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(54) Title: CHILD SEAT APPLICABLE TO FRAMES, IN PARTICULAR OF THE "BOOK-LIKE" FOLDABLE TYPE, OF STROLLERS AND BABY STROLLER, IN PARTICULAR OF THE "BOOK-LIKE" FOLDABLE TYPE, COMPRISING SUCH A CHILD SEAT

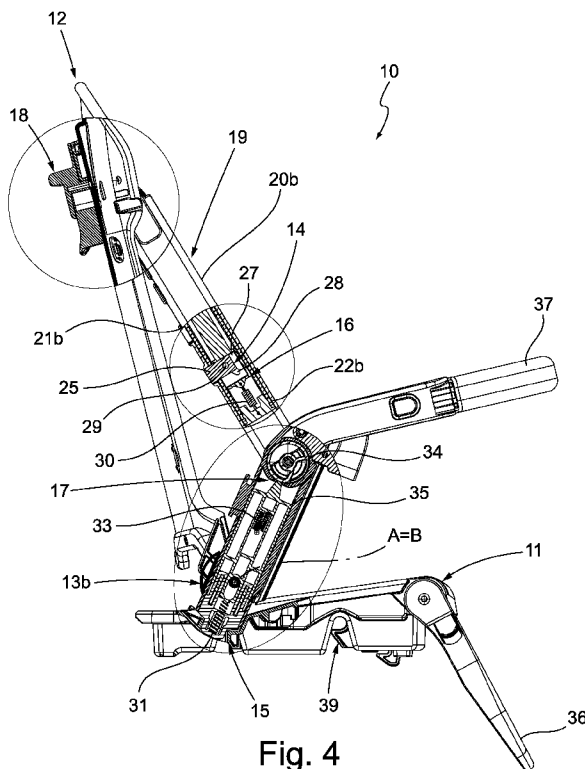


Fig. 4

(57) Abstract: A child seat (10) applicable to frames (100), in particular of the "book-like" foldable type, of baby strollers and comprising a support plane or seat plate (11), a backrest (12) and a pair of armrests (13a, 13b), wherein the backrest (12) is hinged to the seat plate (11) or to the armrests (13a, 13b) rotatably about a first axis (A) and the armrests (13a, 13b) are hinged to the seat plate (11) rotatably about a common second axis (B) parallel or coinciding with the first axis (A), the child seat (10) further comprising first locking means (14) for locking the rotation of the backrest (12) about the first axis (A) relatively to the member of the child seat (10) to which the backrest (12) is hinged, the first locking means (14) being movable between a locking position and an unlocking position of the rotation of the backrest (12) about the first axis (A), second locking means (15) for locking the rotation of the armrests (13a, 13b) about the second axis (B) relatively to the seat plate (11), the second locking means (15) being movable between a locking position and an unlocking position of the rotation of the armrests (13a, 13b) about the second axis (B), a pair of rods (20a, 20b) which articulate to each other the backrest (12) and the armrests (13a, 13b) and each of which has an end hinged to the backrest (12) rotatably about a common third axis (C) parallel to the first and to the second axis (A) and (B), the opposite end hinged to a respective armrest (13a, 13b) rotatably about a common fourth axis (D) parallel to the first and to the second axis (A) and (B) and comprises at least one pair of rod-like elements (21a,

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22a; 21b, 22b) which are coupled to each other in an axially slidable manner, wherein the first locking means (14) are defined at the rods (20a, 20b) in order to lock and unlock the relative sliding of the respective rod-like elements (21a, 22a; 21b, 22b) and, thus, in order to respectively prevent and allow the relative rotation between the backrest (12) and the armrests (13a, 13b), and the second locking means (15) are defined between the armrests (13a, 13b) and the seat plate (11), wherein the seat plate (11), the backrest (12) and the armrests (13a, 13b) are articulated to each other in a "book-like" manner moveably between at least one open position of the seat (10), wherein the backrest (12) and the armrests (13a, 13b) are in raised position with respect to the seat plate (11), and, when the first locking means (14) and the second locking means (15) are in the respective unlocking position, a closed position of the seat (10), wherein the backrest (12) and the armrests (13a, 13b) are rotated forward one on the others in lowered position and abutted on the seat plate (11).

CHILD SEAT APPLICABLE TO FRAMES, IN PARTICULAR OF THE
"BOOK-LIKE" FOLDABLE TYPE, OF STROLLERS AND BABY
STROLLER, IN PARTICULAR OF THE "BOOK-LIKE" FOLDABLE
TYPE, COMPRISING SUCH A CHILD SEAT

5

The present invention refers to a child seat
applicable to frames of baby strollers, in particular
of the "book-like" foldable type.

The present invention also refers to a baby
10 stroller, in particular of the "book-like" foldable
type, comprising such child seat.

In the baby strollers industry there are known
various types of foldable frames, including, in
particular, the so-called "umbrella-like" frames, which
15 are foldable on themselves both in the longitudinal
direction and in the transverse direction and the so-
called "book-like" frames, which can be folded on
themselves only along the longitudinal direction.

"Umbrella-like" foldable frames are, for example,
20 known from EP1232927.

"Book-like" foldable frames are instead for example
known from US6,105,998, US6,095,548 and US7,077,420.

In the latter "book-like" foldable frames of the
known type, the opening and the closure of the frame
25 occur in consequence of the relative motion between the
front uprights, the rear uprights and the handle bars,
the motion in question can be a combined motion of
rotation and relative translation, as for example
described in US6,105,998, or only a rotation motion,
30 such as for example described in US6,095,548 or in
US7,077,420.

The latter "book-like" foldable frames of the known

type have a small overall dimension and they may be opened and also folded with only one hand and without the use of excessive effort by a user.

In the strollers of the "book-like" foldable type
5 the closure and the opening of the respective frame often requires the removal of the child seat, with ensuing discomfort for the user.

US2011/0304124 describes a baby stroller comprising a "book-like" closable frame and a child seat which is
10 fixed to the frame in a non-removable manner and which can be folded on itself with backward rotation of the backrest and forward of the armrests.

Thus, there arises the need to propose an alternative structure of a child seat applicable to
15 frames of baby strollers of the "book-like" foldable type which can be easily opened and closed even independently from the frame itself and even when in mounting configuration both "facing forward" and "facing backwards".

Another object of the present invention is to
20 provide a child seat applicable to frames, in particular of the "book-like" foldable type, of baby strollers and a baby stroller, in particular of the "book-like" foldable type, comprising such child seat,
25 which are particularly simple and functional.

These objects according to the present invention are attained by realizing a child seat applicable to frames, in particular of the "book-like" foldable type, of baby strollers as outlined in claim 1.

30 These objects according to the present invention are also attained by realizing a baby stroller, in particular of the "book-like" foldable type, as

outlined in claim 11.

Further characteristics are provided for in the dependent claims.

The characteristics and advantages of a child seat
5 applicable to a frame, in particular of the "book-like"
foldable type, of baby strollers and a baby stroller,
in particular of the "book-like" foldable type,
according to the present invention shall be more
apparent from the following exemplifying and non-
10 limiting description with reference to the attached
schematic drawings, wherein:

figures 1 and 2 show - according to a schematic and
axonometric view, respectively front and rear - a child
seat according to the present invention in a first open
15 position;

figure 3 is a side elevational schematic view of
the child seat according to figures 1 and 2;

figure 4 is a view like that of figure 3 with some
details shown in sectional view;

20 figure 5 is a view like that of figure 4 in an
intermediate passage position between the open position
and the closed position or a second open position;

figure 6 is a side elevational schematic view of
the child seat according to the present invention in a
25 second open position with some details shown in
sectional view;

figure 7 is a side elevational schematic view of
the child seat according to the present invention in an
intermediate passage position between the open position
30 and the closed position with some details shown in
sectional view;

figure 8 is a side elevational view of the child

seat according to the present invention in closed position;

figures 9A and 9B respectively show - in front axonometric and side elevational view - a stroller of the "book-like" foldable type with a child seat
5 according to the present invention mounted "facing forward";

figures 10A and 10B respectively show - in front axonometric and side elevational view - a stroller of the "book-like" foldable type with a child seat
10 according to the present invention mounted "facing backwards".

With reference to the attached figures, a child seat applicable to frames, in particular of the "book-like" foldable type, of baby strollers is indicated in
15 its entirety with 10.

It should be observed that in the present description adjectives such as "first" and "second", as well as adjectives such as "front" and "rear", "right" and "left" or "internal" and "external" and adverbs
20 such as "upwards" and "downwards" refer to the conditions of use of a child seat and a stroller by a user and they are used for the sole sake of description clarity and thus they shall not be deemed as limiting
25 in any manner whatsoever.

In addition, it should be observed that in the attached figures the child seat 10 is shown without padding and covers.

The child seat 10 comprises a support plane or seat
30 plate 11, a backrest 12 and a pair of armrests 13a, 13b which are articulated to each other in a "book-like" manner moveably between at least one open position of

the child seat 10, in which the backrest 12 and the armrests 13a, 13b are in raised position with respect to the seat plate 11, and a closed position of the child seat 10, in which the backrest 12 and the armrests 13a, 13b are rotated forward one on the others in lowered position and abutted/folded on the seat plate 11.

The backrest 12 is hinged to the seat plate 11 or to the armrests 13a, 13b rotatably about a first hinging axis A.

In the first case, i.e. in the case where the backrest 12 is hinged to the seat plate 11, the armrests 13a, 13b are hinged to the seat plate 11 or, equivalently, to the same backrest 12 rotatably about a common second hinging axis B coinciding or parallel to the first hinging axis A.

