PRINTED IDENTIFICATION BAND AND METHOD OF MANUFACTURING SAME

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ABSTRACT

An identification band includes an elongated member having a front face and a rear face, and having a first opening therein adjacent a first end and a series of openings therein adjacent a second end, the elongated member being formed from a material adapted to accept digital printing ink. A stud is disposed in the first opening, the stud adapted to be passed through one of the series of openings after the band is wrapped around an object. A digital image is printed on at least one of the front face and the rear face of the elongated member, the digital image being composed of digital printing ink.
Figure 9

100
Store sheet of material in inventory

102
Perforate sheet of material to create individual bands

104
Create openings in bands for studs

106
Print sheet of material with background printing

110
Foreground printing?  No

112
Insert studs & ship to customer

114
Print foreground materials
Figure 10

112 Insert studs & ship to customer

104 Create openings in bands for studs

110 Foreground printing?

Yes

Print foreground materials

No

108 Store sheet of material in inventory

106 Print sheet of material with background printing

102 Perforate sheet of material to create individual bands

100'
PRINTED IDENTIFICATION BAND AND
METHOD OF MANUFACTURING SAME

FIELD OF THE INVENTION

[0001] The present invention relates to an improved identification band, for example, a wristband of the type used to identify persons as being particular individuals or as being a member of an identifiable group, as well as to a method of manufacturing such an improved identification band.

BACKGROUND OF THE INVENTION

[0002] The use of bands (such as bands which are adapted to be worn on the wrist of a person, as well as those adapted to be worn around other body parts) for identification purposes is well known. Such wristbands have been used for decades to identify a person as being a particular individual, or to identify the person as being a member of an identifiable group. For example, it is typical when a patient is admitted to a hospital that the patient is given a wristband having personal information concerning the patient printed thereon. Such identification wristbands are disclosed, for example, in U.S. Pat. Nos. 2,846,796, 3,020,657, 3,020,658 and 3,818,897. Typically, these hospital identification wristbands are designed to be permanent—that is, the patient cannot remove the wristband without destroying it. Such is generally considered desirable in the context of a hospital, as it may be that the patient is or becomes disoriented, in which case, the wristband may provide the only indication of the patient’s identity and/or condition. In such cases, it is desirable that the patient cannot simply remove the wristband.

[0003] There are, of course, other settings in which non-transferable wristbands are desirable. For example, wristbands may be used to identify persons who are authorized to be in a particular area because of security concerns, because entry into the area is restricted to those who pay a fee, or because entry into the area is limited to a particular group of persons for some other reason. In such cases, it is desirable that once the wristband is applied to the person, the person cannot remove the wristband without destroying it such that the person cannot transfer the wristband to some other unauthorized person. A common example would be where wristbands are used to identify ticket holders at a concert or other event—it would be undesirable for a ticket holder, after entering a venue and receiving a wristband identifying that person as a ticket holder, to be able remove his/her wrist band and give it to another person (e.g., by passing it through a fence) such that this other person would also be able to enter the venue, posing as a legitimate ticket holder.

[0004] It should be noted that there are other situations where it is desirable for a person to be able to remove, and then replace, his/her wristband for multiple uses. Typically, these instances will be ones where security is not a major concern. Such may be particularly desirable where an event spans several days, such that a person would not be required to wear the wristband while he/she is sleeping. Examples of such events include school athletics, day camps, etc., where the main objective of the wristband is to identify the wearer as belonging to one group as opposed to another (which may be achieved, for example, using different colored wristbands), rather than the situation where the objective of the wristband is to identify those persons who are authorized to do something or be someplace which the general public is not authorized to do or be where the general public is not authorized to be.

[0005] There are two main types of wristbands which are widely used for the above purposes: thermoplastic wristbands and spun-bonded polyolefin fiber (such as marketed by DuPont under the trademark Tyvek®) wristbands.

[0006] The thermoplastic wristbands generally consist of a band of thermoplastic material (such as vinyl), which has a hole adjacent one end for receiving a stud and a series of holes adjacent the other end such that a user may pass the stud through one of the series of holes to create a wristband appropriate in size for his/her wrist. If the wristband is desired to be of the permanent type, a cap is typically provided (usually attached to the wristband in some way), which cap is designed to permanently engage the stud after the stud has been passed through the appropriate hole in the wristband, such that a permanent wristband is created. If the wristband is desired to be of the reusable type, a different type of cap (i.e., one which may be disengaged from the stud) may be provided, or no stud may be provided, such that the stud simply engages the appropriate hole in the wristband.

