Owing to the different shapes, different construction assemblies can be built in simple manner, see for instance figure 10. The creativity of a person producing the construction assemblies is hereby stimulated, which can have an educational function. Different construction assemblies in the form of for instance stands and furniture can also be easily assembled. The diameter of the or each ring of lips of a random coupling element and the diameter of the or each opening in a random construction element preferably have standard dimensions in each case such that the assembly of construction assemblies making use of different types of construction and coupling element according to the invention can be simplified through standardization.

It is further noted that the invention is not limited to the above discussed exemplary embodiments but also extends to other variants within the scope of the appended claims.

CLAIMS

1. Modular construction system,

comprising at least two construction elements and a coupling element which can be connected releasably to the construction elements,

wherein:

the coupling element comprises a plate-like body with two flat surfaces which are each provided with coupling means, wherein the coupling means of at least one of the two surfaces comprise a ring of resiliently pivotable lips extending at least substantially perpendicularly of the surface and provided with locking protrusions close to a first end zone;

at least one of the two construction elements comprises at least one surface with at least one opening which is adapted to receive the lips of the coupling element in order to connect the coupling element and the construction element, this opening being smaller than the distance between two opposite protrusions of the lips such that in a connected situation the protrusions of the lips of the coupling element engage on the surface of the construction element close to the opening; and

the lips are adapted to displace inward at least close to their first end zones subject to a force exerted on the coupling element such that the distance between the two opposite protrusions of the lips can decrease to less than the size of the opening in the construction element in order to release the connection between the coupling element and the construction element,

characterized in that

the plate-like body of the coupling element comprises an opening which extends between the two flat surfaces, this opening of the plate-like body being provided with resiliently pivotable tongues extending radially inward

which are connected to the lips, wherein the tongues of the opening of the plate-like body are displaced out of the plane of the plate-like body at least close to a first outer end of the tongues by a force being exerted thereon, such that due to displacement of the tongues out of the plane of the plate-like body the lips are displaced inward.

2. Modular construction system as claimed in claim 1, wherein the surface of the construction element is provided with a standing edge extending round the opening in the surface, wherein in the connected situation the plate-like body of the coupling element extends at least partially inside the standing edge.

3. Modular construction system as claimed in claim 2, wherein the standing edge of the construction element has a polygonal form.

4. Modular construction system as claimed in claim 3, wherein the plate-like body of the coupling element has a polygonal form, wherein in the connected situation corner points of the plate-like body are situated in the corner points of the standing edge.

5. Modular construction system as claimed in claim 4, wherein a distance between two opposite corner points of the plate-like body of the coupling element is greater than a distance between two opposite sides of the standing edge of the construction element, such that a force exceeding a predetermined value is necessary for rotation of the coupling element in the surface of the construction element.

6. Modular construction system as claimed in any of the claims 3-5, wherein the standing edge of the construction element has interruptions close to its corner points.

7. Modular construction system as claimed in claim 2, wherein the standing edge of the construction element has a round form.

8. Modular construction system as claimed in claim 2, 3, 6 or 7, wherein the plate-like body has a round form, wherein the diameter of the plate-like body is smaller than a distance between two opposite sides of the standing edge of the construction element, such that rotation of the coupling element in the surface of the construction element can take place freely.

9. Construction element, component of a modular construction system as claimed in any of the claims 1-8, comprising at least one surface with at least one opening which is adapted to receive the lips of a coupling element in order to connect the coupling element and the construction element, this opening being smaller than the distance between two opposite protrusions of the lips, such that in a connected situation the protrusions of the lips of the coupling element engage on the surface of the construction element close to the opening.

10. Coupling element, component of a modular construction system as claimed in any of the claims 1-8, comprising a plate-like body with two flat surfaces which are each provided with coupling means, wherein the coupling means of at least one of the two surfaces comprise a ring of resiliently pivotable lips extending at least substantially perpendicularly of the surface and provided with locking protrusions close to a first end zone, wherein the lips are adapted to displace inward at least close to their first end zones subject to a force exerted on the coupling element, such that the distance between the two protrusions of the lips situated opposite each other can decrease to less than the size of an opening in a construction element in order to

release a connection between the coupling element and the construction element, wherein the plate-like body of the coupling element comprises an opening which extends between the two flat surfaces, this opening of the plate-like body being provided with resiliently pivotable tongues extending radially inward which are connected to the lips, wherein the tongues of the opening of the plate-like body are displaced out of the plane of the plate-like body at least close to a first outer end of the tongues by a force being exerted thereon, such that due to displacement of the tongues out of the plane of the plate-like body the lips are displaced inward.

11. Coupling element as claimed in claim 10, wherein the coupling means of each of the two surfaces comprise a ring of resiliently pivotable lips extending at least substantially perpendicularly of the surface and provided with locking protrusions close to a first end zone.

