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(54) **MOULD CONTAINER PART FOR THE MANUFACTURE OF BRICKS SLIPS, MOULD CONTAINER PRESSING DEVICE AND METHOD FOR APPLICATION THEREOF**

FORMBEHÄLTERTEIL ZUR HERSTELLUNG VON ZIEGELRIEMCHEN, FORMBEHÄLTERPRESSVORRICHTUNG UND VERFAHREN ZUR ANWENDUNG DAVON

PARTIE DE RÉCIPIENT FORMANT MOULE POUR LA FABRICATION DE BRIQUES DE REVÊTEMENT MURAL, DISPOSITIF PRESSEUR DE RÉCIPIENT DE MOULE ET PROCÉDÉ D'APPLICATION ASSOCIÉ

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EP 3 148 761 B1

Description

[0001] The invention relates to a mould container part for the manufacture of brick slips, a mould container pressing device provided with such a mould container part, and to a method for applying a mould container pressing device with such a mould container part.

[0002] When brick slips are arranged on a wall, this wall will acquire the visual appearance of a wall erected from bricks. Brick slips are therefore applied for the purpose of embellishing flat walls.

[0003] Because the construction of buildings from concrete, wood or other constructions is on the increase, and these are often insulated with polystyrene or PUR panels, after which brick slips of traditional appearance are then adhered thereto, the demand for brick slips is increasing. Insulating walls provided with brick slips are also often placed in renovation projects.

[0004] Brick slips are conventionally manufactured by sawing a fired brick into strips. This method has several drawbacks. A large quantity of waste material is thus created during sawing, and the sawing results in noise and dust emission. In addition, the saws and the sawing machines are subject to wear. Another regular occurrence is that a brick wholly or partially breaks during the sawing and becomes unusable. The whole brick, including all the waste material, has undergone a complete drying and firing process, and this costs time and energy. The energy consumed in respect of the waste material is wasted. Finally, this conventional sawing method is labour-intensive.

[0005] Because of the increased demand for brick slips, there is a need for an improved method for the manufacture of brick slips.

[0006] DE-A1-3400380 discloses a moulding container pressing device with a mould conveyor, the mould containers of which are formed from two halves which are attached to each other for pivoting around a pivot axis and which fold open for the purpose of releasing the green bricks when the mould conveyor runs over a sprocket.

[0007] NL-A2-6913272 discloses a method for manufacturing moulded bricks, wherein the green bricks are cut into pieces, each the size of a brick, in their mould containers prior to drying.

[0008] EP-A1-2085199 in the name of applicant shows a mould container part wherein a plate is arrangeable against a side wall of the mould container in order to influence the size of the green brick to be formed in the mould container.

[0009] An object of the present invention is to provide a mould container pressing device and method for application thereof wherein the stated drawbacks do not occur, or at least do so to lesser extent.

[0010] Said object is achieved according to the invention with the mould container part for manufacturing brick slips, as defined in claim 1. Because the slip moulding parts are removed from each other in the release position, the green brick parts received therein during operation are separated from each other and releasable.

[0011] Although it would suffice for brick slips with the thickness of a half-brick to arrange a single cross-sectional opening in the middle of the green brick, brick slips normally have narrower dimensions. In order to double the production capacity for such brick slips a second cross-sectional opening is arranged in the side walls of the mould containers. In addition to increasing the production capacity, this has the further advantage that the mould container is sufficiently wide to enhance repeated and complete filling of the mould container with clay.

[0012] With the mould container part according to the invention it is possible to use filling means of a traditional mould container pressing device for conventional bricks. The green brick formed by these filling means is after all only brought to the desired thickness of the brick slips by dividing the green brick after the moulding. By using conventional filling means tested and reliable techniques can on the one hand be used. Direct pressing of a green brick with the small thickness of a brick slip causes problems, such as the difficulty of filling the mould container. By applying conventional filling means a brick slip will on the other hand be obtained which exactly corresponds visually to a standard brick formed with such filling means. A wall covered with such brick slips cannot therefore be distinguished visually from a wall erected from bricks.

[0013] Because each green brick can provide two bricks slips at a time, the production capacity which such a mould container part can provide is moreover doubled compared to a conventional mould container pressing device.

[0014] A further important advantage is that the mould container part provides green brick parts in the size of a brick slip, whereby only the net product need be subjected to a drying and firing process. Because these green brick parts are much thinner than a green brick for a conventional brick, it will moreover be possible for this drying and firing process to proceed more quickly and consume less energy.

[0015] According to a preferred embodiment, the slip moulding parts face toward each other in the filling position and form walls of the mould container, wherein the at least two slip moulding parts movable relative to each other are pivotable relative to each other between the situation in which they face toward each other in the filling position and in which they form walls of the mould container and the release position in which the slip moulding parts comprise a substantially lying orientation. A mould container of conventional dimensions, i.e. similar to a green brick for a traditional brick, is thus formed in the filling position. The walls of the traditional brick will form the walls of the green brick part, and thereby the visual side of the final brick slip. The substantially lying orientation is defined in the lying part of the conveyor of the mould container pressing device. The cutting plane of the green brick part is directed upward here and is suitable in this substantially lying orientation for receiving

thereon a drying plate on which the green brick parts can finally be discharged and transported to the drying process and subjected thereto. The visual side of the final brick slip is oriented downward and received in the respective slip moulding part.

[0016] The hinges are placed such that the slip moulding parts are pressed toward each other under the influence of the pressure during the pressing, thereby preventing the possibility of the mould container opening under the influence of the pressure.

[0017] A structurally elegant cross-sectional opening is obtained when according to yet another preferred embodiment a first of the two cross-sectional openings is formed in the side walls of the mould container in that the two slip moulding parts of the mould container part movable relative to each other are arranged on two adjacent conveyor parts of a circulating conveyor, and wherein the separation between these conveyor parts forms a first cross-sectional opening in the mould containers.

[0018] According to a further preferred embodiment of the mould container part, one or more slip moulding parts provide at least two protruding parts extending inside a mould container. By providing the slip moulding parts with protruding parts the shape of the green brick part to be moulded in the respective slip moulding part can be modified. The green brick part will after all be a negative impression of the space enclosed by the slip moulding part.

[0019] Green brick parts with at least two protruding parts and a recess therebetween provide advantages such as enabling simple and reproducible arrangement on prefab constructions, wherein the protruding parts can for instance be pushed under prearranged hook parts or arranged in other manner. By placing the protruding parts of adjacent brick slips abutting each other a desired spacing can also be obtained for the later arrangement of pointing between adjacent brick slips.

[0020] According to a further preferred embodiment, the at least two parts protruding inside the mould container are arranged some distance from each other against the same wall of the mould container. The projecting parts to be formed on the green brick part are hereby interrupted by recesses. These recesses simplify the arrangement of a projecting part of a brick slip under a hook part on a prefab construction because the hook parts can be guided in through the recesses between the projecting parts. A projecting part can then be brought into engagement with a prefab hook part with a small sliding of the brick slip. Such a prefab construction does not form part of this application.

[0021] According to a further preferred embodiment, the protruding parts comprise a longitudinal strip arranged in longitudinal direction of the slip moulding part and/or a transverse strip arranged in transverse direction of the slip moulding part, wherein one or more further protruding parts are provided on the longitudinal strip and/or on the transverse strip. These one or more further protruding parts provide the projecting parts which arc to be formed on the green brick part and which are interrupted by recesses.

[0022] The invention further relates to a mould container pressing device for manufacturing brick slips for the brick manufacturing industry, as defined in claim 6. The cutting member cuts through the green brick formed in the mould containers at a predetermined distance from the side walls of the mould container formed by the slip moulding parts. This predetermined distance corresponds to the thickness of the green brick part which will eventually form the brick slip following drying and firing.

[0023] According to a preferred embodiment of the mould container pressing device, the cutting member comprises a substantially flexible endless member. Such a flexible endless member can for instance be a cord which can cut through the still wet clay. Such a cord is considerably less expensive than the saws according to the prior art brick slip production techniques which are susceptible to wear.

[0024] When according to the invention a middle moulding part is provided between the slip moulding parts, a green brick with the size of conventional brick can be manufactured, from which can then be cut narrow green brick parts for the brick slips. The green brick to be moulded initially by the mould container pressing device can be shaped into a brick size via a proven and optimized process, after which thin slips can be taken therefrom. An important further advantage is that the appearance of the visual side is identical to that of a conventional brick.

[0025] A part of the clay can already be removed and recycled early in the manufacturing process when according to yet another preferred embodiment a discharge member is provided with which clay present in the middle moulding part can be discharged. Only the net product need hereby be subjected to a drying and firing process. Because these green brick parts are much thinner than the green brick of which they formed the side walls, it will moreover be possible for the drying and firing process for the green brick parts to proceed more quickly and consume less energy.

[0026] According to yet another preferred embodiment, the discharge member comprises gripping members and/or suction means.

[0027] An undesired displacement of the slip moulding parts from the filling position to the release position, and vice versa, is prevented according to a further preferred embodiment in that holding means are provided which are configured to hold the slip moulding parts fixedly in the filling position and/or release position.

[0028] According to yet another preferred embodiment, the holding means comprise at least one spring which is connected to the slip moulding parts and which is configured to force the at least one slip moulding part connected to the at least one spring into the filling position and/or into the release position, and wherein one or more position reversal actuators are provided which are configured to move the slip moulding parts counter to the

spring bias from the filling position to the release position, and vice versa. The position reversal actuator can for instance comprise a plunger or a cam guide.

[0029] The invention further relates to a method for manufacturing brick slips from clay for the brick manufacturing industry with a mould container pressing device, as defined in claim 11.

[0030] The cutting member can for instance comprise two above described cords which cut through the still wet clay of the green brick. In order to shorten the cutting time, the green bricks are preferably cut through simultaneously on two cutting planes by simultaneously displacing a first chord through a first cross-sectional opening and a second cord through a second cross-sectional opening.

[0031] According to a preferred embodiment of the method, the step of cutting through one or more green bricks formed in the mould containers with a cutting member comprises of cutting through these green bricks in longitudinal direction.

[0032] According to a further preferred embodiment of the method, moving the slip moulding parts from the filling position to the release position comprises of pivoting the slip moulding parts and green brick parts formed therein to a substantially lying orientation.

[0033] According to yet another preferred embodiment of the method, a middle moulding part is provided between the slip moulding parts and the method further comprises the step of discharging clay present in the middle moulding part with a discharge member. The discharged clay can be recycled and moreover need not be subjected to a drying and firing process.

[0034] According to yet another preferred embodiment of the method, a mould container part and/or a mould container pressing device according to the invention are applied.