[0007] The spun-bonded polyolefin fiber (such as marketed by DuPont under the trademark Tyvek®) wristbands are generally formed without holes. Instead, these wristbands generally rely on a high strength pressure sensitive adhesive for formation of the wristband around the wearer’s wrist. Typically, the pressure sensitive adhesive is applied adjacent to one end of the wristband, and a release liner is applied thereover. When the wristband is to be applied to a wearer, the release liner is removed, and the adhesive is adhered to a portion of the wristband adjacent the opposite end thereof. If desired, slits or the like may be formed in the wristband, such that the wristband is more easily destroyed if it is tampered with in order to further inhibit transfer of the wristband.

[0008] While the above-described wristbands may be adequate in performing their identification functions, they are generally not particularly aesthetically pleasing. In general, the materials from which the wristbands are formed are difficult to print on, and therefore, any printing thereon is typically done in a single color (typically black). In addition, spun-bonded polyolefin can not withstand high temperatures, so that wristbands made from this material can not be passed through high-heat printers, such as digital color printers and copiers. Multiple colors may be used, but such generally requires a multiple step printing process—with each color being printed in a separate step. Due to these difficulties, the typical configuration for the above-described wristbands is to have the wristband itself formed in one color and then to print thereon in another color, for a two-color wristband. It would be far more desirable if multiple colors could be printed on the wristband in an economical and efficient manner.

[0009] What is desired, therefore, is an identification band which may be formed as a non-transferable band, which may be formed as a removable, and thus reusable, band, which is relatively economical and efficient to produce, and which is aesthetically pleasing.

SUMMARY OF THE INVENTION

[0010] Accordingly, it is an object of the present invention to provide an identification band which may be formed as a non-transferable band.
[0011] A further object of the present invention is to provide an identification band having the above characteristics and which may be formed as a removable, and thus reusable, band.

[0012] Still another object of the present invention is to provide an identification band having the above characteristics and which is aesthetically pleasing.

[0013] Yet another object of the present invention is to provide an identification band having the above characteristics and which is aesthetically pleasing.

[0014] These and other objects of the present invention are achieved in accordance with one embodiment of the present invention by provision of an identification band including an elongated member having a front face and a rear face, and having a first opening therein adjacent a first end and a series of openings therein adjacent a second end, the elongated member being formed from a material adapted to accept digital printing ink. A stud is disposed in the first opening, the stud adapted to be passed through one of the series of openings after the band is wrapped around an object. A digital image is printed on at least one of the front face and the rear face of the elongated member, the digital image being composed of digital printing ink.

[0015] In some embodiments, the elongated member has a generally rectangular outer periphery. In certain of these embodiments, corners of the generally rectangular outer periphery of the elongated member are rounded or removed in order to enhance wearer comfort. In certain embodiments, the band further includes perforations formed within the generally rectangular outer periphery of the elongated member, which perforations define at least one removable portion of the band. In certain of these embodiments, the at least one removable portion comprises a plurality of tabs which have printed thereon an indication of something for which the tabs are redeemable. In certain embodiments, the at least one removable portion comprises a removable end of the band, and the removable end of the band and a main portion of the band are both printed with corresponding identifiers. In certain embodiments, the identifiers comprise alphanumeric strings of characters.

[0016] In some embodiments, the elongated member is formed from synthetic paper. In some embodiments, the band is joined to at least one other band, and perforations are formed therebetween. In some embodiments, the first opening and the series of openings comprise weakened portions formed in the elongated member. In certain of these embodiments, the weakened portions comprise X-shaped slits created in the elongated member. In some embodiments, the first opening and the series of openings comprise holes formed in the elongated member.

[0017] Another embodiment allows for a layer of PVC material which is ink-receptive to digital ink to be digitally printed. This PVC sheet may be white or clear. The clear sheets may be printed reversing backwards, so that they can be turned over and sealed to a second sheet (usually opaque), which becomes a backer to the top sheet. This way, the digital ink is trapped between the two layers, eliminating any incidents of the ink being able to be scratched off the surface. If a white PVC sheet is used, this is printed forwards-reading on its top surface, and this may also be sealed to a backing layer for additional strength and support.

