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(54) **REINFORCED COVERING MATERIAL FOR BEARING MEMBERS OF PLAY STRUCTURES**

VERSTÄRKTES ABDECKMATERIAL FÜR LAGERELEMENTE VON SPIELSTRUKTUREN

MATÉRIAU DE COUVERTURE RENFORCÉ POUR ÉLÉMENTS DE ROULEMENT DE STRUCTURES DE JEU

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(73) Proprietor: **Cemer Kent Ekipmanlari Sanayi Ve Ticaret Anonim Sirketi**
35375 Torbali/Izmir (TR)

(72) Inventor: **EROGLU, Fuat**
deceased (TR)

(74) Representative: **Yamankaradeniz, Kemal et al**
Destek Patent, Inc.
Maslak Mah.,
Büyükdere Cad., No: 243,
Kat: 13, Spine Tower, Sariyer,
34485 Istanbul (TR)

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Description

Field of Invention

[0001] The present invention relates to bearing members, which are used in recreational and exercise equipment and play structures, such as those particularly found in public outdoor playgrounds and parks, over which the recreational and exercise equipment and play structures are positioned vertically, horizontally or angularly to the ground.

[0002] The present invention more particularly relates to covering materials, which are structurally reinforced by means of cells, to be worn over said bearing members.

Prior Art

[0003] Nowadays, one of the places frequently visited by children are the playgrounds. Playgrounds are equipped with various play structures and park equipment. These are quite significant in terms of both amusing the children, and contributing to their physical development. This sort of equipment comprises posts, which are frequently contacted by children. For this reason, the posts are covered by metals or metal alloys, or by wood materials.

[0004] Metals and materials derived from metals are regarded as cold materials internationally. A cold material is one that is rapidly influenced by weather conditions to a large extent and is highly responsive to temperature changes based on its high conductivity. Therefore, in spite of the fact that this type of materials has good mechanical properties and is well formable, additional measures should be taken when they are used in playground equipment. This is because these materials are in contact with humans, particularly with children.

[0005] According to the prior art, recreational equipment is also produced from wood materials besides metals. This is because wood is regarded as a warm material internationally. Wood does not have high thermal conductivity, thus it does not expand substantially under cold or hot weather conditions and it does not have a significant effect on human skin upon contact. Special wood materials obtained by means of impregnated wood siding technique can be used as posts in nearly desired lengths with good strength. However, cylindrical wooden posts exceeding some lengths can not be obtained in single pieces. Even if such posts are obtained, considerable costs are incurred.

[0006] Such posts or horizontal bearing members according to the prior art can also be obtained from wood materials having a quadrangle shape (mainly square in cross-sections). The single-piece length problematic, however, is still an issue.

[0007] Additionally, wooden posts are inserted into the ground in playgrounds down to a certain depth. Even if the posts are made of impregnated wood, they start to decay upon contact with soil moisture. Any decaying post which functions as a leg in a playground, in turn, poses a significant risk in terms of the safety of children who stay on the respective leg.

[0008] Various respective embodiments can be found in the literature for recreational and exercise equipment. One of such embodiments is disclosed in the utility model application TR200909749, titled "Oyun gruplarinda kullanilan dikmelerde yenilik" (English translation: *Novelty in posts used in recreational equipment*). The abstract of that document reads as follows: The invention relates to a post embodiment, which bears the members of recreational equipment, is fixed to the ground, functions as a leg, is telescopic, and comprises in its inner side a metal post; an outer metal surface on the outer side of the metal post, a wooden profile covering the outer side of the metal post in desired sizes and embodied using profile parts having intercompatible wooden connection channels and protrusions, an inner wooden surface of the wooden profile contacting the outer metal surface, and a visible outer surface of the wooden profile.

[0009] A patent application numbered US5405304A describes a play apparatus is disclosed for climbing and crawling that is especially suitable for indoor play grounds.

[0010] US5167595A also describes an article of play apparatus is provided having an open-ended, hollow rotatable member which is maintained in an elevated, horizontal orientation by two support members located one at each longitudinal end of the rotatable member.

[0011] In result, developments are being made in parallel to the technology developed in the bearing members of recreational equipment and play structures; therefore, novel embodiments are required that would eliminate the aforesaid drawbacks and provide solutions to current systems.

Object of Invention

[0012] The present invention relates to bearing members for play structures, inspired by the current cases for providing solution to said drawbacks and bringing new additional advantages. The invention provides a play structure bearing member according to claim 1.

[0013] The object of the present invention is to provide convenient material circulation during production by adjusting the rib/cell thickness to an adequate level.

[0014] Another object of the present invention is to provide a convenient installation by using a locking system to interlock the parts during or following installation, when the covering member has a modular design of at least two parts in the circumference.

