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PALLET, SUPER-LARGE HEAVY-DUTY PERIPHERAL PLATE BOX, SUPER-LARGE PERIPHERAL PLATE BOX AND C-TYPE PERIPHERAL PLATE

- (57)

The present disclosure relates to the technical field of logistics transportation devices, in particular to a pallet. Through the technical scheme, the pallet includes a shell, a clamping groove, a frame assembly and mounting grooves. The clamping groove is formed on the top of the shell and adjacent to the outer side of the shell. A cavity is formed inside the shell. The frame assembly is mounted inside the cavity. A skeleton is arranged in the frame assembly. An outer frame is mounted on the outer side of the skeleton. Through the combination of various structures, the frame assembly is arranged inside the shell of the device.

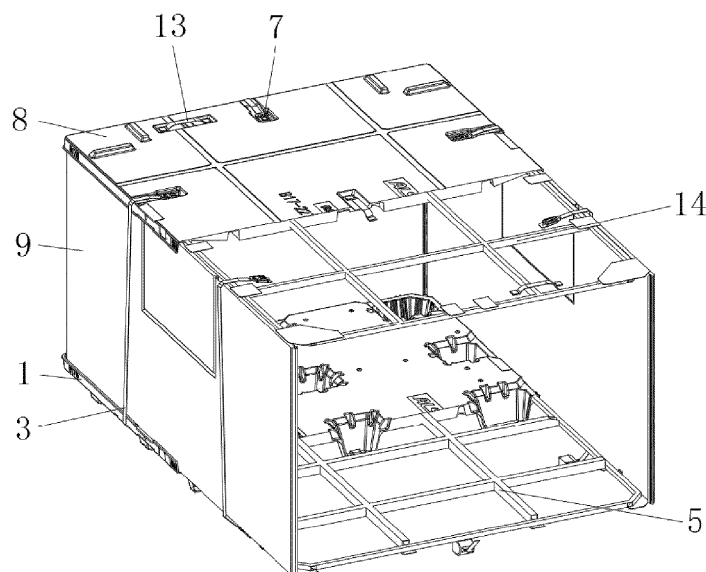


FIG. 4

Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This patent application claims the benefit and priority of each of Chinese Patent Application No. 202310808431.X filed with the China National Intellectual Property Administration on July 04, 2023, and Chinese Utility Model Applications No. 202320953493.5, No. 202320953353.8, and No. 202320953345.3 all three filed with the China National Intellectual Property Administration on April 25, 2023, the disclosure of which is incorporated by reference herein in their entirety as part of the present application.

TECHNICAL FIELD

[0002] The present disclosure relates to the technical field of logistics transportation devices, in particular to a pallet, a super-large heavy-duty peripheral plate box, a super-large peripheral plate box and a C-type peripheral plate.

BACKGROUND

[0003] With the continuous development of new energy vehicles, the demand of various components in new energy vehicles has increased, resulting in increasing transportation requirements of new energy vehicle components. In order to facilitate the transportation and storage of large components, pallets with high load performance are required to support the components.

[0004] In the process of using the pallets in the prior art, the structural stability and rigidity of the pallet are not ideal, resulting in the deformation and subsidence conditions of the pallet when large goods are supported. Thus, the goods cannot be effectively supported and are inconvenient to transport. In addition, the traditional pallet is equipped with a metal frame structure at the bottom. The metal frame has a limited reinforcement effect on the pallet and is easy to fall off when the pallet is seriously deformed. In view of this, a pallet is proposed to solve the existing problems.

SUMMARY

[0005] Some embodiments aim to provide a pallet, a super-large heavy-duty peripheral plate box, a super-large peripheral plate box and a c-type peripheral plate so as to solve the problems proposed in the background art.

[0006] In order to achieve the purpose, some embodiments provide the following technical scheme. A pallet includes a shell, a clamping groove, a frame assembly and mounting grooves, wherein the clamping groove is formed on a top of the shell and adjacent to an outer side of the shell, a cavity is formed inside the shell, the frame assembly is mounted inside the cavity, a skeleton is ar-

ranged in the frame assembly, and an outer frame is mounted on an outer side of the skeleton.

[0007] Preferably, fifteen groups of supporting legs are arranged in the shell, and the mounting grooves are formed on both sides of a bottom of the shell.

[0008] Preferably, six groups of tightening belts are mounted on the outer side of the shell, and a fixing buckle is mounted at one end of each of the tightening belts.

[0009] Preferably, a square gasket is mounted to a bottom of a connection portion of the outer frame and the skeleton, and fins are mounted to a bottom of four corners of the outer frame.

[0010] The present disclosure also provides the following technical scheme. A super-large heavy-duty peripheral plate box includes a top cover, a peripheral plate, a shell and a frame assembly, wherein a cavity is formed inside the shell, the frame assembly is fixedly mounted inside the cavity, a clamping groove is formed on a top of the shell, the peripheral plate is mounted in the clamping groove, an operation window is formed in the peripheral plate, the top cover is mounted on a top of the peripheral plate, limited walls are arranged on both sides of a top of the top cover, handles are mounted on both sides of the top of the top cover, a groove is formed inside the top cover, a reinforced frame is mounted in the groove, six groups of tightening belts are mounted on an outer side of the top cover, fixing buckles are mounted at both ends of each of the tightening belts, the fixing buckles are respectively connected with the top of the top cover and a bottom of the shell, the frame assembly and the reinforced frame are the same in specifications and sizes, and fins are welded adjacent to corners of the frame assembly and corners of the reinforced frame.

[0011] Preferably, a limited groove is formed on the top cover, and the limited groove has a shape of a Chinese character of "ft".

[0012] Preferably, fifteen groups of supporting legs are arranged at the bottom of the shell, and two groups of mounting grooves are formed on the bottom of the shell.

[0013] Preferably, an outer frame of the reinforced frame, the peripheral plate and an outer frame of the frame assembly are located on a same longitudinal axis.

[0014] The present disclosure also provides the following technical scheme. A super-large peripheral plate box includes a first peripheral plate, a shell, a top cover and a frame assembly, wherein the frame assembly is mounted inside the shell, two groups of transverse beams and four groups of longitudinal beams are arranged in the frame assembly, an outer frame is welded on outer sides of the two groups of transverse beams and the four groups of longitudinal beams, fins are mounted on an outer side of a bottom of the frame assembly at equal intervals, a clamping groove is formed on a top of the shell adjacent to an outer edge of the shell, a first peripheral plate is inserted and mounted on one side of the top of the shell, a second peripheral plate is inserted on an other side of the top of the shell, the first peripheral plate and the second peripheral plate are snapped and con-

nected to each other, and a top cover is snapped and mounted on tops of the first peripheral plate and the second peripheral plate.

[0015] Preferably, a reinforced frame is mounted inside the top cover, and connecting plates are mounted on a top of the reinforced frame at equal intervals.

[0016] Preferably, six groups of tightening belts are arranged on an outer side of the top cover, and an other end of each of the tightening belts is connected with an outer side of the shell.

[0017] Preferably, a groove is formed on a bottom of the top cover, and the groove, the first peripheral plate, the second peripheral plate and the clamping groove are located on a same vertical plane.

[0018] Preferably, supporting legs are arranged at a bottom of the shell at equal intervals, and mounting grooves are formed on both sides of the bottom of the shell.

