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(71) Applicants:
- **Nielsen, Stig**
  6094 Hejls (DK)
- **Jørgensen, Anna Karina Brøndum**
  6000 Kolding (DK)
- **Baagøe, Svend**
  5500 Middelfart (DK)

(72) Inventor: **NIELSEN, Stig**
6094 Hejls (DK)

(74) Representative: **Rasmussen, Martin Hoffgaard et al**
Otello Law Firm
Sommervej 31F, 3. tv
8210 Aarhus V (DK)

(54) A FLAG HAVING IMPROVED STRUCTURAL INTEGRITY

(57) A flag (200) to be mounted on a flagpole (2) is provided. The flag is having improved structural integrity. The flag comprises a fabric (14) wherein one or more specific limited areas of said fabric is being provided with enhanced stiffness, relative to other areas of the fabric of said flag.

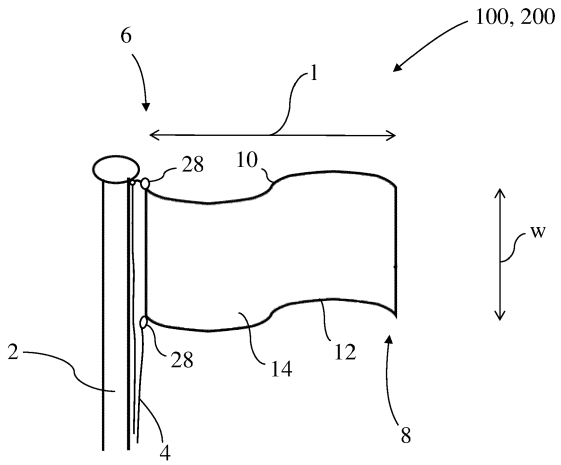

Fig. 1

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Description

Field of the invention

[0001] The present invention relates in general to the field of flags, banners, and streamers and the like.

[0002] More specifically, the present invention in a first aspect relates to a flag having improved structural integrity.

[0003] In a second aspect the present invention relates to a use of a flag according to the first aspect for exposing an affiliation associated with that flag.

[0004] In a third aspect the present invention relates to a method for the manufacture of a flag having improved structural integrity.

Background of the invention

[0005] For various purposes it is common to expose to the surroundings one's affiliation of various types.

[0006] One way of such exposure is to raise a flag, a streamer or a pennant on a flagpole or other fixed structure, such as a wire or the like, wherein the flag, the streamer or the pennant comprises a fabric which has been provided with information identifying such affiliation.

[0007] The type of affiliation one may like to expose could be one's nationality, one's membership of a certain club, association or organization, a company, a sympathy with a certain organization etc.

[0008] Very often a flag this way may be seen as a kind of advertising, in that the affiliation represented by the information appearing on the fabric of the flag, is being advertised when exposing that flag.

[0009] Once the flag, the streamer or the pennant has been raised on the flagpole, the information appearing on the fabric will thereof be visible at a relatively large distance.

[0010] Moreover, as the fabric is typically of a rather lightweight material the wind will easily cause the flag to move and flap in the wind and this movement will draw attention to nearby spectators.

[0011] However, as the wind causes the flag, the streamer or the pennant to move, this movement also imposes stresses, wear and tear on the fabric thereof.

[0012] Such stresses, wear and tear will gradually and over time cause the flag, the streamer or the pennant to disintegrate and come apart and hence the owner ultimately will have to provide a new flag, streamer or pennant in order to continuously expose his or her affiliation associated therewith.

[0013] Moreover, it may happen, especially in case of a streamer or a pennant that the movement thereof, caused by the wind, will occasionally lead to formation of one or more knots at the free end (also denoted the fly side) of the fabric. The knots formed will typically be of the type of the so-called "overhand knot".

[0014] As mentioned, formation of knots is most likely to happen in respect of streamer or a pennant and less likely to happen in respect of a regularly shaped flag. However, formation of a knot may also easily happen in respect of a swallow-tailed flag.

[0015] Once a knot is formed in the fabric it often happens that the information on the fabric of the streamer or a pennant is no longer fully visible, thereby impairing the very purpose of having raised the streamer or the pennant on the flagpole.

[0016] Additionally, time and effort will have to be spent in order to take down flag, the streamer or the pennant and loosen the knot.

[0017] Formation of a knot on a flag, a streamer or a pennant will imply appearance of a rather dense lump of material constituting the knot and this dense lump may, especially at relatively high wind speeds, imply more violent movements of the fabric of the flag, streamer or pennant, thereby further speed up the disintegration process of the fabric.

[0018] Accordingly, a need persists for an improved flag, a streamer or a pennant of the type which is intended for being raised on a flagpole, which is less susceptible to the above-mentioned disadvantages relating to wear and tear and formation of knots.

[0019] It is an objective of the present invention to fulfill such need.

Brief description of the invention

[0020] This objective is fulfilled according to the present invention in its various aspects.

[0021] Accordingly, the present invention relates in a first aspect a flag to be mounted on a flagpole and having improved structural integrity, wherein said flag comprises a fabric, and wherein one or more specific limited areas of said fabric is being provided with enhanced stiffness, relative to other areas of the fabric of said flag.

[0022] In a second aspect the present invention relates to a use of a flag according to the first aspect for exposing an affiliation associated with said flag.

[0023] In a third aspect the present invention provides a method for the manufacture of a flag having improved structural integrity, wherein said method comprises the steps of:

i) providing a flag made of a fabric having predetermined geometry and dimensions and optionally also expressing a graphic design;

ii) applying a polymer, to one or more specific limited areas of said fabric;

iii) allowing said polymer, in a flowable state, to become absorbed by said one or more specific limited areas of said fabric;

iv) allowing the polymer to set to a non-flowable state.

[0024] The present invention in its various aspects provides improved structural integrity to a flag and thereby making the fabric of the flag less prone to wear and tear caused by movement in the wind. In respect of some types of flags the present invention also provides for avoidance of formation of knots on the fabric of the flag.

Brief description of the figures

[0025]

Fig. 1 is a perspective view showing the anatomy of a flag.

Fig. 2 is a perspective view showing a flag in which the fly side of the flag has partly disintegrated due to the action of the wind on the fabric of the flag.

Fig. 3 is a perspective view illustrating a flag wherein specific limited areas have been provided with enhanced stiffness.

Fig. 4 is a cross-sectional view illustrating the rim of a fly side of a flag which has been applied with a polymer for providing enhances stiffness.

Fig. 5 is a photograph showing a flag in the form of a pennon wherein, due to its waving movement in the wind, a plurality of knots has been formed on of the fabric of the flag near the fly side thereof.

Fig. 6 is a plan view showing a pennon which at the fly side thereof, a specific limited area has been provided with enhanced stiffness.

Fig. 7 is a plan view showing a pennant which at the fly side thereof, a specific limited area has been provided with enhanced stiffness.

Fig. 8a - 8e are top views illustrating the principles of a process of providing enhanced stiffness to limited specific areas of the fabric of a flag by applying a melted polymer to the fabric.

Fig. 9a - 9e are cross-sectional views illustrating the process illustrated in Fig. 8a - 8e.

Detailed description of the invention

[0026] The present invention relates in a first aspect a flag to be mounted on a flagpole and having improved structural integrity, wherein said flag comprises a fabric, and wherein one or more specific limited areas of said fabric is being provided with enhanced stiffness, relative to other areas of the fabric of said flag.

[0027] Hereby, wear and tear of the fabric of the flag due to the flag's movement in the air will be avoided or at least reduced.

