April 24, 1928. 1,667,689

W. F. GRUPE

TRANSFER MEDIA

Filed May 24, 1926

Fig. 1.

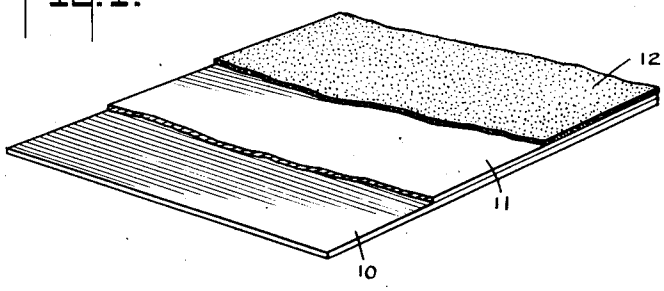


Fig. 2.

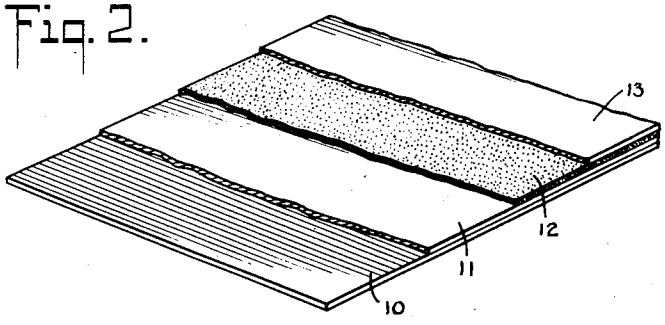
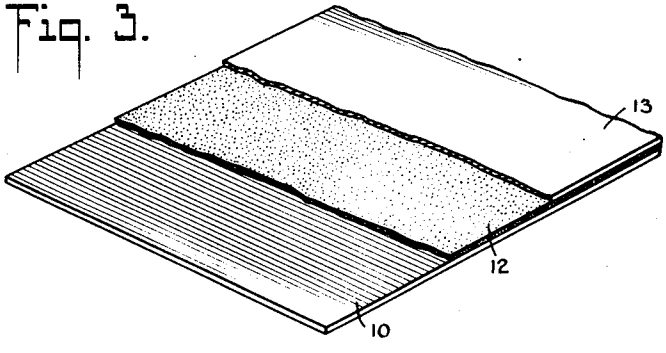


Fig. 3.



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UNITED STATES PATENT OFFICE.

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TRANSFER MEDIA.

Application filed May 24, 1926. Serial No. 111,170.

This invention relates to improved transfer media.

The present invention relates to transfer media, preferably of the heat releasable type, for utilization in impressing material such as bakelite, hard rubber, cloth, cork composition, wood, paper and the like with bronze or other metallic powder in imitation of gold, silver or other metals or with other ink impressions of desired colors, whereby the impression is affixed substantially permanently to the material impressed.

Pursuant to my invention, synthetic resins are admixed or combined with such metallic powder whereby under the stage of transfer under elevated temperature by the use of a heated die in a suitable impression machine, the transferred portion of the transfer strip is affixed by a substantially permanent bond to the material impressed.

I prefer a synthetic resin of the type of bakelite or similar condensation produced of aldehyde and phenol, and most preferably a form of resin which is inactive chemically at ordinary temperatures but potentially active and converted at the heat transfer stage to its final form.

Transfer media manufactured pursuant to my invention possess the attribute of maintaining their stage of potential activity for an indefinite period, and are therefore not subject to deterioration by chemical or physical changes as is the case of transfer media of prior compositions.

Further features and objects of the invention will be more fully understood from the following detail description and the accompanying drawings, in which

Fig. 1 is a perspective view of a transfer medium embodying my invention, the respective layers being exaggerated in dimension and broken away to show the relationship of the same;

Fig. 2 is a similar view showing a modification; and

Fig. 3 is a similar view showing a further modification.

Referring to the form of my invention shown in Fig. 1, the strip 10 preferably of glassine paper serves as a carrier of the transfer medium. On the paper carrier is first deposited a layer 11 of heat releasable medium, usually comprising beeswax and a proportioned quantity of rosin or like resin determined by the temperature of the transfer stage at which the release of the metallizing medium is desired and further determined by the nature of shielding effect relative to the impression performed by the heat releasable medium after the stage of transfer.

