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PROCESS OF TRANSFERRING DESIGNS
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10 Claims. (Cl. 41—33)

This invention relates to a process for transferring colored or plain designs, pictures or printed matter to rubber, of the type described in our prior application of like title, Serial No. 18,966 filed April 29, 1935.

An object of the invention is to provide a process for transferring designs, portions of which may be in different colors onto a rubber sheet or dam in such a manner that the design will not rub off, will be flush with the sheet, will stretch or flex with the sheet and will not injure or weaken the sheet.

Another object of the invention is to provide a process for forming colored ornamentations for rubber articles and goods such as bathing suits, bathing caps, shoes, gloves, rubbers, rain-coats, aprons, rubber sheets, hot water bottles, novelties, toys, etc., which is simple, inexpensive and should not need extensive equipment.

For a detailed disclosure of the nature of the invention, reference is had to the following specification in which the invention is described as applied to the transfer of a colored design such as a picture, emblem or other mark to a rubber sheet and the application of such a rubber sheet to another article.

Broadly, the invention concerns the dipping of a printed paper sheet embodying the desired design into a bath of liquid latex, spraying with a stabilizer such as alcohol to rid the sheet of defects, drying the sheet in an absence of pressure by natural or forced drying to produce a tacky rubber latex sheet with the design thereon and thoroughly washing the paper sheet off with water or liquids of suitable temperatures. The latex used in the process is a commercial product and may be obtained at any desired viscosity, percent total solid contents or compounded with suitable solubles to impart desired characteristics to the product as is usual in the rubber industry. Uncoagulated latex is preserved, after exudation from the tree, by the addition of the alkaline, ammonia, which we find is beneficial in completing the transfer.

In carrying out the process, a paper sheet on which the design has been printed such as colored newsprint, is dipped by hand or mechanically into a bath of liquid latex of low viscosity and high in percent total solids. Dipping the design is specified and recommended because a frictionless process is desirable due to the fact that latex is coagulated and unfavorable to rubbing, spraying, brushing, passage through orifices, etc. This latex, used in the compounded, vulcanized or natural or natural plus preservative

state, coming in contact with the face of the paper bearing the picture or design, adheres to the paper sheet in the form of a rubber film or coating of uniform thickness overlying said paper sheet. Before dipping, a stabilizer such as de-natured alcohol or similar liquids may be introduced in the form of a fine spray. This stabilization assists in the subsequent removal of the paper sheet. The above step may take place after the dipping operation causing the rubber film to become smooth and devoid of imperfections. After dipping, the rubber film is dried using no pressure other than atmospheric and is now in the form of a tacky sheet. During the drying stage, the alkaline preservative in conjunction with the stabilizer tends to act as a solvent for the ink in the design and with their evaporation the design recedes from the paper sheet, impregnates the rubber sheet and becomes a permanent imperishable part of the rubber sheet. In other words, the rubber sheet is dyed fast with the design and may be washed without damage with ordinary cleansing agents.

Absolutely no pressure is needed or is desirable other than atmospheric pressure during the drying stage and although the natural process of air drying may be accelerated by the application of heat, it is simply essential that the liquid film be allowed to dry undisturbed until a tacky stage is reached.

The rubber sheet may be formed initially thick or thin depending on the viscosity of the latex. If desired, the design may be sealed between two layers of rubber latex by dipping the additional layers of latex upon the face of the rubber sheet bearing the design or a plurality of coatings or dippings applied to the back of the rubber sheet to obtain any desired thickness. The design may be affixed to the article to be ornamented by the use of rubber adhesives or the completed design may be placed on top of the article to be identified, in the mould, and continuing the moulding operation to completion.

The rubber sheet should be handled in the sticky or tacky stage until the desired thickness is obtained. The product may then be finished with chalk, aqueous bromine or chlorine, which permanently removes the adhesive qualities of the latex sheet.

The rubber sheet is separated or released from the paper design by reducing the latter to a pulpy condition. It is important to note that this is done by washing the paper sheet off the rubber sheet with water or other liquid releasing agents of certain temperatures applied to latex-free por-

tions of the paper sheet. This is done in contrast to a mere stripping off of the paper which spoils the design and leaves the rubber surface fibrous.

By virtue of the process above outlined the surface smoothness of the design impregnated rubber sheets is practically guaranteed. Hitherto in the art fibers impregnated with ink are buried in the rubber. This process gets rid of this fiber condition in its entirety and produces a smooth glazed sheet devoid of fibers.

From the above description it is thought that the steps of carrying out the process will be fully understood without further explanation.

What is claimed is:

1. A process for transferring ink designs to rubber consisting of passing an inked paper design through fluent latex thereby forming a film or succession of films on said paper design, drying the film, soaking the resultant product to reduce the paper to pulp, and washing the pulp from the latex film.

2. A process for transferring ink designs to rubber consisting of dipping an inked paper design in latex, treating the product under atmospheric pressure after dipping by natural drying to produce a latex sheet with the design therein, and washing the paper off the sheet of latex.

3. A process for transferring ink designs to rubber consisting in passing the inked face of a paper design printed in color or colors through fluent latex to form a film, drying the film having the design impregnated therein, soaking the paper sheet with its latex film to reduce the paper to a pulp, and washing the pulp from the latex sheet.

4. A process for identifying rubber goods consisting of dipping in latex a paper sheet bearing a design printed in colors or colors, drying the product to produce a sticky rubber sheet having the colored design dyed fast therein, washing the paper sheet from the latex sheet, and applying the product to the article to be identified.

5. A process for transferring ink designs to rubber consisting of forming a film of latex in contact with a printed paper design, soaking the product to reduce the paper to pulp, and washing the pulp from the latex sheet.

6. A process for transferring ink designs to rubber consisting of dipping an inked paper design in latex, treating the product under atmospheric pressure by forced drying to produce a latex sheet with the design therein, and washing the paper off the latex sheet.

7. A process for transferring designs to rubber comprising applying fluent latex to a face of a paper sheet bearing a transferable design to form a film of latex thereon, drying the latex to produce a latex sheet overlying said paper sheet, and washing the paper sheet from said latex sheet.

8. A process for identifying rubber goods comprising forming a film of latex in contact with a face of a paper sheet bearing a transferable design, drying the product to produce a latex sheet overlying said paper sheet, washing the paper sheet from the latex sheet, and applying the resulting latex sheet to the article to be identified.

9. A process for transferring designs to rubber comprising forming a film of latex in contact with a design printed on a paper sheet, drying the latex, and washing the paper sheet from the latex with a liquid releasing agent applied to latex-free portions of said paper sheet.

10. A process for transferring designs to rubber comprising applying fluent latex to a face of a releasable sheet medium bearing a transferable design to form a film of latex on one face of said medium in contact with said design, drying the latex, and washing said sheet from said latex with a liquid releasing agent applied to the back of said sheet medium.

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