[0028] In one embodiment of the flag according to the first aspect of the present invention, the flag comprises a hoist side 6 and an opposite fly side 8.

[0029] In one embodiment of the flag according to the first aspect of the present invention the flag at its hoist side 6 comprises fastening means 28 for being attached to a flagpole 2, such as one or more rings, hooks, loops or the like.

[0030] In one embodiment of the flag according to the first aspect of the present invention the fabric 14 of the flag is made of cotton, linen, polyester, nylon, viscose, silk, or wool or mixtures thereof.

[0031] Such types of fabrics and mixtures of fabric are well-suited for use in a flag.

[0032] In one embodiment of the flag according to the first aspect of the present invention fabric 14 of the flag is a woven or non-woven fabric.

[0033] In one embodiment of the flag according to the first aspect of the present invention the flag is in the form of a rectangular flag, a swallow-tailed flag, or in the form of a pennant, a pennon or a burgee, a beach flag, or in the form of a flying banner.

[0034] Such shapes of flags are common for various purposes.

[0035] In one embodiment of the flag according to the first aspect of the present invention the fabric of the flag, at said one or more specific limited areas 16 of enhanced stiffness, comprises a polymer 22 which in a flowable state has been at least partly absorbed by said fabric 14 and subsequently has been allowed to set to a non-flowing polymer.

[0036] The applied polymer ensures less wear and tear of the fabric of the flag, thus provides a prolonged lifespan of the flag.

[0037] In one embodiment of the flag according to the first aspect of the present invention the polymer 22 is a UV-resistant polymer, and/or said polymer in its non-flowable state is water-insoluble.

[0038] Hereby the flag will resist harsh weather conditions.

[0039] In one embodiment of the flag according to the first aspect of the present invention the polymer 22, in its flowable state, is a single component polymer or wherein said polymer, in its flowable state, is two-component polymer.

[0040] Such types of polymer have proved suitable for the intended purpose.

[0041] In one embodiment of the flag according to the first aspect of the present invention the polymer 22 and wherein the fabric 14 of the flag are each selected in such a way that the polymer is able to be absorbed between fibres of said fabric 14.

[0042] Hereby is achieved that the polymer will be "anchored" to the fibres of the fabric, thereby ensuring adequate fastening of the polymer to the fabric.

[0043] In one embodiment of the flag according to the first aspect of the present invention the polymer 22 has been applied to one side of the fabric 14 of the flag or

the polymer 22 has been applied to both sides of the fabric of the flag.

[0044] Two-side application is beneficial for improved structural integrity of the fabric of the flag.

[0045] In one embodiment of the flag according to the first aspect of the present invention the polymer 22 is selected from the group comprising: thermoplastic polymer, such as polyurethane, a silicone polymer, such as a modified silicone polymer, such as in the form of a silyl modified silicone polymer; or a polyether block amide.

[0046] These types of polymers have proven suitable for the intended purpose.

[0047] In one embodiment of the flag according to the first aspect of the present invention the specific limited area 16 of enhanced stiffness is selected from one or more of the following areas: an are at the edge of the flag, such as at an upper rim 10 of the flag, at a lower rim 12 of the flag, at an edge at the hoist side 6 of the flag, and/or at an edge at the fly side 8 of the flag; such as along said edge in a width of 1 - 10 cm, such as 2 - 9 cm, e.g. 3 - 8 cm, such as 4 - 7 cm or 5 - 6 cm; or a portion at the fly side 8 of the flag, such as a portion situated at the far 10% of the length 1 of the flag, e.g. the far 15% of the length 1 of the flag, for example the far 20% of the length 1 of the flag, or the far 25% or 30% of the length 1 of the flag, relative to the hoist side 6 of the flag; such as in a width corresponding to the full width at the fly side 8 of said fabric, or in a width less than this.

[0048] The listed areas are areas that are especially subjected to wear and tear and providing enhanced stiffness to these areas of the fabric thereby enhances the structural integrity of the flag.

[0049] In one embodiment of the flag according to the first aspect of the present invention the fabric 14 of said flag comprises one or more sewing hems 20, and wherein one or more of the specific limited areas 16 of the fabric 14 having been provided with enhanced stiffness is/are area(s) comprising such sewing hem(s) 20.

[0050] Hereby also the areas of the fabric comprising sewing hems will be provided with enhanced stiffness and thereby enhances structural integrity.

[0051] In one embodiment of the flag according to the first aspect of the present invention the polymer 22 is a polymer which has been applied to said fabric 14 of the flag in its flowable state by brush or roller or the like.

[0052] Such ways of application is easy and time efficient.

[0053] In one embodiment of the flag according to the first aspect of the present invention the polymer 22 is a polymer which has been applied to said fabric 14 of the flag in the form of a solid sheet material which has been made flowable by melting and which has been applied to said fabric 14 in its melted form.

[0054] Such a way of application allows using thermoplastic polymers for enhancing stiffness to the fabric of the flag.

[0055] In one embodiment of the flag according to the first aspect of the present invention the melting point of said sheet material of said polymer 22 is in the range of 150 - 220 °C, such as 160 - 210 °C, for example 170 - 200 °C or 180 - 190°C.

[0056] In one embodiment of the flag according to the first aspect of the present invention the total thickness of said sheet material of said polymer 22, in its non-flowable form, is 5 - 1000 μm, such as 10 - 900 μm, e.g. 20 - 850 μm, such as 25 - 800 μm, for example 30 - 750 μm, e.g. 40 - 700 μm, for example 50 - 650 μm, such as 60 - 600 μm, for example 70 - 550 μm, such as 80 - 500 μm, e.g. 90 - 450 μm, such as 95 - 400 μm, for example 100 - 350 μm, e.g. 150 - 300 μm or 200 - 250 μm.

[0057] These thicknesses have proved sufficient for imparting adequate enhanced stiffness to the fabric.

[0058] In one embodiment of the flag according to the first aspect of the present invention the polymer 22 in its non-flowable state is being transparent or translucent.

[0059] Hereby the polymer will not detrimentally interfere with the visual expression of the flag.

[0060] In one embodiment of the flag according to the first aspect of the present invention the polymer 22 per se in its set or hardened state is having a bend flexibility that complies with the standard ASTM D4338-97 (2021), using a bend mandrel of size 3.2 mm.

[0061] Complying with such a standard ensures that the polymer itself will not crack upon the movement in the air that may be encountered.

[0062] In one embodiment of the flag according to the first aspect of the present invention the polymer 22 per se in its set or hardened state is having a bend flexibility that complies with the standard ASTM D4338-97 (2021), using a bend mandrel of size 3.2 mm, when the polymer is having a thickness of 5 - 1000 μm, such as 10 - 900 μm, e.g. 20 - 850 μm, such as 25 - 800 μm, for example 30 - 750 μm, e.g. 40 - 700 μm, for example 50 - 650 μm, such as 60 - 600 μm, for example 70 - 550 μm, such as 80 - 500 μm, e.g. 90 - 450 μm, such as 95 - 400 μm, for example 100 - 350 μm, e.g. 150 - 300 μm or 200 - 250 μm.

[0063] Complying with such a standard ensures that the polymer itself will not crack upon the movement in the air that may be encountered, even at relatively large thicknesses.

