



(19) **United States**
(12) **Patent Application Publication**
GRÜNEWALD et al.

(10) **Pub. No.: US 2016/0101371 A1**
(43) **Pub. Date: Apr. 14, 2016**

(54) **ELEMENT FOR AMUSEMENT ARTICLES, CORRESPONDING SYSTEM AND METHOD**

(52) **U.S. Cl.**
CPC *A63H 33/06* (2013.01); *A63H 33/08* (2013.01); *A63H 33/082* (2013.01); *A63H 33/084* (2013.01)

(71) Applicant: **MAGIC PRODUCTION GROUP S.A.**, Findel (LU)

(57) **ABSTRACT**

(72) Inventors: **Uwe GRÜNEWALD**, Frankfurt (DE); **Valentina ZILIANI**, Torino (IT); **Enrico MAFFIOTTI**, Pino Torinese (Torino) (IT)

An element (10) of amusement articles includes:
a flat body with two opposite faces (10a, 10b), a hub region (12), and a contour region (14) around the hub region (12),
a plurality of coupling elements arranged facing one another along the contour region (14) in an alternating sequence of first coupling elements (18) and second coupling elements (16, 28), wherein the first coupling elements are in the form of swivel-coupling recesses (18) and the second coupling elements are chosen from between:
a) toothed coupling sectors (16); and
b) swivel-engagement heads (28) complementary to said swivel-coupling recesses (18), and complementary axial-engagement formations (20a, 20b) provided on one (10a) and the other (10b) of said opposite faces.

(73) Assignee: **Magic Production Group S.A.**, Findel (LU)

(21) Appl. No.: **14/787,213**

(22) PCT Filed: **Apr. 18, 2014**

(86) PCT No.: **PCT/IB2014/060838**

§ 371 (c)(1),
(2) Date: **Oct. 26, 2015**

(30) **Foreign Application Priority Data**

Apr. 24, 2013 (IT) TO2013A000336

Publication Classification

(51) **Int. Cl.**
A63H 33/06 (2006.01)
A63H 33/08 (2006.01)

The element (10) may be used as pendant or necklace, as component of a modular construction toy, possibly with different possibilities of connection, such as (e.g., radial and axial) coupling and swivel connection, as wheel (e.g., for providing models of wheeled vehicles), and/or for creating toys, such as statuettes or “characters” with added parts, which may be articulated. The element (10) may be used for creating, for example, surprises to be put in chocolate eggs and the like.

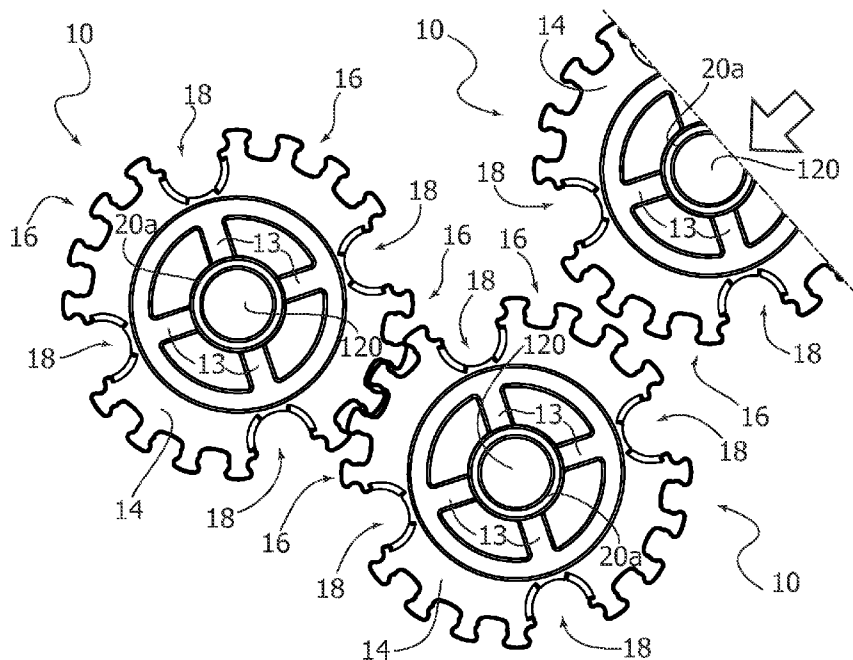


FIG. 1

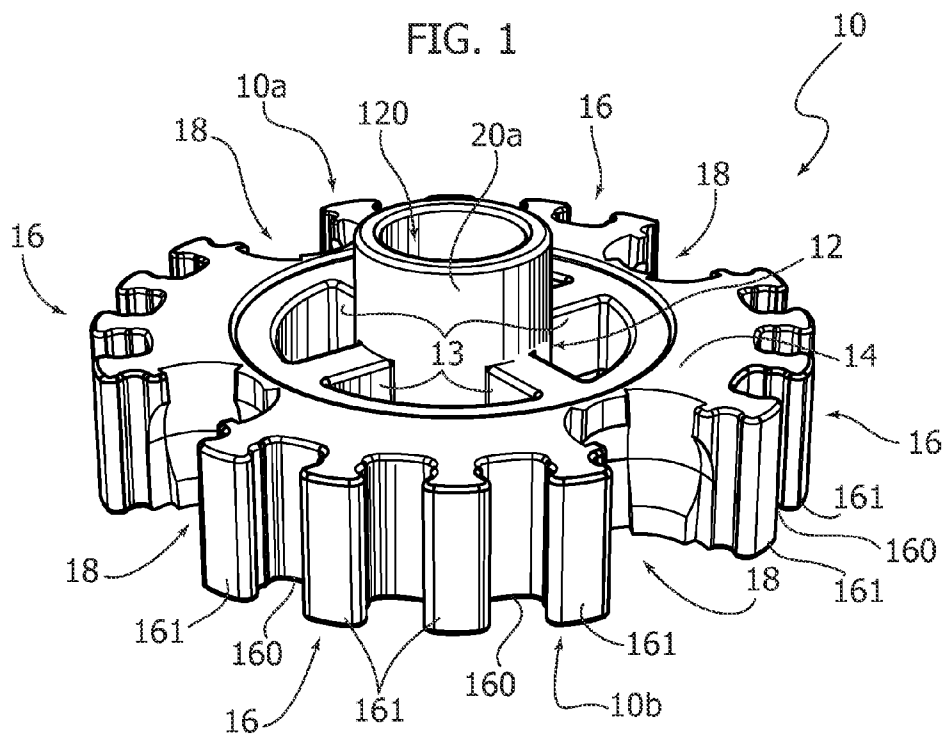
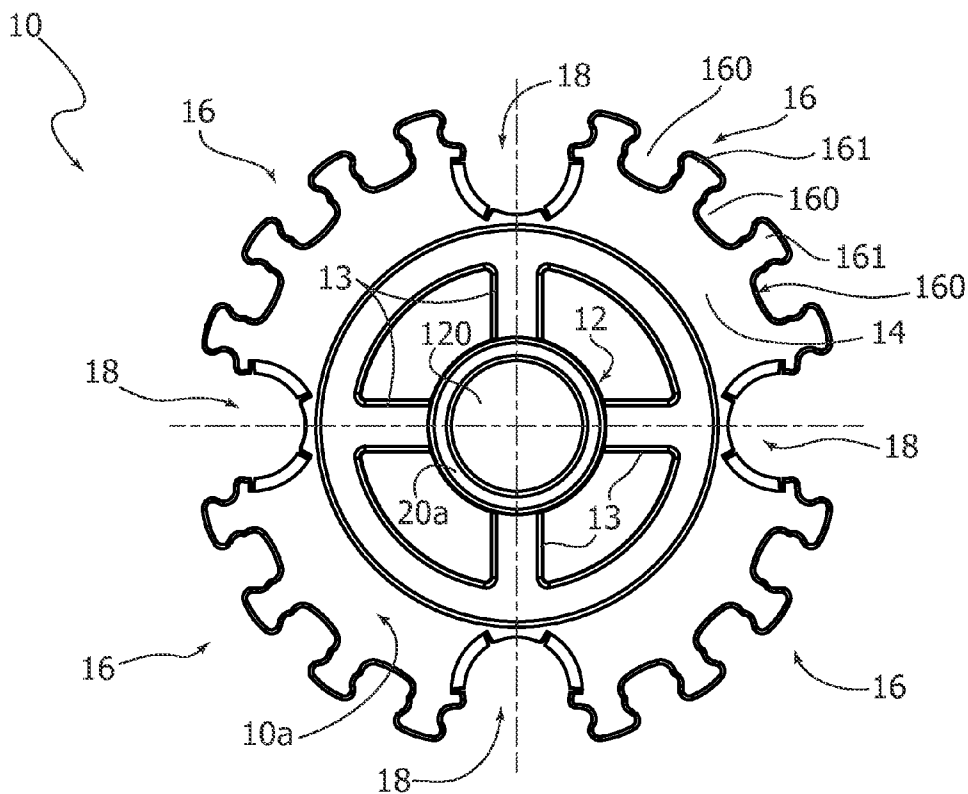


