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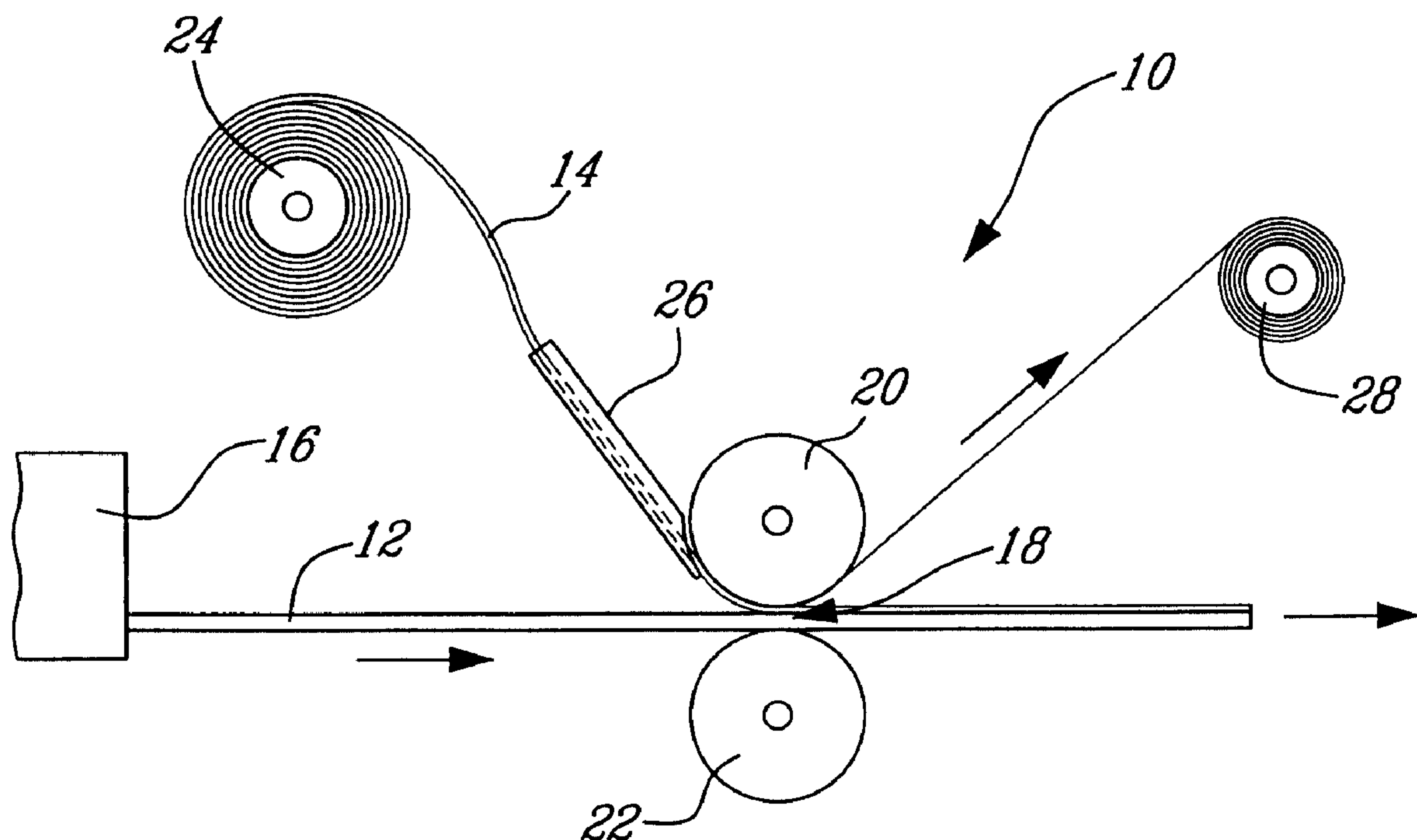
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(54) Titre : METHODE DE DECORATION DE BANDES THERMOPLASTIQUES

(54) Title: DECORATION OF THERMOPLASTIC SUBSTRATES



(57) Abrégé/Abstract:

A method of applying a decorative color to a thermoplastic strip suited for use to produce slats for blinds. The method is characterized by the use of a heat sensitive printing paper of the type normally used to color the fabric material from which valances are generally made. By using that type of color transferring medium to color the thermoplastic slats it becomes possible, for instance, to manufacture blind slats having the same color as the fabric valance to be hung decoratively from the window in which the blind is to be installed. There is also disclosed a blind structure for attenuating the flapping noise produced when the slats enter in contact with each other.



