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(54) SYSTEMS METHODS AND RESPECTIVE KIT-OF-PARTS FOR ELEVATING POLYMERIC CRATES BY SIDEWALL MOUNTABLE ASSEMBLIES

(57) A system (10) for elevating polymeric crates (12) with mounted sidewall assembly is described; a respective method of elevating polymeric crates with sidewall mountable assemblies and a kit-of-parts implementable for elevating polymeric crates with sidewall mountable assemblies are further described; the system comprises: a polymeric crate (12) comprising a pair of longitudinal sidewalls (14A, 14B) and a pair of flanking sidewalls (20A, 20 B), at least one sidewall mountable elevating assembly (26) comprising a pair of longitudinal members (28A, 28B) and a pair of flanking members (40A, 40B); the method comprises: providing polymeric crate, providing pair of longitudinal members, providing pair of flanking members, mounting flanking members on polymeric crate, mounting longitudinal members on polymeric crate, assembling flanking members to longitudinal members; the kit-of-parts comprises: at least a pair of longitudinal members and at least a pair of flanking members.

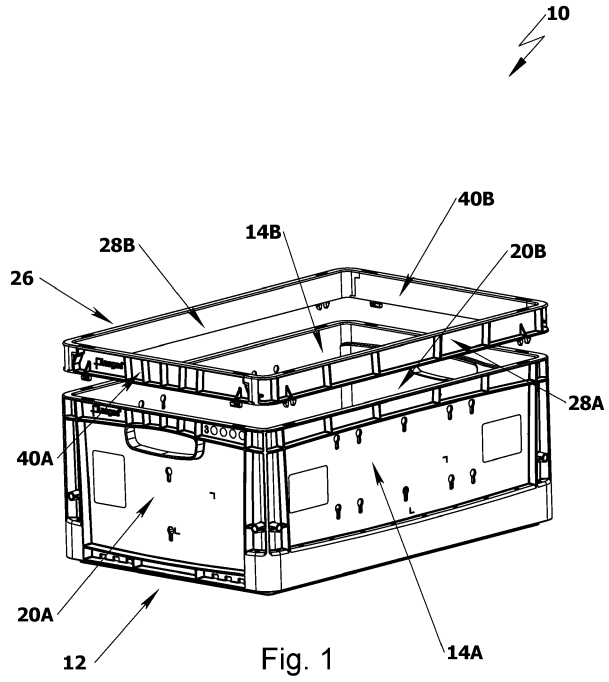

Fig. 1

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Description

TECHNICAL FIELD

[0001] In general, the present invention pertains to the art of manufacturing polymeric crates and accessories therefor. In particular, the invention relates to systems and methods for assembling polymeric crates with elevated sidewalls.

BACKGROUND ART

[0002] It is believed that the current state of the art is represented by the following patent literature: US7556166, US7886926, US2009134176, US2020140145, EP3566968, EP3795490, DE202017002924.

[0003] DE202017002924 that is believed to represent the closest prior art discloses a folding box frame element for increasing the volume of a folding box, with a wall element, a plurality of connecting elements connected to the wall element for connecting the wall element to a sidewall of the folding box. In DE202017002924, at least two connecting elements have a latching element, which in the assembled state cooperates with a recess and/or a shoulder of the sidewall.

[0004] US7886926 that is believed to represent relevant prior art discloses a transport container system including a stackable crate having a bottom element and four sidewall elements which are of a dimensionally and pressure stable structure. Each of the sidewall elements has a foldable attachment element connected to it. In US7886926, when folded up, the attachment elements of the four side wall elements form an attachment which increases the volumetric capacity of the crates. The attachment elements in US7886926 are born on an upper side of the respective sidewall element and be retained in the folded-up position by guides provided on the sidewall elements. In US7886926, when folded down, the respective attachment elements can be integrated into the respective sidewall element in such a manner that the attachment elements at least will not protrude substantially over the thickness of the sidewall elements.

SUMMARY OF THE INVENTION

[0005] The following summary of the invention is provided in order to provide a basic understanding of some aspects and features of the invention. This summary is not an extensive overview of the invention and as such it is not intended to particularly identify key or critical elements of the invention or to delineate the scope of the invention. Its sole purpose is to present some concepts of the invention in a simplified form as a prelude to the more detailed description that is presented below.

[0006] The invention was made in view of the deficiencies of the prior art and provides systems, methods and processes for overcoming these deficiencies. According to some embodiments and aspects of the present invention, there is provided a system for elevating polymeric crates with mounted sidewall assembly, including: a polymeric crate including: a pair of longitudinal sidewalls, in which each one of the longitudinal sidewalls including at least one vertically oriented aperture on a top face thereof; a pair of flanking sidewalls, in which each one of the flanking sidewalls including at least one vertically oriented aperture on a top face thereof; at least one sidewall mountable elevating assembly, including: a pair of longitudinal members, in which each one of the longitudinal members including: an essentially elongated rectangular shape; at least one fastener on a bottom face of the elongated essentially rectangular shape; in which the at least one fastener is configured to be vertically insertable into the at least one vertically oriented aperture on the top face of the longitudinal sidewalls; a pair of terminal portions, in which each one of the terminal portions including at least one laterally connecting element; a pair of flanking members, in which each one of the flanking members including: an essentially elongated rectangular shape; at least one fastener on a bottom face of the elongated essentially rectangular shape; in which the at least one fastener is configured to be vertically insertable into the at least one vertically oriented aperture on the top face of the flanking sidewalls; a pair of terminal portions, in which each one of the terminal portions including at least one laterally connecting element; in which the laterally connecting elements on the terminal portions of the flanking members, in an assembled state, are interlocked with the laterally connecting elements of the terminal portions of the longitudinal members.

[0007] In some embodiments, the fasteners of the longitudinal members or the flanking members of the at least one sidewall mountable elevating assembly are of a first type, in which the fasteners of the first type are insertable and securable within the vertically oriented aperture of the longitudinal or the flanking sidewalls of the polymeric crate by a vertical downward movement.

[0008] In some embodiments, the fasteners of the longitudinal members or the flanking members of the at least one sidewall mountable elevating assembly are of a second type, in which the fasteners of the second type are insertable into the vertically oriented aperture of the longitudinal sidewalls or the flanking sidewalls of the polymeric crate by a vertical downward movement and securable within the flanking sidewalls of the polymeric crate by a lateral sidewise movement.

[0009] In some embodiments, the fasteners of the second type are selected from the group consisting of: snap fastener, clip fastener, frictional joining, expanding rivets, crimps.

[0010] In some embodiments, the at least one sidewall mountable elevating assembly includes at least a first sidewall mountable elevating assembly and a second sidewall mountable elevating assembly, in which the longitudinal members and the flanking members further including at least one vertically oriented aperture on a top

face thereof, in which the fasteners of the first sidewall mountable elevating assembly are insertable and securable within the vertically oriented apertures on the top face of the longitudinal members and the flanking members of the second sidewall mountable elevating assembly.

[0011] In some embodiments, the laterally connecting elements of the terminal portions of the longitudinal members are interlocked with the laterally connecting elements on the terminal portions of the flanking members by vertically inserting the laterally connecting elements of the terminal portions of the longitudinal members into the laterally connecting elements on the terminal portions of the flanking members.

[0012] According to some embodiments and aspects of the present invention, there is provided a method of assembling polymeric crates with mounted sidewall elevating members, including the steps of: providing a polymeric crate including: a pair of longitudinal sidewalls, in which each one of the longitudinal sidewalls including at least one vertically oriented aperture on a top face thereof; a pair of flanking sidewalls, in which each one of the flanking sidewalls including at least one vertically oriented aperture on a top face thereof; providing a pair of longitudinal members, in which each one of the longitudinal members including: an essentially elongated rectangular shape; at least one fastener on a bottom face of the elongated essentially rectangular shape; in which the at least one fastener is configured to be vertically insertable into the at least one vertically oriented aperture on the top face of the longitudinal sidewalls; a pair of terminal portions, in which each one of the terminal portions including at least one laterally connecting element; providing a pair of flanking members, in which each one of the flanking members including: an essentially elongated rectangular shape; at least one fastener on a bottom face of the elongated essentially rectangular shape; in which the at least one fastener is configured to be vertically insertable into the at least one vertically oriented aperture on the top face of the flanking sidewalls; a pair of terminal portions, in which each one of the terminal portions including at least one laterally connecting element; in which the laterally connecting elements on the terminal portions of the flanking members, in an assembled state, are interlocked with the laterally connecting elements of the terminal portions of the longitudinal members; mounting the pair of flanking members on the top face of pair of flanking sidewalls of the polymeric crate; mounting the pair of longitudinal members on the top face of pair of longitudinal sidewalls of the polymeric crate; assembling by interconnecting the pair of terminal portions of the pair of flanking members to the pair of terminal portions of the pair of longitudinal members.

