

- 9 -

detachably clamp onto a frame of a conventional pushchair 2. The two attachment clamps 18, 19 together can thereby secure the device 1 of the invention to the side of the conventional pushchair 2. Each attachment clamp 18, 19 is pivotable relative to the clamp strut 17/chassis member 12 respectively, for reasons which will
5 become apparent from the description hereafter.

The device 1 includes a locking mechanism 40 to enable the seat portion 20 of the device 1 to be retained in the erected operative position (see Figures 5 and 6). The locking mechanism 40 comprises a locking shaft 41 that extends between the
10 slidable collar pivot joints 14a, 15a and is rotatable about its axis relative to the collar pivot joints 14a, 15a. The locking shaft 41 therefore restricts the movement of one collar pivot joint 14a relative to the other 15a, so they can only be moved together and in the same direction. Two locking arms 42, 43 are rigidly secured to the locking shaft 41 and extend rearwardly therefrom, substantially parallel to the
15 long sides 11a, 12a of the chassis members 11, 12. Each arm 42, 43 includes a latch portion 42a, 43a at an end distal from the locking shaft 41. A fixed shaft 44 extends between the chassis members 11, 12 and parallel to the locking shaft 41, and is positioned rearwardly of the locking shaft 41 such that the latch portions 42a, 43a of the arms 42, 43 are just able to be clipped over the fixed shaft 44 and held in this
20 locked position hooked over the fixed shaft 44 by friction therewith. Therefore, when the arms 42, 43 are in this locked position, the collar pivot joints 14a, 15a are prevented from sliding along sections L_{11} , L_{12} of the chassis members 11, 12 respectively, and thereby retain the seat portion 20 in the erect operative position.

25 As described above, the locking mechanism 40 enables the seat portion 20 of the device 1 to be locked in the erected operative position, and thereby capable of supporting a child thereon in a sitting position next to a child sitting in the pushchair 2 so that they are both facing in the same direction. When the device 1 is not in use, the locking mechanism 40 can be released by unclipping the latch
30 portions 42a, 43a from the fixed shaft 44 and rotating the arms 42, 43 downwards. This can be done by pushing lever release tabs 42b, 43b which are formed on the end of the rotating arms 42, 43 perpendicular thereto and at the end distal from the latch portions 42a, 43a. This will allow the collar pivot joints 14a, 15a to freely slide

- 10 -

along sections L_{11} , L_{12} of the chassis members 11, 12 respectively. The base 21 and seat stanchion 16 can then pivot downwards about the pivot joint 16a, and the backrest 22 and backrest stanchions 14, 15 can pivot downwards about the collar pivot joints 14a, 15a, the backrest stanchions 14, 15 pivoting relative to the seat stanchion 16 about the hinge rod 23a in a scissor-like motion as described above, until the seat portion 20 of the device 1 is in the collapsed position.

Once the device 1 has been put into the collapsed position shown in Figures 2 and 4 and as described above, it can be folded up against the side of the conventional pushchair 2 into the storage position, as shown in Figure 7. This is possible due to the attachment clamps 18, 19 being pivotable relative the clamp strut 17/chassis member 12 respectively, as described above. Once the device 1 has been folded into this storage position, it can be held in place by a retaining means such as a clip (not shown).

With the device 1 in the storage position, the pushchair 2 has a much slimmer profile and will fit through normal doorways with ease. However, if a user wishes to neaten the appearance of the pushchair 2 and device 1 combination further, and make it even slimmer, they may unscrew the wheel retaining nut 32 and remove the wheel 30 from the axle shaft 31.

As can be seen in Figure 6, one of the advantages of the present invention is that when it is attached to a pushchair 2 and is not in the folded storage position, the wheel 30 of the device 1 is aligned with or is coaxial with wheels 3 of the pushchair 2. This means that the pushchair 2 and device 1 combination can be tilted backwards on all three wheels 30, 3 about their common contact line on the ground or their common axis, in order to get up a kerb, for example, and so is much more easily manoeuvrable than a conventional pushchair 2 would be with any of the other known add-on devices.

It is intended that the attachment clamps 18, 19 of the device 1 are suitable to attach to a frame of any conventional pushchair 2. However, some pushchairs currently available may not have side frames compatible with the attachment clamps

18, 19, and so it is envisaged that the device may be supplied with a replacement section of pushchair frame 4 that can be substituted for the relevant section of the original frame to allow the device to be attachable thereto. The specific replacement section of frame 4 could be pushchair-specific, so that a user could identify which
5 pushchair they already own, and purchase a device of the present invention that comes with the appropriate replacement frame section.