[0015] A further object of the present invention is to provide strength against external impacts by producing vertically-oriented ribs/cells within the covering members.

[0016] A further object of the present invention is to avoid problems related to decay/mould growth and strength in wooden members, as well as to cold-contact and corrosion in metal members.

[0017] A further object of the present invention is to combine some properties such as easy formability and mechanic strength of metals with some properties such as low conductivity, damping, and corrosion-resistance of woods, plastics or a derivative thereof, pressed wood and paper, pressed plastics etc.. Thus, using the composite material formed, significant features are imparted to the bearing members of play structures.

[0018] In addition to providing the capability of obtaining posts in any desired size, the present invention incorporates both metals and materials (composite materials) such as woods, plastics or a derivative thereof, pressed wood and paper, pressed plastics, etc.. In order to obtain the post in a desired length, it is sufficient to produce the metal in a desired size. Since the outer side of the metal will be covered by at least one of the aforesaid siding materials, the siding material will not be a parameter in the limitation of the length.

[0019] Instead of cylindrical wooden posts which are difficult to process, the present invention comprises the use of galvanized rustproof materials with a tube profile of 3-4 mm wall thickness. In place of processing the siding/covering material in a faultless manner, the production costs are considerably reduced by using metal tubes which can be processed almost faultlessly.

[0020] Thanks to the invention, there is no need to open holes on the posts or to make use of welding for assembling other members to the post. A ring-shaped clamp is used to provide the assembly of such members.

[0021] The galvanized (metal) part according to the present invention is robustly inserted and fixed into an earth anchor, or fixed there using a flange of a proper size according to the post. Since there is no direct contact with earth, no problems occur such as corrosion of the metals and of the siding/covering materials.

[0022] Siding is performed using composite materials. A high wall thickness is preferred, in place of reducing the wall thickness to drop the costs. However, reinforcing cells are formed within the cross-section and it is thus devised to keep the costs at a minimum and to provide a robust structure.

[0023] The siding is modular (2, 3, 4, ... n parts provided on the circumference). It is devised to provide an interlocking of the parts. It is thus aimed to avoid local detachment problems during or after the siding process.

[0024] According to the same version, it is devised to arrange ribs in an optimal size in terms of providing a homogeneous distribution of the composite material among the cells according to the cross-sectional form.

[0025] In order to achieve the objects above, a siding material is developed which is covered over metal posts or horizontal bearing members with angular or circular cross-section, which is made of wood, plastics or a derivative thereof, pressed wood and paper, pressed plastics, etc., and is provided with reinforcing cells.

[0026] The structural characteristic features of the present invention and all its advantages will be clarified in the following detailed description referring to the accompanying figures briefly described hereunder. Therefore, the invention should be evaluated taking into account these figures and the following detailed description.

Description of Figures

[0027]

Figure 1 is a perspective view of a covering material and a metal piece according to the present invention.

Figure 2 is a perspective detail view illustrating how a bearing joining piece is positioned according to a representative embodiment of the present invention.

Figure 3 is a two dimensional top view of a siding/covering material made of a different cell structure.

Figure 4 is a two dimensional top view wherein two siding/covering materials having different cell structures are interlocked using a locking system.

Figure 5 is an exploded view illustrating how a metal post with an angular cross-section is covered.

Figure 6, is a view wherein a siding/covering material is partially worn over a circular metal post like a ring is worn.

Figure 7, is a perspective detail view of a circular clamp used as a support and retainer according to a representative

embodiment of the present invention.

Figure 8A is an exploded view of a circular clamp coupling-version for a siding/covering material and a metal post.

Figure 8B is a perspective view of a circular clamp coupling-version of a siding/covering material and a metal post.

Figure 9, is a representative view of a play structure embodiment incorporating a horizontal bearing member and vertical posts.

Reference Numbers

10.	Metal post	**24.**	Connection lock
11.	Outer metal surface	**25.**	Cells
12.	Uncovered metallic part	**30.**	Bearing joining piece
13.	Connection channel of covering material	**31.**	Mechanical fit
20.	Siding/covering material	**40.**	Play structure bearing member
21.	Inner surface	**50.**	Horizontal bearing member
22.	Outer surface	**60.**	Circular clamp
23.	Connection channel		

[0028] The figures are not scaled to actual size and some details which are not required to understand the invention may be omitted. Additionally, the components which are substantially identical or which have functions which are substantially identical are indicated with the same reference numbers.

Detailed Description of a Representative Embodiment

[0029] In the following detailed description, preferred embodiments of a play structure bearing member (40) for play structures according to the present invention will be described illustratively only to make clear the present invention without any limiting effect.

[0030] Play structure bearing member (40) of a play structure is defined as all metal posts (10) and horizontal bearing members (50) with angular or circular cross-section, positioned in an angular or vertical/horizontal manner.

