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PROCESS OF IDENTIFYING LAUNDRY ARTICLES

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In commercial laundries it is the common practice to identify laundry articles by using a laundry marking machine and printing the identification mark on the laundry articles with permanent black ink. In this connection it is the practice in commercial laundries to employ relatively small type and to place the mark upon each laundry article in an inconspicuous place. This results in a loss of time by the operator in so manipulating the laundry article as to find and place the mark upon an inconspicuous place, and after the laundering process has been finished, it causes loss of time by the redistributing operator in locating these identification marks when placed in inconspicuous positions.

There has been great objection to these permanent black identification marks in recent years, and the objection is constantly growing because these black ink marks disfigure the laundry articles, and it has become prohibitive in commercial laundries to employ such black ink marks on an increasingly large number of laundry articles.

In view of this situation, in recent years it has become the practice in commercial laundries to employ identification tabs, some of which are made of metal and provided with identification marks and clamped to the laundry articles. Others are sewed to the laundry articles, and then upon redistribution of the laundry articles into customers' bundles, the tabs are removed by hand. This tab method of identifying laundry articles has been found to be highly objectionable, first, on account of the time and expense involved, but also because the metal tabs sometimes become caught or entangled and torn from the articles, and also because they tend to wear out the laundry articles when being subjected to the various laundering processes, and they also wear out the laundering machinery; and with the tabs which are connected to the laundry articles by stitching, the stitches frequently become loosened and the identification mark lost.

There is also now in common use for laundry identification purposes the so-called net system in which, from each customer's bundle, certain articles which cannot be provided with permanent black ink marks are placed in open nets and each net is provided with a customer's identification mark. This net is objectionable because of the additional labor and expense it causes, and it is also objectionable because the laundry articles remain in the net only during the washing process and do not have any identification marks in such parts of the laundering processes as, for instance, ironing, and even the skilled and experienced laundry operators frequently misplace these unmarked laundry articles, resulting in great loss and annoyance to the laundry operators.

The object of my invention is to provide a process of identifying laundry articles in a laundry in which substantially every article in a customer's bundle may be provided with an identification mark printed upon the article, on a laundry marking machine, with large, bold-face type, on a prominent, conspicuous and easily found portion of the laundry article, and which is normally visible at all times throughout the laundering process, and which remains in this condition until after all the laundering processes have been completed and the laundry articles redistributed in the customer's bundle, and then causing these identification marks to fade out and become normally invisible and otherwise unobjectionable, and whereby a great saving in time and expense is obtained and whereby substantially all of the loss and annoyance caused by lost articles through improper identification is overcome.

My invention consists in the arrangement and combination of the various steps of the process herein defined, whereby the objects contemplated may be attained.

In carrying out my new and useful process I preferably employ a laundry marking machine and use the same sort of identification marks as are now in common use. However, I prefer to equip the laundry marking machine with very large, bold-faced type so that the identification marks may be readily and easily seen under all circumstances, and to thereby avoid errors in reading the identification marks.

Upon these marking machines I use an ink of approximately the same viscosity and stickiness of the black inks now commonly employed for that purpose. In practice, I have found that an ink composed of the following ingredients, and in the following proportions, is capable of successful use in my new and useful method:

0.05 per cent Methylene Blue, Colour Index No. 922
20.00 per cent diethylene glycol
20.00 per cent ethylene glycol monomethyl ether
16.67 per cent gum arabic
43.28 per cent water

By the term "Methylene Blue, Colour Index No. 922" I refer to the well known hand book entitled "Colour Index" First Edition, 1924, pub-

lished by the Society of Dyers and Colourists, 30 Pearl Assurance Bldg., Bradford, Yorkshire, Eng. which is well known to dye chemists and those skilled in the art, and which may be readily and easily formulated and obtained by reference to said text book. The said formula may be compounded by heating and stirring, and this ink may be used on the ordinary laundry marking machines in the same manner as the black ink now commonly used for such purpose.

The marks made by this ink are clearly visible on light colored fabrics after the piece has been subjected to a laundering process, even though Methylene Blue is not a direct cotton dye and might be expected to be removed by a laundering process. If instead of .05 per cent Methylene Blue there be used .10 per cent Victoria Blue, Colour Index No. 729 or .10 per cent Methylene Grey, Colour Index No. 873, the marks are much plainer after the laundering process and can also be caused to fade out. These marks may be caused to fade out in the same manner as the marks before described.