[0019] Preferably, handles are mounted on both sides of a top of the top cover, and two groups of limited walls are arranged on each of both sides of the top cover.

[0020] The present disclosure also provides the following technical scheme. A C-type peripheral plate includes a side plate, a guard plate, a bent plate and a laminated plate, wherein the bent plate is arranged at each of both ends of the guard plate, the side plate is mounted on a side, away from the guard plate, of the bent plate, and the laminated plate is mounted on a side, away from the bent plate, of the side plate.

[0021] Preferably, two groups of grooves are formed in an inner side of the bent plate at equal intervals, and two groups of arc-shaped edges are arranged on an outer side of the bent plate.

[0022] Preferably, a thickness of the laminated plate is a half of that of the side plate, and a height of the laminated plate is the same as that of the side plate.

[0023] Compared with the prior art, some embodiments have the following beneficial effects.

[0024] Firstly, the frame assembly is arranged inside the shell of the device, so that the whole structural strength of the device can be improved through the frame assembly, and then the load capacity of the device is improved. The frame assembly is mounted inside the device in an embedded manner to be prevented from falling off, and then the stability of the device in the use process can be ensured.

[0025] Secondly, the clamping groove is formed on the top of the shell, the location of the clamping groove is aligned with that of the outer frame of the frame assembly, and then the pressure can be directly transmitted to the outer frame when heavy objects are born, so that direct and effective support is provided for assemblies on the top, and the outer edge of the shell is prevented from deforming.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026]

FIG. 1 is a three-dimensional solid structural schematic diagram of a pallet in the present disclosure.

FIG. 2 is a local structural schematic diagram of a frame assembly in the present disclosure.

FIG. 3 is an upward view of a pallet in the present disclosure.

FIG. 4 is a sectional structural schematic diagram of a super-large heavy-duty peripheral plate box in the present disclosure.

FIG. 5 is an external structural schematic diagram of a super-large heavy-duty peripheral plate box in the present disclosure.

FIG. 6 is a three-dimensional solid structural schematic diagram of a super-large peripheral plate box in the present disclosure.

FIG. 7 is a local solid structural schematic diagram of a super-large peripheral plate box in the present disclosure.

FIG. 8 is a sectional structural schematic diagram of a top cover in the present disclosure.

FIG. 9 is a three-dimensional solid structural schematic diagram of a C-type peripheral plate in the present disclosure.

FIG. 10 is a combined structural schematic diagram of a C-type peripheral plate in the present disclosure.

FIG. 11 is a local structural schematic diagram of part A in FIG. 9.

FIG. 12 is a local structural schematic diagram of part B in FIG. 9.

[0027] Reference signs: 1, shell; 2, supporting leg; 3, tightening belt; 4, clamping groove; 5, frame assembly; 501, outer frame; 502, square gasket; 503, skeleton; 504, fin; 6, mounting groove; 7, fixing buckle; 8, top cover; 9, peripheral plate; 10, first peripheral plate; 11, second peripheral plate; 12, limited wall; 13, handle; 14, reinforced frame; 15, connecting plate; 16, side plate; 17, guard plate; 18, bent plate; and 19, laminated plate.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0028] The technical scheme of the present disclosure is further described in conjunction with the attached figures and specific embodiments.

Embodiment I

[0029] As shown in FIG. 1, FIG. 2 and FIG. 3, a pallet provided by the present disclosure includes a shell 1, a clamping groove 4, a frame assembly 5 and mounting grooves 6. The clamping groove 4 is formed on the top of the shell 1 and adjacent to the outer side of the shell 1. The clamping groove 4 can provide a mounting position for a peripheral plate, so that goods on the top are convenient to fence for protection in cooperation with the peripheral plate in the later stage. A cavity is formed inside the shell 1, and the frame assembly 5 is mounted inside the cavity. The frame assembly 5 can improve the

overall stability of the shell 1, so that the supporting effect of the device when heavy goods are supported. A skeleton 503 is arranged inside the frame assembly 5. The skeleton 503 can provide a mounting position for surrounding assemblies, and is embedded into the shell 1, so that the structural strength of the shell 1 is improved. An outer frame 501 is mounted on the outer side of the skeleton 503. An outer frame 501 can be connected with the skeleton 503, and then the structural stability of the skeleton 503 adjacent to an edge position is improved.

[0030] Further, fifteen groups of supporting legs 2 are arranged inside the shell 1, and the supporting legs 2 can be used for supporting the shell 1, so that the shell 1 can keep a certain distance with the ground, and the shell 1 is convenient to move in the later stage. Mounting grooves 6 are respectively formed on both sides of the bottom of the shell 1. The mounting grooves 6 can provide mounting positions for positioning devices such as an Internet of things module, so that the devices can be positioned in the later stage.

[0031] Further, six groups of tightening belts 3 are mounted on the outer side of the shell 1, and a fixing buckle 7 is mounted at one end of the tightening belt 3. The tightening belts 3 can be used for connecting the device with goods or other protection structures, and then the protection effect of the device on goods can be improved.

[0032] Further, a square gasket 502 is mounted at the bottom of the connected position of the outer frame 501 and the skeleton 503. The square gasket 502 can enlarge the contact area between the bottom of the skeleton 503 and the shell 1, so that the skeleton 503 is fixed. Fins 504 are mounted at the bottom of four corners of the outer frame 501. The fins 504 can increase the contact area between the bottom of the outer frame 501 and the shell 1, and then the reinforcement effect of the frame assembly 5 on the shell 1 is improved.

[0033] The working principle of the pallet based on the first embodiment is that after the device is moved to a designated position, the goods to be transported are placed on the top of the shell 1, and the pressure received by the shell 1 is dispersed through the frame assembly 5, so that the device can effectively support the goods. At the same time, various peripheral plates can be mounted in the clamping groove 4, and the goods are fixed in cooperation with the tightening belts 3, so that the protection effect of the device on the goods is improved.

Embodiment II

[0034] As shown in FIG. 4 and FIG. 5, a super-large heavy-duty peripheral plate box provided by the present disclosure includes a top cover 8, a peripheral plate 9, a shell 1 and a frame assembly 5. A cavity is formed inside the shell 1, and the frame assembly 5 is fixedly mounted inside the cavity. The shell 1 can provide mounting positions for assemblies on the top, and heavy goods can be supported. The frame assembly 5 is of a metal frame