[0064] In one embodiment of the flag according to the first aspect of the present invention the amount of polymer 22 that has been applied to said fabric 14 corresponds to an average thickness of polymer 22 of 5 - 1000 μm, such as 10 - 900 μm, e.g. 20 - 850 μm, such as 25 - 800 μm, for example 30 - 750 μm, e.g. 40 - 700 μm, for example 50 - 650 μm, such as 60 - 600 μm, for example 70 - 550 μm, such as 80 - 500 μm, e.g. 90 - 450 μm, such as 95 - 400 μm, for example 100 - 350 μm, e.g. 150 - 300 μm or 200 - 250 μm , wherein the average thickness of polymer is calculated as total volume of polymer 22 applied to said fabric 14 divided by the size of the area of said one or more specific limited areas 16 of said fabric 14. These amounts of polymer have proved adequate in order to achieve the desired enhanced stiffness.

[0065] In one embodiment of the flag according to the first aspect of the present invention the flag 200 is having a bend flexibility that complies with the standard ASTM D4338-97 (2021), using a bend mandrel of size 3.2 mm.

[0066] Complying with such a standard ensures that the flag with the applied polymer will not crack upon movement in the air.

[0067] In a second aspect the present invention relates to a use of a flag according to the first aspect for exposing an affiliation associated with said flag.

[0068] In a third aspect the present invention provides a method for the manufacture of a flag having improved structural integrity, wherein said method comprises the steps of:

i) providing a flag made of a fabric having predetermined geometry and dimensions and optionally also expressing a graphic design;

ii) applying a polymer, to one or more specific limited areas of said fabric;

iii) allowing said polymer, in a flowable state, to become absorbed by said one or more specific limited areas of said fabric;

iv) allowing the polymer to set to a non-flowable state.

[0069] In one embodiment of the method according to the third aspect of the present invention step ii) involves coving one or more of said specific limited areas 16 with a sheet of thermoplastic polymer 22 and subsequently melt and press said thermoplastic polymer 22 into said fabric 14 by applying heat and optionally also pressure to said thermoplastic polymer 22 and/or to said specific limited areas 16 of said fabric 14.

[0070] This method accordingly allows for melting on a polymer to the fabric of the flag, which in certain instances provides really good adherence to the fabric.

[0071] In one embodiment of the method according to the third aspect of the present invention the specific limited areas 16 of said fabric 14 is being covered with said sheet of thermoplastic polymer 22 from one side or from both sides of said fabric 14.

[0072] Two-side application is beneficial for improved structural integrity of the fabric of the flag.

[0073] In one embodiment of the method according to the third aspect of the present invention the polymer 22 is selected from the group comprising: polyurethane, a silicone polymer, such as a modified silicone polymer, such as in the form of a silyl modified silicone polymer; or in the form of a polyether block amide.

[0074] These polymers have proven well-suited for the intended purpose of providing enhances stiffness to areas of the fabric of the flag.

[0075] In one embodiment of the method according to the third aspect of the present invention step ii) involves application of polymer 22 in a liquid form, such as by using a brush or a roller or by using a spatula.

[0076] In order to better illustrate the present invention in its various aspects we now refer to the drawings in which Fig. 1 is a perspective view showing the anatomy of a flag arranged on a flagpole.

[0077] Fig. 1 shows a rectangular flag 100,200 being hoist on a flagpole 2 by a flag line 4 which is connected to fastening means 28 of the flag. The side of the flag being closest to the flagpole 2 is called the hoist side 6 and the opposite, free end is called the fly side 8. The direction of the length 1 of the flag as well as the direction of the width w of the flag is shown in Fig. 1. Also shown in Fig. 1 is the upper rim 10 of the flag and the lower rim 12 of the flag. The flag is made of a fabric 14.

[0078] The with w at the hoist side of the flag may be the same as the width w at the fly side of the flag, or it may be different depending on the shape and type of flag.

[0079] Fig. 2 is a perspective view showing a flag 100 similar to the one depicted in Fig. 1 in which the fly side 8 of the flag has partly disintegrated due to the action of the wind on the fabric 14 of the flag. A close-up view in the circle clearly shows that the fabric 14 has become frayed and if the fabric is not being be repaired or otherwise structurally improved or strengthened the deterioration of the fabric will continue, and eventually the fabric of the flag will completely disintegrate.

[0080] In order to avoid such type of disintegration of the flag, the fabric may be provided with enhanced stiffness at predetermined and specific limited areas. This is illustrated in Fig. 3.

[0081] Fig. 3 is a perspective view illustrating a flag 200 of the same type as the one depicted in Fig. 2. The fabric 14 of the flag 200 in Fig. 3 has at specific limited areas 16 been provided with enhanced stiffness, relative the remainder of the fabric of the flag. It is seen that the areas 16 having enhanced stiffness are located along the fly side 8 of the flag, along the upper rim 10 of the flag and along the lower rim 12 of the flag.

[0082] The method of providing such enhances stiffness to specific limited areas of the fabric of the flag is further disclosed below.

[0083] One method of providing enhances stiffness to the fabric of the flag is to apply a polymer in a flowable state and allow the polymer to set, so as to become non-flowable. Hereby some of the polymer, when flowable, will be absorbed by the fabric and accordingly provide for adequate adherence to the fabric.

[0084] Fig. 4 is a cross-sectional view illustrating the rim of the flag 200, such as the rim at the fly side 8 of the flag or the upper rim 10 or the lower rim 12. It is seen that at the rim 8,10,12 of the fabric 14 of the flag 200 has been bend into a bend 18 comprising a 180° turn of the fabric, thereby forming a double layered rim. It is also seen that the fabric at the position of this double layered rim, the fabric has been secured by sewing hems 20. This technology is prior art.

[0085] However, even securing the rim of the flag with sewing hems 20 this way will not withstand the rather

harsh condition encountered when the flag is waving in the wind.

[0086] According to one embodiment of the invention the rim of the flag has been applied with a polymer 22 which may cover the outer 4 - 10 cm of the fabric of the rim and as it is seen in Fig. 4 the polymer covers the area of the fabric comprising the sewing hem 20.

[0087] Hereby enhanced stiffness to the fabric of the flag has been provided to the rim of the flag and accordingly improved structural integrity of the flag is secured.

[0088] Fig. 5 is a photograph illustrating a flag in the form of a pennon which, due to its movement in waving in the wind has formed a plurality of knots of the fabric of the flag near the fly side thereof. Such knots will impair the visual appearance of the pennon and will furthermore impart more violent movements of the pennon in the wind, thereby imply accelerated disintegration of the pennon.

[0089] In order to avoid such problems, the present invention provides for a solution wherein the structural integrity of a pennon is improved by providing enhanced stiffness to a specific limited area of the fabric of the pennon near the fly side of the fabric of the flag.

[0090] Fig. 6 is a plan view showing a flag 200 in the form of a pennon. The pennon is having a hoist side 6 and a fly side 8. The length of the pennon is 1. At the hoist side the width w of the pennon is having magnitude d and at the fly side of the pennon the width is having magnitude c. It is seen that the magnitude c is smaller than the magnitude d, thereby making the pennon having a wedge-shaped form.

[0091] The ratio d/l may in respect of a pennon typically be of the order 0.05 and the ratio c/l may typically be of the order 0.0175.

[0092] At the fly side 8 a specific limited area 16, extending a distance b from the fly side 8 of the fabric of the pennon in a direction towards the hoist side 6, has been provided with enhanced stiffness.

[0093] The ratio of the magnitude b/l may be 0.15 - 0.5, such as 0.2 - 0.45, e.g. 0.25 - 0.4 or 0.3 - 0.35.

[0094] The enhances stiffness has been provided to the fabric by applying a polymer 22 in its flowable state to the fabric in the area 16 so that the fabric 14 at least partly absorbs this polymer 22, whereafter the polymer has been allowed to set so as to change into a non-flowable state.

