Dec. 17, 1963 W. H. WOLOWITZ 3,114,447

RIBBON FOR TYPING AND OBLITERATING

Filed April 4, 1961

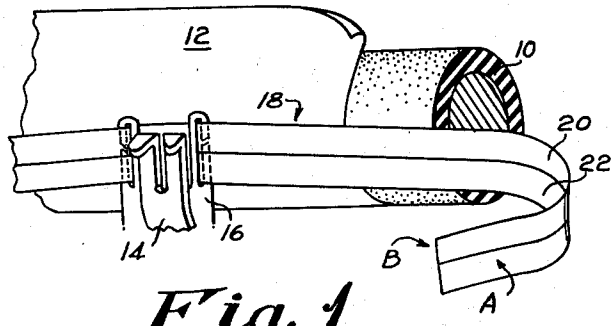


Fig. 1

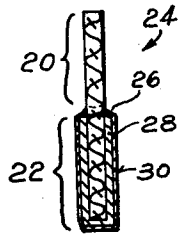


Fig. 2

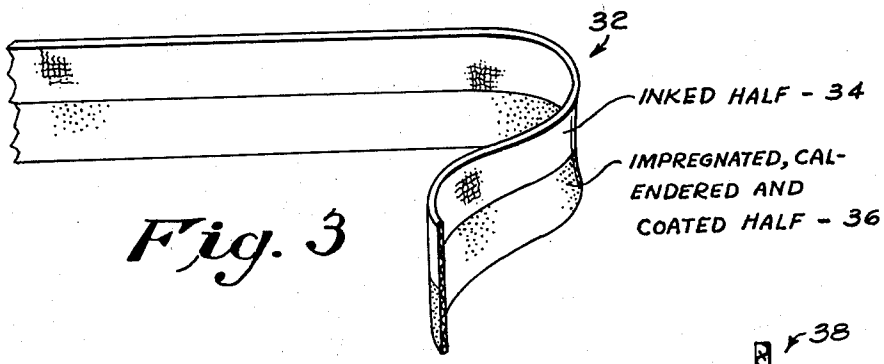


Fig. 3

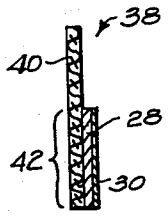


Fig. 5

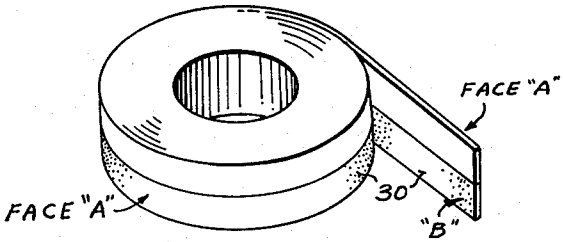


Fig. 4

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RIBBON FOR TYPING AND OBLITERATING

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This invention has to do with typewriter ribbons, and especially to a ribbon having portions selectively usable for transferring inked character markings onto a sheet and for obliterating such markings by the overprinting of an opaque substance of suitable color and other characteristics.

It has been proposed to accomplish the correction of typing errors, with the impression paper or like sheet still in the typewriter, by striking over the erroneous characters while holding between the type face and the sheet a transfer material, such that the impact of the type face accomplishes the transfer to the sheet of a thin layer of adherent opaque material, usually white, or in any case of a color matching the impression sheet. By this second striking of the erroneous type face, it is intended to cover up precisely the area of the sheet to which ink was previously applied in error, and thus to leave the surface apparently blank, and/or suitable for the later reception of an ink image of the desired or proper character. This proposal requires a certain amount of skill and care in the manipulation of the transfer material, and involves the trouble of keeping the material conveniently at hand and in proper form and condition for use.

It is a principal object of my invention to provide a composite spooled ribbon for use both in the typewriting of ink character images onto the impression sheet, and in the overprinting or obliteration of such images with suitable camouflage or obliterating material. A further object of the invention is to provide such a ribbon in which the camouflage material is so disposed that areas thereof, once used, are periodically revived or rejuvenated for later re-use; to the end that the camouflage portion of the ribbon shall have a useful life comparable to that of the inking or printing portion.

Other objects and advantages of my invention will become apparent as the description thereof proceeds. In general, the invention involves the provision of a spooled ribbon, either of textile fabric or other support material, and of which one longitudinal or lengthwise stripe (preferably of half width) is suitable for the impact transfer of inked characters to the impression sheet, while the remaining longitudinal stripe or half width is treated to apply a character-image camouflage or cover-up material. Since conventional typewriters include convenient controls for selecting which edge portion of a ribbon is impacted against the impression paper, the making of a correction or opaque overprint of suitable color (e.g., to match the impression paper) is thus greatly facilitated.

Several forms in which the principle of my invention may be embodied will now be described by way of example, and are illustrated in the accompanying drawings, in which:

FIG. 1 is a fragmentary perspective view of parts of a conventional typewriter, showing the use thereof with a ribbon according to the invention.

