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(57) Sammendrag:
Disclosed is a freezing mould or a mould comprising at least two frame members each having a plurality of grid shaping structures defining mutually corresponding cavities. The frame members may be configured with interconnecting means for a loading position where corresponding cavities are separated. The frame members may be configured with interconnecting means for a moulding position where corresponding cavities form substantially distinct compartments.

Fortsættes...

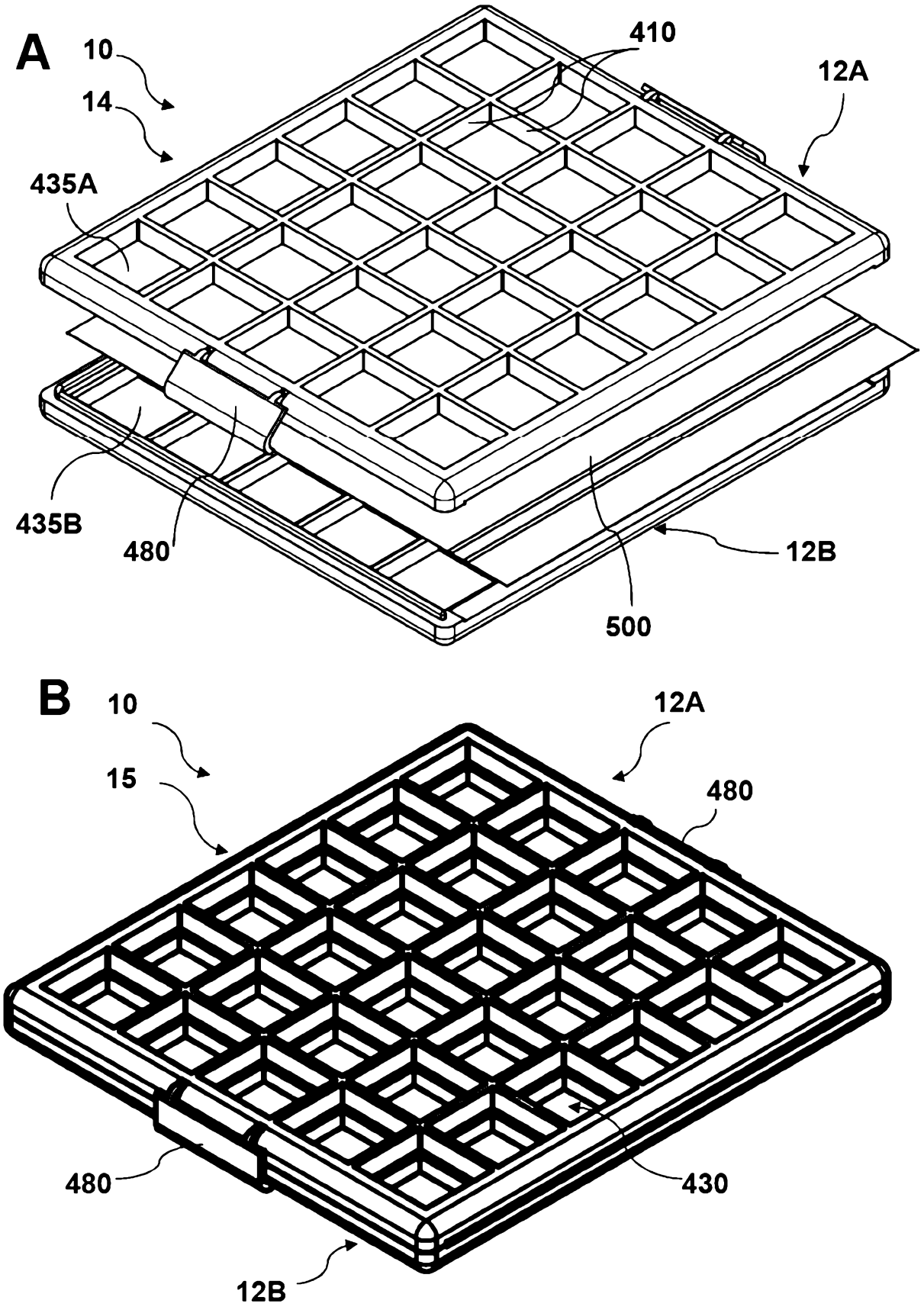


Fig. 1

Freezing Mould

Field of invention

The invention relates to freezing mould or a mould comprising at least two frame members each having a plurality of grid shaping structures defining mutually corresponding cavities. The frame members are configured with interconnecting means for a loading position where corresponding cavities are separated. The frame members may be configured with interconnecting means for a moulding position where corresponding cavities form substantially distinct compartments.

Background of the invention

There exist a lot of different freezing mould bags for making of ice cubes. The different freezing mould bags are good at handling low viscosity fluids but bad at handling fluids with a high viscosity or non-fluid foodstuff like pulp.

Ice trays are better at handling high viscosity fluids or non-fluid foodstuff than freezing mould bags, but other problems arise. The extraction of a single cube is difficult and some of the material might stick to the tray. The fact that the material is in direct contact with the ice tray increases the required cleaning of the ice tray in order to avoid contamination.

It is an objective to overcome the limitations of the prior art.

Description

An objective of the invention is achieved by a freezing mould comprising at least two frame members each having a plurality of grid shaping structures defining mutually corresponding cavities. The frame members may be configured with interconnecting means allowing for a loading position where the at least two frame members and corresponding cavities are completely separated.

The frame members are configured with interconnecting means allowing for a moulding position where corresponding cavities form substantially distinct compartments.

The loading may be of a bag such as a plastic bag with a material to be casted and fixed by say freezing. Advantageously, the casted or moulded material will stay in the bag protected when frozen. The mould is readily available for moulding another bag and without the need to be cleaned.

The intended use of the freezing mould is for private use. The freezing mould is to be used together with a bag, preferably a freezing bag. If the bag is filled with a material such as a pulp, the freezing mould can mould the shape of the material. In order for the material to keep the shape of the mould, the freezing mould can be placed in a freezer or any cold environment.

The material of the bag is primarily thought of as being foodstuff, but the freezing mould may be used to shape any non-food material.

In an aspect, each frame member has a system of profile members forming the grid shaping structure. The profile members extend between one or more outer frame parts of the frame member.

The effect of the grid shaping structure is to ensure the proper macroscopic moulding of the bag in the material.

In an aspect, the profile members of two frame members are arranged opposite to one another. The frame members are interconnected in the moulding position. The profile members are arranged relative to the outer frame parts so that compartments are defined by opposite profile members forming an interaction with each other.

The advantage of making compartments is that the material in the bag can rearrange itself. A material with a high percentage of water will typically expand during freezing and the compartments can accommodate the expansion. Another advantage is that the interaction can be modified by changing the distance between the opposite profile members.

