



(11) **EP 2 995 447 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
05.09.2018 Bulletin 2018/36

(51) Int Cl.:
B30B 1/32 (2006.01) **B30B 15/02 (2006.01)**
B30B 15/08 (2006.01)

(21) Application number: **14382342.5**

(22) Date of filing: **11.09.2014**

(54) **Workshop hydraulic press**

Hydraulische Werkstattpresse

Presse hydraulique d'atelier

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

(43) Date of publication of application:
16.03.2016 Bulletin 2016/11

(73) Proprietor: **Melchor Gabilondo, S.A.**
48240 Berriz (BIZKAIA) (ES)

(72) Inventor: **Gonzalez De Arriba, Saul**
48240 BERRIZ (Vizcaya) (ES)

(74) Representative: **Carpintero Lopez, Francisco et al**
Herrero & Asociados, S.L.
Cedaceros 1
28014 Madrid (ES)

(56) References cited:
CN-A- 101 830 075 **CN-Y- 201 186 500**
CN-Y- 201 333 809 **ES-U- 1 082 704**
US-A- 3 307 830

EP 2 995 447 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

Technical Field of the Invention

[0001] The present invention relates to a workshop hydraulic press for manipulating and working parts, having application in the machine tool industry and, more specifically, in the field of mechanic's shops, which allows making the tasks of working and manipulating said parts easier for the operators.

Background of the Invention

[0002] Workshop hydraulic presses are well-known today as a basic tool which is widely used in many industrial sectors for operations of manipulating parts by means of applying press forces or loads, usually compressive forces or loads. These manipulation tasks include operations for bending or straightening parts, inserting or extracting one part with respect to another, attaching or separating the parts and inserting or extracting shaft bearings.

[0003] A hydraulic press comprises a closed hydraulic circuit in which a hydraulic fluid moves through the different components of the hydraulic circuit. Energy generating equipment, usually a hydraulic pump, applies pressure on the hydraulic fluid. The energy contained in the hydraulic fluid is transmitted to a hydraulic cylinder or actuator having an inner piston. The piston applies the force necessary for the operation to be performed on the part to be manipulated, this press force or load being of great magnitude. The high working forces mean that handling of the hydraulic press for the tasks of manipulating parts has various safety problems. Handling of the hydraulic press also involves risks for the operator since the parts involved have a certain mass and are subjected to said high forces.

[0004] Therefore, before handling the workshop hydraulic press, it is essential to immobilize to the greatest extent possible the part to be manipulated, which is arranged on a workbench comprising the press itself, so that said part is fixed when performing the operations. Before placing and fixing the part, the workbench of the hydraulic press must be positioned at a suitable working height.

[0005] In current workshop presses, to make the operations of manipulating the parts easier, blocks having a planar face and in which a part comprising a V-shaped notch or depression is fixed on the opposite face must be placed on the workbench, such that when the part to be worked on has a planar configuration, the mentioned part is placed on the planar face of the blocks, whereas if the part is a tube, it is placed on the V-shaped notch of the opposite face. In other words, the blocks have two working positions and the operator must change between these two working positions by means of turning the blocks depending on the geometry of each part.

[0006] The problem with the blocks is that there is no means for securing or immobilizing the blocks them-

selves with respect to the workbench, this problem becoming more apparent when working on large parts, such that the blocks can move or can even fall from the workbench, with the subsequent risk for the operator.

[0007] To prevent the foregoing, there are various attempts at solutions, such as making a recess on the side rims of the blocks for being supported on the guides of the workbench, or placing an inverted U-shaped plate on the base of the blocks, such that the ends of the mentioned plate act as a stop between the workbench and the blocks. Documents CN201333809Y and CN201186500Y describe a hydraulic press according to the preamble of claim 1. These solutions have the drawback of being costly and relatively efficient. It would be desirable to have blocks that can be coupled to the workbench of the workshop hydraulic press with complete stability, in one position and in another, i.e., both in the position with the visible planar face and in the position of the V-shaped notches.

[0008] Likewise, residual particles even oil and fats originating from the actual parts or from the hydraulic circuit which can dirty parts of the machine located below the workbench and even reach the floor itself are usually produced in such workshop presses when manipulating and working on the parts. It would be desirable for the workshop press to have means that will allow collecting the oil and the residual materials in general.

Description of the Invention

[0009] The present invention relates to a workshop hydraulic press which allows making the work of the operators using the hydraulic press easier so that said work can be performed in a safer and more comfortable manner. Likewise, the objective of the invention is to make manipulating the parts in the workbench easier and to prevent oils, fats and other residual materials from falling through the workbench to the floor or to the lower portions of the press

[0010] The workshop hydraulic press proposed by the invention is defined by claim 1 and comprises a structural chassis, comprising a front panel and a back panel. The press also comprises a hydraulic cylinder which can act on a part to be manipulated for machining, acting by compression, for example, and a workbench on which there is located at least one, preferably two, block(s) on which the part or the set of parts to be manipulated can be supported. Each block in turn comprises a first planar face and a second face opposite the first face from which a support part having a preferably a V-shaped depression or notch emerge, preferably according to a plane transverse to the second face, to receive the part to be manipulated.