FIG. 2



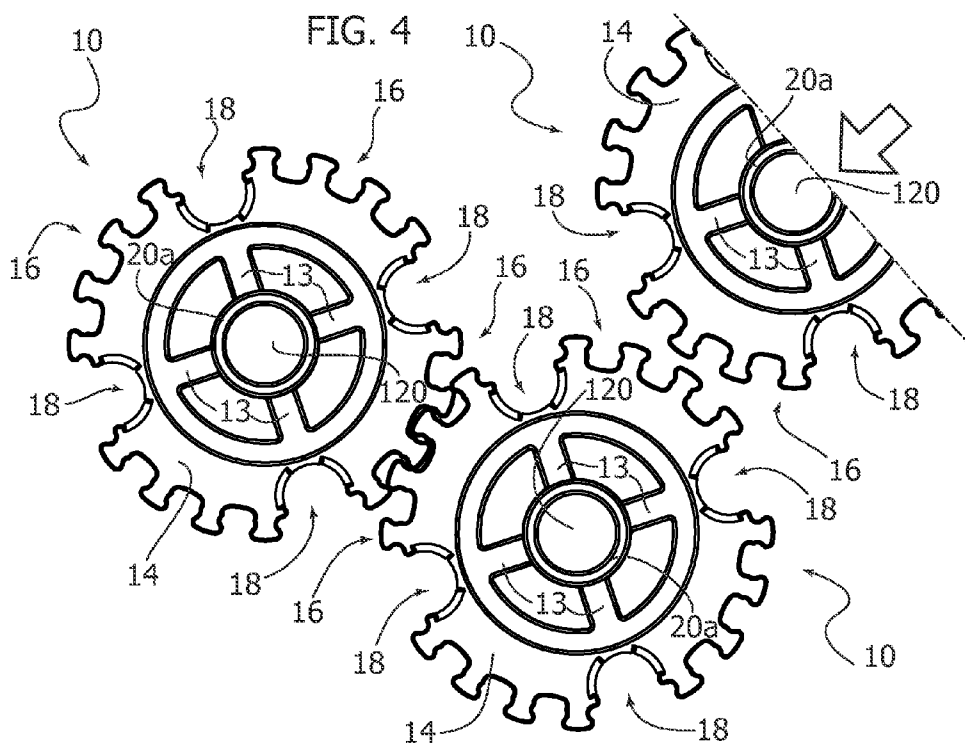
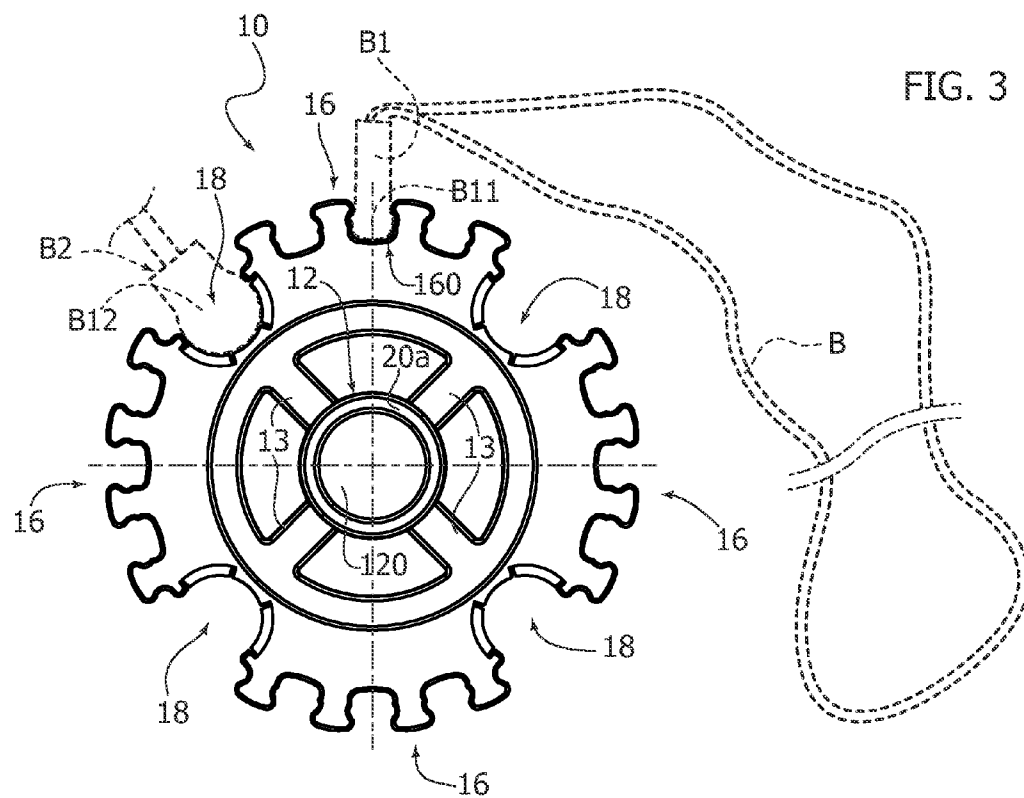