In the second case, i.e. in the case where the backrest 12 is hinged to the armrests 13a, 13b, the latter are hinged to the seat plate 11 rotatably about a common second hinging axis B coinciding or parallel to the first hinging axis A.

The child seat 10 further comprises:

- first locking means 14 for locking the rotation of the backrest 12 about the first hinging axis A relatively to the member (whether constituted by the seat plate 11 or by the armrests 13a, 13b) of the child seat 10 to which it is hinged, the first locking means 14 being movable between a locking position and an unlocking position of the rotation of the backrest 12 about the first hinging axis A, and

- second locking means 15 for locking the rotation of the armrests 13a, 13b about the second hinging axis

B relatively to the member (whether constituted by the seat plate 11 or by the backrest 12) to which they are hinged, the second locking means 15 being movable between a locking position and an unlocking position of the rotation of the armrests 13a, 13b about the second hinging axis B.

In consequence of the rotation of the backrest 12 and of the armrests 13a, 13b respectively about the first hinging axis A and the second hinging axis B, the child seat 10 takes the at least one first open position, in which the backrest 12 and the armrests 13a, 13b are in raised position with respect to the seat plate 11, and the closed position, in which the backrest 12 and the armrests 13a, 13b are rotated forward one on the others in lowered position and abutted/folded on the seat plate 11.

The child seat 10 also comprises first control means 16 of the first locking means 14 and second control means 17 of the second locking means 15, at least one of which can be actuated from the outside through an actuation element - for example of the handle 18 type - which can be manoeuvred by a user.

The other between the first and second control means 16 and 17, instead, may also be of the type actuatable from the outside through a respective actuation element which can be manoeuvred by a user or it can be of the type actuatable by the rotation respectively of the armrests 13a, 13b or of the backrest 12 respectively about the second hinging axis B or the first hinging axis A (the second locking means 15 or the first locking means 14 being in the respective unlocking position) through respective

transmission members 19.

The backrest 12 and the armrests 13a, 13b are articulated to each other through a pair of rods 20a, 20b each of which has an end hinged to the backrest 12
5 rotatably about a common third hinging axis C and the opposite end hinged to a respective armrest 13a, 13b rotatably about a common fourth hinging axis D, in which the third and fourth hinging axis C and D are parallel to the first and second hinging axis A and B.
10 There cannot be excluded embodiments in which one of the two opposite ends of each of the two rods 20a, 20b is rotatably hinged about the respective third or fourth hinging axis C or D to a slide mounted in an axially slidable manner along the respective side of
15 the backrest 12 or along the respective armrest 13a, 13b.

Each rod 20a, 20b comprises at least one pair of rod-like elements 21a, 22a and 21b, 22b which are coupled to each other in an axially slidable manner.

20 Depending on the configuration of the child seat 10 and, in particular, of the articulation between the backrest 12, the seat plate 11 and the armrests 13a, 13b, one among the first locking means 14 and the second locking means 15 is defined at the rods 20a, 20b
25 in order to lock and unlock the relative sliding of the respective rod-like elements 21a, 22a and 21b, 22b and, thus, in order to respectively prevent and allow the relative rotation between the backrest 12 and the armrests 13a, 13b, the other between the first locking
30 means 14 and the second locking means 15 being defined respectively between the backrest 12 and the seat plate 11 or between the armrests 13a, 13b and the seat plate

11.

In particular, those between the first locking means 14 and the second locking means 15 - whose respective first control means 16 or second control means 17 can be actuated from the outside - are defined at the rods 20a, 20b in order to respectively lock and unlock the relative sliding of the two rod-like elements 21a, 22a and 21b, 22b and, thus, in order to prevent and allow the relative rotation between the backrest 12 and the armrests 13a, 13b.

Advantageously, in the case where the others between the first locking means 14 and the second locking means 15 have the respective first control means 16 or second control means 17 actuated by the rotation respectively of the armrests 13a, 13b or the backrest 12, the pair of rods 20a, 20b serves as transmission members 19 for the actuation of the latter.

In such case, the pair of rods 20a, 20b allows:

- the relative rotation between the backrest 12 and the armrests 13a, 13b, when those between the first locking means 14 and the second locking means 15 - whose respective first control means 16 or second control means 17 are actuated from the outside - are in unlocking position, the others (i.e. those between the first locking means 14 and the second locking means 15 whose respective first control means 16 and second control means 17 are actuated by the rotation respectively of the armrests 13a, 13b and the backrest 12) being in locking position, and
- the rotation of the backrest 12 and the armrests 13a, 13b as a single body when the latter locking means

(i.e. those between the first locking means 14 and the second locking means 15 whose respective first control means 16 and second control means 17 are actuated by the rotation respectively of the armrests 13a, 13b and the backrest 12) are in unlocking position.

The second locking means 15 can be controlled from the respective locking position to the respective unlocking position of the rotation of the armrests 13a, 13b about the second hinging axis B only when the first locking means 14 are in the respective unlocking position of the rotation of the backrest 12 about the first hinging axis A.

Correspondingly, the second control means 17 can be actuated in succession to the first control means 16 and vice versa.

With particular reference to the embodiment represented in the attached figures, the backrest 12 is hinged to the seat plate 11 rotatably about the first hinging axis A, which is defined by a pair of first cylindrical hinges 23.

The armrests 13a, 13b are also engaged to the seat plate 11 rotatably about the common second hinging axis B, which is defined by second cylindrical hinges 24a, 24b coaxial to the pair of first cylindrical hinges 23, so that the first hinging axis A and the second hinging axis B coincide with respect to each other.

The first locking means 14 are defined between the rod-like elements 21a, 22a and 21b, 22b of each rod 20a, 20b and the respective first control means 16 can be actuated from the outside through an actuation element of the type, for example, of a handle 18 which is moveably mounted on the backrest 12, advantageously

on the back of the latter.

The two rod-like elements 21a, 22a and 21b, 22b of each rod 20a, 20b are constituted by tubular sections coupled to each other in a telescopic manner, one 21a, 21b of which is internal to the other external one 22a, 22b.

The first locking means 14 comprise a first bolt 25 that extends transversely to one of the two rod-like elements 21a, 22a and 21b, 22b of each rod 20a, 20b and it is moveably mounted on it between a protracted position towards the other of the two rod-like elements 21a, 22a and 21b, 22b of each rod 20a, 20b for being inserted into at least one first seat 26 obtained in the latter, thus locking the relative sliding between the two, and a retracted position with respect to the other of the two rod-like elements 21a, 22a and 21b, 22b of each rod 20a, 20b to free the at least one first seat 26, thus leaving the sliding between the two rod-like elements 21a, 22a and 21b, 22b of each rod 20a, 20b free.

In the shown embodiment, the first bolt 25 is mounted on the internal rod-like element 21a, 21b and the at least one first seat 26 is obtained in the rod-like element 22a, 22b outside each pair of rod-like elements 21a, 22a and 21b, 22b.

The first control means 16 comprise a block 27 that is mounted in an axially slidable manner on the rod-like element 21a, 22a or 21b, 22b whereon the first bolt 25 is mounted (in the shown case, the block 27 is mounted in an axially slidable manner inside the internal rod-like element 21a, 21b of each rod 20a, 20b) and in which there is defined a slot 28 inclined

with respect to the longitudinal axis of the respective rod 20a, 20b.

A pin 29 integral with the first bolt 25 is slidably inserted in the slot 28.

5 The block 27 is movable, in contrast with first elastic means 30 acting between it and the respective rod-like element 21a, 21b on which it is mounted, between a first position in which it retains the first bolt 25 in a protracted locking position in the
10 respective first seat 26 (the pin 29 being in proximity of the end of the slot 28 at a lower height with respect to the first seat 26) and a second position in which it takes the first bolt 25 to the respective retracted position in order to free the at least one
15 first seat 26 (the pin 29 being in proximity of the end of the slot 28 with higher height with respect to the first seat 26).

 The sliding of the block 27 is actuated by the handle 18 through a transmission, for example of the
20 cable-type and not shown in detail being of the type easily understandable to a person skilled in the art.

 Advantageously, there is provided a plurality of first seats 26, so as to allow the adjustment of the inclination of the backrest 12 with respect to the
25 armrests 13a, 13b and, thus, with respect to the seat plate 11, maintaining the position of the armrests 13a, 13b fixed.

 When the first locking means 14 are in their locking position, the relative sliding of the two rod-like elements 21a, 22a and 21b, 22b of each rod 20a,
30 20b is locked, so that the backrest 12, the armrests 13a, 13b and the rods 20a, 20b are articulated to each

other so as to define, on each side of the backrest 12, an arc with three hinges which prevents any relative rotation therebetween.

When the first locking means 14 are in their
5 unlocking position, the relative sliding of the two rod-like elements 21a, 22a and 21b, 22b is unlocked, so that the backrest 12 can rotate with respect to the armrests 13a, 13b (whose rotation about the second hinging axis B is prevented by the second locking means
10 15) as allowed by the sliding stroke of the rod-like elements 21a, 22a and 21b, 22b of each rod 20a, 20b relative to each other.

This allows, on the one hand, adjusting the inclination of the backrest 12 with respect to the
15 armrests 13a, 13b should there be provided a plurality of first seats 26 and, on the other hand, approaching and closing the backrest 12 in a "book-like" manner with respect to the armrests 13a, 13b - which are held in their raised position by the second locking means 15
20 - in particular as long as the relative maximum retraction stroke of the rod-like elements 21a, 22a and 21b, 22b of each rod 20a, 20b is attained, the rods 20a, 20b taking the minimum length possible. Upon reaching said minimum length, the backrest 12, the rods
25 20a, 20b and the armrests 13a, 13b form, in the sense of rotation of the backrest 12 forwardly in order to fold and close it on the seat plate 11, a three-hinge arc thus forming a single body which is articulated to the seat plate 11 through the armrests 13a, 13b.