In an alternative attachment mechanism to that described above, a universal supplementary section of frame 4 could be provided. This supplementary section 4
10 would be attachable to the attachment clamps 18, 19 and could further include pushchair-specific attachment means 5, 6 to couple the device 1, via the supplementary frame section 4, to the pushchair 2. Therefore, instead of replacing a section of the existing pushchair frame, there would be an additional section of frame 4. In this case, the user would identify which pushchair they already own, and
15 purchase a device 1 of the present invention that comes with the appropriate pushchair-specific attachment means 5, 6 to enable the device 1 to be fitted to their pushchair 2.

In a further embodiment of the invention, a strap 7 may be connected between a
20 top part 22a of the backrest 22 and a part of the pushchair 2 which is higher than the top 22a of the backrest 22 (see Figure 6). This strap 7 prevents the auxiliary seat device 1 from pivoting downwards about the attachment clamps 18, 19 relative to the pushchair 2 if the wheel 30 runs over a hole or drops off a kerb, for example. In such a scenario, the weight of the auxiliary seat device 1 (and a child thereon) is
25 transferred through the strap 7 to the pushchair 2 and is balanced out by the weight of said pushchair 2 and of a child in the pushchair seat. It will be appreciated that this means of preventing the auxiliary seat device 1 from pivoting downwards beyond a certain angle does not necessarily need to be a strap 7 as shown in Figure 6. For example, a rigid rod could be used secured to the pushchair 2 and some
30 suitable point on the auxiliary seat device 1.

Referring now to Figures 8 – 31, a second embodiment 100 of an add-on pushchair seat of the invention is shown. As with the first embodiment described above, the

- 12 -

second embodiment is also attachable to a frame of any conventional pushchair to provide a secondary side seat for a second child to sit on, in addition to a first child seated in the pushchair itself.

5 The second embodiment of an add-on seat 100 of the invention generally comprises a folding support frame 120 having a seat or base frame member 121 and a backrest frame member 122, and a wheel mechanism 140 including a wheel 145 in contact with the ground when the add-on seat 100 is in an operative position. An attachment mechanism 170 is provided to enable the add-on seat 100 to be secured
10 to a conventional pushchair.

The base frame member 121 and the backrest frame member 122 are both substantially 'U'-shape frame members, each having a respective first (left-side) distal end 121a, 122a, and respective second (right-side) distal end 121b, 122b. The
15 base frame member 121 and the backrest frame member 122 are pivotally connected to each other at their first distal ends 121a, 122a and at their second distal ends 121b, 122b by left and right hinge brackets 150, 160 respectively.

A seat covering 123 is attached to the base frame member 121, and a backrest covering 124 is attached to the backrest frame member 122 (see Figure 31). The seat
20 covering 123 provides the seat for a child to sit on when the add-on seat 100 is in use, and the backrest covering 124 provides a surface for the seated child to lean against. Both the seat covering 123 and the backrest covering 124 are preferably made of a flexible material such as a fabric or a flexible plastic and are attached to
25 each other at their adjacent edges 123a, 124a. The seat covering 123 and the backrest covering 124 are both tensioned across the base frame member 121 and backrest frame member 122 respectively. Alternatively, the seat covering and backrest covering could be made from a rigid plastic material.

30 A wheel mechanism 140 is connected to the folding support frame 120 at the hinge brackets 150, 160 and comprises a main wheel strut 141 pivotally attached at one end 141a to the right hinge bracket 160, and a diagonal bracing strut 142 pivotally attached at one end 142a to the left hinge bracket 150. The other end 142b of the

- 13 -

bracing strut 142 is secured to the other end 141b of the main wheel strut 141 by a V-shaped moulded connector 143. This enables the main wheel strut 141 and the bracing strut 142 to be pivotable together about the left and right hinge brackets 150, 160 from an operative position in which they extend away from the frame 120 (see Figures 8 – 11), to a collapsed position (see Figures 12 – 15) and a storage position (see Figures 16 – 19) in which they lie flat against the base frame member 121 of the folding support frame 120.

A third sliding wheel strut 144 is telescopically received in the main wheel strut 141 and is slidable relative thereto to move in and out thereof. A wheel 145 is rotatably and detachably attached to an axle 146 at the free end 144a of the sliding strut 144 remote from the main wheel strut 141. An axle bracket 146a is secured to the free end 144a of the sliding wheel strut 144 to support the axle 146 thereon. The sliding strut 144 is locked in a desired position within the main strut 141 by means of securing bolts 147a extending through the main strut 141 and through apertures 147b in the sliding strut 144. To alter the position of the sliding strut 144 within the main strut 141, and thereby the distance of the wheel 145 from the hinge brackets 150, 160, the securing bolts 147a are removed, the sliding strut 144 moved to the new position with the appropriate apertures 147b aligned with the bolts 147a in the main strut 141, and the bolts 147a are screwed in again through the apertures 147b. It will be appreciated that other unillustrated means of securing the sliding strut 144 within the main strut 141 are possible, for example, spring-biased buttons on the sliding strut 144 being received in apertures in the main strut 141. In such an embodiment, the sliding strut 144 could be adjusted by depressing the buttons into the sliding strut 144 so that they are clear of the holes in the main strut 141, and when the sliding strut 144 was located in the new desired position, the buttons would spring out into the nearest holes in the main strut 141 under spring bias to lock the sliding strut 144 in position.