FIG. 5

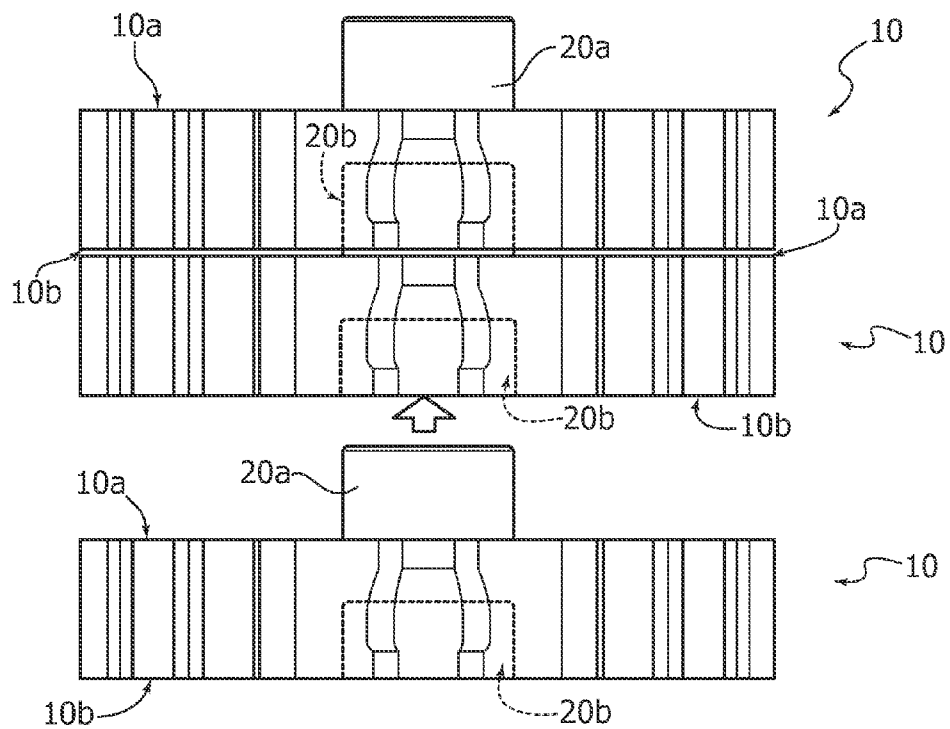


FIG. 6

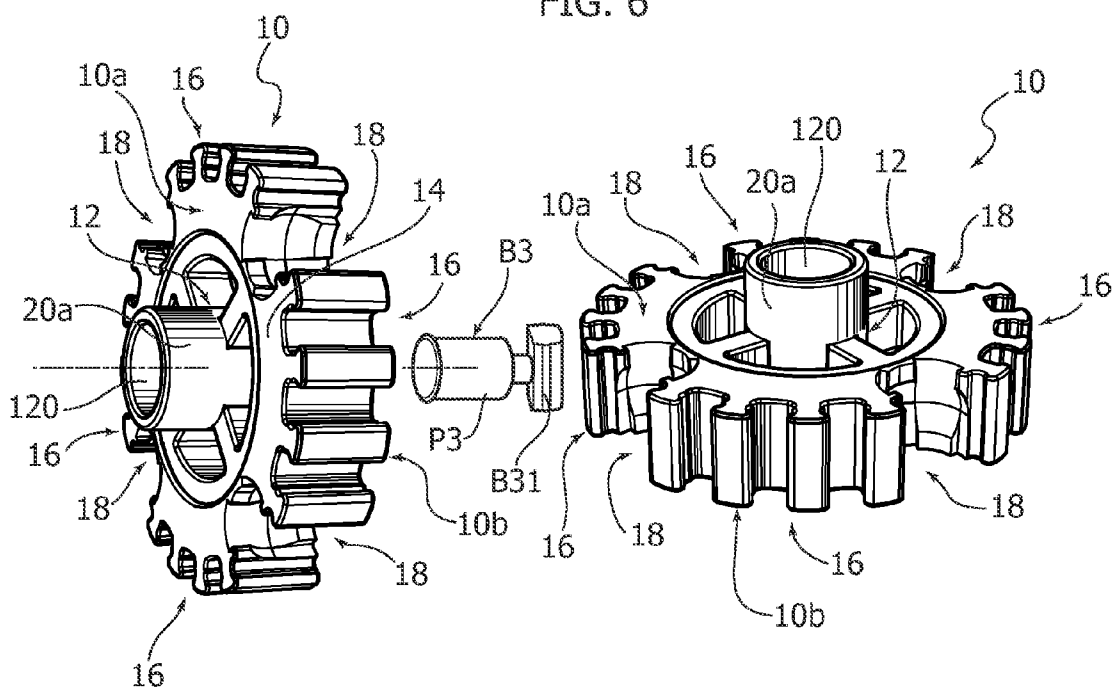


FIG. 9

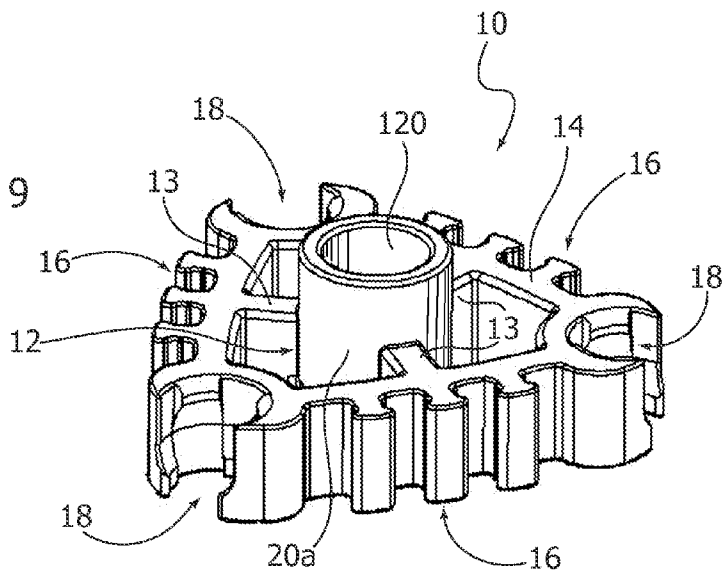


FIG. 10

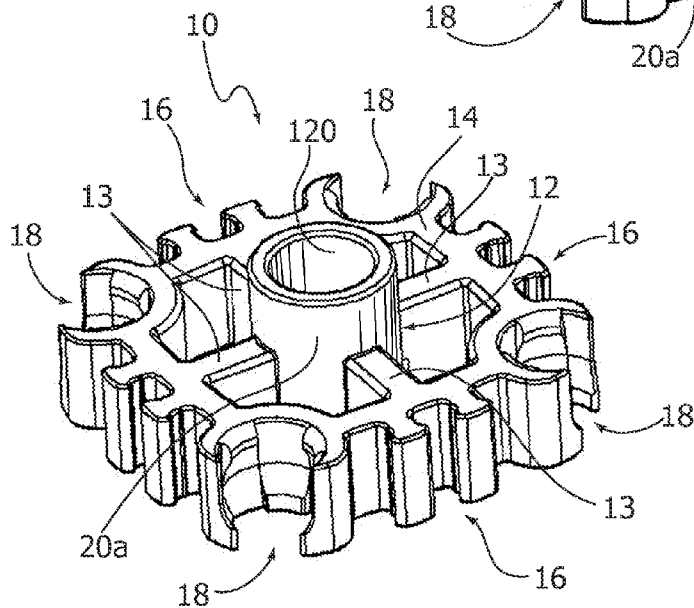
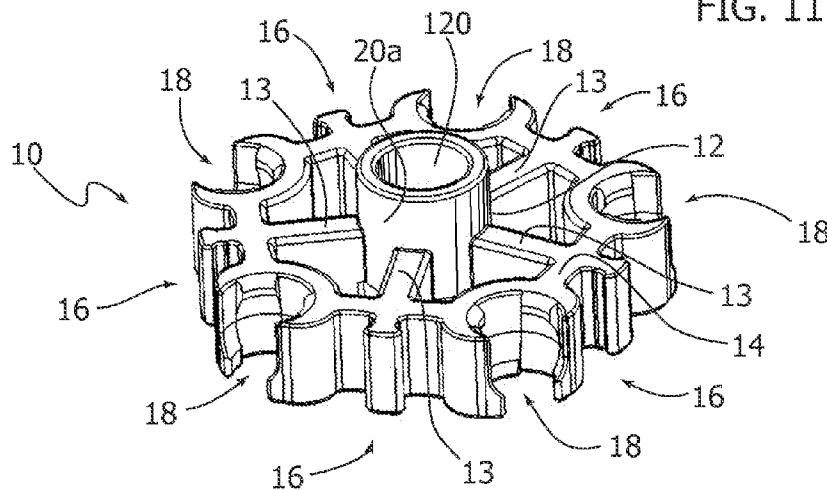


FIG. 11



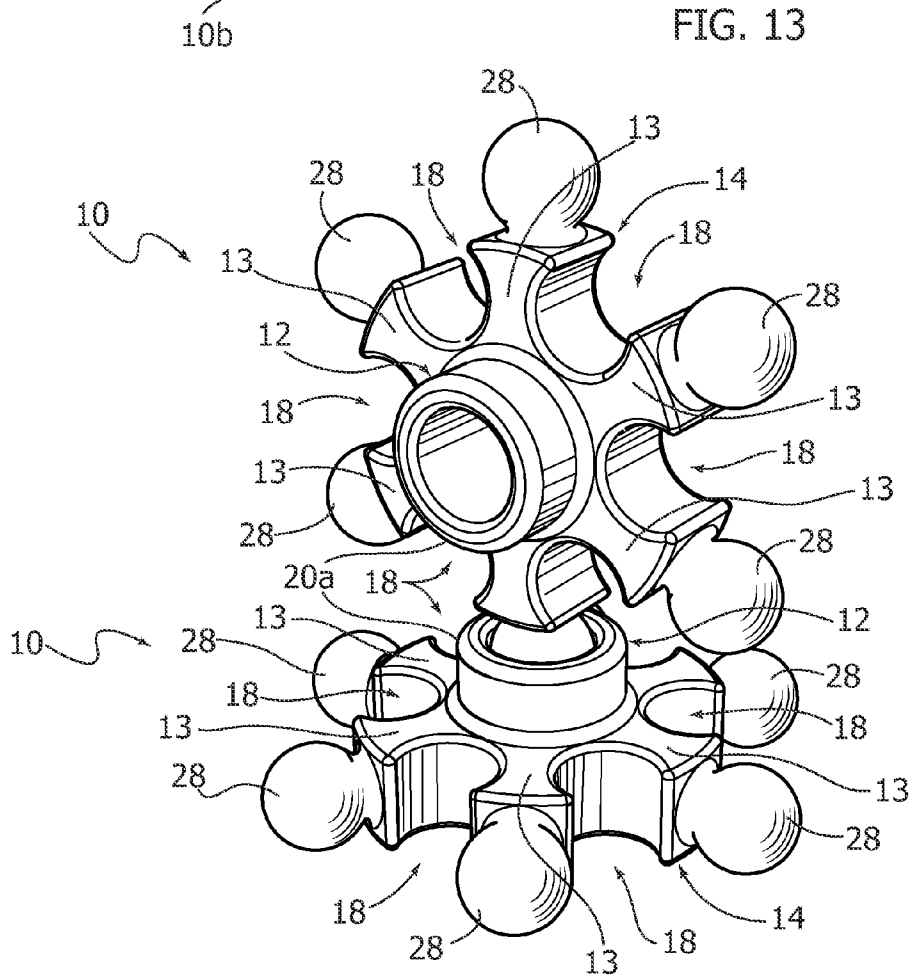
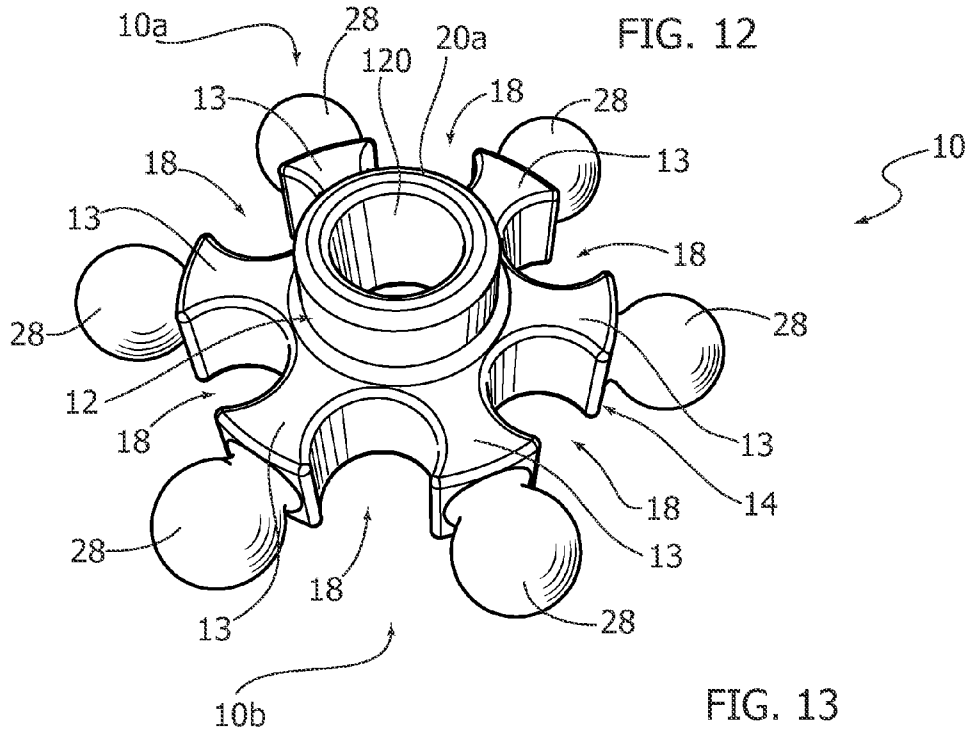