[0018] The preferable method of sealing together one or more sheets of PVC is radio frequency sealing (also known as dielectric sealing or high frequency sealing). However other methods of bonding together multiple layers of thermoplastic materials include vibration sealing, sonic sealing and heat sealing. PVC is the preferred material when making these bands in multiple layers, but other thermoplastic materials, if ink-receptive to digital ink, would include polypropylene, polyethylene, urethane, rigid vinyl and others.

[0019] In accordance with another embodiment of the present invention, an identification band includes an elongated member having a front face and a rear face, and having a first opening therein adjacent a first end and a series of openings therein adjacent a second end, the elongated member being formed from synthetic paper and having a generally rectangular outer periphery. A stud is disposed in the first opening, the stud adapted to be passed through one of the series of openings after the band is wrapped around an object. A digital image is printed on at least one of the front face and the rear face of the elongated member, the digital image being composed of digital printing ink. Perforations formed within the generally rectangular outer periphery of the elongated member, which perforations define at least one removable portion of the band.

[0020] In some embodiments, corners of the generally rectangular outer periphery of the elongated member are rounded or removed in order to enhance wearer comfort. In some embodiments, the at least one removable portion comprises a plurality of tabs which have printed thereon an indication of something for which the tabs are redeemable. In some embodiments, the at least one removable portion comprises a removable end of the band, and the removable end of the band and a main portion of the band are both printed with corresponding identifiers. In certain of these embodiments, the identifiers comprise alphanumeric strings of characters.

[0021] In some embodiments, the band is joined to at least one other band, and perforations are formed therebetween. In some embodiments, the first opening and the series of openings comprise weakened portions formed in the elongated member. In certain of these embodiments, the weakened portions comprise X-shaped slits created in the elongated member. In some embodiments, the first opening and the series of openings comprise holes formed in the elongated member.

[0022] In accordance with a further embodiment of the present invention, a sheet of identification bands comprises a sheet of material adapted to accept digital printing ink having perforations therein which define a plurality of bands, each of the plurality of bands comprising an elongated member, the sheet of material having a front face and a rear face. A digital image is printed on at least one of the front face and the rear face of the elongated member such that the digital image spans the plurality of bands, the digital image being composed of digital printing ink.

[0023] In some embodiments, the sheet of material is formed from synthetic paper. In some embodiments, the digital image comprises a continuous design, a portion of which is printed on each of the plurality of bands. In some embodiments, the digital image comprises a plurality of discrete designs, each of the discrete designs being printed on one of the plurality of bands.

[0024] In accordance with another aspect of the present invention, a method for creating identification bands comprises the steps of: (i) providing a sheet of material adapted
to accept digital printing ink; (ii) perforating the sheet of material to create a plurality of individual bands; (iii) creating a first opening in each of the bands adjacent a first end and a series of openings in each of the bands adjacent a second end; (iv) printing the sheet of material with a digital image to create background printing, the digital image being composed of digital printing ink; and (v) inserting a stud into the first opening of each of the bands and shipping the bands to a customer.

[0025] In some embodiments, the method further comprises the step of perforating the sheet of material to create removable portions of the bands. In certain of these embodiments, the step of perforating the sheet of material to create individual bands. In some embodiments, the printing step comprises the step of printing a single digital image spanning the plurality of individual bands. In some embodiments, the printing step comprises the step of printing a digital image comprising a discrete design on each of the plurality of individual bands. In some embodiments, the printing step comprises the step of printing on both a front face and a rear face of the sheet of material. In some embodiments, the step of providing a sheet of material comprises the step of providing a sheet of synthetic paper.

[0026] In some embodiments, the openings are created by creating weakened areas in the sheet of material. In certain of these embodiments, the openings are created prior to the printing step. In some embodiments, the openings are created by forming perforations through the sheet of material. In certain of these embodiments, the openings are created by forming perforations through the sheet of material simultaneously with the step of perforating the sheet of material to create individual bands. In some embodiments, the openings are created by creating holes through the sheet of material. In certain of these embodiments, the openings are created subsequent to the printing step.

[0027] In some embodiments, the method further comprises the step of, before the inserting step, storing the sheet of material in inventory until an order for bands having the specific background printing printed on the sheet of material is received. In certain of these embodiments, the storing step comprises the step of storing sheets of material having various designs or themes, such that a customer may choose a design or theme that most closely correlates to an event being planned. In some embodiments, the method further comprises the steps of determining whether any foreground printing is necessary, and if so, printing foreground material on the sheet of material before the inserting step. In certain of these embodiments, the foreground printing comprises at least one of an identification of tabs, identifiers and coupons. In some embodiments, the method further comprises the step of separating the plurality of individual bands before shipping the bands to the customer.