30 The second locking means 15 lock the rotation of the armrests 13a, 13b with respect to the seat plate 11 and the respective second control means 17 are actuated

by the rotation of the backrest 12 with respect to the seat plate 11, or rather, with respect to the armrests 13a, 13b.

The second locking means 15 comprise for each
5 armrest 13a, 13b a second bolt 31 which is mounted in an axially slidable manner on the/in the respective armrest 13a, 13b between a protracted position, in which it is in engagement in a respective second seat 32 obtained in the seat plate 11, or however in a body
10 fixed to the seat plate 11, in order to prevent the rotation of the respective armrest 13a, 13b with respect to the seat plate 11, and a retracted position, in which it is disengaged from the respective second seat 32 leaving the rotation of the respective armrest
15 13a, 13b free with respect to the seat plate 11.

The second bolt 31 is retained in the respective disengagement position with the respective second seat 32 by second elastic means 33 acting between it and the respective armrest 13a, 13b.

The second control means 17 comprise a cam or eccentric 34 which rotates as a unit with the end of the respective rod 20a, 20b articulated to the corresponding armrest 13a, 13b and which actuates, in contrast to the second elastic means 33, a respective
20 tappet 35 integral with the respective second bolt 31.

The profile of the cam or eccentric 34 is shaped so as to control the sliding of the second bolt 31 from its engagement position to its disengagement position with the respective second seat 32 only after the
30 backrest 12 is approached and closed in a "book-like" manner with respect to the armrests 13a, 13b.

When the second locking means 15 are in their

unlocking position, thus, the armrests 13a, 13b and also the backrest 12 rotate as a single body with respect to the second hinging axis B to close on the seat plate 11 in a "book-like" manner.

5 The child seat 10 is completed by a footrest 36 hinged to the front edge of the seat plate 11, a frontal element 37 removably mounted on the armrests 13a, 13b and ribs 38 for supporting a cover the ribs being hinged to one from among the backrest 12, the
10 armrests 13a, 13b and the seat plate 11 rotatably about a fifth of hinging axis E parallel to the first and second hinging axis A and B.

 Lastly, the child seat 10 comprises attachment means 39 for the removable attachment of the child seat
15 10 to the attachment base 101 of a frame 100 of a baby stroller of the type closable in a "book-like" manner.

 The attachment means 39 may be of the type controllable from the outside by a user for example through levers or buttons provided below the armrests.

20 It should be observed that both the seat plate 11, and the backrest 12, though represented without padding, are constituted by substantially solid plate-like elements.

 Thus, the child seat 10 when removed from the frame
25 100 is useable per se only resting on a support plane.

 In the attached figures, the frame 100 is represented only in the base elements thereof useful for understanding the present invention.

 The frame 100 comprises:

30 - a pair of front legs 102, respectively a right front leg and a left front leg which are laterally spaced from each other and associated with each other

to form a single body and each of which have a first end which can be associated with a front wheel 103 and a second end opposite to the first end,

5 - a pair of rear legs 104, respectively a right rear leg and a left rear leg which are laterally spaced from each other and associated with each other to form a single body and each of which has a first end which can be associated with a rear wheel 105 and a second end opposite to the first end,

10 - a pair of handle bars 106, respectively a right handle bar and a left handle bar which are laterally spaced from each other and associated with each other to form a single body and each of which has an end spaced from and an end proximal to a grip element 107
15 of the single handle type,

- a pair of articulation groups 108, respectively a right articulation group which articulates the right front leg 102, the right rear leg 104 and the right handle bar 106 to each other and a left articulation
20 group which articulates the left front leg 102, the left rear leg 104 and the left handle bar 106 to each other for the "book-like" closure of the frame 100.

As previously mentioned, the frame 100 is of the "book-like" closure type i.e. in which, with particular
25 reference to the embodiment represented in the attached figures, the pair of handle bars 106 and the pair of rear legs 104 rotate, each as a single body, respectively about a first axis and a second axis relatively to the pair of front legs 102, in which the
30 first axis and the second axis are parallel to each other and to the ground for supporting the frame 100 and orthogonal to the direction of advancement of the

stroller itself.

In a possible alternative embodiment, the pair of handle bars 106 and the pair of front legs 102 rotate, each as a single body, respectively about a first axis
5 and a second axis relatively to the pair of rear legs 104.

The structure of the articulation groups 108 and of the means for transmitting the rotation between the handle bars 106 and the pair of rear 103 or front 102
10 legs is not shown in detail given that it is not part of the present invention.

The frame 100 also comprise the attaching base 101 for the removable attachment of the child seat 10 both in the "facing forward" and the "facing backwards"
15 position.

As known, in the "book-like" closure of the frame 100, the right and left handle bars 106 can be rotated as a single body between an extended configuration, in which they extend rearwardly and upwards with respect
20 to the respective right and left articulation group 108, and a folded configuration, in which they extend forwardly with respect to the right and left articulation group 108 and are approached respectively to the right and left front leg 102.

Correspondingly, the right and left rear legs 104 can be rotated together as a single body between an extended configuration, in which they extend rearwardly and downwards with respect to the respective right and left articulation group 108 spaced from the respective
30 right and left front leg 102, and a folded configuration, in which they are approached respectively to the right and left front leg 102.

The means for transmitting rotation between the handle bars 106 and the pair of rear 103 or front 102 legs are configured by rotatably actuating the respective left and right rear leg 104 between the
5 respective extended and folded configurations, and vice versa, when the corresponding right and left handle bar 106 rotates between the respective extended and folded configurations, and vice versa.

Then, there are provided members for locking the
10 attachment base 101 with respect to the front 102 or rear 103 legs and the relative rotation of the handle bars 106 with respect to the front 102 or rear 103 legs which can be maneuvered from the outside through handles or levers.

15 The operation of the child seat 10 according to the present invention is instantly clear to a person skilled in the art from the attached figures and the previous description.

Figures 1, 2, 3 and 4 show the child seat 10 in
20 open position in which the armrests 13a, 13b and the backrest 12 are in their raised position with respect to the seat plate 11 and the first locking means 14 and the second locking means 15 are both in the respective locking position.

25 Starting from such position it is possible to regulate the inclination of the backrest 12 with respect to the seat plate 11, maintaining the armrests 13a, 13b in their raised position. For such purpose it is sufficient to act on the handle 18 to move the first
30 locking means 14 in their unlocking position, in which the relative sliding of the rod-like elements 21a, 22a and 21b, 22b of each rod 20a, 20b is allowed and

rotating the backrest 12 about the respective first hinging axis A relatively to the seat plate 11, or rather, relative to the armrests 13a, 13b, until reaching the desired inclination, upon reaching which, releasing the handle 18, the first locking means 14 are returned to their locking position.

Obviously the possible different inclinations of the backrest 12 with respect to the seat plate 11/armrests 13a, 13b depend on the number of first seats 26 and the relative maximum sliding stroke of the rod-like elements 21a, 22a and 21b, 22b.

Should it be required to close the child seat 10, it is sufficient to act on the handle 18 to take the first locking means 14 in their unlocking position, in which the first bolt 25 is retracted from the respective first seat 26 in which it was engaged and, maintaining the handle 18 engaged, rotate the backrest 12 in the sense of closing and approaching it on the armrests 13a, 13b, as indicated by arrow F in the attached figures.

The rotation of the backrest 12 is transmitted, through the rods 20a, 20b, to the second control means 17 which control the movement of the second locking means 15 from their locking position to their unlocking position of the rotation of the armrests 13a, 13b - and together with them of the backrest 12 - with respect to the seat plate 11.

In particular, as the backrest 12 rotates about the respective first hinging axis A approaching the armrests 13a, 13b in closure, the rod-like elements 21a, 22a and 21b, 22b slide retracting one with respect to the other shortening the length of the respective

rod 20a, 20b and the cam or eccentric 34 rotates acting on the tappet 35.

When the rods 20a, 20b reach their minimum length, the profile of the cam or eccentric 34 allows the sliding of the tappet 35, pushed by the elastic means 33, in the sense of disengagement of the second bolt 31 from the respective second seat 32, thus freeing the rotation of the armrests 13a, 13b - and together with them of the backrest 12 - with respect to the seat plate 11 (figure 7). The armrests 13a, 13b and the backrest 12 collapse and close in a "book-like" manner on the seat plate 11, as shown in figure 8.

The opening of the child seat 10 occurs with opposite movements.

Figures 9A, 9B, 10A and 10B show the child seat 10 mounted on a frame 100 respectively in "facing forward" and "facing backwards" position; as easily understandable to a person skilled in the art, the child seat 10 may be open and closed even when mounted on the frame 100 and independently from the opening and closing of the frame 100 itself.

The "book-like" foldable child seat subject of the present invention has the advantage of being easy to open and close even with the user using only one hand and without requiring applying particular effort.

In addition, the "book-like" foldable child seat of the present invention has the advantage of being easily applied to a frame for strollers of the "book-like" foldable type and it can be opened and closed even when mounted on the same frame and independently from the opening and closing of the latter.

In addition, the "book-like" foldable child seat

subject of the present invention has the advantage of being compact and of low weight as well as having small overall dimensions, in particular in closed position.

5 The "book-like" foldable child seat particularly for strollers thus conceived can be subjected to numerous modifications and variants, all falling within the scope of the invention; furthermore, all details can be replaced by technically equivalent elements.

