



(11) **EP 2 540 195 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
02.01.2013 Bulletin 2013/01

(51) Int Cl.:
A47D 1/10 (2006.01) A47D 13/04 (2006.01)

(21) Application number: **12174019.5**

(22) Date of filing: **28.06.2012**

(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**
Designated Extension States:
BA ME

(30) Priority: **29.06.2011 IT UD20110100**

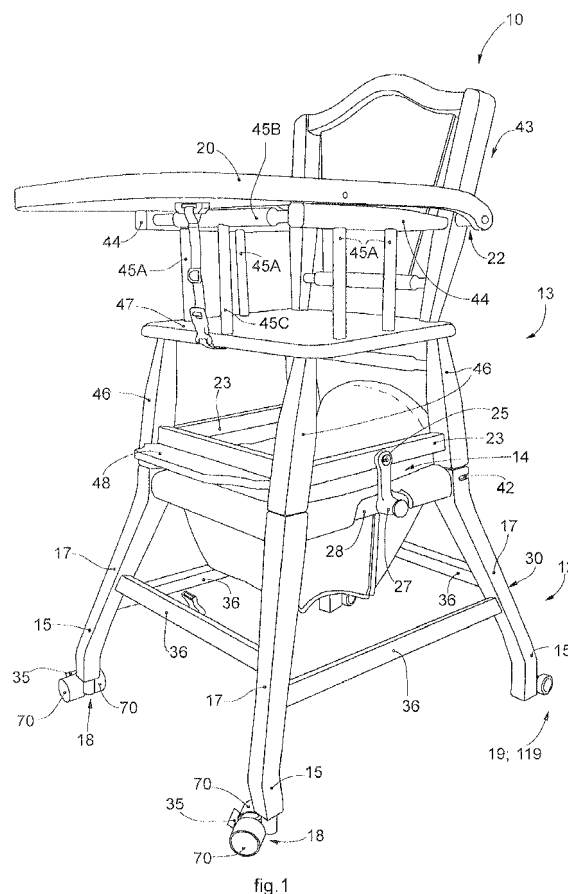
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(54) **Multifunction high chair for children**

(57) Multifunction high chair which comprises a baby walker (12), a seat (13), and rapid attachment means (14) for the reciprocal association and disassociation of said baby walker (12) and the seat (13). There are at least two rapid attachment means (14) disposed opposite on the sides of the high chair, each of them comprises a lever (16) which, at a first end (24) which is upper during use, has a through hole for housing an anchorage pin (25) to an element (23) of the seat (13), and a second end (27) which is lower during use, which has a through hole for housing an attachment element (49) which is inserted in the clamping position into a corresponding blind hole (33) made on an element (28) of the baby walker (12).



Description

FIELD OF THE INVENTION

[0001] The present invention concerns a multifunction high chair used as support and help in the normal daily activities of young children during their very first years. A multifunction high chair is known from document GB-A-6200S8, as set forth in the preamble of the main claim, which comprises a baby walker and a seat which can be used both independently from each other and also, in their assembled condition, as a high chair for the child.

BACKGROUND OF THE INVENTION

[0002] It is known that babies or young children from about the age of about 5-6 months to 1 to 1.5 years, need support devices for their usual daily activities, such as feeding, sitting and taking their first steps in a standing position.

[0003] Devices of various shapes and sizes exist on the market which generally perform only one particular function of those cited above, for example devices known as "baby walkers", to take the first steps, the high chair to sit in, cots, seats etc.

[0004] One disadvantage of such devices is that they have been designed and made to carry out only one function, and this entails the need to acquire and keep several individual mono-functional devices in order to satisfy the different needs, with the consequent problem of cost, the space needed to keep them tidy and also the problem of finding them.

[0005] Multifunctional devices are also known which can satisfy several functions at the same time, for example high chairs are known with wheels which can be partly dis-assembled according to requirements.

[0006] One disadvantage of these known multifunction devices is the difficulty of managing the different attachment elements/devices which are used to join together the different elements/devices that have to be repeatedly assembled/dis-assembled according to requirements. The attachment means associated to one and the other of the components of the multifunction high chair, as well as being complex, are dangerous both during their actuation and also in their assembled condition, because the user can hurt or pinch his/her hands. The multifunction devices, in their entirety, can be heavy, and therefore they can be difficult and not very practical to move and manage, particularly because the mother has to hold her child at the same time.

[0007] A further disadvantage can be that the clamping mechanisms of the wheels, if there are any, can be awkward to activate and not very reliable, with the risk that the high chair is subject to untimely movements.

[0008] A further disadvantage is that known high chairs have a small table which because of its operativeness and conformation is bulky when not in use.

[0009] One purpose of the present invention is to ob-

tain a high chair of the multifunctional type for children, which can be assembled/dis-assembled, which is easy to use, and in which the dis-assembly/assembly is guaranteed by connection means which can be easily activated without the high chair becoming less solid and robust and without said connection means constituting a non aesthetic element.

[0010] Another purpose is to obtain a multifunction high chair which can be moved and selectively clamped securely and stably to the floor.

[0011] The Applicant has devised, tested and embodied the present invention to overcome the shortcomings of the state of the art and to obtain these and other purposes and advantages.

SUMMARY OF THE INVENTION

[0012] The present invention is set forth and characterized in the independent claim, while the dependent claims describe other characteristics of the invention or variants to the main inventive idea.

[0013] In accordance with the above purposes, a multifunction high chair according to the present invention comprises a baby walker provided with a support structure, a seat provided with a framework to which a seating plane is associated, and connection means provided to selectively connect the baby walker to the seat.

[0014] According to one feature of the present invention, there are at least two connection means, independent from each other and disposed on opposite sides of the seating plane. Moreover, each of the connection means comprises a connection element which is oblong shaped and has a first end connected by means of a pin to the support structure or to the framework, and a second end to which an attachment element is associated. In the framework, or respectively in the support structure, a blind hole is made, into which the attachment element can be selectively inserted, in a clamping position in order to determine the solid connection of the baby walker to the seat.

[0015] In this way it is possible to achieve a connection between the baby walker and the seat which is simple and not dangerous either for the child or for the operator who has to make the connection.