[0035] Preferred embodiments of the present invention are further explained in the following description with reference to the drawing, in which:

Figure 1 is a perspective view of a mould container pressing device with a mould container part according to the present invention;
Figure 2 is a perspective view of two successive conveyor parts of a circulating conveyor of the mould container pressing device shown in figure 1;
Figure 3 is a perspective view of the conveyor parts shown in figure 2 wherein a mould container part is shown more clearly;
Figure 4 is a spaced-apart perspective view of a first step in the production process;
Figure 5 is a spaced-apart perspective view of a further step in the production process;
Figures 6 and 7 are perspective views of the division of the green bricks formed in the mould container parts;
Figure 8 is a perspective view showing the removal of surplus material;
Figure 9 is a perspective view of a slip moulding part with projecting parts arranged therein;
Figure 10 is a perspective view of a green brick part mouldable with the slip moulding parts shown in figure 9;
Figure 11 is a perspective view of an alternative slip moulding part with projecting parts arranged therein;
Figure 12 is a perspective view of a green brick part mouldable with the slip moulding parts shown in figure 11;
Figure 13 is a perspective view of a further alternative slip moulding part with projecting parts arranged therein;
Figure 14 is a perspective view of a green brick part mouldable with the slip moulding parts shown in figure 13.

[0036] The mould container pressing device 1 shown in figure 1 comprises a circulating conveyor 24 assembled from a plurality of conveyor parts 26. Provided on the conveyor parts are rollers 28 which engage in chain wheels (not shown) whereby conveyor 24 is drivable. Arranged on conveyor parts 26 of conveyor 24 are mould container parts 2 which will be elucidated in more detail below.

[0037] The different production steps will now be briefly elucidated with reference to figure 1, after which the steps relevant to the present invention will be discussed in more detail with reference to the following figures. Arranged above conveyor 24 is a filling device with which clay is arranged in the mould container parts 2 thereunder. Each mould container part 2 has in the shown embodiment four mould containers 4 in which one green brick at a time is mouldable.

[0038] Once the clay has been arranged in mould containers 4 of mould container parts 2, surplus clay is cut away with a first cutting member 52 so that a green brick 32 is created which on the upper side lies substantially flush with the upper side of mould container part 2. In the shown embodiment cutting member 52 comprises a cord 56 which runs over two rollers 54 and is tensioned directly above mould container part 2 and cuts thereover.

[0039] Once the surplus clay has been removed from green bricks 32, this clay waste 58 is picked up with a first discharge conveyor 60 and set down onto a second discharge conveyor 61. The clay waste 58 is carried away by second discharge conveyor 61 and preferably reused.

[0040] Once green bricks 32 have been moulded in mould containers 4 of mould container part 2, they are divided according to the invention. Although this will be elucidated in detail with reference to figures 6 and 7, it is noted here that a second cutting member 62 comprises rollers 64 over which runs a cord 66. This cord 66 is displaceable in height direction with second cutting member 62, and as a result of this height displacement the green brick 32 is divided into two green brick parts 34 and surplus clay 72 present between these green brick parts 34.

[0041] This surplus clay is subsequently discharged

as clay waste 72 in a further step by a discharge member 68, which for instance comprises gripping members and/or suction means 70, and preferably reused.

[0042] Drying plates 74 are then placed on the green brick parts 34 and, by further rotating the conveyor 24, carried to a position in which drying plates 74 are situated under mould container parts 2. In order to prevent the drying plates falling off, tensioning straps or chains are used which press drying plates 74 against mould container part 2 when they pass over a chain wheel (not shown).

[0043] When drying plates 74 are situated on the underside of mould container parts 2, they are gradually moved off mould container parts 2 and the green brick parts 34 formed by mould container pressing device 1 will come to lie on drying plates 74. Drying plates 74 with the green brick parts 74 present thereon are then discharged for further treatment. The green brick parts 34 are first placed in a drying chamber where they will be dried before being fired to a hard brick in a kiln.

[0044] Figure 2 shows two successive conveyor parts 26 of conveyor 24, wherein a mould container part 2 is located at the transition between these two conveyor parts 26. In the shown embodiment each mould container part 2 has four mould containers 4 and comprises at least two slip moulding parts 6 movable relative to each other and movable between a filling position (position has shown in figure 2), in which green bricks 32 are mouldable, and a release position (as shown in figure 8 and other figures) in which slip moulding parts 6 arc removed from each other and wherein the green brick parts 34 received therein are separated from each other and releasable.

[0045] In the orientation of slip moulding parts 6 shown in figures 2, 3 and 4 they face toward each other and form the walls 8 of mould containers 4. This orientation corresponds to the filling position in which green bricks 32 are mouldable in mould containers 4. In the shown embodiment the slip moulding parts 6 movable relative to each other are pivotable relative to each other in that they are each arranged on a pivot shaft 10. When slip moulding parts 6 each rotate about their own pivot shaft 10, they displace from the filling position shown in figures 2, 3 and 4 to a release position in which slip moulding parts 6 have a substantially lying orientation.

[0046] In order to ensure that slip moulding parts 6 remain in the desired filling position or release position, holding means 38 are provided which can retain these positions. The holding means comprise a cam member 40 which rotates around pivot shaft 10 and which is connected with a shaft 48 to a slide member 44. The slide member is slidable over a shaft 42 and is biased by a spring 46. The spring bias of spring 46 ensures that slip moulding parts 6 are held fixedly in the filling position or in the release position. By using position reversal actuators (not shown), for instance plungers which press cam members 40 aside, the spring bias of spring 46 can be temporarily overcome and slip moulding parts 6 can be urged from the filling position to the release position, and vice versa.

[0047] Shown in the view of figure 3 is how a mould container part 2 extends over two conveyor parts 26. Each mould container part 2 is formed from slip moulding parts 6 and a middle moulding part 12 located therebetween. Together the slip moulding parts 6 and the middle moulding part 12 enclose a mould container 4 which corresponds in dimensions to a mould container for for instance conventional bricks. Although there are variations in these dimensions, conventional bricks are characterized by the much greater thickness compared to a brick slip. There is a great deal of experience with filling of brick-size mould containers 4 and this proven technique allows highly reliable and good results. Owing to the combination of slip moulding parts 6 and middle moulding part 12 use can thus be made of this proven and fully developed technique, whereby a highly reliable and consistent filling of mould containers 4 is guaranteed.

[0048] Showing conveyor parts 26 in spaced-apart view in figure 4 indicates clearly how each mould container part 2 is divided over two conveyor parts 26. An advantage of this setup is that a natural separation is created between a middle moulding part 12 and a slip moulding part 6 through which green brick 32 can be divided, as will be further elucidated with reference to figures 6 and 7.

[0049] Figure 5 shows the situation in which slip moulding parts 6 are moved from the filling position shown in figure 4 to the release position shown in figure 8. Figure 5 shows an intermediate position in which cam members 40 are operated by position reversal actuators (not shown) and a slide member 44 presses over shaft 42 of holding means 38 counter to the spring bias of spring 46.

[0050] For the sake of clarity figures 2-5 arc shown without green bricks 32 arranged therein. Figures 6 and 7 show how a green brick 32 is divided into green brick parts 34 and possibly surplus clay material 72.

[0051] In figure 6 the clay protruding on the upper side of mould container part 2 has already been discharged using first cutting number 52 and discharge conveyors 60, 61. By then displacing a second cutting number 62 in height direction through mould container parts 2 the green brick 32 present therein is divided into green brick parts 34 and surplus clay 72 lying therebetween.

[0052] In order to make second cutting number 62, which in the shown embodiment comprises a cord 66, displaceable in height direction through green brick 32 a first cross-sectional opening 18 and a second cross-sectional opening 20 are provided in mould container part 2. It is noted here that first cross-sectional opening 18 comprises the separation between two successive conveyor parts 26 of the circulating conveyor.

[0053] Cords 66 will cut through green bricks 32 better by having cords 66 of second cutting number 62 run over rollers 64 and driving them in circulating manner when cutting number 62 is displaced in height direction.

[0054] Once green bricks 32 have been divided into

green brick parts 34, the surplus clay 72 present therebetween in the middle moulding parts 12 can be discharged using a discharge member 68 (figure 8). In the shown embodiment the discharge member 68 is provided with gripping members/suction means 70 which pick up the clay waste 72.

[0055] Because only the green brick parts 34 which will form the brick slips will be set down onto drying plates 74, only the net end product will be subjected to a complete driving and firing process. The surplus clay - which makes possible a reliable and consistent filling of mould containers 4 - can already be discharged directly after filling of mould containers 4 and if desired reused.

[0056] Figures 9-10, 11-12 and 13-14 form pairs of three alternatives slip moulding parts 16 for moulding green brick parts 34 provided with one or more protruding parts 16.

[0057] By providing slip moulding parts 6 with protruding parts 16 the form of the green brick part 134, 234, 334 to be formed in the respective slip moulding part 6 can be modified. The green brick part will after all be a negative impression of the space enclosed by slip moulding part 6.

[0058] Green brick parts 134, 234, 334 with protruding parts 116, 236, 336, 337 offer advantages such as enabling simple and reproducible arrangement on prefab constructions, wherein the protruding parts 116, 236, 336, 337 can instance be pushed or otherwise arranged under prearranged hook parts. By placing protruding parts 116, 236, 336, 337 of adjacent brick slips abutting each other a desired spacing can also be obtained for the pointing to be arranged later between adjacent brick slips.

[0059] In figure 9 a protruding part 16 in the form of a longitudinal strip 116 is provided on wall 8 of slip moulding part 6. A green brick part 134 formed in slip moulding part 6 of figure 9 will be without clay on its longitudinal sides 135 where longitudinal strip 116 was placed during moulding. As a result a protruding longitudinal edge 136 is created extending on longitudinal sides 135 of green brick part 134 (figure 10). Using this longitudinal edge 136 a brick slip manufactured from this green brick part 134 can be hooked easily under a hook part, which can be advantageous for prefab constructions. Such a brick slip is hereby particularly suitable for instance for prefab constructions wherein hook parts are provided on insulating plates or strip parts to be placed beforehand.

[0060] When protruding part 16 comprises a longitudinal strip 216 with further protruding parts 217 arranged thereon (figure 11), it will he possible to provide the corresponding green brick part 234 along its longitudinal sides 235 with short projecting parts 236 between which lie recesses 238. Recesses 238 between the projecting parts make it possible for a brick slip to be placed by guiding a hook part via recess 238, after which the brick slip is pushed sideways to some extent so that the hook part comes into engagement with a projecting part 236.

[0061] In figure 13 slip moulding part 6 also comprises in addition to a longitudinal strip 316 a transverse strip 317. A corresponding green brick part 334 is shown in figure 14 and comprises a longitudinal edge 336 extending along the longitudinal side 335 of green brick part 334, and a transverse edge 338 extending along the end surface 337 of green brick part 334. A transverse edge 337 on the end surface is particularly advantageous because adjacent brick slips are now placeable with their transverse edges against each other and can thus define a perfect pointing width. Transverse edge 338 preferably extends half the distance of the desired pointing width from end surface 337 so that each brick slip contributes half the distance of the pointing width. It is of course also possible to envisage the brick slips being provided on only one end surface 337 with a transverse edge 338, which then extends roughly the whole distance of the desired pointing width from end surface 337, although this could have the drawback that the orientation of placing of adjacent brick slips is no longer free.

