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PRINTING RIBBON

Filed May 14, 1959

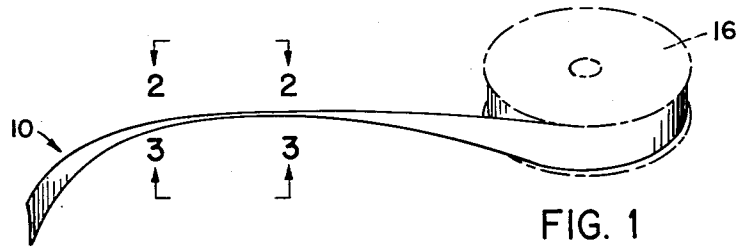


FIG. 1

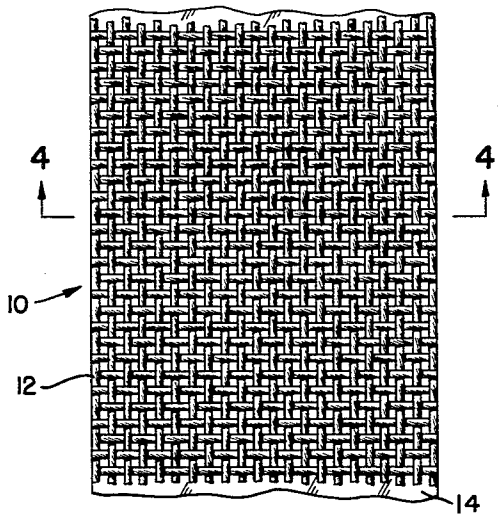


FIG. 2

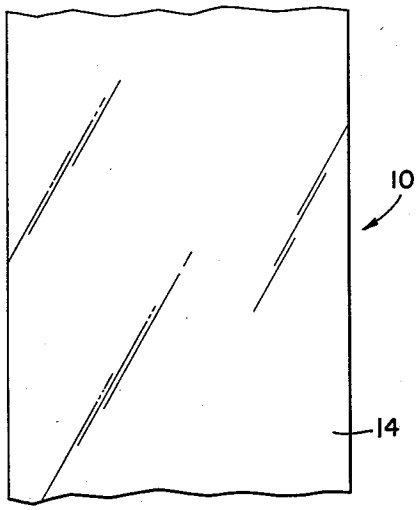


FIG. 3

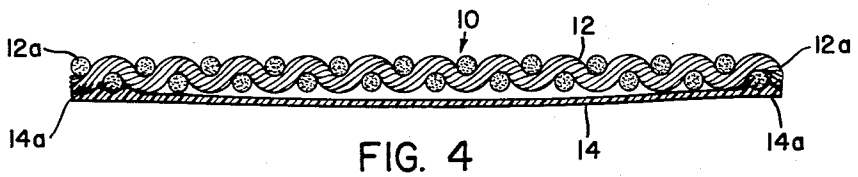


FIG. 4

INVENTOR.
WALTER PLOEGER, JR.
BY Arthur H. Seidel
ATTORNEY

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PRINTING RIBBON

Walter Ploeger, Jr., North Bellmore, N.Y., assignor to The Edgecraft Company, New York, N.Y., a partnership

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The present invention relates to a printing ribbon, and more particularly to a printing ribbon for typewriters, adding machines, and similar machines which print characters on paper.

The printing ribbon generally used on typewriters and similar printing machines comprises a single ply ribbon of a flexible, absorbent material which is impregnated with an ink. A disadvantage of such a ribbon is that when the type of the typewriter or similar printing machine strikes the ribbon with sufficient force to print, the type penetrates into the ribbon, and tends to punch holes in the ribbon. In an attempt to overcome this disadvantage of the single ply printing ribbons, printing ribbons have been made of two plies of the absorbent material.

However, such double ply printing ribbons are of twice the thickness of a single ply ribbon so that the amount of the double ply ribbon which can be wound on a standard spool is cut in half. Thus, a standard spool of the double ply ribbon has a shorter useful life than a standard spool of a single ply ribbon. Another attempt to strengthen the single ply printing ribbon has been to coat the outer surface of the ribbon with a thin layer of a plastic material. However, since the plastic penetrates slightly into the pores of the absorbent ribbon, the amount of ink which such a plastic coated ribbon can absorb is drastically reduced. Thus, such a plastic coated ribbon has a shorter useful life than a single ply ribbon.

Another disadvantage of both a single ply printing ribbon and a double ply printing ribbon is that the type of the typewriter or similar printing machine contacts the ink in the ribbon. Thus, the type becomes coated with the ink so that the type must be cleaned periodically. Furthermore, the inks normally used in printing ribbons have a corrosive effect on the metal of the type which may damage the type.

It is an object of the present invention to provide a novel printing ribbon for typewriters, adding machines, and similar printing machines.

It is another object of the present invention to provide a printing ribbon for typewriters and similar printing machines which has great strength to prevent damage to the ribbon by the type.