In an aspect, opposite profile members have complementary tip shapes.

The grid shaping structure molds or forms the shape of the bag filled with material on a macroscopic scale. The effect of the profile members complementary tip shapes is that the microscopic shape of the bag changes depending on the tip shapes. In an embodiment the tip may be blunt pointed, dovetailed, blunt or pointed. In an embodiment a freezing mould may have several complementary tip shapes.

In an aspect, at least one frame member has an alignment mechanism. The alignment mechanism is configured for an engagement with at least one of the outer frame parts of the opposite frame member. The alignment mechanism secures a proper alignment of the freezing mould's frame members and the opposite profile members.

The advantage of the alignment mechanism is to provide the user an easy and reliable method for the proper alignment of the freezing mould.

In an aspect, the freezing mould is configured to receive a bag filled with a material in the loading position. The freezing mould is configured to mould the material in the bag in the moulding position.

The shape of the material in the bag is essentially complementary to the shape of the compartments in the moulding position.

The advantage of the freezing mould is that any bag of a suitable size can be applied, hence the freezing mould user-friendly. The user-friendliness is further increased by the fact that the freezing mould has two settings; loading position and moulding position.

In an aspect, the interconnecting means comprises at least one clip. The clip is configured to interlock at least two frame members into a moulding position.

The effect of the clip is to secure the freezing mould in the moulding position and that the distance between the two frame members is correct.

In an aspect, the interconnecting means comprises a hinge arrangement. The hinge arrangement is configured to swing two frame members between the loading position and the moulding position.

An advantage of the hinge arrangement is that it is easy and quick to use when working with a material that keeps its shape. A filled bag can be loaded into the freezing mould and the freezing mould can then be brought into the moulding position for a short amount of time. The filled bag can then be removed from the freezing mould and subsequently placed in a freezer. The entire process can then be repeated; hence a freezing mould with a hinge arrangement can mould several bags.

In an embodiment one or more frame members is a monolith.

In an aspect, the outer frame parts of the freezing mould are made of a freezing-resistant hard plastic material. The grid shaping structure is made of a freezing-resistant soft plastic material. A person skilled in the art of mould making would know which plastic materials to use.

The advantage of making the outer frame parts out of a freezing-resistant hard plastic material is to make the freezing mould sturdy. The effect being that the freezing mould is less likely to break, when being handle or frozen.

The advantage of making the grid shaping structure out of a freezing-resistant soft plastic material is to avoid damaging the grid shaping structure when the freezing mould is in a moulding position.

In an embodiment the freezing mould is made of the same plastic material.

In an aspect, one frame member is identical to another frame member.

The advantage of having identical frame members is that it is easier to produce a freezing mould. Another advantage is that it is easier to replace broken frame members.

The freezing mould can be used with any bag of appropriate size.

The freezing mould or cast may be used for forming or casting materials without freezing.

A bag may be filled with melted material such as chocolate or alike placed in the freezing mould to get the shape of the grid shaping structure during hardening.

The freezing mould can in a reliable and easy way handle high viscosity fluids or non-fluid foodstuff.

Example:

A use of the freezing mould may be to create ginger cubes. This process is done by first mashing the ginger into a pulp. The pulp is then put in a bag.

Using a rolling pin or the shield of the freezing mould, the ginger is evenly distribution in the bag. The bag is then placed in the freezing mould in the loading position, which is then put into the moulding position.

The freezing mould with a bag is then placed in a freezer. When the ginger is frozen the bag can be removed from the freezing mould and the process can be repeated.

Brief Description of Drawings

Embodiments of the invention will be described in the figures, whereon:

Fig. 1 illustrates a freezing mould;

Fig. 2 illustrates a freezing mould in a loading position with a bag placed between two frame members;

Fig. 3 illustrates a cross-section of a freezing mould in a moulding position without a bag and with a bag filled with material;

Fig. 4 illustrates embodiments of profile members tip shape and embodiments of the interaction between two pointed tips;

Fig. 5 illustrates embodiments of interconnecting means;

Fig. 6 illustrates an embodiment of a freezing mould with a shield;

Fig. 7 illustrates an embodiment of a freezing mould with two different interactions; and

Fig. 8 illustrates an embodiment of two different interactions.

Description of Drawings

Item	No
Freezing mould	10
Frame member	12
First frame member , (One Frame Member)	12A
Second frame member, (Another Frame Member)	12B
Freezing mould in loading position	14
Freezing mould in moulding position	15
Outer frame part	400
First outer frame part, one outer frame part	400A
Second outer frame part, another outer frame part	400B
Grid shaping structure	410
Profile member	420
First profile member, one profile member	420A
Second profile member, another profile member	420B
Interaction	425
Compartments	430
Cavity	435
Alignment mechanism	440
Tip shapes	450
Blunt pointed tip	452
Dovetail shaped tip	454
Blunt tip	456
Pointed tip	458
Shield	470
Interconnecting means	480
Hinge arrangement	482

Clip	484
Recess	490
Bag	500
Material	510

Fig. 1 illustrates a freezing mould 10. Figure 1A illustrates a freezing mould 10 in a loading position 14. Figure 1B illustrates a freezing mould 10 in a moulding position 15.

The illustrated bag 500 is not part of the invention, but merely shown to illustrate the intended use of the freezing mould 10. Figure 1A illustrates the insertion of a bag 500 in the loading position 14.

On figure 1A the freezing mould 10 is shown with an embodiment of interconnecting means 480. In another embodiment the interconnecting means may be different.

On figure 1B the freezing mould 10 is shown with an embodiment of interconnecting means 480. In another embodiment the interconnecting means may be different.

On figure 1A and 1B the freezing mould 10 comprises of two frame members 12; frame member 12A and 12B.

Each frame member 12 has a plurality of grid shaping structures 410.

The grid shaping structures 410 defines mutually corresponding cavities 435A and 435B in frame member 12A and 12B, respectively.

The mutually corresponding cavities 435A and 435B form substantially distinct compartments 430, when the freezing mould is in a moulding position 15.

Figure 1A comprises an embodiment of a freezing mould 10 in a loading position 14 given that a bag can be placed atop of frame member 12B, before frame member 12A is placed on top of the bag 500. The configuration as seen from the bottom of figure 1A is; frame member 12B followed by the bag 500 followed by frame member 12A.

Using the interconnecting 440 means the freezing mould 10 in a loading position 14 loaded with a bag 500 is transformed to a freezing mould 10 in a moulding position 15 and the corresponding cavities 435A and 435 B form a distinct compartment 430.

In an embodiment the freezing mould 10 consists of four of outer frame parts 400, where each of the outer frame part 400 is perpendicular to two of the outer frame parts 400 and parallel with one of the outer frame parts 400.