[0028] The invention and its particular features and advantages will become more apparent from the following detailed description considered with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0029] FIG. 1 is a front elevational view of a wrist band in accordance with an embodiment of the present invention;

[0030] FIG. 2 is a front elevational view of a wrist band in accordance with another embodiment of the present invention;

[0031] FIG. 3 is a front elevational view of the wrist band of FIG. 1 incorporating redeemable tabs;

[0032] FIG. 4 is a front elevational view of the wrist band of FIG. 1 incorporating printed numbering and a removable portion with a corresponding number;

[0033] FIG. 5 is a back elevational view of the wrist band of FIG. 1;

[0034] FIG. 6 is a side partially cross-sectional view showing an embodiment of a stud for use with the wrist bands of FIGS. 1 and 2;

[0035] FIG. 7A is a side partially cross-sectional view showing another embodiment of a stud for use with the wrist bands of FIGS. 1 and 2;

[0036] FIG. 7B is a isometric view showing the stud of FIG. 7A;

[0037] FIG. 8 is a front elevational view of a sheet of wrist bands of FIG. 1 shown during a manufacturing process thereof;

[0038] FIG. 9 is flow chart schematically illustrating a method of manufacturing a wrist band in accordance with the present invention, which method is particularly well-suited for manufacturing the wrist band of FIG. 1;

[0039] FIG. 10 is flow chart schematically illustrating another method of manufacturing a wrist band in accordance with the present invention, which method is particularly well-suited for manufacturing the wrist band of FIG. 2; and

[0040] FIG. 11 is flow chart schematically illustrating yet another method of manufacturing a wrist band in accordance with the present invention.

DETAILED DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

[0041] Referring first to FIGS. 1 and 2, a wrist band 10, 10' in accordance with the present invention is shown. While the term “wrist band” is used in the specification, it should be understood that it is not necessary that wrist band 10, 10' be worn on the wrist. Wrist band 10, 10' may be worn on the ankle, forearm, upper arm, leg, around the neck, or around any other part of the body. Of course, it may be necessary to increase or decrease the size of wrist band 10, 10' if it is intended to be worn on a part of the body other than the wrist. Identification bands in accordance with the present invention may also be used to identify objects, such as luggage, cycles, watercraft and other vehicles participating in races or the like, and/or for security purposes, such as sealing door handles closed, and for other uses.

[0042] Wrist band 10, 10' is generally elongate in shape, and formed without pointed edges. The corners thereof may be rounded, or as shown in the Figures, the corners may be formed with large angles. Angles larger than 90 degrees are generally preferred for the comfort of the wearer so that the wearer is not poked with pointed corners. Wrist band 10, 10' includes an opening 12, 12' adjacent one end thereof and a spaced apart series of openings 14, 14' adjacent the other end thereof.

[0043] Referring now to FIGS. 6, 7A and 7B in addition to FIGS. 1 and 2, a stud 16, 16' is disposed in opening 12, 12'—typically before being supplied to the wearer. As shown in FIG. 6, the stud may simply comprise a barbed head which is intended to be inserted through one of openings 14, 14' after the wrist band 10, 10' is wrapped
around the wrist of the wearer. In this case, the wrist band 10, 10' will typically be removable, and thus reusable, by the wearer. If a permanent, non-transferable wrist band 10, 10' is desired, stud 16 may comprise a stud portion 18 and a cooperating cap portion 20, as is shown in FIGS. 7A and 7B. When such a stud 16' is employed, typically, the stud portion 18 is inserted through one of openings 14, 14' after the wrist band 10, 10' is wrapped around the wrist of the wearer (similar to the way stud 16 is inserted in the embodiment shown in FIG. 6), and then cap portion 20 is snapped onto stud portion 18. Stud portion 18 and cap portion 20 are configured such that once cap portion 20 is snapped onto stud portion 18, cap portion is not removable therefrom without destroying stud 16'. Stud portion 18 and cap portion 20 may be joined together by member 22 such that cap portion 20 is not easily lost (as shown in FIG. 7B). Alternately, cap portion 20 may be carried in some other way by wrist band 10, 10'.