[0062] Although it shows a preferred embodiment of the invention, the above described embodiment is intended only to illustrate the present invention and not to limit the specification of the invention in any way. The skilled person will appreciate that measures of the different embodiments can be combined, such as for instance providing recesses 238 as according to figures 11 and 12 in a transverse edge 338 on an end surface 337 of a green brick part. When measures in the claims are followed by reference numerals, such reference numerals serve only to contribute toward the understanding of the claims, but are in no way limitative of the scope of protection. The described rights are defined by the following claims, within the scope of which many modifications can be envisaged.

Claims

1. Mould container part (2) for manufacturing brick slips, comprising one or more mould containers (4) for forming therein a green brick (32) from clay for the brick manufacturing industry, the mould container part (2) comprising at least two slip moulding parts (6) which are movable relative to each other and which are movable between a filling position, in which the green bricks are mouldable, and a release position in which the slip moulding parts (6) are removed from one another; and
   characterized in that a middle moulding part (12) is provided between the slip moulding parts (6) and that two cross-sectional openings (18, 20) that divide the middle moulding part (12) from the slip moulding parts (6) are arranged in each of two opposite side walls (14) of the mould containers (4).

2. Mould container part as claimed in claim 1, wherein the slip moulding parts (6) face toward each other in the filling position and form walls of the mould con-

tainer (4), wherein the at least two slip moulding parts (6) movable relative to each other are pivotable relative to each other between the situation in which they face toward each other in the filling position and in which they form walls of the mould container and the release position in which the slip moulding parts (6) comprise a substantially lying orientation.

3. Mould container part as claimed in either of the foregoing claims, wherein a first of the two cross-sectional openings is formed in the side walls (14) of the mould container (4) in that the two slip moulding parts (6) of the mould container part (2) movable relative to each other are arranged on two adjacent conveyor parts of a circulating conveyor, and wherein the separation between these conveyor parts forms a first cross-sectional opening in the mould containers (4).

4. Mould container part as claimed in any of the foregoing claims, wherein one or more slip moulding parts (6) provide at least two protruding parts extending inside a mould container; and

- wherein the at least two parts protruding inside the mould container are preferably arranged against the same wall of the mould container (4).

5. Mould container part as claimed in claim 4, wherein the protruding parts comprise a longitudinal strip arranged in longitudinal direction of the slip moulding part (6) and/or a transverse strip arranged in transverse direction of the slip moulding part (6), and wherein one or more further protruding parts (217) are provided on the longitudinal strip and/or on the transverse strip.

6. Mould container pressing device (1) for manufacturing brick slips for the brick manufacturing industry, comprising a circulating conveyor comprising a number of mould container parts (2), wherein each mould container part comprises one or more mould containers (4) for forming a green brick (32) from clay therein;

- wherein a cutting member (62) is provided with which the green brick formed in the mould container (4) is divisible into green brick parts; and

characterized in that a middle moulding part (12) is provided between the slip moulding parts (6) and that the mould container part (2) is a mould container part (2) as claimed in any of the claims 1-5.

7. Mould container pressing device as claimed in claim 6, wherein the cutting member (62) comprises a substantially flexible endless member.

8. Mould container pressing device as claimed in any of the claims 6 or 7, wherein a discharge member (68) is provided with which clay present in the middle moulding part (12) can be discharged; and

- wherein the discharge member (68) preferably comprises gripping members and/or suction means.

9. Mould container pressing device as claimed in any of the claims 6-8, wherein holding means are provided which are configured to hold the slip moulding parts (6) fixedly in the filling position and/or release position.

10. Mould container pressing device as claimed in claim 9, wherein the holding means comprise at least one spring which is connected to the slip moulding parts (6) and which is configured to force the at least one slip moulding part (6) connected to the at least one spring into the filling position and/or into the release position, and wherein one or more position reversal actuators are provided which are configured to move the slip moulding parts (6) counter to the spring bias from the filling position to the release position, and vice versa.

11. Method for manufacturing brick slips from clay for the brick manufacturing industry with a mould container pressing device (1), comprising the steps of:

- driving a circulating conveyor (24) comprising a number of mould container parts (2), wherein each mould container part (2) comprises one or more mould containers (4) for moulding a green brick therein;
- advancing the conveyor under filling means (50), wherein green bricks are formed by filling the one or more mould containers (4) with clay; and
- cutting through one or more green bricks formed in the mould containers with a cutting member; and

characterized by the steps of:

- displacing the cutting member (62) through two cross-sectional openings (18, 20) that divide a middle moulding part (12) from slip moulding parts (6) and that are arranged in each of two opposite side walls (14) of the mould containers (4); and
- moving the slip moulding parts (6) from a filling position to a release position, wherein the slip moulding parts face toward each other in the filling position and form walls of one or more mould containers (4) in which one or more green bricks are mouldable, and wherein in the release position the slip moulding parts (6) are removed

from each other such that the green brick parts received therein are separated and releasable.

12. Method as claimed in claim 11, wherein the step of cutting through one or more green bricks formed in the mould containers with a cutting member (62) comprises of cutting through these green bricks in longitudinal direction.

13. Method as claimed in claim 11 or 12, wherein moving the slip moulding parts (6) from the filling position to the release position comprises of pivoting the slip moulding parts (6) and green brick parts formed therein to a substantially lying orientation.

14. Method as claimed in claim 13 wherein a middle moulding part (12) is provided between the slip moulding parts (6) and the method further comprises the step of discharging clay present in the middle moulding part (12) with a discharge member (68).

15. Method as claimed in any of the claims 11-14, wherein a mould container part (2) according to any of the claims 1-6 and/or a mould container pressing device (1) according to any of the claims 6-10 are applied.

Patentansprüche

1. Formbehälterteil (2) zur Herstellung von Ziegelriemchen mit einem oder mehreren Formbehältern (4) zum Formen eines Rohlings (32) aus Ton für die Ziegel-Fertigungsindustrie darin, wobei der Formbehälterteil (2) mindestens zwei Riemchen-Formteile (6) aufweist, die relativ zueinander bewegbar sind und die zwischen einer Füllposition, in der die Rohlinge formbar sind, und einer Löseposition, in der die Riemchen-Formteile (6) voneinander entfernt sind, bewegbar sind, und
dadurch gekennzeichnet, dass ein mittlerer Formteil (12) zwischen den Riemchen-Formteilen (6) vorgesehen ist und das zwei Querschnittsöffnungen (18, 20), die den mittleren Formteil (12) von den Riemchen-Formteilen (6) trennen, in jeder der zwei gegenüberliegenden Seitenwände (14) des Formbehälters (4) vorgesehen sind.

2. Formbehälterteil nach Anspruch 1, wobei die Riemchen-Formteile (6) einander in der Füllposition gegenüber liegend und Wände des Formbehälters (4) bilden, wobei die mindestens zwei Riemchen-Formteile (6), die relativ zueinander bewegbar sind, relativ zueinander zwischen der Situation, in der sie einander in der Füllposition gegenüber liegen und in der sie Wände des Formbehälters bilden, und der Löseposition, in der die Riemchen-Formteile (6) eine im wesentlichen liegende Orientierung einnehmen, schwenkbar sind.

3. Formbehälterteil nach einem der vorstehenden Ansprüche, wobei eine erste der zwei Querschnittsöffnungen in den Seitenwänden (14) des Formbehälters (4) gebildet ist und dass die zwei Riemchen-Formteile (6) des Formbehälterteils (2), die relativ zueinander bewegbar sind, auf zwei benachbarten Förderteilen eines Umlaufförderers angeordnet sind und wobei die Trennung zwischen diesen Förderteilen eine erste Querschnittsöffnung in dem Formbehältern (4) bildet.

4. Formbehälterteil nach einem der vorstehenden Ansprüche, wobei einer oder mehrere Riemchen-Formteile (6) mindestens zwei vorstehende Teile bilden, die sich innerhalb eines Formbehälters erstrecken, und
wobei die mindestens zwei Teile, die sich innerhalb des Formbehälters erstrecken, vorzugsweise gegen dieselbe Wand des Formbehälters (4) angeordnet sind.

5. Formbehälterteil nach Anspruch 4, wobei die vorstehenden Teile einen Längsstreifen aufweisen, der in Längsrichtung des Riemchen-Formteils (6) angeordnet ist, und/oder einen Querstreifen, der in Querrichtung des Riemchen-Formteils (6) angeordnet ist, und wobei ein oder mehrere vorstehende Teile (217) auf dem Längsstreifen und/oder dem Querstreifen vorgesehen sind.

6. Formbehälter-Pressvorrichtung (1) zur Herstellung von Ziegelriemchen für die Ziegel-Herstellungsindustrie mit einem Umlaufförderer mit einer Anzahl von Formbehälterteilen (2), wobei jeder Formbehälterteil einen oder mehrere Formbehälter (4) zur Formung eines Rohlings (32) aus Ton darin aufweist,
wobei ein Schneidelement (62) vorgesehen ist, mit dem die Rohlinge, die in dem Formbehälter (4) geformt werden, in Rohlingteile unterteilbar sind, und
dadurch gekennzeichnet, dass ein mittlerer Formteil (12) zwischen den Riemchen-Formteilen (6) vorgesehen ist und dass der Formbehälterteil (2) ein Formbehälterteil (2) nach einem der Ansprüche 1 bis 5 ist.

7. Formbehälter-Pressvorrichtung nach Anspruch 6, wobei das Schneidelement (62) ein im wesentlichen flexibles endloses Element aufweist.

8. Formbehälter-Pressvorrichtung nach einem der Ansprüche 6 oder 7, wobei ein Abgabeelement (68) vorgesehen ist, mit dem Ton, der in dem mittleren Formteil (12) vorhanden ist, abgegeben werden kann, und
wobei das Abgabeelement (68) vorzugsweise Greifelemente und/oder eine Saugeinrichtung aufweist.

9. Formbehälter-Pressvorrichtung nach einem der An-

sprüche 6-8, wobei eine Halteeinrichtung vorgesehen ist, die ausgebildet ist, um die Riemchen-Formteile (6) fest in der Füllposition und/oder der Löseposition zu halten.

10. Formbehälter-Pressvorrichtung nach Anspruch 9, wobei die Halteinrichtung mindestens eine Feder aufweist, die mit den Riemchen-Formteilen (6) verbunden ist und die ausgebildet ist, um den mindestens einen Riemchen-Formteil (6), der mit der mindestens einen Feder verbunden ist, in die Füllposition und/oder die Löseposition zu zwängen und wobei ein oder mehrere Positionsumkehr-Stellglieder vorgesehen sind, die ausgebildet sind, um die Riemchen-Formteile (6) gegen die Federspannung von der Füllposition in die Löseposition und umgekehrt zu bewegen.