This ink will be caused either by the pressure of the laundry marking machine upon which it is applied, or by its fluidity, to deeply penetrate into the fabric of the article to be marked, in such a manner that it will carry into said fabric and into the fibers and spaces between the fibers, portions of the substance of which the ink is composed, and become fixed therein. By the term "fixed" as herein employed, I mean that the dye portion of the ink, because of the so-called "affinity" of certain dyes for cotton and other fibers, becomes an integral part of the fiber. But I do not wish to be understood as limiting my invention and claims to that degree of fixation as will cause absolute permanence, but only such a degree of fixation as will cause a sufficient amount of the dye to remain in the article after having been subjected to the action of one or more laundering operations.

It is important that the ink used with my new process has the characteristic that, when subjected to a laundry washing process, substantially all of its body, and especially its viscous, sticky ingredients, shall be promptly removed from the fabric. This is essential because at times the laundry mark might be printed upon a portion of the laundry article that was extremely dirty, and if the ink thus applied was not promptly removed during the washing process, then the dirt under the mark could not be removed and such washing process would be ineffective.

In actual practice I have found that substantially all of the viscous or sticky substances are removed in the initial part of the washing process, and then the dirt under the mark is also removed in the ordinary manner, and that there remains in the laundry article only a slight amount of dye substances which are deeply embedded in and around the fibers of the laundry article, but of which there is a sufficient amount remaining so that the laundry identification mark is normally visible to the operator. I have found that this normally visible quality of the laundry identification mark is not in any way affected by the various laundering processes after washing, such, for instance, as the rinsing, souring, bluing, ironing, etc.

After the laundering operations are completed, and when the laundry articles are ready for distribution to the customers' bundles, it is obvious that with my improved process a great amount of time is saved to the operator because the laundry marks are in large bold-faced type on prominent portions of the laundry articles. For instance, on table linen, handkerchiefs, and the like, the laundry identification mark is found upon the outer surface of the folded laundry article, and being in large, bold-faced type, is so clear that mistakes in identification by the operators are minimized.

When the laundry articles have thus been redistributed into customers' bundles, I cause the identification marks to be faded or bleached out, and to thereby become normally invisible. In actual practice I have accomplished this as follows:

The laundry articles are placed upon a conveyor which passes into and through a chamber. In this chamber there is contained ultra violet lamps, and for this purpose I have employed a Hanovia five hundred watt quartz lamp at a distance of twelve to eighteen inches from the laundry articles. I have also demonstrated that this action of causing the identification marks to become normally invisible is greatly accelerated by the use of steam in the chamber containing the customers' bundles during the exposure to the ultra violet light.

I have found that it is possible to cause certain dyes to be made normally invisible by bleaching with the action of radiant energy other than ultra violet light, such as visible light or X-rays.

I have also found that by using the visible element of the ink instead of the dye heretofore described as Colour Index No. 922, I may employ a dye known as Erie Garnet B, Colour Index No. 375, and when an ink containing a dye of this character is employed it can be made normally invisible, or removed, by subjecting the customers' bundles of laundry articles within a chamber to the action of chlorine gas or ozone gas, or the like.

I do not desire to be understood as limiting my claims to any specific formula for the ink or dye employed, nor for any specific means for causing the ink or dye to be made normally invisible, bleached out or removed from the fabrics.

With my improved process numerous very advantageous results are produced, perhaps the most important of which is the saving to the laundry operator of the annoyance and loss caused by articles not being properly identified and which are not properly redistributed into the customers' bundles.

I have also effected a very substantial saving in the expense of the identification department of a commercial laundry, because substantially all articles in a customer's bundle are marked on the same laundry marking machine, at the same time, and in a conspicuous, easily accessible place, and in large, bold-faced type, and I have found that a very substantial saving in time is effected by the redistributing operators because of the size and prominence of the marking because the mark is in a prominent, easily accessible place, with the result that with my new process as employed a very substantial saving in time, expense and annoyance is effected.