ABSTRACT

DECORATION OF THERMOPLASTIC SUBSTRATES

A method of applying a decorative color to a thermoplastic strip suited for use to produce slats for blinds. The method is characterized by the use of a heat sensitive printing paper of the type normally used to color the fabric material from which valances are generally made. By using that type of color transferring medium to color the thermoplastic slats it becomes possible, for instance, to manufacture blind slats having the same color as the fabric valance to be hung decoratively from the window in which the blind is to be installed. There is also disclosed a blind structure for attenuating the flapping noise produced when the slats enter in contact with each other.

DECORATION OF THERMOPLASTIC SUBSTRATES

BACKGROUND OF THE INVENTION1. Field of the Invention

5 The present invention relates to decoration and, more particularly, to decorative products, such as colored slats for blinds.

2. Description of the Prior Art

10 It is known to manufacture extruded thermoplastic products, such as blind slats, in a variety of colors. In the case of thermoplastic slats, a film coated with heat transferable colorant is typically used to apply a decorative color onto the slats. This is accomplished by drawing the film
15 under tension into a press where the film is forced against the thermoplastic slat material at an elevated temperature so as to cause the colorant to be transferred from the film to the thermoplastic slat material.

20 When color is applied on fabric materials (used to manufacture curtains, valance or the like), a heat sensitive printing paper is used, via a stamping process, rather than the above-mentioned coated film used for thermoplastic blind slats. This
25 difference in color transfer media results in the incapacity of obtaining exactly the same color for the thermoplastic blind and the associated fabric valance.

30 Therefore, there is a need for a new color transfer process which allows for the production of thermoplastic blind slats having exactly the same color as the associated fabric valance.

SUMMARY OF THE INVENTION

35 It is therefore an aim of the present invention to provide a novel method of applying a decorative color to a thermoplastic substrate.

It is also an aim of the present invention to provide such a method which renders possible the production of thermoplastic and fabric products having improved color matching.

5 It is a further aim of the present invention to reduce the noise generally produced when a plurality of interconnected blind slats enter in contact with each other.

10 Therefore, in accordance with the present invention, there is provided a method of applying a decorative color to a thermoplastic substrate, comprising the steps of: providing a continuous web of heat sensitive printing paper having a colorant thereon, providing a pair of lamination rollers
15 defining a nip therebetween, advancing a continuous thermoplastic substrate and said continuous web of heat sensitive printing paper through said nip to press said heat sensitive printing paper against a surface of said thermoplastic substrate at a
20 sufficient elevated temperature to cause transfer of said colorant from said heat sensitive printing paper to said thermoplastic substrate, wherein said web of heat sensitive printing paper supplied to said nip has only a slight tension therein, and separating
25 said thermoplastic substrate from said web of heat sensitive printing paper.

In accordance with a further general aspect of the present invention, there is provided a blind comprising a succession of slats, each said slats
30 having opposed inside and outside facing surfaces, and noise attenuating means provided on said outside facing surface to reduce the noise resulting from slat collision.

BRIEF DESCRIPTION OF THE DRAWINGS

35 Having thus generally described the nature of the invention, reference will now be made to the

accompanying drawings, showing by way of illustration a preferred embodiment thereof, and in which:

Fig. 1 is a schematic elevational side view of a thermal transfer printing apparatus used in accordance with a first embodiment of the present invention to produce colored blinds; and

Fig. 2 is a perspective of a portion of a blind slat manufactured in accordance with a second embodiment of the present invention.