12. End element, comprising a plate-like body with a flat surface which is provided with a ring of resiliently pivotable lips extending at least substantially perpendicularly of the surface and provided with locking protrusions close to a first end zone.

13. Tool for use with a modular construction system as claimed in any of the claims 1-8, the tool comprising a body provided with at least one pin-like body which is adapted to displace tongues of an opening of a plate-like body of a coupling element out of the plane of the plate-like body, at least close to first outer ends of the tongues.

14. Tool as claimed in claim 13, wherein the pin-like body extends at an angle from the body, the angle lying between 0 and 90°.

15. Tool as claimed in claim 13 or 14, wherein the tool comprises a displaceable flange extending round the pin-like body, the flange being displaceable between a first position, in which the flange is smaller than the diameter of the opening of the construction element, and a second position in which the flange is larger than the diameter of the opening of the construction element, wherein the pin-like body is displaceable between the first position, in which the pin-like body extends with a first determined length from the body, and a second position in which the pin-like body extends with a second determined length from the body, the second determined length being greater than the first determined length, and wherein the pin-like body is in respectively the first or the second position when the flange is in respectively the first or the second position.

16. Packaging comprising at least one of:
a construction element according to claim 9;
a coupling element according to claim 10 or 11;
an end element according to claim 12; and
a tool according to claims 13-15.

Owing to the different shapes, different construction assemblies can be built in simple manner, see for instance figure 10. The creativity of a person producing the construction assemblies is hereby stimulated, which can have an educational function. Different construction assemblies in the form of for instance stands and furniture can also be easily assembled. The diameter of the or each ring of lips of a random coupling element and the diameter of the or each opening in a random construction element preferably have standard dimensions in each case such that the assembly of construction assemblies making use of different types of construction and coupling element according to the invention can be simplified through standardization.

It is further noted that the invention is not limited to the above discussed exemplary embodiments but also extends to other variants within the scope of the appended claims.

Reference to cited material or information contained in the text should not be understood as a concession that the material or information was part of the common general knowledge or was known in Australia or any other country.

Each document, reference, patent application or patent cited in this text is expressly incorporated herein in their entirety by reference, which means that it should be read and considered by the reader as part of this text. That the document, reference, patent application, or patent cited in this text is not repeated in this text is merely for reasons for conciseness.

Throughout the specification and claims, unless the context requires otherwise, the word "comprise" or variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated integer or group of integers but not the exclusion of any other integer or group of integers.

The present invention provides a modular construction system,

comprising at least two construction elements and a coupling element which can be connected releasably to the construction elements,

wherein:

the coupling element comprises a plate-like body with two flat surfaces which are each provided with coupling means, wherein the coupling means of at least one of the two surfaces comprise a ring of resiliently pivotable lips extending at least substantially perpendicularly of the surface and provided with locking protrusions close to a first end zone;

at least one of the two construction elements comprises at least one surface with at least one opening which is adapted to receive the lips of the coupling element in order to connect the coupling element and the construction element, this opening being smaller than the distance between two

opposite protrusions of the lips such that in a connected situation the protrusions of the lips of the coupling element engage on the surface of the construction element close to the opening; and

the lips are adapted to displace inward at least close to their first end zones subject to a force exerted on the coupling element such that the distance between the two opposite protrusions of the lips can decrease to less than the size of the opening in the construction element in order to release the connection between the coupling element and the construction element,

characterized in that

the plate-like body of the coupling element comprises an opening which extends between the two flat surfaces, this opening of the plate-like body being provided with resiliently pivotable tongues extending radially inward which are connected to the lips, wherein the tongues of the opening of the plate-like body are displaced out of the plane of the plate-like body at least close to a first outer end of the tongues by a force being exerted thereon, such that due to displacement of the tongues out of the plane of the plate-like body the lips are displaced inward.

The present invention further provides an end element, comprising a plate-like body with a flat surface which is provided with a ring of resiliently pivotable lips extending at least substantially perpendicularly of the surface and provided with locking protrusions close to a first end zone, wherein the plate-like body of the end element comprises an opening, this opening of the plate-like body being provided with resiliently pivotable tongues extending radially inward which are connected to the lips, wherein the tongues of the opening of the plate-like body are displaced out of the plane of the plate-like body at least close to a first outer end of the tongues by a force being exerted thereon, such that due to

displacement of the tongues out of the plane of the plate-like body the lips are displaced inward.