[0016] The connection element, being pivoted at its first end, can be positioned in correspondence to the blind hole to allow the reciprocal connection between the two components of the high chair, or it can be taken into a condition of non-interference for the normal and independent use of the seat or the baby walker. The actual connection between baby walker and seat is then determined by driving the attachment element which is inserted into the blind hole.

[0017] The fact that two connection means which are independent with respect to each other are provided allows to prevent the undesired activation of only one of these from determining the uncoupling of baby walker and seat.

[0018] In accordance with another feature of the present invention, an actuation handle is associated to the attachment element to allow the insertion or the removal of the attachment element from the blind hole. This allows the operator to act directly on the handle simply and quickly in order to determine the constraint conditions.

[0019] One form of embodiment of the invention provides that the second end of the connection element is provided with a through hole into which the attachment element is axially mounted sliding.

[0020] In a preferential form, the baby walker element of the multifunction high chair has four legs which, in correspondence to their lower ends in contact with the floor, have a first movement unit, equipped with a brake which can be selectively activated, and a second movement unit equipped with wheels which can be selectively raised with respect to the ground in an inactive position.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] These and other characteristics of the present invention will become apparent from the following description of a preferential form of embodiment, given as a non-restrictive example with reference to the attached drawings wherein:

- fig. 1 is a perspective view of the high chair according to the present invention;
- fig. 2 is a perspective view of the lower part of the high chair in fig. 1;
- fig. 3 is a perspective view of the upper part of the high chair in fig. 1;
- fig. 4 is a perspective view of a detail of the high chair in fig. 1;
- figs. 5a and 5b show a perspective view in two configurations of one form of embodiment of another detail of the high chair in fig. 1;
- fig. 5c shows a perspective view of another form of embodiment of the detail shown in figs. 5a and 5b;
- figs. 6a and 6b show a perspective view in two configurations of another detail of the present invention;
- fig. 7 is a schematic representation of a variant of fig. 6a.

DETAILED DESCRIPTION OF A PREFERENTIAL FORM OF

EMBODIMENT

[0022] With reference to fig. 1, the reference number 10 identifies a multifunction high chair used to support the different daily activities of a very small child, from some months to 1 - 1.5 years old. The multifunction high chair 10 comprises a baby walker 12, and a seat 13 which can be mounted above the baby walker 12. As shown in fig. 1 the seat 13 is removably attached to the baby walker 12 by means of connection means 14 which will be de-

scribed in more detail with reference to fig. 4.

[0023] The baby walker 12 comprises four legs 17, which, in correspondence to their lower ends 15 in contact with the floor, have a first front movement unit 18, and a second rear movement unit 19, 119, which will be described in more detail with reference in particular to figs. 2, 5a, 5b and 5c.

[0024] The multifunction high chair 10 also comprises a small, removable table 20 which, according to requirements, is associated either to the baby walker 12 or to the seat 13 by means of cogging means 22 which will also be described in more detail hereafter, with particular reference to figs. 6a and 6b.

[0025] As shown in fig. 2, the legs 17 of the baby walker 12 are connected one to the other, in correspondence to their upper ends 39, by upper cross-pieces 28. A blind hole 33 is made, in a substantially central position on the upper cross-pieces 28, the function of which will be described hereafter.

[0026] The legs 17 of the baby walker 12 are also connected by intermediate cross-pieces 36.

[0027] The legs 17, the upper cross-pieces 28 and the intermediate cross-pieces 36 define a support structure 30 of the baby walker 12.

[0028] The seat 13, as shown in fig. 3, comprises a backrest 43 connected to a seating plane 47, with a rectangular shape. Four legs 46 are associated to the seating plane 47, positioned and anchored in correspondence to its corners. To increase the stability and rigidity of the seat 13, the legs 46 are connected one to the other by transverse supports 23 and moreover, on the front part, there is a footrest 48. On both sides of the backrest 43 of the seat 13 housing seatings 42 are made for the insertion of the cogging means 22 of the table 20.

[0029] The backrest 43, the seating plane 47, the legs 46 and the transverse supports 23 define a framework 31 of the seat 13.

[0030] To prevent the child from possibly falling when he is seated, two arms 44 are provided, which on one side are anchored to the backrest 43 and on the other side, by means of constraint elements 45A, 45B, 45C, are anchored to the seating plane 47.

[0031] The constraint elements 45A, 45B, 45C are for example oblong elements, such as pins, rods, pegs, bars, which in this case have a circular section, but they can also have a rectangular section, quadrangular in general, elliptical or other, disposed in desired positions, distanced by a predefined pitch.

[0032] In the form of embodiment shown in figs. 1 and 3, the constraint elements comprise first connection elements 45A, which provide to connect the arms 44 to the seating plane 47, a second connection element 45B, which provides to connect the two arms 44 to each other, and a third connection element 45C which connects the second connection element 45B with the seating plane 47.

[0033] The second 45B and third connection elements 45C prevent the child from falling from the seat 13.

[0034] In some forms of embodiment of the invention it can be provided that the second 45B and the third connection element 45C are the removable type so as to allow them to be removed, and hence allow to use the seat 13, for example when the child is grown and there is no longer any danger of him falling involuntarily. To this purpose suitable attachment means may be provided, such as for example screws, to respectively connect the second connection element 45B to the arms 44, and the third connection element 45C to the seating plane 47.

[0035] The multifunction high chair 10, in the form of embodiment shown in fig.1, provides two of the connection means 14, located on opposite sides of the high chair 10.

[0036] Each of the connection means 14 is attached in correspondence with the substantially central part of the external surface of the transverse supports 23 of the seat 13.

[0037] Fig. 4 shows the detail of the connection means 14 used to connect, in the assembled position, the baby walker 12 and the seat 13.

[0038] The connection means 14 comprise a connection element 16 with an oblong shape and provided at a first end 24, upper during use, with a through hole 74 to insert a pin 25 which anchors to the transverse support 23 of the seat 13. In particular, the pin 25 allows the connection element 16 to rotate around it so as to be positioned in the suitable configurations according to requirements.

[0039] At a second end 27, lower during use, the connection element 16 has another through hole 41 to house an attachment element 49. The attachment element 49 is suitable to be inserted into the blind hole 33 of the upper cross piece 28 of the baby walker 12, and to obtain the reciprocal connection between baby walker 12 and seat 13.