FIG. 2 is a vertical sectional view, enlarged and of exaggerated thickness scale in part, of the ribbon shown in FIG. 1.

FIG. 3 is a perspective view of part of a further embodiment of the improved ribbon.

FIG. 4 is a perspective view of a spooled ribbon illustrating still another form which the invention may take.

FIG. 5 is a view similar to FIG. 2 of a modified form of the invention.

Referring first to FIG. 1 for a general understanding of the operation of my invention, numeral 10 designates the usual platen or paper roll of any known or conventional typewriter, while numeral 12 designates a sheet of impression paper wrapped partly about the platen to receive the ink impressions from type bars (not shown). The usual type bar guide 14 is illustrated, as is the conventional ribbon vibrator 16 operating, during each type stroke, to elevate the ribbon 18 into operative relation between the type face and the impression sheet. The particular part of the ribbon which is thus brought into impact position is selected by operation of the ordinary vibrator-stroke control, not shown.

Ribbon 18, which forms the subject matter of my invention, is longitudinally divided into at least two lengthwise areas, sections or stripes 20 and 22. Area 20 is here shown as saturated with impression ink for transfer to sheet 12 whenever the ribbon control of the machine is set to interpose this upper portion of the ribbon between an approaching type bar and the impression sheet. Area 22, on the other hand, is here shown as carrying a continuous unbroken layer of a suitable opaque material, matching the color of sheet 12, and otherwise formed and adapted for overprinting upon an erroneous ink character on the sheet. The properties and disposition of such overprinting material will be elaborated below; for the present it will merely be pointed out that the material will operate to conceal or camouflage errors if it is disposed on the "printing" surface A of ribbon 18, for transfer to sheet 12 when the ribbon is struck against the sheet by a type bar impact on its "impact" surface B, and thus will cover or obliterate a previous error and leave a surface suitable for receiving the correct ink impression, if desired.

To employ this obliterating feature, and as will be obvious, the typist merely backspaces or otherwise moves the platen 10 to bring an incorrectly printed character into typing position, shifts the ribbon control to cause the lower stripe 22 to be interposed between the sheet 10 and the type face, and again strikes the erroneous key. This covers the wrong character imprint with a thin opaque layer of the camouflage substance, by impact transfer from surface "A" of stripe 22, and leaves the sheet surface clear and suitable, if desired, for receiving an ink impression of a correct character.

The useful life of an inked typewriter ribbon of the conventional saturated fabric type, as is well known, largely depends upon the redistribution of the ink saturant through its body and into areas depleted of ink by reason of its transfer to the impression sheet. This redistribution occurs principally from capillary action in the respective threads leading to the impacted area of ribbon, and from the intimate surface contacts between the layers or convolutions of the ribbon as wound upon the spools provided in the typewriter. Thus, while my invention can in fact be applied as a practical matter to so-called "one use" ribbons, usually made of thin paper with a carbon and wax transfer ink coating, it would be very desirable to provide the advantages of the invention also in a ribbon of the saturated-fabric type. Two major problems stand in the way of a solution for this aim.

First, a commercially acceptable ribbon incorporating the invention ought to provide substantially as long a useful life for the "camouflage" portion 22 as it does for the inking portion 20. While it may appear unlikely that ordinary use would quickly deplete the active material on portion 22 (because of the relative infrequency of errors and the randomness of the particular character-shapes of the depleted areas), experience teaches that the equalization of useful lives of the two areas requires more effective treatment. I therefore prefer to provide for rejuvenation of the camouflage material also, and I may

accomplish this by various structural arrangements and features now to be described.

Referring to FIG. 2 of the drawings, a typical ribbon according to the invention is shown in cross-section as comprising a textile fabric ribbon 24 whose upper half 20, at least, is saturated with impression ink of desired color and conventional composition. I prefer to ink only this upper half, and to apply to the ribbon along the lower margin of the inked half a line of some diffusion-restraining barrier material 26, such as hardened glue or other impervious or cementitious material of adequate flexibility. Such materials, and processes of applying them, are well known to the art in connection with the manufacture of ordinary two-color ribbons.

While the lower half 22 of ribbon 24 may itself be saturated with the camouflage material, I have found that compositions suitable for the obliterating function do not, in general, diffuse readily from one face to another of a textile fabric. I therefore prefer to apply the camouflage composition to both surfaces A and B of the ribbon. As shown in FIG. 2, I accomplish this by cementing to the lower ribbon half, on each face thereof, a composite layer comprising a support layer 28 such as a layer of thin, strong paper, cellophane, or plastic such as that trademarked "Mylar," which acts as the support and carrier for the layer 30 of the camouflage composition.

