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(54) **VERTICAL BUILDING PARTITION ASSEMBLED FROM MODULAR BUILDING ELEMENTS**

(57) The invention relates to a vertical building partition assembled from modular building elements. The modular building elements constitute a set of elements that have shapes similar to rectangular solids, have, on their surfaces, tongues and recesses forming a tongue-and-groove arrangement and have through-holes. The vertical building partition is characterized by the fact that the modular building elements (4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27) forming the vertical building partition (1) are arranged in such a way that the lower surface of one of the elements partially or wholly lies on the upper surface of another element, and the tongues existing on the lower surface cooperate with the interstitial spaces existing on the upper surface. The side walls of the smaller surface area of adjacent modular building elements (4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27) are adjacent to each other. At the same time, this arrangement ensures that the vertical through-holes (5.3, 7.3, 9.4, 11.4, 13.2, 15.2, 17.4, 19.4, 21.3, 23.2, 25.4, 27.4) of the modular building elements (5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27), which, respectively, lie one on the top of another, are placed in such a way that these vertical holes form a common channel, where a vertical support structure (2) is placed. The modular building elements (20, 21, 22, 23, 24, 25, 26, 27) placed on the top of the building par-

tition are filled with a material forming a horizontal support structure (3).

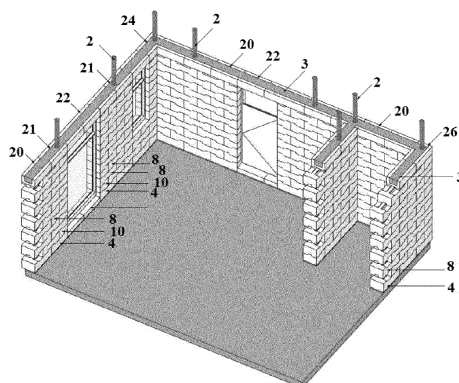


Fig. 1

## Description

**[0001]** The invention relates to a vertical building partition assembled from modular building elements.

**[0002]** Solutions for connecting masonry structures made of ceramic elements, autoclave aerated concrete and silicate elements with reinforced concrete load-bearing structure are widely known and used. Connections are implemented to strengthen the structure of the building against the effects of vertical and tangential forces, as well as to increase the safety of the structure during its service life.

**[0003]** The presented technologies, in practice, involve the need to combine them with others for successful application in construction, in particular, with the technology of insulating with thermal insulation materials to ensure thermal comfort of residents and the use of other structural materials to strengthen the building itself. This makes their application difficult due to the need to combine solutions to vertical partitions with others, which creates the need to design appropriate connections to ensure their durability. Making the presented technologies more difficult is the inefficient construction process associated with the use of numerous supplementary materials such as thermal insulation and mortar, as well as traditional technologies involving formwork, tying of reinforcement, wet works on site, etc.

**[0004]** Known from the Polish protective utility model No. Ru67743 is a modular set of soundproofing blocks, having the form of rectangular solids, having on the side walls of the blocks tongues and cut-outs, characterized by fact that the solid hollow block and the hollow block with hollows of the set is in the form of a rectangular solid, which has on two opposite smaller surfaces - in the solid hollow block - and on surfaces - in the hollow block with hollows - tongues and notches placed in pairs, respectively, on each of these surfaces, which form a tongue-and-groove arrangement. All the tongues and notches have an outline similar in shape to a trapezoid. On the upper surface of the solid hollow block two longitudinal grooves are located intended to receive reinforcing bars, the grooves running mutually parallel and parallel to the longer sides of the hollow block, extending from the protrusion-tongue to the notch-groove.

**[0005]** Also, known from the Polish protective description No. Ru57226 is a wall block, which is characterized by the fact that it has rectangular openings arranged in four rows, with three identical openings in the first row from the top, two identical inner openings and two identical outer openings of cross-sections smaller than the inner openings in the second row, an inner opening and two side recesses in the third row, and identical openings in the fourth row, whereas rectangle-shaped grooves are located on the end surfaces of the vertical walls.

## Summary

**[0006]** A vertical building partition assembled from

modular building elements according to the invention, wherein the modular building elements constitute a set of elements that have shapes similar to rectangular solids, have, on their surfaces, tongues and recesses forming a tongue-and-groove arrangement, and have through holes, is characterized by the fact that the modular building elements forming a vertical building partition are arranged such that the lower surface of one of the elements partially or fully lies on the upper surface of another element, partially or fully, and the tongues existing on the lower surface cooperate with interstitial spaces existing on the upper surface. The side walls of the smaller surface of adjacent modular building elements are adjacent to each other. At the same time, this arrangement ensures that the vertical through-holes of the modular building elements which, respectively, lie one on the top of another, are placed in such a way that these vertical holes form a common channel, where the vertical support structure is placed. The modular building elements placed on the top of the building partition are filled with a material forming a horizontal support structure.

**[0007]** A modular building element is a rectangular modular starting building element, and on its upper surface has two tongues and a tongue forming together a shape similar to the letter "H" and a flat lower surface.

**[0008]** A modular building element is a rectangular modular hole starting building element, and on its upper surface has two tongues and a tongue forming together a shape similar to the letter "H" and a vertical through hole between the place where the tongues meet and the lower flat surface.

**[0009]** A modular building element is a rectangular modular half starting building element, and has two tongues on its upper surface that together form a shape similar to the letter "T" and a flat lower surface.

**[0010]** A modular building element is a rectangular modular half hole starting building element, and has two tongues on its upper surface forming together a shape similar to the letter "T" and a vertical through hole between the place where the tongues meet and the lower flat surface.

**[0011]** A modular building element is a rectangular modular ordinary building element, and on its upper surface has two tongues and a tongue forming together a shape similar to the letter "H" and, on its lower surface, four tongues located in its corners.

**[0012]** A modular building element is a rectangular modular hole ordinary building element, and on its upper surface has two tongues and a tongue forming together a shape similar to the letter "H" and, on its lower surface, four tongues located in its corners and a vertical through hole between the place where the tongues of the upper surface meet and the place between the tongues that lie at the shorter edge of the lower surface.

**[0013]** A modular building element is a rectangular modular half ordinary building element, and on its upper surface has two tongues forming together a shape similar to the letter "T" and on its lower surface it has two tongues

located at its shorter edge.

**[0014]** A modular building element is a rectangular modular half hole ordinary building element, and on its upper surface has two tongues forming together a shape similar to the letter "T" and on its lower surface it has two tongues located at its shorter edge and a vertical through hole between the place where the tongues of the upper surface meet and the place between the tongues that lie on the lower surface.

**[0015]** A modular building element is a rectangular modular crown building element, and has a flat upper surface and, on its lower surface, has four tongues located in its corners.

**[0016]** A modular building element is a rectangular modular crown hole building element, and has a flat upper surface and, on its lower surface, has four tongues located in its corners and has a vertical through hole between its upper surface and the place between the tongues that lie at the shorter edge of the lower surface.

**[0017]** A modular building element is rectangular modular half crown building element, and has a flat upper surface, and on its lower surface, has two tongues located at its adjacent corners.

