Oct. 6, 1931. R. TULL 1,826,228

DECALCOMANIA

Filed Nov. 7, 1928

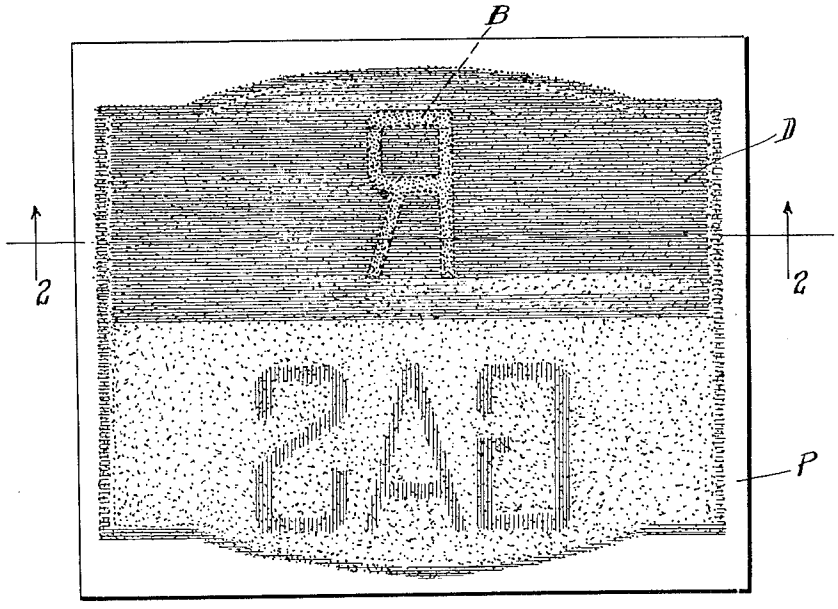


Fig. 1

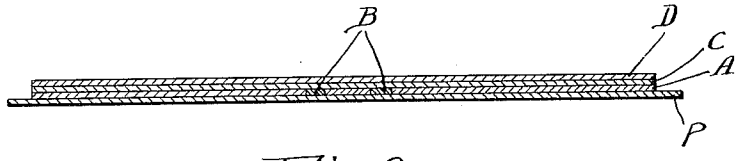


Fig. 2

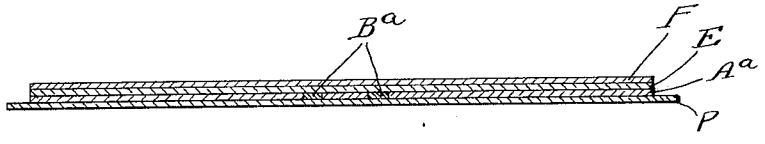


Fig. 3

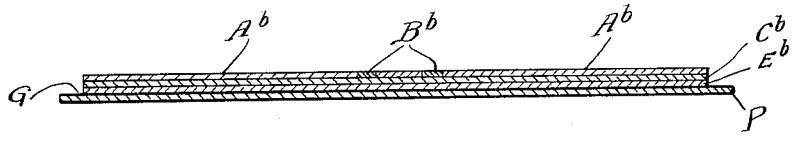


Fig. 4



Fig. 5

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Patented Oct. 6, 1931 1,826,228

UNITED STATES PATENT OFFICE

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DECALCOMANIA

Application filed November 7, 1928. Serial No. 317,703.

This invention relates to decalcomanias.

Heretofore decalcomanias have been made by pressing paint through a stencil screen or screens upon prepared decalcomania paper, and it is an object of this invention to provide a method and means whereby decalcomanias may be printed from stencil screens by the use of a nitro-cellulose compound.

One great advantage of decalcomanias printed with a nitro-cellulose compound is that the color coat, or coats, is much tougher than a color coat produced by paint, thus producing a decalcomania that can be more easily handled without destroying or injuring the same. This, of course, is a great advantage where decalcomanias are of relatively large dimensions. This invention enables decalcomanias to be made of any practical size so that it is possible to use them in place of large lithographs of the character heretofore mounted, for example, on billboards.

Another important object is a large reduction in the amount of time required for drying between the different color runs, thus making it possible to print a job in any number of color runs in much less time than formerly.

