

[54] COMPOSITE INKING AND OBLITERATING
TYPEWRITER RIBBON

[76] Inventor: William H. Wolowitz, 6905
Persimmon Tree Rd., Bethesda, Md.
20034

[22] Filed: Mar. 26, 1973

[21] Appl. No.: 345,127

[52] U.S. Cl. 197/172, 197/181

[51] Int. Cl. B41j 31/02

[58] Field of Search 197/172, 181

3,273,686 9/1966 Ploeger 197/181 X
3,274,039 9/1966 Ploeger 197/172 X
3,461,998 8/1969 Ploeger 197/172

FOREIGN PATENTS OR APPLICATIONS

961,108 6/1964 Great Britain 197/172

Primary Examiner—Ernest T. Wright, Jr.
Attorney, Agent, or Firm—Homer R. Montague, Esq.

[56] References Cited

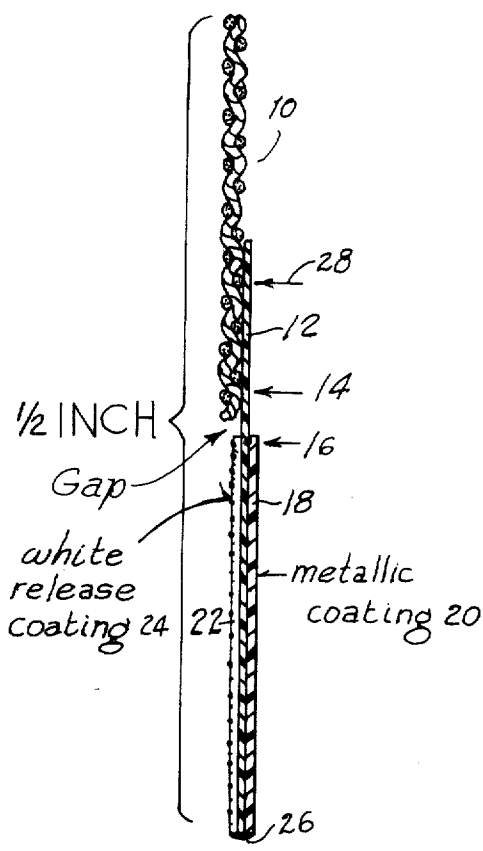
UNITED STATES PATENTS

455,263	6/1891	Rogers	197/172
1,905,118	4/1933	Nadell	197/181
1,953,316	4/1934	Stark	197/172
2,174,351	9/1939	Neidich	197/172
2,255,104	9/1941	Dixon	197/172
2,728,439	12/1955	Murphy et al.	197/172
2,830,689	4/1958	Clancy et al.	197/172
3,114,447	12/1963	Wolowitz	197/172
3,141,539	7/1964	Wolowitz	197/181 X
3,143,200	8/1964	Gutman	197/172

[57] ABSTRACT

A class of "self-correcting" typewriter ribbons is described, having an inking portion and an obliterating portion, whose members share the common property of having those portions spaced apart from one another by a gap (either edgewise or face-wise) to ensure against transfer of ink to the obliterating material. The gap facilitates manufacture, and in one form, or group of forms, a metallic layer on one of the portions is used to reduce friction in the ribbon guides, improve the appearance of the ribbon, and provide a visual indication to the user that the ribbon is properly installed for use.