structure, and the frame assembly 5 is embedded into the shell 1, so that the structural strength of the shell 1 can be improved. A clamping groove 4 is formed on the top of the shell 1, and the peripheral plate 9 is mounted inside the clamping groove 4. An operation window is formed in the peripheral plate 9. The peripheral plate 9 can be respectively snapped and connected with the top cover 8 and the shell 1, and then the goods inside the device are fenced, so that the stability of the goods during transportation is ensured. The top cover 8 is mounted on the top of the peripheral plate 9. The top cover 8 can limit and fix the top of the peripheral plate 9, and the goods on the top are protected. Moreover, the peripheral plate box on the top can be supported, so that the peripheral plate boxes are stacked. Limited walls 12 are respectively arranged on both sides of the top of the top cover 8. The limited walls 12 can limit the supporting legs 2 at the bottom of the shell 1, and then the upper peripheral plate boxes can be prevented from sliding when the peripheral plate boxes are stacked for use. The limited walls 12 can limit the supporting legs 2 at the bottom of the shell 1, and then the upper peripheral plate boxes can be prevented from sliding when the peripheral plate boxes are stacked. Handles 13 are mounted on both sides of the top of the top cover 8. The handles 13 can provide hand-held positions for the top of the top cover 8, and then the top cover 8 can be convenient to disassemble and assemble. A groove is formed inside the top cover 8, and a reinforced frame 14 is mounted in the groove. The reinforced frame 14 can improve the structural strength of the top cover 8, and then the supporting effect of the top cover 8 on the goods on the top can be ensured. Six groups of tightening belts 3 are mounted on the outer side of the top cover 8. The tightening belts 3 can be used for connecting the top cover 8 with the shell 1, and then the connecting stability of the top cover 8 and the shell 1 is ensured. Fixing buckles 7 are mounted at both ends of the tightening belt 3, and the fixing buckles 7 are respectively connected with the top of the top cover 8 and the bottom of the shell 1. The fixing buckles 7 can be used for fixedly connecting the tightening belts 3 with the top cover 8 and the shell 1 respectively, and then the limiting effect of the tightening belts 3 on the top cover 8 and the shell 1 can be ensured. The frame assembly 5 and the reinforced frame 14 are the same in specifications and sizes, and fins 504 are welded adjacent to the corners of the frame assembly 5 and the reinforced frame 14. The fins 504 can improve the strengthening effect of the frame assembly 5 and the reinforced frame 14 on the shell 1 and the top cover 8, and then the structural strength of the top cover 8 and the shell 1 can be improved.

[0035] Further, limited grooves are formed on the top cover 8, and the limited grooves has a shape of a Chinese character of "井". The limited grooves can provide mounting positions for the tightening belts 3, and then the tightening belts 3 can be prevented from sliding off

from the outer side of the device when the tightening belts 3 are used around the peripheral plate box.

[0036] Further, fifteen groups of supporting legs 2 are arranged at the bottom of the shell 1, the supporting legs 2 can support the shell 1, and then the device can be convenient to transfer by using machines such as forklifts. Two groups of mounting grooves 6 are formed on the bottom of the shell 1. The clamping groove 4 can provide a mounting position for devices such as an Internet of things module, so that the device can be convenient to position.

[0037] Further, an outer frame of the reinforced frame 14, the peripheral plate 9 and an outer frame of the frame assembly 5 are located on the same longitudinal axis. By mounting the outer frame of the reinforced frame 14, the outer frame of the frame assembly 5 and the peripheral plate 9 on the same longitudinal axis, the peripheral plate 9 can effectively support the top pressure, and the peripheral plate 9 is prevented from being bent due to uneven stress.

[0038] The working principle of the super-large heavy-duty peripheral plate box based on the second embodiment is that after the shell 1 is placed at a designated position, the goods to be transported are placed at the designated position, then the peripheral plate 9 is placed on the top of the shell 1 and is snapped and connected with the clamping groove 4 on the top of the shell 1. The top cover 8 is mounted on the top of the peripheral plate 9 by the handles 13, and the top cover 8 and the shell 1 are fixedly connected by the six groups of tightening belts 3, so that the goods are packed, and the transportation of large heavy-duty goods is facilitated in the later period.

Embodiment III

[0039] As shown in FIG. 6, FIG. 7 and FIG. 8, the present disclosure also provides a super-large peripheral plate box. The super-large peripheral plate box includes a first coming 10, a shell 1, a top cover 8 and a frame assembly 5. The frame assembly 5 is mounted inside the shell 1. The shell 1 can support goods, so that the goods are placed over the ground. Moreover, mounting positions can be provided for assemblies on the top. The frame assembly 5 can improve the stability and structural strength of the shell 1, so that heavy goods are support. Two groups of transverse beams and four groups of longitudinal beams are arranged inside the frame assembly 5. Outer frame 501 is welded on the outer sides of the transverse beam and the longitudinal beam. The frame structure is matched with a plurality of groups of transverse beams and longitudinal beams, and the strength of the frame assembly 5 can be improved, so that the overall structural strength of the shell 1 is improved. Fins 504 are mounted on the outer side of the bottom of the frame assembly 5 at equal intervals. The fins 504 can enlarge the contact area between the frame assembly 5 and the shell 1, and then the connecting stability between the frame assembly 5 and the shell 1 can be improved.

The pressure intensity received by the frame assembly 5 can also be reduced, and the bearing capacity of the frame assembly for the top pressure is improved. A clamping groove 4 is formed on the top of the shell 1 adjacent to an outer edge of the shell 1. The clamping groove 4 can be clamped with the bottom of a first peripheral plate 10 and the bottom of a second peripheral plate 11, so that the first peripheral plate 10 and the second peripheral plate 11 are convenient to mount. The first peripheral plate 10 and the second peripheral plate can also be prevented from falling off from the top of the shell 1 in the transportation process of the peripheral plate box, and then the limiting effect of the device on the internal goods can be ensured. The first peripheral plate 10 is inserted and mounted on one side of the top of the shell 1, and the second peripheral plate 11 is inserted on the other side of the top of the shell 1. The first peripheral plate 10 and the second peripheral plate 11 are snapped and connected to each other. The first peripheral plate 10 and the second peripheral plate 11 are designed to be C-shaped, and two groups of peripheral plates are assembled in a clamped connection way. The goods inside the peripheral plate box can be convenient to place and stack. The peripheral plate box can also be easy to assemble. A top cover 8 is clamped and mounted on the tops of the first peripheral plate 10 and the second peripheral plate 11. The top cover 8 can be snapped and connected with the first peripheral plate 10 and the second peripheral plate 11, and then the first peripheral plate 10, the second peripheral plate 11 and the shell 1 can be matched to form a box-type structure. And then, the internal goods can be stably transported. When a plurality of peripheral plate boxes are stacked, the first peripheral plate 10, the second peripheral plate 11, the groove on the bottom of the top cover 8 and the clamping groove 4 on the top of the shell 1 are located on the same longitudinal plane. Therefore, the supporting effect of the peripheral plate box at the bottom on the peripheral plate box on the top can be ensured, the stress directions of the first peripheral plate 10 and the second peripheral plate 11 are prevented from deviating to cause deformation of the first peripheral plate 10 and the second peripheral plate 11.

[0040] Further, a reinforced frame 14 is mounted in the top cover 8. The reinforced frame 14 can reinforce the structural strength of the top cover 8, and then the peripheral plate box at the bottom has a good supporting effect on the peripheral plate box on the top when a plurality of peripheral plate boxes are stacked. Connecting plates 15 are mounted on the top of the reinforced frame 14 at equal intervals. The connecting plates 15 can be fixedly connected with the top cover 8, so that the connecting stability between the reinforced frame 14 and the top cover 8 is improved, the pressure intensity received by the reinforced frame 14 is reduced, and the bearing capacity of the top cover 8 for the top pressure is improved.

[0041] Further, six groups of tightening belts 3 are re-

spectively arranged on the outer side of the top cover 8, and the other ends of the tightening belts 3 are connected with the outer side of the shell 1. The tightening belts 3 can facilitate the connection between the top cover 8 and the shell 1, and then the top cover 8 is prevented from being separated from the first peripheral plate 10 and the second peripheral plate 11 during transportation.