FIG. 14

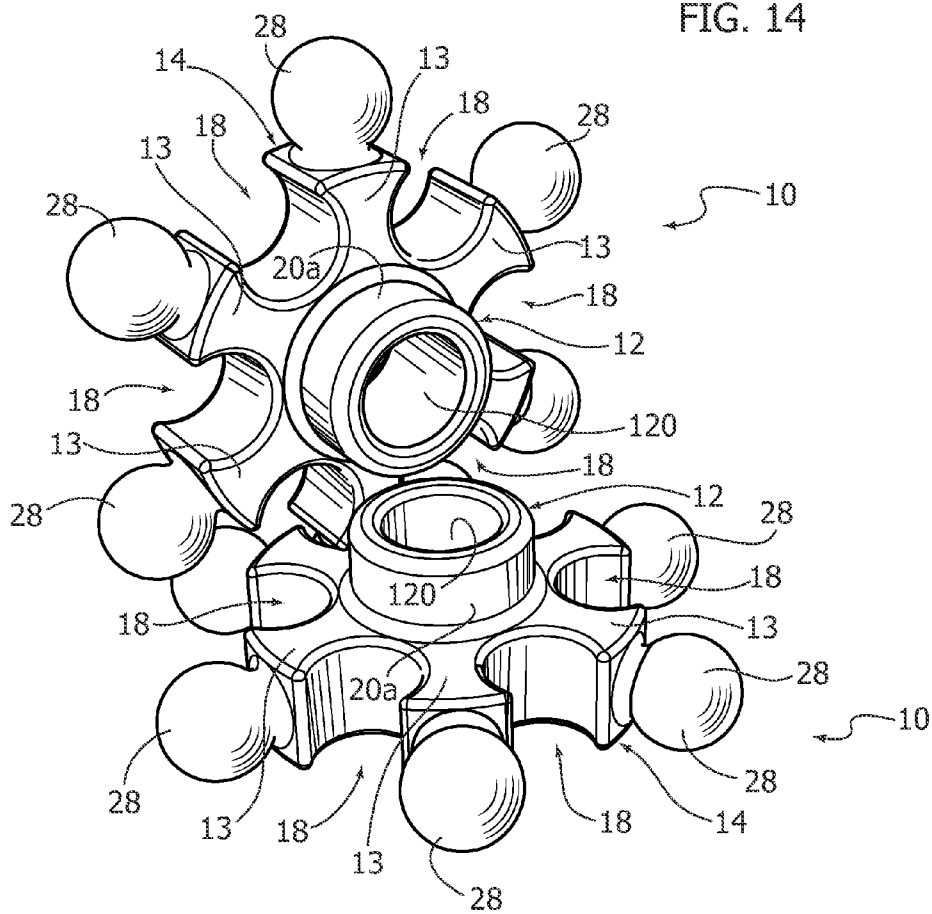


FIG. 15

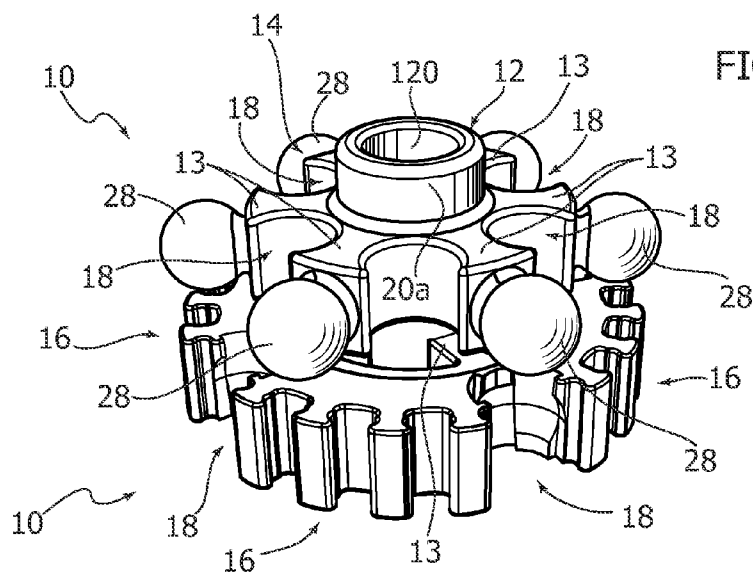


FIG. 16

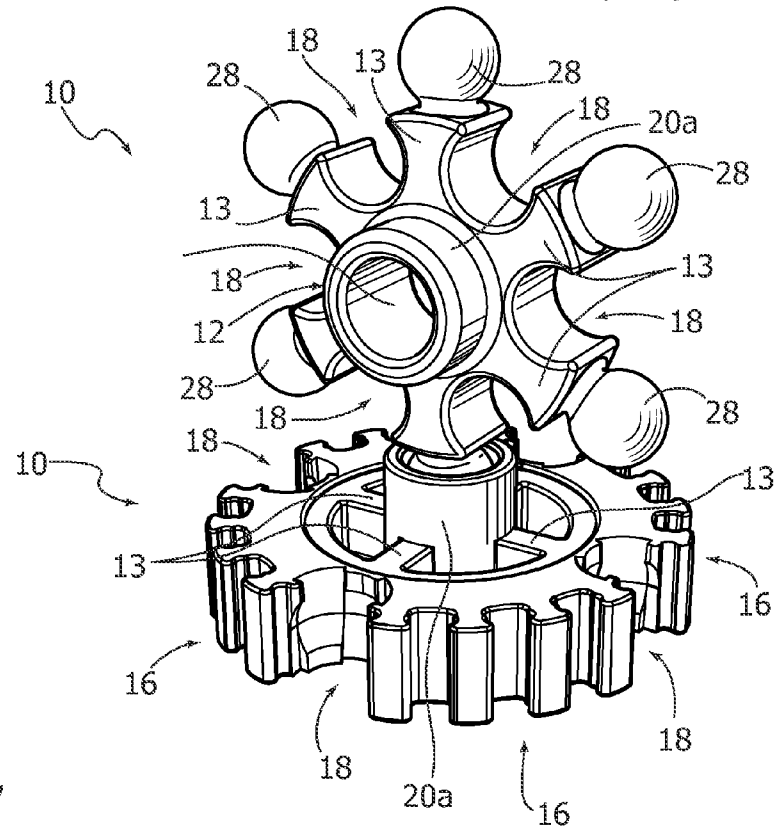


FIG. 17

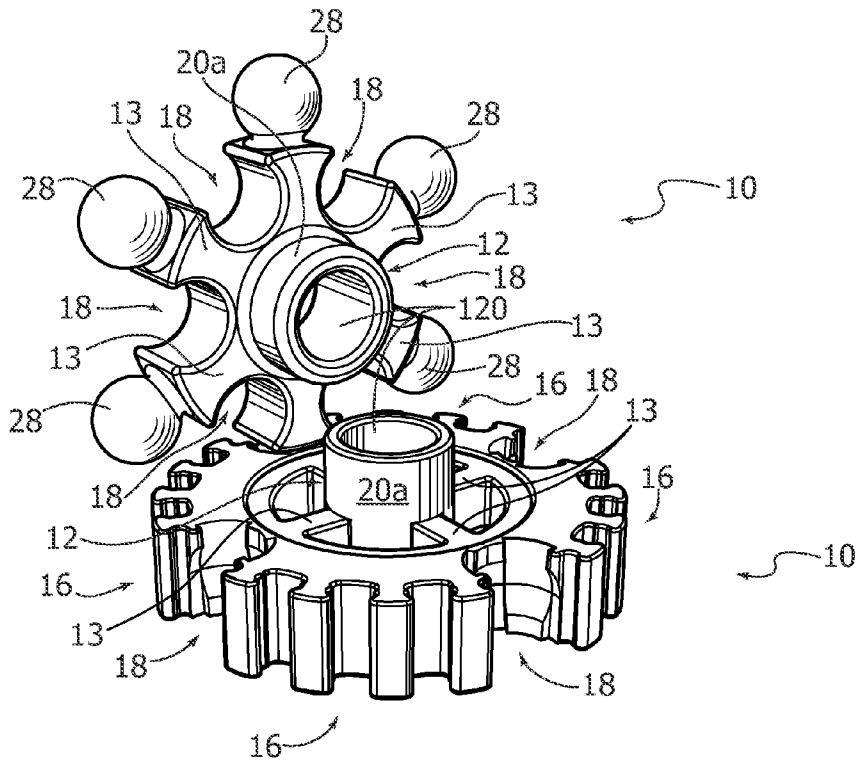
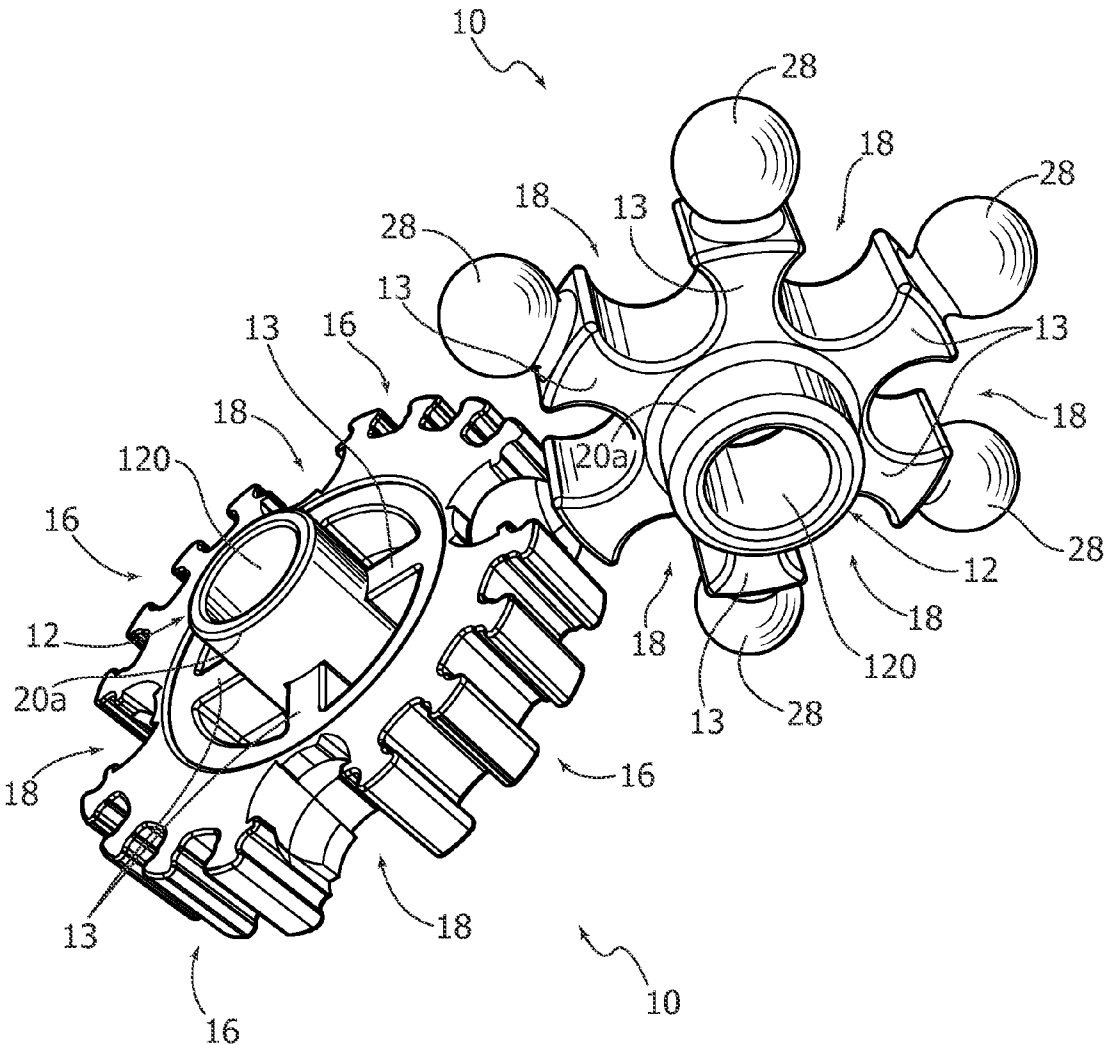


FIG. 18



ELEMENT FOR AMUSEMENT ARTICLES, CORRESPONDING SYSTEM AND METHOD

TECHNICAL FIELD

[0001] The present description relates to amusement articles, such as for example toys and the like.

[0002] Various embodiments can find application in amusement articles that are to be inserted in shell-type or capsule-type containers, used for inserting so-called “surprises” in foodstuff products, such as chocolate eggs and the like. Various embodiments can refer to the association of said amusement articles to confectionery products, without prior introduction into shell-type or capsule-type containers, but simply via insertion in packages made of flexible film, such as bags made of plastic material. Various embodiments may envisage the use of such amusement articles by themselves, hence in a way independent of the possible contexts of application to which reference has previously been made purely by way of example.

DESCRIPTION OF THE PRIOR ART

[0003] Amusement articles, for example in the form of toys, such as small vehicles or characters, constitute a sector of application that is extremely vast and diversified, both from the aesthetic standpoint and from the technical standpoint.

[0004] For instance, in numerous variant embodiments shell-type or capsule-type containers are known that are able to receive inside them an amusement article such as a toy, an accessory such as a key-ring, a necklace, a lucky charm, etc. having the function of surprise gift.

[0005] Documents such as EP-A-0 631 932, EP-A-0 631 933, EP-A-0 631 934, WO-A-2005/044677, WO-A-2005/110880 and WO-A-2007/074355 tackle technical problems of various nature linked to production of such a container, insertion of the “surprise” inside it, and again closing of the container. Containers of this sort are illustrated in EP-A-1 110 459 and EP-A-1 308 392.