[0044] Referring again to FIGS. 1 and 2, wrist band 10, 10' includes background printing 24 comprising a digital image. Background printing 24 comprises full color printing which is printed using a digital printer with digital printing inks which are waterproof, colorfast and long-lasting. This is made possible because the material of which wrist band 10, 10' is made is particularly adapted to receive digital printing inks. For example, the material may comprise synthetic paper such as that sold by Protocell Print Media, Inc. under the name PrintMaster® synthetic paper. It has been found that this material possesses durability, comfort and digital ink receptive properties which make it suitable for forming wrist bands 10, 10'. The material may also comprise a digital ink receptive vinyl, which can then be bonded to one or more additional layers, such as by radio frequency welding.

[0045] Background printing 24 may comprise substantially any design, such as a geometric design, a photograph, a drawing or sketch, or any other design which is capable of being printed. Background printing 24 may be thematic of the event in connection with which wrist band 10, 10' is to be worn. Background printing 24 may cover substantially the entire wrist band 10, 10', or there may be one or more areas 26 left unprinted. For example, an area 26 may be left devoid of background printing 24 so that background printing 24 does not interfere with foreground printing 28 (such as a text message) in this area. Such is not required, however, and even if foreground printing 28 is present, background printing 24 may still cover substantially the entire wrist band 10, 10'.

[0046] Wrist band 10 shown in FIG. 1 and wrist band 10' shown in FIG. 2 differ in the way that 12, 12' adjacent the first end of wrist band 10, 10' and the series of openings 14, 14' adjacent the second end of wrist band 10, 10' are configured. In wrist band 10 shown in FIG. 1, openings 12, 14 are formed as weakened areas in the material forming wrist band 10, such as may be formed by slits or perforations. In FIG. 1, X-shaped slits are shown, which have been found to provide desirable results. In wrist band 10' shown in FIG. 2, openings 12, 14' are formed as holes passing completely through the material forming wrist band 10', such as may be formed by punching or the like. In either case, the openings 12, 12', 14, 14' should be sized such that when a stud 16, 16' is pressed thereagainst, the stud 16, 16' is readily able to "pop" through the opening 12, 12', 14, 14', but should not be so large that the stud 16, 16' readily falls out of opening 12, 12', 14, 14' after being passed therethrough. This is particularly important when stud 16 shown in FIG. 6 is employed, since it is the stud 16 cooperating with the opening 14, 14', rather than with a cap or the like, which causes the wrist band 10, 10' to remain closed.

[0047] Referring now to FIG. 3, a wrist band 10" incorporating an additional feature is shown. Wrist band 10" is similar to wrist band 10, with the exception that wrist band 10" includes one or more tabs 30, which tabs 30 comprise removable portions of wrist band 10". In accordance with the embodiment shown in FIG. 3, wrist band 10" has a generally rectangular shape, with the exception of the corners thereof which may be rounded, cut away (as shown in the Figure), or the like for comfort reasons as described above. Tabs 30 are formed by creating perforations 32 within the generally rectangular periphery of the wrist band 10", which perforations 32 allow tabs 30 to be separated (preferably one at a time) from the remainder of wrist band 10". An alternative to perforations are weakened lines, which may be formed, for example, using heat-seal or radio frequency (RF) seal dies, which too will allow the tabs to remain intact, but to be easily separable. For the sake of convenience and clarity, the term "perforations" as used throughout the specification and claims is intended to include weakened lines, in addition to traditional perforations.

[0048] As shown in FIG. 3, tabs 30 may include foreground printing 28 thereon identifying what each tab 30 represents. For example, wrist band 10" may be intended to be used in connection with a fair or the like, and it may be intended that the price of admission includes a hot dog, a soda, an ice cream and a ride. In this case, four tabs 30 may be provided on wrist band 10", each printed with an appropriate indication of one of these four listed items. Thus, when the wearer desired his/her soda, the appropriate tab 30 representing the soda may be removed and redeemed for the soda. The other three tabs may be redeemed in a similar way. Of course, a greater or lesser number of tabs may be formed in wrist band 10". For example, if the price of admission in the above example were intended to include three rides, two additional "ride" tabs 30 could be formed in wristband 10".

[0049] Referring now to FIG. 4, a wrist band 10" incorporating another feature is shown. Wrist band 10" is similar to wrist band 10 shown in FIG. 1 and wrist band 10" shown in FIG. 3, with the exception that wrist band 10" is provided with a perforation 34 such that an entire end portion 38 is removable from a main portion 36 of the wrist band 10", the main portion 36 and the removable end portion 38 both including the same identifier 40 (such as an alphanumeric string). Preferably, the identifier 40 is unique with respect to each of any other wrist bands 10" which are ordered together as a group. Such may be achieved, for example, by providing sequentially numbered wrist bands 10".