[0042] Further, a groove is formed on the bottom of the top cover 8, and the groove, the first peripheral plate 10, the second peripheral plate 11 and the clamping groove 4 are located on the same vertical plane. The first peripheral plate 10, the second peripheral plate 11 and the top cover 8 are connected through the groove, so that the connecting stability among the first peripheral plate 10, the second peripheral plate 11 and the top cover 8 can be ensured.

[0043] Further, supporting legs 2 are arranged at the bottom of the shell 1 at equal intervals. The shell 1 can keep a certain distance with the ground through the supporting legs 2. When the peripheral plate boxes are stacked, the supporting legs 2 at the positions adjacent to four corners can be clamped with limited walls 12 on the top cover 8 of the peripheral plate box, and then the peripheral plate box on the top is prevented from sliding off. Mounting grooves 6 are formed in both sides of the bottom of the shell 1. The mounting grooves 6 can provide mounting positions for an electronic positioning module, so that the real-time position of the device is convenient to track through the electronic positioning module.

[0044] Further, handles 13 are mounted on both sides of the top of the top cover 8. The handles 13 can provide handheld positions for the top of the top cover 8, so that the top cover 8 is convenient to transport. Two groups of limited walls 12 are respectively arranged on both sides of the top cover 8. The limited walls 12 are arranged in pairs, with a total of four groups distributed at four corners of the top of the top cover 8. The limited walls 12 can be clamped with the supporting legs 2, so that the peripheral plate box on the top is limited horizontally to prevent the peripheral plate box on the top from sliding off when the peripheral plate boxes are stacked.

[0045] The working principle of the super-large peripheral plate box based on the third embodiment is that after the shell 1 is placed at a designated position, the clamping groove 4 is snapped and connected with the first peripheral plate 10. After the goods to be transported are placed on the top of the shell 1, the goods are stacked in order, and then the second peripheral plate 11 is snapped and connected with the first peripheral plate 10. At the same time, the bottom of the second peripheral plate 11 is clamped with the clamping groove 4, the groove on the bottom of the top cover 8 is respectively snapped and connected with the top of the first peripheral plate 10 and the top of the second peripheral plate 11, and then the tightening belts 3 are respectively connected with the shell 1 and the top cover 8, so that the peripheral plate box is integrally assembled and fixed, and the peripheral plate boxes are stacked and placed ac-

cording to use requirements.

Embodiment IV

[0046] As shown in FIG. 9, FIG. 10, FIG. 11 and FIG. 12, the present disclosure also provides a C-type peripheral plate. The C-type peripheral plate includes side plates 16, a guard plate 17, bent plates 18 and laminated plates 19. The bent plates 18 are arranged at both ends of the guard plate 17. The bent plate 18 can keep a certain angle with the guard plate 17 to be bent for use, so that the goods on the inner side can be surrounded and protected in multiple angles. The side plate 16 is mounted on the side, away from the guard plate 17, of the bent plate 18. The side plates 16 can limit the goods inside the peripheral plate box in cooperation with the guard plate 17, and then the goods are protected. The laminated plate 19 is mounted on the side, away from the bent plate 18, of the side plate 16. The laminated plates 19 can be laminated to each other, and then two groups of C-type peripheral plates are matched to form a wrapped structure. The goods inside the peripheral plate box are protected, and the goods are convenient for stacking operation.

[0047] Furthermore, two groups of grooves are formed in the inner side of the bent plate 18 at equal intervals, and two groups of arc-shaped edges are arranged on the outer side of the bent plate 18. The side plate 16 is connected with the guard plate 17 through the bent plate 18, the guard plate 17 and the side plate 16 can be mounted at a certain angle, and then multi-directional protection of the goods inside the peripheral plate box is facilitated.

[0048] Furthermore, the thickness of the laminated plate 19 is a half of that of the side plate 16, and the height of the laminated plate 19 is the same as that of the side plate 16. The laminating plate 19 can be laminated to each other, and then two groups of C-type peripheral plates are assembled to form a wrapped structure, so that the goods inside the peripheral plate box are protected.

[0049] The working principle of the C-type peripheral plate based on the fourth embodiment is that after the device is snapped and connected with the clamping groove on the top of the pallet, two groups of side plates 16 are bent to keep the guard plate 17 vertical. After the goods are manually stacked, another group of C-type peripheral plates is placed on the other side of the top of the pallet, and the laminated plates 19 of the two groups of C-type peripheral plates are tightly laminated to each other, so that the goods are protected by using the two groups of C-type peripheral plates.

[0050] The above-mentioned specific embodiments are only several preferred embodiments of the present disclosure. Based on the technical scheme of the present disclosure and the related enlightenment of the above-mentioned embodiments, those skilled in the art can make various alternative improvements and combinations to the above-mentioned specific embodiments.

Claims

1. A pallet, comprising a shell (1), a clamping groove (4), a frame assembly (5) and mounting grooves (6), wherein the clamping groove (4) is formed on a top of the shell (1) and adjacent to an outer side of the shell (1), a cavity is formed inside the shell (1), the frame assembly (5) is mounted inside the cavity, a skeleton (503) is arranged in the frame assembly (5), and an outer frame (501) is mounted on an outer side of the skeleton (503). 5
2. The pallet according to claim 1, wherein fifteen groups of supporting legs (2) are arranged in the shell (1), and the mounting grooves (6) are formed on both sides of a bottom of the shell (1). 10
3. The pallet according to claim 1, wherein six groups of tightening belts (3) are mounted on the outer side of the shell (1), and a fixing buckle (7) is mounted at one end of each of the tightening belts (3). 20
4. The pallet according to claim 1, wherein a square gasket (502) is mounted to a bottom of a connection portion of the outer frame (501) and the skeleton (503), and fins (504) are mounted to a bottom of four corners of the outer frame (501). 25
5. A super-large heavy-duty peripheral plate box, comprising a top cover (8), a peripheral plate (9), a shell (1) and a frame assembly (5), wherein a cavity is formed inside the shell (1), the frame assembly (5) is fixedly mounted inside the cavity, a clamping groove (4) is formed on a top of the shell (1), the peripheral plate (9) is mounted in the clamping groove (4), an operation window is formed in the peripheral plate (9), the top cover (8) is mounted on a top of the peripheral plate (9), limited walls (12) are arranged on both sides of a top of the top cover (8), handles (13) are mounted on both sides of the top of the top cover (8), a groove is formed inside the top cover (8), a reinforced frame (14) is mounted in the groove, six groups of tightening belts (3) are mounted on an outer side of the top cover (8), fixing buckles (7) are mounted at both ends of each of the tightening belts (3), the fixing buckles (7) are respectively connected with the top of the top cover (8) and a bottom of the shell (1), the frame assembly (5) and the reinforced frame (14) are the same in specifications and sizes, and fins (504) are welded adjacent to corners of the frame assembly (5) and corners of the reinforced frame (14). 30 35 40 45 50
6. The super-large heavy-duty peripheral plate box according to claim 5, wherein a limited groove is formed on the top cover (8), and the limited groove has a shape of a Chinese character of "井". 55
7. The super-large heavy-duty peripheral plate box according to claim 5, wherein fifteen groups of supporting legs (2) are arranged at the bottom of the shell (1), and two groups of mounting grooves (6) are formed on the bottom of the shell (1).
8. The super-large heavy-duty peripheral plate box according to claim 5, wherein an outer frame of the reinforced frame (14), the peripheral plate (9) and an outer frame of the frame assembly (5) are located on a same longitudinal axis.
9. A super-large peripheral plate box, comprising a first peripheral plate (10), a shell (1), a top cover (8) and a frame assembly (5), wherein the frame assembly (5) is mounted inside the shell (1), two groups of transverse beams and four groups of longitudinal beams are arranged in the frame assembly (5), an outer frame (501) is welded on outer sides of the two groups of transverse beams and the four groups of longitudinal beams, fins (504) are mounted on an outer side of a bottom of the frame assembly (5) at equal intervals, a clamping groove (4) is formed on a top of the shell (1) adjacent to an outer edge of the shell (1), a first peripheral plate (10) is inserted and mounted on one side of the top of the shell (1), a second peripheral plate (11) is inserted on an other side of the top of the shell (1), the first peripheral plate (10) and the second peripheral plate (11) are snapped and connected to each other, and a top cover (8) is snapped and mounted on tops of the first peripheral plate (10) and the second peripheral plate (11).
10. The super-large peripheral plate box according to claim 9, wherein a reinforced frame (14) is mounted inside the top cover (8), and connecting plates (15) are mounted on a top of the reinforced frame (14) at equal intervals.
11. The super-large peripheral plate box according to claim 9, wherein six groups of tightening belts (3) are arranged on an outer side of the top cover (8), and an other end of each of the tightening belts (3) is connected with an outer side of the shell (1).
12. The super-large peripheral plate box according to claim 10, wherein a groove is formed on a bottom of the top cover (8), and the groove, the first peripheral plate (10), the second peripheral plate (11) and the clamping groove (4) are located on a same vertical plane.
13. The super-large peripheral plate box according to claim 9, wherein supporting legs (2) are arranged at a bottom of the shell (1) at equal intervals, and mounting grooves (6) are formed on both sides of the bottom of the shell (1).