10 In practice, the materials used, as well as the dimensions, may vary according to the technical requirements.

CLAIMS

1) Child seat (10) applicable to frames (100), in particular of the "book-like" foldable type, of baby strollers and comprising a support plane or seat plate (11), a backrest (12) and a pair of armrests (13a, 13b), wherein said backrest (12) is hinged to said seat plate (11) or to said armrests (13a, 13b) rotatably about a first hinging axis (A) and said armrests (13a, 13b) are hinged to said seat plate (11) rotatably about a common second hinging axis (B) parallel or coinciding with said first hinging axis (A), characterised in that it also comprises:

- first locking means (14) for locking the rotation of said backrest (12) about said first hinging axis (A) relatively to the member of said child seat (10) to which said backrest (12) is hinged, the first locking means (14) being movable between a locking position and an unlocking position of the rotation of said backrest (12) about said first hinging axis (A),
- second locking means (15) for locking the rotation of said armrests (13a, 13b) about said second hinging axis (B) relatively to said seat plate (11), the second locking means (15) being movable between a locking position and an unlocking position of the rotation of said armrests (13a, 13b) about said second hinging axis (B),
- a pair of rods (20a, 20b) which articulate said backrest (12) and said armrests (13a, 13b) to each other and each of which has one end hinged to said backrest (12) rotatably about a common third hinging axis (C) parallel to said first and second hinging axis (A) and (B), the opposite end hinged to a respective

armrest (13a, 13b) rotatably about a common fourth hinging axis (D) parallel to said first and second hinging axis (A) and (B) and comprise at least one pair of rod-like elements (21a, 22a; 21b, 22b) which are
5 coupled to each other in an axially slidable manner, wherein
- said first locking means (14) are defined at said rods (20a, 20b) in order to lock and unlock the relative sliding of the respective rod-like elements
10 (21a, 22a; 21b, 22b) and, thus, in order to respectively prevent and allow the relative rotation between said backrest (12) and said armrests (13a, 13b), and said second locking means (15) are defined between said armrests (13a, 13b) and said seat plate
15 (11), said seat plate (11), said backrest (12) and said armrests (13a, 13b) being articulated to each other in a "book-like" manner moveably between at least one open position of said seat (10), wherein said backrest (12) and said armrests (13a, 13b) are in raised position
20 with respect to said seat plate (11), and, when said first locking means (14) and said second locking means (15) are in the respective unlocking position, a closed position of said seat (10), wherein said backrest (12) and said armrests (13a, 13b) are rotated forward one on
25 the others in lowered position and abutted on said seat plate (11).

2) Child seat (10) according to claim 1, characterised in that it comprises first control means (16) for controlling said first locking means (14) and second
30 control means (17) for controlling said second locking means (15), wherein at least one of said first control means (16) and said second control means (17) can be

actuated from the outside through an actuation element (18) which can be manoeuvred by a user and wherein the other between said first control means (16) and said second control means (17) is also of type actuatable from the outside through a respective actuation element which can be manoeuvred by a user or of type actuatable by the rotation respectively of said armrests (13a, 13b) or said backrest (12) respectively about said second hinging axis (B) or said first hinging axis (A) through respective transmission members (19).

3) Child seat (10) according to claim 1 or 2, characterised in that said second locking means (15) can be controlled from said locking position to said unlocking position of the rotation of said armrests (13a, 13b) about said second hinging axis (B) only when said first locking means (14) are in the respective unlocking position of the rotation of said backrest (12) about said first hinging axis (A).

4) Child seat (10) according to claim 2 or 3, characterised in that said second control means (17) can be actuated in succession to said first control means (16).

5) Child seat (10) according to one or more of the preceding claims 2 to 4, characterised in that said first control means (16) can be actuated from the outside through an actuation element (18) moveably mounted on said backrest (12) and said second locking means (15) are defined between said armrests (13a, 13b) and said seat plate (11) and the respective said second control means (17) are actuated by the rotation of said backrest (12) about said first hinging axis (A) relatively to said armrests (13a, 13b).

6) Child seat (10) according to one or more of the preceding claims, characterised in that said first locking means (14) comprise a first bolt (25) which extends transversely to one of said two rod-like elements (21a, 22a; 21b, 22b) of each of said two rods (20a, 20b) and it is mounted on it in a movable manner between a protracted position and a retracted position with respect to the other of said two rod-like elements (21a, 22a; 21b, 22b) of each of said two rods (20a, 20b) to respectively insert into and retract from at least one first seat (26) obtained in the latter.

7) Child seat (10) according to claim 6, characterised in that said first control means (16) comprise a block (27) which is mounted in an axially slidable manner in/on said rod-like element (21a, 22a; 21b, 22b) whereon said first bolt (25) is mounted and in which block (27) a slot (28) is defined which is inclined with respect to the longitudinal axis of the respective rod (20a, 20b) of said pair of rods (20a, 20b) and in which a pin (29) is slidably inserted which is integral with said first bolt (25), wherein said block (27) is movable, in contrast with first elastic means (30) acting between it and the respective rod-like element (21a, 21b) on/in which it is mounted, between a first position, in which it retains said first bolt (25) in a protracted locking position in the respective at least one first seat (26), and a second position, in which it takes said first bolt (25) to the respective retracted position in order to free said at least one first seat (26), said block (27) being actuated by said actuation element (18) through transmission means.

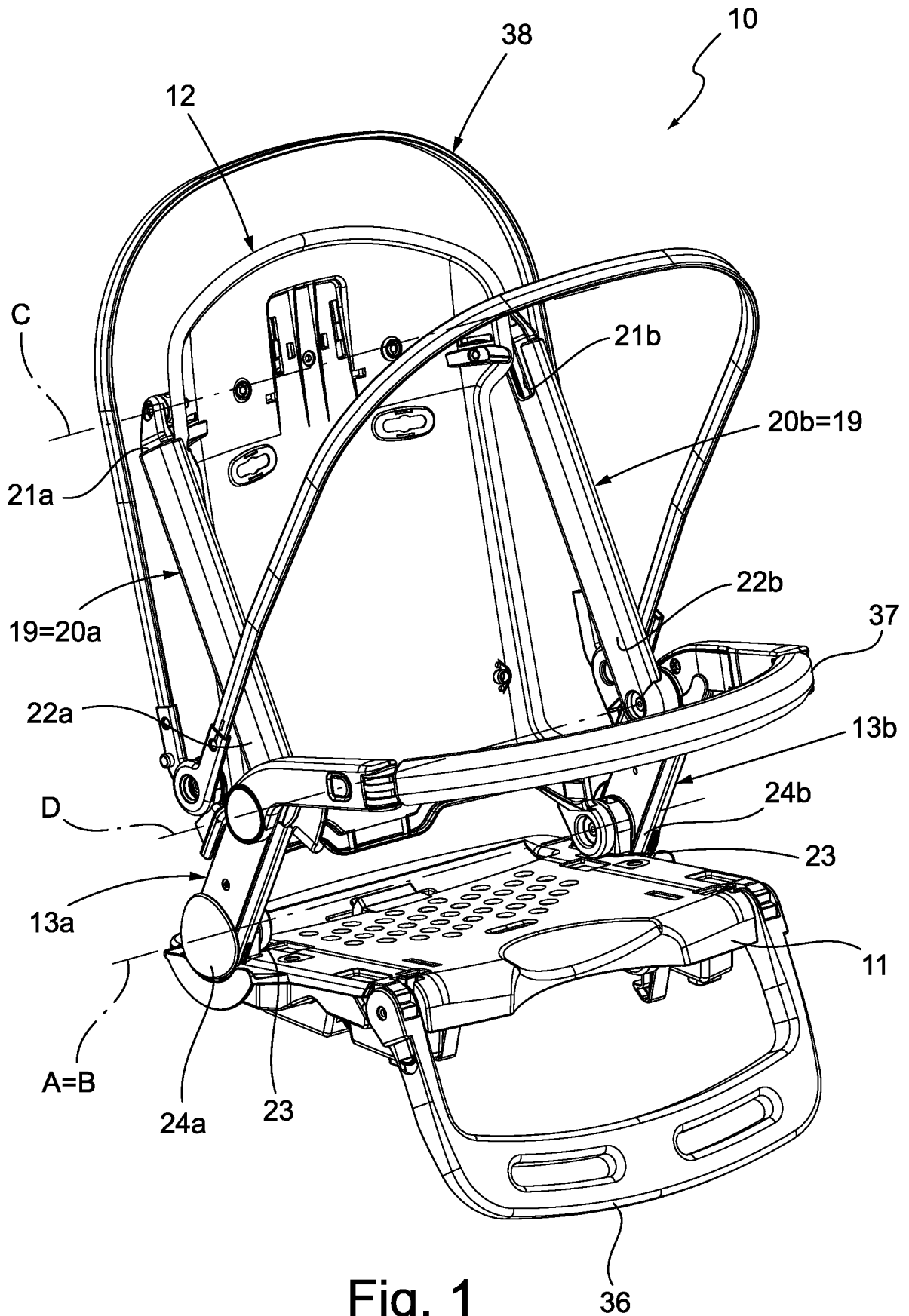
8) Child seat (10) according to one or more of claims 5