**[0018]** A modular building element is a rectangular modular half crown hole building element, and has a flat upper surface and, on its lower surface, has two tongues located at its adjacent corners and a vertical through hole between the upper surface and the place between the tongues that lie on the lower surface.

**[0019]** A modular building element is a rectangular modular left corner building element, and on its upper surface has two tongues and a tongue forming together a shape similar to the letter "H" and on its lower surface it has four tongues, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower surface.

**[0020]** A modular building element is a rectangular modular left corner hole building element, and on its upper surface has two tongues and a tongue forming together a shape similar to the letter "H," on its lower surface it has four tongues, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower surface, and it has a vertical through hole between the place where the tongues of the upper surface meet and the place between two of the three tongues that lie at the longer edge of the lower surface.

**[0021]** A modular building element is a rectangular modular right corner building element, and on its upper surface has two tongues and a tongue forming together a shape similar to the letter "H" and on its lower surface it has four tongues, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower surface.

**[0022]** A modular building element is a rectangular modular right corner hole building element, and on its

upper surface has two tongues and a tongue forming together a shape similar to the letter "H", on its lower surface it has four tongues, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower surface, and it has a vertical through hole between the place where the tongues of the upper surface meet and the place between two of the three tongues that lie at the longer edge of the lower surface.

**[0023]** A modular building element is a rectangular modular grooved gable building element, and on its upper surface has a longitudinal groove of a rectangular cross-section, and on its lower surface it has four tongues located in its corners.

**[0024]** A modular building element is a rectangular modular grooved gable hole building element, and on its upper surface has a longitudinal groove of a rectangular cross-section, and on its lower surface it has four tongues located in its corners, and has a vertical through hole between the bottom of the groove on the upper surface and a place between two tongues that lie at the shorter edge of the lower surface.

**[0025]** A modular building element is a rectangular modular flat grooved gable building element, and on its upper surface has a longitudinal groove of a rectangular cross-section and a flat lower surface.

**[0026]** A modular building element is a rectangular modular flat grooved gable hole building element, and on its upper surface has a longitudinal groove of a rectangular cross-section, and a flat lower surface, and it has a vertical through hole between the bottom of the groove on the upper surface and the lower surface.

**[0027]** A modular building element is a rectangular modular left grooved gable building element, and on its upper surface has a two-part groove of a rectangular cross-section, with a first longitudinal part and a second part perpendicular to the first part, and on its lower surface it has four tongues, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower edge.

**[0028]** A modular building element is a rectangular modular left grooved gable hole building element, and on its upper surface has a two-part groove of a rectangular cross-section, with a first longitudinal part and a second part perpendicular to the first part, on its lower surface it has four tongues, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower edge, and it on its upper surface has a vertical through hole between the bottom of the groove at the point where the first part and the second part thereof join and the place between two of the three tongues that lie at the longer edge of the lower surface.

**[0029]** A modular building element is a rectangular modular right grooved gable building element, and on its upper surface has a two-part groove of a rectangular cross-section, with a first longitudinal part and a second

part perpendicular to the first part, and on its lower surface it has four tongues, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower edge.

**[0030]** A modular building element is a rectangular modular right grooved gable hole building element, and on its upper surface has a two-part groove of a rectangular cross-section, with a first longitudinal part and a second part perpendicular to the first part, on its lower surface it has four tongues, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower edge, and it on its upper surface has a vertical through hole between the bottom of the groove at the point where the first part and the second part thereof join and the place between two of the three tongues that lie at the longer edge of the lower surface.

**[0031]** The subject of the invention is shown in the drawings, in which:

- Fig. 1 shows schematically an axonometric view of a vertical building partition according to the invention,
- Fig. 2 shows an axonometric view of a modular starting building element according to the invention,
- Fig. 3 shows an axonometric view of a modular hole starting building element according to the invention,
- Fig. 4 shows an axonometric view of a modular half starting building element according to the invention,
- Fig. 5 shows an axonometric view of a modular half hole starting building element according to the invention,
- Fig. 6 shows an axonometric view of a modular ordinary building element according to the invention,
- Fig. 7 shows an axonometric view of a modular hole ordinary building element according to the invention,
- Fig. 8 shows an axonometric view of a modular half ordinary building element according to the invention,
- Fig. 9 shows an axonometric view of a modular half hole ordinary building element according to the invention,
- Fig. 10 shows an axonometric view of a modular crown building element according to the invention,
- Fig. 11 shows an axonometric view of a modular crown hole building element according to the invention,
- Fig. 12 shows an axonometric view of a modular half crown building element according to the invention,
- Fig. 13 shows an axonometric view of a modular half

hole crown building element according to the invention,

- Fig. 14 shows an axonometric view of a modular left corner building element according to the invention,
- Fig. 15 shows an axonometric view of a modular left corner hole building element according to the invention,
- Fig. 16 shows an axonometric view of a modular right corner building element according to the invention,
- Fig. 17 shows an axonometric view of a modular right corner hole building element according to the invention,
- Fig. 18 shows an axonometric view of a modular grooved gable building element according to the invention,
- Fig. 19 shows an axonometric view of a modular grooved gable hole building element according to the invention,
- Fig. 20 shows an axonometric view of a modular flat grooved gable building element according to the invention,
- Fig. 21 shows an axonometric view of a modular flat grooved gable hole building element according to the invention,
- Fig. 22 shows an axonometric view of a modular left grooved gable building element according to the invention,
- Fig. 23 shows an axonometric view of a modular left grooved gable hole building element according to the invention,
- Fig. 24 shows an axonometric view of a modular right grooved gable building element according to the invention,
- Fig. 25 shows an axonometric view of a modular right grooved gable hole building element according to the invention.

#### Exemplary embodiment

**[0032]** A vertical building partition assembled from modular building elements according to the invention, wherein the modular building elements constitute a set of elements that have shapes similar to rectangular solids, have on their surfaces tongues and recesses forming a tongue-and-groove arrangement, and have through holes, is characterized in that the modular building elements 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 forming the vertical building partition 1 are arranged in such a way that the lower surface of one of the elements partially or wholly lies on the upper surface of another element, and the tongues existing on the lower surface cooperate with interstitial spaces existing on the upper surface. The side walls of the smaller area of adjacent modular building elements 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 are adjacent to each

other. At the same time, this arrangement ensures that the vertical through-holes 5.3, 7.3, 9.4, 11.4, 13.2, 15.2, 17.4, 19.4, 21.3, 23.2, 25.4, 27.4 of modular building elements 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, which, respectively, lie one on the top of another, are placed in such a way that these vertical holes form a common channel, where a vertical support structure 2 is placed. The modular building elements 20, 21, 22, 23, 24, 25, 26, 27 placed on the top of the building partition are filled with a material forming a horizontal support structure 3.

**[0033]** As shown in fig. 2, the rectangular modular starting building element 4 on its upper surface has two tongues 4.1 and a tongue 4.2 forming together a shape similar to the letter "H" and a flat lower surface.