11. Verfahren zur Herstellung von Ziegelriemchen aus Ton für die Ziegel-Herstellungsindustrie mit einer Formbehälter-Pressvorrichtung (1) mit den Schritten:

Betreiben eines Umlaufförderers (24) mit einer Anzahl von Formbehälterteilen (2), wobei jeder Formbehälterteil (2) einen oder mehrere Formbehälter (4) zum Formen eines Rohlings darin aufweist,
Vorrücken des Förderers unter eine Fülleinrichtung (50), wobei Rohlinge durch Füllen des einen oder der mehreren Formbehälter (4) mit Ton gebildet werden, und
Schneiden durch einen oder mehrere Rohlinge, die in den Formbehältern geformt sind, mit einem Schneidelement und
gekennzeichnet durch die Schritte:

Verlagern des Schneidelements (62) durch zwei Querschnittsöffnungen (18, 20), die einen mittleren Formteil (12) von Riemchen-Formteilen (6) trennen und die in jeder von zwei gegenüberliegenden Seitenwänden (14) des Formbehälters (4) angeordnet sind, und
Bewegen der Riemchen-Formteile (6) aus einer Füllposition in eine Löseposition, wobei die Riemchen-Formteile zueinander in der Füllposition gerichtet sind und Wände eines oder mehrerer Formbehälter (4) bilden, in denen ein oder mehrere Rohlinge formbar sind, und wobei in der Löseposition die Riemchen-Formteile (6) voneinander entfernt werden, sodass die Rohlingteile, die darin aufgenommen sind, getrennt werden und lösbar sind.

12. Verfahren nach Anspruch 11, wobei der Schritt des Schneidens durch den einen oder die mehreren Rohlinge, die in den Formbehältern gebildet sind, mit einem Schneidelement (62) das Schneiden durch diese Rohlinge in Längsrichtung umfasst.

13. Verfahren nach Anspruch 11 oder 12, wobei das Bewegen der Riemchen-Formteile (6) aus der Füllposition in die Löseposition das Schwenken der Riemchen-Formteile (6) und der darin geformten Rohlingteile in eine im wesentlichen liegende Orientierung umfasst.

14. Verfahren nach Anspruch 13, wobei ein mittlerer Formteil (12) zwischen den Riemchen-Formteilen (6) vorgesehen ist und das Verfahren ferner den Schritt der Abgabe von Ton, der in dem mittleren Formteil (12) vorhanden ist, mit einem Abgabeelement (68) umfasst.

15. Verfahren nach einem der Ansprüche 1-14, wobei ein Formbehälterteil (2) nach einem der Ansprüche 1-6 und/oder eine Formbehälter-Pressvorrichtung (1) nach einem der Ansprüche 6-10 verwendet wird.

Revendications

1. Partie de récipient formant moule (2) pour fabriquer des briques de revêtement mural, comprenant un ou plusieurs récipients formant moule (4) pour y former une brique crue (32) à partir d'argile pour l'industrie de fabrication de briques, la partie de récipient formant moule (2) comprenant au moins deux parties de moulage de barbotine (6) qui sont mobiles l'une par rapport à l'autre et qui sont mobiles entre une position de remplissage, dans laquelle les briques crues peuvent être moulées, et une position de libération dans laquelle les parties de moulage de barbotine (6) sont enlevées l'une de l'autre ; et
caractérisée en ce qu'une partie de moulage centrale (12) est prévue entre les parties de moulage de barbotine (6) et **en ce que** deux ouvertures transversales (18, 20) qui divisent la partie de moulage centrale (12) des parties de moulage de barbotine (6) sont agencées dans chacune de deux parois de côté opposées (14) des récipients formant moule (4).

2. Partie de récipient formant moule selon la revendication 1, dans laquelle les parties de moulage de barbotine (6) sont tournées l'une vers l'autre dans la position de remplissage et forment des parois du récipient formant moule (4), dans laquelle les au moins deux parties de moulage de barbotine (6) mobiles l'une par rapport à l'autre sont pivotantes l'une par rapport à l'autre entre la situation dans laquelle elles sont tournées l'une vers l'autre dans la position de remplissage et dans laquelle elles forment des parois du récipient formant moule et la position de libération dans laquelle les parties de moulage de bar-

botine (6) comprennent une orientation sensiblement couchée.

3. Partie de récipient formant moule selon l'une ou l'autre des revendications précédentes, dans laquelle une première des deux ouvertures transversales est formée dans les parois de côté (14) du récipient formant moule (4) en ce que les deux parties de moulage de barbotine (6) de la partie de récipient formant moule (2) mobiles l'une par rapport à l'autre sont agencées sur deux parties de convoyeur adjacentes d'un convoyeur en circulation, et dans laquelle la séparation entre ces parties de convoyeur forme une première ouverture transversale dans les récipients formant moule (4).

4. Partie de récipient formant moule selon l'une quelconque des revendications précédentes, dans laquelle une ou plusieurs parties de moulage de barbotine (6) fournissent au moins deux parties saillantes s'étendant à l'intérieur d'un récipient formant moule ; et

- dans laquelle les au moins deux parties saillantes à l'intérieur du récipient formant moule sont de préférence agencées contre la même paroi du récipient formant moule (4).

5. Partie de récipient formant moule selon la revendication 4, dans laquelle les parties saillantes comprennent une bande longitudinale agencée dans une direction longitudinale de la partie de moulage de barbotine (6) et/ou une bande transversale agencée dans une direction transversale de la partie de moulage de barbotine (6), et dans laquelle une ou plusieurs parties saillantes supplémentaires (217) sont prévues sur la bande longitudinale et/ou sur la bande transversale.

6. Dispositif presseur de récipient formant moule (1) pour fabriquer des briques de revêtement mural pour l'industrie de fabrication de briques, comprenant un convoyeur en circulation comprenant un nombre de parties de récipient formant moule (2), dans lequel chaque partie de récipient formant moule, comprend un ou plusieurs récipients formant moule (4) pour y former une brique crue (32) à partir d'argile ;

- dans lequel un organe de coupe (62) est prévu grâce auquel la brique crue formée dans le récipient formant moule (4) est divisible en parties de brique crue ; et

caractérisé en ce qu'une partie de moulage centrale (12) est prévue entre les parties de moulage de barbotine (6) et **en ce que** la partie de récipient formant moule (2) est une partie de récipient formant moule (2) telle que revendiquée à l'une quelconque des revendications 1 à 5.

7. Dispositif presseur de récipient formant moule selon la revendication 6, dans lequel l'organe de coupe (62) comprend un organe sans fin sensiblement flexible.

8. Dispositif presseur de récipient formant moule selon l'une quelconque des revendications 6 ou 7, dans lequel un organe d'évacuation (68) est prévu grâce auquel l'argile présente dans la partie de moulage centrale (12) peut être évacuée ; et

- dans lequel l'organe d'évacuation (68) comprend de préférence des organes de préhension et/ou des moyens d'aspiration.

9. Dispositif presseur de récipient formant moule selon l'une quelconque des revendications 6 à 8, dans lequel des moyens de maintien sont prévus qui sont configurés pour maintenir les parties de moulage de barbotine (6) à demeure dans la position de remplissage et/ou la position de libération.

10. Dispositif presseur de récipient formant moule selon la revendication 9, dans lequel les moyens de maintien comprennent au moins un ressort qui est raccordé aux parties de moulage de barbotine (6) et qui est configuré pour forcer l'au moins une partie de moulage de barbotine (6) raccordée à l'au moins un ressort dans la position de remplissage et/ou dans la position de libération, et dans lequel un ou plusieurs actionneurs d'inversion de position sont fournis qui sont configurés pour déplacer les parties de moulage de barbotine (6) à l'encontre de la sollicitation de ressort de la position de remplissage à la position de libération, et vice versa.

11. Procédé de fabrication de briques de revêtement mural à partir d'argile pour l'industrie de fabrication de briques avec un dispositif presseur de récipient formant moule (1), comprenant les étapes de :

- entraînement d'un convoyeur en circulation (24) comprenant un certain nombre de parties de récipient formant moule (2), dans lequel chaque partie de récipient formant moule (2) comprend un ou plusieurs récipients formant moule (4) pour y mouler une brique crue ;
- avancement du convoyeur sous un moyen de remplissage (50), dans lequel des briques crues sont formées en remplissant les un ou plusieurs récipients formant moule (4) d'argile ; et
- coupe à travers une ou plusieurs briques crues formées dans les récipients formant moule avec un organe de coupe ; et

caractérisé par les étapes de :

- déplacement de l'organe de coupe (62) à travers deux ouvertures transversales (18, 20) qui divisent une partie de moulage centrale (12) de parties de moulage de barbotine (6) et qui sont agencées dans chacune de deux parois de côté opposées (14) des récipients formant moule (4) ; et
- déplacement des parties de moulage de barbotine (6) d'une position de remplissage à une position de libération, dans lequel les parties de moulage de barbotine sont tournées l'une vers l'autre dans la position de remplissage et forment des parois d'un ou de plusieurs récipients formant moule (4) dans lesquels une ou plusieurs briques crues peuvent être moulées, et dans lequel dans la position de libération, les parties de moulage de barbotine (6) sont enlevées l'une de l'autre de sorte que les parties de brique crue reçues à l'intérieur soient séparées et libérables.

12. Procédé selon la revendication 11, dans lequel l'étape de coupe à travers une ou plusieurs briques crues formées dans les récipients formant moule avec un organe de coupe (62) comprend une coupe à travers ces briques crues dans une direction longitudinale.

13. Procédé selon la revendication 11 ou 12, dans lequel le déplacement des parties de moulage de barbotine (6) de la position de remplissage à la position de libération comprend l'étape de pivotement des parties de moulage de barbotine (6) et de parties de brique crue formées à l'intérieur jusqu'à une orientation sensiblement couchée.

14. Procédé selon la revendication 13, dans lequel une partie de moulage centrale (12) est prévue entre les parties de moulage de barbotine (6) et le procédé comprend en outre l'étape d'évacuation d'argile présente dans la partie de moulage centrale (12) avec un organe d'évacuation (68).

15. Procédé selon l'une quelconque des revendications 11 à 14, dans lequel une partie de récipient formant moule (2) selon l'une quelconque des revendications 1 à 6 et/ou un dispositif presseur de récipient formant moule (1) selon l'une quelconque des revendications 6 à 10 sont appliqués.