[0013] In some embodiments, the step of assembling the pair of flanking members and the longitudinal members precedes the steps of mounting the flanking members the longitudinal members on the top face of the flanking sidewalls of the polymeric crate.

[0014] According to some embodiments and aspects of the present invention, there is provided a kit-of-parts implementable for assembling polymeric crates with mounted sidewall elevating members including: at least a pair of longitudinal members, in which each one of the longitudinal members including: an essentially elongated rectangular shape; at least one fastener on a bottom face of the elongated essentially rectangular shape; in which the at least one fastener is configured to be vertically insertable into at least one vertically oriented aperture on a top face of longitudinal sidewalls of a polymeric crate; a pair of terminal portions, in which each one of the terminal portions including at least one laterally connecting element; at least a pair of flanking members, in which each one of the flanking members including: an essentially elongated rectangular shape; at least one fastener on a bottom face of the elongated essentially rectangular shape; in which the at least one fastener is configured to be vertically insertable into at least one vertically oriented aperture on a top face of flanking sidewalls of a polymeric crate; a pair of terminal portions, in which each one of the terminal portions including at least one laterally connecting element; in which the laterally connecting elements on the terminal portions of the flanking members, in an assembled state, are interlockable with the laterally connecting elements of the terminal portions of the longitudinal members.

DEFINITIONS

[0015] The term matching or a term similar thereto as referred to herein is to be construed as having a cross-sectional area and/or shape of a component equal or essentially similar to a cross-sectional area and/or shape of another component. It should be acknowledged that the components may only to be similar in the cross-sectional areas and/or shapes, to satisfy the term matching or similar, so long as the cross-sectional areas of the components can be mated and/or inserted into each other and/or the combination thereof essentially fits together and/or occupy essentially the same space.

[0016] The term structured as referred to herein is to be construed as including any geometrical shape, exceeding in complexity a plain linear shape or a shape embodying simple cylindrical, elliptical or polygonal contour or profile. A more complex shape, a plain linear shape or a shape embodying simple cylindrical, elliptical or polygonal contour or profile, constitutes an example of structured geometry.

[0017] The term modular, as referred to herein, should be construed as a stand-alone unit. The term modular *inter alia* means a standardized unit that may be conveniently installed or deployed without significant impact to the environment. The term modular, however, doesn't necessarily mean providing for ease of interchange or replacement. The term modular is optionally satisfied by providing for ease of at least onetime deployment or installation.

[0018] The term readily connectable, as referred to herein, should be construed as a standardized unit that may be conveniently connected to other components of the system. The term readily connectable, however, doesn't necessarily mean readily disconnectable or removable. The term readily connectable is optionally satisfied by providing for ease of at least onetime connection or coupling.

[0019] By operationally connected and operably coupled or similar terms used herein is meant connected in a specific way (e.g., in a manner allowing fluid to move and/or electric power to be transmitted) that allows the disclosed system and its various components to operate effectively in the manner described herein.

[0020] In the specification or claims herein, any term signifying an action or operation, such as: a verb, whether in base form or any tense, gerund or present/past participle, is not to be construed as necessarily to be actually performed but rather in a constructive manner, namely as to be performed merely optionally or potentially.

[0021] The term substantially as used herein is a broad term, and is to be given its ordinary and customary meaning to a person of ordinary skill in the art (and is not to be limited to a special or customized meaning), and refers without limitation to being largely but not necessarily entirely of that quantity or quality which is specified.

[0022] The term essentially means that the composition, method or structure may include additional ingredients, stages and or parts, but only if the additional ingredients, the stages and/or the parts do not materially alter the basic and new characteristics of the composition, method or structure claimed.

[0023] As used herein, the term or is an inclusive or operator, equivalent to the term and/or, unless the context clearly dictates otherwise; whereas the term and as used herein is also the alternative operator equivalent to the term and/or, unless the context clearly dictates otherwise.

[0024] It should be understood, however, that neither the briefly synopsized summary nor particular definitions hereinabove are not to limit interpretation of the invention to the specific forms and examples but rather on the contrary are to cover all modifications, equivalents and alternatives falling within the scope of the invention.

DESCRIPTION OF THE DRAWINGS

[0025] The present invention will be understood and appreciated more comprehensively from the following detailed description taken in conjunction with the appended drawings in which:

FIG 1 is a perspective view of a polymeric crate with sidewall mountable elevating assembly, according to some embodiments of the present invention;

FIG 2A is a perspective view of a polymeric crate with longitudinal and flanking members of a sidewall mountable elevating assembly, according to some embodiments of the present invention;

FIG 2B is an enlarged view of the polymeric crate with longitudinal and flanking members of a sidewall mountable elevating assembly, according to some embodiments of the present invention;

FIG 3A is a perspective view of a polymeric crate with longitudinal and flanking members of a sidewall mountable elevating assembly, according to another embodiment of the present invention;

FIG 3B is an enlarged view of the longitudinal member of a sidewall mountable elevating assembly mounted onto a longitudinal sidewall of the polymeric crate, according to another embodiment of the present invention;

FIG 3C is an enlarged view of the flanking member of a sidewall mountable elevating assembly mounted onto a flanking sidewall of the polymeric crate, according to another embodiment of the present invention;

FIG 4A is a perspective view of a polymeric crate with a first sidewall mountable elevating assembly and longitudinal and flanking members of a second sidewall mountable elevating assembly, mounted in tandem on top of the first sidewall mountable elevating assembly, according to some embodiments of the present invention;

FIG 4B is an enlarged view of a longitudinal member of a second sidewall mountable elevating assembly mounted in tandem on top of the first sidewall mountable elevating assembly, according to some embodiments of the present invention;

FIG 4C is an enlarged view of a flanking member of a second sidewall mountable elevating assembly mounted in tandem on top of the first sidewall mountable elevating assembly, according to some embodiments of the present invention;

FIG 5 is a flowchart of the method of assembling polymeric crates with mounted sidewall elevating assembly, according to some embodiments of the present invention.

[0026] While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof have been shown merely by way of example in the drawings. The drawings are not necessarily complete and components are not essentially to scale; emphasis instead being placed upon clearly illustrating the principles underlying the present invention.

DETAILED DISCLOSURE OF EMBODIMENTS

[0027] Illustrative embodiments of the invention are described below. In the interest of clarity, not all features of actual implementation are described in this specification. It should be appreciated that various features or elements described in the context of some embodiment may be interchangeable with features or elements of any other embodiment described in the specification. More-

over, it will be appreciated that for the development of any actual embodiment, numerous implementation-specific decisions must be made to achieve the developers' specific goals, such as compliance with technology- or business-related constraints, which may vary from one implementation to another, and the effort of such a development might be complex and time-consuming, but would nevertheless be a routine undertaking for those of ordinary skill in the art having the benefit of this disclosure.

[0028] In accordance with some embodiments of the present invention, reference is now made to **FIG 1 to 4C**, showing system **10** for elevating polymeric crates with mounted sidewall assembly. In some embodiments, system **10** comprises polymeric crate **12.** In some embodiments, polymeric crate **12** comprises a pair of longitudinal sidewalls **14A** and **14B.** Each one of longitudinal sidewalls **14A** and **14B** comprises at least one vertically oriented aperture **16** on top face **18** thereof. In some embodiments, polymeric crate **12** further comprises a pair of flanking sidewalls **20A** and **20B.** Each one of flanking sidewalls **20A** and **20B** comprises at least one vertically oriented aperture **22** on top face **24** thereof. In some embodiments, longitudinal sidewalls **14A** and **14B** and/or flanking sidewalls **20A** and **20B** of polymeric crate **12** are foldable, for instance by forming a hinge and other pivoting connection with the base platform of polymeric crate **12**; whereas in other embodiments, polymeric crate **12** is monolithic and longitudinal sidewalls **14A** and **14B** and/or flanking sidewalls **20A** and **20B** of are permanently affixed to the base platform of polymeric crate **12.**