[0095] Fig. 7 is a plan view showing a flag 100 in the form of a pennant.

[0096] The ratio d/l may in respect of a pennon typically be of the order 0.17 and the ratio c/l may typically be of the order 0.03.

[0097] Again, at the fly side 8 a specific limited area 16, extending a distance b from the fly side 8 of the fabric of the pennant in a direction towards the hoist side 6, has been provided with enhanced stiffness. This has been brought about by applying a polymer 22 in its flowable state to the fabric 14 in the area 16 so that the fabric at least partly absorbs this polymer, whereafter the polymer has been allowed to set so as to change into a non-flowable state.

[0098] The polymer may be applied to the fabric of the flag in its flowable state simply by brush or roller. Examples of polymer suitable for being applied to the fabric of the flag in this way are silicone polymers, such as MS polymers (modified silicone polymers). Examples of suitable polymers are "Danaseal Universal 510 Transparent", "Danaflex Sealflex Hybrid 522" and "Sikaflex 112 Crystal Clear".

[0099] Alternatively, the enhances stiffness may be applied to the fabric by making the fabric at the specific limited areas 16 at least partly absorb a solid polymer sheet which has been melted.

[0100] This technique is further disclosed below.

[0101] Fig. 8a - 8e are top views illustrating the principles of a process of providing enhanced stiffness to limited specific areas of the fabric of a flag by applying a melted polymer to the fabric.

[0102] Fig. 9a - 9e are cross-sectional views illustrating the process illustrated in Fig. 8a - 8e.

[0103] First step of the process involves providing a flag made 100 made from a fabric 14. The flag 100 is arranged flat on a support 24. This is illustrated in Fig 8a and 9a. A specific limited area 16 is defined along the upper rim 10, the lower rim 12 and along the rim of the fly side 8 of the flag.

[0104] Next, a sheet of a polymer 22, such as a thermoplastic polymer is cut to a desired shape which corresponds to the shape of the limited specific area 16 of the fabric 14 to which it is desired to provided enhanced stiffness. In fig. 8b it is seen that the sheet of polymer 22 has been cut so as to correspond to the upper rim 10, the lower rim 12 and the rim of the fly side 8 of the flag 100. In fig. 8b and 9b this shape of cut polymer is about to be arranged on top of one side of the fabric 14 of the flag 100.

[0105] Fig 8c and 9c illustrate the situation in which the cut sheet of polymer 22 has been arranged on top of the fabric 14 of the flag 100 and it is made sure that the cut sheet of polymer is aligned with the upper rim 10, the lower rim 12 and the rim at the fly side 8 of the flag 100.

[0106] Subsequently, a heating plate 26 is pressed against the polymer 22 and the fabric 14 of the flag 100. This is illustrated in Fig. 8d and 9d. The heat pressing is performed by applying pressure to the fabric 14 and polymer 22 by means of a heat press plate 26.

[0107] By heat pressing the sheet of polymer 22, the polymer sheet 22 will melt and will be distributed into the voids between fibres of the fabric 14. This ensures good adequate adherence of the polymer 100 to the fabric 14.

[0108] After heat pressing the process is over and the flag 200 with areas 16 of enhanced stiffness may be removed. This is illustrated in Fig. 8e and 9e.

[0109] The step of heat pressing may be performed in a way where the support 24 in addition to the heat press plate 24 is also a heat press plate.

[0110] Also, the fabric 14, may prior to heat pressing be provided with a sheet of polymer 22 at both side of

the fabric. Alternatively, the polymer sheet may be applied and heat pressed first at one side of the fabric 14 and subsequently, in an additional step, another sheet of polymer may be applied and heat pressed at the opposite side of the fabric 14.

[0111] Examples of a polymer suitable for being applied to the fabric of the flag in this way are the products "*Taoeco*" from the supplier Universal Color & Chemical Aps, Denmark and "P.S. Film-easy Weed" supplied by "Siser s.r.l, Italy.

[0112] It should be understood that all features and achievements discussed above and in the appended claims in relation to one aspect of the present invention and embodiments thereof apply equally well to the other aspects of the present invention and embodiments thereof.

List of reference numerals

[0113]

2	Flagpole
4	Flag line
6	Hoist side of flag
8	Fly side of flag
10	Upper rim of flag
12	Lower rim of flag
14	Fabric of flag
16	Specific limited area of fabric of flag having enhanced stiffness
18	Bend of fabric at rim of flag
20	Sewing hem
22	Polymer providing enhances stiffness to specific area of fabric of flag
24	Support
26	Heating and pressing plate
28	Fastening means
100	Flag to be provided with enhanced stiffness
200	Flag with enhanced stiffness
1	Length direction of flag
w	Width direction of flag

Claims

1. A flag (200) to be mounted on a flagpole (2) and having improved structural integrity, wherein said flag comprises a fabric (14), and wherein one or more specific limited areas (16) of said fabric is being provided with enhanced stiffness, relative to other areas of the fabric of said flag.

2. A flag (200) according to claim 1, wherein said flag comprises a hoist side (6) and an opposite fly side (8).

3. A flag (200) according to any of the claims 1 or 2, wherein said fabric (14) is made of cotton, linen, polyester, nylon, viscose, silk, or wool or mixtures thereof.

4. A flag (200) according to any of the claims 1 - 3, wherein said flag is in the form of a rectangular flag, a swallow-tailed flag, or in the form of a pennant, a pennon or a burgee, a beach flag, or in the form of a flying banner.

5. A flag (200) according to any of the claims 1 - 4, wherein the fabric, at said one or more specific limited areas (16) of enhanced stiffness, comprises a polymer (22) which in a flowable state has been at least partly absorbed by said fabric (14) and subsequently has been allowed to set to a non-flowing polymer.

6. A flag (200) according to any of the claims 7 - 11, wherein the polymer (22) is selected from the group comprising: thermoplastic polymer, such as polyurethane, a silicone polymer, such as a modified silicone polymer, such as in the form of a silyl modified silicone polymer; or a polyether block amide.

7. A flag (200) according to any of the preceding claims, wherein said specific limited area (16) of enhanced stiffness is selected from one or more of the following areas: an edge of the flag, such as an upper rim (10) of the flag, a lower rim (12) of the flag, an edge at the hoist side (6) of the flag, and/or an edge at the fly side (8) of the flag; such as along said edge in a width of 1 - 10 cm, such as 2 - 9 cm, e.g. 3 - 8 cm, such as 4 - 7 cm or 5 - 6 cm; or a portion at the fly side (8) of the flag, such as a portion situated at the far 10% of the length 1 of the flag, e.g. the far 15% of the length 1 of the flag, for example the far 20% of the length 1 of the flag, or the far 25% or 30% of the length 1 of the flag, relative to the hoist side (6) of the flag; such as in a width corresponding to the full width at the fly side (8) of said fabric, or in a width less than this.

8. A flag (200) according to any of the claims 1 - 7,

wherein the fabric (14) of said flag comprises one or more sewing hems (20), and wherein one or more of the specific limited areas (16) of the fabric (14) having been provided with enhanced stiffness is/are area(s) comprising such sewing hem(s) (20).

9. A flag (200) according to any of the claims 5 - 8, wherein said polymer (22) is a polymer which has been applied to said fabric (14) of the flag in the form of a solid sheet material which has been made flowable by melting and which has been applied to said fabric (14) in its melted form.

