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[54] **TRANSPARENCY**

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[51] **Int. Cl.**..... **B41c 1/06**

[58] **Field of Search**..... 117/36.1, 161 R, 161 UH, 117/138.8 A, 129

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[57] **ABSTRACT**

A transparency having a coating of material which is compatible with ink in pressure responsive elements is prepared. Specifically, a transparent substrate is coated with polyamides and styrene resins to form an image bearing surface for telecommunicated copy.

1 Claim, No Drawings

TRANSPARENCY

BACKGROUND OF THE INVENTION

This invention relates to recording blanks and, in particular, recording elements which respond to the physical action of stimuli applied thereto as, for example, pressure responses to telephone signals.

In the facsimile recording art, two types of recording blanks are well known, namely, a photographic type and the direct recording type. The photographic blank suffers from the disadvantage that the recording machine must be operated under darkroom conditions and comparatively expensive photographic developing equipment and operations are required before a complete record is obtained. However, the direct recording blank is capable of use under normal light conditions, and the record is immediately and permanently produced as the telephone signals are converted into electrical energy.

One kind of direct recording blank that has been found universally useful in electrical stylus recording contains a backing or web of paper which has a masking coating applied thereto, which coating is removable in localized areas in response to applied electrical signals, so as to expose the contrasting undersurface which is usually black. In such blanks, the electrical characteristics of the blank or substrate material are of extreme importance. Therefore, in one type of substrate the paper backing is itself rendered electrically conductive to a predetermined degree of incorporating in the paper itself a conductive material such as powdered carbon black. In another well known type of blank, the paper backing can be of any kind of paper and has its surface treated or coated with a conducting material, generally powdered carbon, to impart the necessary blackness and conductivity.

Another type of direct recording blank is the pressure sensitive element having an ink coating on a substrate. Generally, the ink or pigment material is encapsulated in spherical units which break upon pressure and thereafter deposits on a paper substrate. Because the ink is generally liquid in pressure sensitive elements of this type, absorbent substrates such as paper are almost always used. This is particularly true of telecommunication reproduction utilizing pressure sensitive imaging elements. In this instance, the physical nature of the reproduction process (scanning, etc.) requires that the pressure sensitive ink be directly absorbed on the substrate element. Otherwise, smearing will likely occur upon removal of the pressure sensitive layer and, additionally, a drying step will be required.

For the aforementioned reasons, direct preparation of transparencies in a pressure activatable telecommunication reproduction device is difficult. Transparencies are generally glossy and nonabsorbent and, therefore, ink smears or accumulates on the surfaces. Careful handling as well as a drying step are usually required to prepare a transparency directly on a pressure activatable telephone reproduction device. Such procedures are time consuming as well as cumbersome.

As can be ascertained from the above, there is a continuing need for developing means for directly forming a transparency on a telecommunications copy device.

BRIEF DESCRIPTION OF THE INVENTION

In accordance with the present invention, a new transparency element which enables the direct preparation of transparencies from telecopied recordings is provided. Specifically, a transparency support element is prepared which comprises a transparent support overcoated with particular materials which are compatible with ink in pressure sensitive transfer elements. The particular coating materials used on the transparency substrate facilitates transfer from the pressure sensitve member and enables direct preparation of the transparency reproduction without any additional processing step. A specific embodiment includes a transparency support comprising a polysulfone substrate overcoated with a copolymer of vinyl toluene and alpha methyl styrene.

DETAILED DESCRIPTION OF THE INVENTION

As mentioned above, the instant invention relates to the use of pressure sensitive recording elements for the purpose of preparing transparencies. In particular, a layer containing pressure transferable ink material is sandwiched with a transparency support comprising a transparent substrate and an overcoating of material which is compatible with the transferable ink. Thereafter, the sandwiched configuration is subjected to a pressure stylus which responds to telephoned copy signals whereupon a positive transparency reproduction occurs. As used herein, a compatible material is one which absorbs the transferable ink from the imaging element thereby forming the transparency without an additional fusing step.

Referring now to a composition of the pressure transferable ink layer to be used in the instant imaging element, any type of pressure responsive ink or ink element may be used. Therefore, encapsulated ink particles in a paper substrate may be utilized. While the composition of the ink itself is not critical, tacky materials such as those outlined in copending application Ser. No. 340,992, filed Mar. 14, 1973, are preferred. Generally, in the case of a pressure transfer material, this requires the use of up to 20% of a plasticizer material such as diphenyl phthalate. Additional plasticizers as well as electroresistive elements usable in the instant invention may be found in the aforementioned copending application.

The compatible coating materials usable on the transparent support of the instant invention include all materials which absorb or accept the image ink from the pressure responsive ink element. This generally includes all polymers that are soluable in aliphatic and aromatic hydrocarbons. While any and all resinous coatings having these properties fall within the purview of the invention, particular materials include polyamides and styrene polymers. Among polyamide materials are Emerez 3796D, a polyamide manufactured by Emery Corporation and Versamide 940, a polyamide of the General Mills Corporation. Among the styrene polymers include the copolymers of vinyl toluene and alpha methyl styrene sold under the name of Piccotex (Penn. Ind. Chem.).

While no theory is offered in limiting the instant invention, it is believed that the solvents or oils in the ink materials dissolve the transparency coating and thereby the image sets, in a non-smearing pattern, without the necessity of a fusing or setting step.

The above mentioned advantages and other features of the instant invention are further illustrated by the following examples and specific embodiments of the invention.

DESCRIPTION OF PREFERRED EMBODIMENT

The following is a typical example of coating formulations to make the transparency elements useful in the instantly disclosed invention:

EXAMPLE I

A batch of a resin coating is prepared by dissolving 8 grams of Piccotex 100, a vinyl toluene-alpha-methyl styrene copolymer manufactured by the Penn. Ind. Chem. Corp., in 30 grams of a butyl alcohol-toluene mixture. The mixture is then blade coated on a transparent LEXAN support. The resulting transparency is then allowed to air-dry.

The coated transparency is then sandwiched with a pressure releasable ink element and placed in a Xerox Telecopier III machine. A reproduction of a telecommunicated origanal was then made on the machine. The sandwiched element is then peeled with the resulting copy fixed firmly and non-smearingly in the transparency.

Although specific embodiments of the invention have been described herein, it is not intended to limit the invention solely thereto, but to include all of the obvious variations and modifications in the spirit and scope of the appended claims.

What is claimed is:

1. A process of making transparencies comprising:
   a. providing a pressure sensitive ink transfer element;
   b. sandwiching the transfer element with a transparent substrate having a copolymer of vinyl toluene and alpha methyl styrene coated thereon;
   c. pressure sensitizing the sandwiched member in response to telecommunciated signals; and
   d. separating the two elements of the sandwich whereby a fixed image is formed on the coated transparency support.

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