An artificial palm frond, in particular for use in outdoor areas, has a plurality of stem components (10) which include an elongated base body (12) configured as a sleeve. The artificial palm frond further has a pole penetrating the base body (12). A plurality of stem components (10) placed axially in line with each other are penetrated by the same pole.
ARTIFICIAL PALM FROND FOR AN ARTIFICIAL PALM TREE

BACKGROUND OF THE INVENTION

[0001] The present invention relates to an artificial palm frond, in particular for use in outdoor areas. The invention further relates to an artificial palm tree including such an artificial palm frond.

[0002] Artificial palm trees for indoor and outdoor areas have come into fashion and are installed for decorative purposes e.g. in thermal spas, in water parks, under glass domes, in front of shops, in beach parks, in the open air areas on cruise ships, and on roof terraces.

[0003] Conventional artificial palm trees, however, have palm fronds which are not suitable for permanent use in outdoor areas. It is generally not possible to meet the high requirements with respect to UV resistance, color fastness and flame resistance. Of particular importance, however, is the need for non-buckling and break-proof palm fronds, which also withstand high wind forces. Especially in the case of tall palm trees having palm frond lengths of up to 400 cm, this need could not be satisfied.

[0004] U.S. Pat. No. 7,226,645 B1 discloses an artificial palm tree constructed from modular components. In one particular embodiment, an artificial palm frond of the palm tree includes a stem base body with a cavity. A pole made of steel, which is part of a sandgrabber, projects into the cavity.

[0005] It is an object of the invention to allow production of artificial palm fronds which fulfill the requirements in relation to a use in outdoor areas, in particular with respect to a high buckling and breaking strength.

BRIEF SUMMARY OF THE INVENTION

[0006] According to the invention, an artificial palm frond has a plurality of stem components which include an elongated base body configured as a sleeve. The artificial palm frond further has a pole penetrating the base body. A plurality of stem components placed axially in line with each other are penetrated by the same pole.

[0007] A sleeve within the scope of the invention should be understood to mean a component which, after being produced, includes a continuous cavity free from material. A sleeve of this type should be delimited from, e.g., a casing which is injection-molded around a support and forms a composite with the support. According to the invention, the configuration of the base body in the form of a sleeve permits a pole to be passed through the base body for reinforcing the stem component. Such a design allows palm fronds to be manufactured which, for one thing, have a stem that is flexible as well as real palm fronds and which, for another thing, will not buckle or break even under the action of great forces.

[0008] The particular configuration of the artificial palm frond which includes a plurality of stem components that are placed axially in line with each other and are penetrated by the same pole (inclusive of all extensions and mounts of the individual base bodies) has the additional advantage that the stem components, which are easy to handle and flexibly combinable, open up a multitude of design options, while the pole that penetrates all of the stem components of a palm frond ensures the stability over the entire length of the palm frond.

[0009] In accordance with the preferred embodiment of the invention, the base body has an end including a hollow extension for insertion into a corresponding mount which is formed at an end of another base body. In this way, a plurality of stem components may be inserted into each other in the nature of a modular system in a simple manner to form an artificial palm frond, which makes possible an on-site assembly of the palm frond. The stem components may be produced in easy-to-handle sizes, resulting in logistical advantages, in particular in respect of storage and delivery. Any defective stem components could be exchanged or retrofitted separately, if necessary.

[0010] A very simple assembly of the artificial palm frond according to the invention is obtained in that the extensions and the mounts of the stem components have profiles that are adjusted to each other and allow the stem components to be inserted into each other only in one predefined orientation.

[0011] To attach one-piece leaves, the base body of the stem component may include molded-on nipples. This allows for high flexibility in the fabrication of the palm fronds because leaves of different designs may be used as desired.

[0012] As an alternative, the base body of the stem component may include integrally molded leaves. In this case, the fabrication of the leaves, which may be expensive in some circumstances, is dispensed with; the leaves may then be molded in an injection-molding process together with the base body to form a complete frond part. In this variant, an increase in the stability at the connecting points of the leaves is also to be expected.

[0013] The pole preferably consists of a break-proof material, in particular of a glass fiber reinforced plastic, a carbon fiber reinforced plastic, a metal, or an alloy.

[0014] The invention furthermore provides an artificial palm tree including at least one artificial palm frond according to the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] FIGS. 1 and 2 show different perspective views of a stem component 20 for an artificial palm frond according to the invention;

[0016] FIG. 3 shows the stem component in a transparent view;

[0017] FIG. 4 shows an in-line arrangement of a plurality of stem components;

[0018] FIG. 5 shows a top view of a stem component with artificial leaves; and

[0019] FIGS. 6a and 6b show a plurality of palm fronds according to the invention, assembled from stem components.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0020] As illustrated in FIGS. 1 to 3, the stem component 10 for an artificial palm frond has an elongated base body 12 made of plastic, which is hollow inside and has two front-end openings. Thus, the base body 12 is suitable to be slide onto a pole.