The wheel 145 is releasably attached to the axle 146, and includes the attachment mechanism as shown in Figure 30. The wheel 145 comprises a tyre 145a attached to a rim 145b. The rim 145b has a spring-biased button 145c at its centre (see Figure 10 for example) which can be depressed into the rim 145b. The wheel also

- 14 -

comprises two bearings 148 and two over-lapping axle-plates 149a, 149b, each with a hole therethrough, all contained within the rim 145b by a retaining plate 145d. In use, the wheel 145 is secured to the axle 146 by depressing the button 145c which is configured so as to push the two axle-plates 149a, 149b together so that the holes in
5 each plate are aligned. The axle 146 can then be passed through a hole in the retaining plate 145d, through the first bearing 148, through the aligned holes in the axle-plates 149a, 149b, and through the second bearing 148. The button 145c is then released and the axle-plates move apart under the action of resilient spring arms on their sides pushing against a portion of the rim 145b, and lips on the axle-plates
10 149a, 149b then locate in a circumferential groove (not shown) in the axle 146 to hold the wheel 145 onto the axle 146. To release the wheel 145 from the axle 146, the process described above is reversed.

The left and right hinge brackets 150, 160 will now be described in more detail with reference to Figures 20 – 23. The left hinge bracket 150 comprises a housing plate
15 151, a backrest arm 152 and a wheel strut arm 153. The backrest arm 152 and the wheel strut arm 153 each include an integrally formed toothed cog portion 152a, 153a, and are rotatably secured to the housing plate 151 with the teeth of each cog portion 152a, 153a meshing. Therefore, when one arm is rotated, it causes the other
20 arm to rotate. In use, the left side distal end 122a of the backrest frame member 122 is secured in an aperture in the backrest arm 152, and the one end 142a of the diagonal bracing strut 142 is secured in an aperture in the wheel strut arm 153. The housing plate 151 includes an aperture 151a which, in use, receives the left distal end 121a of the base frame member 121. The toothed cog portion 152a of the
25 backrest arm 152 also includes a central aperture 152c, around which ratchet ridges 152d are radially arranged. A ratchet plate 154 is connected to the toothed cog portion 152a and has its own set of ratchet ridges 154a which engage with the ratchet ridges 152d of the toothed cog portion 152a so that the ratchet plate 154 rotates when the toothed cog portion 152a of the backrest arm 152 rotates. A wire
30 guide 155 is attached to the side of the ratchet plate 154 remote from the toothed cog portion 152a, and a wire 156 extends from the ratchet plate 154, through the wire guide 155 and through a guide lug 151b on the left housing plate 151. The wire 156 is attached to the ratchet plate 154 such that when the left backrest arm 152 is

- 15 -

pivoted from the operative position to the collapsed position, the wire 156 is pulled through the wire guide 155 and through the guide lug 151b, for reasons which will be explained in more detail below.

5 The right hinge bracket 160 is similar to the left hinge bracket 150 and comprises a backrest arm 162 and a wheel strut arm 163. The backrest arm 162 and the wheel strut arm 163 each include an integrally formed toothed cog portion 162a, 163a, and are rotatably secured to the housing plate 161 with the teeth of each cog portion 162a, 163a meshing. Therefore, when one arm is rotated, it causes the other arm to
10 rotate. In use, the right side distal end 122b of the backrest frame member 122 is secured in an aperture in the backrest arm 162, and the one end 141a of the main wheel strut 141 is secured in an aperture in the wheel strut arm 163. The housing plate 161 includes an aperture 161a which, in use, receives the right distal end 121b of the base frame member 121. Any suitable means may be used to secure the
15 backrest frame member 122 in the backrest arms 152, 162 and the diagonal bracing strut 142 and the main wheel strut 141 in the wheel strut arms 153, 163, such as screws, rivets or bolts. Similarly, the same suitable means can be used to secure the base frame member 121 to the apertures 151a, 161a in the left and right housing plates 151, 161 respectively.