[0040] To make the operations to assemble and disassemble the baby walker 12 and seat 13 simpler and quicker, a spring mechanism 73 is associated to the attachment element 49 which allows to maintain, in normal use, the attachment element 49 thrust toward the clamping position, that is, inside the blind hole.

[0041] The spring mechanism 73 is disposed in the connection element 16, inside the through hole 41 where the attachment element 49 is housed. In this way dangerous conditions are prevented for the operators when it is actuated.

[0042] The attachment element 49 is provided with a handle 52 which allows the user to actuate the attachment element 49 according to requirements, thus allowing to insert or remove it into/from the blind hole 33 when it is necessary to assemble or dis-assemble the seat 13 and the baby walker 12.

[0043] From the above description it is clear how seat 13 and baby walker 12 can be assembled/dis-assembled with a simple, quick operation, which thanks to the attachment means 14 disposed on both sides guarantees a stable connection.

[0044] The support structure 30 of the baby walker 12 also defines a cavity 37 (fig. 2) to house a seating plane 38, adjustable in height, which will support the child. The seating plane 38 is advantageously made at least partly of canvas, fabric, rubber or other comfortable and ergonomic materials.

[0045] Each of the legs 17 of the baby walker 12, in correspondence with its upper end 39, is provided with a peg 32 that cooperates with the connection means 14 to keep the seat 13 and the baby walker 12 joined together when positioned one on top of the other.

[0046] Each of the legs 46 of the seat 13 is in turn provided with a cavity, not visible in the drawings, which allows to insert each of the pegs 32 of the baby walker 12.

[0047] This solution guarantees an even more stable and secure anchorage in the assembled position of the high chair 10.

[0048] Again with reference to figs. 1 and 2, the first movement unit 18 is associated with the front legs 17 of the baby walker 12 and comprises, for each leg 17, a pair of wheels 70 pivoted on opposite sides of a cylindrical central support 34. Each central support 34 is attached to the lower end 15 of the corresponding leg 17 and allows the wheels 70 to rotate around an axis orthogonal to its longitudinal development.

[0049] The wheels 70 are associated to a brake, of a known type, able to be selectively activated by a lever 35 positioned between the wheels 70.

[0050] Figs. 5a and 5b show a first form of embodiment of the second movement unit 19 in the two possible operating positions that it can assume. In this case, the second movement unit 19 comprises a support hub 53 pivoted by means of a pin 54 to the lower end 15 of the back legs 17 of the baby walker 12.

[0051] On both sides of the support hub 53 a wheel 55 is mounted rotatable around its own axis of rotation.

[0052] A return spring 57 is associated to the support hub 53 and is connected with a first end to the lower end of the leg 17 and, with the other end, to the support hub 53. In particular, the spring 57 is associated to the support hub 53 in an intermediate position between the pivoting point of the latter to the leg 17, and the pivoting point of the wheel 55 to the support hub 53. The support hub 53 can therefore rotate around the pin 54 to make the wheels 55 assume a first position (fig. 5a) where both are in contact with the floor, and a second position (fig. 5b) where both are raised from the floor to make the legs 17 rest on the floor.

[0053] The two operating positions are determined by the fact that the pin 54 is disposed in an asymmetrical position with respect to the thickness of the leg 17, so that the support hub 53 assumes two different conditions of interference with the sides of each leg 15.

[0054] The spring 57 keeps the support hub 53 in one of the two operating positions determined by the operator. The second position assumed by the wheels 55 (fig. 5b) together with the activation of the brake of the wheels 70 of the first movement unit 18, allows to clamp the

multifunction high chair 10 stably and securely, easily and quickly, in the position where it has been positioned.

[0055] Fig. 5c shows another form of embodiment of the second movement unit, indicated by the reference number 119, which has in any case the two operating positions discussed above. The second movement unit 119 comprises a support hub 153 for a pair of wheels 55. The support hub 153 is provided with a pivoting element 65 suitable to define the rotation of the support hub 153 around an axis X transverse to the axis of rotation of the wheels 55. The rotation of the support hub allows passage between the two operating positions. The pivoting element 65 is housed rotatably in a transverse hole 67, in this case blind, made in the lower end 15 of the back legs 17 of the baby walker 12. On both lower ends 15 of the back legs 17 another longitudinal blind hole 68 is also made, which intersects the transverse hole 67 where the pivoting element 65 is inserted. The longitudinal hole 68 houses a clamping element 69 able to cooperate with the pivoting element 65.

[0056] At one end the clamping element 69 has a rod 69a, on which a spring 157 is fitted, pre-loaded inside the longitudinal hole 68 and able to thrust the clamping element 69 so that it interferes in a desired manner with the pivoting element 65. The clamping element 69 determines the axial constraint, along the axis of rotation X, against the sliding of the pivoting element 65 and at the same time allows the support hub 153 to rotate around the axis of rotation X.

[0057] When disposed during use in correspondence with the intersection of the longitudinal hole 68, the pivoting element 65 has two opposite radial housing seatings 71, made in coordinated manner with the two operating positions that the second movement unit 119 can assume. The two housing seatings 71 are able to selectively cooperate with the lower portion of the clamping element 69 to determine the desired stable positioning. The two housing seatings 71 are connected by means of a semi-annular guide, groove or hollow 72, made on the perimeter along part of the lateral surface of the pivoting element 65, to define a path for the sliding of the lower portion of the clamping element 69 from one housing seating 71 to the other.

[0058] Fig. 5c shows an operating position in which both wheels 55 are in contact with the floor, thus allowing to lift both the lower ends 15 of the legs 17 of the baby walker 12.

[0059] By rotating the support hub 153 by 180° around the axis of rotation X defined by the pivoting element 65, the other operating position is reached, where the wheels 55 are raised from the floor and the legs 17 are in contact with the floor.

[0060] This passage from one operating position to the other is determined by the fact that the axis of rotation X is not only substantially orthogonal with respect to the axis of rotation of the wheels 55, but is also offset with respect to this axis. That is, the two axes of rotation lie on two parallel planes, reciprocally distanced from each

other.

[0061] The spring 157 has the function of keeping the clamping element 69 pressed against the corresponding housing seating 71 of the pivoting element 65, to prevent the whole second movement unit 119 from detaching from its position during the movement steps.

[0062] As we said, the guide 72 facilitates the rotation of the second movement unit 119 from one operating position to the other.

