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TRANSFER AND TRANSFER INK.

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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 Morristown, county of Morris, State of New Jersey, and Brooklyn, in the city of New York, county of Kings, State of New York, respectively, have invented certain new and useful Improvements in Transfers and Transfer Inks, of which the following is a specification.

This invention relates to a new and improved transfer and a new and improved transfer ink.

One of the objects of this invention is to make a new and improved gold or bronze color transfer ink.

Another object of this invention is to produce an ink of greater stability and which will yield a brighter color.

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

Bronze or gold color transfer inks as they have been hitherto manufactured, have had the bronze color incorporated in an acid medium or carrying vehicle. This ink oxidized or suffered some transformation in the presence of air, whereby an appreciable amount of the bronze color went into solution or became combined in some way with the acid medium so as to form a greenish compound which seriously injured the proper appearance of the transfer.

According to this invention an ink is made, the surface of which rapidly oxidizes or dries, giving a surface layer or skin, which has a higher melting point than the interior of the ink.

In order to make a transfer of a mark or design in the type of transfer which is applied by means of heat, the said mark or design is first produced on a sheet of paper by means of the said ink. When this sheet of paper, having this design worked out upon it, is applied to the fabric and heated by means of a hot flat iron or the like, then the fusible transfer ink melts and is taken up by the fabric so as to reproduce the desired mark or design.

When the transfer is completed, it is obvious that the portion of the ink which forms what may be called the under layer, and which is in direct contact with the paper is protected from the air so that it retains a melting point which is relatively low compared to the rest or the outer skin of the ink.

Hence, when such a transfer is heated, the under layers of the ink are released from the paper before the outer layers are melted and hence a transfer of solid gold or other color can be secured whose delineation is much superior to that of any type heretofore made. In fact, in many cases, an effect similar to embossing can be secured.

This improved transfer ink employs as a carrying medium or vehicle a neutral resin and it is preferred to use para-cumarone resin, the trade name for which is "Cumar". As this resin alone may not give the proper melting point viscosity and working qualities to the ink, it is preferably combined with a boiled linseed oil or litho varnish, such as No. 4 for example. This litho varnish not only brings the working temperature to the right point, but it rapidly oxidizes or dries on exposure to the air, giving an outer layer or skin of a relatively high melting point, as before mentioned. To rapidly produce this oxidation, a small amount of drier, of the kind used in paint making, is found desirable.

The ingredients before mentioned may not give an ink of low enough melting point unless the ink is made too sticky and hence it is found desirable to add a small amount of mineral oil which improves fluidity. The amount of mineral oil can be varied to meet weather conditions.

A suitable formula is as follows:

Medium hard grade para-cumarone, 100 parts by weigh; No. 4 litho varnish, 25 parts; drier, 2½ parts; mineral oil, 8 parts.

The resin before mentioned appears on the market in a variety of grades, having quite a range of melting temperatures, but it is preferred to use a medium hard grade which has a melting point ranging from about 95–130 degrees C.

Other grades of litho varnish, such as No. 8 or No. 2 can be used, but we prefer to use a No. 4 for the best results.

The drier can include any of the well known driers used to aid drying in paints, such as linoleate, lead drier, managanese drier, cobalt drier.

The mineral oil above mentioned is preferably a good grade of petroleum oil having a specific gravity of 0.85 and this petroleum oil preferably has a paraffin base.

The use of the resin before mentioned is desirable because it is neutral and is very stable. Other drying oils could be substituted for the linseed oil, such as tung oil, perilla or the like, but it is preferred to use the linseed oil.

Vanadium driers could also be used and in fact any drier that can be used in the paint industry could be employed, as long as it does not react with any of the other ingredients.

Similarly, any substantially neutral non-drying oil, having the fluidity of mineral oil of the specific gravity of 0.85 could be used for the mineral oil before mentioned.

It is believed that no reactions take place between the ingredients or between the air and the ingredients save that, of course the outside of the ink rapidly oxidizes.

The ink is given a melting point between 80° C. and 150° C. by varying the proportions of the ingredients, but, of course, the higher temperatures before mentioned are very seldom necessary.

The mineral oil is therefore desirable both to give a greasy effect or quality and to lower the melting point to the desired temperature.

Varying amounts of bronze powder can be incorporated with the carrying medium or vehicle above mentioned, but it is preferred to add about 30 parts by weight to the amount produced by the formula before specified.

This composition can be readily and simply made by melting the resin and then stirring in the proper amount of litho varnish, mineral oil and drier while the resin is kept hot. This mixture is stirred until thoroughly homogeneous and kept hot for use with bronze color or other pigment or it is panned.

A transfer having an ink such as before mentioned can be used on cotton, woolen and silk hosiery, woven or knitted cotton, woolen and silk goods and on camel's hair cloth, rubber goods, all textiles and leathers. The neutral base produces an indelible transfer.

We have described a preferred embodiment of our invention but it is clear that changes and omissions could be made without departing from its spirit and whenever we specifically refer to any substance in the claims, it is to be understood that such reference includes equivalent substances.

Coloring mediums other than bronze powder could be used, such as chrome yellow, vermilion, carbon black, etc. in which it is desirable to have the outer layer of the ink on the transfer less fusible than the inner part.

We claim:—

1. A transfer made of paper or the like and having a fusible ink including a substantially neutral vehicle and coloring matter, the said ink being adapted to be released from said transfer and form a marking upon an object in contact therewith, when said transfer is subjected to heat and pressure.

2. A transfer made of paper or the like and having a fusible ink including metallic coloring matter embodied in a substantially neutral resinous medium which has substantially no reaction with said coloring matter.

3. A transfer made of paper or the like and having a fusible ink containing coloring matter embodied in a substantially neutral medium containing paracumarone resin.

4. A transfer made of paper or the like and having a fusible bronze colored transfer ink comprising bronze powder embodied in a substantially neutral resinous carrying medium.

5. A fusible transfer ink comprising coloring matter embodied in a carrying medium containing a substantially neutral resin, boiled linseed oil, a drier and a mineral oil.

6. A method of making a stable and substantially neutral transfer ink which consists in melting a substantially neutral resin and then adding boiled linseed oil, mineral oil, a drier, and the coloring matter and then stirring the mixture until it is homogeneous.

In testimony whereof we hereunto affix our signatures.

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