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3,350,254

PICTURE LIFTING METHOD

Filed Oct. 2, 1964

FIG. 1

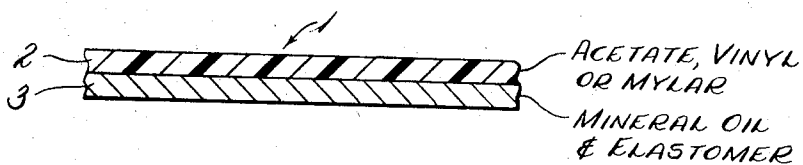


FIG. 2

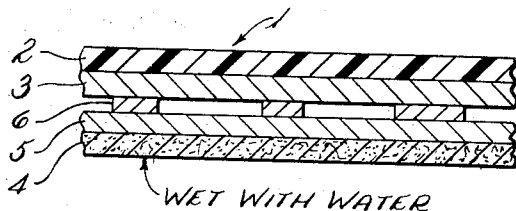
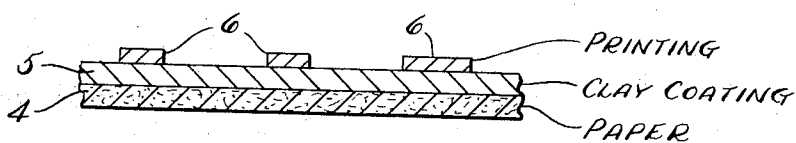


FIG. 3

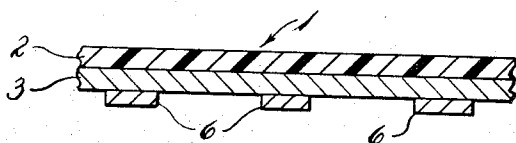


FIG. 4

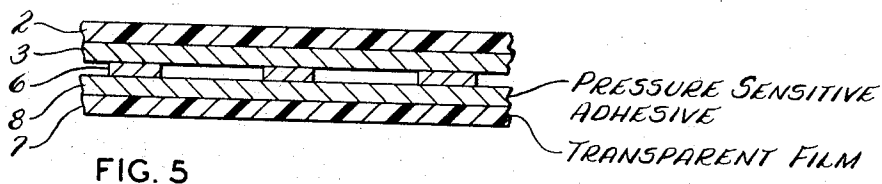


FIG. 5

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PICTURE LIFTING METHOD

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ABSTRACT OF THE DISCLOSURE

A method for picking up printed data carried on a paper sheet by pressing against the sheet a laminate comprised of an inert, transparent plastic base sheet and a homogeneous layer of oil, resin, and an elastomer, which layer wets the printed data and frees it from the paper sheet to allow the printed data to adhere to the laminate as it is peeled away from the paper sheet.

The present invention relates to a novel and improved method of lifting a picture from a coated sheet of paper having a printed picture or other data appearing thereon, which method is adapted for transferring a picture from one surface over onto another surface, or for use in preparing a transparent laminate having the picture appearing therein, which laminate could be used for projection purposes.

The general object of the present invention is to provide a novel and improved method of lifting or picking up a picture from, for example, a clay coated sheet of paper on which the picture appears, and for ultimately presenting such picture, or printed data in a transparent laminate provided by the invention.

Another object of the invention is to provide a special oil-wetting type of an adhesive layer that is carried by a plastic film and which is adapted to pick up printed data carried on a clay coated paper sheet whereby when the clay coating is washed away from the paper sheet by being wetted with water, then the oil-elastomer-resin layer will carry the printed data when separated from the paper sheet on which the printed data initially appeared.

Another object of the invention is to provide a relatively easily practiced, inexpensive method by which a picture can be lifted from a coated surface of a paper sheet and then be used for other purposes, as desired.

The foregoing and other objects and advantages of the invention will be made more apparent as the specification proceeds.

Attention now is particularly directed to the accompanying drawings, where:

FIGURE 1 is an enlarged vertical section through a novel laminate forming an article for use in the practice of the method of the invention;

FIGURE 2 is an enlarged fragmentary vertical section through a typical paper sheet having a picture or other printed data appearing thereon with which the method of the invention is to be used;

FIGURE 3 shows the resulting structure when the laminates of FIGURES 1 and 2 are applied to each other or are brought into surface contact with each other, and the step of wetting the paper sheet with water is also indicated in FIGURE 3;

FIGURE 4 shows the structure produced when the paper sheet as shown in FIGURE 3 has been withdrawn

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from association with the remainder of the laminate after having been wetted thoroughly with water; and

FIGURE 5 is an enlarged fragmentary vertical section through the final laminate produced by the method of the invention and with the transferred or lifted picture being provided between the protective layers of the laminate.

