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DECALCOMANIA AND PROCESS FOR MAKING THE SAME.

APPLICATION FILED JUNE 12, 1919.

1,331,581. Patented Feb. 24, 1920.

Fig. 1.

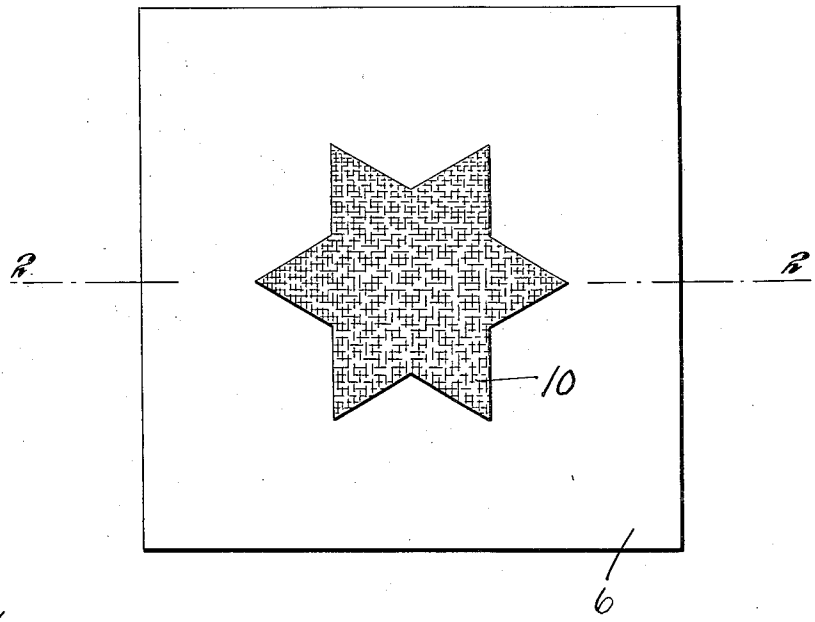
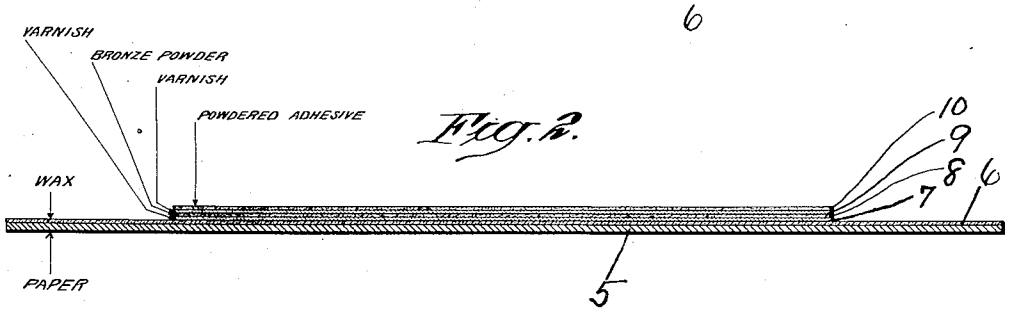


Fig. 2.



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UNITED STATES PATENT OFFICE.

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DECALCOMANIA AND PROCESS FOR MAKING THE SAME.

1,331,581. Specification of Letters Patent. Patented Feb. 24, 1920.

Application filed June 12, 1919. Serial No. 303,683.

To all whom it may concern:

Be it known that I, MAURICE S. ROSENFELD, a citizen of the United States, residing in Newark, in the county of Essex, in the State of New Jersey, have invented certain new and useful Improvements in Decalcomanias and Processes for Making the Same, of which the following is a specification.

The present invention relates to an improvement in decalcomanias and process for making the same.

It has been proposed heretofore to produce decalcomanias or transfer pictures which can be attached to the goods they are intended to mark by the use of heat and pressure alone. So far as is known, however, none of these decalcomanias have been put into practical or commercial use. The decalcomanias in commercial use today for the marking of fabrics or textile goods of all kinds are of the same type which have been used for many years past, namely, the type of decalcomania which requires the application of moisture to the back of the paper or other carrier upon which the decalcomania is mounted in addition to either heat or pressure, or both, in order to loosen it from the paper and cause it to adhere to the textile goods. This kind of decalcomania requires the expenditure of considerable time in its application. And the fact that it requires moisture in its application prohibits its use on the more delicate and finer class of goods, such as satins and silks. It is the object of the present invention to produce a decalcomania or tranfer picture capable of application to the textile goods it is designed to mark by the use of heat and pressure alone. A further object of the invention is to produce a decalcomania of such composition that it can readily be applied to the finest and most delicate fabrics without injuring them. These objects are accomplished by the improved decalcomania and the process of making the same described in the following specification and particularly pointed out in the appended claims.

In the accompanying drawings illustrating a decalcomania produced by the process of the invention, Figure 1 is a plan, and Fig. 2 a section taken on the line 2—2 of Fig. 1, showing the layers of such decalcomania in exaggerated thickness.