[0011] According to the invention, each block comprises two side edges, where each side edge has, coupled thereto, a stop so that it is immobilized on the workbench. In turn, each stop comprises a T-shaped part which can be fitted into a transverse groove made on each side

edge of said block. Each stop in turn comprises a hollow I-shaped part comprising a longitudinal groove in which the flanges of the T-shaped part can be inserted. The I-shaped part has a height greater than the side edge of the block such that the I-shaped part always protrudes from the side edge of the block in any case. This feature allows the I-shaped part to be located externally with respect to the workbench, immobilizing the block in any case regardless of the working position required at any particular time.

[0012] To keep the operator from having to manually place the relative position of the T-shaped part with respect to the I-shaped part, and to fix said position automatically by gravity depending on the position of the block itself, the possibility that each T-shaped part comprising, on the inner face of the flanges, at least one boss is contemplated, which boss, when the T-shaped part is inserted in the I-shaped part, has a play in a transverse groove correspondingly located on the inner face of said I-shaped part, defining two limit positions for the T-shaped part when it is inserted in the I-shaped part.

[0013] In this manner, since the I-shaped part has a height greater than the height of the side edges of the blocks when the blocks are turned over to change the orientation of the part to be manipulated, for example, to change the face of the part to be machined, the I-shaped part falls by gravity and the T-shaped part is inserted in the longitudinal groove because the boss acts as a stop at the end of the transverse groove.

[0014] On the other hand, the invention contemplates that the workshop hydraulic press described above additionally comprises a detachable residue collection tray which can be located inside the workbench or in a lower area of the workbench. To that end, the press comprises two inclined side bars fixed internally between the panels of the workbench or of the chassis, such that the collection tray is placed by means of its inclined sides being supported with said inclined side bars. When the tray is located inside the workbench, it acts as a collector element for collecting the residual material originating from manipulating the parts. When the tray is located in a lower position with respect to the workbench, it can also be used to place parts and tools that can be used in the work being performed at that time or in future work. In this lower position of the press, the tray is also supported with its upper borders both on the front panel and on the back panel of the chassis of the press.

Description of the Drawings

[0015] To complement the description that is being made and for the purpose of aiding to better understand the features of the invention according to a preferred practical embodiment thereof, a set of drawings is attached as an integral part of said description in which the following is depicted with an illustrative and non-limiting character:

Figure 1 shows a perspective view of the press with the blocks placed on the workbench in a position in which the second face is facing up.

Figure 2 shows a view such as the preceding view with the blocks in its other position in which the first planar face is facing up.

Figure 3 shows an exploded perspective view of a block according to the invention.

Figure 4 shows a perspective view of the block depicted in Figure 3 with the stops assembled thereon. Figure 5 shows a perspective view of an embodiment of the press with a collection tray according to the invention placed thereon.

Figure 6 shows a perspective view of an embodiment of the collection tray according to the invention.

Preferred Embodiment of the Invention

[0016] In view of the mentioned drawings it can be seen how in one of the possible embodiments of the invention, the workshop hydraulic press proposed by the invention comprises a chassis (1), a hydraulic cylinder (2) which can act on a part to be manipulated and a workbench (3) on which there are located two blocks (4) for supporting a part or a set of parts to be manipulated, which is not depicted.

[0017] As seen in Figures 2, 3 and 4, each block (4) comprises a first planar face (5) and a second face from which a support part (6) having a V-shaped depression (7) emerge, according to a plane transverse to the second face, to receive the part to be manipulated.

[0018] As can be seen in Figures 3 and 4, each block (4) comprises two side edges (8), where each side edge (8) has, coupled thereto, a stop (9) so that it is immobilized on the workbench (3). Each stop (9) in turn comprises a plastic T-shaped part (10) fitting into a transverse groove (11) made on each side edge (8) of said block (4). Each stop (9) in turn comprises a hollow I-shaped part (12) comprising a longitudinal groove (13) in which the flanges of the T-shaped part (10) can be inserted. The I-shaped part (12) has a height greater than the side edge (8) of the block (4) such that the I-shaped part (12) always protrudes from the side edge (8) of the block (4) in any case when the T-shaped part (10) is inserted in the transverse groove (11), as seen in the two positions depicted in Figures 1 and 2.

[0019] As seen in Figure 3, each T-shaped part (10) comprises, on the inner face of the flanges, two bosses (14) which, when the T-shaped part (10) is inserted in the I-shaped part (12), have a play in two transverse grooves (15) correspondingly located on the inner face of said I-shaped part (12), defining two limit positions for the T-shaped part (10) when it is inserted in the I-shaped part (12).

[0020] On the other hand, as depicted in the embodiment variant of Figure 5, the workshop hydraulic press comprises a detachable tool and/or residue collection tray (16) which can be located inside the workbench (3)

or in a lower area of the press. To that end, the press comprises two inclined side bars (17) arranged inside the workbench (3) and fixed to the front and back panels of the mentioned workbench (3). Likewise, other two inclined bars (17') attached to the front and back panels of the chassis (1) of the workshop press have been envisaged for placing the tray in a lower position with respect to the workbench (3). The tray is coupled by gravity between the bars (17) and/or (17'), the inclined sides of the tray being supported on the mentioned bars. If the collection tray (16) is placed in the lower portion of the press, the upper borders of said collection tray (16) are supported on the front panel and on the back panel of the chassis (1) of the press in addition to on the bars (17').