[0063] The table 20 is associable both with the baby walker 12 and with the seat 13 by cogging means 22 configured in the same way in both connection conditions.

[0064] In particular, the cogging means 22 comprise housing seatings 42 made on opposite sides of both the legs 17 of the baby walker 12 and on opposite sides of the backrest 43 of the seat 13.

[0065] With reference to figs. 6a and 6b, only the methods for connecting the table 20 to the baby walker 12 are described, since the methods for connecting the table 20 to the seat 13 are exactly the same.

[0066] Each of the housing seatings 42 extends, transversely to the longitudinal development of the leg 17, for a length less than the thickness of the leg 17, and is substantially T-shaped, that is, it has a first narrow portion 58 made in correspondence with the external side of the leg 17, and a second portion 59 in a position inside the thickness of the leg.

[0067] In correspondence with the blind end of the second portion 59, and in the thickness of the leg 17, a cogging hole 60 is made, which extends toward the inside of the leg 17.

[0068] The table 20 is provided with two arms 61 which are associated by means of the cogging means 22 to the baby walker 12 or to the seat 13.

[0069] The cogging means 22 also comprise, for each of the arms 61, a cylindrical element 62 provided with a terminal end 64 suitable to be inserted into each of the housing seatings 42. In particular, the terminal end 64 is provided with a narrow portion of a size suitable to pass through the first portion 58 of the housing seating 42 and with a head portion, bigger than the first narrow portion, suitable to pass through the second portion 59 to be inserted into the cogging hole 60.

[0070] To insert the terminal end 64 into the housing seating 42, the elastic malleability of the arms 61 of the table is exploited, to allow the subsequent coupling of the head portion into the cogging hole 60.

[0071] According to a variant form of embodiment (fig. 7), the housing seatings, indicated by the reference number 142 made both on the legs 17 and on the uprights of the backrest 43, are L-shaped, that is, they have a first entrance segment, open toward the inside, with a development transverse to the longitudinal extension of the leg 17 or of the backrest 43, and a second segment, orthogonal to the first, which extends longitudinally to the extension of the leg 17 or of the backrest 43.

[0072] The cogging hole 60 is made in correspondence

with the blind end of the second segment opposite the end communicating with the first open segment.

[0073] This form of embodiment is advantageous since it prevents the table 20 from involuntarily detaching from the seat 13 or from the baby walker 12.

[0074] It is clear that modifications and/or additions of parts may be made to the multifunction device as described heretofore, without departing from the field and scope of the present invention.

Claims

1. Multifunction high chair comprising a baby walker (12) provided with a support structure (30), a seat (13) provided with a framework (31) to which a seating plane (38) is associated, and connection means (14) provided to selectively connect said baby walker (12) and said seat (13), **characterized in that** there are at least two of said connection means (14), independent from each other and disposed on opposite sides of said seating plane (38), **in that** each of said connection means (14) comprises a connection element (16), oblong in shape and having a first end (24) connected by means of a pin (25) to said support structure (30), or to said framework (31), and a second end (27) to which an attachment element (49) is associated, **and in that** in said framework (31), or respectively in said support structure (30), a blind hole (33) is made, into which said attachment element (49) can be selectively inserted in a clamping position, to determine the solid connection of said baby walker (12) to said seat (13).
2. High chair as in claim 1, **characterized in that** an actuation handle (52) is associated to said attachment element (49) and is able to allow the insertion or the removal of said attachment element (49) into/from said blind hole (33)
3. High chair as in claim 1 or 2, **characterized in that** said second end (27) of the connection element (16) is provided with a through hole (41) into which said attachment element (49) is mounted sliding.
4. High chair as in any claim hereinbefore, **characterized in that** elastic means (73) are associated to said attachment element (49) to keep the latter inserted in the blind hole (33) when it is in said clamping position.
5. Multifunction high chair as in any claim hereinbefore, **characterized in that** said baby walker (12) is provided with four legs (17) some of which are associated to a first movement unit (18), equipped with a brake which can be activated by a lever (35), and the others associated to a second movement unit (19, 119) equipped with wheels (55) which can be

selectively raised with respect to the ground in an inactive position.

6. Multifunction high chair as in claim 5, **characterized in that** said second movement unit (19) comprises a support hub (53) of said wheels (55), pivoted by means of a pin (54) to the lower ends (15) of said legs (17), and suitable to rotate around the terminal end of said legs (17), to assume a first position in which the wheels (55) are in contact with the floor, and a second position in which said wheels (55) are raised from the floor, and said legs (17) are resting on the floor.
7. Multifunction high chair as in claim 6, **characterized in that** a return spring (57) is associated to said support hub (53) and is provided to keep said wheels (55) stably in said first or respectively said second position.
8. Multifunction high chair as in claim 5, **characterized in that** said second movement unit (119) comprises a support hub (153) for a pair of wheels (55) provided with at least a pivoting element (65) able to be inserted in a hole (67) made in said legs (17), transversely to their longitudinal extension, **and in that** said support hub (153) can be selectively rotated around said pivoting element (65) to assume a first operating position in which the wheels (55) are in contact with the floor, and a second operating position in which the wheels (55) are raised from the floor, and said legs (17) are resting on the floor.
9. Multifunction high chair as in claim 8, **characterized in that** said pivoting element (65) is axially constrained in said hole (67) by means of at least a clamping element (69) inserted in a longitudinal hole (68) which intersects said hole (67), elastic means (157) being associated in said longitudinal hole (68) to said clamping element (69), in order to determine the cooperation of said clamping element (69) with said pivoting element (65).
10. Multifunction high chair as in any claim hereinbefore, **characterized in that** a small table (20) is selectively associable to said seat (13) or to said baby walker (12) by means of housing seatings (42; 142) made respectively in said support structure (30) of said baby walker (12) and in said framework (31) of said seat (13).
11. High chair as in claim 10, **characterized in that** each of said housing seatings (42; 142) extends longitudinally with a first narrow portion (58) made open toward the outside and a second portion (59), bigger than the first portion (59), made in a more inward position with respect to the first narrow portion (58).