Other objects and advantages will appear in the subjoined detailed description.

The accompanying drawings illustrate the invention.

Figure 1 is a plan view of a decalcomania embodying the invention.

Figure 2 is a horizontal section on the line indicated by 2—2, Fig. 1, the thickness of the paper and of the various coats being more or less exaggerated. This is a reverse or inverted opaque type of decalcomania.

Figure 3 is a sectional view, similar to Fig. 2, of a reverse or inverted transparent type of decalcomania embodying the invention.

Figure 4 is a sectional view, similar to Fig. 2, of a slip-off type of decalcomania embodying the invention, and Fig. 5 is a sectional view similar to Fig. 2 of a decalcomania embodying a modified form of the invention.

Fig. 5 is similar to Fig. 4, illustrating a decalcomania including paper P, one color coating x which may be formed from the compound described as No. 6, this containing the same materials as coating compound No. 2 except for the substitution of printers ink for the color pigment. A second color coat Ac may be employed, this coating being similar to that described as compound No. 2 with a color pigment different from the printers ink. A third coating Cc may next be applied while a top coating Dc may then be applied.

For printing the decalcomanias, I make the following compounds:

I produce a nitro-cellulose color compound by mixing together nitro-cellulose, a gum, a plasticizer and a solvent. The amounts of the various ingredients may be, for example, two pounds of the nitro-cellulose dissolved in one gallon of the solution, and one-half pint each of the gum and plasticizer to one gallon of the nitro-cellulose solution. Examples of the gum, plasticizer and solvent that I have successfully employed in this compound are, respectively, ester gum, dibutylphthalate, and ethyl oxybuterate. This compound is identified as No. 1 and is, of course, substantially transparent. This compound, besides being employed alone in some instances, is the vehicle that carries the color pigments and, accordingly, pigments of any color or combination of colors are mixed with some of No. 1 compound to produce a compound identified as No. 2.

No. 3 compound consists of oil paint ground in varnish and the proportions may be, for example, 75% varnish to 25% color pigment. This compound is approximately impervious to air and may be otherwise produced so long as the substances are of a kind that dry by oxidation so that when dry it is flexible.

No. 4 compound is made by mixing varnish, elastic glue and metallic powder and the proportions, approximately, may be 49% varnish, 49% elastic glue and 2% metallic powder.

No. 5 compound consists of varnish and elastic glue and the proportions may be equal quantities of each.

No. 6 compound consists of a mixture of No. 1 compound with printer's ink and the proportions may be, for example, 75% No. 1 compound and 25% printer's ink.

The printing operations are as follows:

Assuming that a reverse or inverted opaque type of decalcomania, shown in Figs. 1 and 2, is to be printed, the stencil screens to be employed, and well understood in the stenciling art, are prepared so as to read backwards. A sheet of decalcomania paper P is placed beneath the stencil screen and No. 2 color compound is forced through said screen onto said paper to produce the color coat A. This printing is allowed to dry for approximately fifteen minutes, and another color run will then be made with No. 2 compound of a different color or shade of color on the decalcomania paper that has already been printed, as above, to produce the color coat B. In this instance, the coat A is a part of the background color and the coat B forms the letter R. The different color runs are thus made in rotation until all of the colors in the original design from which the stencil screens were made, have been printed and have properly dried between the printing operations.

After the different color coats have been printed, as above described, the reinforcing or toughening coat will be printed on the decalcomania, so that said decalcomania can be readily handled without injury thereto when said decalcomania is being applied to a supporting surface, in a manner well understood in this art. This reinforcing coat may also be employed for strengthening or brightening the color and, for that reason, it is generally made of a color that corresponds to the color of the last color coat that was printed with the No. 2 compound. To print this coat, the print produced as above described will be placed beneath the stencil screen employed for the last color run, after said screen has been cleaned, or may be placed beneath another screen, and No. 3 compound will be forced therethrough, thus producing a transparent coat C that is approximately impervious to air and the screen will then be cleansed and, after the reinforcing coat is dry, the print will again be placed beneath the same screen or another one, and No. 4 compound will be pressed through said screen so as to provide the decalcomania with a coat D that will have an adhesive nature when dampened with water. This coat dries and, when it is desired to mount the decalcomania on a supporting surface, this final coat D is dampened by rubbing thereover a wet sponge.