[0021] A collection tray (16) is thus incorporated to the press for collecting residual material originating from the cylinder or from the actual parts that are being worked on, however, said tray can also be used for leaving tools or spare parts that may be used when working on a part in the press.

[0022] When the collection tray (16) is placed in any of the two positions, it is secured at least by the contact existing between the inclined side bars (17) and the inclined sides (18) of the collection tray (16) itself which has an inclination equal to the inclination of the mentioned inclined side bars (17).

[0023] As can be seen in Figure 5, the inclined side bars (17) being surrounded by a trim part which is used to make gripping the workbench (3) easier when the position, i.e., the height of the mentioned workbench (3), is to be changed, is contemplated.

[0024] In view of this description and set of drawings, the person skilled in the art will understand that the embodiments of the invention which have been described can be combined in many ways within the object of the invention. The invention has been described according to several preferred embodiments thereof, but for the person skilled in the art it will be obvious that multiple variations can be introduced in said preferred embodiments without exceeding the object of the claimed invention.

Claims

1. Hydraulic press comprising a chassis (1), a hydraulic cylinder (2) which can act on a part to be manipulated, a workbench (3) on which there is located at least one block (4) on which said part to be manipulated can be supported, where said at least one block (4) comprises a first planar face (5) and a second face from which a support part (6) having a depression (7) emerges to receive the part to be manipulated, **characterized in that** each side edge (8) of said at least one block (4) has, coupled thereto, a stop (9) comprising a T-shaped part (10) which can be fitted into a transverse groove (11) made on each side edge (8) of said at least one block (4), each stop (9) comprising a hollow I-shaped part (12) comprising a

longitudinal groove (13) in which the flanges of the T-shaped part (10) can be inserted, where the I-shaped part (12) has a height greater than the side edge (8) of the block (4) such that the I-shaped part (12) always protrudes from the side edge (8) of the block (4) in any case when the T-shaped part (10) is inserted in the transverse groove (11).

2. Hydraulic press according to claim 1, wherein each T-shaped part (10) comprises, on the inner face of the flanges, at least one boss (14) which, when the T-shaped part (10) is inserted in the I-shaped part (12), has a play in a transverse groove (15) correspondingly located on the inner face of said I-shaped part (12), defining two limit positions for the T-shaped part (10) when it is inserted in the I-shaped part (12).

3. Hydraulic press according to claim 2, **characterized in that** it includes means for collecting residues and/or tools consisting of a detachable collection tray (16) located inside the workbench (3) and/or in a lower area of the press, where the press comprises two inclined side bars (17) fixed internally between the front and back panels of the workbench (3) and/or between the front and back panels of the chassis (1), such that the collection tray is placed by the contact of its inclined sides (18) with said inclined side bars (17), collection tray (16) being supported with its upper borders both on the front panel and on the back panel of the chassis (1) of the press when it is located in the lower area of the press.

Patentansprüche

1. Hydraulische Presse mit einem Gestell (1), einem Hydraulikzylinder (2), der auf ein zu manipulierendes Teil einwirken kann, einer Werkbank (3), auf der sich mindestens ein Block (4) befindet, auf dem das zu manipulierende Teil abgestützt sein kann, wobei der mindestens ein Block (4) eine erste ebene Fläche (5) und eine zweite Fläche aufweist, aus der ein Stützteil (6) mit einer Vertiefung (7) zur Aufnahme des zu manipulierenden Teils austritt, **dadurch gekennzeichnet, dass** mit jeder Seitenkante (8) des mindestens einen Blocks (4) einen Anschlag (9) mit einem T-förmigen Teil (10) gekoppelt ist, der in eine Quernut (11) eingepasst sein kann, die an jeder Seitenkante (8) des mindestens einen Blocks (4) ausgebildet ist, wobei jeder Anschlag (9) ein hohles I-förmiges Teil (12) mit einer Längsnut (13) aufweist, in die die Flansche des T-förmigen Teils (10) eingesetzt sein können, wobei das I-förmige Teil (12) eine Höhe aufweist, die größer ist als die Seitenkante (8) des Blocks (4), so dass das I-förmige Teil (12) immer von der Seitenkante (8) des Blocks (4) vorsteht, wenn das T-förmige Teil (10) in die Quernut (11) eingesetzt ist.