[0031] Play structure bearing member (40) composed of metal posts (10) and/or horizontal bearing members (50) having angular or circular cross-section are characterized by comprising at least two siding/covering materials (20) covered over said metal post (10) and made of a material (composite material) such as wood, plastics or a derivative thereof, pressed wood and paper, pressed plastics etc..

Structural Basis:

[0032] The metal post (10) making up the play structure bearing member (40) is rather produced from a rustproof galvanized material to bear the play structure elements, to fix the structures to the ground and to function as leg. The metal post (10) has an outer metal surface (11) that is in contact with the covering material, whereas the part of the metal that remains in concrete when it is installed to the ground is designated as the uncovered metal part (12). Figure 1 shows the uncovered metal part (12) in a clear manner. The outer side of the metal post (10) is provided with a siding/covering material (20), which covers the exterior of the post in any desired size and which is not influenced by water and outdoor conditions. Said siding/covering material (20) is produced from materials such as wood, plastics or a derivative thereof, pressed wood and paper, pressed plastics etc..

[0033] The siding/covering material (20) is composed of conductivity-reducing, impact-damping and reinforcing cells (25). It further comprises a connection channel (23) and a connection lock (24) forming a locking system, facilitating the assembly thereof around the metal post (10). Figure 3 is a two dimensional view of the siding/covering material (20) only. Figure 4, in turn, is a two dimensional top view of mutually-assembled siding/covering materials (20).

[0034] It is the inner surface (21) of the siding/covering material (20) which contacts the outer metal surface (11) of the metal post (10). On the other hand, it is the outer surface (22) of the siding/covering material (20) that is visible on the outside of the play structure bearing member (40), that is contacted by men, is exposed to ambient conditions, and is lacquered / polished / sanded / smoothed.

[0035] A bearing joining piece (30) is provided for the connection between the metal post (10) and platform-like elements to be disposed on the play structure bearing member (40). The bearing joining piece (30) provides mechanical fit (31)

for providing connection onto the metal post (10). Figure 2, is a perspective detail view illustrating how a bearing joining piece (30) is positioned according to a representative embodiment of the present invention.

[0036] A circular clamp (60) is provided, which is used to connect the metal post (10) to other elements by clamping the periphery of metal post (10) without deforming the latter. It is also possible to use an adapter piece in place of said circular clamp (60). Figure 7 clearly shows the function of the circular clamp (60) in connecting a platform to the metal post (10). Figures 8A and 8B, in turn, show how the siding/covering material (20) covered over the metal post (10) is made more robust using the circular clamp (60).

Installation Basis:

[0037] The siding/covering material (20) comprising at least two parts is applied over the metal post (10) wherein the parts are locked to each other. This operation is performed by means of the connection channel (23) and the connection lock (24) as described above. During the siding operation, the part of the metal post (10) to be introduced into the ground is left uncovered. This is the part called as the uncovered metal part (12), whereby the metal post (10) is fixed into the ground.

[0038] The method of siding/covering the siding/covering material made of at least one of wood, plastics or a derivative thereof, pressed wood and paper, pressed plastics, etc. over a metal post (10) or over a horizontal bearing member (50) is not implemented by means of a mutual form fit only, but also by wearing it over the circular or angular metal post (10) like a ring is worn. The target of both methods are the same, the only difference being in the installation. Figure 5 is a perspective view of the method of applying a covering material over an angular metal post (10). Figure 6, in turn, is a perspective view of the covered form of a siding/covering material (20) covered like a ring over a circular metal post (10).

[0039] After the metal post (10) is covered, the bearing joining piece (30) is fixed to the covering connection channel (13) by means of mechanical fit (31). If another platform is to be connected to the metal post (10), it is fastened to the bearing joining piece (30).

[0040] A perspective view of a play structure formed using play structure bearing member (40), after the assembly of the siding/covering material (20) over metal posts (10) or over horizontal bearing member (50) is completed, is given in figure 9.

Claims

1. Play structure bearing member (40) comprising a metal post (10) and/or a horizontal bearing member (50) having angular or circular cross-section, said play structure bearing member and/or said horizontal bearing member having an axial direction, said play structure bearing member and/or said horizontal bearing member comprises a siding/covering material extending along said axial direction, wherein said siding/covering material comprises at least two axially divided separate parts, each of said parts comprises a connection channel (23) extending along one axial edge and a corresponding connection lock (24) extending the other axial edge, such that said two parts can be locked together by inserting said connection lock of one part into said connection channel of another part, in order to cover said play structure bearing member and/or said horizontal bearing member, said siding/covering material being made of a composite material,
characterized in that the siding/covering material (20) covered over said metal post (10) and/or said horizontal bearing member (50) comprises conductivity-reducing, impact-damping and reinforcing cells (25).