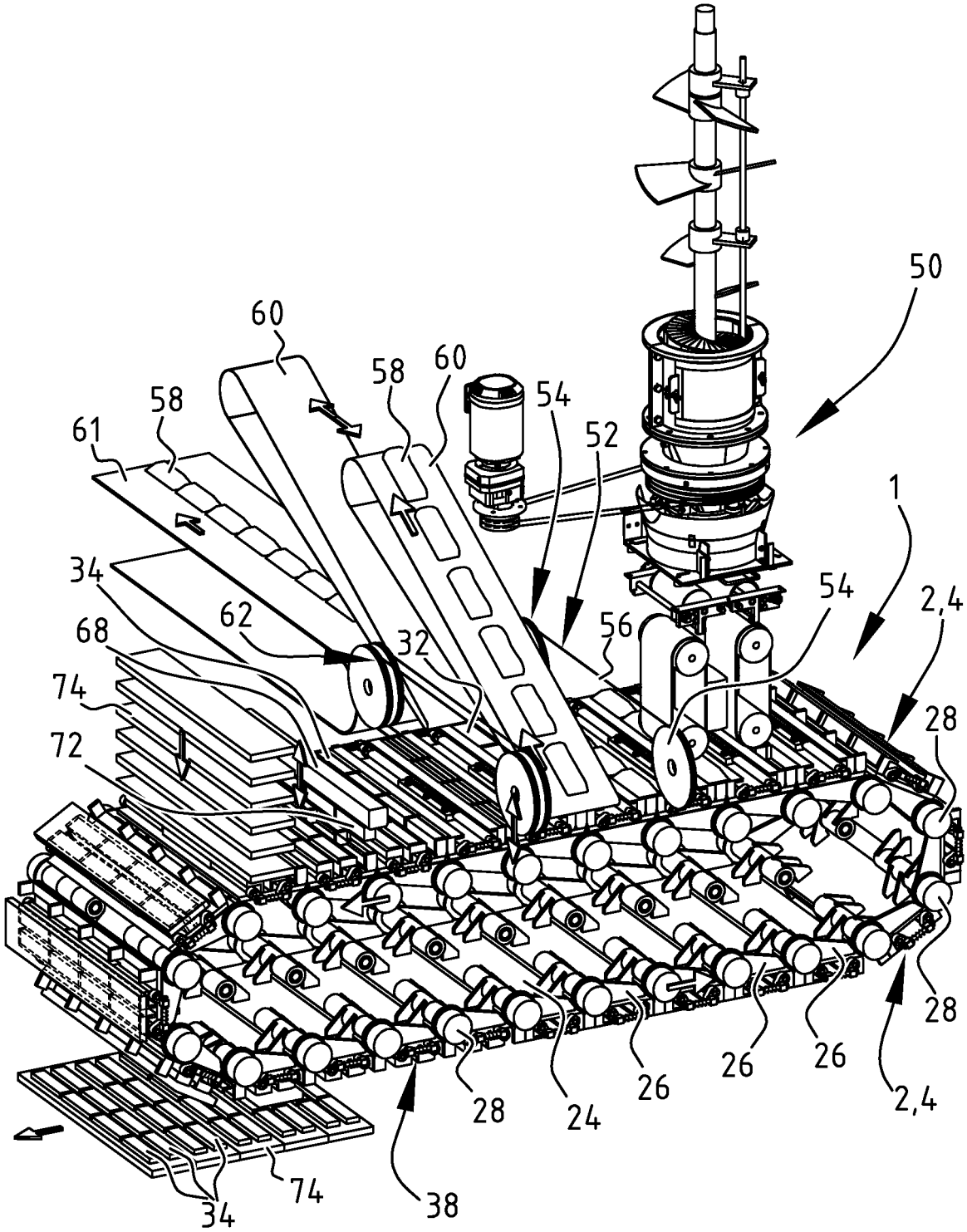
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FIG. 1

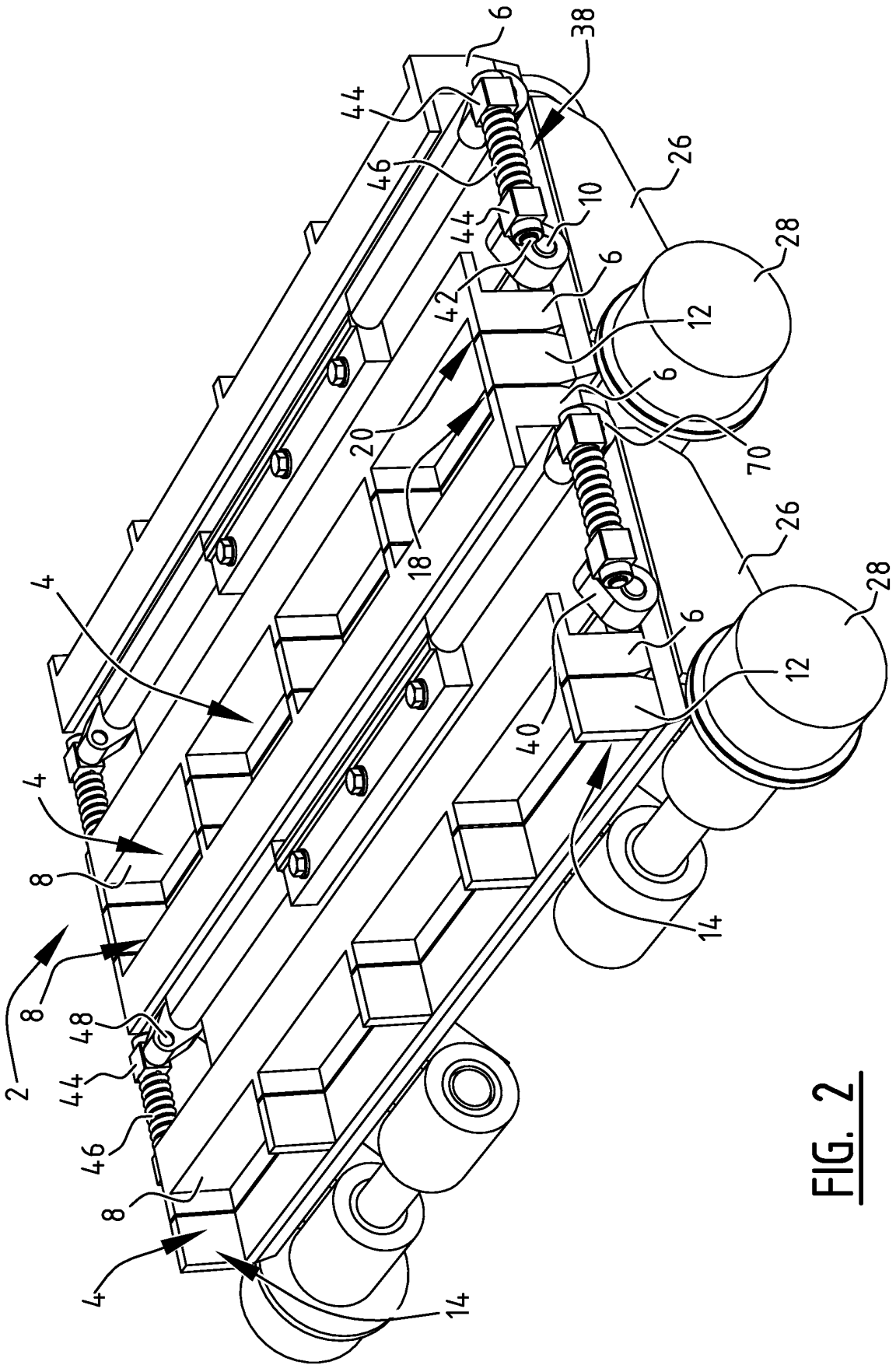
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FIG. 2