[0029] In some embodiments, system **10** for elevating polymeric crates with mounted sidewall assembly further comprises at least one sidewall mountable elevating assembly **26.** In some embodiments, at least one sidewall mountable elevating assembly **26** comprises a pair of longitudinal members **28A** and **28B.** In some embodiments, each one of longitudinal members **28A** and **28B** comprises essentially elongated rectangular shape **30.**

[0030] In some embodiments, each one of longitudinal members **28A** and **28B** further comprises at least one fastener **32.** At least one fastener **32** is disposed on bottom face **34** of essentially elongated rectangular shape **30** of each one of longitudinal members **28A** and **28B.** In some embodiments, at least one fastener **32** is configured to be vertically insertable into at least one vertically oriented aperture **16** on top face **18** of longitudinal sidewalls **14A** and **14B** of polymetric crate **12.**

[0031] In some embodiments, each one of longitudinal members **28A** and **28B** further comprises pair of terminal portions **36A** and **36B.** In some embodiments, each one of terminal portions **36A** and **36B** comprises at least one laterally connecting element **38.**

[0032] In some embodiments, at least one sidewall mountable elevating assembly **26** comprises a pair of flanking members **40A** and **40B.** In some embodiments, each one of flanking members **40A** and **40B** comprises essentially elongated rectangular shape **42.**

[0033] In some embodiments, each one of flanking members **40A** and **40B** further comprises at least one fastener **44.** At least one fastener **44** is disposed on bottom face **46** of essentially elongated rectangular shape **42.** In some embodiments, at least one fastener **44** is configured to be vertically insertable into at least one vertically oriented aperture **22** on top face **24** of flanking sidewalls **20A** and **20B** of polymetric crate **12.**

[0034] In some embodiments, each one of flanking members **40A** and **40B** further comprises a pair of terminal portions **48A** and **48B.** In some embodiments, each one of terminal portions **48A** and **48B** comprises at least one laterally connecting element **50.** In some embodiments, at least one laterally connecting element **50** of terminal portions **48A** and **48B** of each one of flanking members **40A** and **40B**, in an assembled state, is interlocked with at least one laterally connecting element **38** of terminal portions **36A** and **36B** of each one of longitudinal members **28A** and **28B.**

[0035] In some embodiments, the interlocking of at least one laterally connecting element **38** of terminal portions **36A** and **36B** of each one of longitudinal members **28A** and **28B** with at least one laterally connecting element **50** of terminal portions **48A** and **48B** of each one of flanking members **40A** and **40B** is achieved by vertically inserting laterally connecting element **38** of terminal portions **36A** and **36B** of each one of longitudinal members **28A** and **28B** into laterally connecting element **50** of terminal portions **48A** and **48B** of each one of flanking members **40A** and **40B.**

[0036] In some embodiments, terminal portions **36A** and **36B** of each one of longitudinal members **28A** and **28B** further comprises laterally fastening element **49,** whereas terminal portions **48A** and **48B** of each one of flanking members **40A** and **40B** further comprise a respective receiving recess. Laterally fastening element **49** of terminal portions **36A** and **36B** of longitudinal members **28A** and **28B** is disposed within the receiving recess of terminal portions **48A** and **48B** of flanking members **40A** and **40B**, thereby securing longitudinal members **28A** and **28B** to flanking members **40A** and **40B.**

[0037] In some embodiments, at least one fastener **32** of longitudinal members **28A** and **28B** of at least one sidewall mountable elevating assembly **26** is of a first type. In some embodiments, at least one fastener **32** of the first type is inserted vertically and downwardly in the direction of arrow **52** and eventually secured within at least one vertically oriented aperture **16** of longitudinal sidewalls **14A** and **14B** of polymetric crate **12.** In some examples, at least one fastener **32** of the first type is a snap fastener, clip fastener, frictional joining, expanding rivets, crimps.

[0038] In some embodiments, each one of flanking members **40A** and **40B** further comprises at least one fastener **44.** At least one fastener **44** is disposed on bottom face **46** of essentially elongated rectangular shape **42.** In some embodiments, at least one fastener **44** is configured to be vertically insertable into at least one ver-

tically oriented aperture **22** on top face **24** of flanking sidewalls **20A** and **20B** of polymetric crate **12.**

[0039] In some embodiments, at least one fastener **44** of flanking members **40A** and **40B** of at least one sidewall mountable elevating assembly **26** is of a second type. In some embodiments, at least one fastener **44** of the second type is vertically insertable in the direction of arrow **54** downwardly into vertically oriented aperture **22** of flanking sidewalls **20A** and **20B**, thereby mounting flanking members **40A** and **40B** onto flanking sidewalls **20A** and **20B** of polymetric crate **12.** In some embodiments, at least one fastener **44** of the second type is securable by a laterally sidewise movement in the direction of arrow **56** within flanking sidewalls **20A** and **20B**, thereby securing and/or affixing flanking members **40A** and **40B** to flanking sidewalls **20A** and **20B** of polymetric crate **12.**

[0040] In some embodiments, system **10** for elevating polymeric crates with mounted sidewall assembly further comprises first sidewall mountable elevating assembly **58** and second sidewall mountable elevating assembly **60.** In some embodiments, first sidewall mountable elevating assembly **58** is mounted in tandem on top of second sidewall mountable elevating assembly **60.** In some embodiments, longitudinal members **28A** and **28B** further comprise at least one vertically oriented aperture **62** on top face **64** thereof.

[0041] In some embodiments, at least one fastener **32** of longitudinal member **28B** of first sidewall mountable elevating assembly **58** is inserted and secured within vertically oriented aperture **62** on top face **64** of longitudinal member **28B** of second sidewall mountable elevating assembly **60.** In some embodiments, at least one fastener **44** of first sidewall mountable elevating assembly **58** is inserted and secured within vertically oriented aperture **66** on top face **68** of flanking members **40B** of second sidewall mountable elevating assembly **60.**

[0042] In accordance with some embodiments of the present invention, reference is now made **FIG 5** showing flowchart of method **100** of elevating polymeric crates with sidewall mountable assembly. The method of the embodiment of **FIG 5** illustrates various features that may be interchangeable with elements of any other embodiment described in the specification.

[0043] In some embodiments, method **100** commences with step **102** of providing a polymeric crate. In some embodiments, the polymeric crate comprises a pair of longitudinal sidewalls, in which each one of the longitudinal sidewalls comprising at least one vertically oriented aperture on a top face thereof. In some embodiments, the polymeric crate further comprises a pair of flanking sidewalls, in which each one of the flanking sidewalls comprising at least one vertically oriented aperture on a top face thereof.

[0044] In some embodiments, method **100** further proceeds to step **104** of providing a pair of longitudinal members. In some embodiments, each one of the longitudinal members comprises an essentially elongated rectangular shape and at least one fastener on a bottom face of the elongated essentially rectangular shape. In some embodiments, the at least one fastener is configured to be vertically insertable into the at least one vertically oriented aperture on the top face of the longitudinal sidewalls. In some embodiments, the longitudinal members comprise a pair of terminal portions, in which each one of the terminal portions comprising at least one laterally connecting element.

[0045] In some embodiments, method **100** further includes step **106** of providing a pair of flanking members. In some embodiments, each one of the flanking members comprises an essentially elongated rectangular shape and at least one fastener on a bottom face of the elongated essentially rectangular shape. In some embodiments, the at least one fastener is configured to be vertically insertable into the at least one vertically oriented aperture on the top face of the flanking sidewalls.

[0046] In some embodiments, the flanking members further comprise a pair of terminal portions, in which each one of the terminal portions comprising at least one laterally connecting element. In some embodiments, the laterally connecting elements on the terminal portions of the flanking members, in an assembled state, are interlocked with the laterally connecting elements of the terminal portions of the longitudinal members. In some embodiments, the terminal portions of the longitudinal members are interlocked with the laterally connecting elements of the terminal portions of the flanking members, for instance by vertically inserting the laterally connecting elements of the terminal portions of the longitudinal members into the laterally connecting elements on the terminal portions of the flanking members.

[0047] In some embodiments, method **100** further proceeds to step **108** of mounting the pair of flanking members on the top face of pair of flanking sidewalls of the polymeric crate. In some examples, step **108** of mounting the pair of flanking members on the top face of pair of flanking sidewalls of the polymeric crate includes a first sub-step of pre-mounting the flanking member on the top face of pair of flanking sidewall, by vertically inserting the fasteners of the flanking member into the apertures of flanking sidewalls of the polymeric crate. In some examples, step **108** of mounting the pair of flanking members on the top face of pair of flanking sidewalls of the polymeric crate includes a second sub-step of securing and/or affixing the flanking member to the flanking sidewall, by laterally moving the fasteners of the flanking member in a sidewise direction within the apertures of flanking sidewalls of the polymeric crate.