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The above arrangement allows the base and backrest frame members 121, 122 to be pivotable relative to one another about the hinge brackets 150, 160 from an operative position (see Figures 8 – 11), in which each frame member 121, 122 is spaced from the other, to a collapsed position and a storage position, in which the
25 backrest frame member 122 is folded substantially flat and lies against the base frame member 121 (see Figures 12 - 19). In the operative position, the backrest arms 152, 162 and the wheel strut arms 153, 163 extend away from each other (see Figures 20A and 22A) and are at their maximum angular displacement from the base frame member 121, limited by end faces 152b, 162b of the backrest arms 152, 162
30 adjacent the toothed cog portions 152a, 162a, contacting end faces 153b, 163b of the wheel strut arms 153, 163 adjacent the toothed cog portions 153a, 163a (indicated at arrows 'A'). In the collapsed position and the storage position, the backrest arms 152, 162 and the wheel strut arms 153, 163 lie close to each other

- 16 -

either side of their respective housing plate 151, 161 (see Figures 20B and 22E). The backrest arms 152, 162 and the wheel strut arms 152, 163 can be locked in the operative or storage position by a locking mechanism, described in detail below.

- 5 The right hinge bracket 160 includes a locking mechanism to lock the backrest arm 162 and the wheel strut arm 163 in a chosen position relative to each other. The locking mechanism comprises a locking plate 164 with a central post 164a, a spring 165 and a locking lever 166. The toothed cog portion 162a of the backrest arm has a central aperture 162c, around which ratchet ridges 162d are radially arranged. The
- 10 locking plate 164 has a corresponding set of ratchet ridges (not shown) radially disposed around where the central post 164a joins the locking plate 164. The ratchet ridges 162d are located on the side of the toothed cog 162a that faces the ratchet ridges on the locking plate 164. The backrest arm 162 is rotatably attached to the housing plate 161 by the post 164a of the locking plate 164 passing through the
- 15 spring 165, through the aperture 162c in the centre of the toothed cog portion 162a, through an aperture 161b in the housing plate 161 and is secured to the locking lever 166 by a pin 167 which extends through the locking lever 166 and through an aperture in the end of the post 164a.
- 20 Once assembled as described above, the locking lever 166 is pivotable about the pin 167. However, the distance D_{unlocked} between the axis of the pin 167 and an upper angled face 166b of the locking lever 166 is less than a distance D_{locked} between the axis of the pin 167 and a rear face 166c of the locking lever 166. Therefore, when the locking lever 166 is moved from a locked position (see Figures 22A and 22E) to
- 25 an unlocked position (see Figures 22C and 22D), the locking lever 166 acts as a cam against the housing plate 161 and the pin 167 moves towards the housing plate 161 by a distance equal to $[D_{\text{locked}} - D_{\text{unlocked}}]$. This moves the post 164a and therefore the locking plate 164 away from the toothed cog portion 162a by a corresponding distance which is sufficient to ensure that the two sets of ratchet ridges are spaced
- 30 from one another. The backrest arm 162 and the wheel strut arm 163 are therefore free to rotate relative to the housing plate 161. The spring 165 ensures that the locking plate 164 is held away from the toothed cog portion 162a when the locking lever 166 is in the unlocked position.

- 17 -

When the locking lever 166 is moved from the unlocked position to the locked position, the cam action moves the pin 167 by a distance equal to $[D_{\text{locked}} - D_{\text{unlocked}}]$ away from the housing plate 161. This pulls the central post 164a and the locking plate 164 towards the toothed cog portion 162a and the ratchet ridges 162d on the
5 plate 164 towards the toothed cog portion 162a and the ratchet ridges 162d on the toothed cog portion 162a into engagement with the ratchet ridges on the locking plate 164. Neither the locking plate 164 nor the locking lever 166 can rotate about the axis of the central post 164a. The locking plate 164 is shaped to abut a portion of the housing plate 161 and is thereby prevented from rotating relative to the
10 housing plate 161. The wheel strut arm 163 is rotatably attached to the housing plate 161 by a shaft 168. The end of the shaft 168 proximate the locking lever 166 has a mushroom head 168a which projects from the end of the shaft 168 away from the wheel strut arm 163. The locking lever 166 includes a locking aperture 166a to receive the mushroom head 168a at the end of the shaft 168, and a latch mechanism
15 within the locking lever 166 (not shown) engages with the rim of the mushroom head 168a to secure the locking lever 166 thereto. The locking lever also includes a release button 169 which disengages the latch mechanism from the mushroom head 168a to allow the locking lever to be pivoted about the pin 167 as described above. Therefore, when the locking lever 166 is secured to the mushroom head 168a at the
20 end of the shaft 168 as described above, it is unable to rotate about the axis of the central post 164a. As a result, the backrest arm 162 and the wheel strut arm 163 are locked in position until the locking lever 166 is again moved to the unlocked position as described above, so that the ratchet ridges are moved out of engagement with each other. As the backrest frame member 122 connects the left backrest arm
25 152 to the right backrest arm 162, and the wheel struts 141, 142 connect the left wheel strut arm 153 to the right wheel strut arm 163, the locking mechanism locks the movement of the both the wheel mechanism 140 and the backrest frame member 122 about the hinge brackets 150, 160.