By the term "laundry operation" as herein employed, I mean to include various parts of an ordinary commercial laundering operation, such as for instance: First, washing the articles in a solution containing soap or other chemicals usually employed in commercial laundries; then rinsing same and repeating such washing and rinsing operations to the desired extent; then the ordinary bleaching and scouring operations, and then the so-called bluing; then extracting

the surplus liquid; then drying and starching and ironing.

By the term "laundering process" as herein employed, I also mean to include the so-called dry cleaning operations in which naphtha, gasolene, and like substances are employed.

In textile mills where material such as sheeting, pillow slips, so-called yard goods, etc., is woven, it is customary to apply identification marks to portions of such woven fabric. These identification marks are usually placed on a marginal edge of the fabric, which later is removed and results in considerable loss because these removed marginal edges are of little or no value. After many of these textile fabrics are finished they are subjected to scouring, bleaching, and other processes similar in some respects to laundering, and by the term "laundering process" as herein employed, I mean to include such operations as are customarily carried on in preparing such textile fabrics for the market.

Upon the completion of that part of the process which consists of fading, bleaching or removing the identification mark, I find that in some instances the dye is wholly removed so far as I can determine. In other instances, traces of the dye remain in and between the fibers of the fabric but are colorless and cannot be seen under normal light conditions and are not objectionable upon finished laundry articles. The expression "rendering said mark normally invisible", as herein employed, is intended to cover either of said conditions, which for all practical purposes are the same in my process.

I claim as my invention:

1. An improvement in the art of fabric identification marking which consists in printing upon a fabric an identification mark comprising letters, symbols or the like, with an ink of a viscous or sticky character and containing a substance normally visible, so that the identification mark may be readily seen, then removing substantially all of said viscous or sticky substance from the surface of the fabric so that the surface of the fabric previously covered by the mark will be clearly visible, and leaving in and around the fibers of the fabric small quantities of said normally visible substance arranged in the same pattern as that of the mark when applied and being normally visible so that the identification mark may be readily seen, and finally rendering said mark normally invisible.

2. An improvement in the art of fabric identification marking which consists in printing upon a fabric an identification mark comprising letters, symbols or the like, with an ink of a viscous or sticky character and containing a substance normally visible, so that the identification mark may be readily seen, then removing substantially all of said viscous or sticky substance from the surface of the fabric so that the surface of the fabric previously covered by the mark will be clearly visible, and leaving in and around the fibers of the fabric small quantities of said normally visible substance arranged in the same pattern as that of the mark when applied and being normally visible so that the identification mark may be readily seen, and finally applying to the marked fabric energy having such characteristics as to render the mark normally invisible.

3. An improvement in the art of fabric identification marking which consists in printing upon a fabric an identification mark comprising letters, symbols or the like, with an ink of a viscous or sticky character and containing a substance normally visible, so that the identification mark may be readily seen, then removing substantially all of said viscous or sticky substance from the surface of the fabric so that the surface of the fabric previously covered by the mark will be clearly visible, and leaving in and around the fibers of the fabric small quantities of said normally visible substance arranged in the same pattern as that of the mark when applied and being normally visible so that the identification mark may be readily seen, then removing substantially all of said viscous or sticky substance from the surface of the fabric so that the surface of the fabric previously covered by the mark will be clearly visible, and leaving in and around the fibers of the fabric small quantities of said normally visible substance arranged in the same pattern as that of the mark when applied and being normally visible so that the identification mark may be readily seen, and finally applying to the marked fabric energy having such characteristics as to render the mark normally invisible and at the same time applying heat to the fabric to accelerate such action.

4. An improvement in the art of fabric identification marking which consists in printing upon a fabric an identification mark comprising letters, symbols or the like, with an ink of a viscous or sticky character and containing a substance normally visible, so that the identification mark may be readily seen, then removing substantially all of said viscous or sticky substance from the surface of the fabric so that the surface of the fabric previously covered by the mark will be clearly visible, and leaving in and around the fibers of the fabric small quantities of said normally visible substance arranged in the same pattern as that of the mark when applied, and being normally visible so that the identification mark may be readily seen, and finally applying to the marked fabric energy having such characteristics as to render the mark normally invisible, and at the same time applying steam to the fabric to facilitate such action.