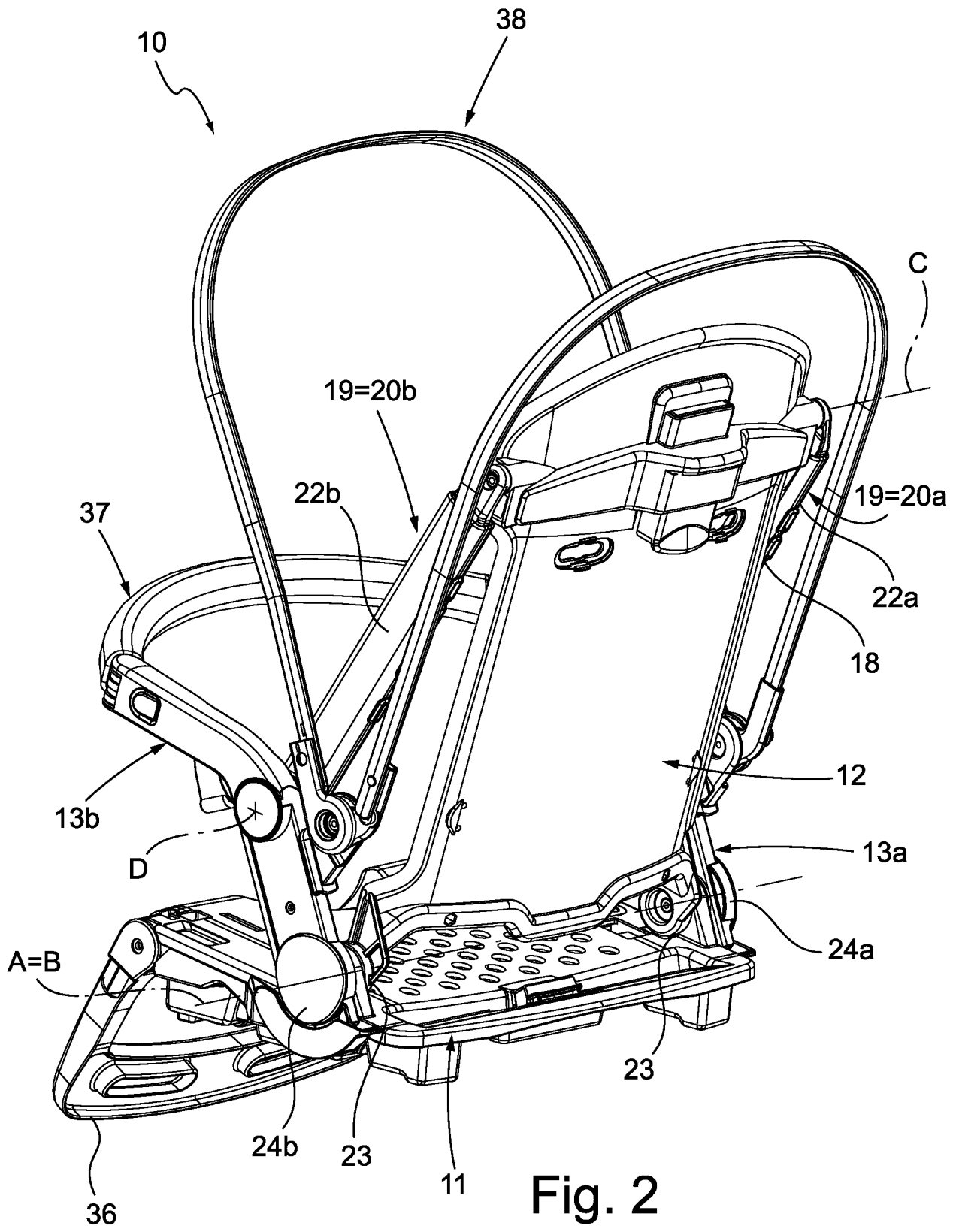
to 7, characterised in that said second locking means (15) comprise, for each of said armrests (13a, 13b), a second bolt (31) that is mounted in an axially slidable manner on the/in the respective armrest (13a, 13b)
5 between a protracted position, in which it is in engagement in a respective second seat (32) defined in said seat plate (11), and a retracted position, in which it is disengaged from said respective second seat (32), wherein said second bolt (31) is retained in said
10 respective disengagement position from said respective second seat (32) by second elastic means (33) acting between it and the respective armrest (13a, 13b).

9) Child seat (10) according to claim 8, characterised in that said second control means (17) comprise a cam or eccentric (34) which rotates as a unit with the end
15 of the respective rod (20a, 20b) of said pair of rods (20a, 20b) articulated to the corresponding armrest (13a, 13b) and which actuates, in contrast to said second elastic means (33), a respective tappet (35)
20 integral with the respective said second bolt (31).

10) Child seat (10) according to one or more of the preceding claims, characterised in that it comprises attachment means (39) for removably attaching it to the attachment base (101) of a frame (100) of a baby
25 stroller of the "book-like" foldable type.

11) Baby stroller of the "book-like" foldable type, comprising a "book-like" foldable frame (100) provided with an attachment base (101) for the removable attachment of a child seat (10) according to one or
30 more of the preceding claims.





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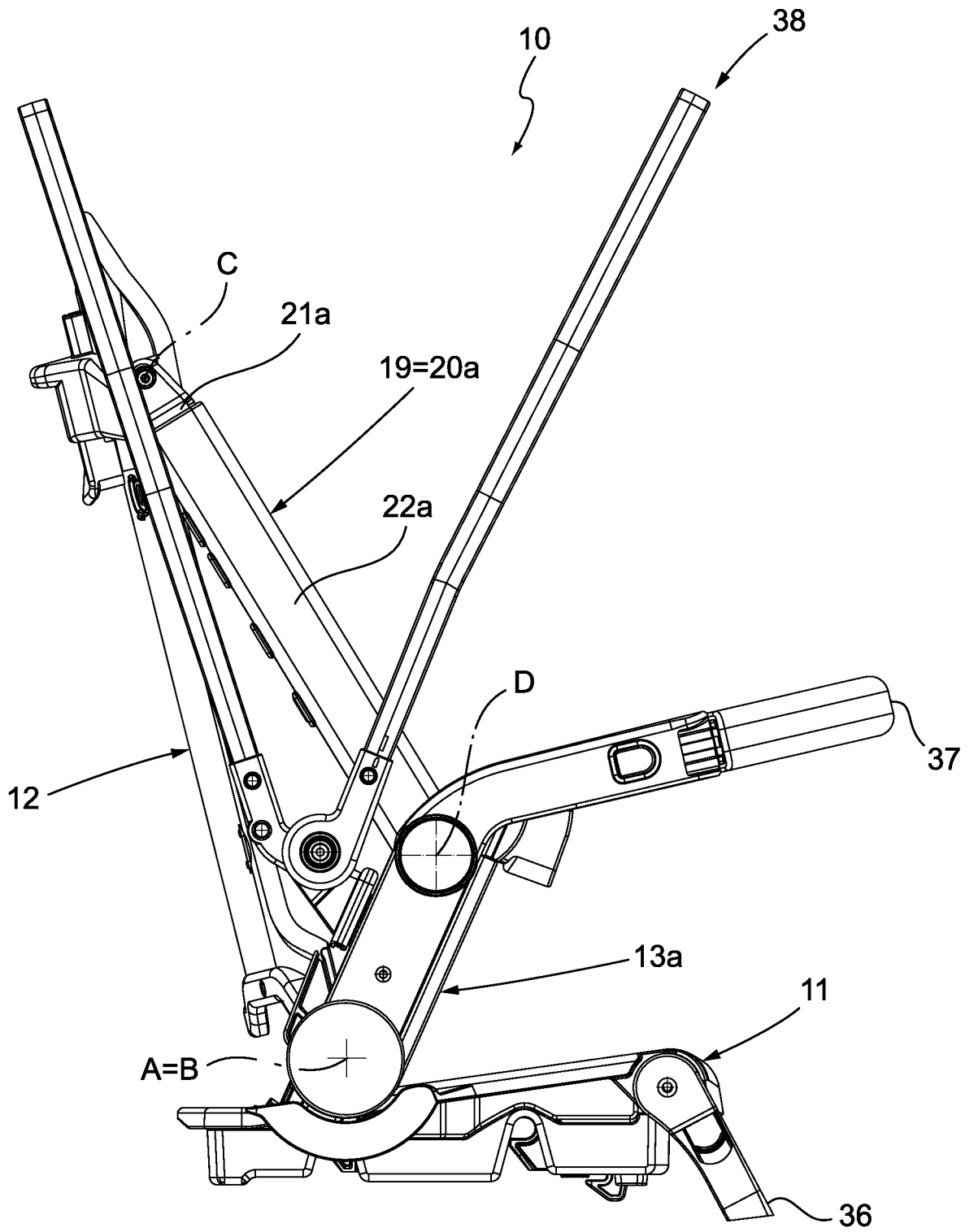