Fig. 2 illustrates a freezing mould 10 in a loading position 14 with a bag 500 placed between the frame members 12.

On figure 2 the freezing mould 10 comprises of two frame members 12; frame member 12A and 12B.

Each frame member 12 consists of at least one outer frame part 400.

In an embodiment the frame member 12 is a rectangle made of four outer frame parts 400.

Each frame member 12 has at least one recess 490 situated on one or more outer frame part 400. The advantage of the recesses 490 is to make room for the bag 500.

Each frame member 12 has a plurality of grid shaping structures 410.

The grid shaping structure 410 is formed by profile members 420 extending from one or more outer frame parts 400.

The grid shaping structures 410 defines mutually corresponding cavities 435A and 435B in frame member 12A and 12B, respectively.

At least one outer frame part 400 is configured with an alignment mechanism 440. The advantage of the alignment mechanism 440 is to make sure that the frames

members 12 and their grid shaping structures 410 and cavities 435 are proper aligned between each other.

Fig. 3 illustrates a cross-section of the freezing mould 10 in a moulding position 15. Figure 3A illustrates a freezing mould 10 in a moulding position 15 without a bag 500. Figure 3B illustrates a freezing mould 10 in a moulding position 15 with a bag 500 filled with a material 510.

On figure 3 the freezing mould 10 comprises of two frame members 12; frame member 12A and 12B.

Each profile member 420A associated with frame member 12A is arranged opposite of a profile member 420B associated with frame member 12B. The advantage of the opposing profile members 420 is to ensure an interaction 425 between the two profile members 420.

The proper alignment of the two frame members is configured with an alignment mechanism 440.

In an embodiment the alignment mechanism 440 situated on outer frame 400A and outer frame 400B is sideways displaced. The advantage of the sideways displacement is symmetry; hence any two frame members 12 can interlock into a freezing mould 10.

The opposing profile members 420A and 420 B have complementary tip shapes 450. The advantage of the complementary tip shapes 450 is to get the wanted moulding of the material 510 in the bag 500. Another advantage of the complementary tip shapes 450 is that no perforation of the filled bag is ensured.

The interaction 425 can be changed by either changing the tip shapes 450 or by changing the distance between the tips. An advantage is that by changing the interaction 425 the moulding of the material 510 in the bag 500 will change.

Each profile member 420 defines cavities 435 with the neighbouring profile members or possible with one or more outer frame parts 400.

On figure 3 mutually corresponding cavities 435A and 435B form substantially distinct compartments 430, when the freezing mould 10 is in a moulding position 15.

On figure 3B an embodiment of a bag 500 filled with a material 510 being moulded by the freeze mould 10 is shown, the moulding of the material 510 occurs between the opposing profile members 420A and 420B.

The bag 500 and material 510 occupies a portion of each compartment 430 and both of the mutually corresponding cavities 435A and 435 B have room for an expansion of the material. This is an advantage when working with a watery material as an expansion will happen during freezing or any other material which expand during freezing.

Fig. 4 illustrates embodiments of profile members 420. Figure 4A illustrates embodiments of tip shapes 450. Figure 4B illustrates embodiments of the interaction 425 between two pointed tips 458.

In an embodiment a tip shape 450 is formed as a blunt pointed tip 452. The advantage of the blunt tip 452 is that the edge is blunt and this limits the chance of damaging the bag 500 and causing a spill.

In an embodiment a tip shape 450 is formed as a dovetail shaped tip 454.

In an embodiment a tip shape 450 is formed as a blunt tip 456. The advantage of the blunt tip 456 is that the separation between the neighbouring compartments 430 is increased.

In an embodiment a tip shape 450 is formed as a pointed tip 458.

On figure 4B two embodiments of the interaction 425 between two pointed tips 458 is shown. In one embodiment the two pointed tips 458 are aligned in front of one another. The advantage being that the distance between two pointed tips 458 can be varied,

which will change the structure of the bag 500 filled with material 510. In the other embodiment the two pointed tips 458 are sideways displaced. The advantage is a larger separation of the material 510.

In an embodiment the freezing mould 10 can switch between the two interactions 425 shown in figure 4B by having an alignment mechanism 440, which has two settings. Thereby the freezing mould 10 can be used to freeze material that are fluid and materials with material structure.

Fig. 5 illustrates embodiments of interconnecting means 480. Figure 5A illustrates an embodiment of interconnecting means 480 where two frame members 12 are interlocked by a hinge arrangement. Figure 5B illustrates an embodiment of interconnecting means 480 where two frame members 12 are interlocked by two or more clips 484 attached to the outer frame members 400.

In fig 5A the interconnecting means 480 comprises a hinge arrangement 482 configured to swing two frame members 12A and 12B between the loading position 14 and the moulding position 15. The advantage of the hinge arrangement 482 is that it is easy and quick to use when working with a material 510 that keeps its shape. A filled bag 500 can be loaded into the freezing mould 10 and the freezing mould 10 can then be brought into the moulding position 15 for a short amount of time. The filled bag can then be removed from the freezing mould 10 and subsequently placed in a freezer. The entire process can then be repeated; hence a freezing mould 10 with a hinge arrangement 510 can mould several bags.

In an embodiment a clip 484 is attached to the outer frame parts 400 opposite the hinge arrangement 482, this changes the position of the freezing mould 10 from a loading position 14 to a moulding position.

In fig 5B the interconnecting means 480 comprises two or more clips 484 attached to the other frame parts 400 of each frame member 12.

Fig. 6 illustrates an embodiment of a freezing mould 10 with a shield 470. Figure 6A illustrates a freezing mould 10 with a shield 470 in a moulding position 15. Figure 6B illustrates a freezing mould 10 with a shield 470 in a loading position 14.

The advantage of a freezing mould 10 with a shield is that the bag 500 is protected from any unwanted perturbation.

Fig. 7 illustrates an embodiment of a freezing mould 10 with two different interactions 425.

On figure 7 an embodiment of a freezing mould 10 is shown. The interaction 425 between two opposite profile members 420 alternate by changing the distance between the profile members 420. The advantage being that the bag 500 is moulded to a grid of large portion, where each large portion consists of two smaller portions.

Fig. 8 illustrates an embodiment of two different interactions 425.

Figure 8 shows a pair of two opposite profile members 420 and they all have pointed tips 458. The difference between the pair is the distance and therefore the interaction 425 between the two. This configuration relates to figure 7 as this embodiment could mould the bag 500 to a grid of large portion, where each large portion consists of two smaller portions.