10. A flag (200) according to any of the preceding claims, wherein the polymer (22) per se in its set or hardened state is having a bend flexibility that complies with the standard ASTM D4338-97 (2021), using a bend mandrel of size 3.2 mm.

11. Use of a flag (200) according to any of the preceding claims for exposing an affiliation associated with said flag.

12. A method for the manufacture of a flag (200) having improved structural integrity, wherein said method comprises the steps of:

i) providing a flag (100) made of a fabric (14) having predetermined geometry and dimensions and optionally also expressing a graphic design;
ii) applying a polymer (22), to one or more specific limited areas (16) of said fabric;
iii) allowing said polymer (22), in a flowable state, to become absorbed by said one or more specific limited areas (16) of said fabric (14);
iv) allowing the polymer (22) to set to a non-flowable state.

13. A method according to claim 12, wherein step ii) involves coving one or more of said specific limited areas (16) with a sheet of thermoplastic polymer (22) and subsequently melt and press said thermoplastic polymer (22) into said fabric (14) by applying heat and optionally also pressure to said thermoplastic polymer (22) and/or to said specific limited areas (16) of said fabric (14).

14. A method according to any of the claims 12 or 13 wherein said thermoplastic polymer (22) is selected from the group comprising: polyurethane, a silicone polymer, such as a modified silicone polymer, such as in the form of a silyl modified silicone polymer; or in the form of a polyether block amide.

15. A method according to claim 12, wherein step ii) involves application of polymer (22) in a liquid form, such as by using a brush or a roller or by using a spatula.