8 Claims, 7 Drawing Figures



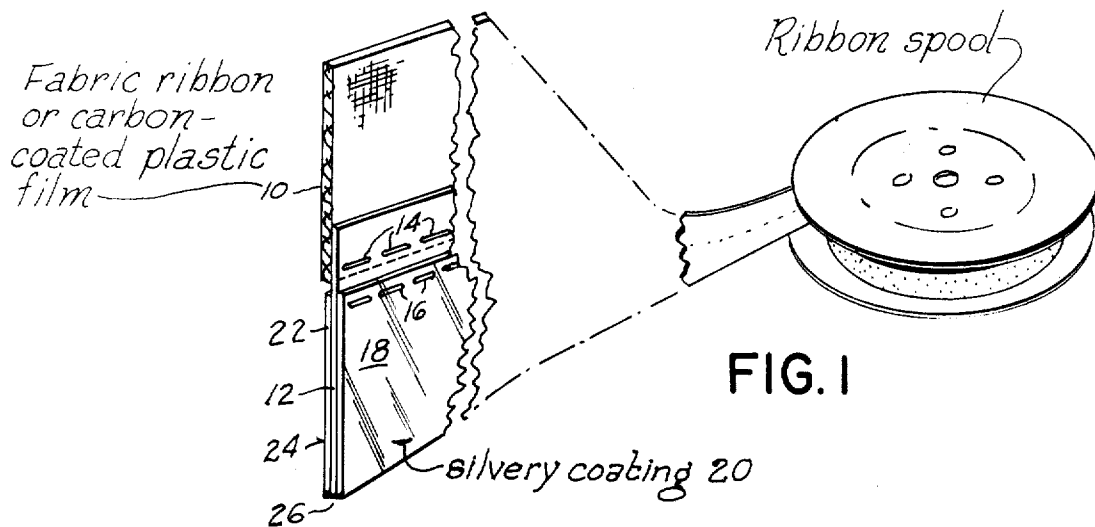
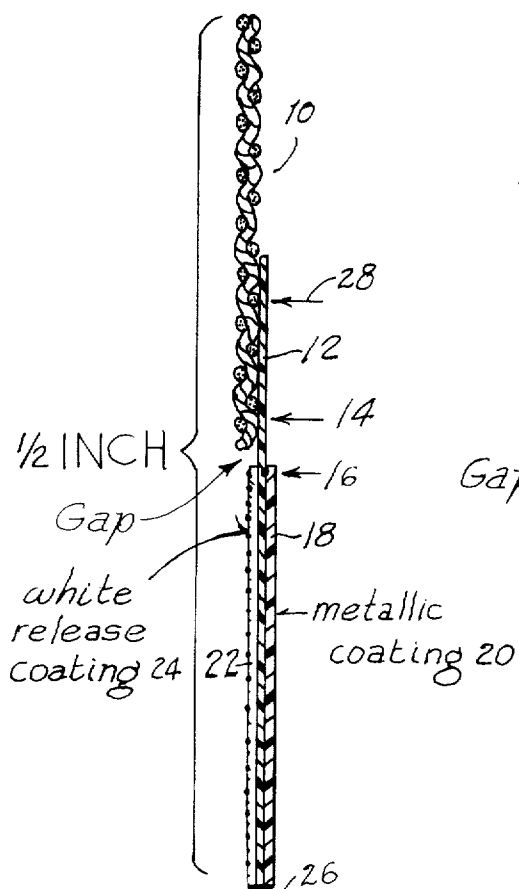