2. Play structure bearing member (40) according to claim 1, **characterized in that** said composite material is made of wood, plastics or a derivative thereof, or pressed wood and paper, or pressed plastics.

3. Play structure bearing member (40) according to claim 1, **characterized in that** said siding/covering material (20) comprises a circular clamp (60) or an adapter used to assemble the siding/covering material (20) in a rigid manner.

Patentansprüche

1. Spielstrukturlagerelement (40), umfassend einen Metallpfosten (10) und/oder ein horizontales Lagerelement (50) mit einem winkelförmigen oder kreisförmigen Querschnitt, wobei das Spielstrukturlagerelement und/oder das horizontale Lagerelement eine axiale Richtung aufweisen, das Spielstrukturlagerelement und/oder das horizontale Lagerelement ein Verkleidungs-/Abdeckmaterial umfassen, das sich entlang der axialen Richtung erstreckt, wobei das Verkleidungs-/Abdeckmaterial mindestens zwei axial geteilte separate Teile umfasst, wobei jedes der Teile einen Verbindungskanal (23), der sich entlang einer axialen Kante erstreckt, und einen entsprechenden Verbin-

dungsriegel (24), der sich die andere axiale Kante erstreckt, umfasst, so dass die zwei Teile durch Einführen des Verbindungsriegels eines Teils in den Verbindungskanal eines anderen Teils zusammen verriegelt werden können, um das Spielstrukturlagerelement und/oder das horizontale Lagerelement abzudecken, wobei das Verkleidungs-/Abdeckmaterial aus einem Verbundmaterial hergestellt ist,
dadurch gekennzeichnet, dass das Verkleidungs-/Abdeckmaterial (20), das über den Metallpfosten (10) und/oder das horizontale Lagerelement (50) abgedeckt ist, die Leitfähigkeit reduzierende, aufpralldämpfende und verstärkende Zellen (25) umfasst.

2. Spielstrukturlagerelement (40) nach Anspruch 1, **dadurch gekennzeichnet, dass** das Kompositmaterial aus Holz, Kunststoff oder einem Derivat davon, oder gepresstem Holz und Papier oder gepresstem Kunststoff hergestellt ist.

3. Spielstrukturlagerelement (40) nach Anspruch 1, **dadurch gekennzeichnet, dass** das Verkleidungs-/Abdeckmaterial (20) eine kreisförmige Klemme (60) oder einen Adapter umfasst, die bzw. der verwendet wird, um das Verkleidungs-/Abdeckmaterial (20) auf starre Art und Weise zu montieren.

Revendications

1. Organe porteur pour structure de jeu (40) comprenant un montant métallique (10) et/ou un organe porteur horizontal (50) possédant une structure transversale angulaire ou circulaire, ledit organe porteur pour structure de jeu et/ou ledit organe porteur horizontal présentant une direction axiale, ledit organe porteur pour structure de jeu et/ou ledit organe porteur horizontal comprenant un matériau de parement/revêtement s'étendant dans ladite direction axiale, ledit matériau de parement/revêtement comprenant au moins deux composants distincts divisés dans le sens axial, chacun desdits composants comprenant un conduit de raccordement (23) s'étendant le long d'un bord axial, et un verrou de raccordement (24) correspondant s'étendant le long de l'autre bord axial, de sorte que lesdits deux composants puissent être bloqués ensemble en insérant ledit verrou de raccordement d'une partie dans ledit conduit de raccordement d'un autre composant, de façon à couvrir ledit organe porteur pour structure de j eu et/ou organe porteur horizontal, ledit matériau de parement/revêtement étant réalisé avec une matière composite,
caractérisé en ce que le matériau de parement/revêtement (20) recouvrant ledit montant métallique (10) et/ou ledit organe porteur horizontal (50) comprend des cellules réductrices de conductivité, d'amortissement des chocs, et de renforcement (25).

2. Organe porteur pour structure de jeu (40) selon la revendication 1, **caractérisé en ce que** ladite matière composite est réalisée en bois, en matière plastique, ou dans une autre matière dérivée de ces derniers, ou encore en bois comprimé et en papier, ou en plastique comprimé.

3. Organe porteur pour structure de jeu (40) selon la revendication 1, **caractérisé en ce que** ledit matériau de parement/revêtement (20) comprend une fixation circulaire (60) ou un adaptateur utilisés pour assembler le matériau de parement/revêtement (20) de façon rigide.