14. The super-large peripheral plate box according to claim 10, wherein handles (13) are mounted on both sides of a top of the top cover (8), and two groups of limited walls (12) are arranged on each of both sides of the top cover (8). 5
15. A C-type peripheral plate, comprising a side plate (16), a guard plate (17), a bent plate (18) and a laminated plate (19), wherein the bent plate (18) is arranged at each of both ends of the guard plate (17), the side plate (16) is mounted on a side, away from the guard plate (17), of the bent plate (18), and the laminated plate (19) is mounted on a side, away from the bent plate (18), of the side plate (16). 10 15
16. The C-type peripheral plate according to claim 15, wherein two groups of grooves are formed in an inner side of the bent plate (18) at equal intervals, and two groups of arc-shaped edges are arranged on an outer side of the bent plate (18). 20
17. The C-type peripheral plate according to claim 15, wherein a thickness of the laminated plate (19) is a half of that of the side plate (16), and a height of the laminated plate (19) is the same as that of the side plate (16). 25

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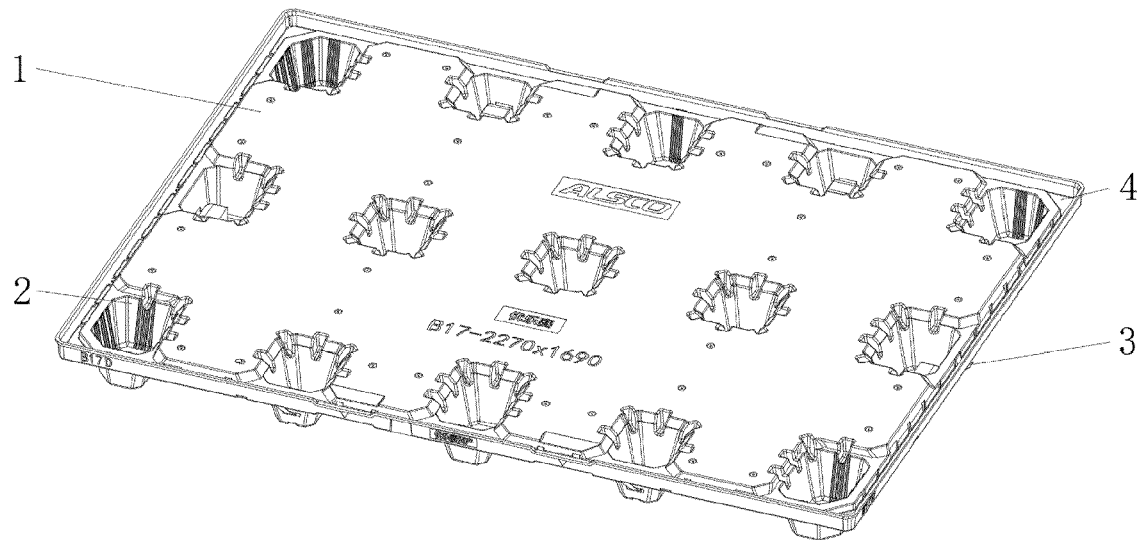