[0048] In some embodiments, method **100** yet further includes step **110** of mounting the pair of longitudinal members on the top face of pair of longitudinal sidewalls of the polymeric crate. In some embodiments, method **100** still further includes step **112** of assembling by interconnecting the pair of terminal portions of the pair of flanking members to the pair of terminal portions of the pair of longitudinal members.

[0049] In some embodiments, step **112** of assembling

the pair of flanking members and the longitudinal members precedes the step **108** of mounting the pair of flanking members on the top face of pair of flanking sidewalls of the polymeric crate. In other embodiments, step **112** of assembling the pair of flanking members and the longitudinal members precedes the step **110** of mounting the pair of longitudinal members on the top face of pair of longitudinal sidewalls of the polymeric crate.

[0050] In some embodiments, method **100** of elevating polymeric crates with sidewall mountable assembly further comprises dismantling the sidewall mountable assembly from the polymeric crate. In such embodiments, where the fasteners of the longitudinal members of the sidewall mountable assembly as well as the fasteners of the flanking members of the sidewall mountable assembly are of the first type, the dismantling of the sidewall mountable assembly comprises releasing the fasteners of the longitudinal members and/or the flanking members, regardless the order, and then removing the longitudinal members and/or the flanking members by drawing the longitudinal members and/or the flanking members upwards. However, in such embodiments, where the fasteners of the longitudinal members of the sidewall mountable assembly are of the first type, whereas the fasteners of the flanking members of the sidewall mountable assembly are of the second type, the dismantling of the sidewall mountable assembly comprises firstly releasing the fasteners of the longitudinal members and then removing the longitudinal members by drawing the longitudinal members upwards, and only subsequently to that releasing the fasteners of the flanking members, by displacing the flanking members sidewise, and then removing the flanking members by drawing the flanking members upwards.

INDEX OF REFERENCE NUMERALS

[0051] Within the specification hereinabove inter alia the following numerals were used to denote the particular constituents in the appended drawings:

10 - system for elevating polymeric crates
12 - polymeric crate
14A and **14B** - longitudinal sidewalls
16 - vertically oriented aperture of longitudinal sidewalls
18 - top face of longitudinal sidewalls
20A and **20B** - flanking sidewalls
22 - vertically oriented aperture of flanking sidewalls
24 - top face of flanking sidewalls
26 - sidewall mountable elevating assembly
28A and **28B** - longitudinal members
30 - elongated rectangular shape of longitudinal members
32 - fastener of longitudinal members
34 - bottom face of longitudinal members
36A and **36B** - terminal portions of longitudinal members
38 - laterally connecting element of longitudinal members
40A and **40B** - flanking members
42 - elongated rectangular shape of flanking members
44 - fastener of flanking members
46 - bottom face of flanking members
48A and **48B** - terminal portions of flanking members
50 - connecting element of flanking members
52 - directional arrow for assembling longitudinal members
54 - directional arrow for mounting flanking members
54 - directional arrow for securing flanking members
58 - first sidewall mountable elevating assembly
60 - second sidewall mountable elevating assembly
62 - vertically oriented aperture of longitudinal members
64 - top face of longitudinal members
66 - vertically oriented aperture of flanking members
68 - top face of flanking members
100 - method of elevating polymeric crates
102 - providing a polymeric crate
104 - providing longitudinal members
106 - providing flanking members
108 - mounting flanking members
110 - mounting longitudinal members
112 - assembling by interconnecting

[0052] It will be appreciated by persons skilled in the art of the invention that various features and/or elements elaborated in the context of a specific embodiment described hereinabove and/or referenced herein and/or illustrated by a particular example in a certain drawing enclosed hereto, whether method, system, device or product, is/are interchangeable with features and/or elements of any other embodiment described in the specification and/or shown in the drawings.

[0053] Moreover, skilled persons would appreciate that the present invention is not limited by what has been particularly shown and described hereinabove. Rather the scope of the invention is defined by the claims which follow:

Claims

1. A system for elevating polymeric crates (10) with mounted sidewall assembly, comprises:

(a) a polymeric crate (12) comprising:

(I) a pair of longitudinal sidewalls (14), wherein each one of said longitudinal sidewalls (14) comprising at least one vertically oriented aperture (16) on a top face (18) thereof;
(II) a pair of flanking sidewalls (20), wherein each one of said flanking sidewalls (20)

comprising at least one vertically oriented aperture (22) on a top face (24) thereof;

said system is **characterized by**:
(b) at least one sidewall mountable elevating assembly (26), comprising:

(I) a pair of longitudinal members (28), wherein each one of said longitudinal members (28) comprising:

(i) an essentially elongated rectangular shape (30);
(ii) at least one fastener (32) on a bottom face (34) of said elongated essentially rectangular shape;
wherein said at least one fastener (32) is configured to be vertically insertable into said at least one vertically oriented aperture (16) on said top face (18) of said longitudinal sidewalls;
(iii) a pair of terminal portions (36), wherein each one of said terminal portions (36) comprising at least one laterally connecting element (38);

(II) a pair of flanking members (40), wherein each one of said flanking members (40) comprising:

(i) an essentially elongated rectangular shape (42);
(ii) at least one fastener (44) on a bottom face (46) of said elongated essentially rectangular shape;
wherein said at least one fastener (44) is configured to be vertically insertable into said at least one vertically oriented aperture (22) on said top face (24) of said flanking sidewalls (20);
(iii) a pair of terminal portions (48), wherein each one of said terminal portions (48) comprising at least one laterally connecting element; wherein said laterally connecting elements on said terminal portions (48) of said flanking members, in an assembled state, are interlocked with said laterally connecting elements of said terminal portions (36) of said longitudinal members.

2. The system as in claim 1, wherein said fasteners of said longitudinal members (28) or said flanking members (40) of said at least one sidewall mountable elevating assembly (26) are of a first type, wherein said fasteners of said first type are insertable and securable within said vertically oriented aperture of said longitudinal or said flanking sidewalls (20) of said polymeric crate (12) by a vertical downward movement.

3. The system as in any one of the claims 1 or 2, wherein said fasteners of said longitudinal members (28) or said flanking members (40) of said at least one sidewall mountable elevating assembly (26) are of a second type, wherein said fasteners of said second type are insertable into said vertically oriented aperture of said longitudinal sidewalls (14) or said flanking sidewalls (20) of said polymeric crate (12) by a vertical downward movement and securable within said flanking sidewalls (20) of said polymeric crate (12) by a lateral sidewise movement.

4. The system as in any one of the claims 1 to 3, wherein said fasteners of said second type are selected from the group consisting of: snap fastener, clip fastener, frictional joining, expanding rivets, crimps.

5. The system as in any one of the claims 1 to 4, wherein said at least one sidewall mountable elevating assembly (26) comprises at least a first sidewall mountable elevating assembly and a second sidewall mountable elevating assembly, wherein said longitudinal members (28) and said flanking members (40) further comprising at least one vertically oriented aperture on a top face thereof, wherein said fasteners of said first sidewall mountable elevating assembly are insertable and securable within said vertically oriented apertures on said top face of said longitudinal members (28) and said flanking members (40) of said second sidewall mountable elevating assembly.

6. The system as in any one of the claims 1 to 5, wherein said laterally connecting elements of said terminal portions (36) of said longitudinal members (28) are interlocked with said laterally connecting elements on said terminal portions (48) of said flanking members (40) by vertically inserting said laterally connecting elements of said terminal portions (36) of said longitudinal members (28) into said laterally connecting elements on said terminal portions (48) of said flanking members.