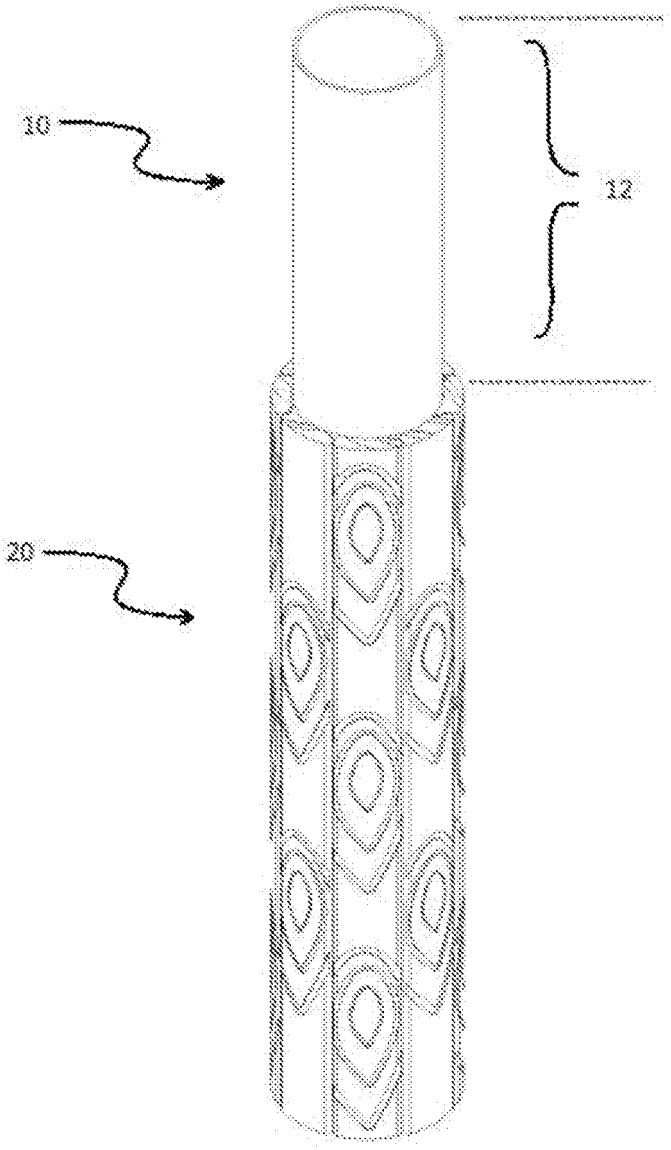


Figure – 1

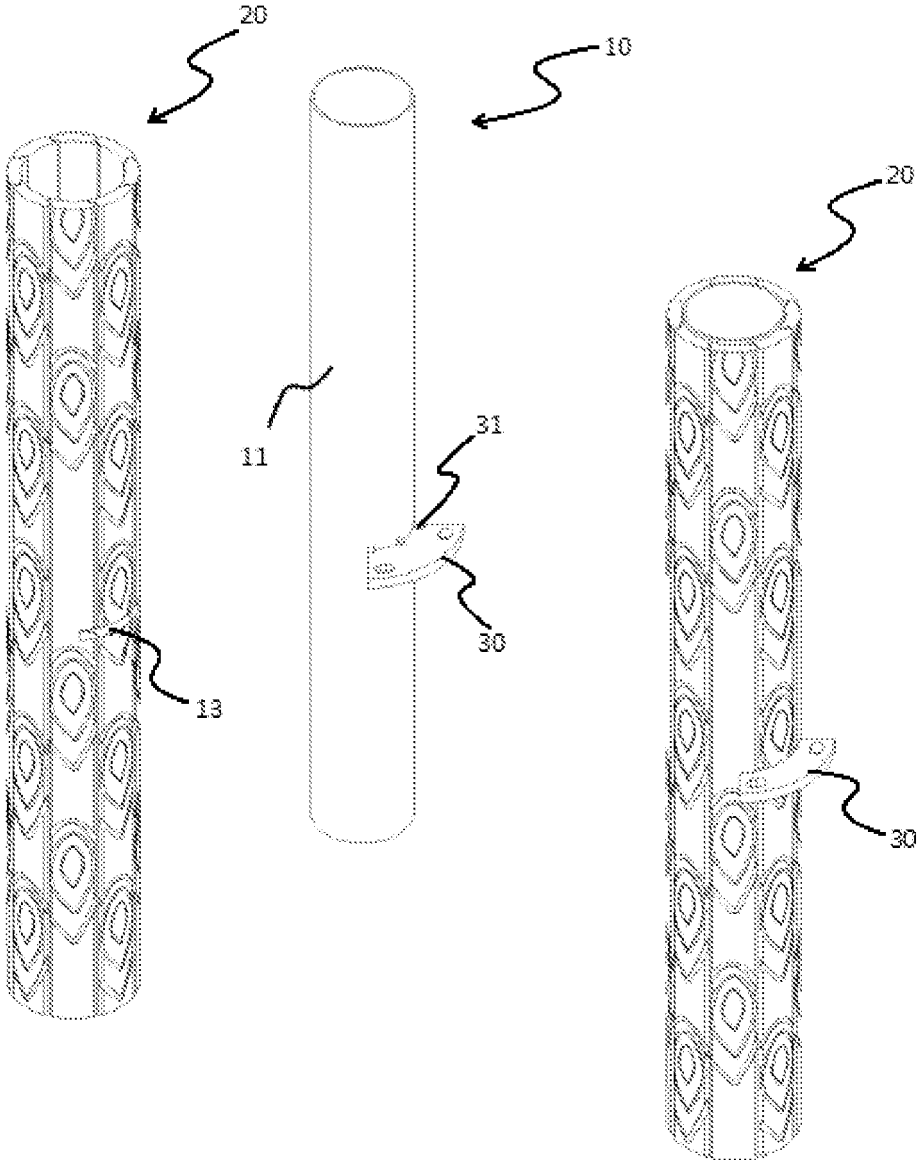
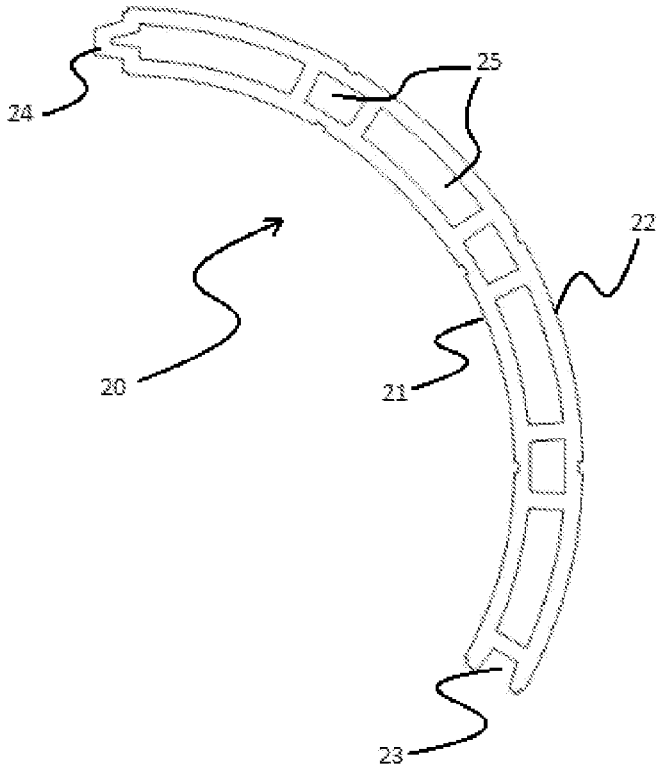