CLAIMS

1. Modular construction system,

comprising at least two construction elements and a coupling element which can be connected releasably to the construction elements,

wherein:

the coupling element comprises a plate-like body with two flat surfaces which are each provided with coupling means, wherein the coupling means of at least one of the two surfaces comprise a ring of resiliently pivotable lips extending at least substantially perpendicularly of the surface and provided with locking protrusions close to a first end zone;

at least one of the two construction elements comprises at least one surface with at least one opening which is adapted to receive the lips of the coupling element in order to connect the coupling element and the construction element, this opening being smaller than the distance between two opposite protrusions of the lips such that in a connected situation the protrusions of the lips of the coupling element engage on the surface of the construction element close to the opening; and

the lips are adapted to displace inward at least close to their first end zones subject to a force exerted on the coupling element such that the distance between the two opposite protrusions of the lips can decrease to less than the size of the opening in the construction element in order to release the connection between the coupling element and the construction element,

characterized in that

the plate-like body of the coupling element comprises an opening which extends between the two flat surfaces, this

opening of the plate-like body being provided with resiliently pivotable tongues extending radially inward which are connected to the lips, wherein the tongues of the opening of the plate-like body are displaced out of the plane of the plate-like body at least close to a first outer end of the tongues by a force being exerted thereon, such that due to displacement of the tongues out of the plane of the plate-like body the lips are displaced inward.

2. Modular construction system as claimed in claim 1, wherein the surface of the construction element is provided with a standing edge extending round the opening in the surface, wherein in the connected situation the plate-like body of the coupling element extends at least partially inside the standing edge.

3. Modular construction system as claimed in claim 2, wherein the standing edge of the construction element has a polygonal form.

4. Modular construction system as claimed in claim 3, wherein the plate-like body of the coupling element has a polygonal form, wherein in the connected situation corner points of the plate-like body are situated in the corner points of the standing edge.

5. Modular construction system as claimed in claim 4, wherein a distance between two opposite corner points of the plate-like body of the coupling element is greater than a distance between two opposite sides of the standing edge of the construction element, such that a force exceeding a predetermined value is necessary for rotation of the coupling element in the surface of the construction element.

6. Modular construction system as claimed in any of the claims 3-5, wherein the standing edge of the construction element has interruptions close to its corner points.

7. Modular construction system as claimed in claim 2, wherein the standing edge of the construction element has a round form.

8. Modular construction system as claimed in claim 2, 3, 6 or 7, wherein the plate-like body has a round form, wherein the diameter of the plate-like body is smaller than a distance between two opposite sides of the standing edge of the construction element, such that rotation of the coupling element in the surface of the construction element can take place freely.

9. Coupling element, component of a modular construction system as claimed in any of the claims 1-8, comprising a plate-like body with two flat surfaces which are each provided with coupling means, wherein the coupling means of at least one of the two surfaces comprise a ring of resiliently pivotable lips extending at least substantially perpendicularly of the surface and provided with locking protrusions close to a first end zone, wherein the lips are adapted to displace inward at least close to their first end zones subject to a force exerted on the coupling element, such that the distance between the two protrusions of the lips situated opposite each other can decrease to less than the size of an opening in a construction element in order to release a connection between the coupling element and the construction element, wherein the plate-like body of the coupling element comprises an opening which extends between

the two flat surfaces, this opening of the plate-like body being provided with resiliently pivotable tongues extending radially inward which are connected to the lips, wherein the tongues of the opening of the plate-like body are displaced out of the plane of the plate-like body at least close to a first outer end of the tongues by a force being exerted thereon, such that due to displacement of the tongues out of the plane of the plate-like body the lips are displaced inward.

10. Coupling element as claimed in claim 9, wherein the coupling means of each of the two surfaces comprise a ring of resiliently pivotable lips extending at least substantially perpendicularly of the surface and provided with locking protrusions close to a first end zone.

11. End element, comprising a plate-like body with a flat surface which is provided with a ring of resiliently pivotable lips extending at least substantially perpendicularly of the surface and provided with locking protrusions close to a first end zone, wherein the plate-like body of the end element comprises an opening, this opening of the plate-like body being provided with resiliently pivotable tongues extending radially inward which are connected to the lips, wherein the tongues of the opening of the plate-like body are displaced out of the plane of the plate-like body at least close to a first outer end of the tongues by a force being exerted thereon, such that due to displacement of the tongues out of the plane of the plate-like body the lips are displaced inward.

12. Tool for use with a modular construction system as claimed in any of the claims 1-8, the tool comprising a body

provided with at least one pin-like body which is adapted to displace tongues of an opening of a plate-like body of a coupling element out of the plane of the plate-like body, at least close to first outer ends of the tongues,

characterized in that the tool comprises a displaceable flange extending round the pin-like body, the flange being displaceable between a first position, in which the flange is smaller than the diameter of the opening of the construction element, and a second position in which the flange is larger than the diameter of the opening of the construction element, wherein the pin-like body is displaceable between the first position, in which the pin-like body extends with a first determined length from the body, and a second position in which the pin-like body extends with a second determined length from the body, the second determined length being greater than the first determined length, and wherein the pin-like body is in respectively the first or the second position when the flange is in respectively the first or the second position.

13. Tool as claimed in claim 12, wherein the pin-like body extends at an angle from the body, the angle lying between 0 and 90°.