2. Hydraulische Presse nach Anspruch 1, wobei jedes T-förmige Teil (10) an der Innenfläche der Flansche mindestens einen Vorsprung (14) aufweist, der, wenn das T-förmige Teil (10) in das I-förmige Teil (12) eingesetzt ist, ein Spiel in einer Quernut (15) aufweist, die entsprechend an der Innenfläche des I-förmigen Teils (12) gelegen ist und zwei Endpositionen für das T-förmige Teil (10) definiert, wenn es in das I-förmige Teil (12) eingesetzt ist.
3. Hydraulische Presse nach Anspruch 2, **dadurch gekennzeichnet, dass** sie Mittel zum Sammeln von Abfällen und/oder Werkzeugen umfasst, bestehend aus einer abnehmbaren Auffangwanne (16), die sich innerhalb der Werkbank (3) und/oder in einem unteren Bereich der Presse befindet, wobei die Presse zwei geneigte Seitenleisten (17) aufweist, die innen zwischen der Vorder- und der Rückwand der Werkbank (3) und/oder zwischen der Vorder- und der Rückwand des Gestells (1) befestigt sind, so dass die Auffangwanne durch den Kontakt ihrer geneigten Seiten (18) mit den geneigten Seitenleisten (17) platziert ist, wobei die Auffangwanne (16) mit ihren oberen Rändern sowohl an der Vorderwand als auch an der Rückwand des Gestells (1) der Presse abgestützt ist, wenn sie sich im unteren Bereich der Presse befindet.

Revendications

1. Presse hydraulique comprenant un châssis (1), un vérin hydraulique (2) qui peut agir sur une pièce à manipuler, un établi (3) sur lequel est situé au moins un bloc (4) sur lequel ladite pièce à manipuler peut être supportée, où ledit au moins un bloc (4) comprend une première face plane (5) et une seconde face à partir de laquelle une partie de support (6) présentant un enfoncement (7) émerge pour recevoir la pièce à manipuler, **caractérisée en ce que** chaque bord latéral (8) dudit au moins un bloc (4) comporte, couplée à celui-ci, une butée (9) comprenant une partie en forme de T (10) qui peut être ajustée dans une rainure transversale (11) réalisée sur chaque bord latéral (8) dudit au moins un bloc (4), chaque butée (9) comprenant une partie creuse en forme de I (12) comprenant une rainure longitudinale (13) dans laquelle les rebords de la partie en forme de T (10) peuvent être insérés, où lorsque la partie en forme de I (12) a une hauteur supérieure au bord latéral (8) du bloc (4) de telle sorte que la partie en forme de I (12) fait toujours saillie à partir du bord latéral (8) du bloc (4) dans un cas quelconque lorsque la partie en forme de T (10) est insérée dans la rainure transversale (11).
2. Presse hydraulique selon la revendication 1, dans laquelle chaque partie en forme de T (10) comprend,

sur la face interne des rebords, au moins un bossage (14) qui, lorsque la partie en forme de T (10) est insérée dans la partie en forme de I (12), présente un jeu dans une rainure transversale (15) située de manière correspondante sur la face interne de ladite partie en forme de I (12), définissant deux positions limites pour la partie en forme de T (10) lorsqu'elle est insérée dans la partie en forme de I (12).

3. Presse hydraulique selon la revendication 2, **caractérisé en ce qu'elle** comprend des moyens pour collecter des résidus et/ou des outils, constitués d'un plateau de recueil amovible (16) situé à l'intérieur de l'établi (3) et/ou dans une zone inférieure de la presse, où la presse comporte deux barres latérales inclinées (17) fixées intérieurement entre les panneaux avant et arrière de l'établi (3) et/ou entre les panneaux avant et arrière du châssis (1), de sorte que le plateau de recueil est placé par le contact de ses côtés inclinés (18) avec lesdites barres latérales inclinées (17), le plateau de recueil (16) étant supporté avec ses bordures supérieures à la fois sur le panneau avant et sur le panneau arrière du châssis (1) de la presse lorsqu'il est situé dans la zone inférieure de la presse.

