Aug. 21, 1934. L. C. ANTRIM 1,971,306

TRANSFER DEVICE

Filed Nov. 22, 1933

Fig. 1

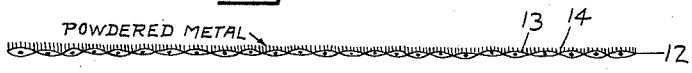


Fig. 2

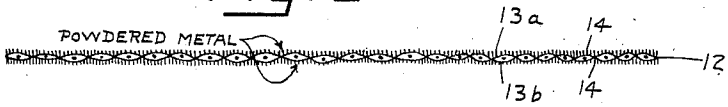


Fig. 3

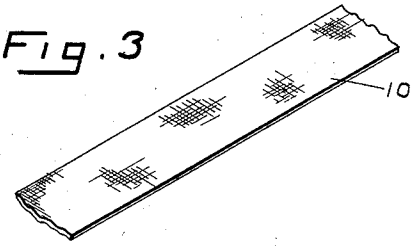
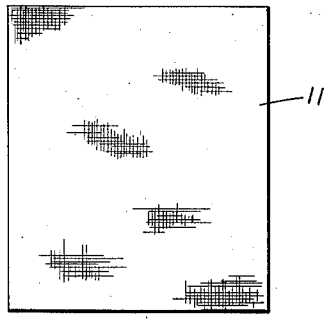


Fig. 4



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1,971,306

TRANSFER DEVICE

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Application November 22, 1933, Serial No. 699,188

6 Claims. (Cl. 197—172)

This invention relates to transfer devices, and more particularly, to inking ribbons or strips, for instance those used to make original copies in typewriters and similar machines.

It has long been the desire of inking ribbon manufacturers to produce a ribbon containing sufficient ink to last for a great number of impressions, and yet avoid transferring too much ink onto the paper when the ribbon is new and fresh. If too much ink is carried by the fabric of which the ribbon is composed, or if the ink be too wet when it is new and fresh, the impressions produced are blurred and the ink transferred to the worksheet spreads and is easily smudged. Yet, to make good copies over the life of the ribbon in certain kinds of typewriters, particularly those of the "noiseless" type where the transfer of ink to the worksheet is accomplished by pressure rather than by impact, it is necessary to have a free flowing ink carried by the fabric of the ribbon.

The object of the present invention is to provide a typewriter ribbon or the like which contains a free flowing ink and a substantial quantity of it, and yet which will transfer a substantially uniform quantity of ink, both when the ribbon is new and fresh and when it is well worn and old.

This is accomplished, according to the present invention, by dusting on either or both surfaces of the typewriter ribbon a metallic powder such as powdered aluminum or bronze. I have found experimentally that the typewriter ribbons of commerce are sufficiently sticky or adhesive to hold the metallic powder when such powder is dusted onto the ribbon and the surplus brushed or polished off. I have found that typewriter ribbons so treated transfer no excess quantity of ink onto the worksheet when new and fresh and that the ink carried by the ribbon is prevented from drying out and continues to be transferred to the worksheets in substantially uniform quantities beyond the normal life or use of such ribbons.

Besides effecting economy by extending the life or use of the ribbon, the work produced thereby is more uniform and satisfactory; the operator is required to change the ribbon less often; and the ink on the ribbon is not transferred so readily to the operator's fingers in removing the old ribbon or replacing the new ribbon on the machine.

I have found that the ink from such ribbons is transferred to the worksheets more readily than on the ordinary ribbons heretofore provided when used in a noiseless, i. e., impression type of machine, and that in the impact type of machines the impressions are superior to those produced by ordinary typewriter ribbons.

Heretofore, it has been proposed to accomplish the results sought by this invention by coating one or both sides of the ribbon with pyroxylin, but it has been found that such a retarding medium is too effective and produces light and weak impressions until well cracked and broken down by use, and from that point on it is not effective enough to materially lengthen the life of the ribbon. Moreover, the process of applying the coating to the ribbon is comparatively expensive and difficult to control, and, unless the manufacture is constantly and closely watched, the coating applied becomes too thick or too thin to obtain the desired results and varies from one part of the ribbon to another.

With a metallic-powder coating, such as provided by the present invention, only a certain quantity of the metallic powder adheres to the impregnated ribbon after it is dusted thereon and the surplus brushed or polished off.