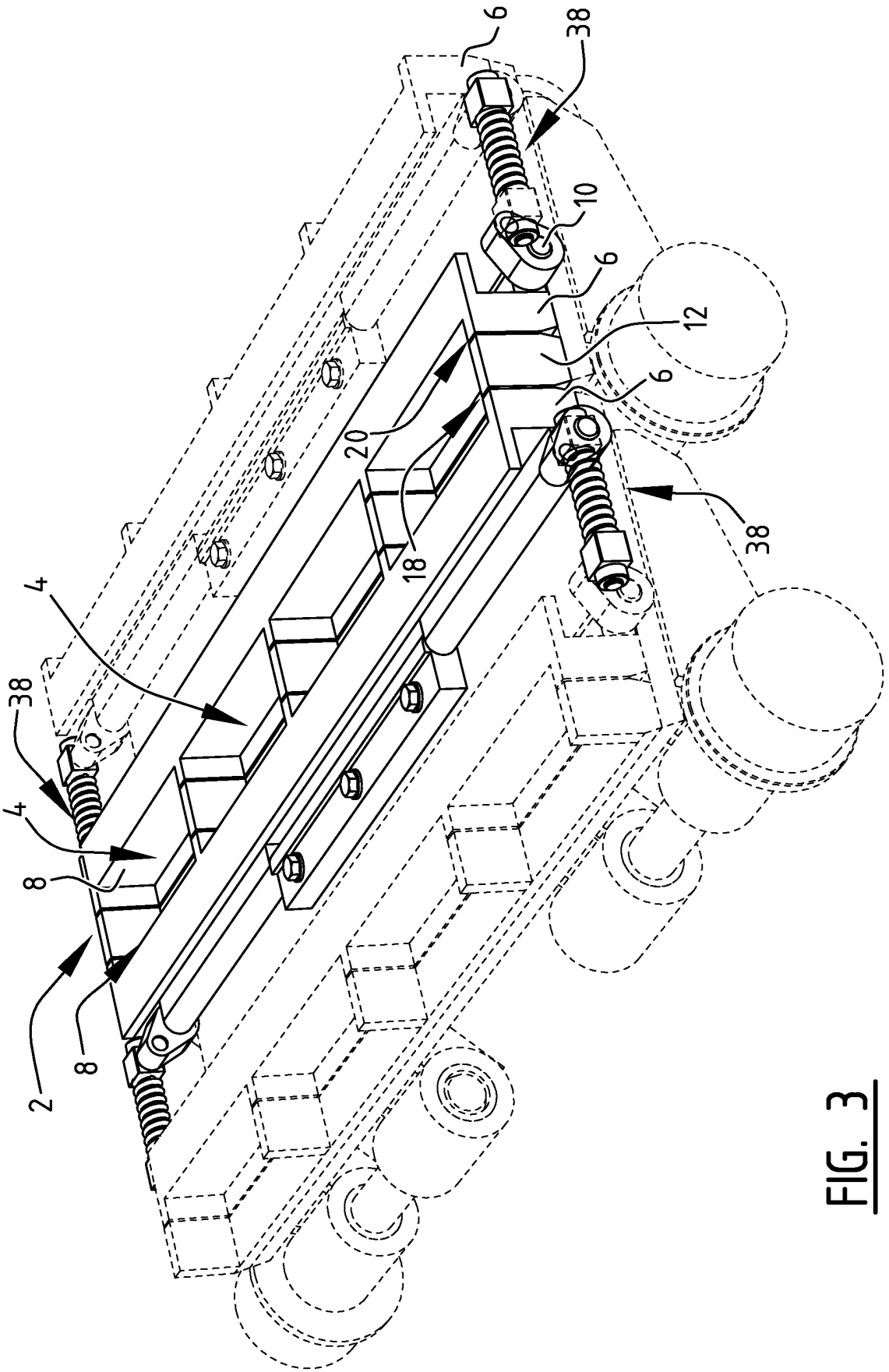

FIG. 3

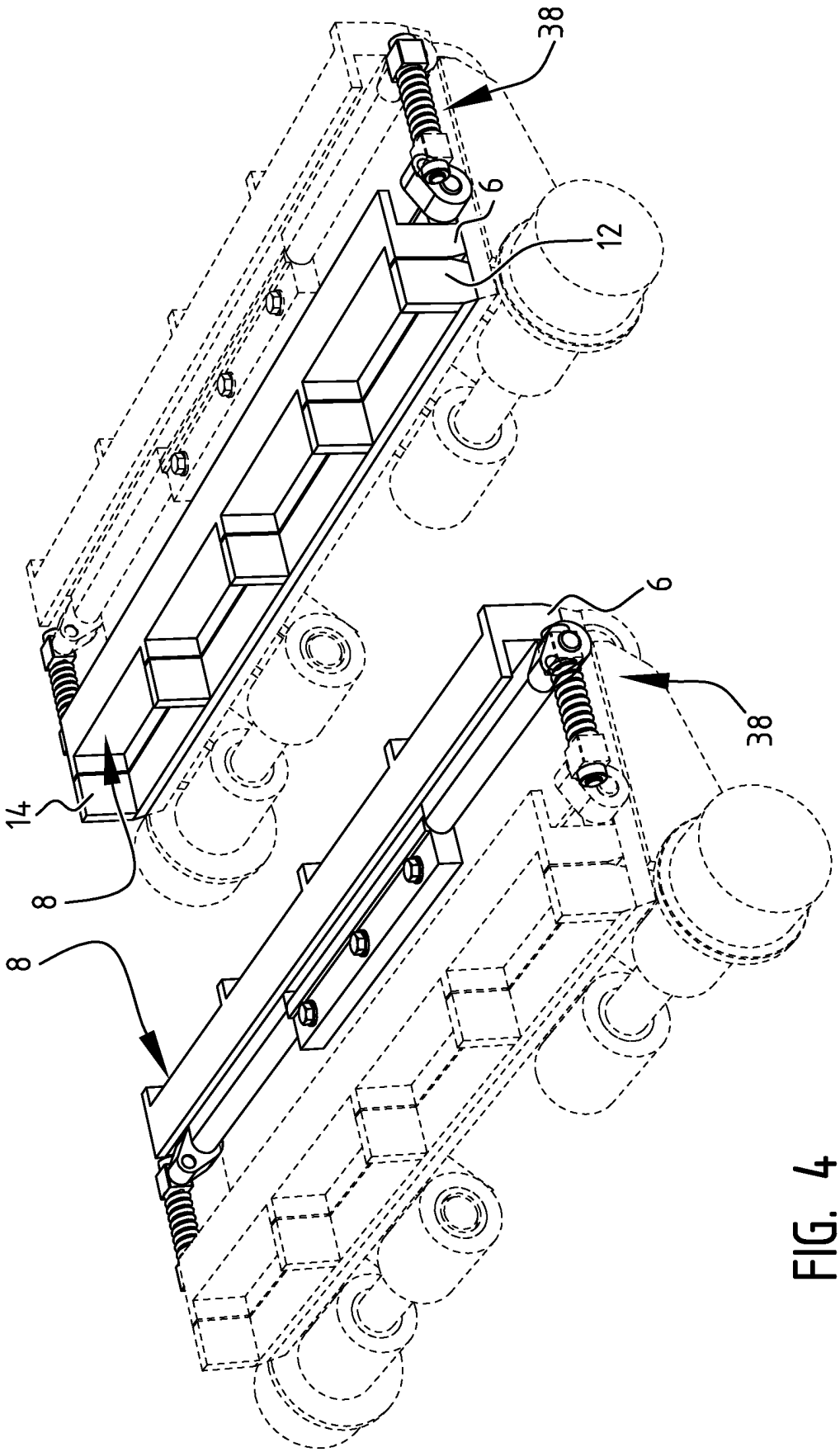

FIG. 4

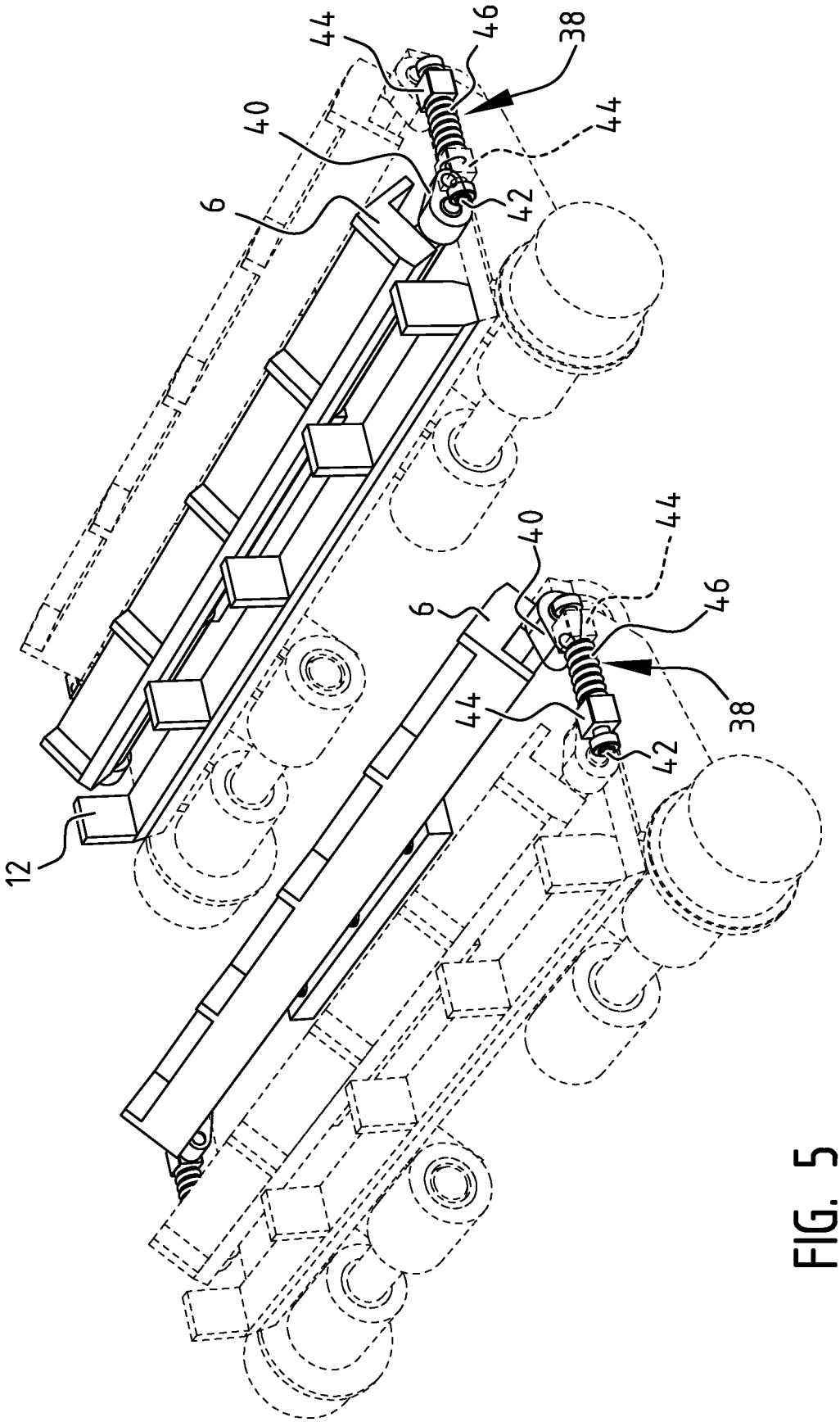

FIG. 5

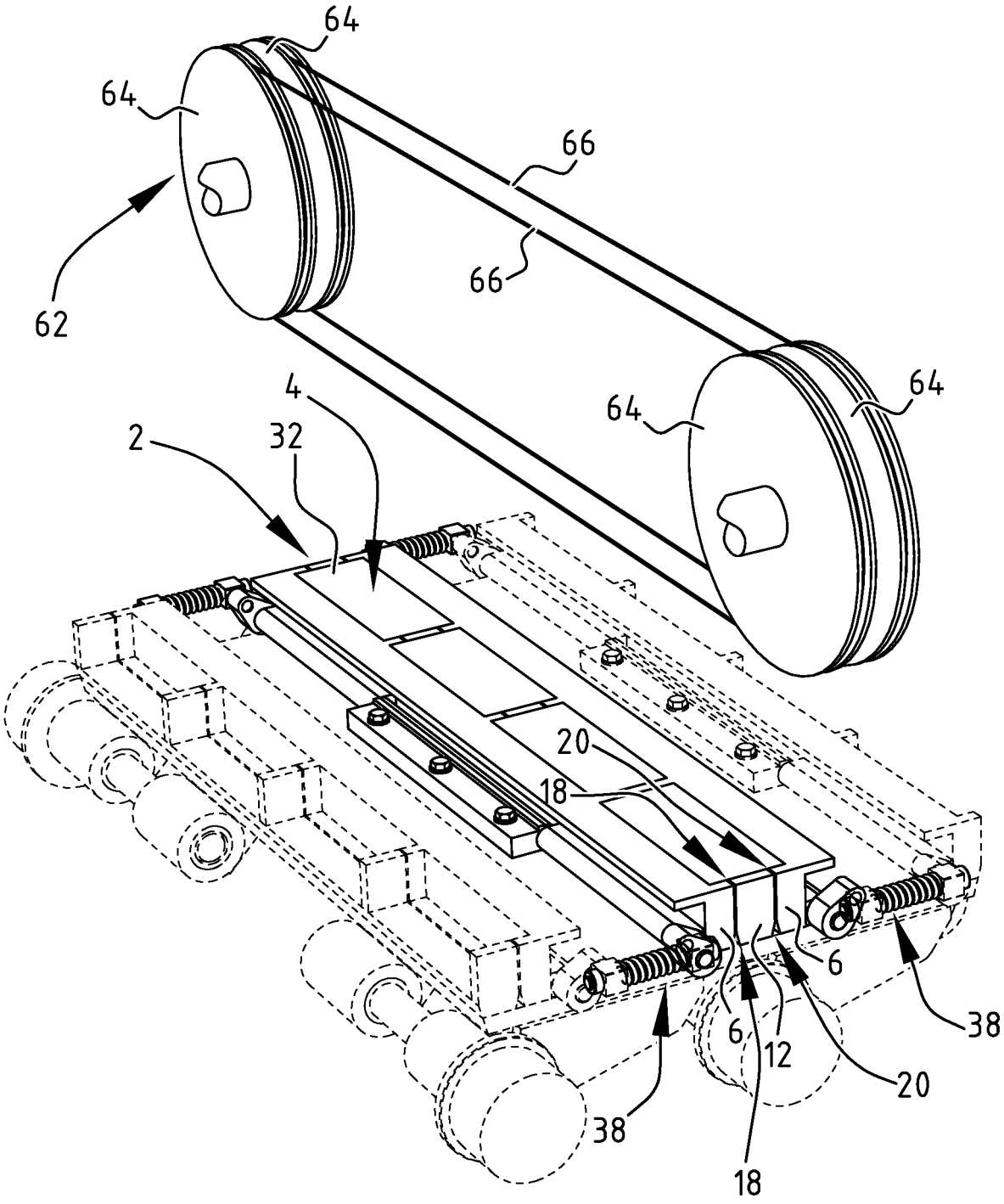

FIG. 6