[0021] Integrimly molded along the base body 12 are several nipples 14 provided for the attachment of artificial leaves 16 (see FIG. 5) which are made in one piece (more particularly by injection-molding), that is, the leaves are not adhesively bonded to an attachable support. The outer cross-sectional shape of the base body 12 and the arrangement and orientation of the nipples 14 are modeled on real palm fronds.

[0022] The base body 12 has a lower end including an extension 18 and an opposite, upper end including a mount
20. The extension 18 is provided for insertion into the mount 20, having the same length, of another base body 12. In this way, depending on the number of the stem components 10 placed axially in line with each other, palm fronds of different lengths may be produced. The stem component 10 illustrated in FIGS. 1 to 3, however, is a lower end piece having a lengthened extension 18 which is provided for insertion into an end sleeve or some other device which is fitted to a head of an artificial palm tree or in a container.

[0023] The profiles of the extension 18 and of the mount 20 are adjusted to each other such that an insertion of the stem components 10 into each other is possible only in one pre-defined orientation. In the illustrated exemplary embodiment, the extension 18 and the mount 20 each have a square profile, so that a base body 12 can basically be put onto another base body 12 in four angular positions. But it is only in one of these angular positions that the orientations of the cross-sectional profiles of the base bodies 12 and the alignment of the integrally molded nipples 14 will also match, so that any incorrect assembly will be immediately obvious.

[0024] As appears in particular from the sectional view of FIG. 3, the cavity of the base body 12 extends both through the extension 18 and through the mount 20, so that even a plurality of base bodies 12 inserted into each other may be penetrated by the same pole. The base bodies 12 may be pushed onto the pole before or after being put together.

[0025] FIG. 4 shows an example of a plurality of stem components 10 inserted into each other, of which the lower end piece with the lengthened extension 18 does not include any nipples. The uppermost stem component 10 has no mount for a further stem component; instead, the tip is closed or includes a nipple 14 to attach a leaf 16. FIG. 4 also symbolically depicts a pole 20.

[0026] FIG. 5 shows a stem component 10 having one-piece leaves 16 which are attached to the nipples 14. The nipples 14 have a minimum length of 2 cm, preferably 3 cm, and may also be 4 cm or 5 cm long or even longer. The minimum length of the nipples 14 is a precondition for a stable connection of the leaves 16. The individual leaves 16 may be of the same or of different design. For example, depending on the slightly varying inclination of the individual nipples 14 in relation to the longitudinal axis of the base body 12, leaves 16 of different lengths may be obtained to obtain a uniform radial extent of the leaves 16 in the middle section of a palm frond.

[0027] According to an alternative embodiment of the invention, the base body 12 does not include any nipples 14, but leaves 16 which are already integrally molded. In this case, the working step of equipping the base body 12 with separate leaves 16 is dispensed with.

[0028] FIGS. 6a and 6b illustrate several examples of finished fabricated palm fronds, which were each assembled from a plurality of stem components 10 and leaves 16a, 16b, 16c, 16d, 16e and 16f of different lengths. Leaves of the same length are denoted by the same reference numeral in the Figures.

[0029] A typical length of the stem components 10 (without extensions 18) is approx. 50 cm, so that the maximum palm frond length of 400 cm is obtained by eight stem components fitted into each other. Basically, however, stem components 10 of different lengths may also be assembled to form a palm frond.

[0030] In order to obtain the intended buckling and breaking resistance of the palm frond, a pole 20 made of a break-proof material is inserted into the palm frond composed of one or more stem components 10, or the stem components 10 are first slipped onto the pole one by one before they are fitted into each other. The pole 20 penetrates all of the stem components 10 of a palm frond from the extension 18 of the lowermost stem component 10 up to the tip of the uppermost stem component 10. The pole may be of a solid or a hollow configuration; the materials suitable for use therefor include in particular glass fiber reinforced or carbon fiber reinforced plastic materials, and specific metals or alloys. A pole made of spring steel has been particularly well tried and tested.

[0031] With a view to the use in outdoor areas, preferably a UV-proof and color-fast, weather-proof and flame-resistant plastic material which is suitable for injection-molding processes is used for the base bodies 12 and the leaves 16.

1. An artificial palm frond, in particular for use in outdoor areas, comprising:
   a plurality of stem components which include an elongated base body configured as a sleeve; and
   a pole penetrating the base body,
   wherein a plurality of stem components placed axially in line with each other being penetrated by the same pole.
2. The artificial palm frond according to claim 1, wherein the base body has an end including a hollow extension for insertion into a mount.
3. The artificial palm frond according to claim 2, wherein the base body has an end including a hollow mount for receiving an extension.
4. The artificial palm frond according to claims 3, wherein the extensions and the mounts of the stem components have profiles that are adjusted to each other and allow the stem components to be inserted into each other only in one pre-defined orientation.
5. The artificial palm frond according to claim 1, wherein the base body includes molded-on nipples for attaching one-piece leaves.
6. The artificial palm frond according to claim 1, wherein the base body includes integrally molded leaves.
7. The artificial palm frond according to claim 1, wherein the pole consists of one of the following break-proof materials: a glass fiber reinforced plastic, a carbon fiber reinforced plastic, a metal, an alloy.
8. An artificial palm tree comprising at least one artificial palm frond according to any of the preceding claims.

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