Fig. 3

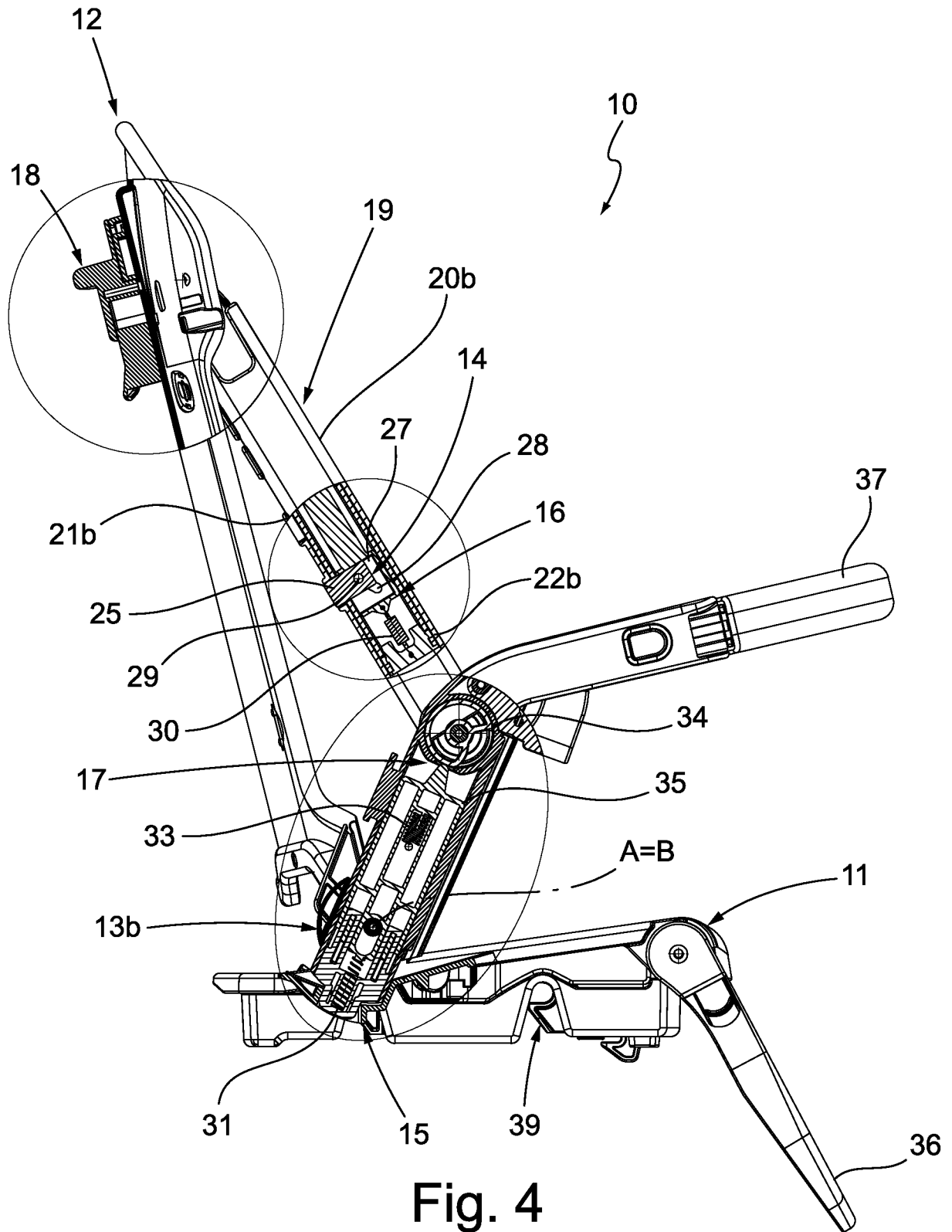


Fig. 4

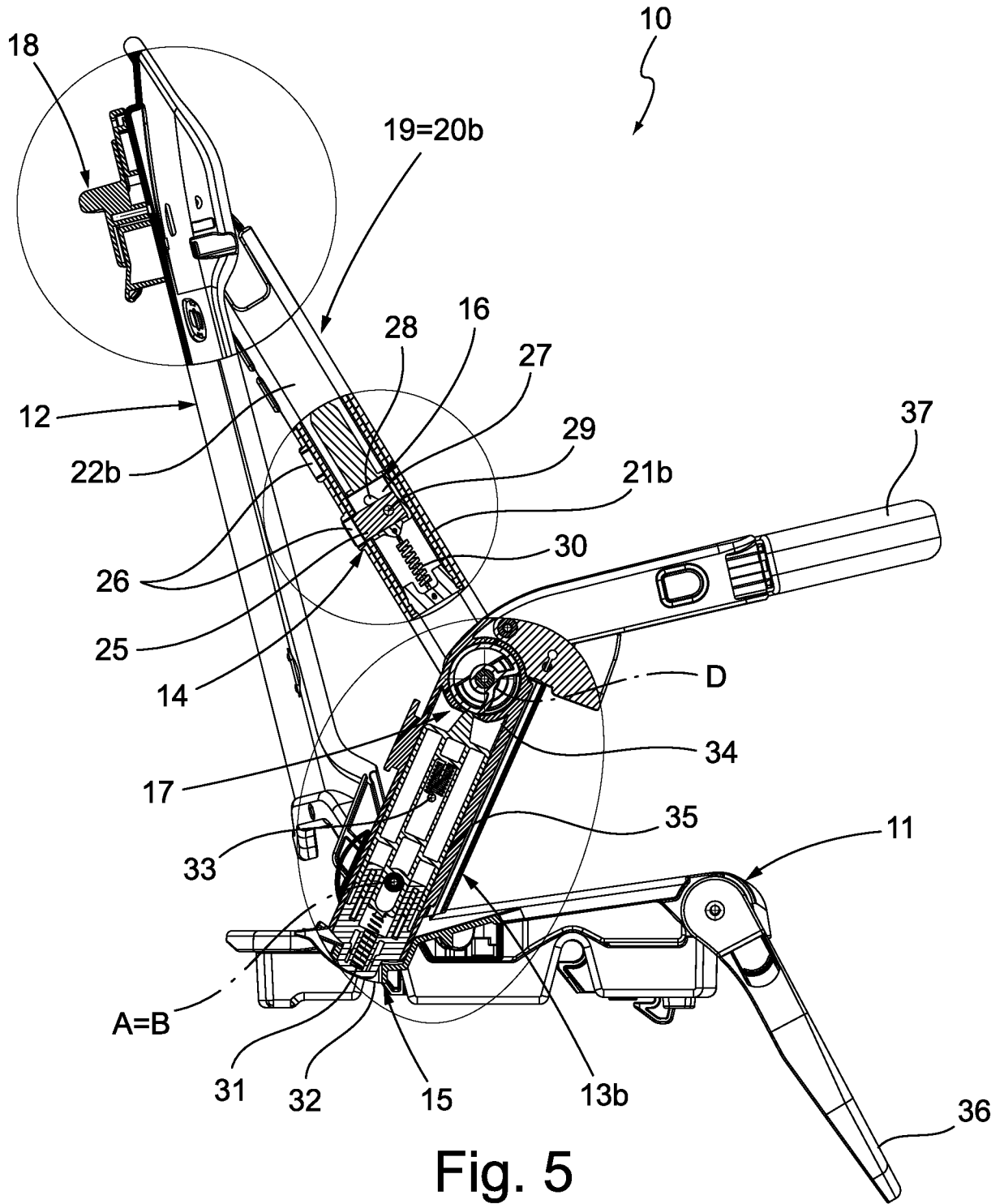


Fig. 5

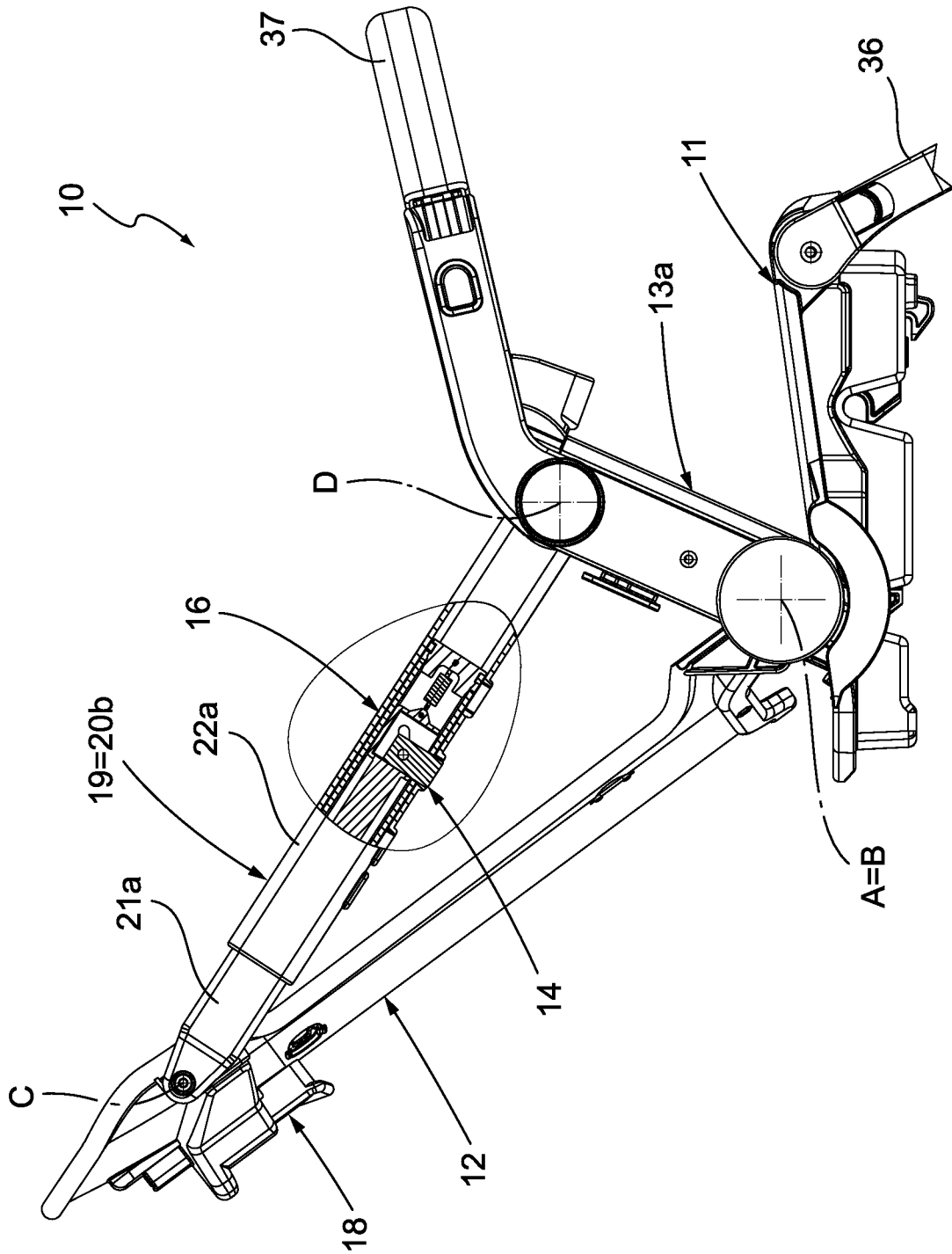