Figure – 2



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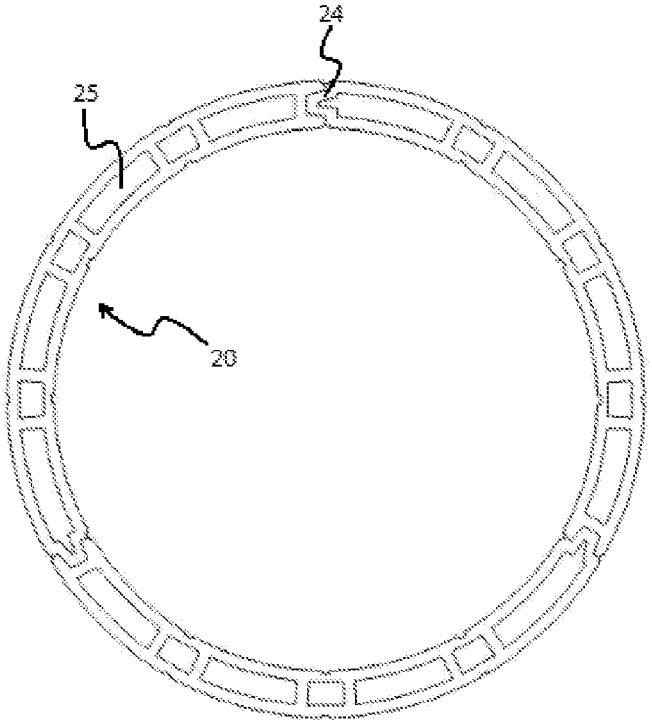