When referring to corresponding members as shown in the drawings and referred to in the specification, corresponding numerals are used to facilitate comparison therebetween.

Generally speaking, the present invention relates to a novel method of lifting a picture from a coated sheet of paper and the method comprises, as one embodiment, the steps of applying a layer of oil-plasticized elastomer-resin mixture to a transparent plastic film, bringing such elastomer-resin layer into engagement with a printed surface of a clay coated paper sheet, allowing the elastomer-resin layer to wet the printed surface of the paper sheet, wetting the paper sheet with water from the surface opposite to the printed surface thereof to release the clay coating thereon and thus free the printed matter which thereafter adheres to the elastomer-resin layer, drying the plastic film and elastomer-resin layer, and applying an adhesive coated surface of a transparent plastic film to the printed matter carrying surface of the elastomer-resin layer to form a protective layer thereover and to form a laminate in which the picture transferred from the paper sheet now appears.

With reference to the details of the structure shown in the drawings, the novel laminate of the invention is indicated as a whole by the numeral 1. This laminate 1 comprises the sheet of a transparent, relatively inert plastic material, which sheet or plastic film 2 may be made from a vinyl material, a vinyl acetate, or Mylar (polyethylene terephthalate), or equivalent material and it has affixed to one surface thereof a layer 3 of an oil-plasticized elastomer-resin mix. This layer 3 may, for example, be made from 21 parts by weight of a polybutene oil, 100 parts of an elastomer such as that sold under the trademark name of "Vistanex" by Enjay Chemical Company of New York, New York, which is polyisobutylene composition, and 64 parts by weight of Piccolyte S 100, which is a terpene hydrocarbon resin sold by Pennsylvania Industrial Chemical Corporation of Clairton, Pennsylvania.

This resin supplies adhesive characteristics to the layer, and the elastomer is used to help to retain the mineral oil in the homogeneous layer carried by the plastic sheet 2. In making this layer 3 upon the plastic sheet 2, initially the various ingredients are brought together and are blended into a homogeneous mix so that a layer which may be, for example, several mils in thickness can be applied by conventional means to the plastic sheet 2 which likewise normally is only a few mils in thickness. It should be realized that any oil-elastomer-resin layer that has equivalent or similar physical properties so that the composition described may be used in the practice of the invention. It is believed that the use of the mineral oil as a plasticizer in this material provides some good mobility of the molecules in the layer to facilitate wetting or contacting surfaces with which such layer is brought into contact, all as hereinafter described in more detail.

The laminate 1 of the invention is particularly adapted for use in transferring a picture or printed data from one surface onto another or else to present such data or printed matter under different conditions for use. Thus, FIGURE

2 shows a paper sheet 4 that is of conventional composition and has a water soluble material, such as a clay coating or layer 5, on at least one face thereof. This clay coating or layer 5 has had certain printed indicia, or a picture 6 applied thereto.

In the practice of the invention, the laminate 1 is brought into contact forcibly with the layer of printed data 6, which action can be done by hand, or by placing or passing such assembly through a suitable conventional unit such as a pair of wringer, or pressure rolls. The resultant laminate shown in FIGURE 3 is then permitted to stand for suitable length of time and in this period the oil present in the layer 3 wets out of the layer 3 into good intimate contact with the pigments and matter forming the printed data or layer 6 so as to be in physical contact and engagement therewith. After such interval or oil wetting of the printed layer 6 has occurred, then the exposed surface of the paper sheet 4 is suitably wetted with water which passes through the sheet and loosens the clay layer 5 from the paper sheet 4 so as to permit the printed data 6 initially appearing on the clay layer 5 to be removed from association with the paper sheet by merely stripping the water wetted paper sheet from the laminate. Next the remainder, or any of the clay coating that may remain in association with the printed data 6 as transferred to the layer 3, may be washed therefrom by water by emersion or other careful application of water.

The oil and elastomer mixture comprising the layer 3 tends to continue to work into and flow through the layer of printed data 6 and this action is stopped and the laminate shown in FIGURE 4 provided for other use by applying a protective adhesive-coated sheet 2 to the transferred printed data. Thus, FIGURE 5 shows the final laminate of the invention which laminate shows that a second plastic film 7 having a suitable transparent pressure sensitive adhesive layer 8 thereon is brought into engagement with the layer 6 of printed data, or picture so as to form a protective surface thereover. This laminate shown in FIGURE 5 then can be used, for example, in a projector so as to project the printed data or picture 6 appearing therein, or if desired, the laminate shown in FIGURE 4 could be applied to another paper carrier sheet, or the like, which has a pressure sensitive adhesive thereon and merely be affixed thereto by suitable pressure application to the exposed surface of such sheet whereby the initial layer of printing 6 appearing on the sheet 4 could be transferred to the new or different carrier paper sheet on which the printed indicia or picture is desired to appear.