KRAV

1. En fryseform (10) omfattende mindst to identiske rammeelementer (12A, 12B), som hver har en pluralitet af gitterformende strukturer (410), som definerer indbyrdes tilsvarende hulrum (435A, 435B), og hvor rammeelementerne (12A, 12B) er konfigureret med sammenkoblingsorganer (480) til

- en påfyldningsposition (14), hvor de mindst to rammeelementer (12A, 12B) og tilsvarende hulrum (435A, 435B) er fuldstændigt adskilt, og
- en formningsposition (15), hvor tilsvarende hulrum (435A, 435B) former væsentligt forskellige rum (430).

2. En fryseform (10) ifølge krav 1, **kendetegnet ved**, at hvert rammeelement (12) har et system af profilelementer (420), som danner den gitterformende struktur (410), og hvor profilelementerne (420) strækker sig mellem en eller flere ydre rammedele (400) af rammeelementet (12).

3. En fryseform (10) ifølge krav 2, **kendetegnet ved**, at profilelementerne (420A) i et rammeelement (12A) er placeret overfor et andet rammeelements (12B) profilelementer (420B), når rammeelementerne er sammenkoblet i formningspositionen (15) og med profilelementer (420) placeret relativt til de ydre rammedele (400), således at rummene (430) er defineret af overforliggende profilelementer (420A, 420B), som danner en interaktion (425) med hinanden.

4. Fryseform (10) ifølge krav 3, **kendetegnet ved**, at de overforliggende profilelementer (420A, 420B) har komplementære spidsforme (450).

5. Fryseform (10) ifølge ethvert af kravene 2 til 4, **kendetegnet ved**, at hvert rammeelement (12A, 12B) har en tilpasningsmekaniske (440), som er konfigureret til indgreb med mindst en af de nævnte ydre rammedele (400B, 400A) af et andet rammeelement (12B, 12A) til justering af nævnte overforliggende profilelementer (420A, 420B) og nævnte rammeelementer (12A, 12B).

6. Fryseform (10) ifølge ethvert af kravene 1 til 5, **kendetegnet ved**, at fryseformen (10) er konfigureret til at modtage en pose (500) fyldt med et materiale (510) i påfyld-

ningspositionen (14) og til at forme materialet (510) i posen (500) i faconer, som hovedsageligt er komplementær til rummenes (430) facon i formningspositionen (15).

7. Fryseform (10) ifølge ethvert af kravene 1 til 6, **kendetegnet ved**, at sammenkoblingsorganerne (480) omfatter mindst et spænde (484) konfigureret til at sammenkoble mindst to rammeelementer (12A, 12B) til at danne formningspositionen (15).