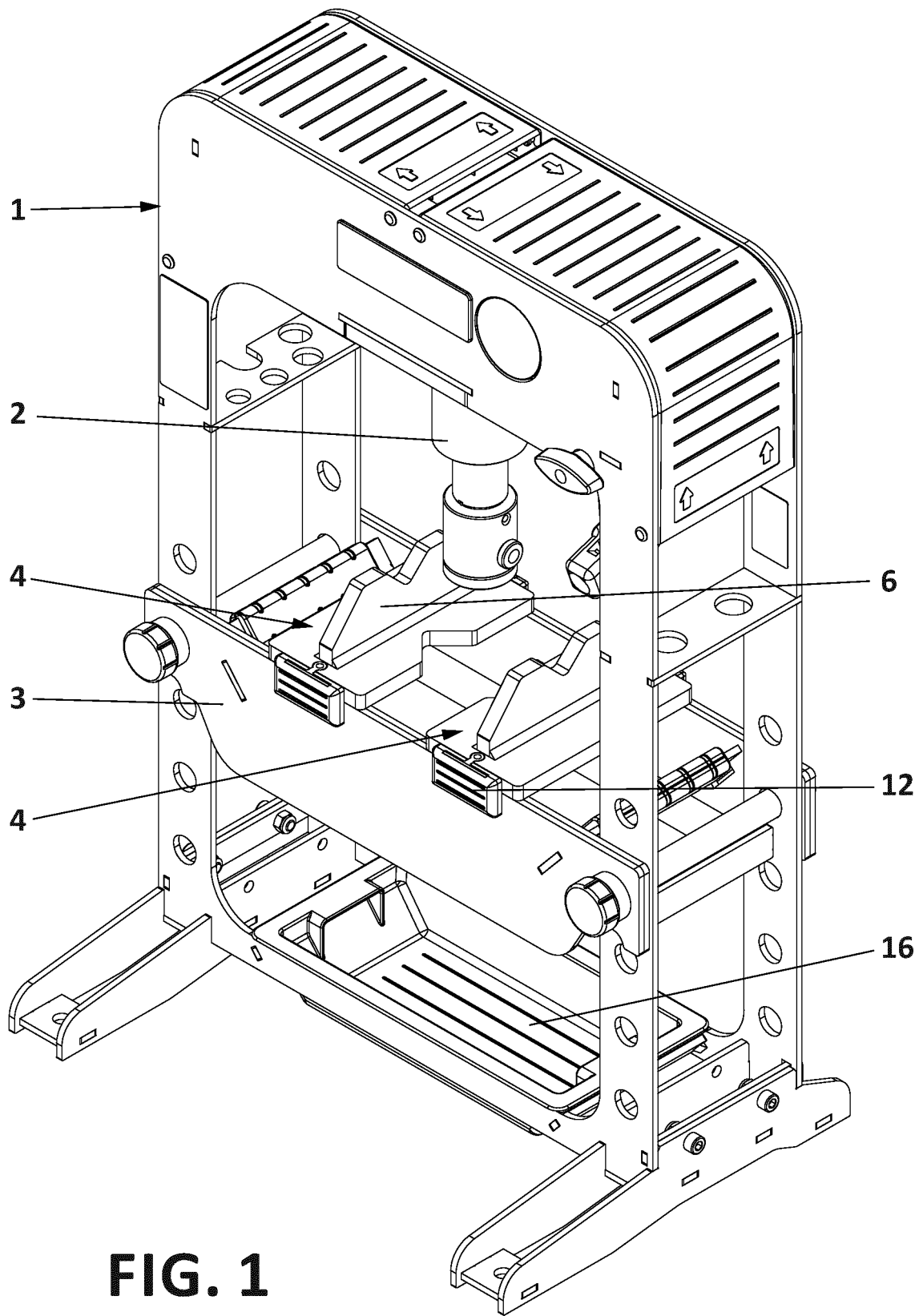


FIG. 1

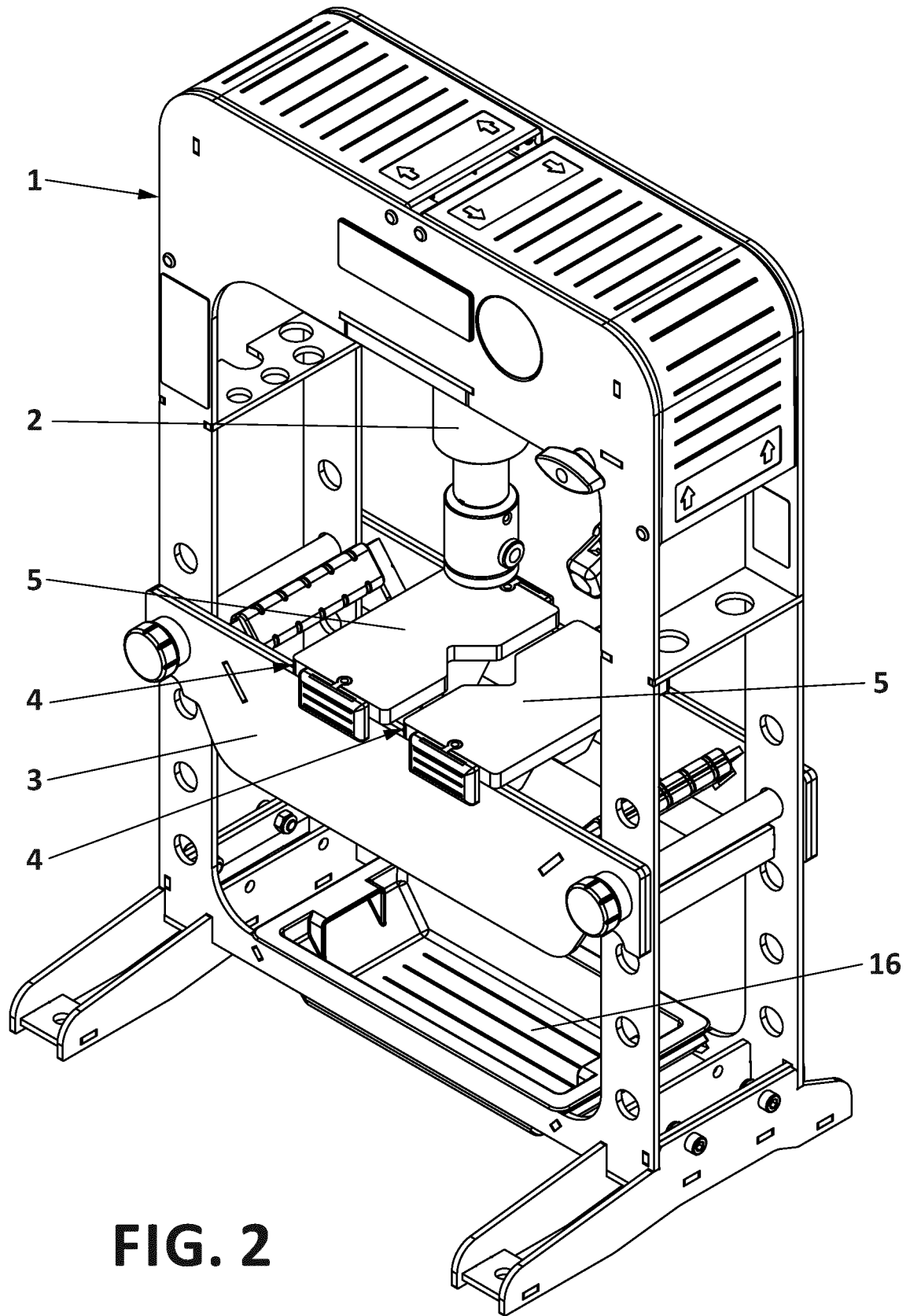


FIG. 2