7. A method of elevating polymeric crates with sidewall mountable assemblies, comprising the steps of:

(a) providing a polymeric crate (12) comprising:

(I) a pair of longitudinal sidewalls, wherein each one of said longitudinal sidewalls (14) comprising at least one vertically oriented aperture (16) on a top face (18) thereof;
(II) a pair of flanking sidewalls (20), wherein each one of said flanking sidewalls (20) comprising at least one vertically oriented

aperture (22) on a top face (24) thereof;

said method is **characterized by**:

(b) providing a pair of longitudinal members, wherein each one of said longitudinal members (28) comprising:

(I) an essentially elongated rectangular shape;
(II) at least one fastener (32) on a bottom face (34) of said elongated essentially rectangular shape;
wherein said at least one fastener (32) is configured to be vertically insertable into said at least one vertically oriented aperture (16) on said top face (18) of said longitudinal sidewalls;
(III) a pair of terminal portions (36), wherein each one of said terminal portions (36) comprising at least one laterally connecting element;

(c) providing a pair of flanking members (40), wherein each one of said flanking members (40) comprising:

(I) an essentially elongated rectangular shape;
(II) at least one fastener (44) on a bottom face (46) of said elongated essentially rectangular shape;
wherein said at least one fastener (44) is configured to be vertically insertable into said at least one vertically oriented aperture (22) on said top face (24) of said flanking sidewalls (20);
(III) a pair of terminal portions, wherein each one of said terminal portions comprising at least one laterally connecting element;
wherein said laterally connecting elements on said terminal portions of said flanking members, in an assembled state, are interlocked with said laterally connecting elements of said terminal portions (36) of said longitudinal members;

(d) mounting said pair of flanking members (40) on said top face of pair of flanking sidewalls (20) of said polymeric crate;
(e) mounting said pair of longitudinal members (28) on said top face (18) of pair of longitudinal sidewalls (14) of said polymeric crate;
(f) assembling by interconnecting said pair of terminal portions of said pair of flanking members (40) to said pair of terminal portions (36) of said pair of longitudinal members.

8. The method as in claim 7, wherein said step of assembling said pair of flanking members (40) and said longitudinal members (28) precedes said steps of mounting said flanking members (40) said longitudinal members (28) on said top face (24) of said flanking sidewalls (20) of said polymeric crate.

9. The method as in any one of the claims 7 or 8, wherein said fasteners of said longitudinal members (28) or said flanking members (40) of said at least one sidewall mountable elevating assembly (26) are of a first type, wherein said fasteners of said first type are insertable and securable within said vertically oriented aperture of said longitudinal or said flanking sidewalls (20) of said polymeric crate (12) by a vertical downward movement.

10. The method as in any one of the claims 7 to 9, wherein said fasteners of said longitudinal members (28) or said flanking members (40) of said at least one sidewall mountable elevating assembly (26) are of a second type, wherein said fasteners of said second type are insertable into said vertically oriented aperture of said longitudinal sidewalls (14) or said flanking sidewalls (20) of said polymeric crate (12) by a vertical downward movement and securable within said flanking sidewalls (20) of said polymeric crate (12) by a lateral sidewise movement.

11. The method as in any one of the claims 7 to 10, wherein said at least one sidewall mountable elevating assembly (26) comprises at least a first sidewall mountable elevating assembly and a second sidewall mountable elevating assembly, wherein said longitudinal members (28) and said flanking members (40) further comprising at least one vertically oriented aperture on a top face thereof, wherein said fasteners of said first sidewall mountable elevating assembly are insertable and securable within said vertically oriented apertures on said top face of said longitudinal members (28) and said flanking members (40) of said second sidewall mountable elevating assembly.

12. The method as in any one of the claims 7 to 11, wherein said laterally connecting elements of said terminal portions (36) of said longitudinal members (28) are interlocked with said laterally connecting elements on said terminal portions of said flanking members (40) by vertically inserting said laterally connecting elements of said terminal portions (36) of said longitudinal members (28) into said laterally connecting elements on said terminal portions of said flanking members.

13. A kit-of-parts implementable for elevating polymeric crates with sidewall mountable assemblies comprising:

(a) at least a pair of longitudinal members, wherein each one of said longitudinal members (28) comprising:

(i) an essentially elongated rectangular shape;
(ii) at least one fastener (32) on a bottom face (34) of said elongated essentially rectangular shape;
wherein said at least one fastener (32) is configured to be vertically insertable into at least one vertically oriented aperture (16) on a top face (18) of longitudinal sidewalls (14) of a polymeric crate;
(iii) a pair of terminal portions (36), wherein each one of said terminal portions (36) comprising at least one laterally connecting element;

(b) at least a pair of flanking members (40), wherein each one of said flanking members (40) comprising:

(i) an essentially elongated rectangular shape (42);
(ii) at least one fastener (44) on a bottom face (46) of said elongated essentially rectangular shape;
wherein said at least one fastener (44) is configured to be vertically insertable into at least one vertically oriented aperture (22) on a top face of flanking sidewalls (20) of a polymeric crate;
(iii) a pair of terminal portions (48), wherein each one of said terminal portions (48) comprising at least one laterally connecting element;

wherein said laterally connecting elements on said terminal portions (48) of said flanking members, in an assembled state, are interlockable with said laterally connecting elements of said terminal portions (36) of said longitudinal members.

14. The kit-of-parts, as in claim 13, wherein said at least one sidewall mountable elevating assembly (26) comprises at least a first sidewall mountable elevating assembly and a second sidewall mountable elevating assembly, wherein said longitudinal members (28) and said flanking members (40) further comprising at least one vertically oriented aperture on a top face thereof, wherein said fasteners of said first sidewall mountable elevating assembly are insertable and securable within said vertically oriented apertures on said top face of said longitudinal members (28) and said flanking members (40) of said second sidewall mountable elevating assembly.

15. The kit-of-parts, as in any one of the claims 13 or 14, wherein said laterally connecting elements of said terminal portions (36) of said longitudinal members (28) are interlockable with said laterally connecting elements on said terminal portions (48) of said flanking members (40) by vertically inserting said laterally connecting elements of said terminal portions (36) of said longitudinal members (28) into said laterally connecting elements on said terminal portions (48) of said flanking members (40).