12. High chair as in claim 11, **characterized in that** in said housing seating (42; 142), in correspondence to said second portion (59), a cogging hole (60) is made which extends internally with respect to said first narrow portion (58) and said second portion (59). 5
13. High chair as in any claim from 10 to 12, **characterized in that** said small table (20) is provided with rapid cogging means (22) suitable to be inserted in said housing seatings (42). 10
14. High chair as in claim 12 or 13, **characterized in that** said cogging means (22) comprise a terminal end (64) provided with a narrow portion with sizes suitable to pass through the first portion (58) of the housing seating (42; 142) and with a head portion, bigger than the narrow portion, suitable to pass through the second portion (59), to be inserted into the cogging hole (60). 15

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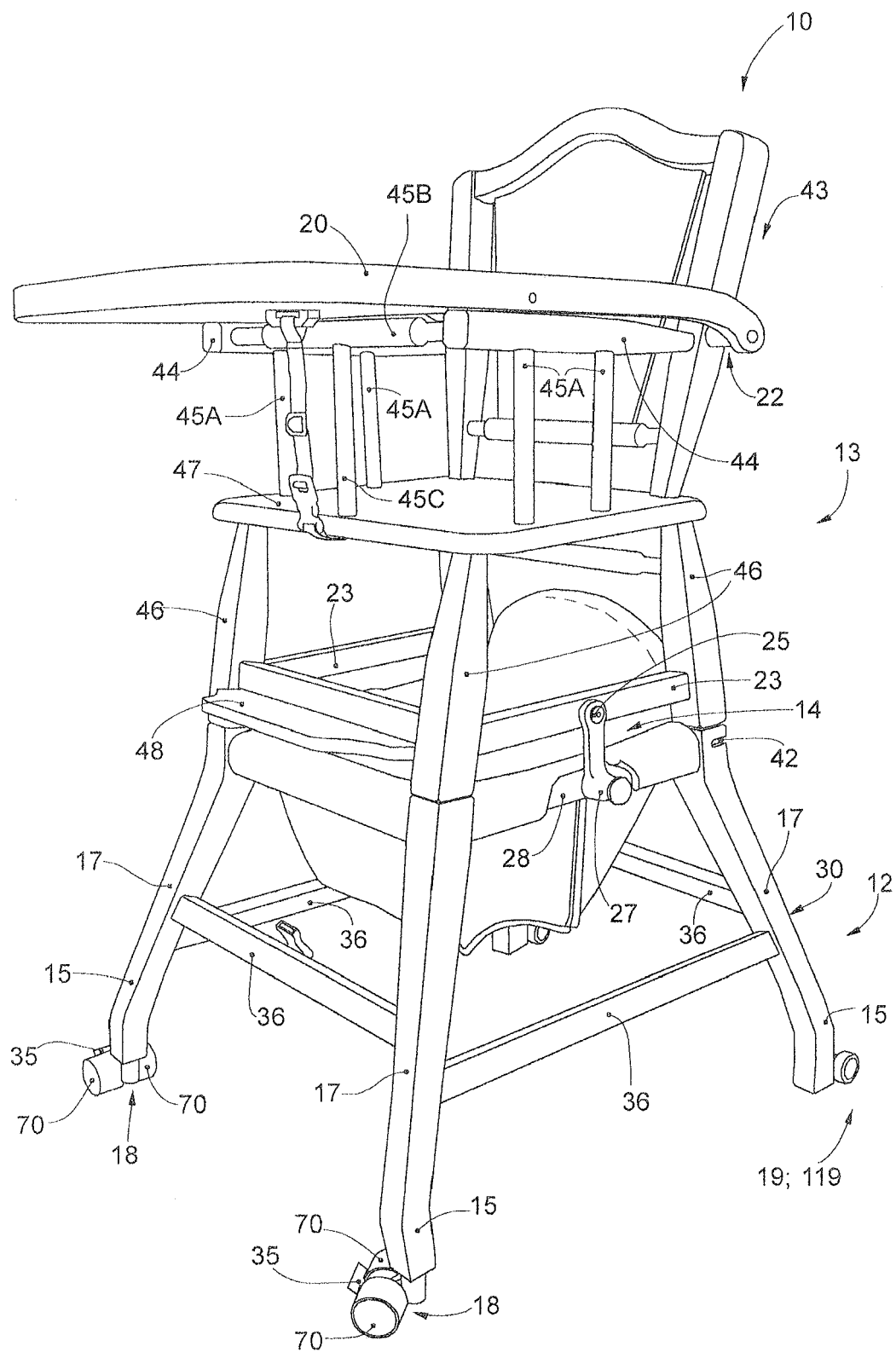