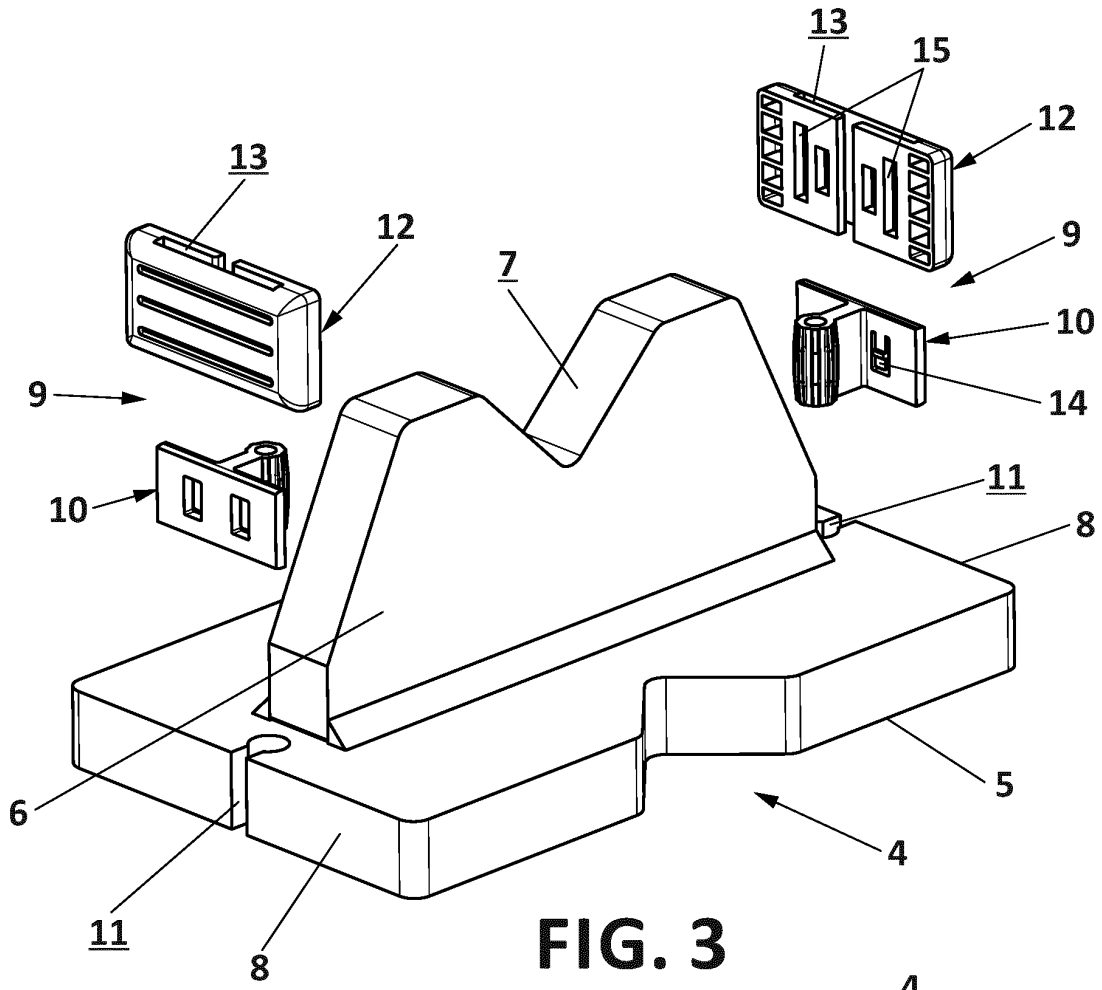


FIG. 3

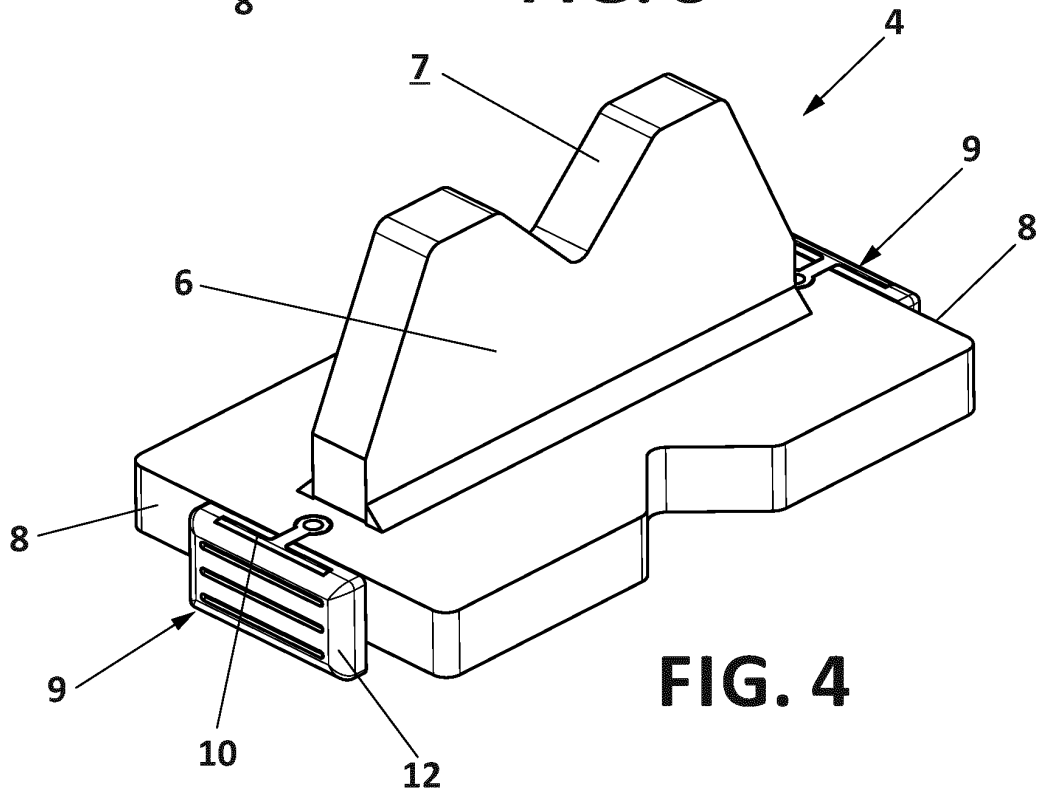


FIG. 4