10 DESCRIPTION OF THE PREFERRED EMBODIMENTS

Fig. 1 illustrates a thermal transfer printing apparatus 10 which can be used to apply a desired color, such as the color of a decorative fabric material, to a thermoplastic product, such as an extruded PVC strip 12 used to make window-blind slats.

It has been found that by using a roll of heat sensitive printing paper 14 of the type used for applying a color to a fabric material rather than using the conventional coated film, it is possible to manufacture blind slats having exactly the same color as the fabric valance to be hung decoratively from the window in which the blind is to be installed.

As seen in Fig. 1, the extruded PVC strip 12 is continuously supplied from a die 16 through a nip 18 defined between a pair of power-driven lamination rollers 20 and 22. The extruded PVC strip 12 is advanced through the apparatus 10 at approximately 30 ft/min and is supplied at about 350°F. The advancing speed of the paper 14 and the strip 12 must be at least equal to 10 ft./min. to prevent the paper 14 from burning. The heat sensitive printing paper 14 is wound on a supply spool 24 and is delivered and guided between the lamination rollers 20 and 22 by an appropriate guiding structure schematically illustrated at 26 in Fig. 1.

As opposed to conventional coated film used to apply a decorative color to an extruded thermoplastic product, it has been found that there must be virtually zero tension in the heat sensitive paper 14 between the supply spool 24 and the lamination rollers 20 and 22 (i.e. upstream of the nip 18) in order to effectively and efficiently color the extruded PVC strip 12. This can be accomplished, for instance, by driving and continuously adjusting the unwinding speed of the supply spool 24 so as to compensate the pulling action exerted by the lamination rollers 20 and 22 on the heat sensitive paper 14. Before being installed in the apparatus 10, the paper 14 is precisely cut so as to have a width which is slightly greater than that of the PCV strip 12. For instance, if the strip 12 has a 3½" width, the width of the paper 14 would be 4". This ensures proper application of the paper 14 onto the strip 12.

The heat sensitive paper 14, which is at the ambient temperature, is advanced through the apparatus 10 at the same speed as that of the extruded PVC strip 12. At the nip 18, the heat sensitive paper 14 is pressed against a top surface of the extruded PVC strip 12 at a sufficiently elevated temperature to cause the colorant present on the paper 14 to migrate to the extruded PVC strip 12. The lamination rollers 20 and 22 are maintained between approximately 275°F and 300°F during the color transfer process.

At their exit from, i.e. downstream of, the nip 18, the colored extruded PVC strip 12 and the heat sensitive printing paper 14 are separated. A take-up spool 28 is thus provided downstream of the lamination rollers 20 and 22 to receive the continuous web of used printing paper 14. As seen in Fig. 1, a slight tension is induced in the paper 14

between the lamination rollers 20 and 22 and the take-up spool 28.

5 Fig. 2 illustrates a transversally curved blind slat 30 formed of a substantially rigid PVC structural strip 32 having a front surface lined with a coextensive decorative resilient PVC strip 34. The opposed longitudinal sides of the resilient PVC strip 34 are folded over against the opposed longitudinal sides of the rear surface 36 of the structural strip 32 to act as dampers to reduce the noise resulting from collisions between the slats 30 of a blind.

10 The blind slat 30 is typically formed by a co-extrusion process and the strips 32 and 34 are assembled together in a unitary structure by a fusion process.

15

CLAIMS:

1. A method of applying a decorative color to a thermoplastic substrate, comprising the steps of: providing a continuous web of heat sensitive printing paper having a colorant thereon; providing a pair of lamination rollers defining a nip therebetween; advancing a continuous thermoplastic substrate and said continuous web of heat sensitive printing paper through said nip to press said heat sensitive printing paper against a surface of said thermoplastic substrate at a sufficient elevated temperature to cause transfer of said colorant from said heat sensitive printing paper to said thermoplastic substrate, wherein said web of heat sensitive printing paper supplied to said nip has only a slight tension therein; and separating said thermoplastic substrate from said web of heat sensitive printing paper.