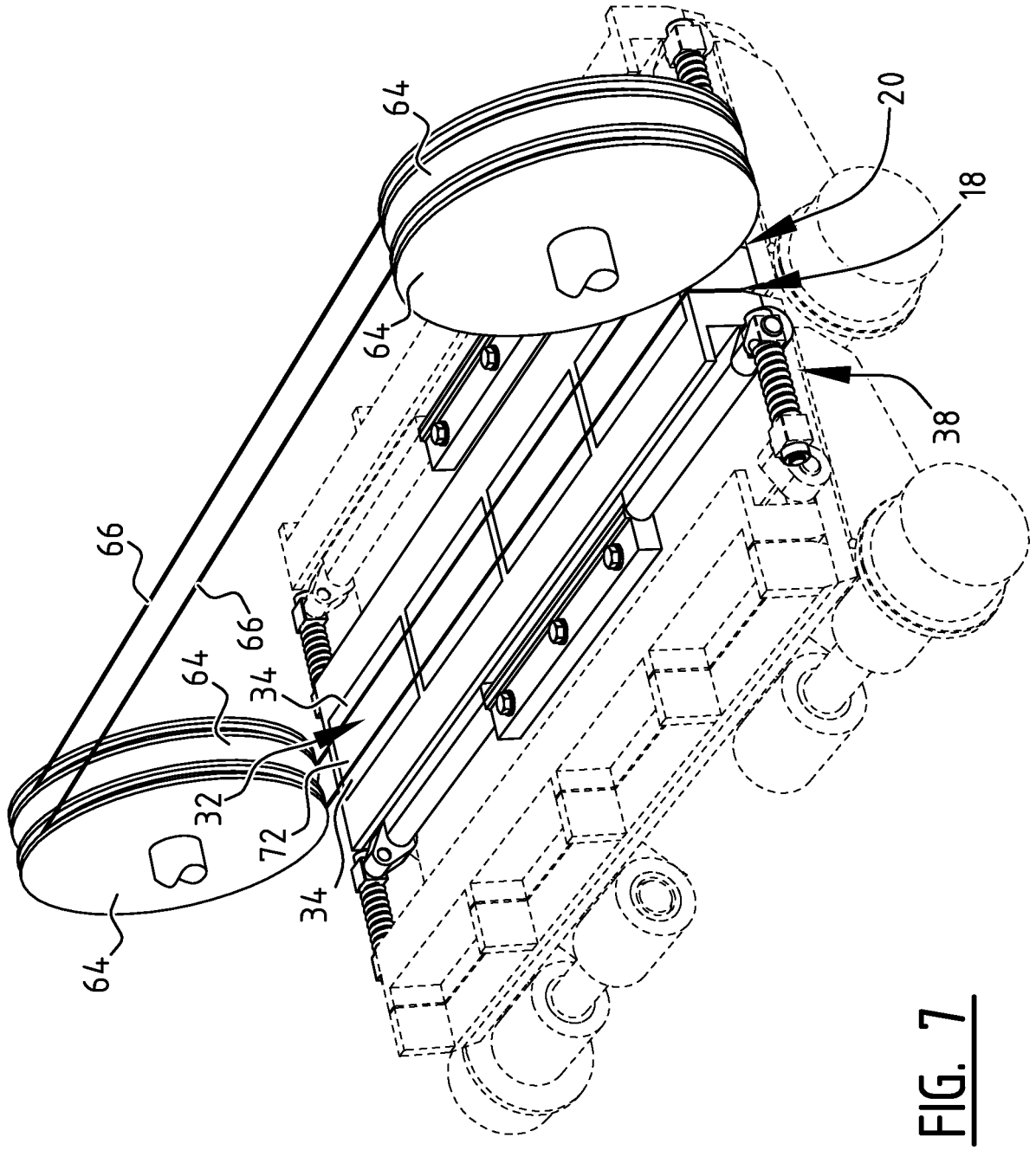

FIG. 7

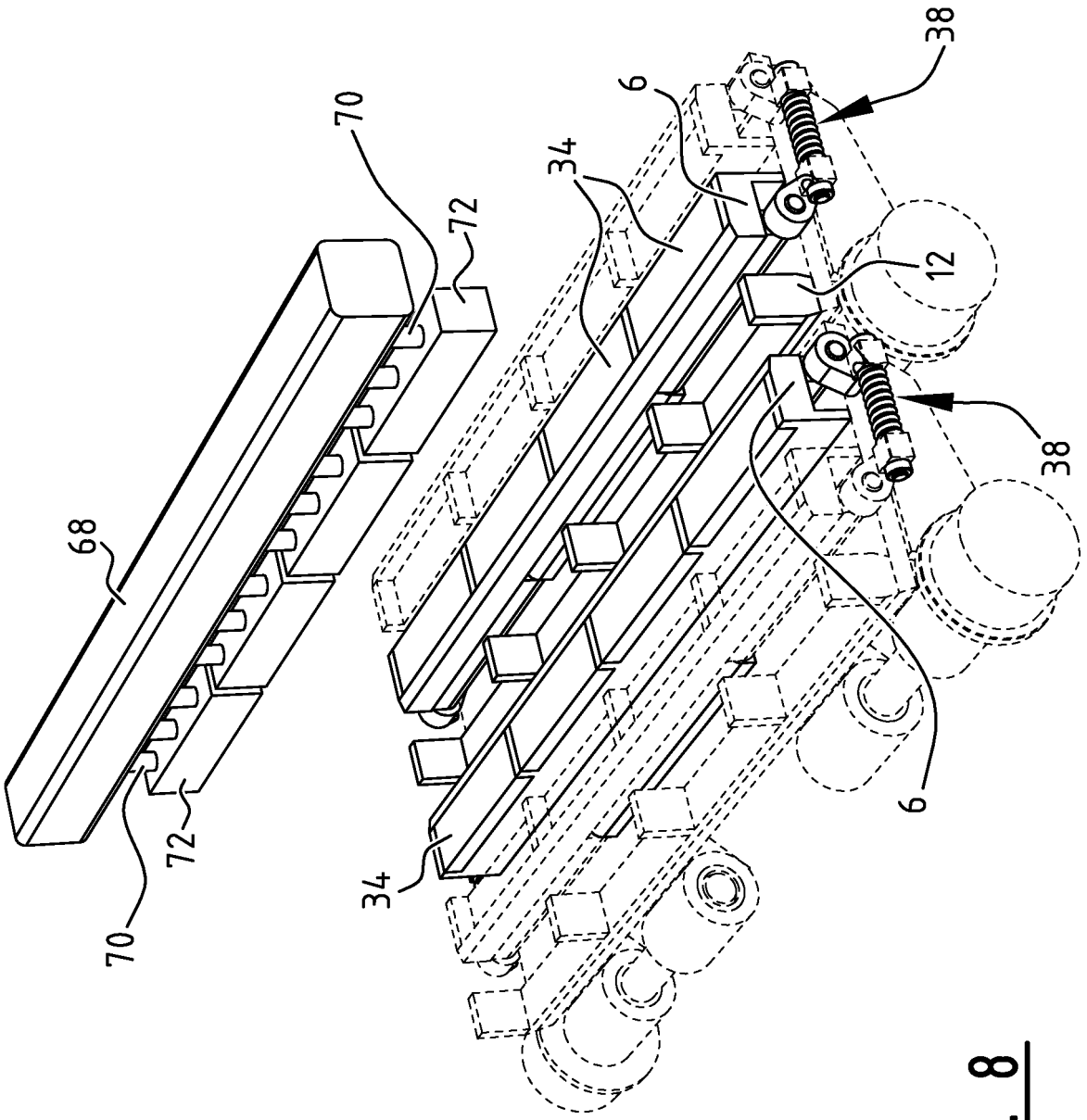

FIG. 8

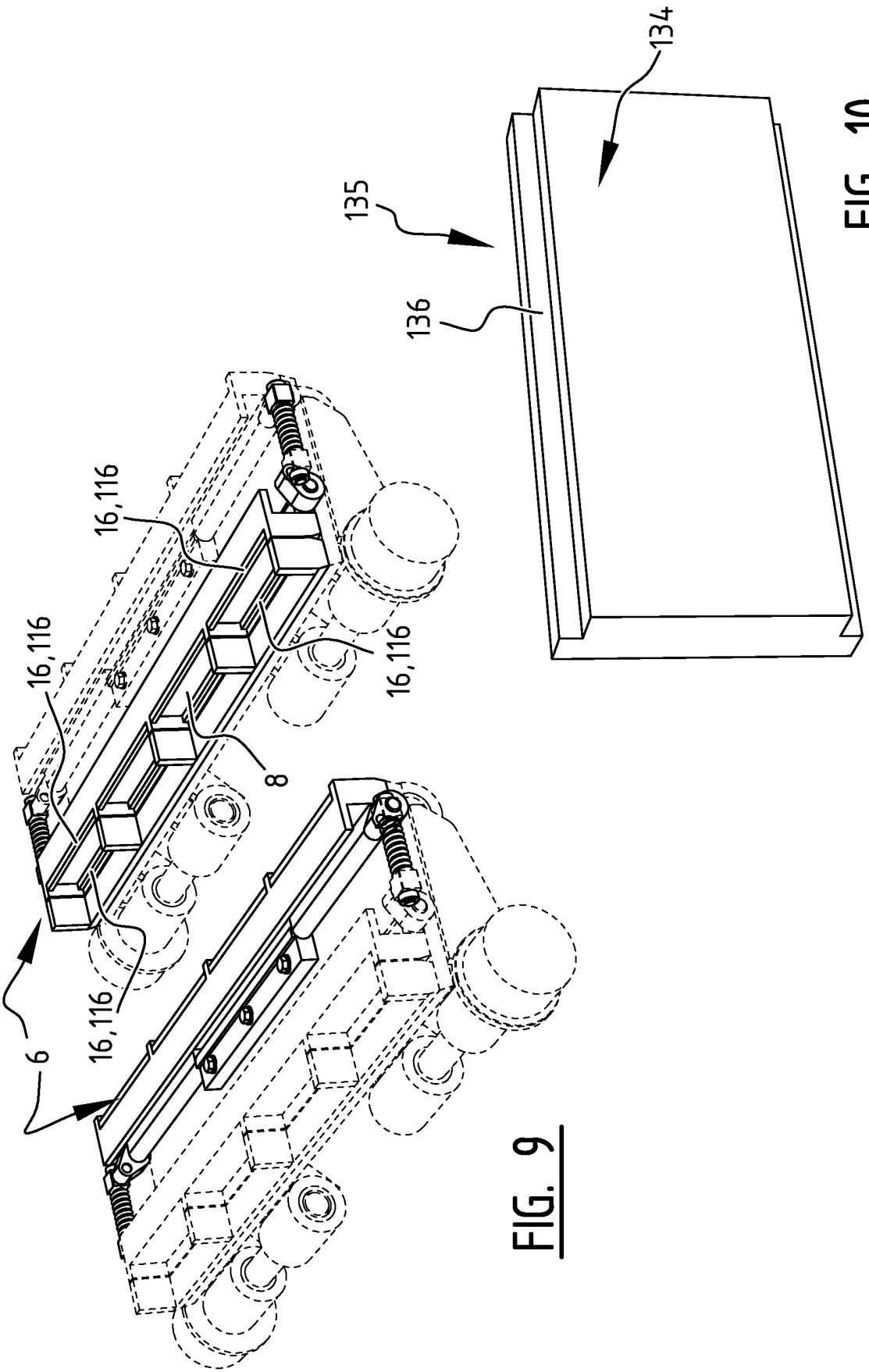

FIG. 10

FIG. 9

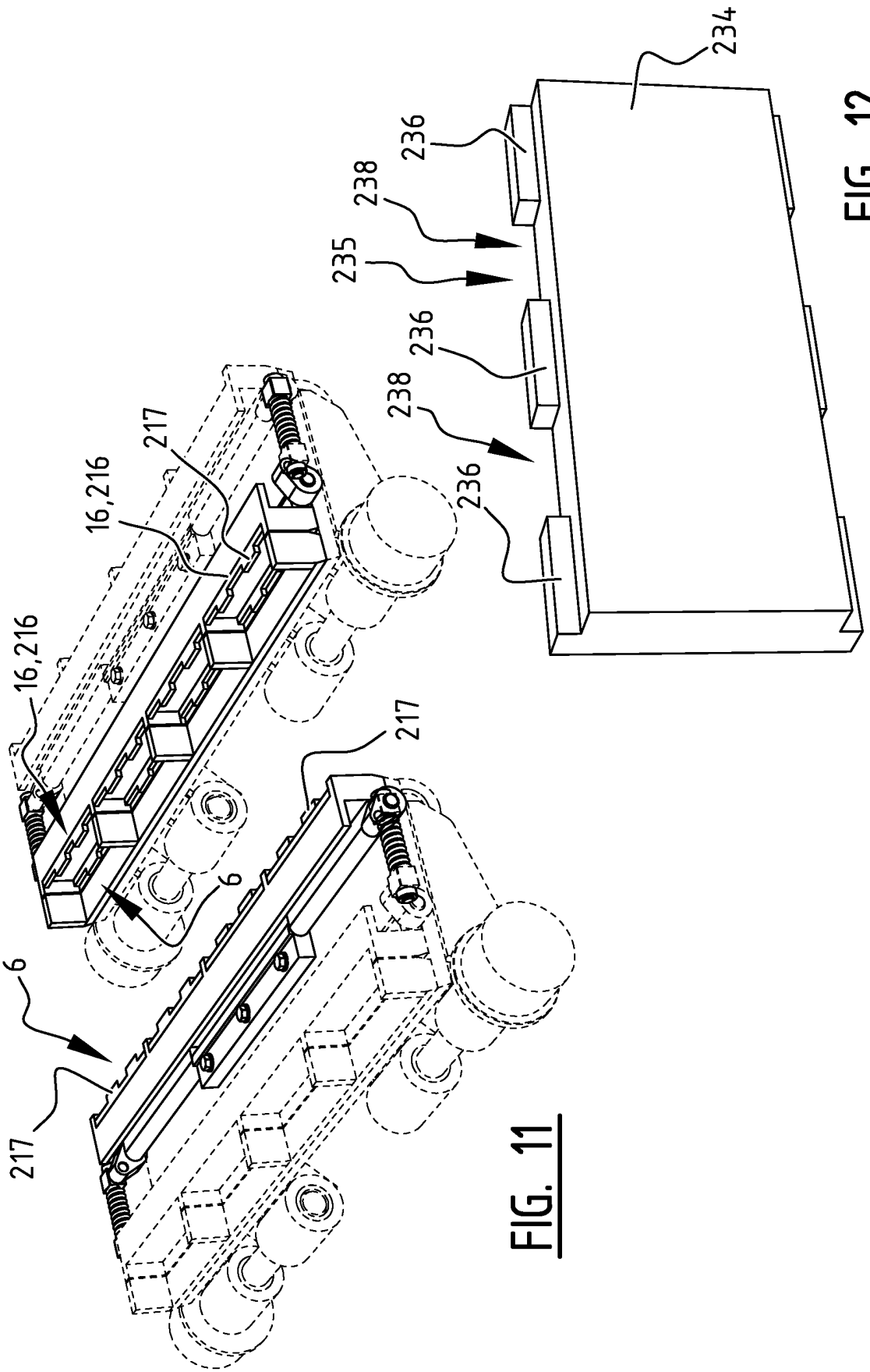

FIG. 11