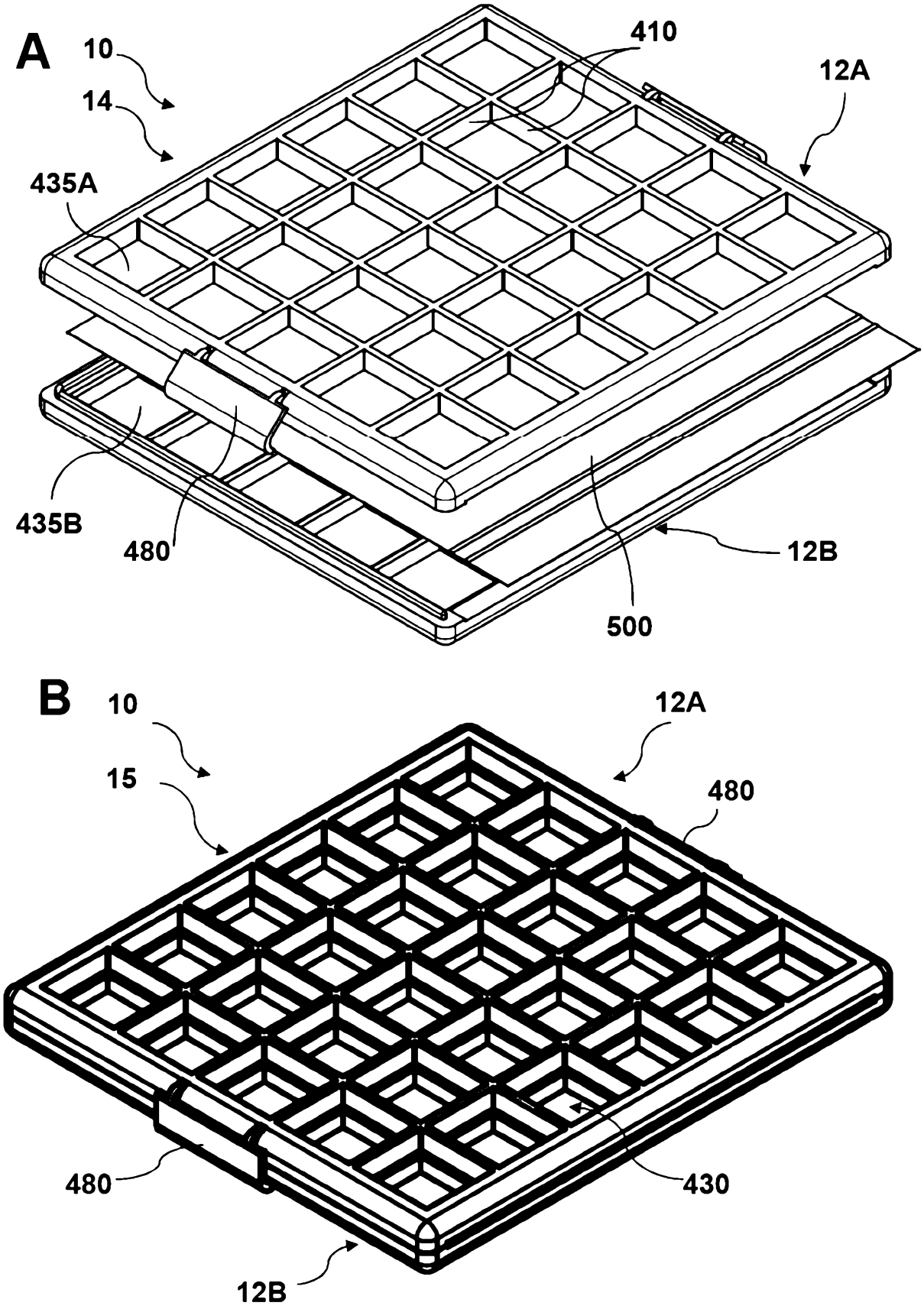


Fig. 1

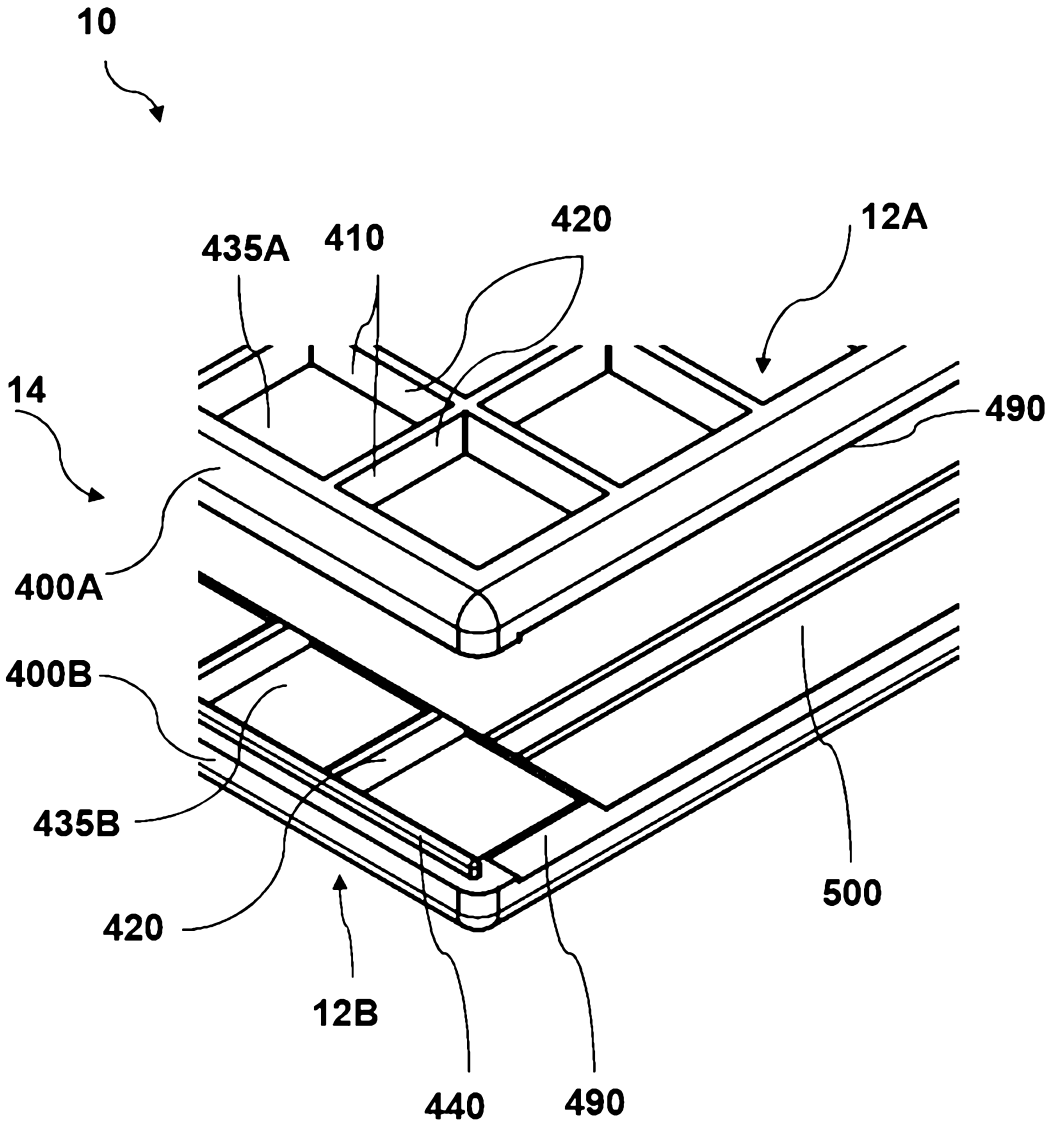
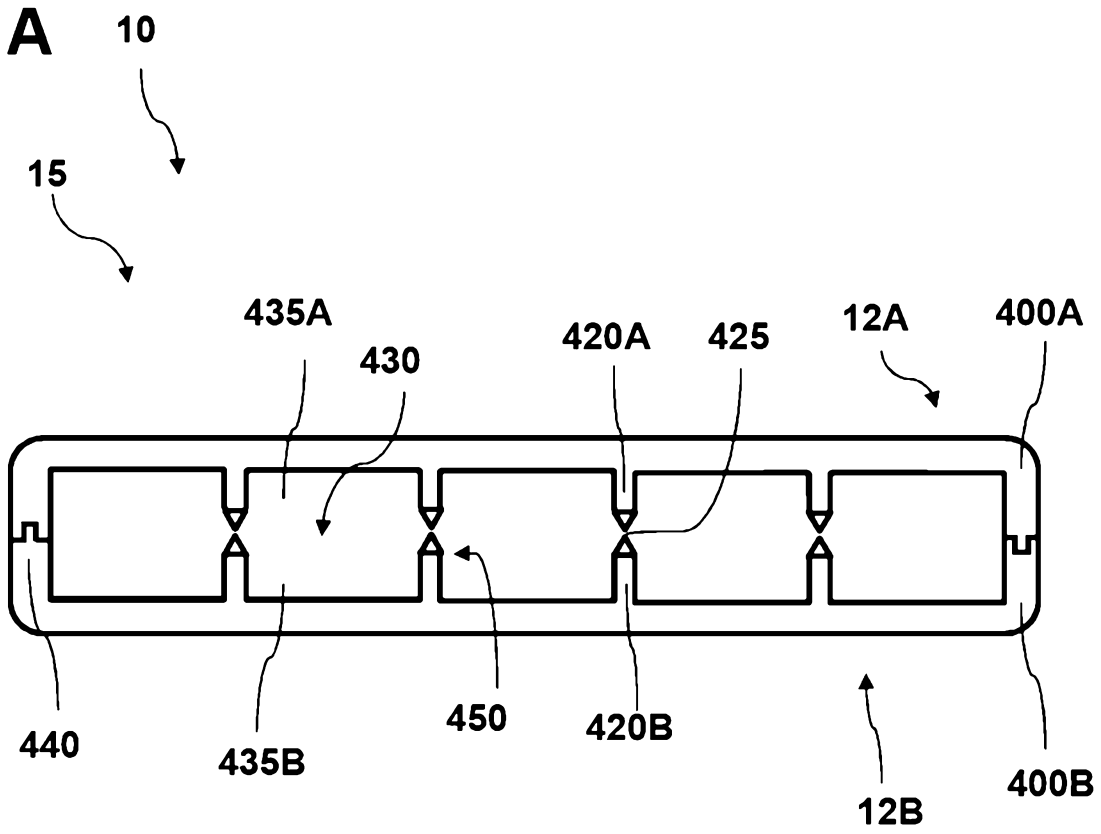