FIG. 2

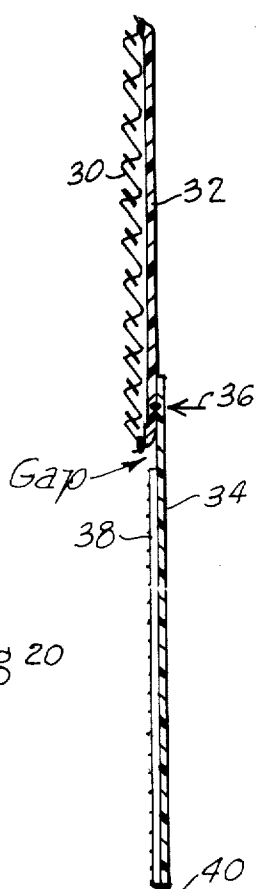


FIG. 3

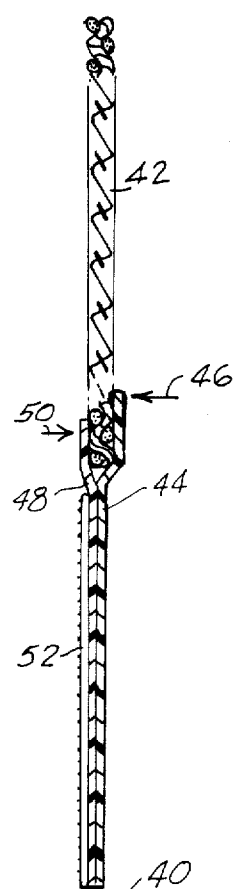
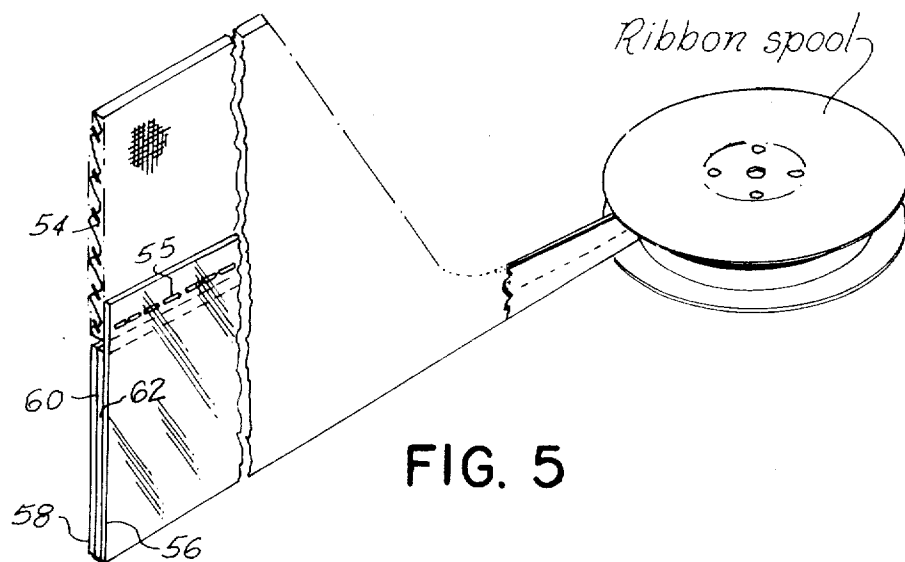
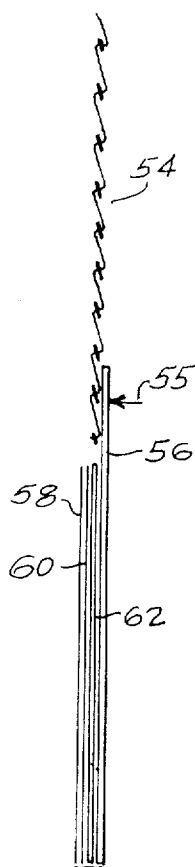
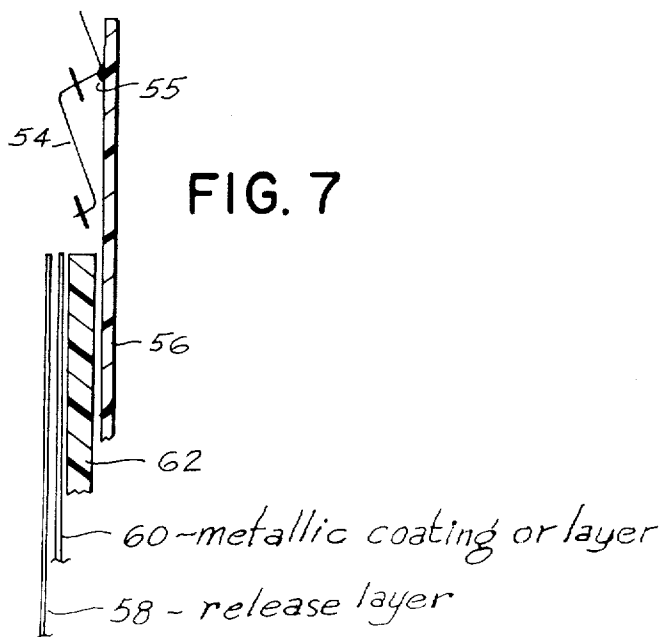


