March 20, 1934. J. MacLAURIN 1,951,620

DECALCOMANIA PAPER

Filed Sept. 21, 1931

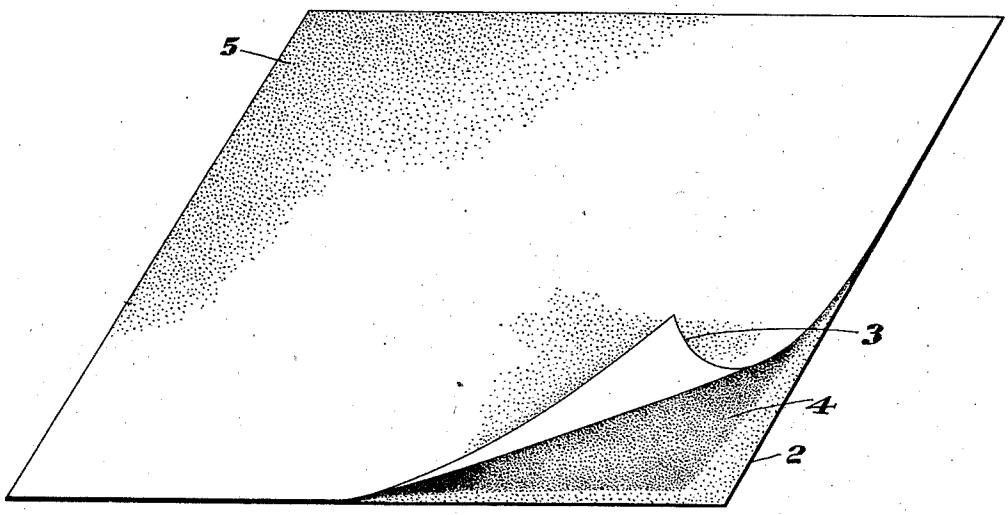


Fig. 1



Fig. 2

INVENTOR:
John MacLaurin,
BY
[illegible]
ATTORNEY.

Patented Mar. 20, 1934 1,951,620

UNITED STATES PATENT OFFICE

1,951,620

DECALCOMANIA PAPER

John MacLaurin, Ware, Mass.

Application September 21, 1931, Serial No. 564,148

8 Claims. (Cl. 41—33)

This invention relates to the manufacture of decalcomanias and is more especially concerned with papers designed for use in this work and to methods of making such papers.

It is the chief object of the invention to improve decalcomania papers with a view to facilitating the use of decalcomanias in the application of designs to articles having curved or irregular surfaces such, for example, as articles of pottery.

The application of decalcomania designs to articles of the character just mentioned necessitates the printing of the designs on a very thin and highly flexible sheet of paper or equivalent material. At the same time such a sheet should be pervious to water. These facts naturally suggest the use of unsized tissue or similar papers, but such papers are so thin and relatively weak that it is a rather difficult matter to handle them. In order to overcome this difficulty and at the same time to retain the advantage of papers of this character, I combine a sheet of tissue or other flexible and relatively porous paper with a stronger backing sheet through the medium of an adhesive which will permit the separation of the two sheets when it is desired to use the decalcomania.

According to the method of manufacture which I prefer at present, a sheet of fairly strong backing paper, such for example as a sized bond paper, is first given a thin coating of rubber latex. This coating is allowed to dry until the greater part of the water, ammonia, or other liquid in which the particles of rubber are dispersed has been evaporated. The sheet of tissue or other facing paper then is combined with the backing paper by pressing the facing sheet against the coating of rubber latex. This operation may be performed by passing both sheets simultaneously through a hot calender which serves to press them together while the heat of the calender rolls renders the latex coating sufficiently tacky to cause the tissue facing sheet to adhere to it.

It may here be pointed out that it is desirable to produce a much stronger union between the latex and the backing sheet than between the latex and the facing sheet, so that later the backing sheet together with its coating of adhesive may be stripped off the facing sheet without leaving any substantial amount of latex adhering to the latter sheet. This is accomplished in the process above described by applying the latex first to the backing sheet and allowing it to dry thereon, and subsequently uniting the facing sheet by rendering the coating of latex residue temporarily tacky, either by the application of heat, as above stated, or by applying a very limited quantity of solvent to the surface of the latex coating.

After the combining operation, the surface of the tissue or facing sheet may then be coated with a water soluble gum or other adhesive such as those used on decalcomania papers to provide a surface suitable for taking the decalcomania printing. When this coating has dried the paper is ready to be shipped to the decalcomania manufacturer. He prints his designs on the gummed surface of the flexible facing sheet in the usual manner. Before the user applies the decalcomania to pieces of pottery or other articles of work, he separates the facing sheet from the backing. This operation is very easily performed due to the fact that the union or bond between the facing sheet and the adhesive coating on the backing sheet is relatively weak. When so separated, the facing sheet and the design which it carries may easily be applied to the work, and such application is facilitated because of the very flexible nature of the facing. At the same time all of the handling operations up to this point are facilitated by the presence of the stronger and more substantial backing sheet.