[0006] The above containers may be used, for example, for inserting “surprises” inside hollow foodstuff products such as chocolate eggs with dimensions similar to the dimensions of a normal chicken egg, and the container has dimensions smaller than those of the product in which it is to be inserted: for example, a container of the type considered may present in the form of a cylindrical barrel with dome-shaped end parts (which are, for example, hemispherical) with an axial dimension (length) in the region of 5 cm and a diametral dimension in the region of 3.5 cm.

[0007] The document No. 2010/109370 A1 describes a solution that tackles the technical problem linked to the fact that the dimensions of the amusement article designed to function as “surprise” may be limited by the dimensions of the container so that the dimensions of the article are limited, even in the case of articles comprising distinct parts, to a few centimetres. The solution according to the document No. 2010/109370 A1 enables, instead, use as “surprise” of articles of a quite considerable size such as, for example, a model of aeroplane that is able to fly.

[0008] Likewise known are numerous variant embodiments of amusement articles that can be assembled, for example according to a general criterion of modularity.

[0009] For instance, documents such as IT-U-167 969 or IT-U-210 696 apply the above criterion of modularity using the aforesaid shell-type or capsule-type containers as bricks of a set of construction toys.

[0010] More in general, as already indicated previously, various embodiments may refer to amusement articles used in themselves and not necessarily contained in plastic capsules or barrels.

[0011] In this connection, there are known, in numerous embodiments, amusement articles that can be assembled starting from a number of pieces, possibly according to a general criterion of modularity: reference may be made in this regard to documents such as, for example, IT-A-1 233 001, GB 2 171 022 A, GB 2 408 219 A, GB 2 490 551 A, GB 200601445 A1, U.S. Pat. No. 3,583,091 A, U.S. Pat. No. 5,061,219 A, U.S. Pat. No. 6,572,429 B2, U.S. Pat. No. 7,553, 209 B1, US 2003/0129919 A1, US 2005/113177 A1, US 2006/0276100 A1, US 2008/0090485 A1, US 2011/0028063 A1, EP 0 586 341 B1, EP 0 856 341 B1, EP 1 068 886 A2, EP 1 463 571 B1, EP 1 755 757 B1, EP 2 125 131 B1, WO 03/059481 A, WO 2005/110571 A1, WO 2008/093028 A1, WO 2012/153086 A1.