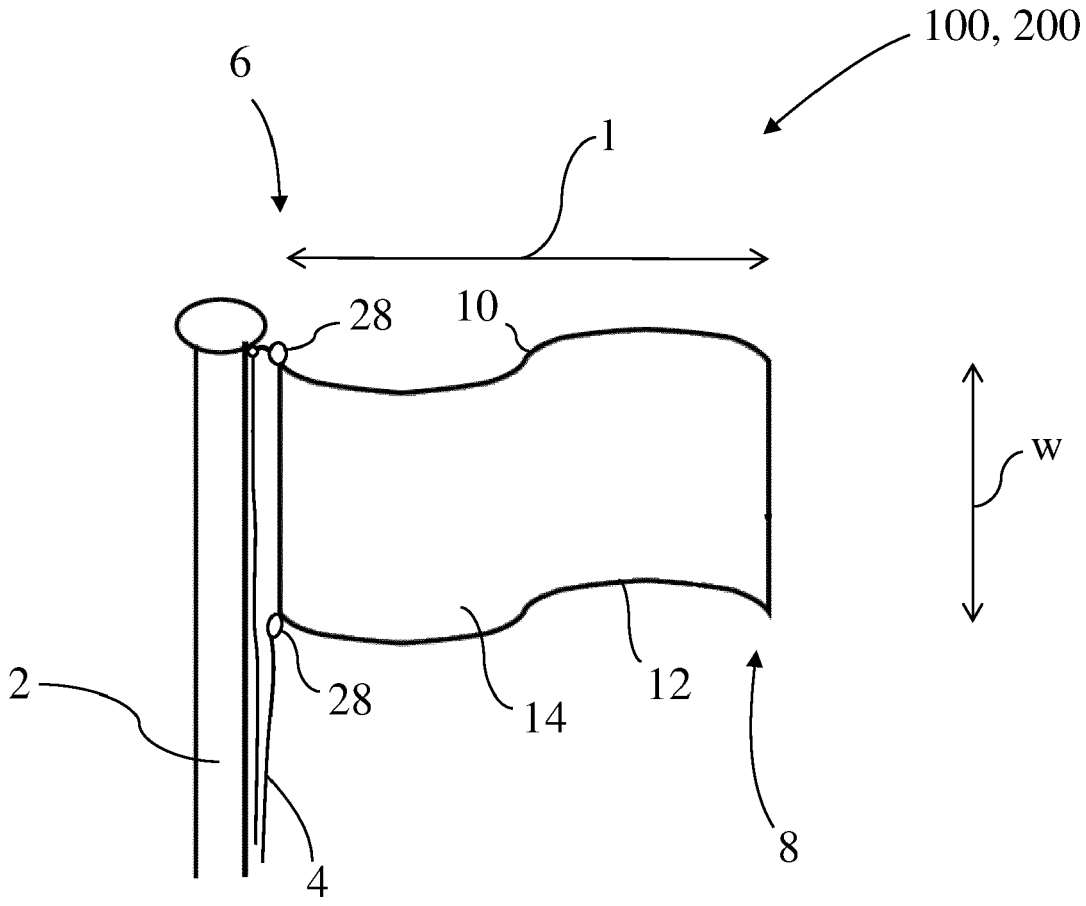

Fig. 1

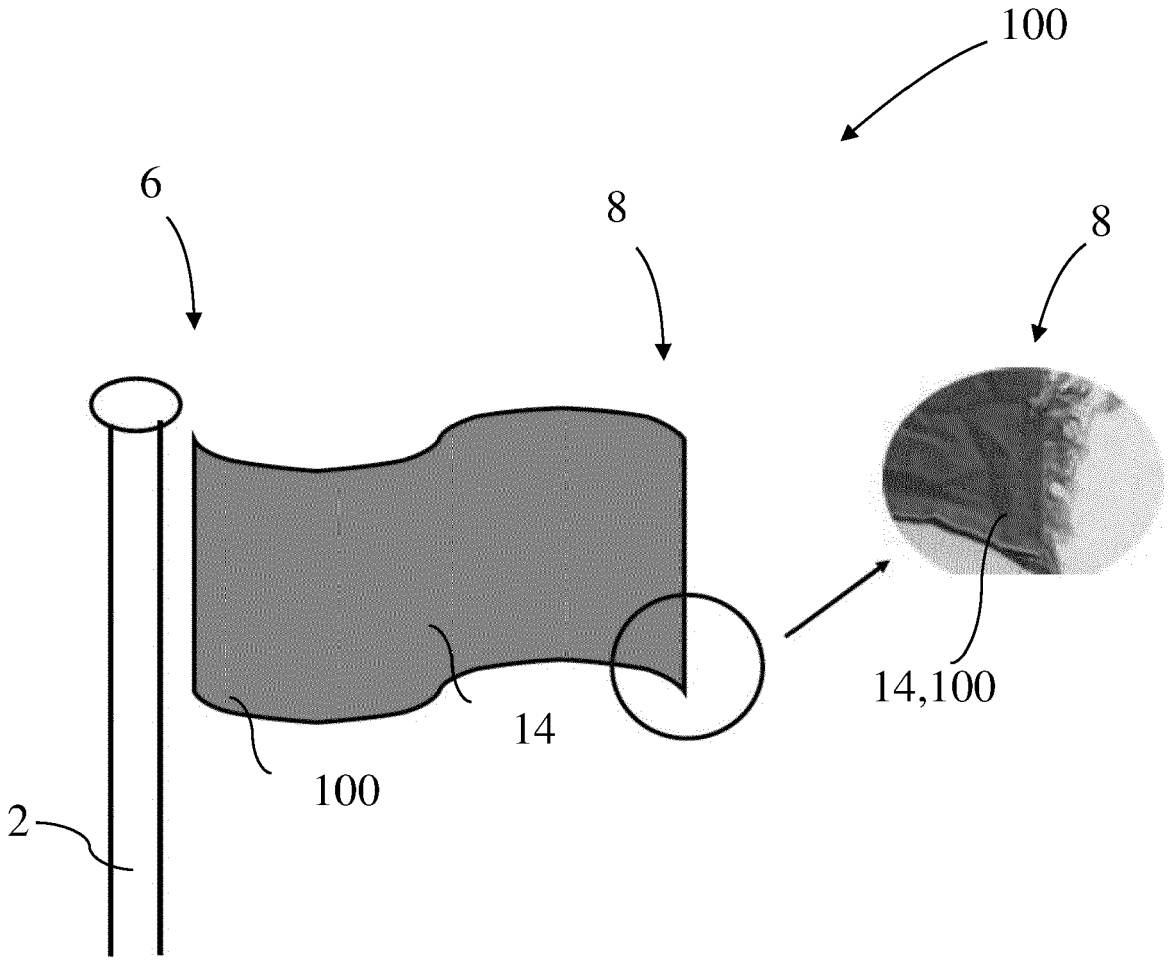

Fig. 2

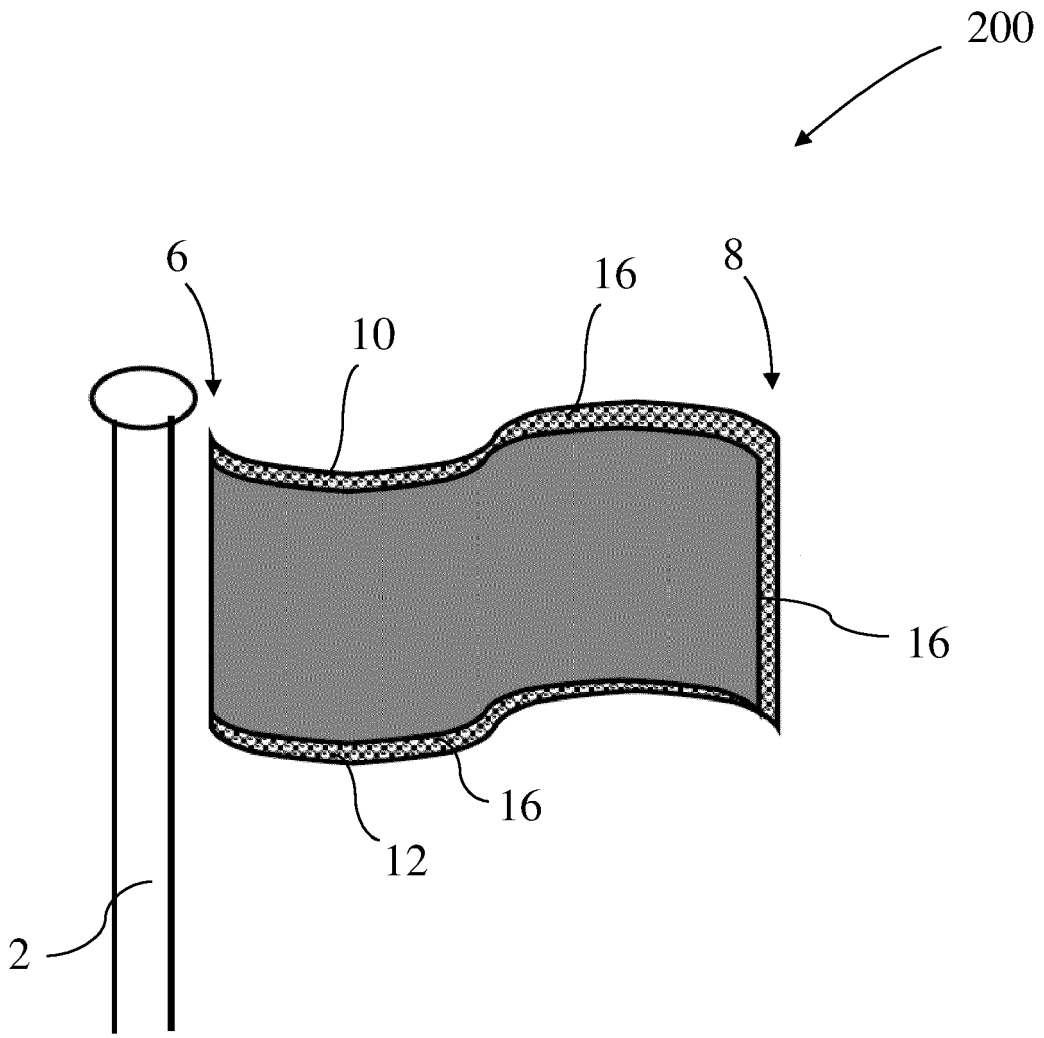

Fig. 3

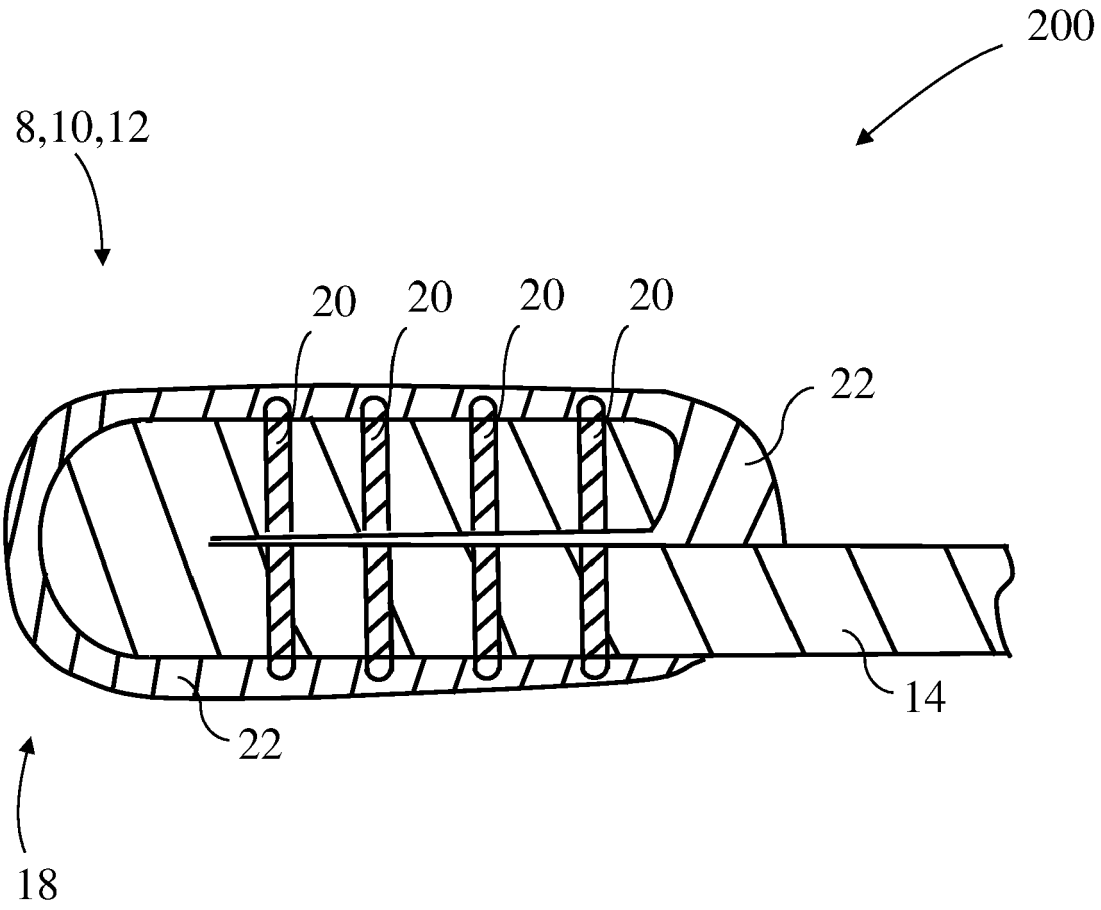

Fig. 4

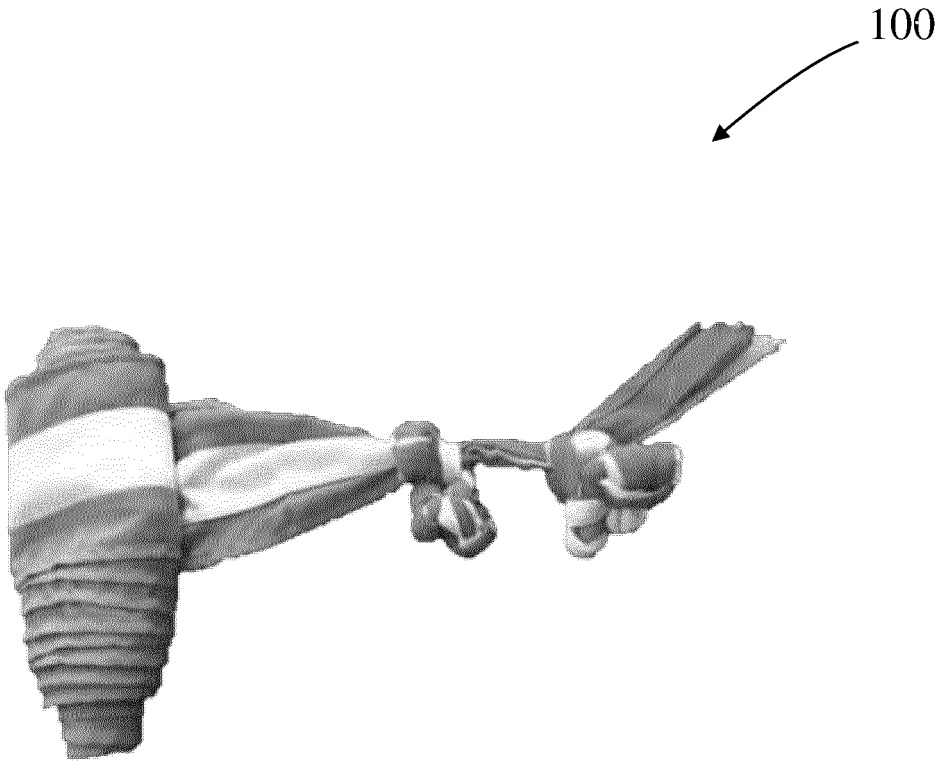

Fig. 5

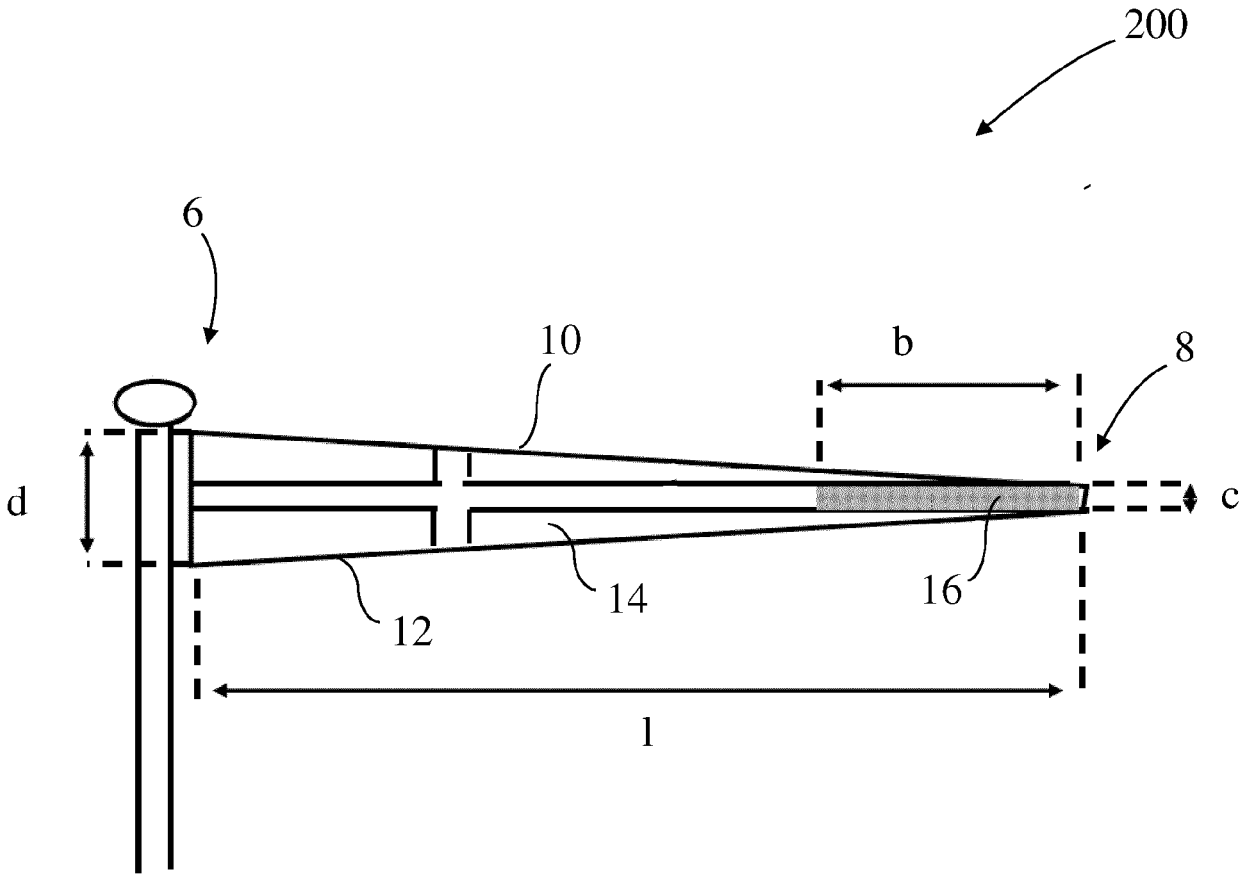

Fig. 6

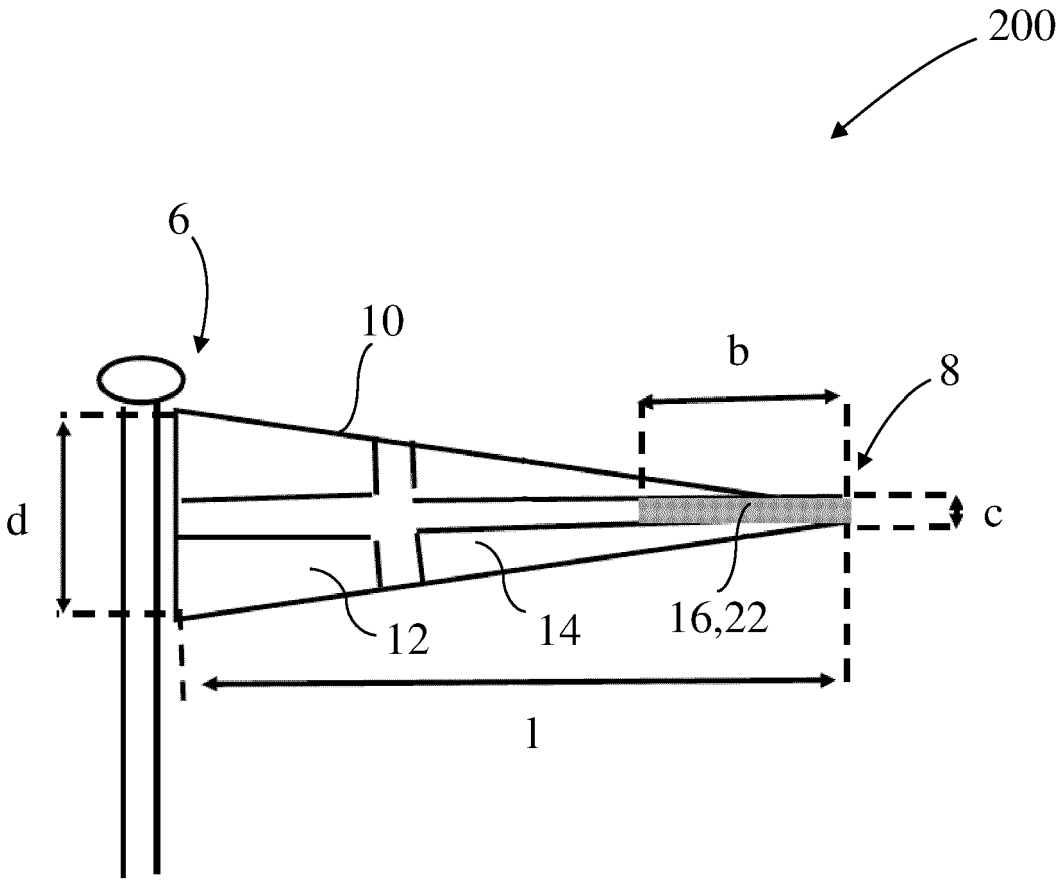

Fig. 7

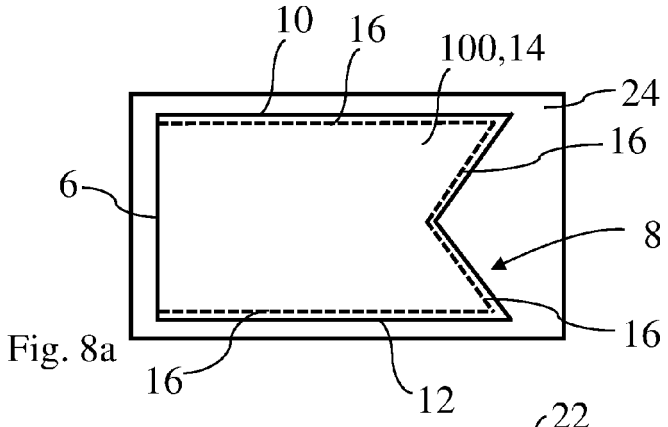

Fig. 8a

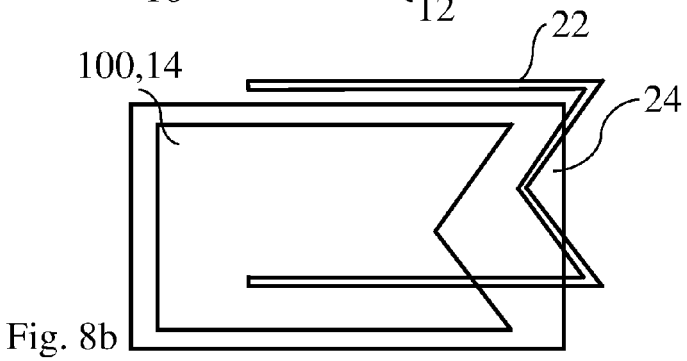

Fig. 8b

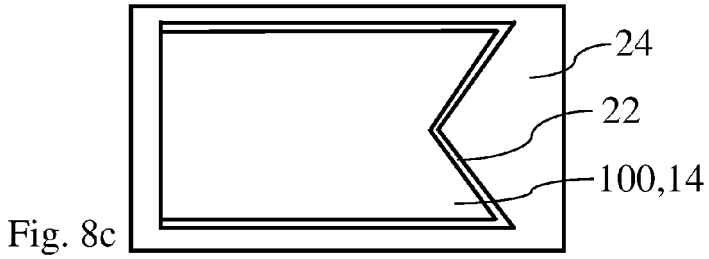

Fig. 8c

Fig. 8d

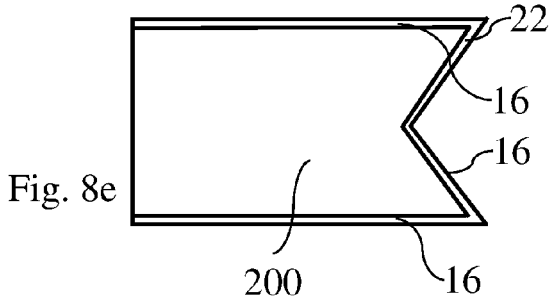

Fig. 8e

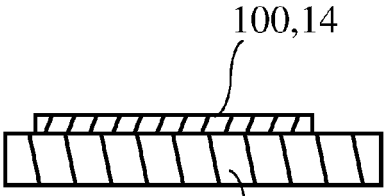

Fig. 9a