Assuming that a reverse or inverted transparent type of decalcomania, shown in section in Fig. 3, is to be printed, the color printing with No. 2 compound will first be effected the same as above described to produce the color coats A*a*, B*a*, and, after drying, the prints thus made will again be placed beneath the screen or screens used for printing the coats A*a*, B*a*, or beneath another screen and No. 1 compound will be forced therethrough, thus producing a clear coat E. The screen will then be cleansed and the printing allowed to dry and the dried print will then again be placed beneath the same screen or another screen and No 5 compound forced therethrough to produce the coat F. This No. 5 compound, being devoid of metallic powder, is transparent.

To produce the slip-off type of decalcomania shown in section in Fig. 4, the decalcomania paper will be placed beneath a suitable screen and No. 1 compound will be pressed through said screen upon said paper to produce thereon the coat E*b*. The print thus made will be allowed to dry and will then be placed beneath the same screen or another one and No. 3 compound will be forced through said screen to produce the coat C*b*. The print thus made will be allowed to dry and will then be again placed beneath the same screen or a different one and No. 2 compound will be forced through said screen to produce the color coat A*b*. Other color runs of different colors will then be run off in the same manner until all of the desired colors have been printed. In Fig. 4 two color coats are shown, the color coat A*b* and the color coat B*b*. The decalcomania paper has on the surface, that is presented to the mounting surface, an adhesive coating G that is applied thereto by the manufacturer of the paper.

In the foregoing described printing operations, the printing has been effected entirely by the use of screens, but it is to be understood that, in lieu of printing with the screen, the printing may be done on a printing press by the use of No. 6 compound. The press printing is preferably resorted to for those coats in which relatively fine detail appears. Thus, all of the coats may be printed on a printing press, or all of them may be printed by use of the screens, or some of them may be printed on the press and some by the use of the screens.

It is to be understood that, although I have described the reproduction as being made on decalcomania paper, it may be produced on cardboard, sheet metal or any other suitable material.

In describing the method, reference has been made to first, second and third screens. This numerical designation of the screens is only for the purpose of clarity of description of the operations of printing the different coats and it is to be understood that a single screen may be employed by first cleaning it and then reblocking out portions of its surface or that, in some instances, different screens may be represented by a single screen used in printing different compounds.

I claim:

1. A decalcomania characterized in that it includes decalcomania paper, and a design thereon having a coat including nitro-cellulose, gum, plasticizer, a solvent and color

pigments, and having a second coat including oil paint ground in varnish.

2. A decalcomania characterized in that it includes decalcomania paper, and a design thereon having a coat including nitro-cellulose, gum, plasticizer, a solvent and color pigments, and having a second coat including oil paint ground in varnish, and having a third coat including varnish, elastic glue and metallic powder.

3. A decalcomania comprising decalcomania paper, and a design thereon having a coat including nitro-cellulose, gum, plasticizer, a solvent and printer's ink, and having a second coat including nitro-cellulose, gum, plasticizer, a solvent and color pigments, and having a third coat including oil paint ground in varnish, and having a fourth coat including varnish, elastic glue and a metallic powder.

4. A decalcomania characterized in that it includes decalcomania paper, and a design thereon, having a coat including nitro-cellulose, gum, plasticizer, a solvent and color pigments, and having a coat that is approximately impervious to air.

5. A decalcomania characterized in that it includes decalcomania paper, and a design thereon having a coat including nitro-cellulose, gum, plasticizer, a solvent and color pigments, and having a second coat that is approximately impervious to air, and having another coat including varnish, elastic glue and metallic powder.

6. A decalcomania comprising decalcomania paper, and a design thereon having a coat including nitro-cellulose, gum, plasticizer, a solvent and printers ink, and having another coat including nitro-cellulose, gum, plasticizer, a solvent and color pigments, and having another coat that is approximately impervious to air, and having another coat including varnish, elastic glue, and a metallic powder.

Signed at Los Angeles, California, this 15th day of Sept., 1928.

ROGER TULL.