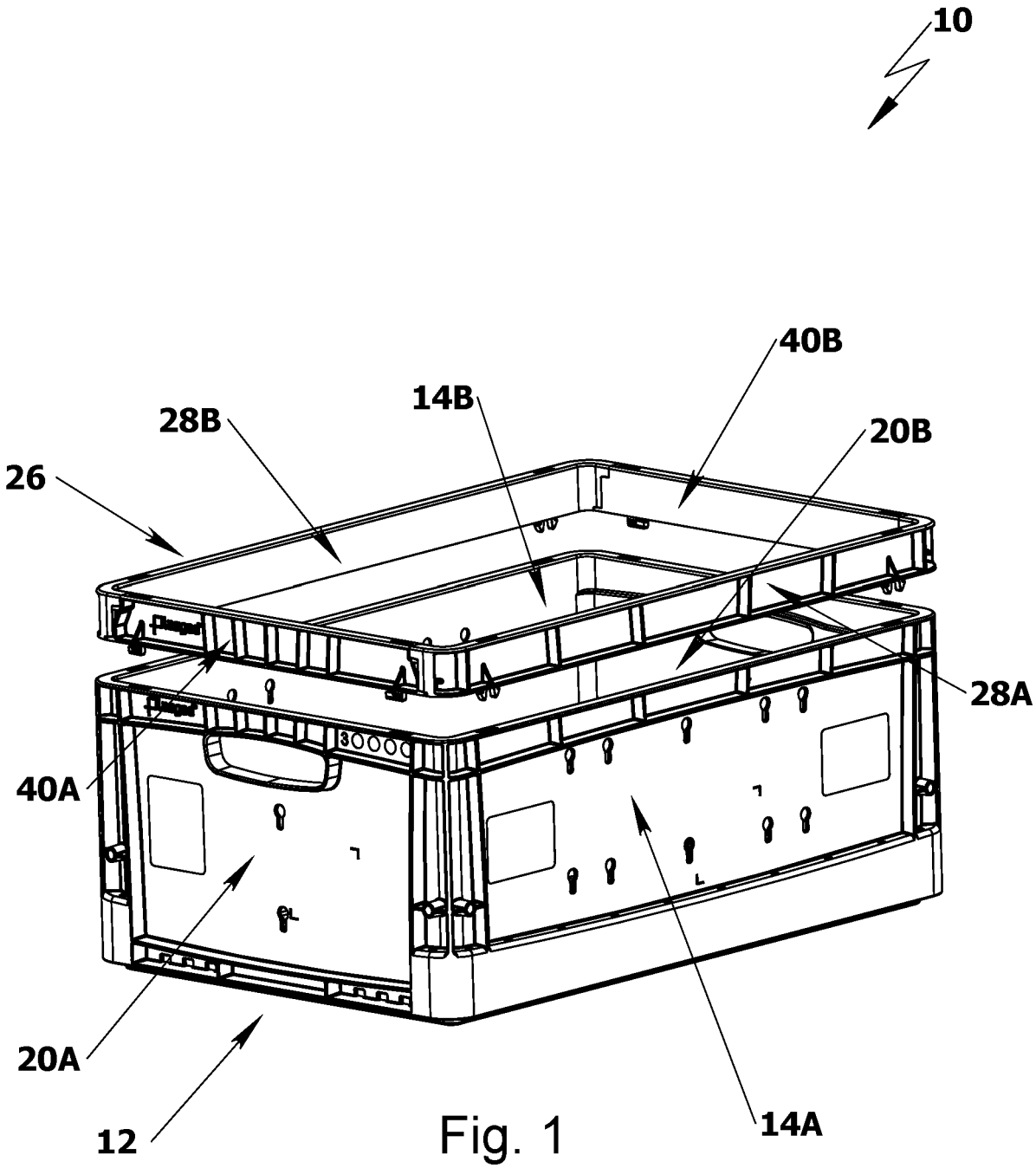


Fig. 1

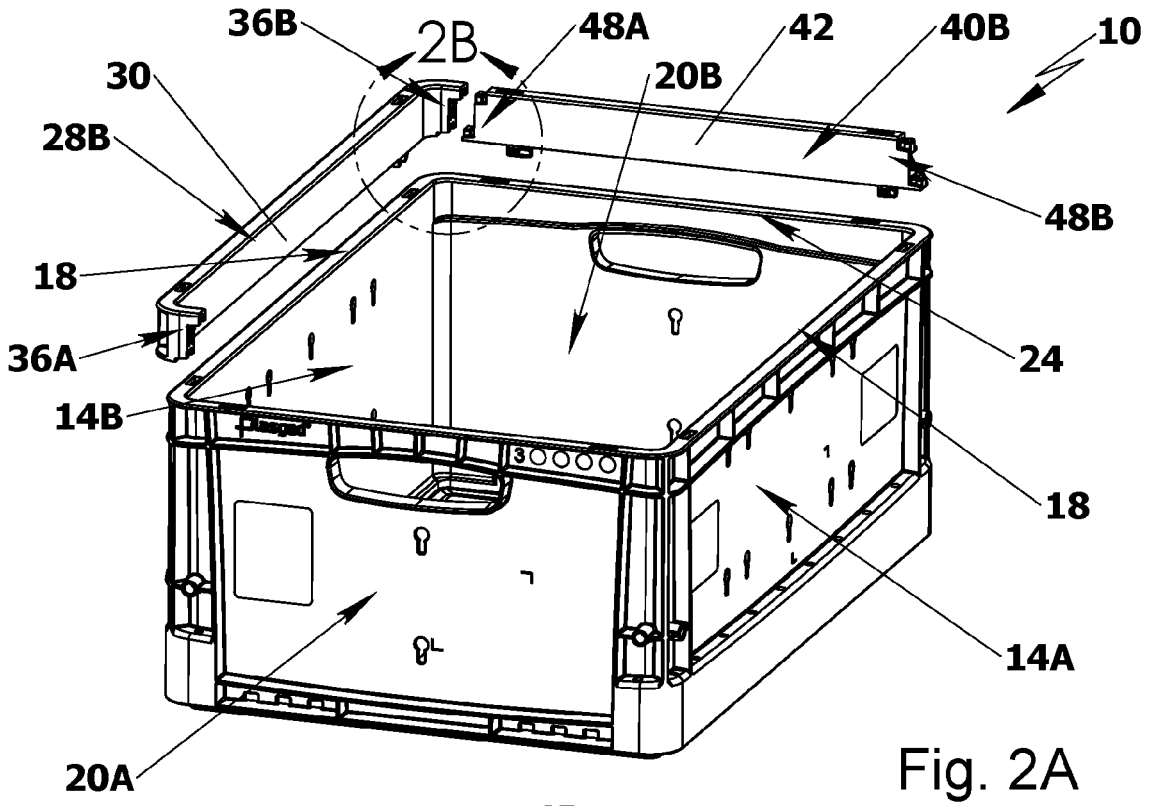
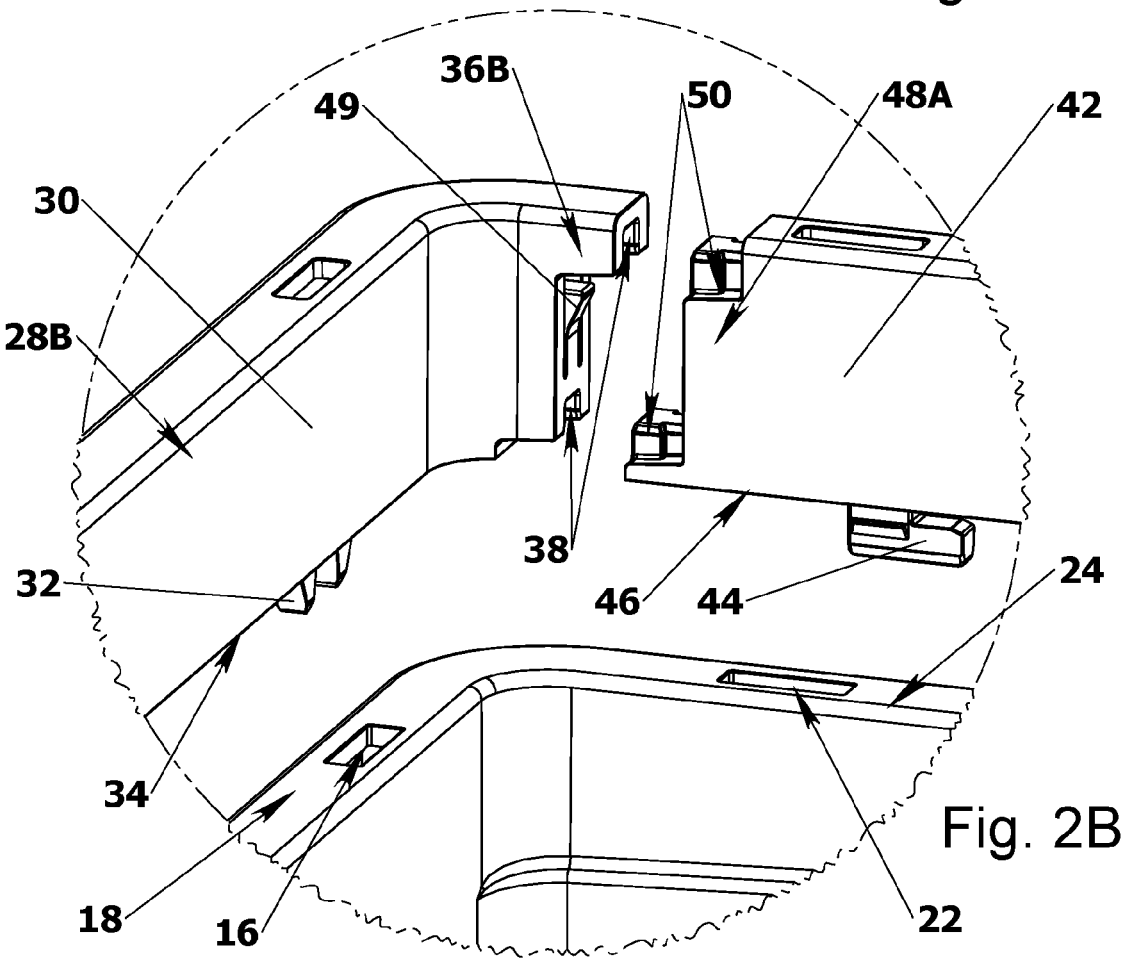

36B
2B
48A
42
40B
10
30
20B
28B
48B
18
24
36A
14B
18
14A
20A

Fig. 2A


36B
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48A
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30
28B
38
32
46
44
24
34
18
16
22