**[0034]** As shown in fig. 3, the rectangular modular hole starting building element 5 on its upper surface has two tongues 5.1 and a tongue 5.2 forming together a shape similar to the letter "H" and a vertical through hole 5.3 between the place where the tongues 5.1 and 5.2 meet and the lower flat surface.

**[0035]** As shown in fig. 4, the rectangular modular half starting building element 6 on its upper surface has two tongues 6.1 and 6.2 forming together a shape similar to the letter "T" and a flat lower surface.

**[0036]** As shown in fig. 5, the rectangular modular half hole starting building element 7 on its upper surface has two tongues 7.1 and 7.2 forming together a shape similar to the letter "T" and a vertical through hole 7.3 between the place where tongues 7.1 and 7.2 meet and the lower flat surface.

**[0037]** As shown in fig. 6, the rectangular modular ordinary building element 8 on its upper surface has two tongues 8.1 and a tongue 8.2 forming together a shape similar to the letter "H" and, on its lower surface, four tongues 8.3 located in its corners.

**[0038]** As shown in fig. 7, the rectangular modular hole ordinary building element 9 on its upper surface has two tongues 9.1 and a tongue 9.2 forming together a shape similar to the letter "H" and, on its lower surface, four tongues 9.3 located in its corners and a vertical through hole 9.4 between the place where tongues 9.1 and 9.2 of the upper surface meet and the place between the tongues 9.3 that lie at the shorter edge of the lower surface.

**[0039]** As shown in fig. 8, the rectangular modular half ordinary building element 10 on its upper surface has two tongues 10.1 and 10.2 forming together a shape similar to the letter "T" and on its lower surface it has two tongues 10.3 located at its shorter edge.

**[0040]** As shown in fig. 9, the rectangular modular half hole ordinary building element 11 on its upper surface has two tongues 11.1 and 11.2 forming together a shape similar to the letter "T" and on its lower surface it has two tongues 11.3 located at its shorter edge and a vertical through hole 11.4 between the place where tongues 11.1 and 11.2 of the upper surface meet and the place between the tongues 11.3 that lie on the lower surface.

**[0041]** As shown in fig. 10, the rectangular modular

crown building element 12 has a flat upper surface and, on its lower surface, has four tongues 12.1 located in its corners.

**[0042]** As shown in fig. 11, the rectangular modular crown hole building element 13 has a flat upper surface and, on its lower surface, has four tongues 13.1 located in its corners, and it has a vertical through hole 13.2 between the upper surface and the place between the tongues 13.1 that lie at the shorter edge of the lower surface.

**[0043]** As shown in fig. 12, the rectangular modular half crown building element 14 has a flat upper surface, and on its lower surface, has two tongues 14.1 located at its adjacent corners.

**[0044]** As shown in fig. 13, the rectangular modular half crown hole building element 15 has a flat upper surface and, on its lower surface, has two tongues 15.1 located at its adjacent corners and a vertical through hole 15.2 between the upper surface and the place between the tongues 15.1 that lie on the lower surface.

**[0045]** As shown in fig. 14, the rectangular left corner modular building element 16 on its upper surface has two tongues 16.1 and a tongue 16.2 forming together a shape similar to the letter "H" and on its lower surface it has four tongues 16.3, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower surface.

**[0046]** As shown in fig. 15, the rectangular modular building element left corner hole 17 on its upper surface has two tongues 17.1 and a tongue 17.2 forming together a shape similar to the letter "H", on its lower surface it has four tongues 17.3, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower surface, and it has a vertical through hole 17.4 between the place where tongues 17.1 and 17.2 of the upper surface meet and the place between two of the three tongues 17.3 that lie at the longer edge of the lower surface.

**[0047]** As shown in fig. 16, the rectangular modular right corner building element 18 on its upper surface has two tongues 18.1 and a tongue 18.2 forming together a shape similar to the letter "H" and on its lower surface it has four tongues 18.3, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower surface.

**[0048]** As shown in fig. 17, the rectangular modular right corner hole building element 19 on its upper surface has two tongues 19.1 and a tongue 19.2 forming together a shape similar to the letter "H", on its lower surface it has four tongues 19.3, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower surface, and it has a vertical through hole 19.4 between the place where tongues 19.1 and 19.2 of the upper surface meet and the place between two of the three tongues 19.3 that lie at the longer edge of the lower surface.

**[0049]** As shown in fig. 18, the rectangular modular

grooved gable building element 20 on its upper surface has a longitudinal groove 20.1 of a rectangular cross-section, and on its lower surface it has four tongues 20.2 located in its corners.

**[0050]** As shown in fig. 19, the rectangular modular grooved gable hole building element 21 on its upper surface has a longitudinal groove 21.1 of a rectangular cross-section, and on its lower surface it has four tongues 21.2 located in its corners, and has a vertical through hole 21.3 between the bottom of the groove 21.1 on the upper surface and a place between two tongues 21.2 that lie at the shorter edge of the lower surface.

**[0051]** As shown in fig. 20, the rectangular modular flat grooved gable building element 22 on its upper surface has a longitudinal groove 22.1 of a rectangular cross-section and a flat lower surface.

**[0052]** As shown in fig. 21, the rectangular modular flat grooved gable hole building element 23 on its upper surface has a longitudinal groove 23.1 of a rectangular cross-section, and a flat lower surface, and it has a vertical through hole 23.2 between the bottom of the groove 23.1 on the upper surface and the lower surface.

**[0053]** As shown in fig. 22, the rectangular modular left grooved gable building element 24 on its upper surface has a two-part groove of a rectangular cross-section, with a first longitudinal part 24.1 and a second part 24.2 perpendicular to it, and on its lower surface it has four tongues 24.3, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower edge.

**[0054]** As shown in fig. 23, the rectangular modular left grooved gable hole building element 25 on its upper surface has a two-part groove of a rectangular cross-section, with a first longitudinal part 25.1 and a second part 25.2 perpendicular to it, on its lower surface it has four tongues 25.3, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower edge, and it on its upper surface has a vertical through hole 25.4 between the bottom of the groove at the point where the first part 25.1 and the second part 25.2 thereof join and the place between two of the three tongues 25.3 that lie at the longer edge of the lower surface.

**[0055]** As shown in fig. 24, the modular right grooved gable building element 26 on its upper surface has a two-part groove of a rectangular cross-section, with a first longitudinal part 26.1 and a second part 26.2 perpendicular to it, and on its lower surface it has four tongues 26.3, where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower edge.

**[0056]** As shown in fig. 24, the rectangular modular right grooved gable hole building element 27 on its upper surface has a two-part groove of a rectangular cross-section, with a first longitudinal part 27.1 and a second part 27.2 perpendicular to it, on its lower surface it has four tongues 27.3, where three ones are located at a longer edge of the lower surface and a single one is lo-

cated at the other longer edge, at the corner of the lower edge, and it on its upper surface has a vertical through hole 27.4 between the bottom of the groove at the point where the first part 27.1 and the second part 27.2 thereof join and a space between two of the three tongues 27.3 that lie at the longer edge of the lower surface.