The carrier 5 for temporarily holding the decalcomanias or transfer pictures may conveniently be some such substance as paper. To the paper is applied a coating of wax 6. The ordinary wax coated papers purchasable in the market are adapted for the purpose. Where the proper kind of wax paper is not procurable, a plain, unglazed paper is used, and this is given a coating of melted paraffin or other suitable wax. The paper constituent of the ordinary wax paper purchasable in the market is permeable to the wax in a heated state and the plain, unglazed paper to which a coating of melted wax is applied where the ordinary wax is not procurable may also be permeable to the wax in a melted condition. In an effort to produce a commercial decalcomania applicable to the goods by the use of heat and pressure alone, it has been proposed heretofore to build up such decalcomania upon a paper impermeable to the wax. The reason for this was to prevent the decalcomania from following the melted wax into the permeable paper by which the constitution of the decalcomania would be largely destroyed, thereby rendering it unfit for its purpose. According to the present invention, the paper carrying the decalcomania may be either permeable or impermeable, the condition of the paper in this respect having no influence upon the decalcomania. This is because the ingredients of the decalcomania are combined together in such manner that they form a coherent body unaffected by the melting of the wax binding such body temporarily to the paper or other carrier. Having either procured a wax-coated paper or having coated an untreated paper with wax, the next step in the process is practised. This step consists in applying to the waxed paper an adhesive or tacky liquid which will be impermeable to the wax when the latter is melted by the application of heat to the decalcomania to transfer it from the paper to the goods. This liquid consists of a printing gloss varnish mixed with a varnish comprising acetone and some slow-drying material. The proportion of the parts is preferably three parts of the printing gloss varnish to one and a half parts of the second varnish. This tacky liquid, when applied to the waxed paper by means of a stamp or the type of a printing press, or otherwise, will dry in from one to six days, according to the proportion

of drying material in the second varnish. This liquid is transparent and waterproof and will form the top layer of the decalcomania when the latter is applied to the goods. It is, therefore, impressed upon the waxed paper in the form of the design the decalcomania will have.

Although the varnish layer 7 will not dry thoroughly before from one to six days, yet the surface thereof will dry in about three hours or less, thereby causing the varnish layer to lose its tackiness. It thus becomes necessary to practice the third step of the process in building up the decalcomania within three hours of the time the varnish layer is applied to the wax paper. The third step of the process consists in applying to the tacky surface of the varnish layer bronze or other coloring substance in the form of a powder 8. Inasmuch as the bronze is applied to the varnish in the form of a powder, it is not printed or stamped on the varnish, but is strewed or dusted on loosely. The tacky surface of the varnish layer causes enough of the bronze powder to adhere to it to form the body part of the decalcomania. Such part of the bronze as adheres to the wax is removed by a process forming the subject-matter of a co-pending application filed by me on the 12th day of June, 1919. This process also removes from the bronze adhering to the varnish layer such particles as are not bound thereto by the varnish. This process, therefore, removes the surplus bronze from the decalcomania, although it does not form a part of the present invention to remove the surplus bronze from the decalcomania by this process, inasmuch as this surplus bronze may be removed by shaking the paper, whereupon such particles of the bronze dust as are not in contact with the varnish will fall therefrom. When the bronze powder has been dusted upon the tacky surface of the varnish layer, the decalcomania, at the present stage of the development, is put away for the one to six days period required for the thorough drying of the varnish layer. It is not expedient to remove the surplus bronze from the decalcomania until after the varnish has had opportunity to thoroughly dry.

When the varnish has thoroughly dried, the decalcomania is ready for the practice of the fourth step of the process. This step consists in applying to the decalcomania in exact registration with the outlines of the varnish layer in the form of the design a coating of liquid adhesive 9. This liquid adhesive consists of two kinds of varnish, varnish No. 1 being a copal varnish and varnish No. 2 being a printing gloss varnish. This layer of varnish is conveniently called, for distinction, the upper varnish layer, and the former or first applied varnish layer is called the under varnish layer. The upper varnish layer dries thoroughly in from one to three days, but its surface dries over sufficiently so that it is no longer tacky in about three hours. The application of the upper varnish layer to the layer of bronze causes the bronze to be solidly inclosed between two transparent and waterproof substances, these substances being impermeable to melted wax and the like. There is thus produced a firmly cohesive decalcomania which, when it is applied to the goods it is designed to mark, appears on the goods in as sharply defined outlines as it appears on the transfer paper.

It is necessary to practice the fifth step of the process within three hours of the application of the upper varnish layer to the decalcomania in order to take advantage of the tacky condition of the surface of the upper varnish layer in applying thereto the adhesive which serves to hold the decalcomania on to the goods. The fifth element of which the decalcomania consists is a powdered adhesive or tacky substance 10. This adhesive powder may conveniently be made of dextrine, rosin, shellac or the like, used separately or in combination in varying proportions. The adhesive 10 which serves to secure the decalcomania to the goods is dusted on the tacky surface of the upper varnish layer, then the decalcomania is put away for a period of from one to three days, depending upon the length of time required for the thorough drying of the upper varnish layer. The decalcomania is now ready for use, inasmuch as the powdered adhesive is of such a nature that it does not adhere to the wax paper but only to the tacky surface of the upper varnish layer. Nor is it necessary to remove the surplus powdered adhesive by any process, because such of the adhesive as does not adhere to the tacky surface of the upper varnish layer readily falls from the decalcomania.