On the layer 11 is then applied a layer 12 containing the metallic constituent usually in the form of a highly comminuted metallic powder of bronze or aluminum, or alloy, in simulation of gold or of silver or of platinum, as desired. With such metallic powder is admixed a synthetic resin such as a condensation product containing furfurol resin and phenol. Such admixture of metallic powder and synthetic resin may be sprayed on the layer 11 by means of a suitable compressed "air brush" or the like; the furfurol condensation product is dissolved in a suitable vaporizable solvent such as alcohol, benzol or acetone. The mixture of furfurol or other condensation product of synthetic resin and phenol is chemically inactive relative to the bronze powder and the like and also relative to beeswax and rosin mixture but is potentially active and chemically effective upon attaining the desired temperature of activity, usually in the neighborhood of 270° F., to which temperature the heated die is regulated in its temperature for attaining the desired fluidity and viscosity of the transferred portion of the transfer medium for deriving the desired nicety of impression at the speed of operation of the transfer.

It will be understood that my invention is of especial value for use in transfer feeding machines such as is disclosed in my U. S. Patent No. 1,526,209, dated February 10th, 1925.

Such transfer medium is applicable for use for general metallizing transfer operations, the resulting outermost coating of the impression being formed of the resulting fluxed beeswax and rosin serving on the transfer strip as the heat releasable medium. The presence of the synthetic resin in the admixture of the layer 12 adds additional protection to the metallic particles, firstly, in the stage of manufacture the metallic particles being coated by the synthetic resin which is substantially transparent and forms a protective film on the metallic particles and effective during the period of storage before

use, and, secondly, by the interfluxing of the synthetic resin with the constituents of the heat releasable medium in forming the ultimate protecting or shielding coating on the finished impression.

My invention is further exemplified in the form illustrated in Fig. 2 and comprising a carrier strip 10, preferably of glassine paper, on which is deposited a layer 11 of heat releasable composition, as aforesaid. The layer 12 corresponds to the layer 12 of metallic powder and admixed condensation product of synthetic resin described hereinabove relative to Fig. 1. On the outer face of the layer 12 is an outermost layer 13 of sizing which may be of a shellac for a soft sizing, or a varnish, such shellac or varnish either alone or admixed with chalk, rice starch, bicarbonate of soda or the like acting as a filler, as set forth in U. S. Patent No. 1,515,676 and No. 1,515,722 both dated November 18th, 1924.

My invention is also utilizable as illustrated in Fig. 3 wherein the layer of a heat releasable medium of the aforesaid forms of my invention is omitted, that is to say, the layer 12 of metallic particles admixed with the condensation product of synthetic resin of an aldehyde and phenol is deposited directly on the carrier strip 10, preferably of glassine paper. The sizing 13 corresponds to that of the embodiment shown in Fig. 2.

The form of my invention of the type shown in Fig. 1 which does not embody an outermost sizing layer, is advantageous for use with goods which in the course of the manufacture of the goods are provided or finished with a sizing. The forms of my invention shown in Figs. 2 and 3 possess the attributes of forming a relatively hard and dry impression and are most effectively transferred under higher temperatures of the die in the release of the metallizing medium to the goods impressed.

My preferred medium is particularly of value for impressing materials such as bakelite panels for radio cabinets, likewise panels of hard rubber and sheets of cork board, and also for impression and ornamenting diaphragms of flexible cork material of cone speakers; however, my improved form of transfer medium is also applicable for use with silks, cloth and as well for paper.

Whereas I have described my invention by reference to specific forms thereof, it will be understood that many changes and modifications may be made without departing from the spirit of the invention.

I claim:

1. A transfer medium, the combination of a carrier strip and a layer of metallic powder admixed with a condensation product of aldehyde and phenol.

2. A transfer medium, the combination of a carrier strip and a layer of metallic powder admixed with a condensation product of aldehyde and phenol and embodying furfurol.

3. A transfer medium, the combination of a carrier strip, a layer of metallic powder admixed with a condensation product of aldehyde and phenol and a layer containing a resinous material serving as a sizing.

4. A transfer medium, the combination of a carrier strip, a layer of metallic powder admixed with a condensation product of aldehyde and phenol and a layer of resinous material serving as a heat releasable material in the transfer strip and as the sizing on the finished impression.

5. A heat releasable transfer strip comprising a carrier strip, a layer of heat releasable material containing resin and a layer embodying metallic particles admixed with a resinous material capable at the temperature of transfer of interfusing with the resinous material of said heat releasable layer to form a substantially clear sizing.

6. A heat releasable transfer strip comprising a carrier strip, a layer of heat releasable material containing resin and a layer embodying metallic particles admixed with a condensation product containing a synthetic resin capable at the temperature of transfer of interfusing with the resinous material of said heat releasable layer to form a substantially clear sizing of relatively great hardness at ordinary temperature.

7. In a transfer medium, the combination of a carrier strip and a layer of metallic powder admixed with a condensation product of aldehyde and phenol chemically inactive at ordinary temperatures for an indefinite period and potentially reactive at the temperature of the transfer stage.

In testimony whereof I have signed this specification this 20th day of May, 1926.

WILLIAM F. GRUPE.