**[0057]** List of reference numbers used in the figures:

- |    |                                        |
|----|----------------------------------------|
|    | 1 building partition                   |
| 10 | 2 vertical support structure           |
|    | 3 horizontal support structure         |
|    | 4 starting building element            |
|    | 4.1 tongue                             |
|    | 4.2 tongue                             |
| 15 | 5 hole starting building element       |
|    | 5.1 tongue                             |
|    | 5.2 tongue                             |
|    | 5.3 hole                               |
|    | 6 half starting building element       |
| 20 | 6.1 tongue                             |
|    | 6.2 tongue                             |
|    | 7 half hole starting building element  |
|    | 7.1 tongue                             |
|    | 7.2 tongue                             |
| 25 | 7.3 hole                               |
|    | 8 ordinary building element            |
|    | 8.1 tongue                             |
|    | 8.2 tongue                             |
|    | 8.3 tongue                             |
| 30 | 9 hole ordinary building element       |
|    | 9.1 tongue                             |
|    | 9.2 tongue                             |
|    | 9.3 tongue                             |
|    | 9.4 hole                               |
| 35 | 10 half ordinary building element      |
|    | 10. 1 release                          |
|    | 10.2 tongue                            |
|    | 10.3 tongue                            |
|    | 11 half hole ordinary building element |
| 40 | 11.1 tongue                            |
|    | 11.2 tongue                            |
|    | 11.3 tongue                            |
|    | 11.4 tongue                            |
|    | 12 crown building element              |
| 45 | 12.1 tongue                            |
|    | 13 crown hole building element         |
|    | 13.1 tongue                            |
|    | 13.2 hole                              |
|    | 14 half crown building element         |
| 50 | 14.1 tongue                            |
|    | 15 half crown hole building element    |
|    | 15.1 tongue                            |
|    | 15.2 hole                              |
|    | 16 left corner building element        |
| 55 | 16.1 tongue                            |
|    | 16.2 tongue                            |
|    | 16.3 tongue                            |
|    | 17 left corner hole building element   |

17.1 tongue  
 17.2 tongue  
 17.3 tongue  
 17.4 hole  
 18 right corner building element  
 18.1 tongue  
 18.2 tongue  
 18.3 tongue  
 19 right corner hole building element  
 19.1 tongue  
 19.2 tongue  
 19.3 tongue  
 19.4 hole  
 20 grooved gable building element  
 20.1 groove  
 20.2 tongue  
 21 grooved gable hole building element  
 21.1 groove  
 21.2 tongue  
 21.3 hole  
 22 flat grooved gable building element  
 22.1 groove  
 23 flat grooved gable hole building element  
 23.1 groove  
 23.2 hole  
 24 left grooved gable building element  
 24.1 groove first part  
 24.2 groove second part  
 24.3 tongue  
 25 left grooved gable hole building element  
 25.1 groove first part  
 25.2 groove second part  
 25.3 tongue  
 25.4 hole  
 26 right grooved gable building element  
 26.1 groove first part  
 26.2 groove second part  
 26.3 tongue  
 27 right grooved gable hole building element  
 27.1 groove first part  
 27.2 groove second part  
 27.3 tongue  
 27.4 hole

## Claims

1. A vertical building partition assembled from modular building elements, where the modular building elements constitute a set of elements that have shapes similar to rectangular solids, have, on their surfaces, tongues and recesses forming a tongue-and-groove arrangement, and have through holes, **characterized in that** the modular building elements (4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27) forming the vertical building partition (1) are arranged in such a way that the lower surface of one of the elements partially or wholly lies

on the upper surface of another element, and the tongues existing on the lower surface cooperate with the interstitial spaces existing on the upper surface; the side walls of the smaller surface area of adjacent modular building elements (4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27) are adjacent to each other; at the same time, this arrangement ensures that the vertical through-holes (5.3, 7.3, 9.4, 11.4, 13.2, 15.2, 17.4, 19.4, 21.3, 23.2, 25.4, 27.4) of the modular building elements (5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27), which, respectively, lie one on the top of another, are placed in such a way that these vertical holes form a common channel, where a vertical support structure (2) is placed; the modular building elements (20, 21, 22, 23, 24, 25, 26, 27) placed on the top of the building partition are filled with a material forming a horizontal support structure (3).

2. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular starting building element (4), and on its upper surface has two tongues (4.1) and a tongue (4.2) forming together a shape similar to the letter "H" and a flat lower surface.
3. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular hole starting building element (5), and on its upper surface has two tongues (5.1) and a tongue (5.2) forming together a shape similar to the letter "H" and a vertical through hole (5.3) between the place where the tongues (5.1) and (5.2) meet and the lower flat surface.
4. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular half starting building element (6), and on its upper surface has two tongues (6.1) and (6.2) forming together a shape similar to the letter "T" and a flat lower surface.
5. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular half hole starting building element (7), and on its upper surface has two tongues (7.1) and (7.2) forming together a shape similar to the letter "T" and a vertical through hole (7.3) between the place where the tongues (7.1) and (7.2) meet and the lower flat surface.
6. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular ordinary building element (8), and on its upper surface has two tongues (8.1) and a tongue (8.2) forming together a shape similar to the letter "H" and, on its lower surface, four tongues (8.3) located in its corners.

7. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular hole ordinary building element (9), and on its upper surface has two tongues (9.1) and a tongue (9.2) forming together a shape similar to the letter "H" and, on its lower surface, four tongues (9.3) located in its corners and a vertical through hole (9.4) between the place where the tongues (9.1) and (9.2) of the upper surface meet and the place between the tongues (9.3) that lie at the shorter edge of the lower surface.
8. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular half ordinary building element (10), and on its upper surface has two tongues (10.1) and (10.2) forming together a shape similar to the letter "T" and on its lower surface it has two tongues (10.3) located at its shorter edge.
9. The vertical building partition according to claim 1, **characterized in that** modular building element is a rectangular modular half hole ordinary building element (11), and on its upper surface has two tongues (11.1) and (11.2) forming together a shape similar to the letter "T" and on its lower surface it has two tongues (11.3) located at its shorter edge and a vertical through hole (11.4) between the place where the tongues (11.1) and (11.2) of the upper surface meet and the place between the tongues (11.3) that lie on the lower surface.
10. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular crown building element (12), and has a flat upper surface and, on its lower surface, has four tongues (12.1) located in its corners.
11. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular crown hole building element (13), and has a flat upper surface and, on its lower surface, has four tongues (13.1) located in its corners, and it has a vertical through hole (13.2) between the upper surface and the place between the tongues (13.1) that lie at the shorter edge of the lower surface.
12. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular half crown building element (14), and has a flat upper surface and, on its lower surface, has two tongues (14.1) located in its adjacent corners.
13. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular half crown hole building element (15), and has a flat upper surface, and on its lower surface, has two tongues (15.1) located at its adjacent corners and a vertical through hole (15.2) between the upper surface and the place between the tongues (15.1) that lie on the lower surface.
14. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular left corner building element (16), and on its upper surface has two tongues (16.1) and a tongue (16.2) forming together a shape similar to the letter "H" and on its lower surface it has four tongues (16.3), where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower surface.
15. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular left corner hole building element (17), and on its upper surface has two tongues (17.1) and a tongue (17.2) forming together a shape similar to the letter "H", on its lower surface it has four tongues (17.3), where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower surface, and it has a vertical through hole (17.4) between the place where the tongues (17.1) and (17.2) of the upper surface meet and the place between two of the three tongues (17.3) that lie at the longer edge of the lower surface.
16. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular right corner building element (18), and on its upper surface has two tongues (18.1) and a tongue (18.2) forming together a shape similar to the letter "H" and on its lower surface it has four tongues (18.3), where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower surface.
17. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular right corner hole building element (19), and on its upper surface has two tongues (19.1) and a tongue (19.2) forming together a shape similar to the letter "H", on its lower surface it has four tongues (19.3), where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower surface, and it has a vertical through hole (19.4) between the place where the tongues (19.1) and (19.2) of the upper surface meet and the place between two of the three tongues (19.3) that lie at the longer edge of the lower surface.

18. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular grooved gable building element (20), and on its upper surface has a longitudinal groove (20.1) of a rectangular cross-section, and on its lower surface it has four tongues (20.2) located in its corners. 5
19. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular grooved gable hole building element (21), and on its upper surface has a longitudinal groove (21.1) of a rectangular cross-section, and on its lower surface it has four tongues (21.2) located in its corners, and it has a vertical through hole (21.3) between the bottom of the groove (21.1) on the upper surface and a place between two tongues (21.2) that lie at the shorter edge of the lower surface. 10
20. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular flat grooved gable building element (22), and on its upper surface has a longitudinal groove (22.1) of a rectangular cross-section, and a flat lower surface. 15
21. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular flat grooved gable hole building element (23), and on its upper surface has a longitudinal groove (23.1) of a rectangular cross-section, and a flat lower surface, and it has a vertical through hole (23.2) between the bottom of the groove (23.1) on the upper surface and the lower surface. 20
22. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular left grooved gable building element (24), and on its upper surface has a two-part groove of a rectangular cross-section, with a first longitudinal part (24.1) and a second part (24.2) perpendicular to it, and on its lower surface it has four tongues (24.3), where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower edge. 25
23. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular left grooved gable hole building element (25), and on its upper surface has a two-part groove of a rectangular cross-section, with a first longitudinal part (25.1) and a second part (25.2) perpendicular to it, on its lower surface it has four tongues (25.3), where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower edge, and it on its upper surface has a vertical through hole (25.4) between the bottom of the groove at the point where the first part (25.1) and the second part (25.2) thereof join, and a space between two of the three tongues (25.3) that lie at the longer edge of the lower surface. 30
24. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular right grooved gable building element (26), and on its upper surface has a two-part groove of a rectangular cross-section, with a first longitudinal part (26.1) and a second part (26.2) perpendicular to it, and on its lower surface it has four tongues (26.3), where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower edge. 35
25. The vertical building partition according to claim 1, **characterized in that** a modular building element is rectangular modular right grooved gable hole building element (27), and on its upper surface has a two-part groove of a rectangular cross-section, with a first longitudinal part (27.1) and a second part (27.2) perpendicular to it, on its lower surface it has four tongues (27.3), where three ones are located at a longer edge of the lower surface and a single one is located at the other longer edge, at the corner of the lower edge, and it on its upper surface has a vertical through hole (27.4) between the bottom of the groove at the point where the first part (27.1) and the second part (27.2) thereof join, and a space between two of the three tongues (27.3) that lie at the longer edge of the lower surface. 40
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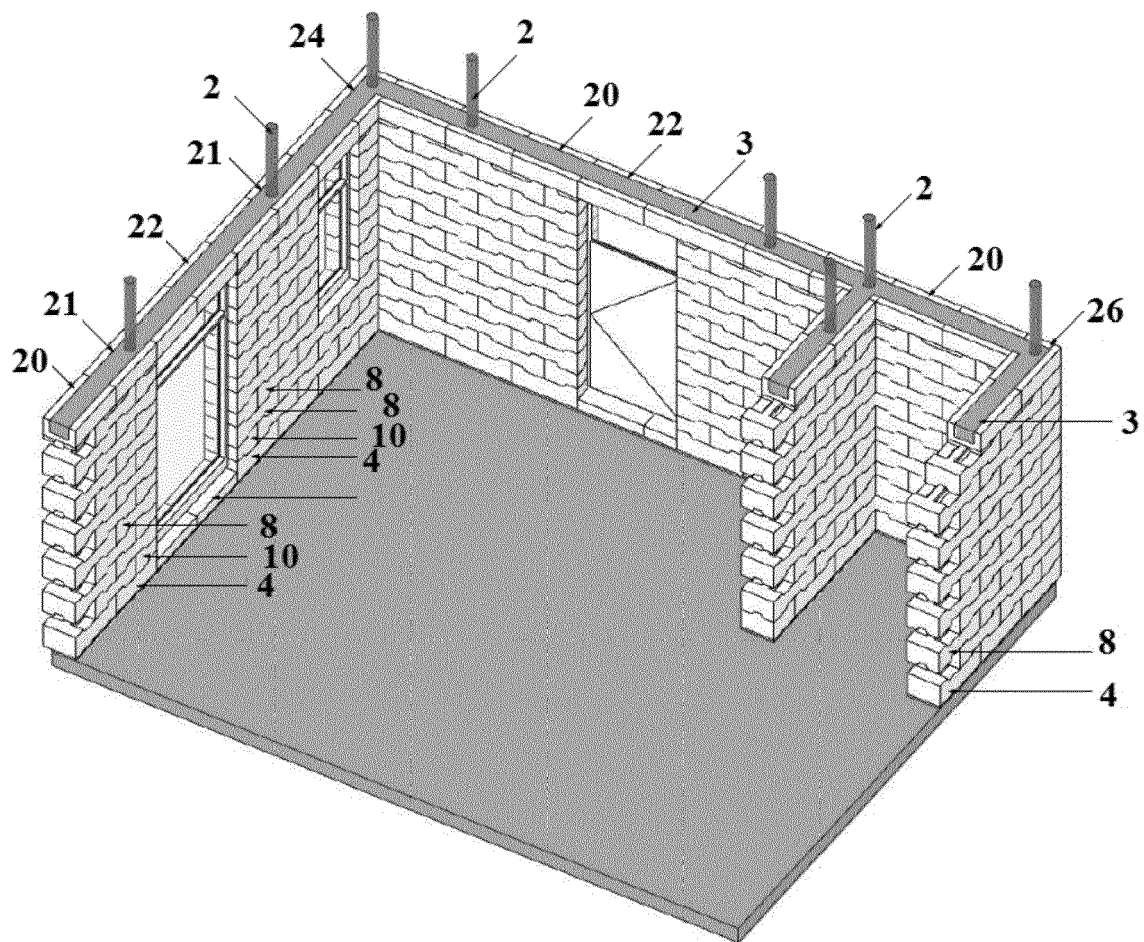


