying vehicle or medium therefor, the solution gradually becomes more viscous, less greasy and of a higher melting point. Eventually a point is reached where the solution becomes too thick to handle in the process of making the transfer. It is believed that the reaction between the dye and the acid vehicle produces a product which is soluble in stearic acid. However, it is not believed that there is any real reaction between the fibre of the article to which the transfer is applied and the dye stuff.

Transfers made with an ink of the kind before mentioned are most successful in marking goods of a close texture, but they can be used with varying success on other classes of goods.

Transfers made by means of this ink can be applied whenever the article can withstand the application of a hot iron.

Whenever any substance or substances are mentioned in the claims, it is to be understood that such mention includes any

equivalent or equivalents therefor mentioned in the preceding description.

Preferred embodiments of this invention have been described, but it is obvious that changes and omissions could be made without departing from its spirit and it is not desired to limit this invention to any definite theory of operation, as it is believed that the reactions involved are quite complicated.

We claim:

1. A transfer ink including a dye incorporated in a medium which is adapted to be separated from said dye when the said ink is acted upon by a base.

2. A fusible transfer ink including a dye incorporated in a medium which is adapted to be separated from the said dye when the said ink is acted upon by a basic substance.

3. A fusible transfer ink including a dye of a basic nature incorporated in an acid medium which is adapted to be separated from the said dye when the said ink is acted upon by a base.

4. A viscous, fusible transfer ink including a dye of a basic nature incorporated in a medium adapted to be separated from the said dye when the said ink is acted upon by an alkaline solution, said ink being adapted to be taken up by a fabric when heated in contact with said fabric, said dye being adapted to remain on the fibre of the said fabric when said fabric is washed in alkaline solution.

5. An indelible, non-smearing transfer ink including an induline base incorporated in a stearic acid medium.

6. An indelible, non-smearing, fusible transfer ink consisting substantially of one part by weight of stearic acid having one and one half parts of induline base incorporated therein.

7. A method of making an indelible, non-smearing, fusible transfer ink which consists in melting a fusible acid, carrying-medium and then adding a dye of a basic nature while stirring the ingredients so as to produce a homogeneous mixture.

In testimony whereof we hereunto affix our signatures.

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