It will be realized that the thickness of the various layers in the different laminates of the invention are shown in exaggerated forms in the drawings and that all of these layers are very thin, and that no real spacing exists between the layer 3 and the layer 6 of printed data, such as when the laminate shown in FIGURE 3 is provided.

In making the oil-plasticized elastomer-resin mix, the amount of mineral oil used may be varied from about 11 to about 31 parts by weight to about 44 to about 84 parts by weight of the adhesive terpene resin in relation to 100 parts dry weight of the elastomer. The oil and resin are used proportionally. In the range stated, the oil will be retained in the elastomer and a homogeneous mixture can be obtained from which the oil and elastomer may move and/or slowly flow to bleed into a layer of printing, as described hereinbefore.

From the foregoing, it is believed that it will be seen that a novel and improved method of transferring a picture, or other printed data, from one sheet to another carrier sheet is provided by the invention and that an improved laminate has been provided for use in picture transfer, or lifting processes. Thus, it is thought that the objects of the invention have been achieved.

While one complete embodiment of the invention has been disclosed herein, it will be appreciated that modifi-

cation of this particular embodiment of the invention may be resorted to without departing from the scope of the invention as defined in the appended claims.

What is claimed is:

1. A method of lifting a picture from a clay coated sheet of paper comprising the steps of
 - applying a mixture of oil, a rubber elastomer, and resin to a transparent vinyl film,
 - applying the layer formed by the mixture to a printed surface of a clay coated paper sheet,
 - maintaining the layer formed by the mixture against the printed surface to allow the oil present in the mixture to wet out of the layer and into contact with the printed data of the paper sheet,
 - wetting the exposed surface of the paper sheet with water to release the clay coating thereon, the printed data remaining adhered to the layer formed by the mixture,
 - removing the paper sheet,
 - washing the printed data adhered to the layer formed by the mixture with water to remove any clay thereon, drying the resultant laminate, and
 - apply an adhesive coated surface of a transparent vinyl film to the printed data carrying surface of the layer formed by the mixture to form a protective layer thereover.
2. A method of lifting printing from a clay coated sheet of paper comprising the steps of
 - forming a homogeneous mineral mixture of oil, polyisobutylene elastomer, and terpene resin,
 - applying a layer of the mixture to a transparent polyethylene terephthalate film to form a laminate,
 - applying such mixture layer of the laminate to a printed surface of a clay coated paper sheet,
 - maintaining the laminate against the paper sheet to allow the mixture layer to wet the printed surface of the paper sheet,
 - wetting the exposed surface of the paper sheet with water to release the clay coating thereon away from the printed matter of the paper sheet, which printed matter adheres to the layer of the laminate formed by said mixture,
 - removing the paper sheet,
 - washing the printed matter adhered to the laminate with water to remove any clay thereon, and
 - applying an adhesive coated surface of a cover sheet to the laminate over the printed matter adhered thereto to form a protective layer thereover.
3. A method as in claim 2 including the steps of
 - forming said mixture from about 11 to 31 parts of mineral oil, from about 44 to 88 parts of the terpene resin, in relation to about 100 parts of the polyisobutylene elastomer, all parts being by weight.
4. A method of lifting a picture from a clay coated sheet of paper comprising the steps of
 - applying a homogeneous layer of a mineral oil plasticized rubber-elastomer-resin mixture to a transparent, inert plastic film,
 - applying such oil-elastomer-resin layer to a printed surface of a clay coated paper sheet,
 - allowing the oil-elastomer-resin layer to wet the print on a surface of the paper sheet,
 - wetting the paper sheet with water to release the clay coating thereon and thus free the printed matter which adheres to the elastomer-resin layer,
 - removing the paper sheet, and
 - applying an adhesive coated surface of a transparent plastic film to the printed matter carrying surface of said oil-elastomer-resin layer to form a protective layer thereover.
5. A method of lifting a picture from a clay coated sheet of paper comprising the steps of
 - applying a homogeneous layer of a mineral oil plasticized rubber-elastomer-resin mixture to a trans-

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parent, inert plastic film made from a material from the group consisting of vinyl, vinyl acetate, and polyethylene terephthalate,
 applying such oil-elastomer-resin layer to a printed surface of a clay coated paper sheet,
 allowing the oil-elastomer-resin layer to wet the print 5 on the surface of the paper sheet,
 wetting the paper sheet with water to release the clay coating thereon and thus free the printed mater which adheres to the elastomer-resin layer,
 removing the paper sheet, and
 applying an adhesive coated surface of a transparent plastic film to the printed matter carrying surface of

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said oil-elastomer-resin layer to form a protective layer thereover.

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