fig. 1

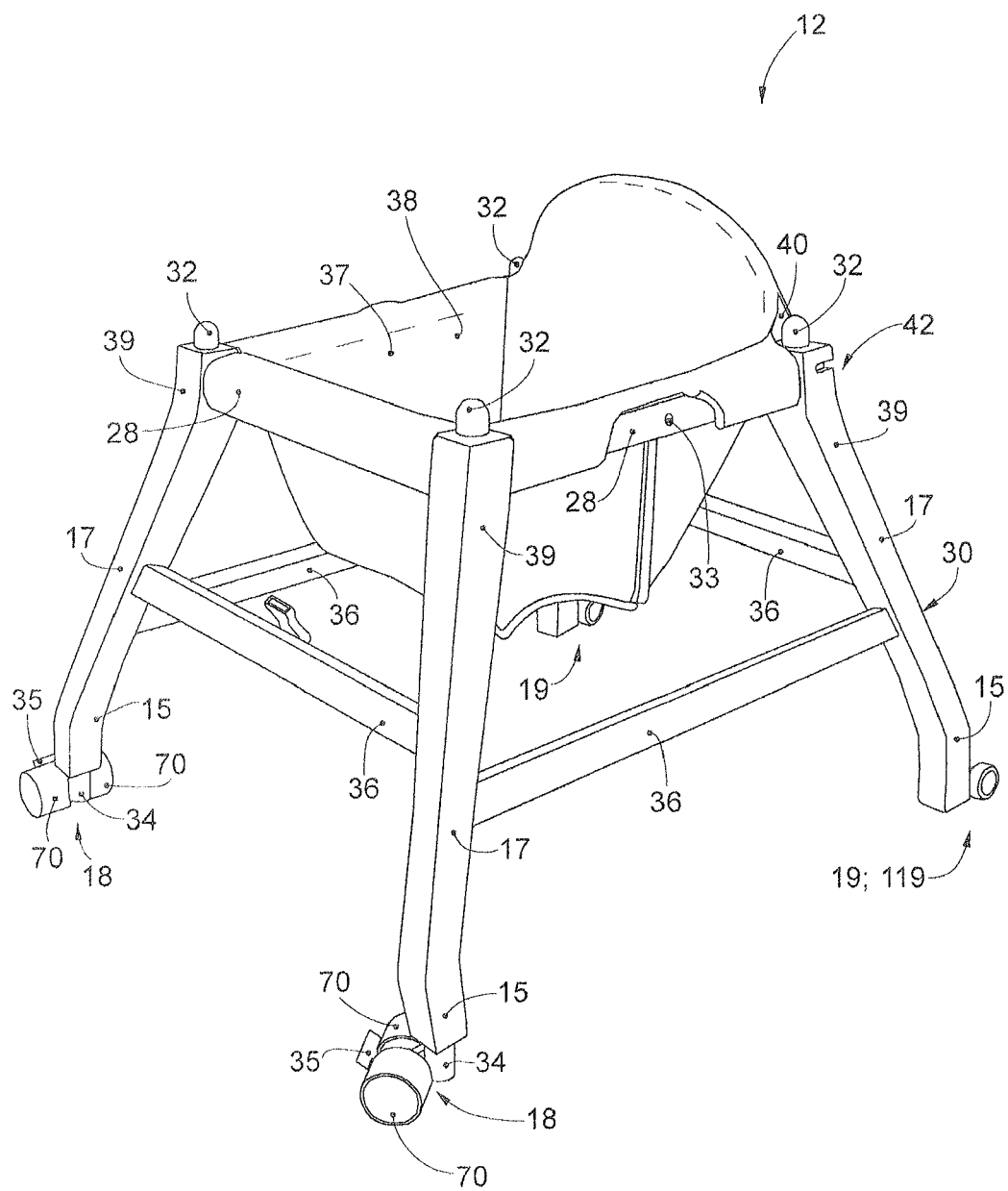


fig. 2

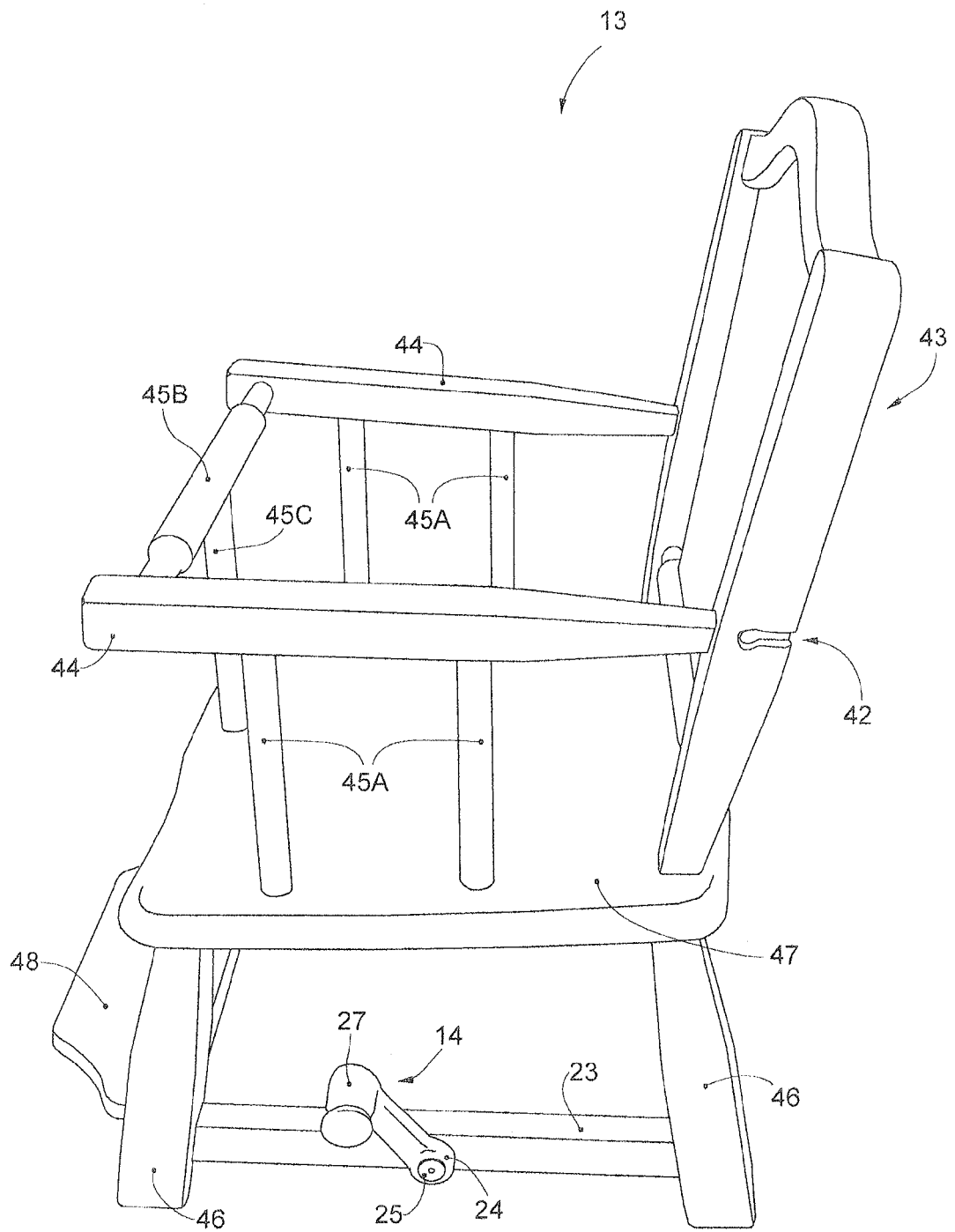


fig. 3

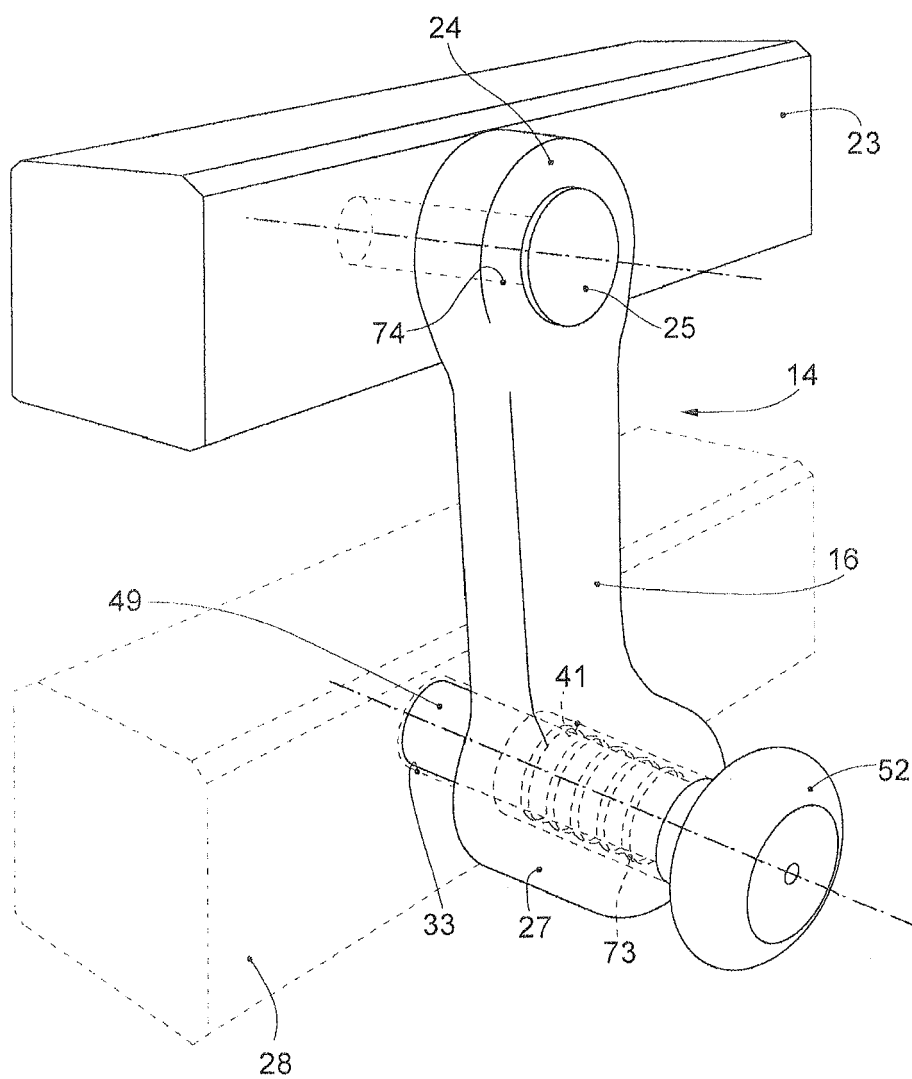


fig. 4

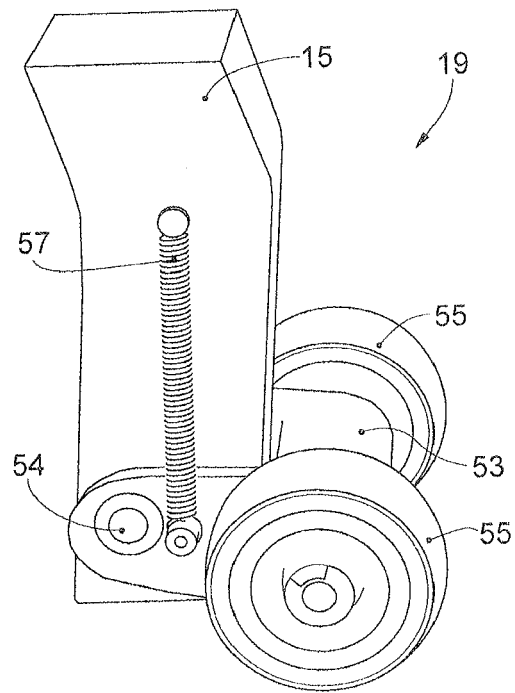