It is still another object of the present invention to provide a printing ribbon for typewriters and similar printing machines which eliminates contact of the type with the ink in the ribbon.

It is a further object of the present invention to provide a double ply printing ribbon for typewriters and similar printing machines which is strong, eliminates contact between the type and the ink in the ribbon, and which contains a maximum amount of ink.

Other objects will appear hereinafter.

For the purpose of illustrating the invention there is shown in the drawings a form which is presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

FIGURE 1 is a perspective view of a spool of the printing ribbon of the present invention.

FIGURE 2 is a plan view of one side of the printing ribbon of the present invention looking in the direction of arrows 2—2 in FIGURE 1.

FIGURE 3 is a plan view of the other side of the printing ribbon of the present invention looking in the direction of arrows 3—3 in FIGURE 1.

FIGURE 4 is a sectional view taken along line 4—4 of FIGURE 2.

Referring to the drawing, the printing ribbon of the present invention is generally designated as **10**.

Printing ribbon **10** comprises an elongated strip **12** of a flexible, pliable, and absorbent material, such as a woven strip of cotton, silk, or nylon, and an elongated, thin strip **14** of a flexible, pliable, impervious material, such as impervious nylon. The absorbent material strip **12** and the impervious material strip **14** are arranged in juxtaposed surface-to-surface relation along their entire length. The elongated edges **12***a* of the absorbent strip **12** and the elongated edges **14***a* of the impervious strip **14** are sealed together. As shown in FIGURE 4, the impervious strip **14** is of a fusible material, and the edges **12***a* and **14***a* of the strips **12** and **14** are sealed together by fusing the edges **14***a* of the impervious strip **14** to the edges **12***a* of the absorbent strip **12**. When the edges **14***a* of the impervious strip **14** are fused to the edges **12***a* of the absorbent strip **12**, some of the material of the impervious strip **14** penetrate into the edges **12***a* of the absorbent strip **12** to provide a strong bond between the edges **12***a* and **14***a*. In addition, the fused seal between the edges **12***a* and **14***a* provides the ribbon **10** with ravel-proof edges. Although in the illustrated embodiment of the ribbon **10** of the present invention, the edges **14***a* of the impervious strip **14** are shown to be fused to the edges **12***a* of the absorbent strip **12**, if the absorbent strip **12** is made of a fusible material, the edges **12***a* of the absorbent strip **12** may be fused to the edges **14***a* of the impervious strip **14**.

As shown in FIGURE 4, the thickness of the impervious strip **14** is substantially less than the thickness of the absorbent strip **12**. For example, the absorbent strip **12** is preferably between .004 and .005 inch in thickness, and the impervious strip **14** is preferably between .001 and .002 inch in thickness. The absorbent strip **12** of the ribbon **10** is impregnated with an ink, such as an oil base ink commonly used in printing ribbons for typewriters and similar printing machines. When the absorbent strip **12** is impregnated with the ink, some of the ink will flow into the space between the absorbent strip **12** and the impervious strip **14** to provide a reservoir of ink for the ribbon **10**. The impervious strip **14** is preferably made of a transparent material so that the absorbent strip **12** can be viewed through the impervious strip **14**.

In the use of the ribbon **10** of the present invention, the ribbon **10** is wound on a spool **16** as shown in FIGURE 1. The ribbon **10** is inserted in a typewriter, adding machine, or similar printing machine with the absorbent strip **12**, which contains the ink, facing the paper to be printed on, and with the impervious strip **14** facing the type of the printing machine. In the use of the printing machine, the type of the machine engages the impervious strip **14** of the ribbon **10**. Since the impervious strip **14** is of a tough material, the type does not penetrate the impervious strip **14**, so that the absorbent strip **12** is not damaged by the type. Thus, the ribbon **10** of the present invention has a longer usable life than the printing ribbons heretofore used. In addition, since the ink in the ribbon **10** cannot penetrate the impervious strip **14**, the type does not come into contact with the ink in the ribbon **10**. Thus, the type is maintained clean, and is not subject to being damaged by the corrosive action of the ink.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims, rather than to the foregoing specification as indicating the scope of the invention.

I claim:

1. A printing ribbon comprising an elongated strip of

flexible, pliable, absorbent woven nylon, an elongated strip of a flexible, pliable, imperforate ink, impervious nylon film, said strips being in juxtaposed surface-to-surface relation along their entire length, and fused together only along their extreme elongated edges, and within the absorbent woven nylon strip being impregnated with ink.

2. A printing ribbon comprising an elongated strip of flexible, pliable absorbent material which is capable of being fused to nylon, an elongated strip of a flexible, pliable, imperforate ink impervious nylon film, said strips being in juxtaposed surface-to-surface relation along their entire length, and fused together only along their extreme

elongated edges, and with the absorbent material being impregnated with ink.

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