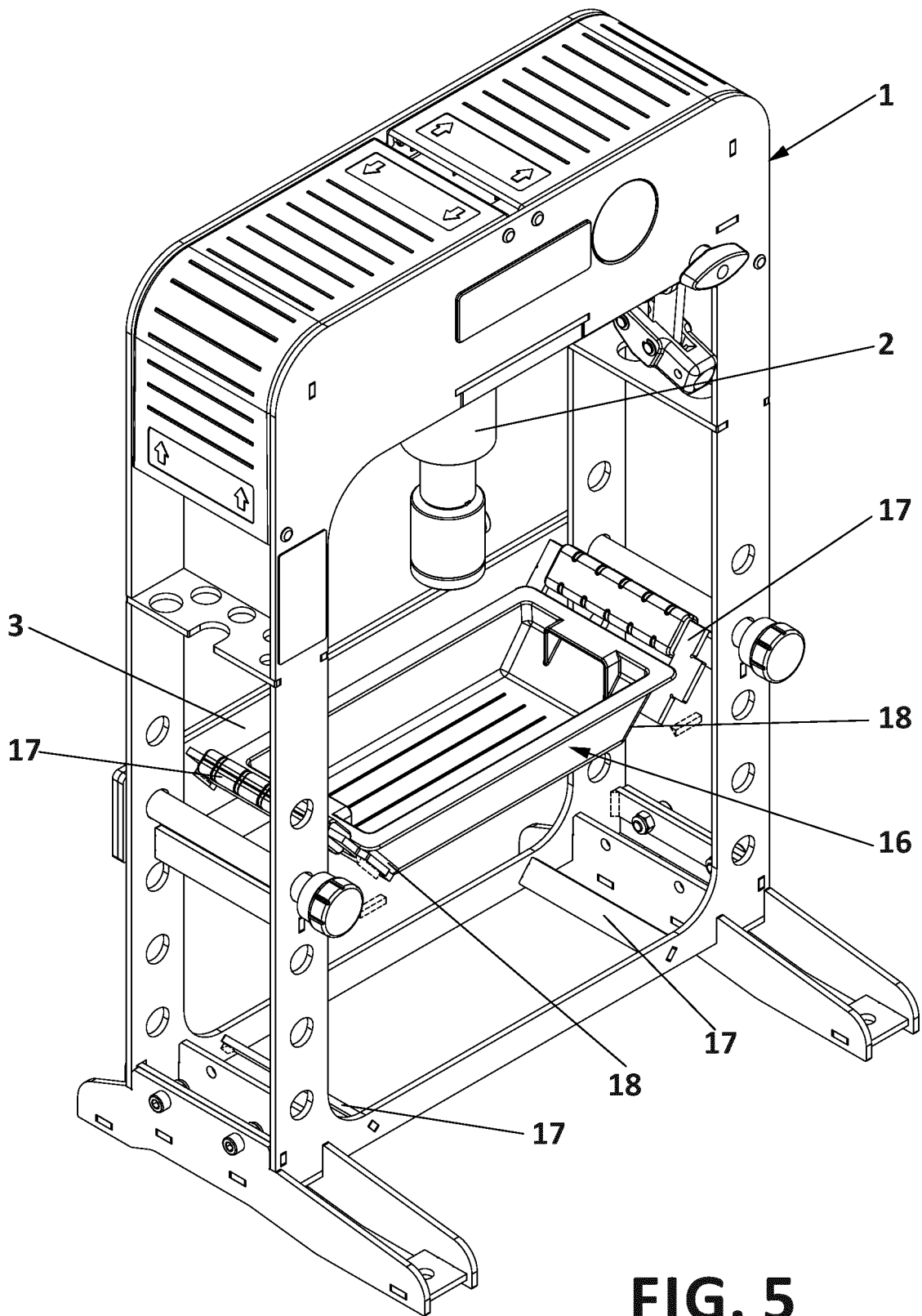


FIG. 5

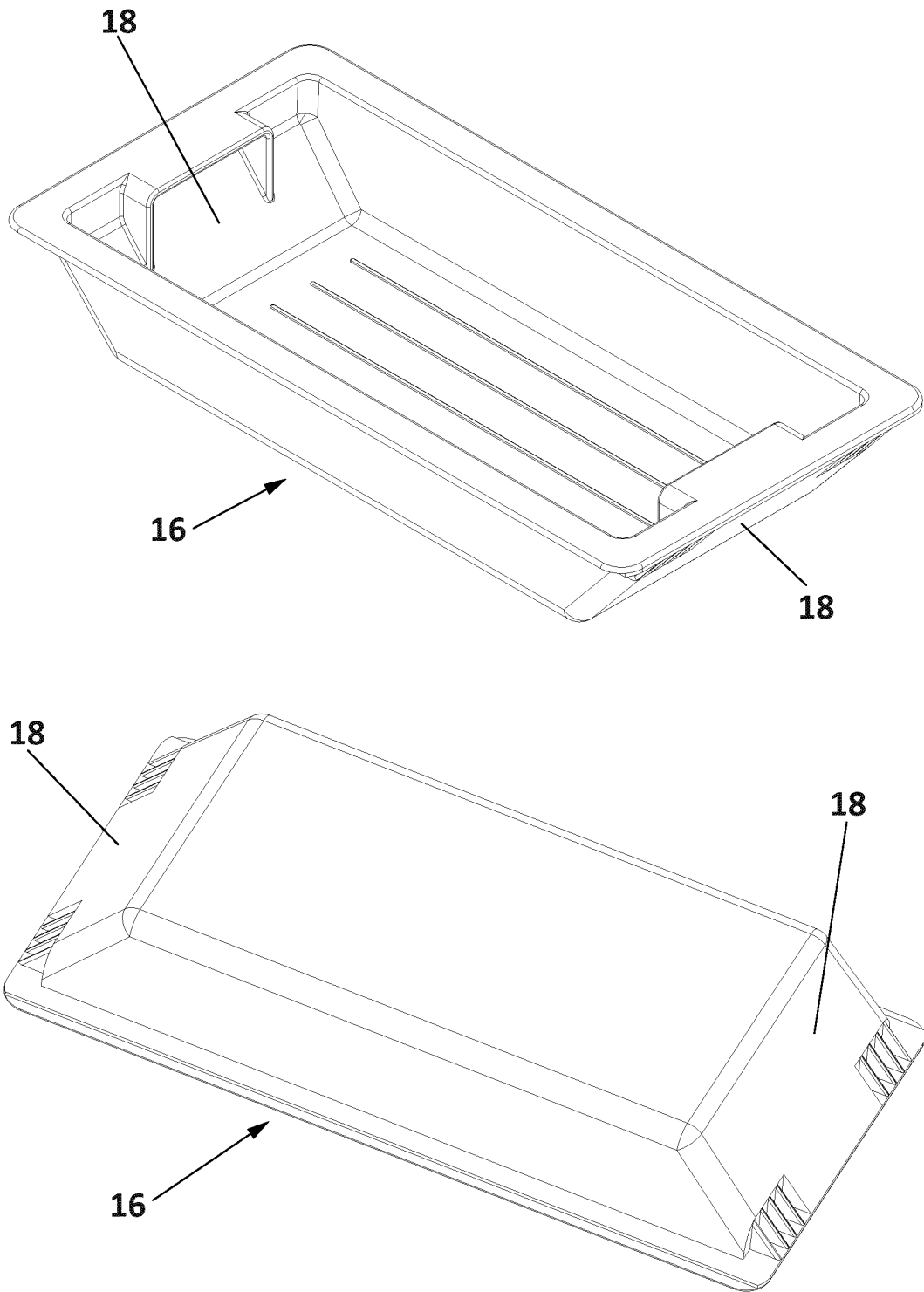


FIG. 6

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- CN 201333809 Y [0007]
- CN 201186500 Y [0007]