Fig. 2


A
10
15
435A
430
420A
425
12A
400A
440
435B
450
420B
12B
400B

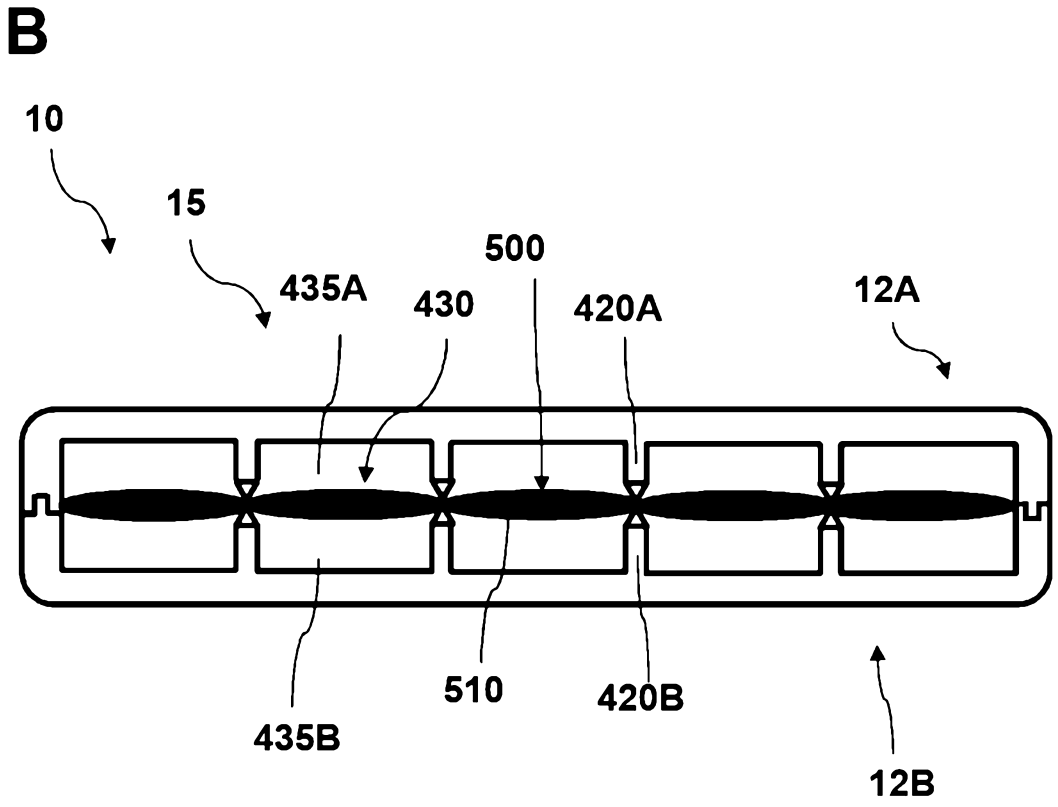
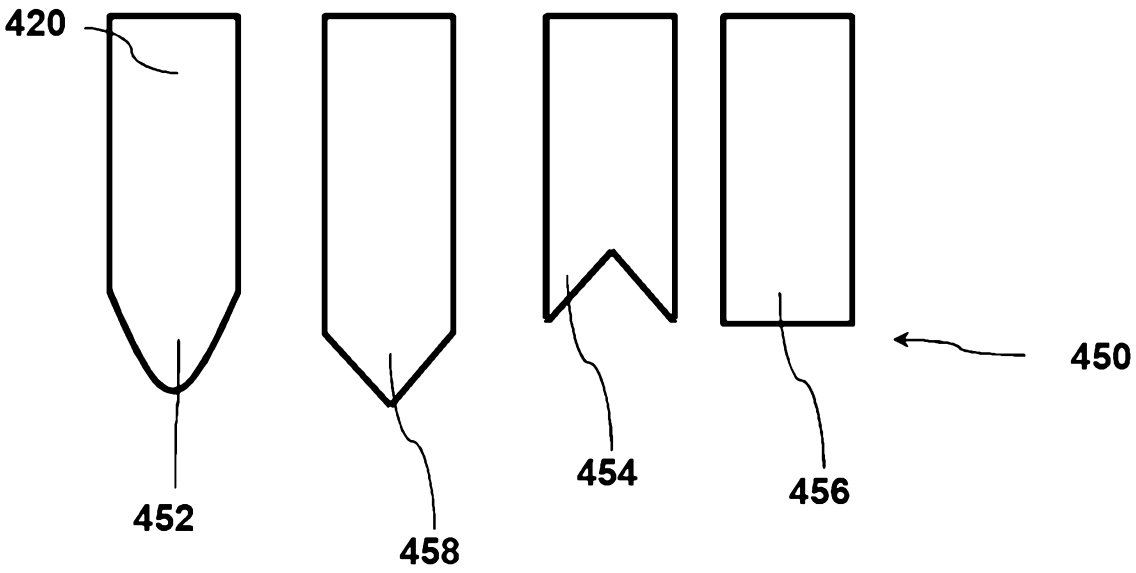