FIG. 12

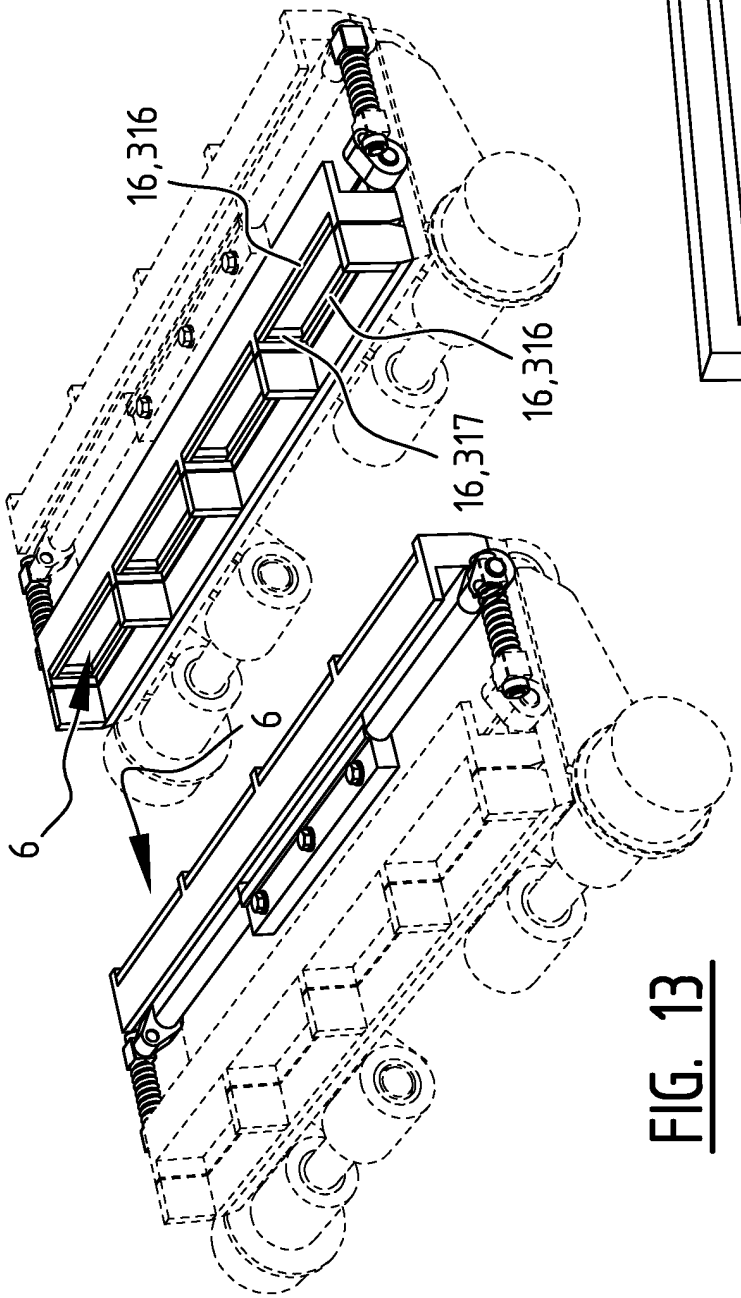

FIG. 13

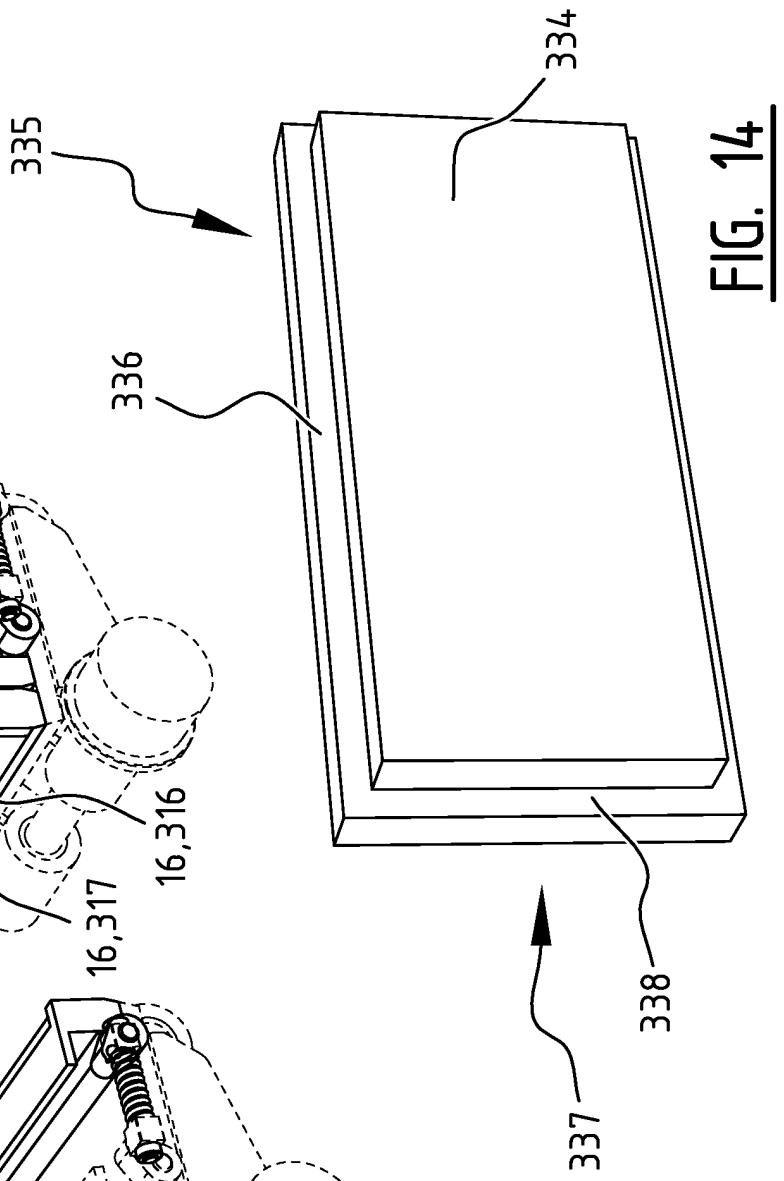

FIG. 14

REFERENCES CITED IN THE DESCRIPTION

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