[0050] The design of wrist band 10" facilitates the conducting of lotteries and the like. For example, when a person enters an event and is provided with a wrist band 10", the removable end portion 38 thereof which includes identifier 40 may be retained. Later, after a plurality of end portions 38 have been collected from a plurality of wearers, a random drawing may be held, where one or more end portions 38 are selected from the plurality. The identifier 40 may be read from the drawn end portion 38, and a winner of the drawing may be identified if the identifier 40 printed on the main
portion 36 of his/her wrist band 10"" (being worn on his/her wrist) matches the identifier 40 read from the drawn end portion 38.

[0051] Of course, because an entire end portion 38 of the wrist band 10" is intended to be removed, it may be desirable to create wrist band 10" that much longer than is typical such that it is still capable of fitting the wrist of typical wearers.

[0052] Referring now to FIG. 5, wrist band 10 may include printing on a back surface thereof, such as instructions for use 42, a coupon 44 which may be redeemed after the event, or any other printed material which is desirable to provide the wearer.

[0053] Referring now to FIG. 8, wrist band 10, 10", 10" may be created as part of a sheet 46 of wrist bands. Sheet may comprise any number of wrist bands, each being shown in FIG. 8. Individual wrist bands may be formed in sheet 46 by using a die or the like to create perforations 48 in sheet 46. As shown in FIG. 8, it is preferably (although not required) that individual wrist bands are adjacent to one another in sheet 46 so as to minimize waste. Sheet 46 of wrist bands is preferably printed with background printing 24 and foreground printing 28 (if provided) before individual wrist bands are separated from sheet 46 in order to facilitate printing. The printing may be applied either before or after perforations 48, openings 12, 12', 14, 14', perforations 32 (if provided) and/or perforations 34 (if provided) are formed, as explained more fully below.

[0054] Background printing 24 in particular may be repeated for each wrist band 10, or background printing may comprise one continuous design spanning more than one wrist band. For example, background printing may comprise a photograph which covers substantially the entire area of sheet 46, such that after being separated, each wrist band carries only a portion of the photograph. For example, if the wrist band is to be handed out at a baseball game, a photograph of the entire baseball stadium may be printed across sheet 46, such that each wrist band only includes a portion of the stadium.

[0055] Referring now to FIG. 9, a method 100 of forming wrist bands as described above is schematically shown. Method 100 is used to create sheets of wrist bands as described in connection with FIG. 8 above. At step 102, the sheet of material is perforated to create individual bands. During this step, perforations 32 and/or 34 may be created if wrist bands 10" or 10" (described above in connection with FIGS. 3 and 4) are being created. The perforations may be formed using a die or by any other perforating method known in the art. At step 104, the openings 12, 12', 14, 14' are created in the bands. Again, a die or some other similar device may be used. Of course, it should be recognized that steps 102 and 104 may be performed simultaneously (e.g., using the same die).

[0056] Next, the sheet of material is printed with the background printing, shown as step 106. As discussed above, the entire sheet may be printed with a single design, or the design may be repeated for each wrist band. At least a portion of the printing on the rear of the wrist band (if such is provided) may be printed at this time. The sheet of material is now stored in inventory, as shown at step 108. Preferably, an inventory of various designs or themes is kept, such that a customer may choose a design or theme that most closely correlates to an event being planned. By performing steps 102, 104, 108 and 108 before an order is received, turn-around time for shipping wrist bands to customers once an order is received is greatly shortened.

[0057] Once an order is received, a determination is made at block 110 as to whether any custom foreground printing has been requested. Such may be desirable so that the customer can tailor the wrist bands to the specific event being planned. The foreground printing may also comprise, for example, the identification of tabs 30, the identifiers 40 and/or the coupons 44 (printed on a rear of the wrist bands) as mentioned above, or some other custom request. If no foreground printing has been requested, the studs are inserted into the wrist bands (it is desirable to wait until just before shipping to insert the studs in case any further printing is necessary), and the wrist bands are shipped to the customer at block 112. The wrist bands may be separated into individual bands, or the wrist bands may be shipped still attached in sheets. If it was determined at block 110 that foreground printing was requested by the customer, foreground printing is done at block 114, before the studs are inserted and the wrist bands are shipped.