30 The add-on seat 100 is provided with an attachment mechanism 170 to enable it to be secured to a conventional pushchair. The attachment mechanism 170 comprises front and rear pushchair clamps 171, 172, a connection bar 190, and front and rear hinges 191, 192. The pushchair clamps 171, 172 can be secured to a side frame of a

pushchair and are releasably attachable to the connection bar 190. They are also designed to be able to be securely attached to pushchair frames of different cross-sections and dimensions, for example, they can attach to circular, oval, square and rectangular cross-section pushchair frames. The front and rear hinges 191, 192 are
5 pivotally attached to the base frame member 121 and also to the connection bar 190. Therefore, when the two pushchair clamps 171, 172 are secured to the pushchair frame and to the connection bar 190, and the two hinges 191, 192 are secured to the base frame member 121 and to the connection bar 190, the add-on seat 100 is secured to the pushchair.

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The connection bar 190 may also be provided with an articulated section 190a (see Figures 9 and 10) which is of the same cross-sectional dimension as the connection bar 190, but which is connected to one end thereof by an articulated joint 190b to be pivotable about a vertical axis of the joint 190b relative to the connection bar
15 190. This articulated section is designed to enable the add-on seat 100 to be connected to a pushchair whose side frame may not lie parallel with the forward direction of travel of the pushchair. For example, modern three-wheeled pushchairs have two rear wheels and the side frames taper inwards towards a single front wheel. To enable the add-on seat 100 to be attached to such a pushchair, the rear
20 pushchair clamp 172 can be connected to the rear of the side frame of the pushchair and to the rear of the connection bar 190, and the front pushchair clamp 171 can be connected to the front of the pushchair and to the articulated section 190a of the connection bar 190, so that the front pushchair clamp 171 and articulated section 190a would be inset from the rear pushchair clamp 172 due to the shape of the
25 pushchair. The articulated section 190a of the connection bar 190 would thus be pivoted towards the pushchair at an angle to the connection bar 190. The add-on seat 100 would still be secured to the pushchair, but the connection bar 190, and therefore the folding support frame 120 and wheel mechanism 140, would be in alignment with the direction of travel of the pushchair, and not angled inwards
30 parallel to the tapered side of the pushchair. It will be appreciated that the articulated section 190a could equally be connected to the rearmost end of the connection bar 190 instead of the front end if necessary, for example, if the side of

- 19 -

the pushchair to which is it so be attached, tapered inwardly towards the rear of the pushchair.

The two pushchair clamps 171, 172 are identical and so only one will be described
5 in detail hereafter. The pushchair clamps 171, 172 comprise a first body 173 with a
flexible metal band 174 ridgedly secured at one end 174a to one side of the first
body 173, and the other free end 174b removably received in an aperture 173a in
the opposite side of the first body 173. The aperture 173a houses a threaded screw
175 and the other free end 174b of the band 174 is received in the aperture 173a in
10 contact with the threaded screw 175. The side of the band 174 adjacent the threaded
screw 175 is provided with a series of parallel grooves 174c which cooperate with
the thread of the threaded screw 175 such that when the threaded screw 175 is
turned clockwise, the band 174 is pulled through the aperture 173a, reducing the
size of the loop of band 174 between the rigidly secured one end 174a of the band
15 174 and the threaded screw 175. Conversely, when the threaded screw is turned
anticlockwise, the other free end 174b of the band 174 is pushed through the
aperture 173a, enlarging the size of the loop of band 174 between the rigidly
secured one end 174a of the band 174 and the threaded screw 175, until the other
end 174b of the band 174 is pushed free of the threaded screw 175. This function is
20 similar to that of known 'jubilee clips'.

A second body 176 is secured to the first body 173 and can rotate relative to the
first body 173 so that the second body 176 can be positioned in a specific
orientation about a horizontal axis, regardless of at which angle the first body 173 is
25 secured to a pushchair. The second body 176 includes a front opening to an internal
cavity, and an upper and lower circular hole 176a, 176b in the upper and lower faces
respectively leading to the internal cavity. A shaft 177 is disposed vertically within
the internal cavity and includes side wings 177a which are received in corresponding
slots 177b in the side walls of the internal cavity. A bolt 178 extends through a hole
30 in the middle of the shaft 177 and through the rear wall of the second body portion
176, and is secured to the first body portion 173, providing the rotateable coupling
described above. Upper and lower ends of the shaft 177 are provided with buttons
179a, 179b respectively, which are slidably received thereon and biased away from

- 20 -

each other by upper and lower springs 180a, 180b respectively. When assembled, the upper and lower buttons 179a, 179b extend through the upper and lower holes 176a, 176b and are prevented from being pushed all of the way through their respective hole by a lip 181a, 181b at the base of each button which abuts the rim of the hole 176a, 176b on the inside of the internal cavity.