OBJECT AND SUMMARY

[0012] In the context outlined above, an important feature may be represented by the so-called “playability”, i.e., by the number and nature of the possibilities of application of the article.

[0013] Starting from the prior art outlined previously, the object of various embodiments is to provide amusement articles such as to present a high degree of playability, both in absolute terms, when said articles are not associated to shell-type or capsule-type containers and in relation to their possible insertion in shell-type or capsule-type containers used for the so-called “surprise” gifts in foodstuff products such as chocolate eggs and the like.

[0014] Various embodiments enable the above object to be achieved thanks to an amusement article having the characteristics recalled in the ensuing claims.

[0015] Various embodiments may refer also to a corresponding system and to a corresponding method of use.

[0016] The claims form an integral part of the technical teaching provided herein in relation to the invention.

[0017] Various embodiments enable one or more of the following forms of “playability” to be achieved:

[0018] use as pendant or necklace;

[0019] use as component of a modular set of construction toys, possibly with different possibilities of connection, such as coupling (for example, radial or axial coupling) and articulated connection, and/or with the possibility of coupling together different components;

[0020] use as a wheel (for instance, for providing models of wheeled vehicles);

[0021] creation of toys (e.g., character statuettes) with added parts, which may be articulated.

BRIEF DESCRIPTION OF THE FIGURES

[0022] Various embodiments will now be described, purely by way of non-limiting example, with reference to annexed figures, in which:

[0023] FIGS. 1 and 2 are a perspective view and a top plan view, respectively, of an element according to embodiments;

[0024] FIGS. 3 to 6 illustrate various modes of possible use of embodiments;

[0025] FIGS. 7 and 8 exemplify a possible application of embodiments;

[0026] FIGS. 9 to 11 exemplify variant embodiments;

[0027] FIG. 12 exemplifies a variant embodiment;

[0028] FIGS. 13 and 14 exemplify various modes of possible use of embodiments according to FIG. 12; and

[0029] FIGS. 15 to 19 exemplify the possibility of joint use of elements according to different variants.

DETAILED DESCRIPTION

[0030] In the ensuing description, various specific details are illustrated aimed at providing an in-depth understanding of various examples of embodiments. The embodiments may be provided without one or more of the specific details, or with other methods, components, materials, etc. In other cases, known structures, materials or operations not are shown or described in detail so that various aspects of the embodiments will not be obscured.

[0031] Reference to “an embodiment” or “one embodiment” in the framework of the present description is meant to indicate that a particular configuration, structure, or characteristic described in relation to the embodiment is comprised in at least one embodiment. Hence, phrases such as “in an embodiment” or “in one embodiment” that may be present in various points of this description do not necessarily refer to one and the same embodiment.

[0032] Furthermore, particular conformations, structures, or characteristics, may be combined in any adequate way in one or more embodiments. For instance, one or more characteristics exemplified in what follows with reference, respectively, to each of the embodiments exemplified in FIGS. 1 to 8, in FIGS. 9 to 11, and/or again in FIGS. 12 to 14 may be transposed in any one of the other embodiments, for example to enable use in a modular system as exemplified in FIGS. 15 to 19.

[0033] The references used herein are provided only for convenience of the reader and hence do not define the extent of protection or the scope of the embodiments.

[0034] The embodiments exemplified herein may refer—purely by way of example—to amusement articles that preferably, but not necessarily, are to be inserted in shell-like or capsule-like containers of the type recalled in the introductory part of the description.

[0035] In the figures, the reference number 10 designates as a whole an element that can be used for providing amusement articles, for example according to the modalities illustrated more fully in what follows.

[0036] In various embodiments, the element 10 may comprise a body made of plastic material, for example, moulded. By way of example, without this being understood as in any way limiting the scope of the embodiments, the element 10 may present in the form of a flat body, e.g., a disk-shaped body, with a diameter comprised between approximately one centimetre and a few centimetres.

[0037] In various embodiments, the element 10 may present in the form of a flat body with two opposite faces 10a, 10b.

[0038] In various embodiments, in the body of the element 10 there may likewise be distinguished a hub region 12 and a contour region 14 centred around the hub region 12.

[0039] In various embodiments, the hub region 12 may be full or, as illustrated here, provided with an axial cavity 120.

[0040] In various embodiments, the hub region 12 and the contour region 14 may be connected together by a plurality of spokes 13, four in number in the examples represented in FIGS. 1 to 8 and 10, three or five in number in the examples represented in FIGS. 9 and 11, or six in number in the examples represented in FIGS. 12 to 14.

[0041] In various embodiments, along the contour region 14 first and second coupling elements, arranged in alternating sequence, may face one another.

[0042] In the embodiments exemplified in FIGS. 1 to 8 along the periphery of the contour region 14 set facing one another, arranged in alternating sequence, there may be:

[0043] first coupling elements comprising a plurality of swivel-coupling recesses or sockets 18; and

[0044] second coupling elements comprising a plurality of toothed coupling sectors 16.

[0045] The alternating sequence exemplified in FIGS. 1 to 8 envisages that a recess 18 (first coupling element) will be followed by a toothed sector 16 (second coupling element), in turn followed by a recess 18, and then by a toothed sector 16, and so forth.

[0046] In various embodiments, the alternating sequence could be different from the one exemplified here, for instance with a toothed sector 16 (second coupling element) followed by two recesses 18 (first coupling elements), in turn followed by a toothed sector 16, then by one or two recesses 18, and so forth.

[0047] In the examples of embodiment presented in FIGS. 1 to 8, four recesses 18 (first coupling elements) separated by four toothed sectors 16 (second coupling elements) may be provided.

[0048] In the above examples, the recesses 18 (first coupling elements) are set at the same angular distance apart (at 90° from one another) along the contour of the element 10. Consequently, as may be appreciated more fully for example in the front view of FIG. 3, the element 10 may, in various embodiments, present an overall shape at least roughly similar, for example, to a cross.

[0049] Once again in the same examples, the toothed coupling sectors 16 (second coupling elements) can hence be spaced at the same distances apart and are the same as one another.

[0050] Once again in the same examples, the toothed coupling sectors 16 may each comprise three cavities 160 and four teeth 161 as indicated explicitly in FIG. 1.

[0051] The above constructional choices are not on the other hand to be understood as imperative.

[0052] In various embodiments, the aforesaid cavities/teeth may present a complementary conformation that may be identified at least roughly as a dove-tailed conformation.

[0053] As will emerge more clearly in what follows (for example, with reference to FIG. 12 onwards), in various embodiments, instead of the toothed sectors 16 (or at least of part of them) there may be present, as second coupling elements, swivel-engagement heads (e.g., spherical heads) 28 having a shape and/or dimensions such as to enable insertion thereof into the recesses or sockets 18 and articulation therewith.

[0054] As has been on the other hand already mentioned previously, specific constructional aspects illustrated with reference to any of the embodiments exemplified herein may be transposed into the other embodiments exemplified herein.

[0055] In various embodiments (e.g., FIGS. 1 to 8, FIGS. 9 to 11, FIG. 12 onwards) on the opposite faces 10a, 10b of the

element 10 there may be provided, for example in the hub region 12, complementary axial-engagement formations such as a pin or tenon 20a provided in an axial position with respect to the element 10 (which may have, for example, an as a whole circular shape) and a corresponding cavity 20b.

[0056] The relative position of the complementary formations 20a and 20b may be appreciated better in the view of FIG. 5.

[0057] In various embodiments, it is possible to envisage that the condition of coupling between the formations 20a and 20b is such as to enable free relative rotation of two elements 10 axially coupled together as exemplified in FIG. 5.

[0058] In various embodiments, it is possible to envisage that the condition of coupling between the formations 20a and 20b is (for example, as a result of the presence of ribbings or of other retention elements obtained on the body of the element 10) such as to prevent relative rotation of two elements 10 axially coupled together as exemplified in FIG. 5.