fig. 5a

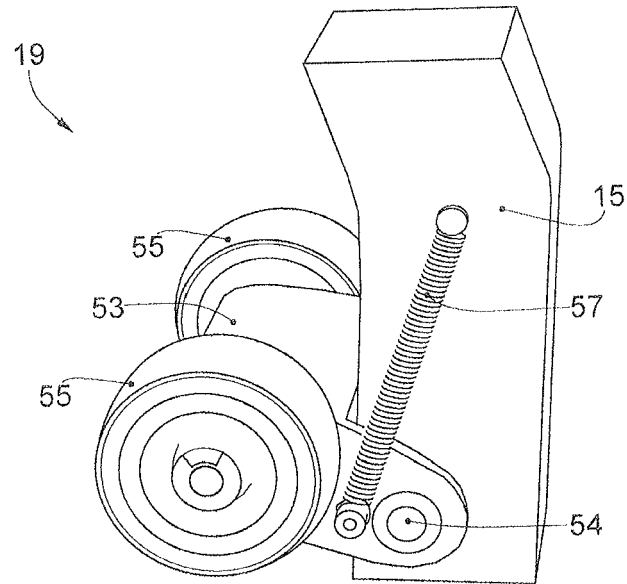


fig. 5b

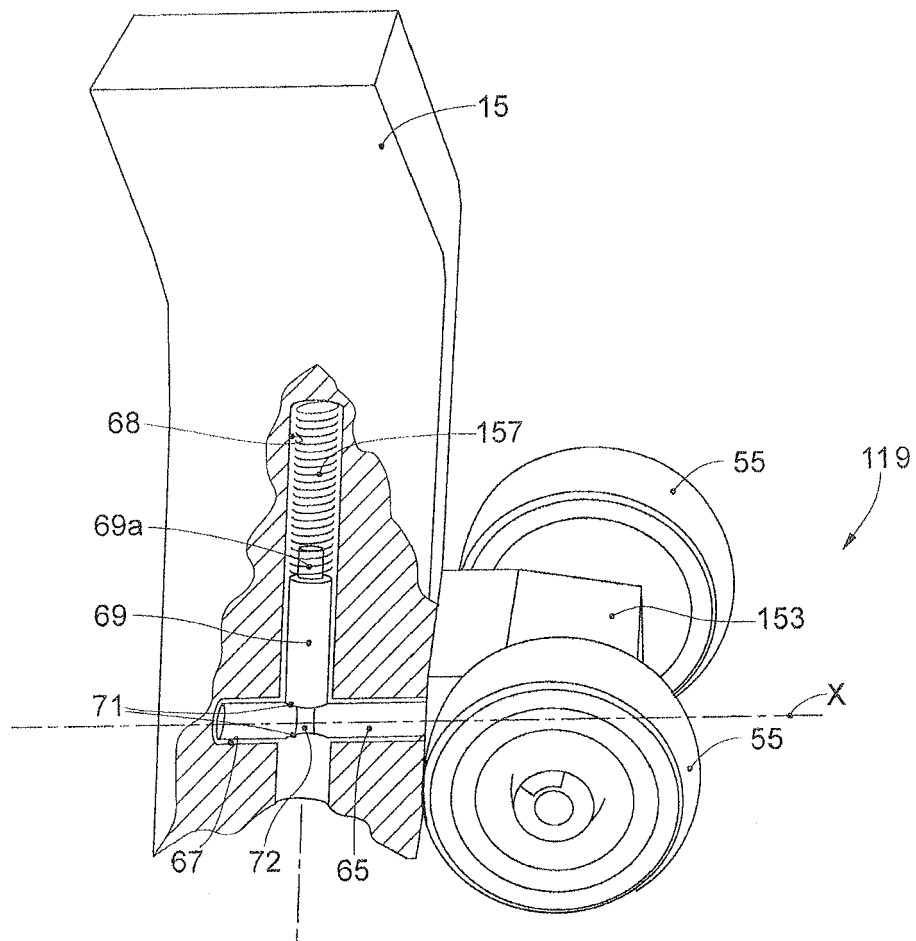
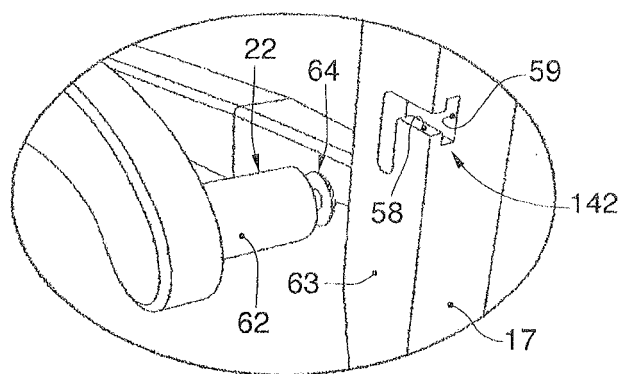
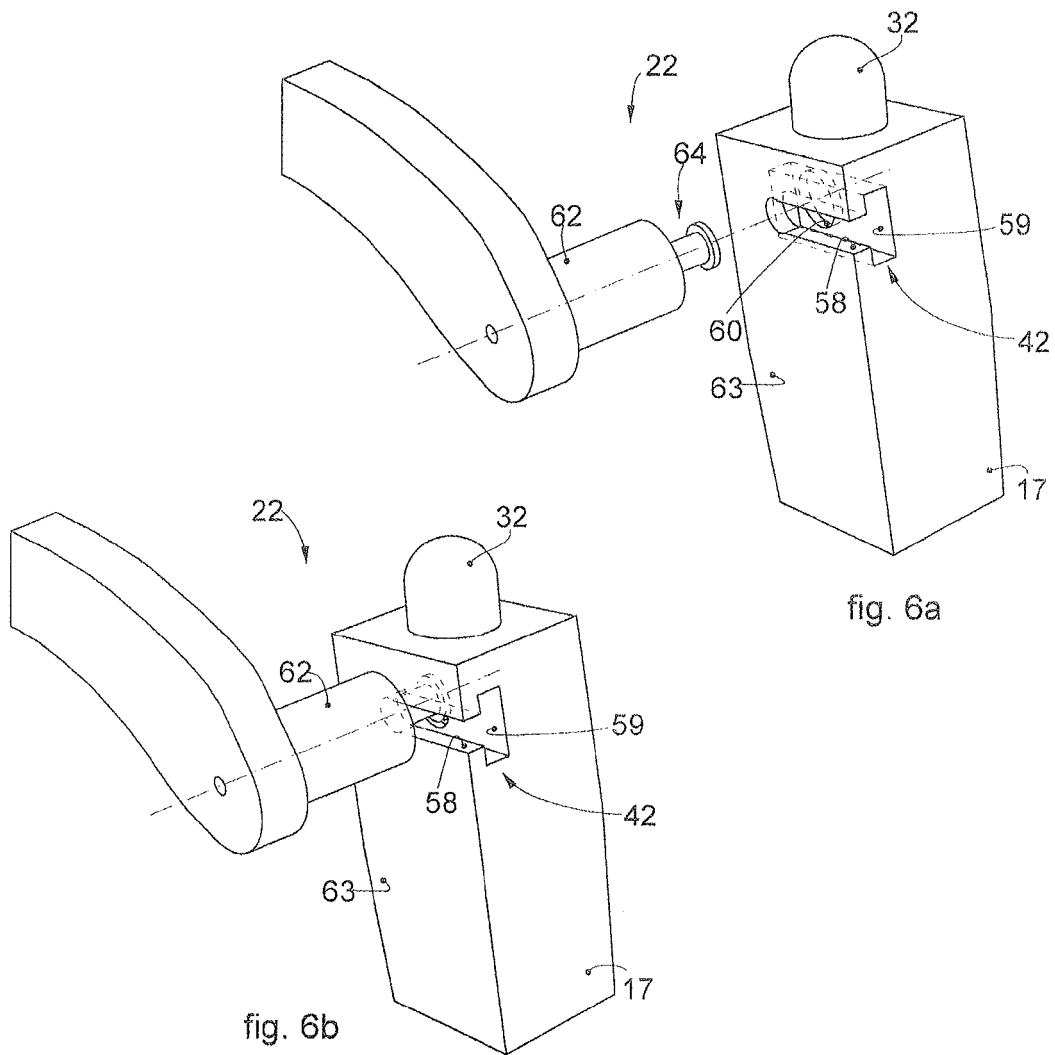


fig. 5c





EUROPEAN SEARCH REPORT

Application Number
EP 12 17 4019

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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