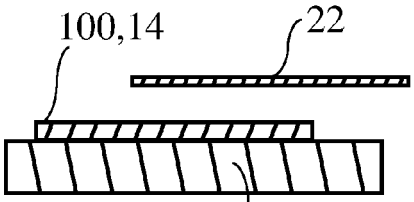

Fig. 9b

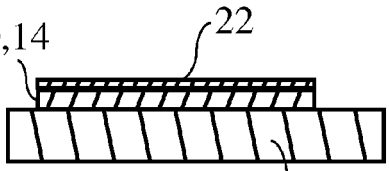

Fig. 9c

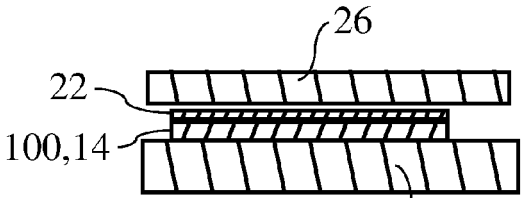

Fig. 9d

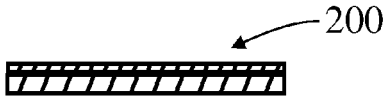

Fig. 9e

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EUROPEAN SEARCH REPORT

Application Number
EP 22 16 7170

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP H07 319415 A (ONISHI KK; TOPPAN PRINTING CO LTD) 8 December 1995 (1995-12-08) * paragraphs [0001], [0017] - [0013] * * figures 1-3 *	1-15	INV. G09F17/00
X A	JP 2014 055221 A (HIGUCHI KINJURO SHOTEN CO LTD) 27 March 2014 (2014-03-27) * paragraphs [0028] - [0037] * * figures 1-14 *	1,2,4,7,8,11 3,5,6,9,10,12-15	
X A	US 2021/024185 A1 (HONG ALBERT BEOM JOON [US]) 28 January 2021 (2021-01-28) * paragraphs [0010] - [0012], [0015], [0016] * * figures 1,2 *	1-4,7,10 5,6,8,9,11-15	
X A	US 7 552 696 B1 (DEFORD JUDY [US]) 30 June 2009 (2009-06-30) * column 2, line 41 - column 6, line 59 * * figures 1-12 *	1-4,7,11 5,6,8-10,12-15	TECHNICAL FIELDS SEARCHED (IPC) G09F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	21 September 2022	Zanna, Argini

CATEGORY OF CITED DOCUMENTS

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21-09-2022

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82