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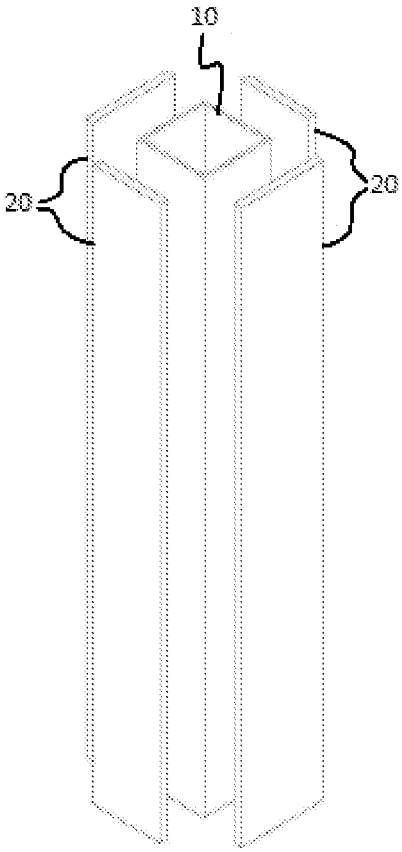

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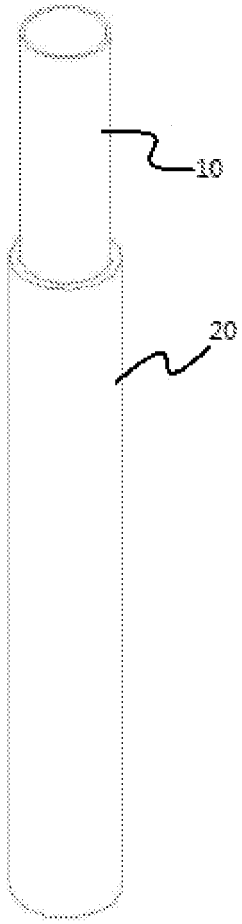