[0058] The method 100 shown in FIG. 9 is particularly well suited for creating the wrist bands 10, 10", 10" shown in FIGS. 1, 3 and 4 respectively, namely those where openings 12, 14' are formed by creating weakened areas, as opposed to those where openings 12', 14 are created by removing material (i.e., making holes). This is true because in method 100, there are printing steps which take place after the openings are created. If the openings were formed as holes, this may be problematic for two reasons. First, printing the sheets having holes therethrough would allow ink to pass through the holes and onto the cylinder of the printer, thereby fouling the printer. Secondly, unless it was ensured that all of the materials left over when the holes are created were completely removed, the little pieces of material may fall off during printing, becoming caught in the printer thereby causing potential damage thereto, or sticking onto a face of the sheets thereby interfering with printing thereof. Of course, the particular sequence of steps can differ, and be particularly tailored to the configuration of the bands being created.

[0059] These problems are obviated by the method 100' shown in FIG. 10, which method is particularly well suited for creating wrist bands wherein the openings 12, 14' comprise holes passing through wrist band material. Method 100' includes all steps of method 100, the difference being that the step of creating the openings in wrist bands (shown at block 104) is performed just before the step of inserting the studs and shipping the wrist bands to the customer (shown at block 112), rather than earlier on in the process.

[0060] Another method 100" is shown in FIG. 11, which method is particularly well suited for creating wrist bands formed of at least one layer of vinyl material. Method 100" is similar to method 100 shown in FIG. 9, the main difference being that the steps of perforating the sheet of material to create individual bands (shown at block 102), creating openings in the bands for studs (shown at block 104), and printing the sheet of material with background printing (shown at block 106) are replaced with the steps of printing a sheet of rigid or flexible vinyl with a background image (step 116) and sealing the sheet of vinyl, either face-up or face-down, to a backing layer, while creating holes for studs at this time (step 118). In step 116, the background image
may be printed on top of the sheet if opaque vinyl is employed, or from the underside of the sheet of clear vinyl is used.

[0061] The present invention, therefore, provides a band which may be formed as a non-transferable band, which may be formed as a removable, and thus reusable, band, which is relatively economical and efficient to produce, and which is aesthetically pleasing.

[0062] Although the invention has been described with reference to a particular arrangement of parts, features and the like, these are not intended to exhaust all possible arrangements or features, and indeed many other modifications and variations will be ascertainable to those of skill in the art.

What is claimed is:

1. An identification band comprising:
an elongated member having a front face and a rear face, and having a first opening therein adjacent a first end and a series of openings therein adjacent a second end, said elongated member being formed from synthetic paper and having a generally rectangular outer periphery; a stud disposed in the first opening, said stud adapted to be passed through one of the series of openings after the band is wrapped around an object; and a digital image printed on at least one of the front face and the rear face of said elongated member, said digital image being composed of digital printing ink.

2. The band of claim 1 wherein said elongated member has a generally rectangular outer periphery.

3. The band of claim 2 wherein corners of the generally rectangular outer periphery of said elongated member are rounded or removed in order to enhance wearer comfort.

4. The band of claim 2 further comprising perforations formed within the generally rectangular outer periphery of said elongated member, which perforations define at least one removable portion of the band.

5. The band of claim 4 wherein the at least one removable portion comprises a plurality of tabs which have printed thereon an indication of something for which the tabs are redeemable.

6. The band of claim 4 wherein the at least one removable portion comprises a removable end of said band, and wherein the removable end of said band and a main portion of said band are both printed with corresponding identifiers.

7. The band of claim 6 wherein the identifiers comprise alphanumeric strings of characters.

8. The band of claim 1 wherein said elongated member is formed from synthetic paper.

9. The band of claim 1 wherein said band is joined to at least one other band, and wherein perforations are formed therewith.

10. The band of claim 1 wherein the first opening and the series of openings comprise weakened portions formed in said elongated member.

11. The band of claim 10 wherein the weakened portions comprise X-shaped slits created in said elongated member.

12. The band of claim 1 wherein the first opening and the series of openings comprise holes formed in said elongated member.