[0059] In various embodiments (this applies, for example, to the embodiments illustrated respectively in FIGS. 1 to 8, in FIGS. 9 to 11, and/or in FIG. 12 onwards), the characteristics exemplified in the drawings may vary, for example, in relation to one or more of the following characteristics:

- [0060] the connection of the hub region 12 and of the contour region 14, which can be obtained without any solution of continuity, hence without providing the spokes 13 visible in the drawings, or else providing a number of spokes 13 different from what is here illustrated;
- [0061] the extension and/or distribution of the first and second coupling elements, i.e., of the sockets 18, of the heads 28, or of the toothed sectors 16, which may present (for example, for the toothed sectors 16) angular extensions different from the ones here provided by way of example and/or (for example, for the recesses 18 and/or the heads 28) a positioning where they are not set at the same angular distances apart;
- [0062] the number of the first and second coupling elements, which may be higher or lower than what is here shown by way of example (e.g., four—FIGS. 1 to 8—three or five—FIGS. 9 to 11—or else six—FIGS. 12 to 14);
- [0063] the fact that the toothed sectors 16 present all the same number or different numbers of cavities 160 and teeth 161;
- [0064] the fact that the cavities and teeth 160, 161 define conditions of relative coupling different from conditions of coupling such as ones of a dove-tailed type;
- [0065] the position, number, and distribution of the complementary formations 20a, 20b and/or the possibility of these allowing or not allowing relative rotation of a number of elements 10 axially coupled together as illustrated in FIG. 5; and/or
- [0066] the configuration of the articulated recesses 18 and of the heads 28 as articulated recesses of a spherical type: in various embodiments the articulated configuration may be a hinge-like configuration with capacity of orientation with respect to a single axis.

[0067] FIGS. 3 to 7 exemplify various modes of use (i.e., various levels of “playability”) of an element 10 as exemplified herein in FIGS. 1 to 6.

[0068] For instance, FIG. 3 shows how the element 10 can be used as pendant or necklace.

[0069] For this purpose, the element 10 can be coupled to a lace, necklace, or bracelet B (schematically represented with a dashed line in FIG. 3) that carries (in FIG. 3 both of these possibilities, which can be used distinctly from one another, are represented):

[0070] a body B1 with a toothed part B11 that can be engaged to one of the toothed sectors 16, for example inserting it in one of the cavities 160; and

[0071] a body B2 with an articulation head B21 that can be coupled to one of the recesses 18.

[0072] It will likewise be appreciated that the modality of use exemplified with reference to FIG. 3 is suited to being implemented (according to a variant not explicitly presented for simplicity of illustration) with a body such as the body B2 having, for example, instead of the articulation head B21, a recess or socket that can be coupled in a similar way with one of the spherical heads 28 of one embodiment, as exemplified in FIGS. 12 to 14.

[0073] FIG. 4 exemplifies, instead, the possibility of using an element 10 according to various embodiments as element (“brick”) of a modular set of construction toys, exploiting the possibility of coupling together a number of elements 10 by bringing into a coupling condition respective toothed sectors 16, i.e., causing the teeth 161 of one of the toothed sectors 16 of one element 10 to couple (for example according to a coupling configuration that can at least be roughly likened to a coupling of the dove-tailed type) in the cavities 160 of one of the toothed sectors 16 of another element 10.

[0074] FIG. 4 highlights how said possibility can be extended to two or more elements 10, showing two elements 10 already coupled together according to the modalities just described and a third element 10 brought up close so as to be set in a condition of coupling with one of the two elements 10 already coupled together.

[0075] Various embodiments can use, for the purposes of implementation of the various levels of playability exemplified herein, the fact that the material constituting the element 10, for example a plastic material, may present characteristics of resilience, for example characteristics of resilience of an elastic type, such as to enable a snap-action interlocking.

[0076] In various embodiments it is possible to obtain between the teeth 161 of one element 10 and the cavities 160 of a further element 10, a tolerance, of for example less than 1 μm, such as to enable a snap-action fit between the two elements.

[0077] FIG. 5 exemplifies the possibility of coupling a number of elements 10 exploiting the axial-engagement formations 20a, 20b.

[0078] In various embodiments, the coupling in question can take place by bringing the elements 10 to mate together.

[0079] In various embodiments, the coupling in question can take place by bringing the elements 10 to be at least marginally set at a distance from one another, as schematically illustrated by way of example in FIG. 5.

[0080] Also FIG. 5 (as likewise FIG. 4) highlights the possibility of extending said coupling mode to two or more elements 10, showing a third element 10 that is brought up close so as to be in conditions of axial coupling with two elements 10 already coupled together.

[0081] As has already been said, the modalities of axial coupling exemplified in FIG. 5 may envisage both the possibility of free relative rotation of the elements 10 coupled together and, optionally, the possibility of this movement of rotation being prevented owing to the profile of the comple-

mentary formations **20a**, **20b** and/or to the presence, on the elements **10** axially coupled together, of contrast elements such as to prevent the aforesaid movement of rotation.

[0082] The “radial” coupling mode exemplified in FIG. 4 may be exploited together with the “axial” coupling mode exemplified in FIG. 5.

[0083] FIG. 6 exemplifies yet a further level of playability that can be implemented using an accessory **B3**, which has a toothed part **B31** that can be engaged to one of the toothed sectors **16**, for example by inserting it into one of the cavities **160**, and has a pin-like part **P3** that can be inserted in the hub region **12** (exploiting for this purpose the axial cavity **120**, if present) of another element **10**.

[0084] In this way, the second element **10** can be used as a wheel, as schematically exemplified in the left-hand part of FIG. 6.

[0085] The modality of use exemplified in FIG. 6, reproduced for example with two accessories **B3** mounted in positions diametrically opposite on a first element **10**, enable assembly of a carriage with two side wheels (constituted by two elements **10** of the same type as the one represented in the left-hand part of FIG. 6) that can be used for example for creating models of wheeled vehicles.

[0086] Added to the above is the possibility of covering on the outside the contour of the element **10** or of the elements **10** that function as wheels with an annular element (not visible in the figures) that is such as to reproduce a sort of tyre mounted on such a wheel.

[0087] Also the level of playability exemplified in FIG. 6 can be used in a combined way with the other levels of playability exemplified previously.

[0088] FIGS. 7 and 8 exemplify yet a further level of playability (which can also be used in combination with the other levels of playability exemplified and/or with the other embodiments exemplified herein) in which the element **10** (or possibly a number of elements **10** coupled together, for example coupled axially as illustrated in FIG. 5) can constitute the body part of a toy such as, for example, a zoomorphic toy (a prehistoric monster, in the example illustrated) in combination with a number of accessory parts **B4**, **B5**, **B6**, that can be coupled to the recesses **18**, the toothed sectors **16**, and/or the heads **28** of the element **10**.

[0089] In the example presented in the figures, the accessories **B4** each comprise a pair of legs of the animal, which are provided with teeth **B41** that can be coupled on opposite sides of an element **10** by engaging the teeth **B41** in cavities **160** of two adjacent sectors **16** of the element **10**.

[0090] In the example presented in the figures, the accessories **B5** and **B6** are constituted by two further pieces (for example, one designed to represent the head part of the monster and the other the tail part of the monster itself) each provided with a swivel-engagement head **B51**, **B61** that can be inserted in an swivel-coupling configuration into two sockets **18** of the element **10**.

[0091] FIG. 8 illustrates the zoomorphic character in the assembled condition with the head part **B5** and the tail part **B6** represented, respectively, in a raised condition and in a lowered condition.

[0092] Added to the above is the possibility of exploiting the presence of the spherical heads **B51** and **B61** for modifying the orientation, for example lowering the head and raising the tail or else, in general, modifying the orientation of these parts with respect to the body of the animal.

[0093] It will be appreciated that, in the case where in the element **10** one or more articulated heads such as the spherical heads **28** visible for instance in FIG. 12 onwards are present, the modalities of swivel coupling with one or both of the parts **B5** and **B6** may be reversed by providing in the above part or parts a socket such as the sockets **18**, which can constitute an articulation with such a head.

[0094] FIGS. 9 to 11 exemplify the fact that the characteristics and functions of use described previously can be referred also to embodiments in which the element **10** has a shape different from that of a circular disk (as presented in FIGS. 1 to 8), for example a polygon such as a triangle (see FIG. 9), a quadrangle (e.g., a square, see FIG. 10), or a polygon with even more sides (e.g., a pentagon, see FIG. 10, a hexagon and so on).

[0095] Added to the above is the possibility of envisaging for the toothed sectors **16** either a rectilinear profile or (as exemplified, for example, in FIG. 9) a slightly arched profile—for example, with its convexity facing outwards—so as to facilitate coupling with homologous sectors.

[0096] As regards the rest, as has already been repeated a number of times, specific aspects presented with reference to the embodiments exemplified in FIGS. 1 to 8 or in FIGS. 12 to 14 may be transposed into the embodiments exemplified in FIGS. 9 to 11, and vice versa, so that specific aspects illustrated herein with reference to the embodiments exemplified in FIGS. 9 to 11 (by way of non-limiting example, the number of the spokes **13**, of the first and second coupling elements **16** and **18**, the number of the cavities **160**/teeth **161** in the toothed sectors **16**, etc.) can be transposed into the other embodiments exemplified herein.

[0097] FIGS. 12 to 14 exemplify the possibility, already introduced and discussed previously, of envisaging, in various embodiments, the presence, instead of the toothed sectors **16** (or at least of part of them), of swivel-engagement heads (e.g., spherical heads) **28** having a shape and/or dimensions such as to enable insertion and articulation thereof with the sockets **18**.