The decalcomania produced by the above described process has been found by repeated experiment to be adapted for rapid application to all classes of textile fabrics, whether coarse or fine. In applying the decalcomania to the fabric, it is simply necessary to press the decalcomania to the goods in the presence of heat. The heat acts to melt the wax, thereby freeing the decalcomania from the paper and, at the same time, the heat acts to soften the powdered adhesive, thereby causing it to secure the decalcomania to the goods. In applying the decalcomania to the goods, it is necessary that the heat be of a certain temperature and that it be applied for only a certain and definite length of time. The application of too much heat, whether at too high a temperature or for too long a period of time, results in the crystalization of the

powdered adhesive, thereby destroying its binding qualities, with the result that the decalcomania will not properly adhere to the goods. It has been found, by repeated experiments in applying these decalcomanias to various kinds of goods on a commercial basis, that with suitable pressure and proper temperature the decalcomania can be applied to the goods in less than ten seconds. It will thus be recognized that the decalcomania of the present invention affects a great saving in time and therefore in the cost of application over any of the forms of decalcomania commercially applied at the present time. Moreover, the fact that the decalcomania can be applied by heat and pressure alone adapts it for application to those delicate classes of fabrics to which decalcomanias requiring moisture for their application are not adapted.

Having thus described the invention, what is claimed as new is:—

1. As an article of manufacture, a decalcomania comprising a paper having a coating of wax thereon, a design printed upon the waxed paper in a varnish impermeable to the wax in a melted state, a layer of bronze on the varnish layer, a second layer of impermeable varnish impressed on the bronze and registering with the first varnish layer, and a layer of powdered adhesive on the second varnish layer.

2. As an article of manufacture, a decalcomania comprising a carrier, an easily meltable substance coating the carrier, a tacky substance impermeable to the easily meltable substance printed in the form of a design on the carrier, a layer of coloring matter on the impermeable substance, a second layer of impermeable substance superposed upon the coloring matter and registering with the first layer of impermeable substance, and a coating of adhesive material impressed upon the second layer of impermeable substance.

3. As an article of manufacture, a decalcomania comprising a carrier coated with wax, a design printed on the wax in a substance impermeable to the wax when melted, a coloring matter placed upon the design while in a tacky condition, a layer of impermeable substance placed upon the coloring matter in registration with the design, and an adhesive tacky when heated spread upon the upper layer of impermeable substance.

4. The process of making a decalcomania which consists in applying a coating of wax to a paper, impressing upon the waxed paper a substance impermeable to the wax in the form of a design, putting upon the impermeable substance while it is in a tacky condition a coloring matter, impressing upon the coloring matter in registration with the design a second impermeable substance, and spreading over the design an adhesive which is tacky in the presence of heat.

5. The process of making a decalcomania which consists in coating a carrier with an easily meltable substance, impressing upon the carrier an impermeable substance in the form of a design, applying to the design while it is in a tacky condition a coloring matter, covering the coloring matter with an impermeable substance in registration with the design, and applying to the second impermeable substance while it is in a tacky condition a powdered adhesive which is tacky in the presence of heat.

6. The process of making a decalcomania which consists in coating a paper with wax, printing a design upon the wax paper with a varnish impermeable to the wax when melted, applying to the varnish while it is tacky powdered bronze, printing upon the powdered bronze and in registration with the design a second layer of impermeable varnish, and applying an adhesive to the second layer of varnish while the latter is in a tacky condition.

7. The process of making a decalcomania, which consists in coating a carrier with an easily meltable substance, impressing upon the carrier in the form of a design a substance composed of three parts of printing gloss varnish, one and a half parts of varnish consisting of acetone and a slow-drying material, applying to the design while it is in a tacky condition powdered bronze, impressing upon the powdered bronze in registration with the design a substance composed of one-half part of copal varnish and one-half part of printing gloss varnish and strewing upon this substance while it is in a tacky condition a powdered adhesive which becomes tacky in the presence of heat.

8. As an article of manufacture, a decalcomania comprising a carrier, an easily meltable substance coating the carrier, a varnish printed upon the carrier in the form of a design and comprising three parts of printing gloss varnish and one and a half parts of another varnish consisting of acetone and a slow-drying material, a layer of bronze powder on the varnish, a second layer of varnish on the bronze and registering with the first layer of varnish and comprising one-half part of copal varnish and one-half part of printing gloss varnish, and a coating of adhesive material on the second layer of varnish.

9. A decalcomania transferable by the application of heat and pressure comprising a carrier coated with wax, a design displayed in a non-vitrifiable substance which is impermeable to the wax when melted and an adhesive coating on the design.

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