A product made in accordance with this invention is illustrated in the accompanying drawing, in which

Figure 1 is a perspective view of a portion of a decalcomania sheet embodying features of the invention; and

Fig. 2 is a cross-sectional view of the sheet, the thickness of the elements being greatly exaggerated.

In these figures the backing sheet is indicated at 2, the tissue sheet at 3, the intermediate coating of latex or equivalent adhesive at 4, and the coating of water soluble gum or other adhesive carried by the tissue sheet is shown at 5.

While it would be entirely possible to coat the tissue or other facing sheet with gum so as to prepare it for decalcomania printing before this sheet is combined with the backing sheet, it is preferable to delay this operation until after the combination of the two sheets has been effected because of the difficulty in handling the tissue sheets alone.

It will be evident also that the foregoing embodiment of the invention is susceptible of modification in other respects without departing from the spirit or scope thereof. For example, other adhesives may be substituted for the rubber la-

tex. These may be of a rubbery nature similar to those used, for example, in the manufacture of friction tape, surgeon's tape, and the like, or they may be of a bituminous or resinous nature. A wide variety of adhesives may be used for this purpose, as will be evident to those skilled in this art. It is preferable, however, to use a water resistant adhesive so that the adhesive coating initially applied to the backing strip will not be substantially affected by the subsequent application of the gum coating to the surface of the facing sheet.

Having thus described my invention, what I desire to claim as new is:

1. A decalomania paper comprising a sheet of paper having a high degree of flexibility, a coating on said paper suitable for decalomania printing and adhesively joined to said sheet by a water soluble union, and a backing sheet having greater strength than said flexible sheet and fastened to the surface of said flexible sheet opposite to said coating by a coating of a water resistant adhesive which forms a relatively weak union with said flexible sheet.

2. A decalcomania paper comprising a backing sheet of paper, a flexible facing sheet of paper, and a coating of a water resistant adhesive bonding said sheets together and having a relatively weak union with said flexible sheet and a stronger union with said backing sheet whereby it may be readily separated from said facing sheet, said facing sheet having a surface adapted for decalcomania printing.

3. A decalcomania paper comprising a sheet of paper having a high degree of flexibility, a coating on said paper suitable for decalcomania printing and adhesively joined to said sheet by a water soluble union, and a backing sheet of paper having greater strength than said flexible sheet and united to the surface of said flexible sheet opposite to said coating by a water resistant adhesive, said adhesive having a readily releasable union with said flexible sheet and a stronger union with said backing sheet.

4. That improvement in methods of making decalcomania papers which consists in coating a sheet of backing paper with a water resistant adhesive dispersed in a volatile liquid medium, drying said coating sufficiently to evaporate the greater part of said medium, releasably securing a flexible facing sheet to said backing sheet by pressing it against the surface of said coating while said coating is sufficiently tacky to form a relatively weak union with said flexible sheet, and subsequently coating said flexible sheet with a water soluble adhesive to form a coating thereon suitable for decalcomania printing.

5. That improvement in methods of making decalcomania papers which consists in coating a sheet of backing paper with a water resistant adhesive dispersed in a volatile liquid medium, drying said coating, releasably securing a facing sheet to said backing sheet by pressing one surface of the facing sheet against said coating while the coating is sufficiently tacky to form a relatively weak union therewith, and subsequently applying to the opposite surface of said facing sheet a coating of a water soluble adhesive suitable for decalcomania printing.

6. That improvement in methods of making decalcomania papers which consists in coating a sheet of backing paper with rubber latex, releasably securing a flexible facing sheet to said backing sheet by pressing it against the surface of said coating while said coating is sufficiently tacky to form a relatively weak union with said flexible sheet, and at some stage in the process coating the surface of said flexible sheet opposite to said adhesive with a material suitable to adapt the latter sheet for decalcomania printing.

7. A decalcomania paper comprising a highly flexible sheet of paper provided on one side thereof with a surface coating suitable for decalcomania printing, and a backing sheet united by a readily releasable water resistant union to the surface of said paper opposite to the surface therof on which said decalcomania printing is to be performed.

8. A decalcomania paper comprising a highly flexible sheet of paper provided on one side thereof with a surface coating suitable for decalcomania printing, and a backing sheet united to said flexible sheet by a coating of water resistant adhesive in which a rubber constituent is an important element.

JOHN MacLAURIN.