Fig. 2B

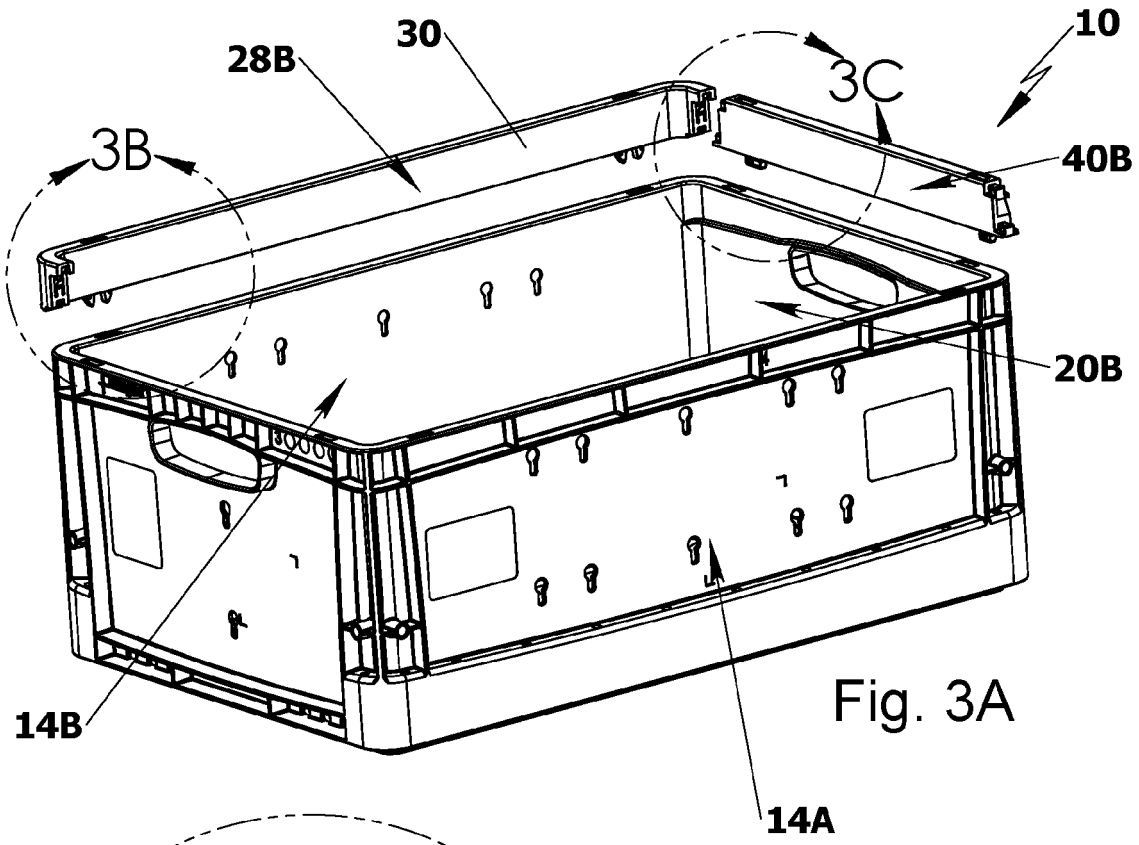

Fig. 3A

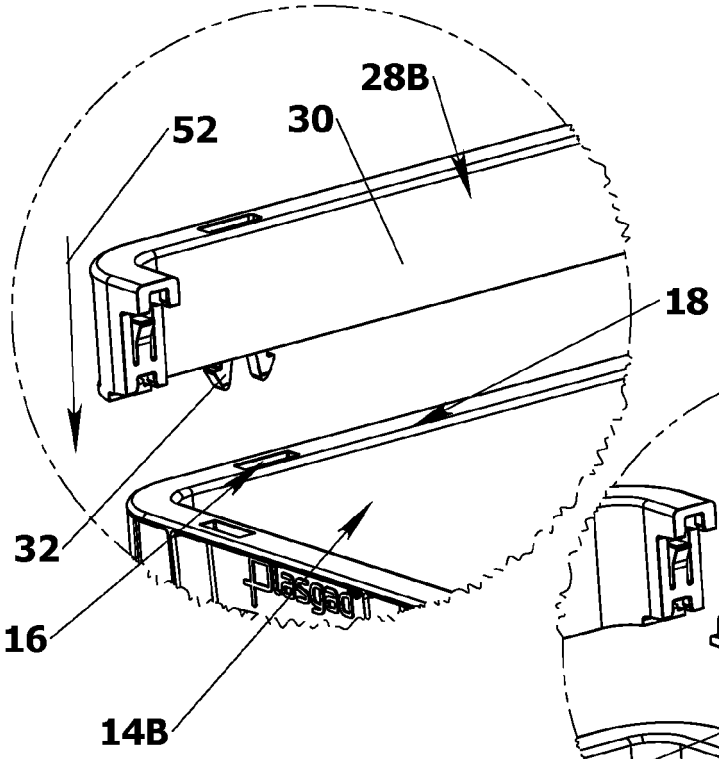

Fig. 3B

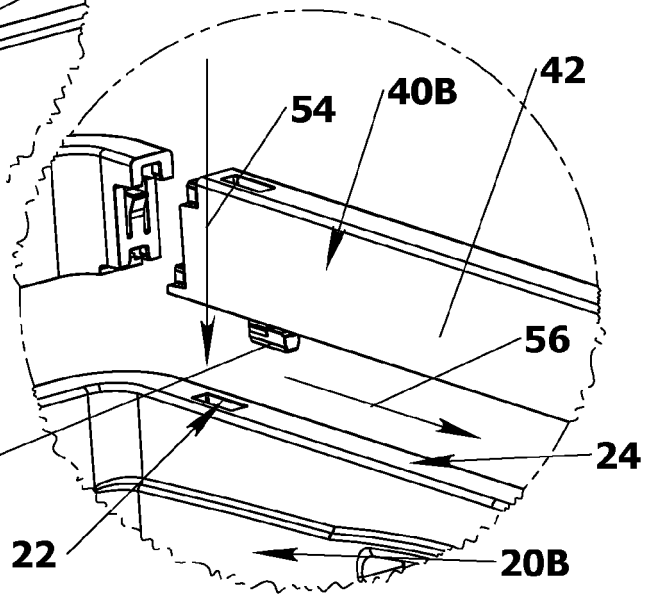

Fig. 3C

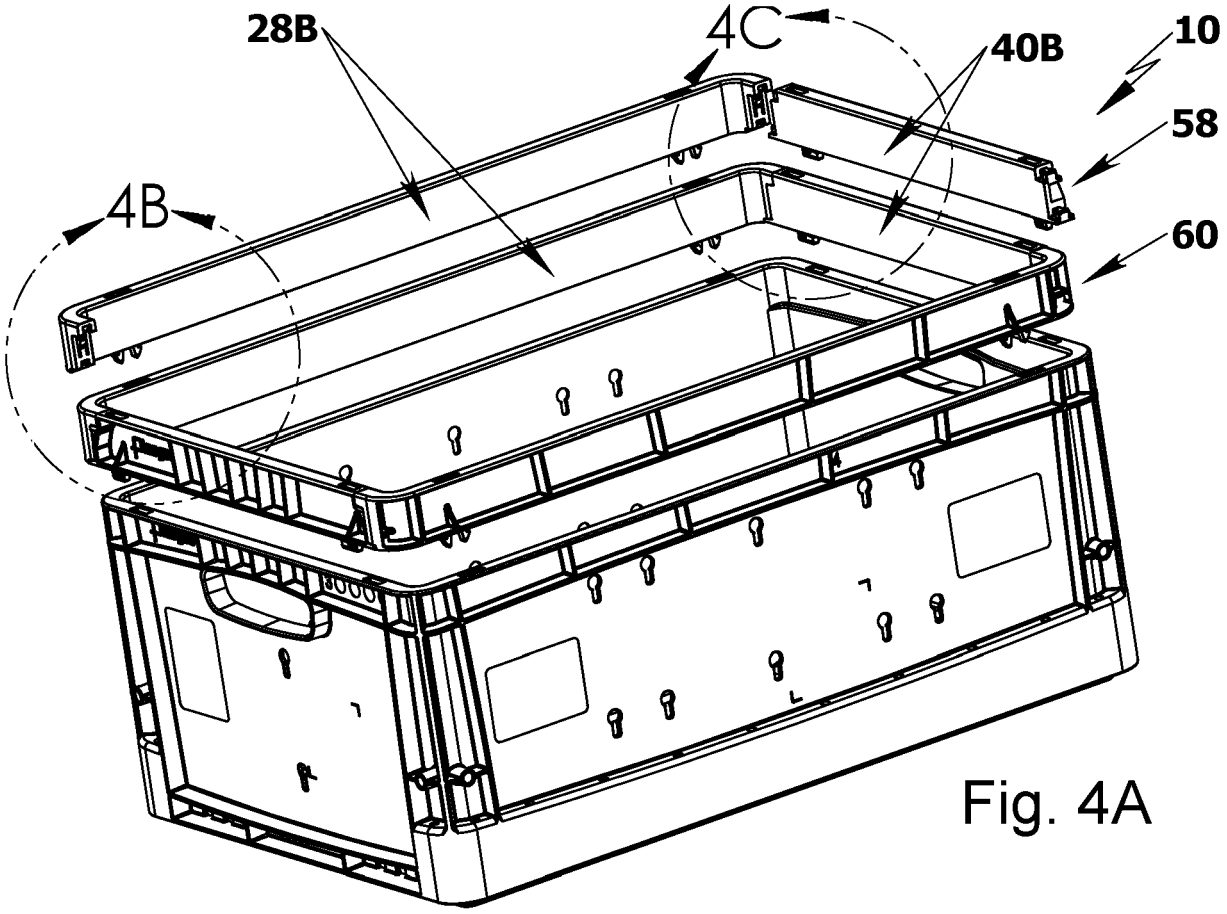

Fig. 4A

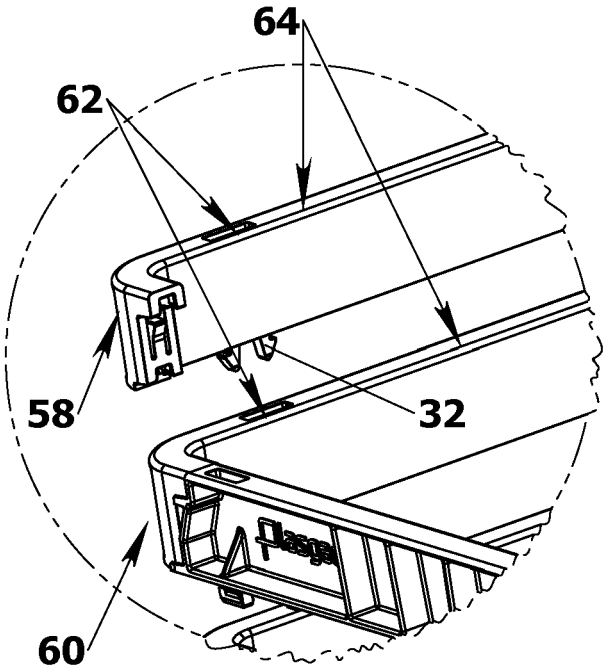

Fig. 4B

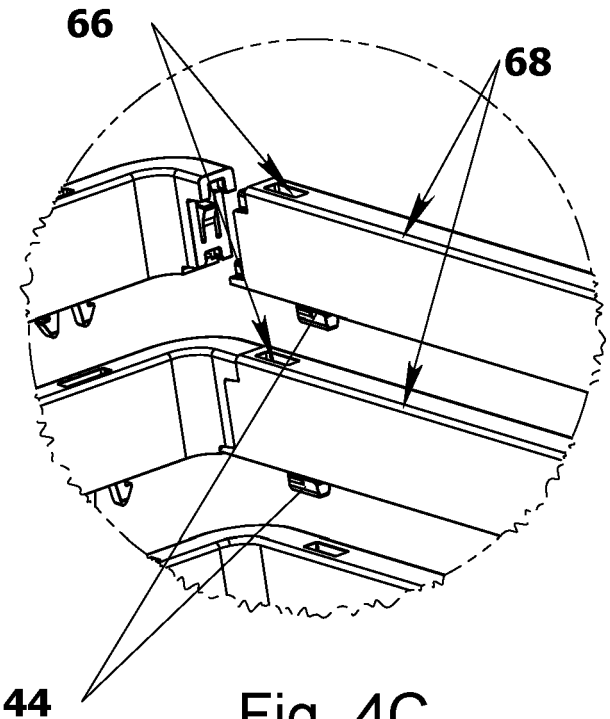

Fig. 4C

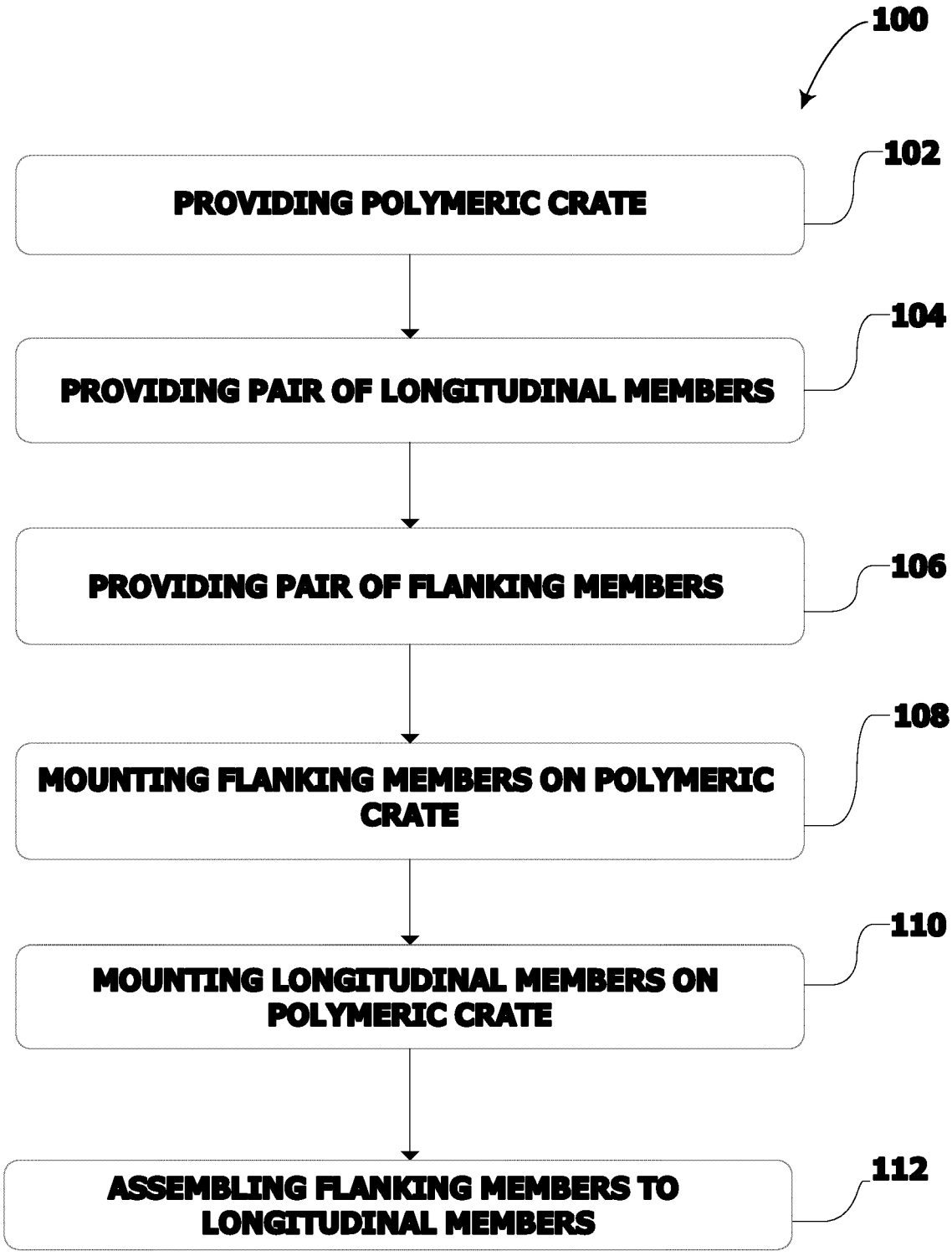
100
PROVIDING POLYMERIC CRATE
102
PROVIDING PAIR OF LONGITUDINAL MEMBERS
104
PROVIDING PAIR OF FLANKING MEMBERS
106
MOUNTING FLANKING MEMBERS ON POLYMERIC CRATE
108
MOUNTING LONGITUDINAL MEMBERS ON POLYMERIC CRATE
110
ASSEMBLING FLANKING MEMBERS TO LONGITUDINAL MEMBERS
112

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 22 19 4126

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 6 154499 B1 (CANON VIETNAM CO LTD) 28 June 2017 (2017-06-28) * paragraphs [0019], [0035], [0039] - [0041]; figures 3-6,10 *	1,3-5,7, 8,10-15	INV. B65D1/22 B65D21/08
X	JP 2014 156286 A (SANKO CO LTD) 28 August 2014 (2014-08-28) * figures 27-30 *	1,2,4, 7-9,13	
A	US 4 723 679 A (SINCHOK JOHN D [US] ET AL) 9 February 1988 (1988-02-09) * the whole document *	1-15	

TECHNICAL FIELDS SEARCHED (IPC)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	28 February 2023	Balz, Oliver

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28-02-2023

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US 4723679 A	09-02-1988	NONE	

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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