2. A blind comprising a succession of slats, each said slat having opposed inside and outside facing surfaces, and noise attenuating means provided on said outside facing surface to reduce the noise resulting from collisions between adjacent ones of said slats.

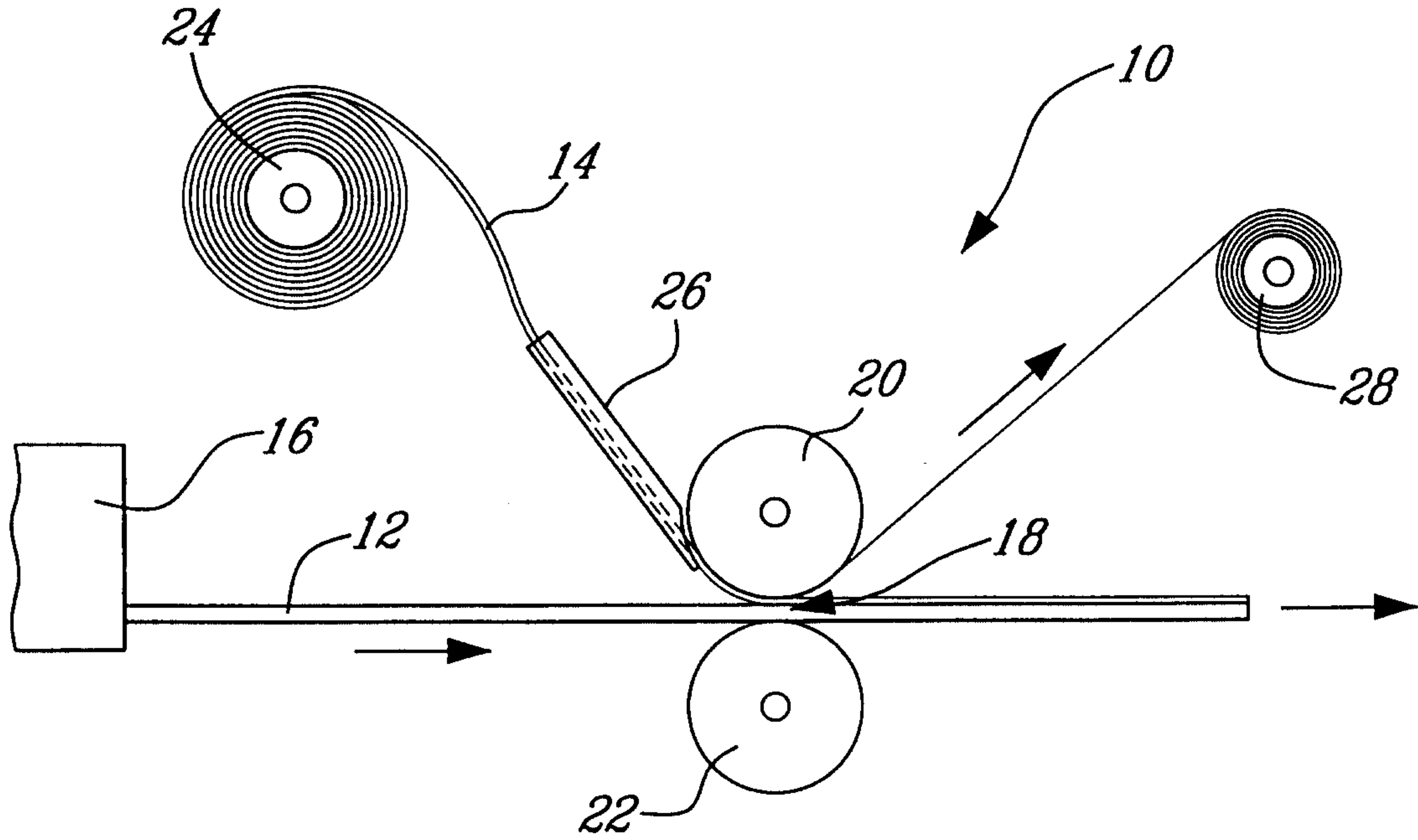


FIG. 1

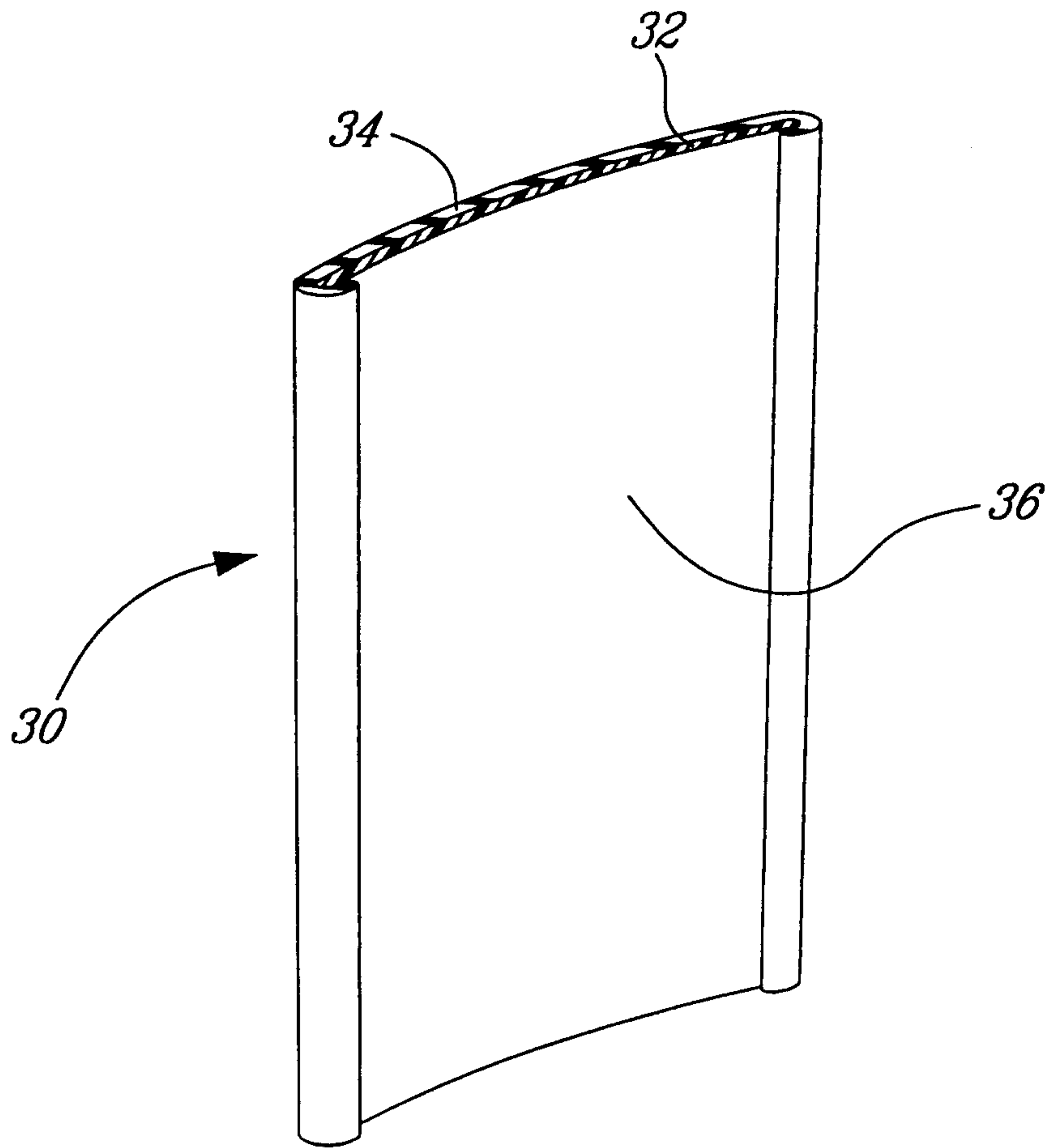


FIG. 2