B
10
15
435A
430
500
420A
12A
435B
510
420B
12B

Fig. 3

A



B

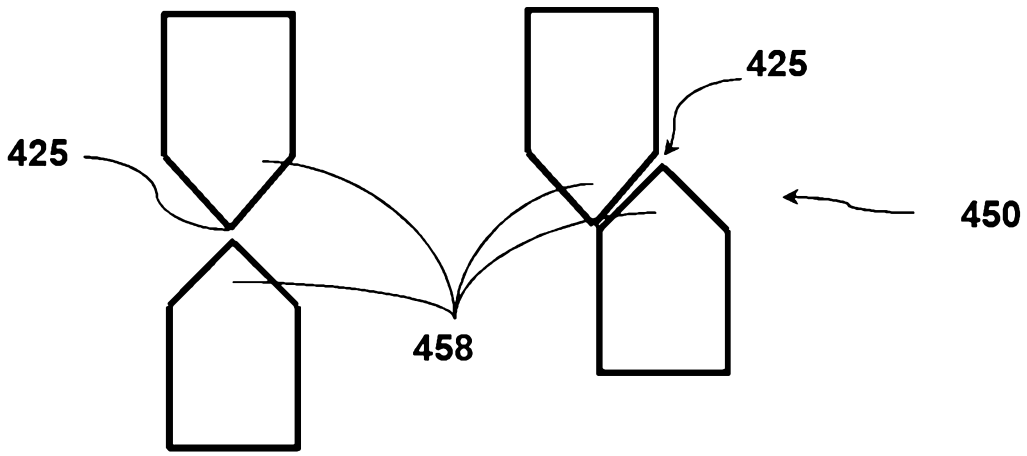


Fig. 4

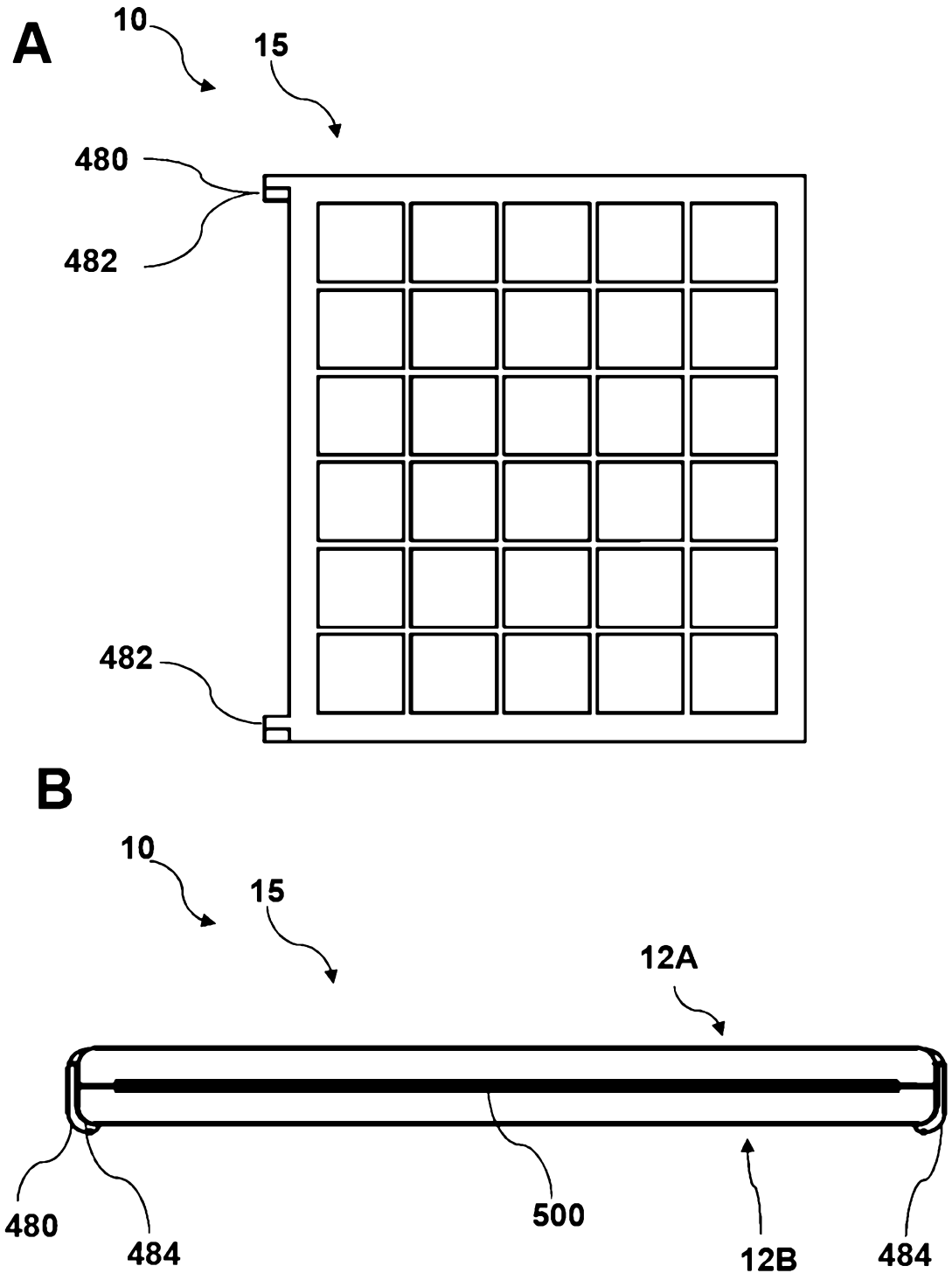


Fig. 5

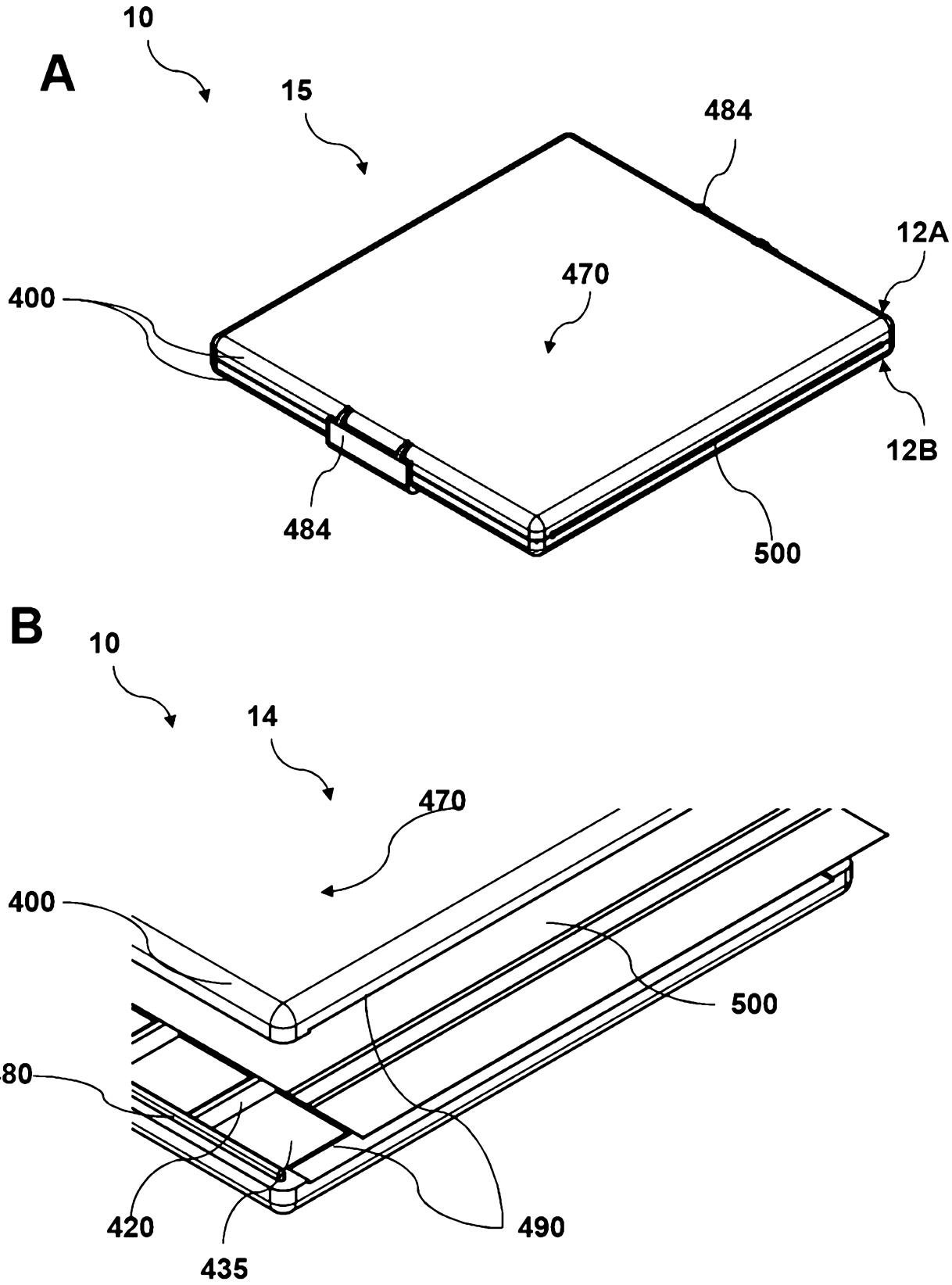