FIG. 1

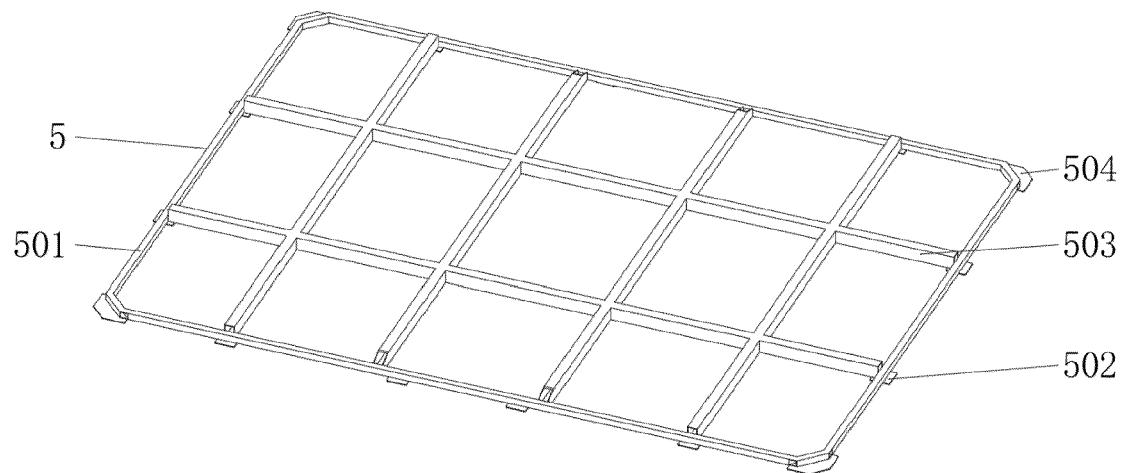


FIG. 2

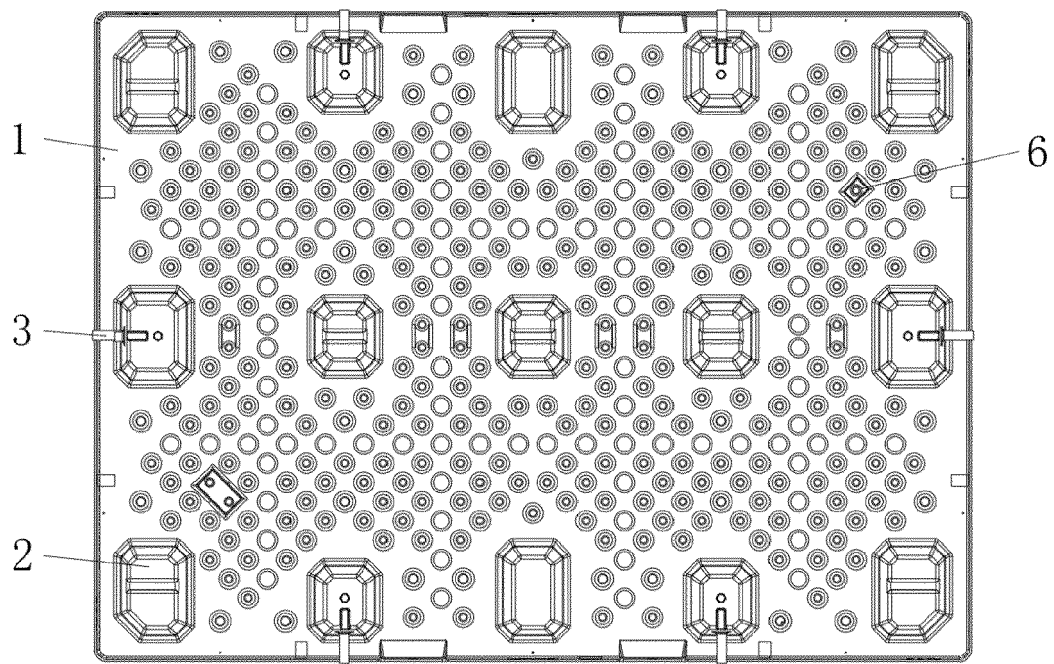


FIG. 3

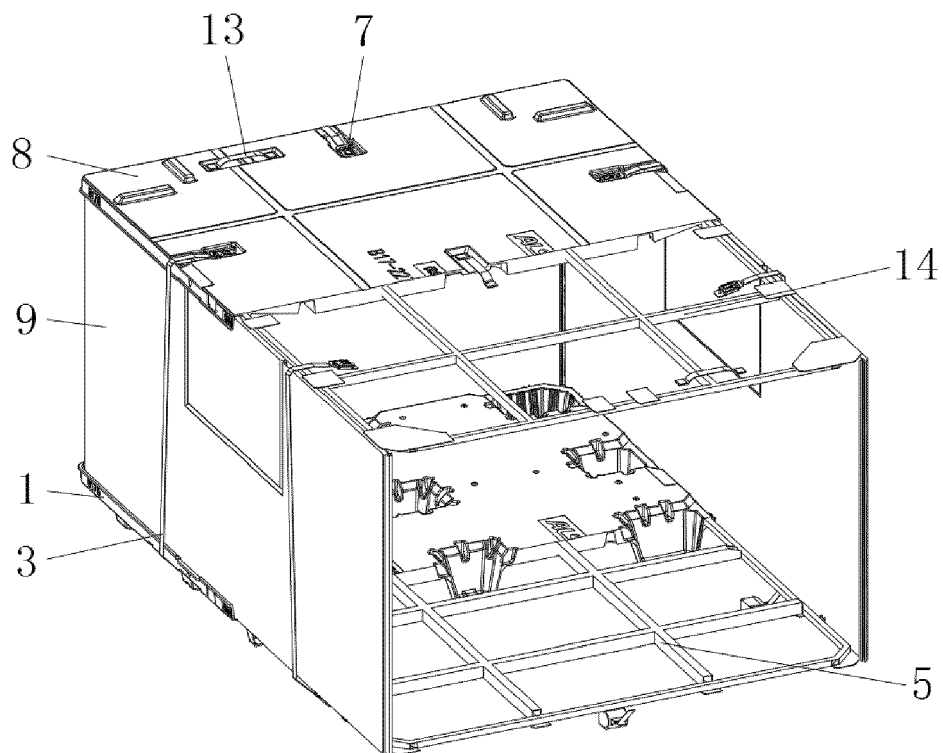


FIG. 4

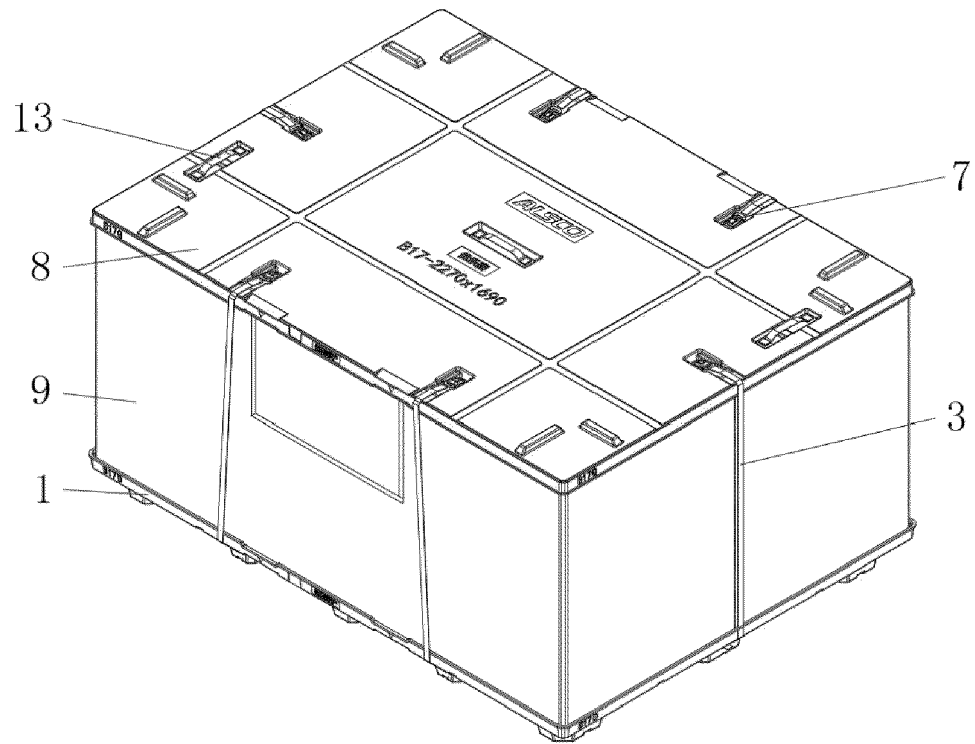


FIG. 5

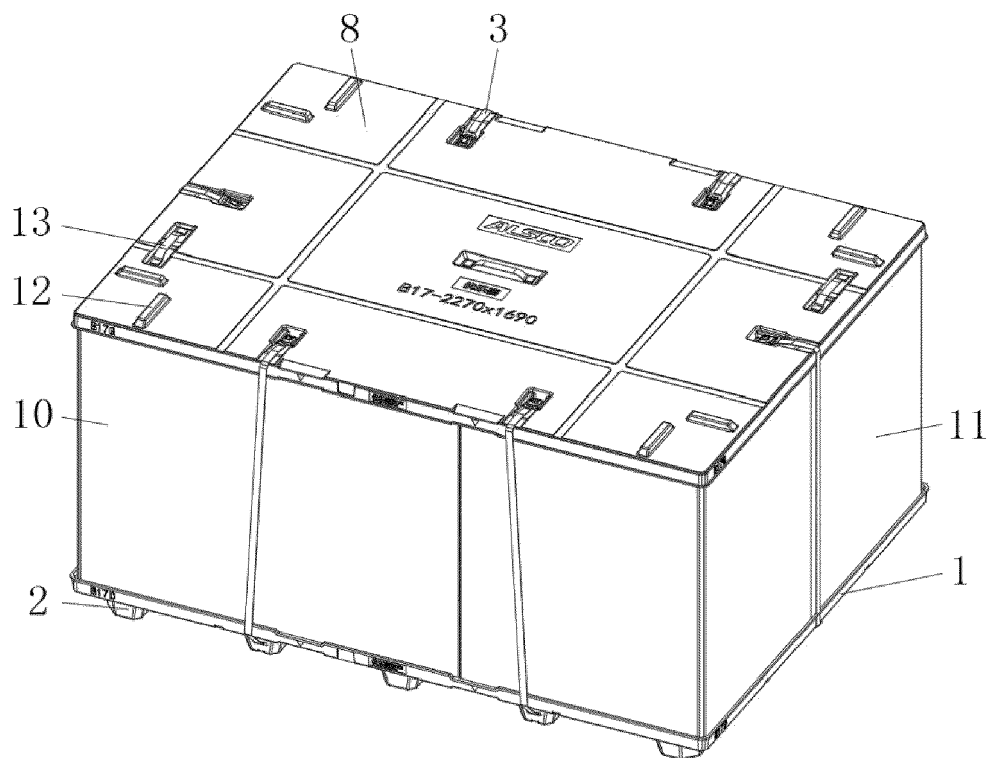