FIG. 4



COMPOSITE INKING AND OBLITERATING TYPEWRITER RIBBON

BACKGROUND OF THE INVENTION

In my previous patents such as U.S. Pat. No. 3,114,447, U.S. Pat. No. 3,141,539, and British specification Pat. No. 961,108, Published June 17, 1964 (Crown Copyright 1964), I taught various ways of constructing self-correcting typewriter ribbons having respective portions for typing and for obliterating, said portions occupying in a general way the areas theretofore devoted to multi-color inks such as black and red. Such prior constructions, though quite practical, were relatively complex, requiring numerous manufacturing steps, and frequent rolling up and rewinding of the various materials comprising the ribbons. Moreover, the finished ribbons were often of relatively short life, in part due to migration of the ink from the printing area into the area devoted to the cover-up or camouflage material, with consequent deterioration and discoloring of the latter.

Some of the competitive ribbons marketed by others contained entirely incompatible materials; in this connection, it may be mentioned that even if such intermixture of materials happened or occurred to some limited degree (not in itself harmful to the properties of the ribbon), it often resulted in an unsightly product having poor customer acceptance. However, depending on the materials involved, migration might entirely vitiate the effectiveness of the correcting or cover-up portion of the ribbon.

In addition to the above considerations, it will also be observed that migration of the ink into portions of the ribbon which are not used or intended for making impressions, depletes the volume of the ink that is available for printing, and therefore operates to shorten the ribbon's life in a way that is quite distinct from that described above.

Finally, self-correcting ribbons of previously described types, both of my own invention and of the constructions of others, have proven in some cases to be too thick to traverse freely in the ribbon guides and vibrators of certain typewriters. This is most noticeable in later models of the Smith-Corona electric portables, and in some models of the Olivetti machines, and is usually caused by the extra or added thicknesses of the layers, one or more, needed in connection with providing the self-correcting feature.

Besides other objectionable characteristics (such as frictional destruction of the correction material traversing too "tight" guides and vibrators), such combinations interfere with the free up-and-down movement of the vibrator, which in turn prevents full and satisfactory correction of mistakes. Such troubles are magnified where the entire back of the ribbon is covered by a protective layer, and especially if the said layer is of a type which "grows" dimensionally as it is subjected to the impacts of typing.

SUMMARY OF THE INVENTION

The invention provides a number of varieties of self-correcting typewriter ribbons which are completely free from the transfer of ink onto the camouflage material, whether that ordinarily resulting from edgewise migration, osmosis or the like, or from face-to-face contact such as occurs during rolling-up (especially,

and initially, at the edges) of the ribbon. The invention further comprehends composite or self-correcting ribbons which do not necessarily have any regions that are thicker than an ordinary non-correcting ribbon, and indeed may in every part be thinner than such an ordinary ribbon. The novel ribbons may also have their major parts (inking portion and correcting portion) precisely equal in thickness, for evenness of spooling and maximum yardage per spool. The latter is of especial importance when the ribbon is not spooled in the ordinary fashion, but is used in one of the new ribbon magazines or cartridges which have at best relatively limited ribbon-length capacity. In such applications, maximum thinness is an important desideratum if adequate usable ribbon-life is to be obtained.

In many forms which the ribbons of this invention may take, the provision of a metallic layer incorporated in or on the obliterating portion or component, provides important advantages, including reduced drag or friction in the guides and the vibrator, visual guidance as an aid to manufacture as well to installation, and vastly improved appearance of the product.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a typewriter ribbon in accordance with the invention, with a portion shown greatly enlarged and in section.