The pushchair clamps 171, 172 further include a third body 182 comprising a box section with a rectangular aperture 183 therethrough, and upper and lower arms 184a, 184b extending perpendicularly from the upper and lower faces of the box section. Each arm 184a, 184b has a circular aperture 185a, 185b therethrough sized slightly larger than the diameter of the buttons 179a, 179b of the second body 176. The third body 182 can be releasably secured to the second body 176 by depressing the buttons 179a, 179b towards each other so that they sit within the apertures 176a, 176b, and then sliding the third body 182 to engage with the second body 176 with the upper and lower arms 184a, 184b above and below the upper and lower surfaces of the second body 176. When the upper and lower circular holes 176a, 176b in the second body 176 are aligned with the upper and lower circular apertures 185a, 185b in the arms 184a, 184b respectively, the buttons 179a, 179b can spring outwards under the biasing force of the springs 180a, 180b through both upper and lower holes 176a, 176b and upper and lower apertures 185a, 185b to secure the second and third bodies 176, 182 together.

The front and rear hinges 191, 192 are similar to each other and will be described in detail hereafter. Both hinges 191, 192 comprise a first part 193 and a second part 194, pivotally connected to one another by a hinge rod 195 and pivotable relative to one another from an operative position in which the first and second part 193, 194 lie adjacent to each other, to a storage position in which the first and second parts 193, 194 extend away from each other.

The first part 193 has a rectangular aperture 193a therethrough of the same cross sectional dimension as that of the base frame member 121 to allow, in use, the base frame member 121 to make a press fit in the aperture 193a to be secured thereto. The second part 194 has a rectangular aperture 194a therethrough of the same cross

sectional dimension as that of the connection bar 190 to allow, in use, the connection bar 190 to make a press fit in the aperture 194a to be secured thereto.

The first part 193 of the rear hinge 192 has a latch plate 198 which is received in a slot 196 in the bottom of the first part 193, and is spring biased out of the slot 196. The latch plate 198 is prevented from being pushed out of the slot 196 by a small retaining pin 198a which is located in a small vertical slot 193b in the side of the first part 193 of the hinge 192. The second part 194 has a flange 197 extending perpendicularly from the side of the second part 194 opposite the latch plate 198, and an upstanding lip 197a extends from the flange 197. As the hinge 192 is pivoted to the operative position, the lip 197a contacts the latch-plate 198 and pushes it upwards against the force of the spring bias, until the lip 197a passes the latch plate 198 and the latch plate 198 clicks into place between the lip 197a and the second part 194 of the hinge 192. The hinge 192 is thereby retained in the operative position until the latch plate 198 is lifted up and retracted into the slot 196 to release the lip 197a and allow the first and second parts 193, 194 to pivot freely. The latch plate 198 is attached to the wire 156 from the left hinge bracket 150 at a wire fastening point 198b on the top of the latch plate 198. The wire 156 extends from the wire fastening point, through the slot 196, out of the first part 193 of the rear hinge 192 and to the guide lug 151b, the wire guide 155 and ratchet plate 154 as described previously. Therefore, when the wire 156 is pulled by rotation of the ratchet plate 154 on rotation of the backrest arm 152, the latch plate 198 is pulled upwards in the direction of arrow 'B' into the slot.

The front hinge 191 does not have the latch plate 198 and lip 197a arrangement of the rear hinge 192. Instead, the front hinge only has a flange without an upstanding lip, and when the front hinge 191 is in the operative position, a lower face of the first part 193 sits on the flange 197 and is supported by it, but is not locked in that position. However, it is possible, in an alternative embodiment of the invention, for both front and rear hinges 191, 192 to include the latch 198 and lip 197a arrangement of the rear hinge 192.

- 22 -

The pushchair also includes a footrest 200, comprising a foot plate 201 and two support arms 202 pivotably attached to the base frame member 121. The footrest 200 can pivot from an operative position in which a seated child can rest their feet on the foot plate 201 (see Figures 8 – 11), to a folded position in which the footrest 200 is folded flat against the base frame member 121 (see Figures 12 – 19). The footrest 200 can be retained in the folded position by the wheel struts 153, 163 sandwiching it between them and the base frame member 121. The footrest also includes two wires or strings 203 extending from the footplate 201, or proximate the footplate 201, to the base frame member 121 to limit the maximum degree to which the footrest 200 can pivot away from the base frame member 121.