Fig. 1

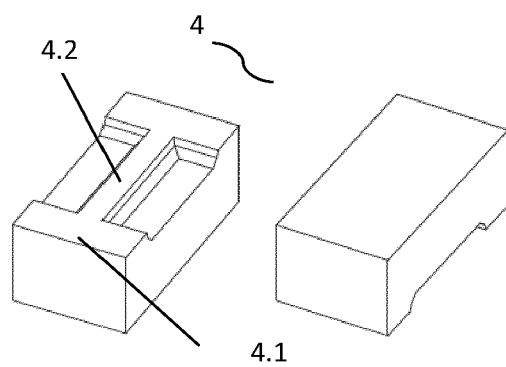


Fig. 2

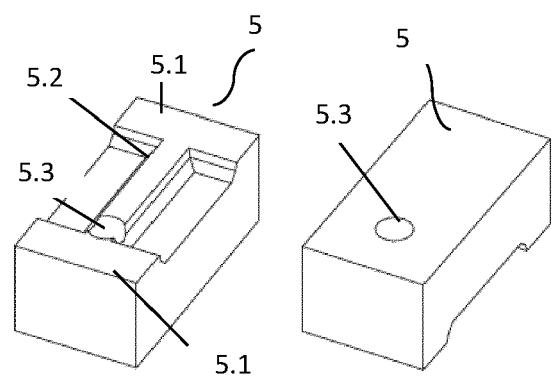


Fig. 3

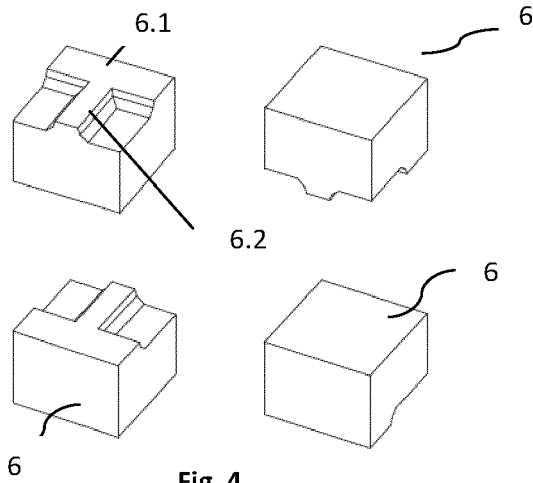


Fig. 4

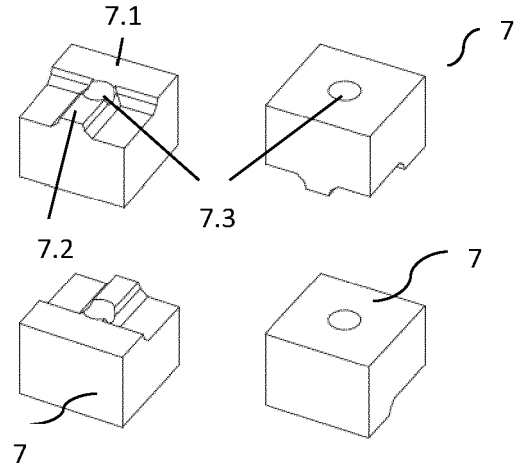


Fig. 5

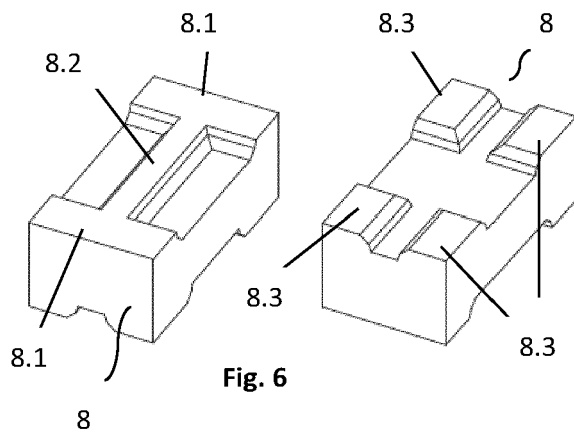


Fig. 6

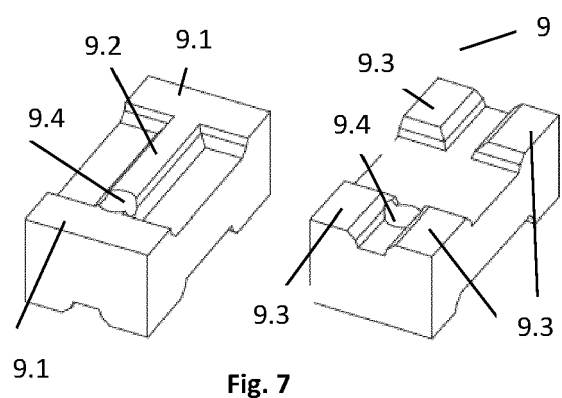


Fig. 7