5. An improvement in the art of fabric identification marking which consists in printing upon a fabric an identification mark comprising letters, symbols or the like, with an ink of a viscous or sticky character and containing a substance normally visible, so that the identification mark may be readily seen, then removing substantially all of said viscous or sticky substance from the surface of the fabric so that the surface of the fabric previously covered by the mark will be clearly visible, and leaving in and around the fibers of the fabric small quantities of said normally visible substance arranged in the same pattern as that of the mark when applied and being normally visible so that the identification mark may be readily seen, then subjecting the fabric to radiant energy for rendering the mark normally invisible.

6. An improvement in the art of fabric identification marking which consists in printing upon a fabric an identification mark comprising letters, symbols or the like, with an ink of a viscous or sticky character and containing a substance normally visible, so that the identification mark may be readily seen, then removing substantially all of said viscous or sticky substance from the surface of the fabric so that the surface of the fabric previously covered by the mark will be clearly visible, and leaving in and around the fibers of the fabric small quantities of said normally visible substance arranged in the same pattern as that of the mark when applied, and being normally visible so that the identification mark may be readily seen, then subjecting the fabric to radiant energy for rendering the mark normally invisible, and at the same time applying heat to the fabric to expedite such action.

7. An improvement in the art of fabric identification marking which consists in printing upon a fabric an identification mark comprising let-

ters, symbols or the like, with an ink of a viscous or sticky character and containing a substance normally visible, so that the identification mark may be readily seen, then removing substantially all of said viscous or sticky substance from the surface of the fabric so that the surface of the fabric previously covered by the mark will be clearly visible, and leaving in and around the fibers of the fabric small quantities of said normally visible substance arranged in the same pattern as that of the mark when applied and being normally visible so that the identification mark may be readily seen, then subjecting the fabric to the action of a gas of such nature as to render the mark normally invisible.

8. An improvement in the art of fabric identification marking which consists in printing upon a fabric an identification mark comprising letters, symbols or the like, with an ink of a viscous or sticky character and containing a substance normally visible, so that the identification mark may be readily seen, then removing substantially all of said viscous or sticky substance from the surface of the fabric so that the surface of the fabric previously covered by the mark will be clearly visible, and leaving in and around the fibers of the fabric small quantities of said normally visible substance arranged in the same pattern as that of the mark when applied and being normally visible so that the identification mark may be readily seen, then subjecting the fabric to the action of chlorine gas of such nature as to render the mark normally invisible.

9. An improvement in the art of fabric identification marking which consists in printing upon a fabric an identification mark comprising letters, symbols or the like, with an ink of a viscous or sticky character and containing a substance normally visible, so that the identification mark may be readily seen, then removing substantially all of said viscous or sticky substance from the surface of the fabric so that the surface of the fabric previously covered by the mark will be clearly visible, and leaving in and around the fibers of the fabric small quantities of said normally visible substance arranged in the same pattern as that of the mark when applied, and being normally visible so that the identification mark may be readily seen, then subjecting the fabric to the action of a gas of such nature as to render the mark normally invisible, and at the same time subjecting the fabric to the action of steam to accelerate such action.

10. An improvement in the art of fabric identification marking which consists in printing upon a fabric an identification mark comprising letters, symbols or the like, with an ink of a viscous or sticky character and containing a substance normally visible, so that the identification mark may be readily seen, then removing substantially all of said viscous or sticky substance from the surface of the fabric so that the surface of the fabric previously covered by the mark will be clearly visible, and leaving in and around the fibers of the fabric small quantities of said normally visible substances arranged in the same pattern as that of the mark when applied, then piling a number of said fabrics upon each other and finally subjecting said pile of fabrics to the action of energy having such characteristics as to penetrate through the pile and render normally invisible all of the said marks on all of said fabrics.

11. The art of fabric identification which consists in printing upon a fabric an identification mark comprising letters, symbols or the like with an ink containing a normally visible, fugitive substance and causing that substance to deeply penetrate and become fixed within the fabric, then removing from the fabric objectionable foreign matter, including any such matter as may have been contained in the ink, and leaving a sufficient amount of said normally visible fugitive substance arranged in said patterns and clearly visible in normal light and finally causing said fugitive substance to become normally invisible.

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