The carrier or support 28 serves several functions. Thus, it ensures the presence of a smooth continuous outer layer of composition 30, so that, when the type face impacts the ribbon against a previously imprinted character impression, the material 30 covers the entire design area of that imprint, and not merely those spots thereof that represent the intersections of fabric warp and weft threads lying within the imprint outline. As is well known, the impression made by an inked fabric ribbon may actually be an assemblage of random spots or dots, as viewed through a magnifier, and the depositing of such a random pattern of the camouflage material would not effectively hide an erroneous ink imprint of the same type face. The carrier layer 28 also facilitates the thin, uniform application of composition 30 to the ribbon's fabric body, in that the composition 30 may first be coated onto an endless double-width strip of the carrier 28 which is thereafter folded about its longitudinal center-line with material 30 on the outside, and thereupon applied over the lower half of ribbon 24 as actually illustrated in FIG. 2. The manufacture of the product is thus facilitated. Indeed, such a folded strip, or even single (unfolded) narrower strips may be adhered to available fully-inked ribbons to produce composite ribbons like those of the invention.

In the event of migration of ink from area 20 into area 22 of the ribbon body, despite the use of barrier 26, carrier layer 28 will greatly impede its diffusion into material 30, and consequent deterioration of the color thereof. It may be noted that, if preferred, the manufacture of the composite ribbon may be achieved by first folding the coated carrier strip 28, 30 about the lower half of an uninked fabric strip, such half having been previously saturated or coated on both sides with a suitable adhesive for the carrier 28. The remaining half of the ribbon may thereafter be ink-saturated in the usual way. A suitably impervious saturating adhesive used in this manner will largely eliminate the need for a separate barrier 26. The coating, folding, adhering and inking functions can readily be carried out on continuous webs of the component layers, in the large scale manufacture of the product.

The presence of exposed camouflage material 30 on the impact face B ensures that, as successive convolutions are rolled up on one or the other of the usual ribbon spools, replenishment of camouflage material from side B to side A is continuously effected; while a small amount of such material may offset onto the faces of the types themselves, this is found unobjectionable, and does not interfere with effective replenishment as described.

FIG. 4 illustrates the way in which replenishment of the camouflage composition occurs when a double-side coated ribbon is rolled up, as on a spool. Impact face B (say) rolls into contact with impression face A of the next inner convolution, and both the pressure and the slight interfacial sliding action operate to "average out" any depleted regions of the impression surface A.

Similar results as above can be obtained from different structures. In FIG. 3 there is illustrated, for example, a fabric ribbon 32 whose upper half has been inked as usual at 34, while the lower half has been treated with a flexible impregnant or coating capable of receiving a smooth surface finish. The impregnant, for example, may be a flexible thermoplastic resin which is "ironed" or calendered in situ to provide a continuous smooth surface on both sides of this lower half. The camouflage overcoat is applied to both exposed surfaces of this layer, as at 36, by spraying, knife or roller coating, offset printing, or any suitable method. Sprayed surface coatings of metals and other substances, capable of presenting a smooth, unbroken impression-transmitting surface to the ribbon fabric, may replace the plastic "selvage" treatment as a base for the camouflage composition.

FIG. 5 of the drawings illustrates in section a different construction of a ribbon according to the invention. Here, the ribbon 38 has its upper half 40 inked for making visible impressions, while the lower half 42 has applied thereto, on one side only, the barrier and surface-levelling layer 28 which in turn carries the camouflage material 30. This is roughly equivalent to the FIG. 2 form but omitting the added layers on one side of the ribbon. To increase the replenishment action, the portion 42 of the left side of the ribbon may be physically saturated with the material 30.

The composition of the camouflage substance itself may be widely varied. Thus, it may merely duplicate similar materials presently available on a paper base for manual interposition in the typewriter, as already described. Basically, such materials consist of a tacky mixture of a finely powdered pigment (such as zinc or titanium oxides) with a binder and carrier such as partly polymerized natural oils, waxes, decolorized latex, or the like. In fact, any substantially non-drying adhesive may be employed as the binder, so long as its color does not interfere with the visual covering action and the color of the pigment. The mixture of these ingredients is such as to impart sufficient viscosity to the thin layer thereof as to render it insensitive to normal handling, so that it acts as a solid coating upon its carrier, yet is readily transferred (in the same manner as the pigment coating of ordinary carbon paper) when subjected to a local impact by a type face or the like. So-called "pressure-sensitive" adhesive compositions may be employed as the adhesive component of the pigment mixture, so long as the mixture is sufficiently weak to withdraw readily from its original underlying support when it has been driven into contact with the surface of the impression sheet.

I have disclosed my invention in the best ways known to me for carrying it out, but the details given are not intended to limit the invention except as may be required by the scope of the claims.

I claim:

1. A composite inking and obliterating ribbon for typewriters, comprising an elongated flexible ribbon having at least one longitudinal half inked for transferring visible impressions to an impression sheet, and the other longitudinal half secured between elongated leaves of smooth, ink-impervious tape material; said leaves being interconnected to one another adjacent one elongated edge of said flexible ribbon; at least one of said leaves having its exterior surface covered with an impact-transferable coating of an opaque substance having adherent properties.

2. A composite inking and obliterating ribbon for typewriters, in accordance with claim 1, in which said leaves

are interconnected directly to one another adjacent said one elongated edge of said flexible ribbon.

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