The add-on pushchair seat 100 of the invention is used as described hereafter. First, the two pushchair clamps 171, 172 are secured to the side frame of a pushchair. Once in place, the clamps 171, 172 are designed to remain secured to the pushchair at all times, even when the add-on seat 100 is not attached to the pushchair, and also when the pushchair itself is folded away for storage. The pushchair clamps 171, 172 are secured to the pushchair by unscrewing the threaded screw 175 so that the free end 174b of the steel band 174 is free of the first body 173. The steel band is then passed around an appropriate part of the pushchair frame and the free end 174b of the band 174 pushed into the aperture 173a so that the grooves 174c in the band 174 engage with the thread of the screw 175. The threaded screw 175 is then rotated clockwise to pull the band through the aperture 173a in the first body 173, which tightens the band 174 around the frame of the pushchair and grips the frame clamp 171, 172 thereto. An important feature of this system is that the pushchair clamps 171, 172 are attachable to pushchair frames of varying shapes and sizes, allowing the add-on seat 100 of the invention to be universally used with any commercially available pushchair. Although the add-on seat is adjustable to allow the pushchair clamps to be positioned at a range of heights on the side of the pushchair frame, it is important that each pushchair clamp 171, 172 is placed at the same height as the other.

Next, the second bodies 176 are rotated about their securing bolts 178 so that each one is positioned with the upper button 179a directly above the lower button 179b

- 23 -

and the axis of the shaft 177 lying vertically. The two third bodies 182 are secured to the connection bar 190 and/or the articulated section 190a of the connection bar 190 if necessary, with the connection bar 190 and articulated section 190a making a press fit in the rectangular apertures 183. The third bodies 182 can be forced to
5 slide along the connection bar 190 and articulated section 190a against the resistance of the press fit, so that they are horizontally spaced to align with the first and second bodies 173, 176 on the pushchair. The third bodies 182 are then attached to the second bodies 176 as described above, by depressing the upper and lower buttons 179a, 179b, sliding the upper and lower arms 184a, 184b above and
10 below the upper and lower surfaces of the second bodies 176, and releasing the buttons 179a, 179b so that they spring through the upper and lower holes 176a, 176b in the second bodies 176, and also through the upper and lower apertures 185a, 185b in the arms 184a, 184b respectively. The third bodies 182 are thereby secured to the first and second bodies 173, 176, and so the connection bar 190 and
15 articulated section is secured to the pushchair frame. As described above, the hinges 191, 192 are also secured to the connection bar 190 and to the base frame member 121, thereby connecting the whole add-on seat 100 to the pushchair.

The add-on seat 100 must be adjusted so that it is positioned correctly with respect
20 to the pushchair. First the whole device is folded into the operative position as shown in Figures 8 – 11, with hinges 191, 192 in the operative position so the base frame member 121 is positioned in a horizontal plane, the backrest frame member 122 folded away from the base frame member 121, and the wheel mechanism 140 fully folded away from the base frame member 121. Next, the sliding wheel strut
25 144 is telescopically adjusted within the main wheel strut 141 until the wheel 145 contacts the ground. It will be appreciated that if the pushchair clamps 171, 172 are positioned either higher or lower on the pushchair frame, the sliding wheel strut 144 will need to be either extended out of, or retracted into the main wheel strut 141 for the wheel 145 to contact the ground. Once the sliding wheel strut 144 is in the
30 correct position, it is secured in that position by the securing bolts 147a extending through the main strut 141 and through apertures 147b in the sliding strut 144. Finally, the add-on seat 100 is positioned so that the wheel 145 is aligned with the rear wheels of the pushchair to which it is attached. This can be done by sliding

either the hinges 191, 192 along the connection bar 190 and/or articulated section 190a, or by sliding the third bodies 182 of the pushchair clamps 171, 172 along the connection bar 190. This allows the add-on seat 100 to be moved forwards or backwards with respect to the pushchair, until the correct position is obtained.

5

It is an important feature of the add-on seat 100 of the invention that it is constructed so that the rear wheel 145 and axle 146 can be positioned in line with and/or co-axial with the rear wheels of the pushchair. This enables the pushchair and attached add-on seat 100 to easily mount kerbs because a user can tilt the
10 pushchair backwards towards themselves so that the pushchair and add-on seat 100 all pivot about a common axis – i.e. the line of contact on the ground of the pushchair wheels and the add-on seat 100 wheel 145. If the wheel 145 of the invention is not aligned with the rear wheels of the pushchair, the combined apparatus of the pushchair and add-on seat 100 would not tilt backwards (or
15 forwards, to descend kerbs) easily.