FIG. 6

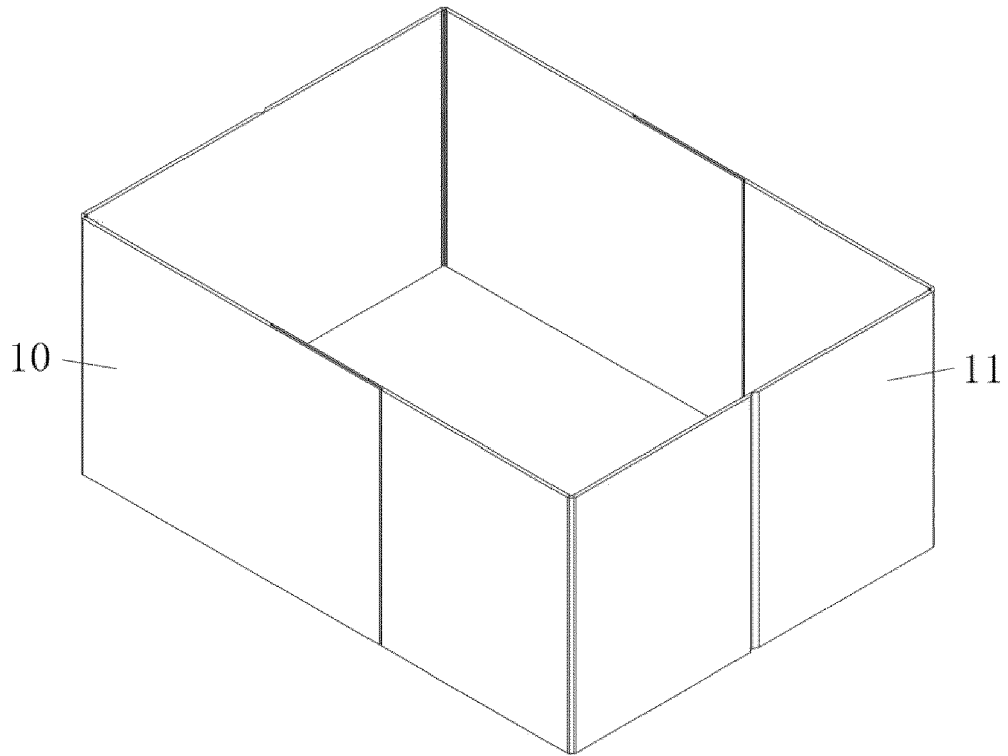


FIG. 7

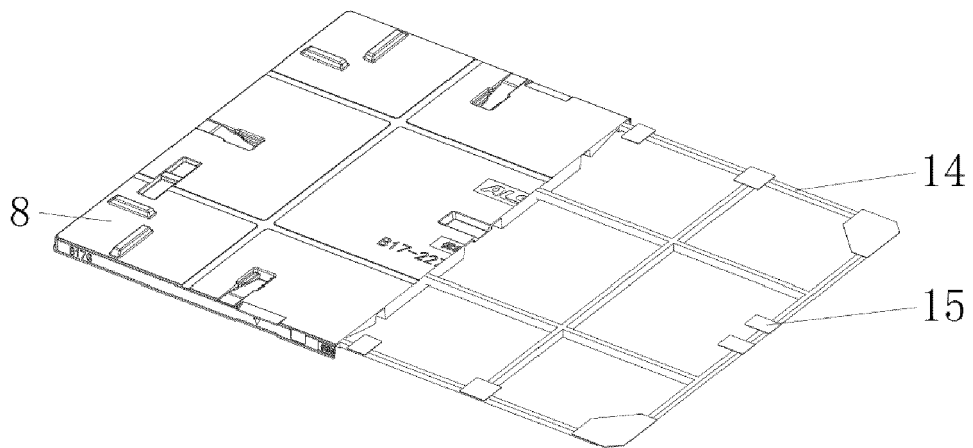


FIG. 8

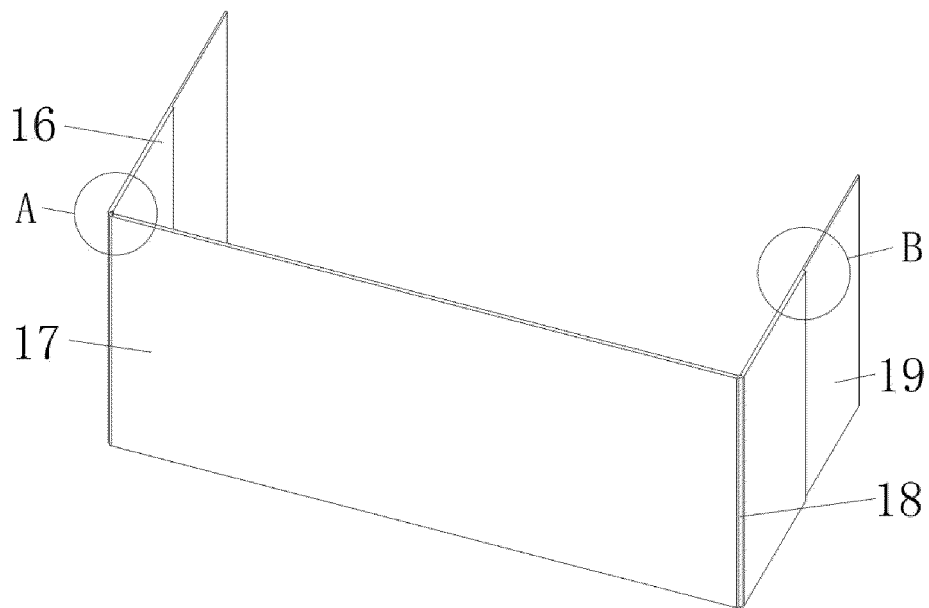


FIG. 9

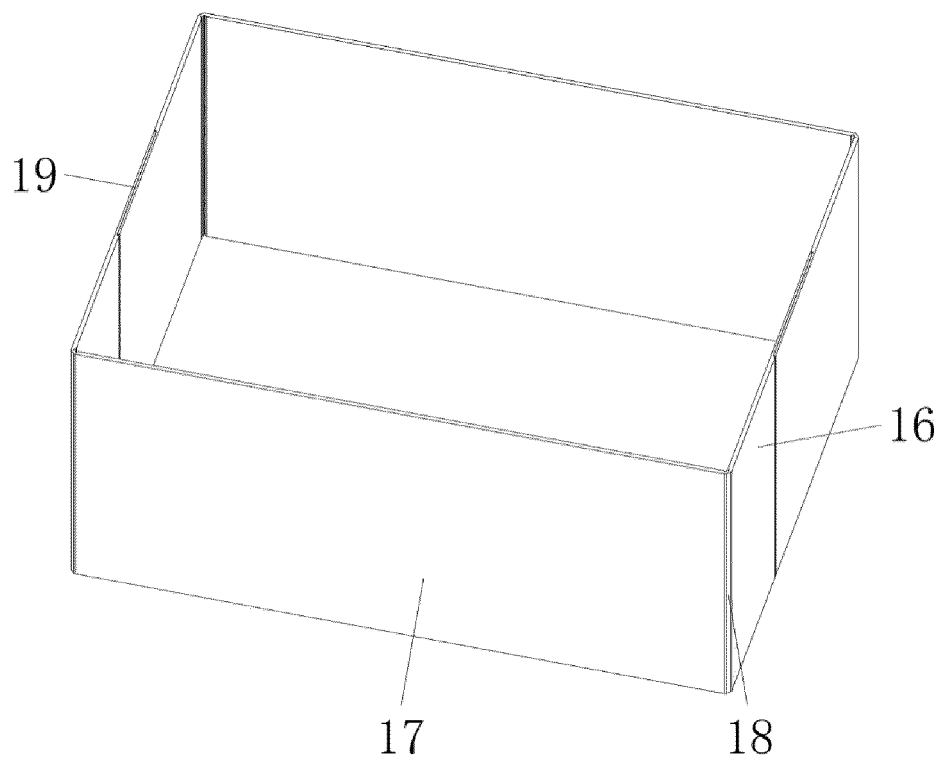


FIG. 10