A
10
15
484
12A
470
400
12B
484
500
B
10
14
470
400
500
480
420
435
490

Fig. 6

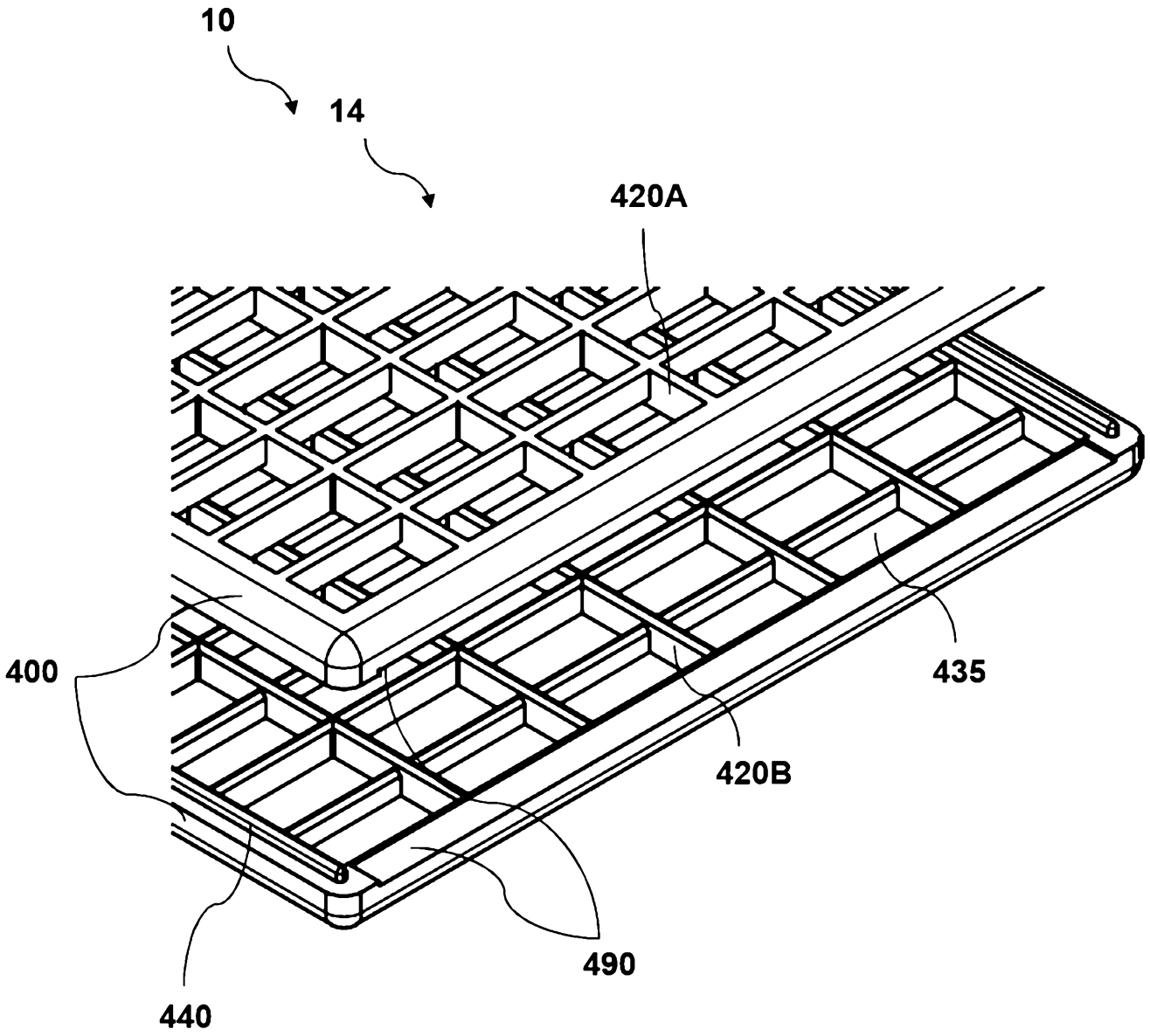


Fig. 7

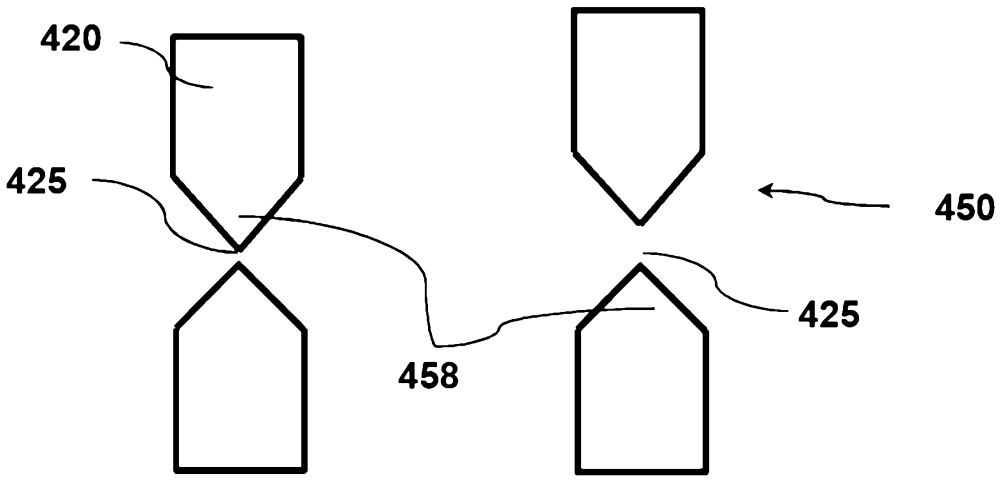


Fig. 8