Other features and advantages will hereinafter appear.

In the accompanying drawing—

Figure 1 is a schematic sectional view of a transfer fabric made in accordance with this invention.

Fig. 2 is a similar view, but illustrates that the powdered metal may be applied to both sides of the fabric.

Fig. 3 is a perspective view of a typewriter ribbon to which the present invention may be applied.

Fig. 4 is a plan view of a transfer fabric, such as is used in certain duplicating machines, to which the invention may also be applied.

The transfer medium of the present invention may be produced in the form of a ribbon 10, such as is indicated in Fig. 3, for use in typewriters and the like, which ribbon is usually made of a textile fabric, or, it may be produced in the form of a sheet 11, illustrated in Fig. 4, such as is used in certain duplicating machines, which sheet is usually cut from a piece of textile cloth.

Be it ribbon or sheet, it is impregnated with a vehicle-carried pigment or ink of desired color and consistency. The impregnation of the fabric may be performed in any usual or suitable manner, and when the impregnating operation is completed the fabric 12 has dusted onto its operative surface 13 a metallic powder 14, such as powdered aluminum or bronze. After being so treated, the surface 13 of the ribbon is brushed

or polished to remove any excess quantity of powdered metal adhering thereto.

The ribbon or sheets thus made are then suitably packed and shipped ready for use.

On applying the ribbon 10 to a typewriting or other machine, the coated side 13 is caused to face the worksheet, so that when the ribbon is struck or engaged by the type, the coated surface 13 thereof will be brought into intimate contact with the worksheet and the pressure will cause ink to flow through the flakes of the powdered metal onto the worksheet.

If it is desired that the ribbon be reversible so that either side may be caused to face the worksheet, then both the side 13*a* and the side 13*b*, as shown in Fig. 2, are provided with a coating 14. This arrangement is for most purposes preferable, because the coatings of powdered metal on both sides of the ribbon tend to prevent the ink carried thereby from evaporating or drying out. It also adds to the life of the ribbon by reducing the quantity of ink taken from the ribbon by the type at each operation and tends to keep the type from becoming ink-saturated and ultimately clogged by lint and dust adhering to its surface.

With the powdered metal coating of the present invention, the particles of metal which are flake-like lie on the surface of the ribbon and bend under the type impressions, while they allow the ink to pass between them onto the worksheet.

In practice, I have discovered that pure fine aluminum powder is most satisfactory, and that coloring the aluminum powder to make it accord with the color of the ink carried by the ribbon is unnecessary. I have found that dyed aluminum or aluminum alloy powders are not as satisfactory as the pure uncolored metal. When, as occasionally happens, a small quantity of the metallic powder is transferred from the ribbon to the worksheet, this quantity at each impression is so infinitesimal as to be discernible only with a strong magnifying glass. Therefore, it is not objectionable that the powdered metal is of a color different from the ink.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

Having thus described the invention, what is claimed as new and for which it is desired to obtain Letters-Patent, is:—

1. A manifolding device comprising a fabric impregnated with an ink solution, and having on its ink-transferring side a coating of metallic powder for retarding the transference of the ink solution to a medium pressed into contact with said side of the fabric.

2. A manifolding device comprising a fabric impregnated with an ink solution, and having on the impression-receiving side a coating of aluminum powder for retarding the transference of the ink solution to an impression means pressed into contact with said obverse side of the fabric.

3. A manifolding device comprising a fabric impregnated with an ink solution, and having on each side a coating of aluminum powder for retarding the transference of the ink solution to a medium pressed into contact with either of said sides of the fabric.

4. An inking ribbon comprising a woven textile fabric impregnated with an ink solution, and having on its ink-transferring side metallic powder for retarding the transference of the ink solution to a worksheet pressed into contact with said side of the ribbon.

5. An inking ribbon comprising a woven textile fabric impregnated with an ink solution, and having on the impression receiving side a coating of aluminum powder for retarding the transference of the ink solution to type pressed into contact with said obverse side of the ribbon.

6. An inking ribbon comprising a woven textile fabric impregnated with an ink solution, and having on each side a coating of aluminum powder for retarding the transference of the ink solution to a worksheet and type pressed into contact respectively with opposite sides of the ribbon.

LOUIS C. ANTRIM.