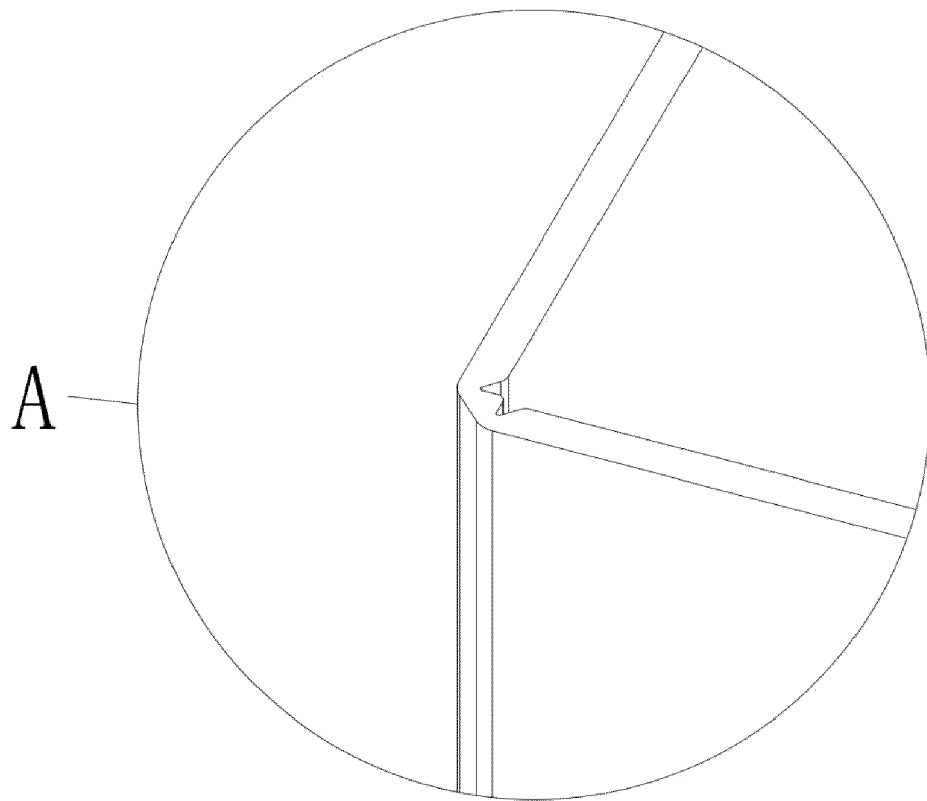


FIG. 11

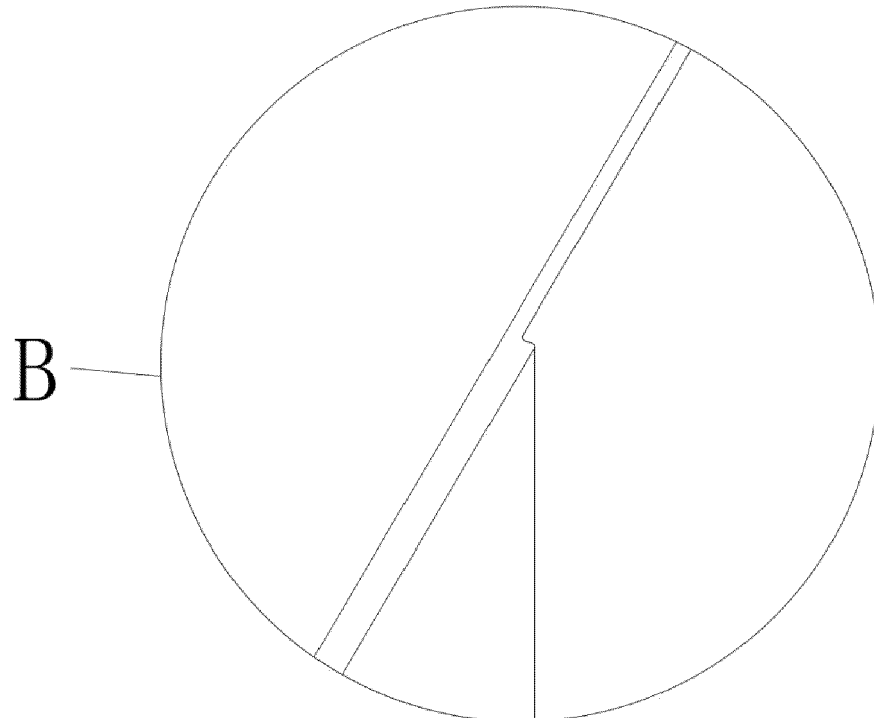


FIG. 12

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 202310808431X [0001]
- CN 202320953493 [0001]
- CN 202320953353 [0001]
- CN 202320953345 [0001]