Fig. 6

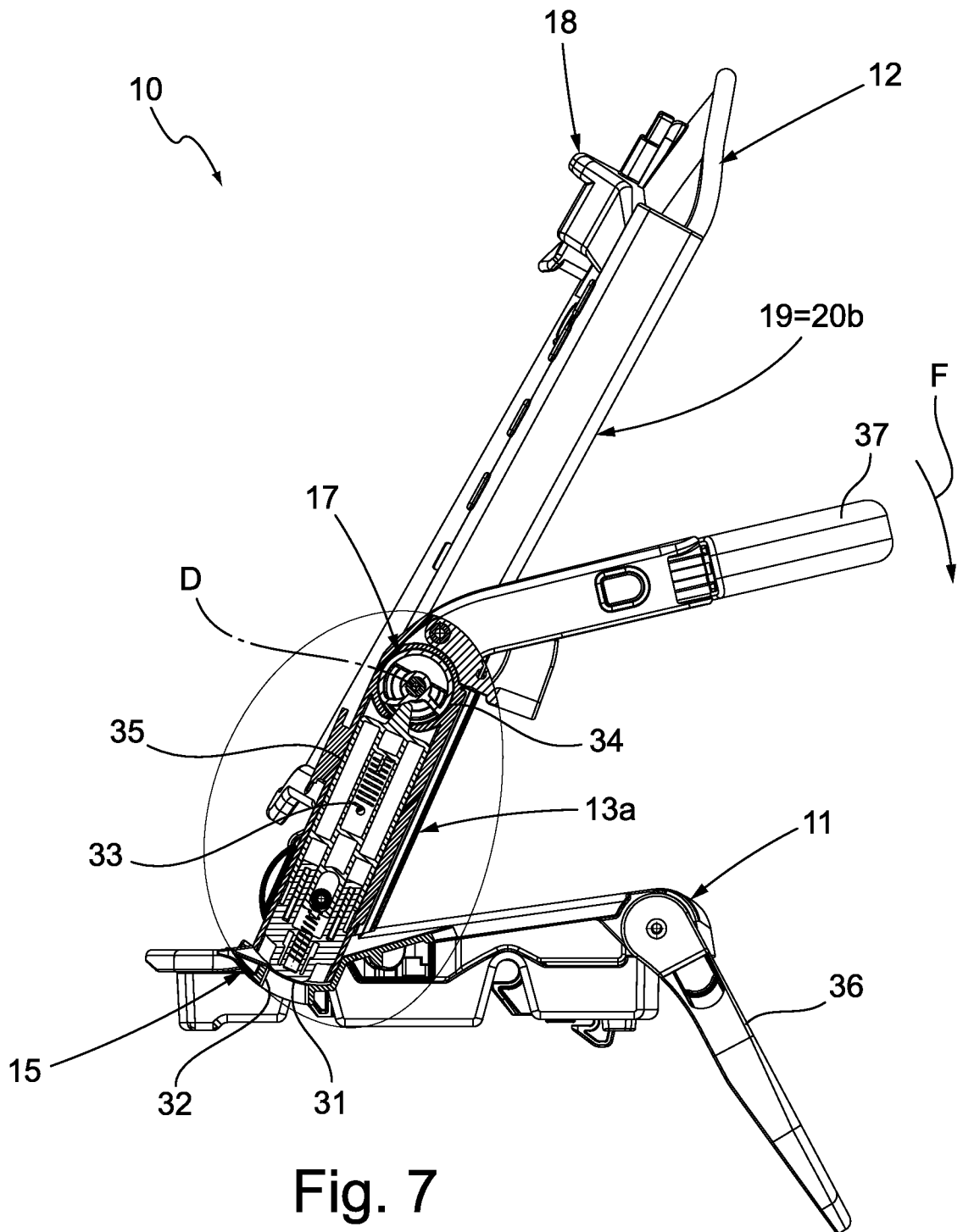


Fig. 7

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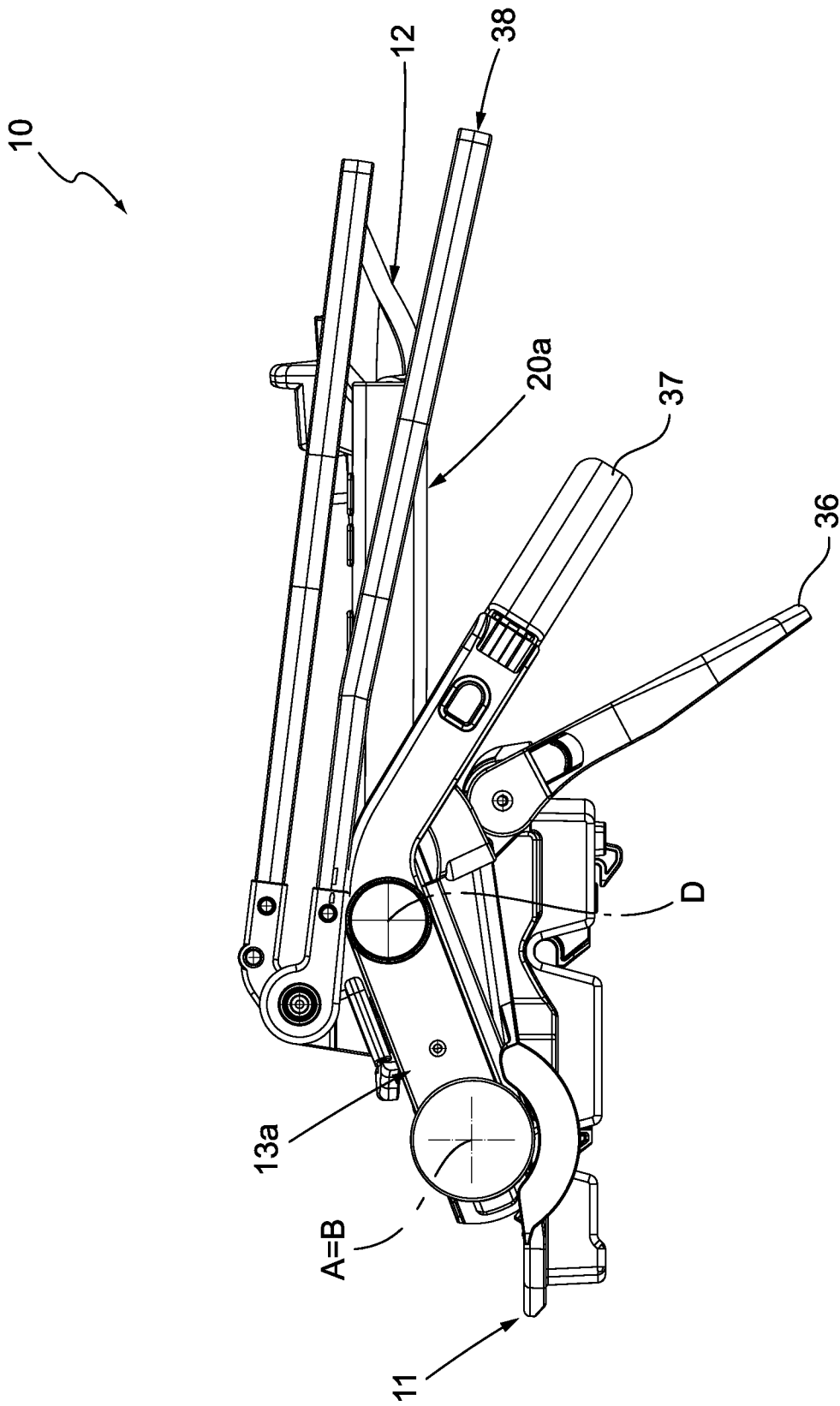