[0098] The reference that has just been made to the possible presence of swivel-engagement heads **28** instead—at least of part—of the toothed sectors **16** regards the fact that—in embodiments not explicitly presented herein so as not to burden unnecessarily the present description—along the contour part **14** of the element **10** there is present an alternating sequence of:

[0099] first coupling elements in the form of swivel-coupling recesses **18**; and

[0100] second coupling elements comprising both toothed coupling sectors such as the sectors **16** and swivel-engagement heads such as the heads **28**.

[0101] FIG. 12 exemplifies, according to a point of observation approximately corresponding to the point of observation of FIG. 1, the possibility of using, as second coupling elements, instead of the toothed sectors **16**, swivel-engagement heads **28** separated by recesses **18** having a complementary conformation.

[0102] In this way, the elements **10** can afford, in addition to the modalities of modular coupling between elements **10** that have already been illustrated previously, further possibilities of connection, such as for example:

[0103] axial connection with orthogonal planes of lie, via one of the heads **28** of one element **10** inserted in the cavity **120** of the hub **12** of another element **10** (FIG. 13),

achieving a modality of articulated coupling substantially similar to the one between a head **28** and a cavity **18**; and

[0104] perimetral connection at an angle (or dihedral), with planes of lie orthogonal to main coplanar axes, via one of the heads **28** of one element **10** inserted in one of the recesses **18** of another element **10** (FIG. **14**); it will be appreciated on the other hand that a similar coupling mode can be achieved also, for example, with two elements **10** as exemplified in FIGS. **1** to **8** (or **9** to **11**) exploiting for the purposes of connection the toothed sectors **16**.

[0105] FIGS. **12** to **14** likewise exemplify the fact that the choice of envisaging six heads **28**, separated by six recesses **18** (but both the number and the sequence of alternation could be different) is suited to bestowing on the element **10** a general shape for example like a star or snow flake, which can be used, for instance, as necklace, as previously proposed with reference to FIG. **3**.

[0106] Also in this case, specific aspects illustrated before with reference to the embodiments exemplified in FIGS. **1** to **8**, or else to the embodiments exemplified in FIGS. **9** to **11**, can be transposed into the embodiments exemplified in FIGS. **12** to **14**, and vice versa, so that, for example, swivel-engagement heads like the heads **28** visible in FIGS. **12** to **14** can be replaced by all (or even only some) of the toothed sectors **16** of FIGS. **1** to **11**. This can apply whether the element **10** presents the circular shape of FIGS. **1** to **8** or **12** to **14** or whether it presents a polygonal shape, as exemplified in FIGS. **9** to **11**.

[0107] This possible identity or “interchangeability” of characteristics enables joint use, in the framework of an open modular system, of elements **10** according to different embodiments.

[0108] For instance, it will be appreciated that the modalities of coupling of a number of elements **10** exemplified in FIGS. **4** to **6** (and also in FIGS. **7** and **8**, when for example the body of the zoomorphic toy illustrated therein is obtained with a number of elements **10**) are feasible to a large extent even when one or more of the elements **10** illustrated therein correspond to the embodiments exemplified in FIGS. **9** to **11** and/or in FIGS. **12** to **14**.

[0109] FIGS. **15** to **19** exemplify once again the above further potential of use (of course without exhausting the practically infinite range of possibilities afforded by such a system) with reference to possible coupling modes:

[0110] axial with parallel planes of lie, with respective complementary formations **20a** and **20b** (FIG. **15**);

[0111] axial with orthogonal planes of lie, with one of the heads **28** of one element **10** inserted into the cavity **120** of the hub **12** of another element **10** (FIG. **16**);

[0112] perimetral at an angle (or dihedral), with orthogonal planes of lie and main axes coplanar, with one of the heads **28** of one element **10** inserted in one of the recesses **18** of another element **10** (FIG. **17**);

[0113] perimetral with orthogonal planes of lie and main axes orthogonal, once again with one of the heads **28** of one element **10** inserted in one of the recesses **18** of another element **10** (FIG. **18**);

[0114] perimetral with coplanar planes of lie, once again with one of the heads **28** of one element **10** inserted in one of the recesses **18** of one element **10** according to FIGS. **1** to **8** and of one element **10** according to FIGS. **12** to **14** (FIG. **19**).

[0115] It will be appreciated that the various examples provided herein can be at least to a large extent implemented for instance by providing an element **10** according to FIGS. **9** to **11** instead of an element **10** according to FIGS. **1** to **8** and/or instead of an element **10** according to FIGS. **12** to **14**.

[0116] Added to this is the possibility of creating a construction-toy system comprising a plurality of elements **10** that can be coupled together according to a general modular scheme and in which:

[0117] the coupled elements **10** are the same as one another (see for example FIG. **4**); and

[0118] the coupled elements **10** differ from one another (see for example FIGS. **15** to **19**) for instance as regards at least one between:

[0119] i) the different shape (circular: FIGS. **1** to **8**; polygonal: FIGS. **9** to **11**; star-like: FIGS. **12** to **14**) of the flat body, and

[0120] ii) the presence, as second coupling elements, of toothed coupling sectors **16** and/or of swivel-engagement heads **28**.

[0121] The term “element” has consequently been used in the present description:

[0122] both in relation to the first and second engagement (or coupling) elements such as the recesses **18**, the toothed sectors **16**, and the heads **28**, in so far as they are elements or members comprised in the part designated as a whole by **10**;

[0123] and in relation to the above part **10**, in so far as it can in turn be used as component part, hence as element, of a modular construction toy comprising a number of elements that are the same as one another or different from one another.

[0124] Without prejudice to the principle of the invention, the details of construction and the embodiments may vary, even significantly, with respect to what has been illustrated herein purely by way of non-limiting example, without thereby departing from the extent of protection as defined by the annexed claims.

1. An element (**10**) of amusement articles, including:

a flat body with two opposite faces (**10a**, **10b**), a hub region (**12**) and a contour region (**14**) around the hub region (**12**),

a plurality of coupling elements arranged along the contour region (**14**) in alternating sequence of first coupling elements (**18**) and second coupling elements (**16**, **28**), wherein the first coupling elements are in the form of swivel coupling recesses (**18**), and the second coupling elements are selected out of:

a) toothed coupling sectors (**16**),
b) swivel engagement heads (**28**) complementary to said swivel coupling recesses (**18**),

complementary axial engagement formations (**20a**, **20b**) provided on the one (**10a**) and the other (**10b**) of said opposite faces.

2. The element of claim **1**, including toothed coupling sectors (**16**) having at least one characteristic out of:

the toothed coupling sectors (**16**) include a plurality of teeth (**161**);

the toothed coupling sectors (**16**) are provided with a toothing (**160**, **161**), preferably a dovetail-like toothing, snap-engageable with an analogous toothing.

3. The element of claim **1**, wherein the second coupling elements (**16**, **28**) are equally spaced and/or identical to one another.

4. The element of claim 1, wherein the complementary axial engagement formations (20a, 20b) are located in the hub region (12).

5. The element of claim 1, wherein the complementary axial engagement formations (20a, 20b) include a pin (20a) and a cavity (20b) for engagement by a pin (20a).

6. The element of claim 1, wherein the complementary axial engagement formations (20a, 20b) are coupleable in free relative rotation conditions.

7. The element of claim 1, including radial spokes (13) extending between the hub region (12) and the contour region (14).

8. The element of claim 1, in the form of a piece of plastics material.

9. The element of claim 1, wherein the element (10) is circular in shape, thus being useable as a wheel.

10. The element of claim 1, wherein the element (10) is of a polygonal shape.

11. The element of claim 10, including toothed coupling sectors (16) that are rectilinear or curvilinear with a convexity facing towards the exterior of the element (10).

12. A construction system including a plurality of elements (10) according to claim 1, coupleable according to a modular arrangement.

13. The modular construction system of claim 12, wherein: the elements (10) in said plurality of elements are identical; the elements (10) in said plurality of elements differ for at least one of:

- i) a different shape of said flat body;
- ii) the presence, as said second coupling elements, of toothed coupling sectors (16) and/or swivel engagement heads (28) complementary to said swivel coupling recesses (18), respectively.

14. A method of using an element according to claim 1, including at least one operation out of:

coupling with the element (10) at least one analogous element (10) by coupling respective coupling elements out of said first coupling elements (18) and second coupling elements (16, 28),

coupling with the element (10) at least one analogous element by axial engagement of respective complementary engagement formations (20a, 20b),

coupling with the element (10) at least one auxiliary body (B1, B3, B4) having a toothed part (B11, B31, B41) coupleable with one of said toothed coupling sectors (16),

coupling with the element (10) at least one auxiliary body (B2, B5, B6) having an articulation element (B21, B51, B61) coupleable with one of said swivel coupling recesses (18) and said swivel coupling heads (28).

* * * * *