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F. W. HUMPHNER

2,190,405

DECALCOMANIA

Filed July 25, 1938

Fig. 1.

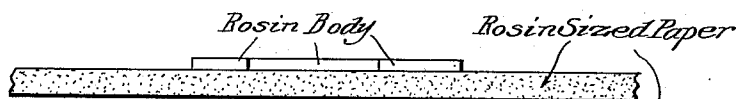


Fig. 2.

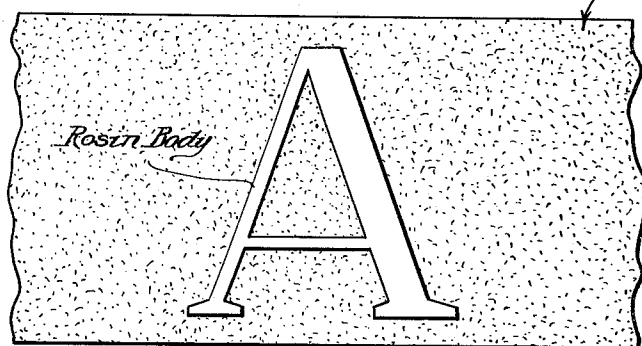


Fig. 3.

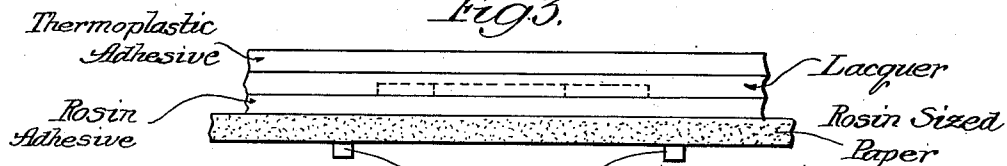
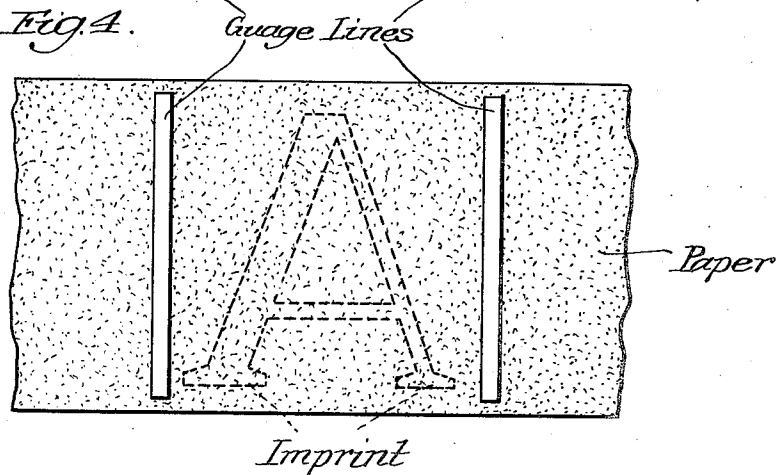


Fig. 4.



Inventor:
Ferdinand W. Humphner,
By *Chritton, Mills, Davies, Kirsch & Dawson,*
Attys

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DECALCOMANIA

Ferdinand W. Humphner, Oak Park, Ill., assignor
to Mid-States Gummed Paper Co., Chicago, Ill.,
a corporation of Delaware

Application July 25, 1938, Serial No. 221,221

11 Claims. (Cl. 41—33)

This invention relates to a decalcomania and the like.

Thermoplastic adhesive decalcomanias have been heretofore employed in which wax mixed with various ingredients has been used as the thermoplastic adhesive. Such products, however, have been found unsatisfactory and have not gone into commercial use. The wax provides a release, but forms an unsubstantial supporting base for the imprint with the result that a clean and clear, sturdy transfer is not produced. Furthermore, the wax melts freely in large areas, tending to break the imprint during the operation of transferring and to form an unsightly and irregular body about the imprint. The desired decalcomania product is one in which the entire body is removed from the paper forming a tenacious and sturdy transfer.

An object of this invention is to provide a type of printed paper in combination with a transfer thermoplastic material or adhesive which enables a print to be transferred to paper, cloth, etc., the imprint being one which is not affected by water and which cannot be scratched off. A further object is to provide a transfer which can be accurately freed from the paper without affecting other areas. A further object is to provide a transfer equipped with a film of heat resisting lacquer, either clear, opaque, etc. Other specific objects and advantages will appear as the specification proceeds.

The invention is illustrated in preferred embodiments by the accompanying drawing, in which—

Figure 1 is a side view in elevation of a decalcomania embodying my invention; Fig. 2, a plan view of the same; Fig. 3, a side view in elevation of a modified form of decalcomania embodying my invention; and Fig. 4, a plan view of the structure shown in Fig. 3.

I have discovered that an effective and controllable decalcomania can be formed through the use of very simple combinations. For example, I have found that by employing a thin sheet of rosin-sized paper, together with a rosin body thereon which serves either as the transfer proper or as an adhesive supporting a heat resisting body, that excellent results can be obtained. The rosin-sized paper in combination with the rosin body thereon seems to bring about the unexpected result of causing the rosin body to be transferred and separated completely from the rosin-sized paper while substantially preventing the rosin body or any portion of it from sinking into

the paper. At the same time, the release is sure and accurate, only that portion of the rosin body on the opposite side of the heating instrument being released. Why the combination of a rosin-sized paper and a body of rosin thereon produces these results, I shall not attempt to explain or set forth the theory. The fact is that a complete, thorough and accurate transfer is readily effected so as to form upon the cloth or paper a tenacious and complete transfer, leaving the rosin paper free. The whole operation is made complete through the use of the two materials, namely, rosin-sized paper and the rosin body or the like. In practice, the rosin body is normally provided with a pigment. It will be observed that the rosin body forming the transfer not only forms the imprint but also serves as its own adhesive for fixing it to the new surface. In other words, through the use of a rosin sizing on the thin paper, the heated rosin body tends to separate from the rosin-sized paper and fixes itself preferentially and in permanent form upon the new surface. To effect the transfer, heat is applied to the side of the paper opposite to that to which the rosin body is secured. The heating operation is carried out in the ordinary manner used with thermoplastic transfers, usually by applying a heated iron to the exposed paper surface.