FIG. 2 is a transverse sectional view of a slightly modified form of a ribbon, further enlarged.

FIG. 3 is a view similar to FIG. 2, but of a slightly different form of the invention.

FIG. 4 is another view similar to FIG. 2 of still another form of the novel ribbon.

FIG. 5 is a view similar to FIG. 1 showing a modified form of the ribbon of the invention.

FIG. 6 is a further enlarged sectional view of the ribbon shown in FIG. 5.

FIG. 7 is a further and additionally enlarged sectional view of a portion only of FIG. 5, particularly illustrating the manner of assembly of that ribbon.

In FIG. 1, the ribbon spool has wound thereon a composite inking and obliterating ribbon comprising the upper portion 10 which is preferably formed of woven nylon fabric, and a lower portion 12 consisting principally of a thin, flexible ink-impervious strip of plastic such as Capran, or Mylar which has been treated to render the same heat-sealable. The two portions divide the width of the ribbon approximately between them, and the ink-impervious strip 12 forming the lower portion overlaps the upper portion 10 (the ink-impregnated portion) and is heat sealed thereto by a row of intermittent heat seals 14, stitches, sutures or the like. Numeral 16 indicates a similar row of heat seals securing to one surface of portion 12 a thin, flexible carrier strip 18 preferably of Mylar plastic, having a very thin, shiny outer layer or coating of metal 20.

A support layer or strip 22 (which may be thin, heat-sealable plastic) is secured to the other surface of portion 12, and this in turn carries the "release" layer 24 of correction or camouflage material. The securing of strip 22 to the portion 12 may be by virtue of a cut heat-seal at, and through, the lower edges of all three layers, as at 26.

FIG. 2 is a sectional view of such a ribbon, further enlarged for clarity, which exactly corresponds to the FIG. 1 construction, except that a second row of intermittent heat seals, exactly duplicating the stitches 14,

is shown at numeral 28. The isolating "gap" is clearly visible in both FIGS. 1 and 2 between the woven inked fabric 10 and the release layer 24 of camouflage material. In both constructions, the location of this gap is highly visible during manufacture, as is the location of the line of stitches or sutures, and of course the metallic layer 20 is also a definite indication to the user that the ribbon has been properly installed in the typewriter or other business machine. Both ribbons exhibit the important thinness considerations mentioned above.

In FIG. 3, the inking portion of the composite ribbon comprises the woven fabric portion 30 (typically nylon) and a backing layer of very thin ink-impervious plastic film 32 (typically Capran). The overlapping strip, typically also of Capran, is indicated at 34, an intermittent heat seal of stitches or the like at 36, and the carrier for the release or camouflage layer at 38. The bottom cut heat seal is at 40. In this embodiment, the backing layer of film 32 gives the usual advantage of protecting the type faces from ink, lint and so on, but it also has the disadvantage that the film 32 "grows" in both directions as it is repeatedly impacted in normal use, with the well-known objectionable results.

FIG. 4 illustrates a variation of the invention particularly useful when additional strength is desired in the bond securing the inking portion to the obliterating portion. The inking portion is represented by the woven fabric (nylon) ribbon 42, secured to ink-impervious strip 44 by a line-weld 46 as previously described. A second ink-impervious strip 48 also overlaps the ribbon 42, and is secured to the latter by a line-weld 50. The obliterating component (that is, a release layer or coating 52) is carried by strip 48, and the bottom edges of the various strips are connected by a heat seal 40 as described above. It will of course be understood that this last-mentioned heat seal may be that resulting from the heated cutting means used to sever two duplicate halves from one another, a well-known method of fabricating all of the composite ribbons described herein.