13. An identification band comprising:
an elongated member having a front face and a rear face, and having a first opening therein adjacent a first end and a series of openings therein adjacent a second end, said elongated member being formed from synthetic paper and having a generally rectangular outer periphery; a stud disposed in the first opening, said stud adapted to be passed through one of the series of openings after the band is wrapped around an object; a digital image printed on at least one of the front face and the rear face of said elongated member, said digital image being composed of digital printing ink; and perforations formed within the generally rectangular outer periphery of said elongated member, which perforations define at least one removable portion of the band.

14. The band of claim 13 wherein corners of the generally rectangular outer periphery of said elongated member are rounded or removed in order to enhance wearer comfort.

15. The band of claim 13 wherein the at least one removable portion comprises a plurality of tabs which have printed thereon an indication of something for which the tabs are redeemable.

16. The band of claim 13 wherein the at least one removable portion comprises a removable end of said band, and wherein the removable end of said band and a main portion of said band are both printed with corresponding identifiers.

17. The band of claim 16 wherein the identifiers comprise alphanumeric strings of characters.

18. The band of claim 13 wherein said band is joined to at least one other band, and wherein perforations are formed therewith.

19. The band of claim 13 wherein the first opening and the series of openings comprise weakened portions formed in said elongated member.

20. The band of claim 19 wherein the weakened portions comprise X-shaped slits created in said elongated member.

21. The band of claim 13 wherein the first opening and the series of openings comprise holes formed in said elongated member.

22. A sheet of identification bands, said sheet of identification bands comprising:
a sheet of material adapted to accept digital printing ink having perforations therein which define a plurality of bands, each of the plurality of bands comprising an elongated member, said sheet of material having a front face and a rear face; and a digital image printed on at least one of the front face and the rear face of said elongated member such that said digital image spans the plurality of bands, said digital image being composed of digital printing ink.

23. The sheet of identification bands of claim 22 wherein said sheet of material is formed from synthetic paper.

24. The sheet of identification bands of claim 22 wherein said digital image comprises a continuous design, a portion of which is printed on each of the plurality of bands.

25. The sheet of identification bands of claim 22 wherein said digital image comprises a plurality of discrete designs, each of the discrete designs being printed on one of the plurality of bands.

26. A method for creating identification bands, said method comprising the steps of:
providing a sheet of material adapted to accept digital printing ink;
perforating the sheet of material to create a plurality of individual bands;
creating a first opening in each the bands adjacent a first end and a series of openings in each of the bands adjacent a second end;
printing the sheet of material with a digital image to create background printing, the digital image being composed of digital printing ink; and
inserting a stud into the first opening of each of the bands and shipping the bands to a customer.
27. The method of claim 26 further comprising the step of perforating the sheet of material to create removable portions of the bands.
28. The method of claim 27 wherein said step of perforating the sheet of material to create removable portions of the bands is performed simultaneously with said step of perforating the sheet of material to create individual bands.
29. The method of claim 26 wherein said printing step comprises the step of printing a single digital image spanning the plurality of individual bands.
30. The method of claim 26 wherein said printing step comprises the step of printing a digital image comprising a discrete design on each of the plurality of individual bands.
31. The method of claim 26 wherein said printing step comprises the step of printing on both a front face and a rear face of the sheet of material.
32. The method of claim 26 wherein said step of providing a sheet of material comprises the step of providing a sheet of synthetic paper.
33. The method of claim 26 wherein the openings are created by creating weakened areas in the sheet of material.
34. The method of claim 33 wherein the openings are created prior to said printing step.
35. The method of claim 33 wherein the openings are created by forming perforations through the sheet of material.
36. The method of claim 35 wherein the openings are created by forming perforations through the sheet of material simultaneously with said step of perforating the sheet of material to create individual bands.
37. The method of claim 26 wherein the openings are created by creating holes through the sheet of material.
38. The method of claim 37 wherein the openings are created subsequent to said printing step.
39. The method of claim 26 further comprising the step of, before said inserting step, storing the sheet of material in inventory until an order for bands having the specific background printing printed on the sheet of material is received.
40. The method of claim 39 wherein said storing step comprises the step of storing sheets of material having various designs or themes, such that a customer may choose a design or theme that most closely correlates to an event being planned.
41. The method of claim 26 further comprising the steps of determining whether any foreground printing is necessary, and if so, printing foreground material on the sheet of material before said inserting step.
42. The method of claim 41 wherein the foreground printing comprises at least one of an identification of tabs, identifiers and coupons.
43. The method of claim 26 further comprising the step of separating the plurality of individual bands before shipping the bands to the customer.
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