As one application of the invention, I find that a word, such as a college name, can be formed through the use of a rosin body on a rosin-sized paper and the name completely transferred to a shirt or sweater so as to form thereon a perfect imprint which cannot be removed by washing or scraping. Likewise, designs of all types, colored or uncolored, can be readily transferred to cloth, paper, and other surfaces.

In the modification shown in Figs. 3 and 4, I employ with a rosin-sized paper, a rosin adhesive thereon, together with a heat resisting lacquer upon the adhesive and an imprint carried by the lacquer resting upon the adhesive. On the outer side of the lacquer is a thermoplastic adhesive of any suitable type. On the bottom side of the paper are gauge lines which enable the operator to accurately determine where the heat should be applied for releasing the letter or design on the opposite side thereof. With this construction, a lacquer body is released upon the application of heat and the same may be applied to a surface by the thermoplastic adhesive on the outer side of the lacquer. If desired, the adhesive on the inner side of the lacquer may be employed as the bonding medium.

If desired, the over-all film of lacquer may be eliminated and a supporting film placed merely over the imprint.

It will be understood that the imprint may be directly upon the rosin adhesive and supported thereby or the rosin adhesive itself may be employed as the transfer.

For satisfactory results, I prefer to employ as the base paper a thin sheet of rosin-sized paper weighing approximately eight pounds to twelve pounds per ream folio. This light or thin paper, which is almost tissue paper, forms a very effective base for the rosin or thermoplastic adhesive. It prevents the rosin from flowing into the paper while at the same time, for some reason, causing the rosin to lose its preference for the rosin-size sheet and cling to the new surface. The rosin sizing which, for the purpose of illustration, is shown somewhat as a separate layer, is in effect part of the paper, forming an external coating of all the fibers.

The rosin body or adhesive which I have found may be successfully used consists of a rosin or a combination of rosins having a melting point of 100° F. and upward. This will be varied according to the speed of operation required. I also incorporate resins of different types so as to lower the temperature required for application or to increase the rate of flow on to different surfaces. The transfer may be made upon many surfaces, such as cloth, paper, metals, etc. With respect to the rosin or resin forming the thermo release base, one may employ a rosin or a resin, or both in combination, either natural or artificial, which, by itself or in combination with compatible materials, has a melting point within the range of 100° F.

While in the foregoing specification, I have set forth specific materials, it will be understood that those skilled in the art may vary the combinations and employ equivalent substitutes without departing from the spirit of my invention and, in the appended claims, I intend to cover all equivalents which may be thus used.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible, in view of the prior art.

I claim:

1. A heat-responsive decalcomania comprising a rosin-sized paper, and a rosin imprint thereon.

2. A heat-responsive decalcomania comprising a rosin-sized thin paper, and a pigmented rosin body thereon, releasable therefrom for application to another surface upon the application of heat to said paper.

3. A heat-responsive decalcomania comprising a rosin-size paper, a rosin adhesive carried thereby, and a pigmented imprint carried by said adhesive.

4. A heat-responsive decalcomania comprising a rosin-sized paper, a thermoplastic adhesive thereon, an imprint upon said adhesive, and a heat-resisting body carried by said imprint when forming a supporting body therefor.

5. A heat-responsive decalcomania comprising a rosin-size, a thermoplastic adhesive thereon, an imprint upon said adhesive, and a heat-resisting body carried by said imprint and forming a supporting body therefor, said supporting body being provided on its outer surface with a thermoplastic adhesive surface.

6. A heat-responsive decalcomania comprising a rosin-sized paper, a rosin adhesive thereon, a heat-resisting body upon said rosin, and an imprint upon said body.

7. A heat-responsive decalcomania comprising a rosin-sized paper, a rosin layer thereon, a heat-resisting body upon said rosin, an imprint carried by the bottom portion of said body, and a heat-responsive adhesive carried by the top portion of said body.

8. A heat-responsive decalcomania comprising a rosin-sized paper, a rosin layer over said paper, an imprint on said adhesive, a heat-resisting lacquer extending over said rosin, and a thermoplastic adhesive over said lacquer.

9. A heat-responsive decalcomania comprising a rosin-sized paper, a rosin imprint on the one side thereof, and gauge lines on the opposite side of said paper, said gauge lines indicating the area to be heated for the release of the imprint on the opposite side thereof.

10. A heat-responsive decalcomania comprising a rosin-sized paper, a rosin adhesive thereon, an imprint carried by said adhesive, and a supporting body for said imprint, said paper being provided on the side opposite said imprint with gauge lines indicating the area to be heated for the release of said imprint.

11. A heat-responsive decalcomania comprising a rosin-sized paper, and a rosin transfer body carried by said paper.

FERDINAND W. HUMPHNER.

CERTIFICATE OF CORRECTION.

Patent No. 2,190,405.

February 13, 1940.

FERDINAND W. HUMPHNER.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 16, claim 5; for the words "a rosin-size" read a rosin-sized paper; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of March, A. D. 1940.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.