Fig. 8

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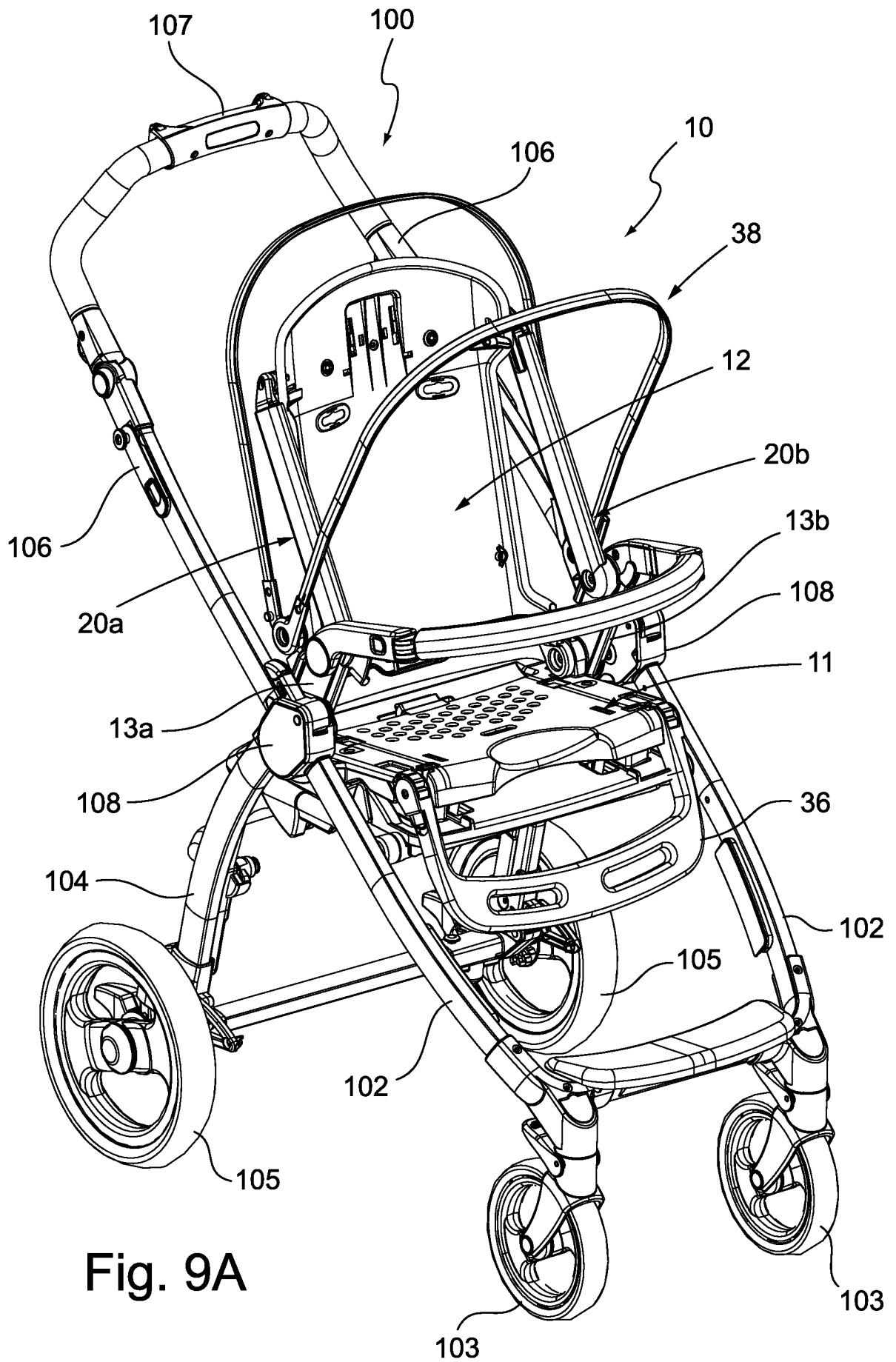


Fig. 9A

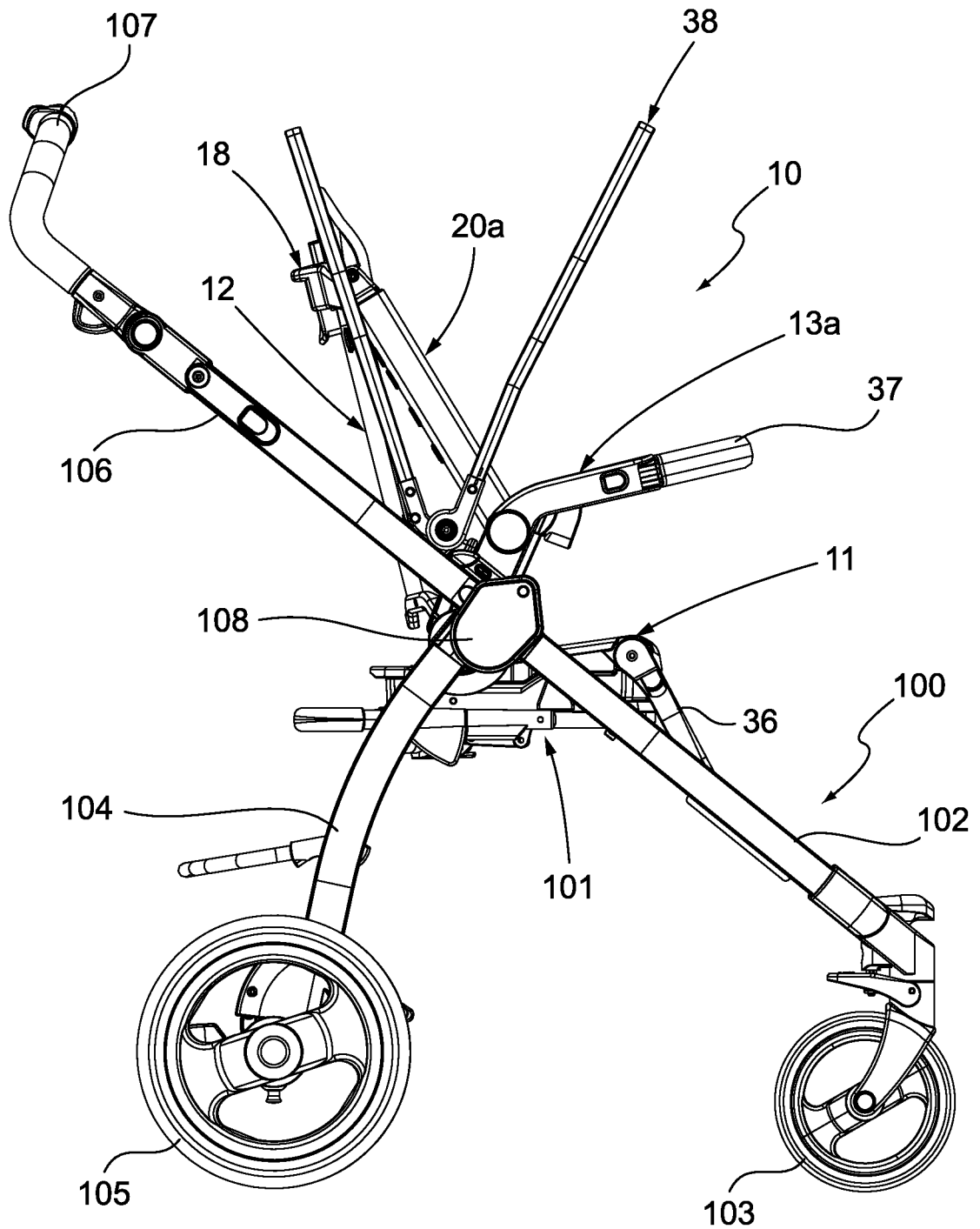


Fig. 9B

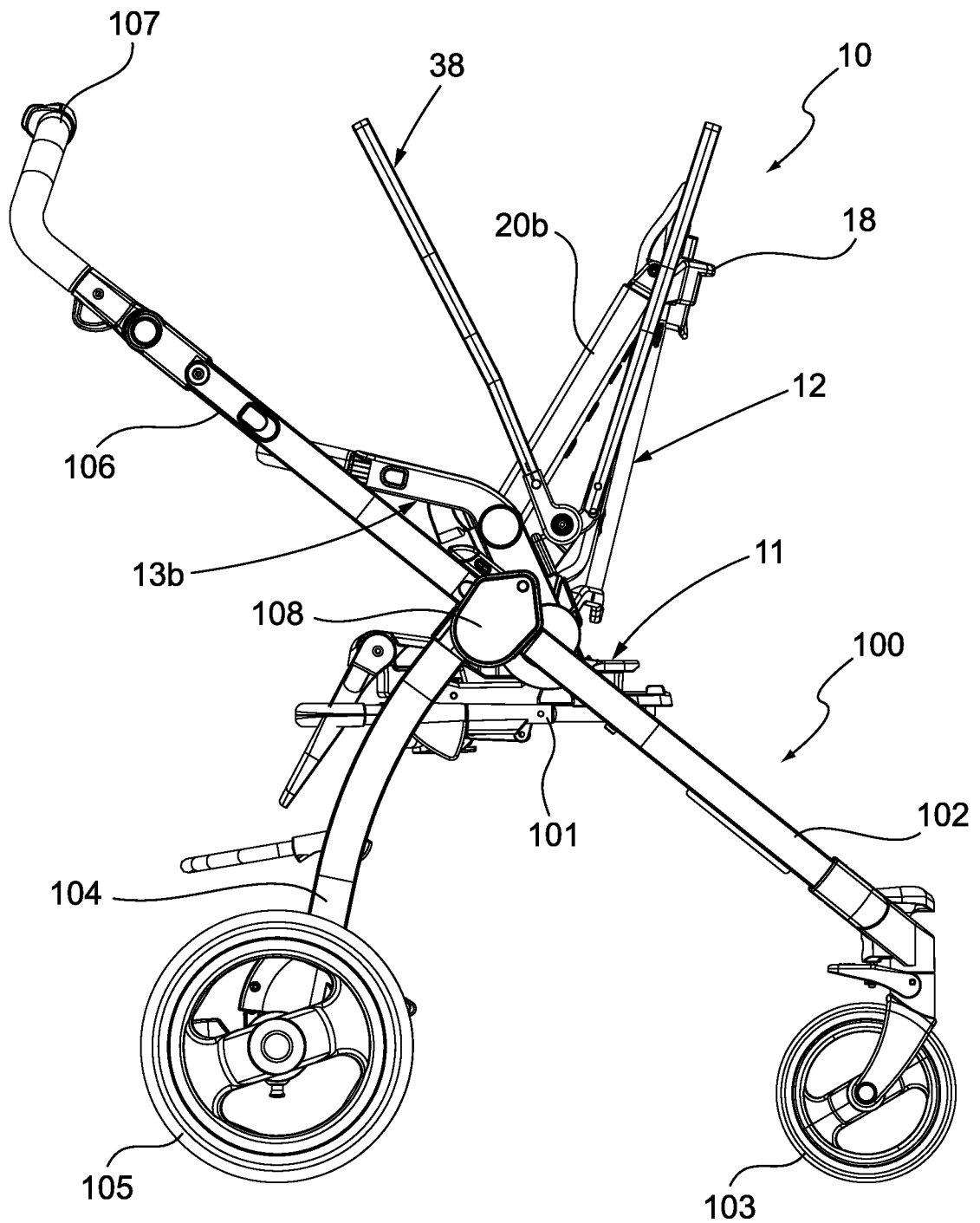


Fig. 10B