Figure – 6

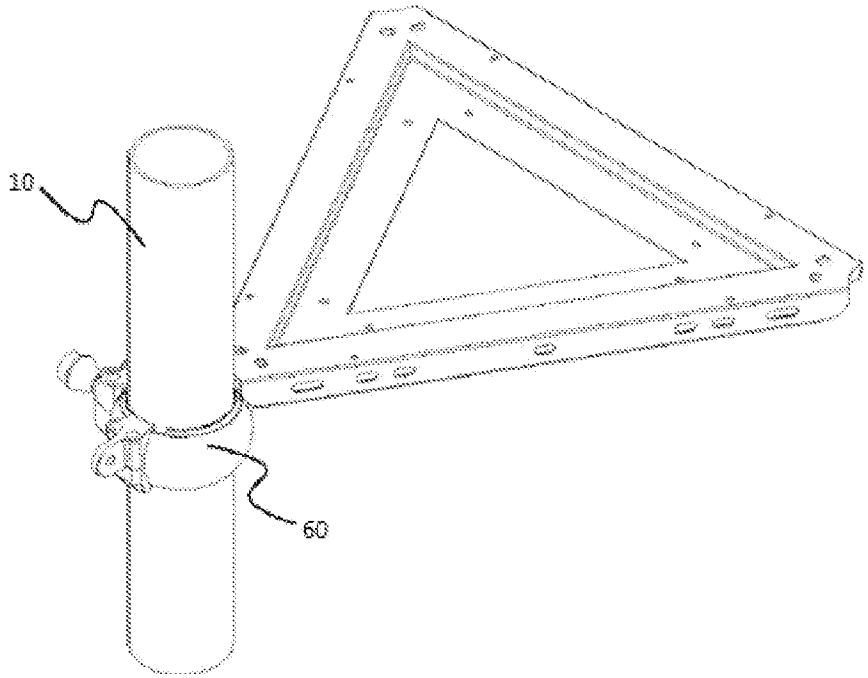

Figure – 7

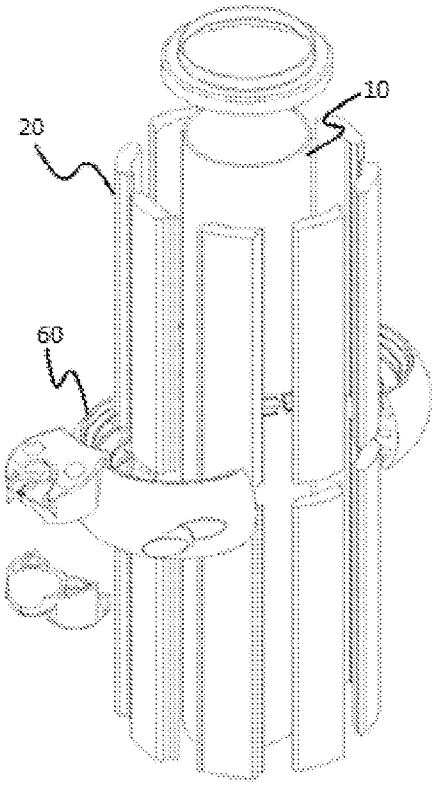

Figure – 8A

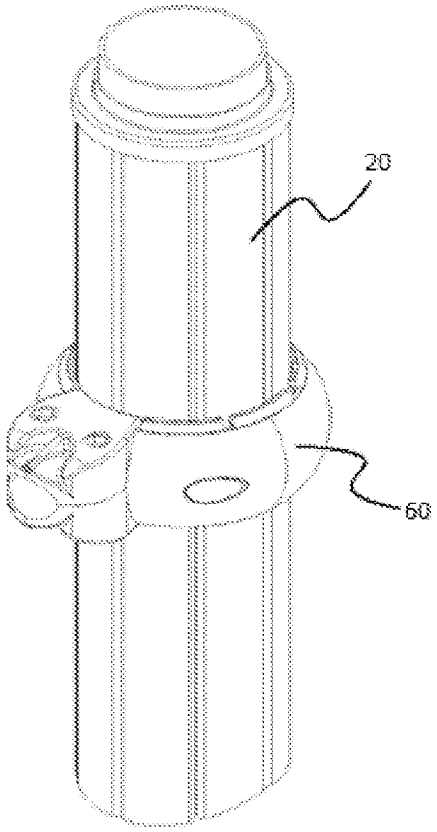

Figure – 8B

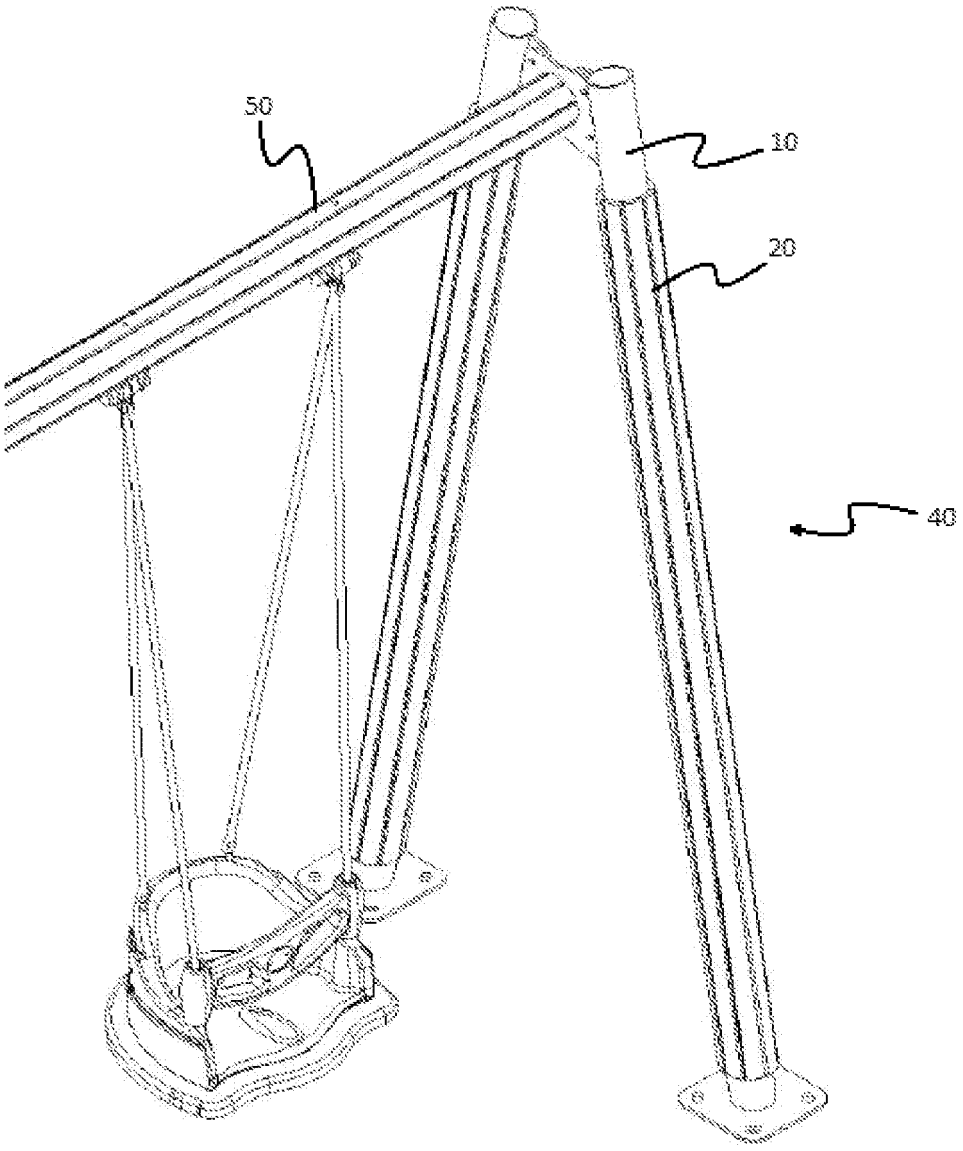

Figure – 9

REFERENCES CITED IN THE DESCRIPTION

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