In FIG. 5, the inking portion of the composite ribbon is designated 54, and it has secured to it, by a preferably intermittent line 55 of heat seal stitches or sutures, the overlapping thin, flexible ink-impervious transparent strip 56. In this form of the invention, the strip 56 is completely free from other layers or coatings on the surface facing away from the inking portion 54. The release layer of camouflage material is indicated at 58, and it is separate from, though directly in contact with, the very thin, flexible metallic layer 60 in turn carried by strip 56. The metallic layer 60 is thus visible through the transparent strip 56.

The above construction is shown to larger scale (similarly to FIG. 2) at FIG. 6, where the release layer 58 and the underlying metallic layer 60 bear the same numbers as before. However, a physical (transparent) carrier 62, typically of Mylar, is shown and may be provided to add strength, facilitate manufacture, signal correct installation, and even-out the thickness of the main portions of the composite ribbons, et cetera. Carrier 62 may be welded to strip 56 as heretofore disclosed above.

FIG. 7 shows a portion of the construction of FIGS. 5 and 6 to a still more enlarged scale. It must be understood that in all the figures, the relative thicknesses of the layers, strips, et cetera are only approximated. Thus, in the original patent drawing, the nominal half-

inch composite ribbon (FIG. 2) is about 6 inches wide — a ratio of 12:1 enlargement. Assuming a typical and nominal ribbon thickness of 4 mils (0.004 inch), the thickness shown in FIG. 2 should be 12 times 0.004 inch, or nearly 0.05 inch, equivalent to 1/20 of an inch. Clearly, any showing of structure within that thickness would not be reproducible as an illustration, so that any physical layers are grossly exaggerated as to thickness.

In FIG. 7, for example, the metallic coating 60 would be of negligible thickness, being much less than 0.1 mil. Also, the release layer 58 might be negligible in thickness, as of the order of 0.5 mil. Hence, the evening out of a total equivalent thickness of 0.004 inch, could be divided in any ratio required by other considerations. As a practical matter, human fingers cannot detect a transition in thickness as between the composite ribbon portions made according to either FIG. 1 or FIG. 5; this represents a very striking advance in the art.

In all of the foregoing examples, the "inking" portion of the composite ribbon has been a woven, textile fabric impregnated with ink. It is not an absolute necessity that this be so, in that the inking portion could in theory be constituted more like what is called a "one-time" carbon-coated plastic strip or film, although such would presently appear to be not economically feasible. However, I do not mean to wholly exclude such a construction from the purview of my invention.

What is claimed is:

1. A composite inking and obliterating ribbon for typewriters and the like, comprising a first approximately half-width portion of ink-impregnated textile fabric, and the remaining width-wise portion constituted by a thin, flexible ink-impervious strip overlapping said first portion and secured thereto by said overlapping, said strip providing on one surface thereof a deposit of camouflage transfer material; there being a gap between said first portion and said deposit.

2. A structure in accordance with claim 1, and a major part of the other surface of said strip beyond the gap being covered by an opaque ink-impervious layer.

3. A structure in accordance with claim 2, in which said opaque layer is specularly reflective.

4. A structure in accordance with claim 2, in which said opaque layer is metallic in appearance.

5. A structure in accordance with claim 2, in which said opaque layer is metallic.

6. A structure in accordance with claim 1, in which said fabric and said strip are mutually heat-sealable, and in which they are secured together by means of an intermittent heat seal, stitching or suture.

7. A composite inking and obliterating ribbon for typewriters and the like, comprising a first approximately half-width portion of ink-carrying plastic film, and the remaining width-wise portion constituted by a thin, flexible ink-impervious strip overlapping said first portion and secured thereto by means of said overlapping, said strip providing on one surface thereof a deposit of camouflage transfer material; there being a gap between said first portion and said deposit.

8. A structure in accordance with claim 7, in which said plastic film and said strip are mutually heat-sealable, and in which they are secured together by means of an intermittent heat seal, stitching or suture.

* * * * *