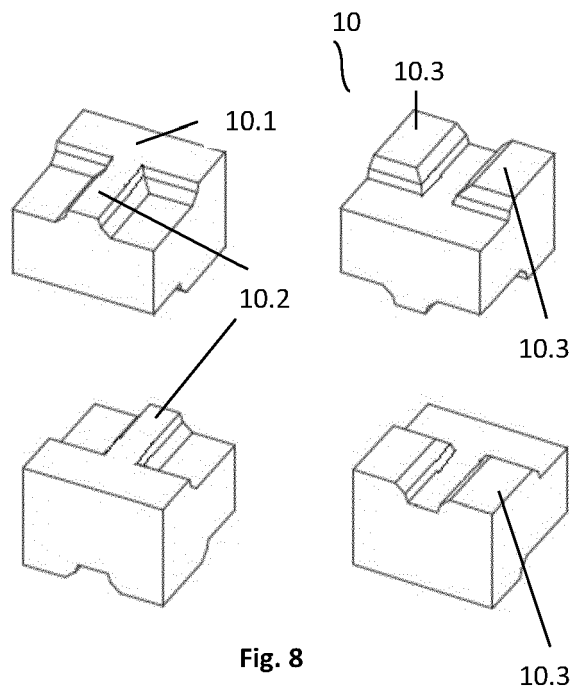


Fig. 8

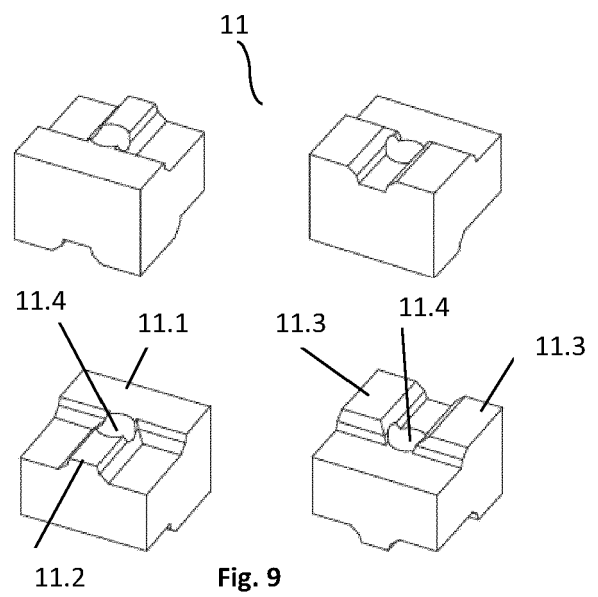
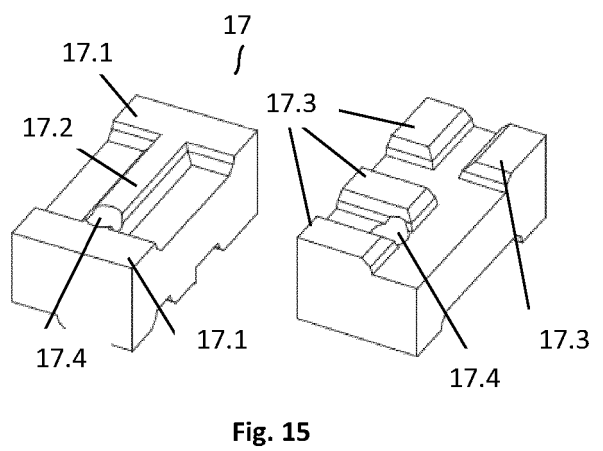
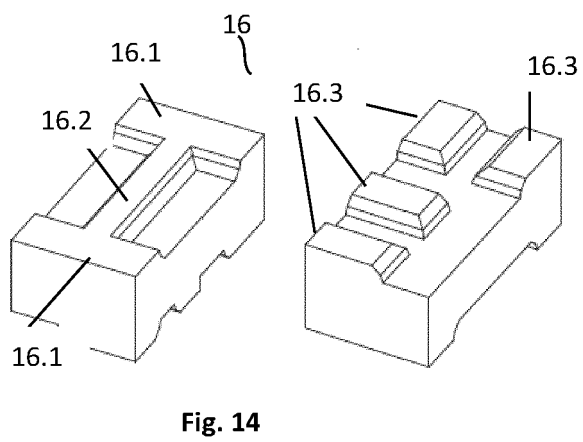
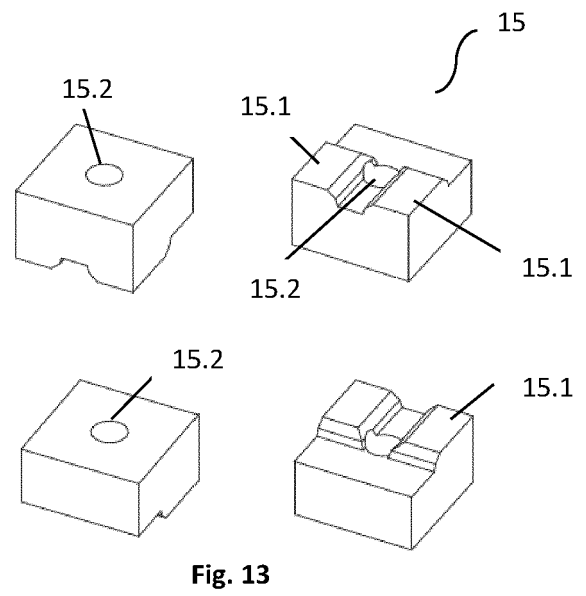
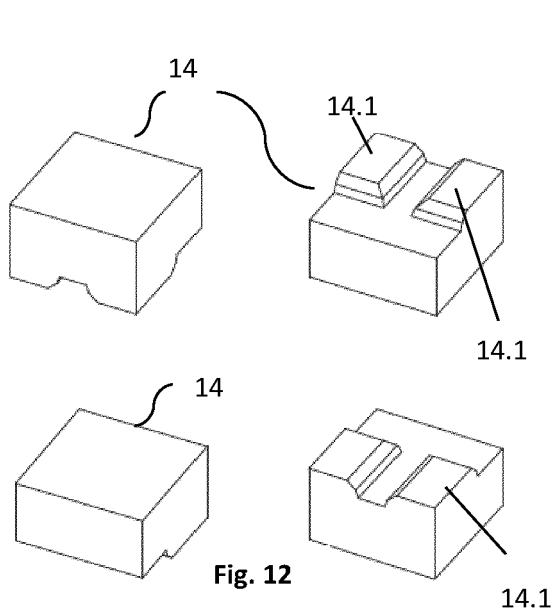
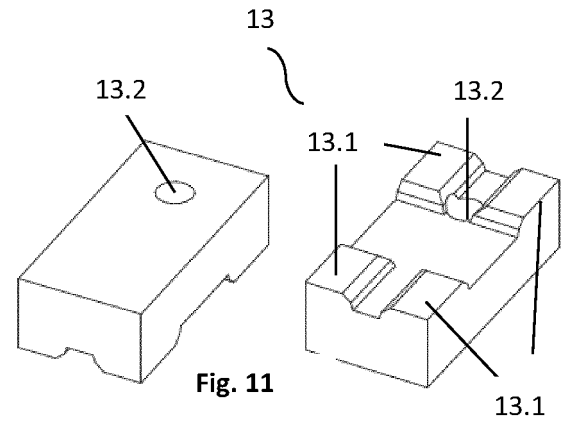
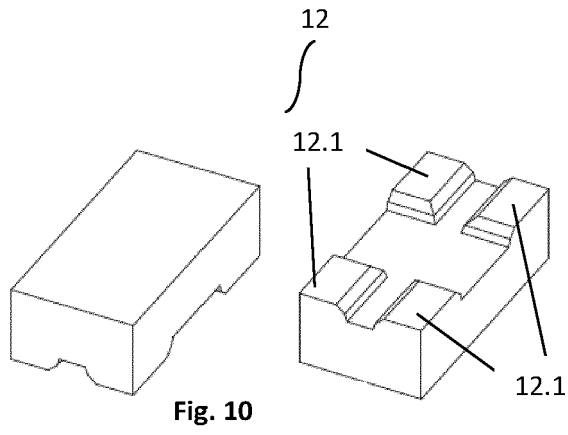


Fig. 9



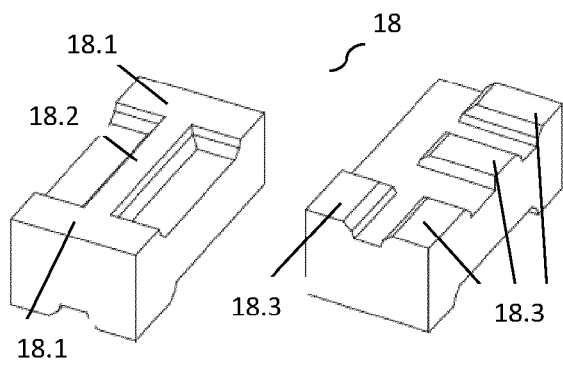


Fig. 16

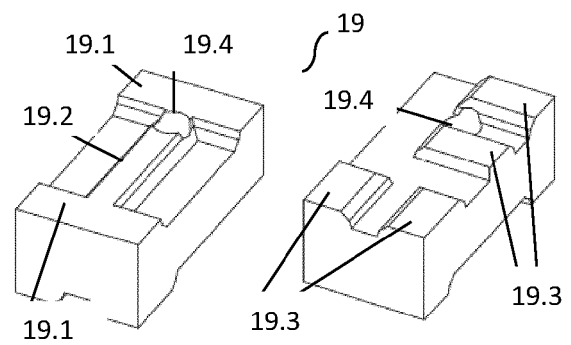


Fig. 17

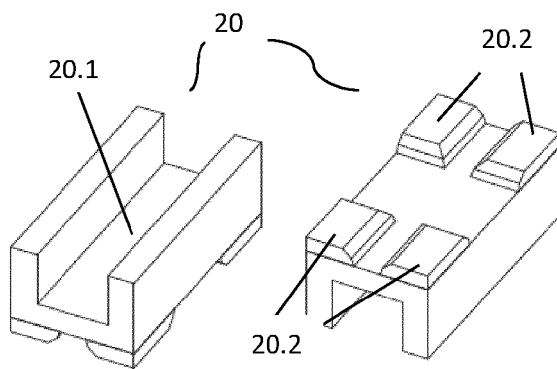


Fig. 18

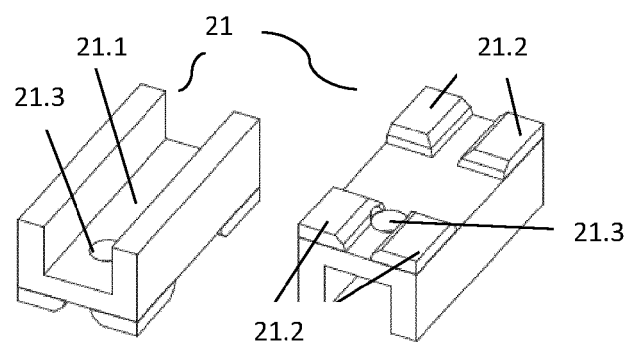


Fig. 19

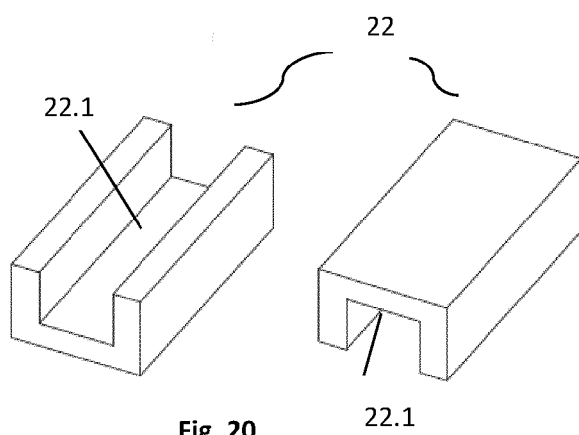


Fig. 20

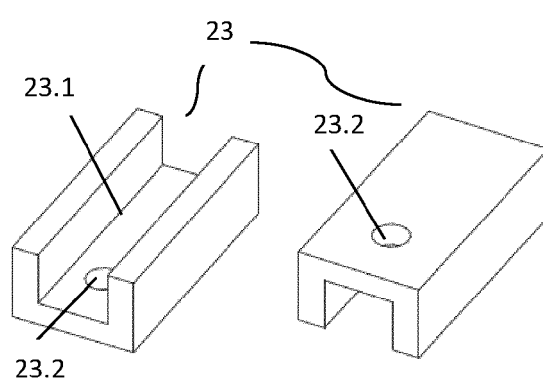


Fig. 21

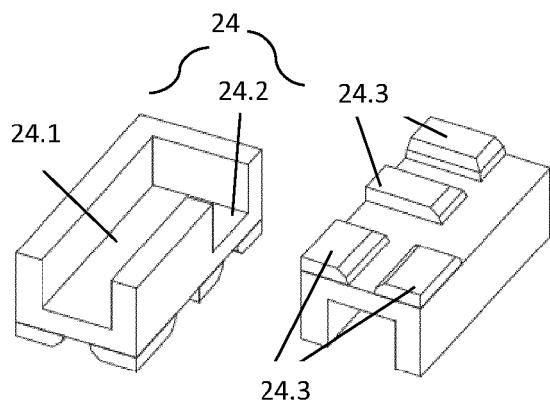


Fig. 22

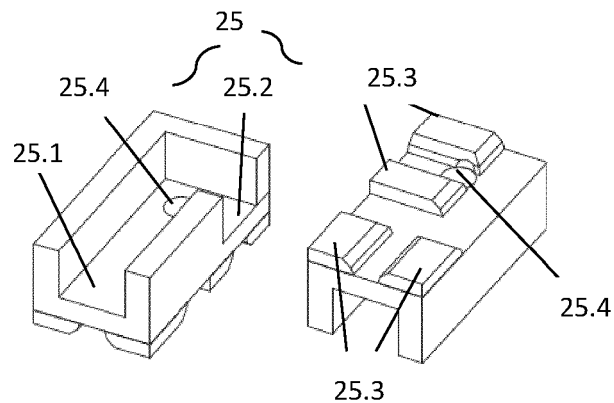


Fig. 23

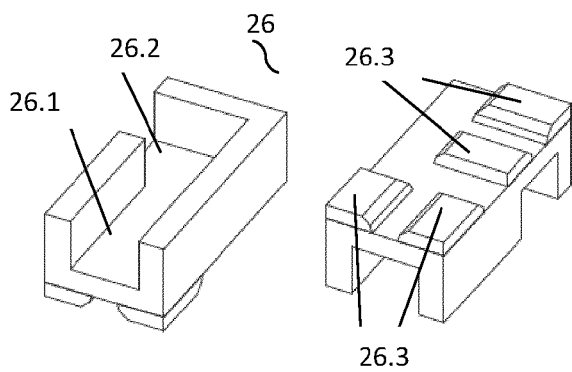


Fig. 24

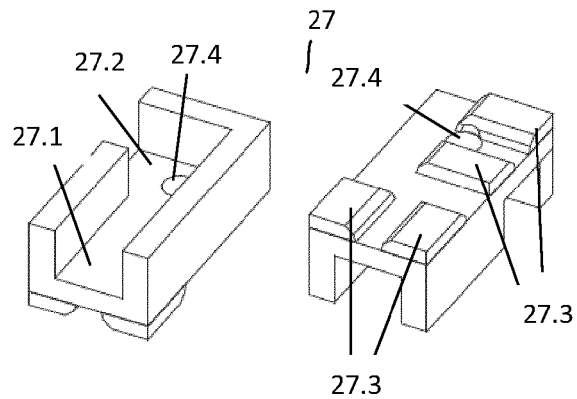


Fig. 25