It will be appreciated that if the height at which the add-on seat 100 is attached on the pushchair is changed, then the extension of the sliding wheel strut 144 within the main wheel strut 141, and the position of the base frame member 121 relative to
20 the pushchair will have to be changed if the wheel 145 is to remain in line/co-axial with the rear wheels of the pushchair. More specifically, if the pushchair clamps 171, 172 are positioned higher up on the pushchair, the sliding wheel strut 144 will need to be extended out of the main wheel strut 141 further so that the wheel 145 contacts the ground, and consequently, the wheel 145 will be positioned further
25 back relative to the pushchair. The base frame member 121 will then need to be moved forwards relative to the pushchair to re-align the wheel 145 with the wheels of the pushchair. Conversely, if the pushchair clamps 171, 172 are positioned lower down on the pushchair, the sliding wheel strut 144 will need to be retracted into the main wheel strut 141 for the wheel 145 to contact the ground, and consequently, the
30 wheel 145 will be positioned further forwards relative to the pushchair. Therefore, the base frame member 121 will then need to be moved backwards relative to the pushchair to re-align the wheel 145 with the wheels of the pushchair.

- 25 -

Once in this operative position, the backrest frame member 122 is locked relative to the base frame 121 by the cam action of the locking lever 166 pulling the ratchet ridges of the locking mechanism into engagement as described above. The locking lever 166 is also held in the locked position by the internal latch engaging with the mushroom head 168a of the shaft 168 of the right hinge bracket 160, as described
5 above. A child can then sit on the seat covering 123 with their back against the backrest covering 124 to be transported around on the add-on seat.

When the pushchair is to be used to carry only one child and the add-on seat 100 is
10 not required, the add-on seat 100 can be folded from the operative position to a collapsed position (as shown in Figures 12 – 15) and then folded up to a storage position (as shown in Figures 16 - 19) as described hereafter.

The release button 169 is depressed (Figure 22B), releasing the internal latch within
15 the locking lever 166 which allows the locking lever 166 to pivot about the pin 167 (Figure 22C) and free the mushroom head 168a of the shaft 168 from the locking aperture 166a. As described above, this cam action of the locking lever 166a allows the locking plate 164 to move away from the toothed cog portion 162a of the backrest arm 162 under the biasing force of the spring 165, and thereby disengage
20 the ratchet ridges 162d on the toothed cog portion 162a from the ratchet ridges on the locking plate 164. This allows the two backrest arms 152, 162 and the two wheel strut arms 153, 163 to pivot about the hinge brackets 150, 160 respectively (Figure 22D), and therefore allows the associated backrest frame member 122 and wheel mechanism 140 to pivot about the hinge brackets 150, 160.

25

The wheel mechanism 140 and the backrest frame member 122 can then be folded into the collapsed position in which they both lie flat against the base frame member 121 (see Figures 12 – 15). Once in this collapsed position, the locking lever 166 can be pivoted back to the locked position (Figure 22E), pulling the locking
30 plate 164 back towards the locking lever 166 and thereby engaging the ratchet ridges 162d on the toothed cog 162a with the ratchet ridges on the locking plate 164. This locks the backrest arms 152, 162 and associated backrest frame member 122, and the wheel strut arms 153, 163 and associated wheel mechanism 140, in the collapsed

- 26 -

position. As mentioned previously, the footrest 200 is folded up with the wheel mechanism 140 in the collapsed position and is held between the main and bracing wheel struts 141, 142 and the base frame member 121.

5 Once in the collapsed position as described above, the add-on seat 100 can be folded up against the side of the pushchair into the storage position (see Figures 16 – 19). By moving the backrest frame member 122 to the folded collapsed position as described above, the wire 156 is pulled through the wire guide 155 and through the guide lug 151b, which pulls the latch plate 198 into the slot 196 in the rear hinge
10 192 to release the lip 197a, and thereby release the second part 194, of the rear hinge 192 from the first part 193. The collapsed folding support frame 120 and wheel mechanism 140 can then be pivoted upwards about the front and rear hinges 191, 192 to the storage position to lie flat against the side of the pushchair in a substantially vertical plane.

15 The add-on seat can be retained in the storage position described above by using a strap (not shown) to hold it to the pushchair. In addition, the wheel 145 can be removed from the axle as described above, and attached to a 'false axle' 146b protruding from the side of the connection bar 190 (see Figures 16 and 18). The
20 side of the wheel 145 thereby abuts the hinges 191, 192 and prevents them from pivoting back to the operative position.

If the pushchair is to be transported, for example, in the boot of a car, it will most probably be necessary to remove the main body of the add-on seat 100 from the
25 pushchair to allow the pushchair to be folded. This is done by detaching the third bodies 182 from the second bodies 176 of the pushchair clamps 171, 172 as described above. The only part of the add-on seat 100 that then remains attached to the pushchair is the first and second bodies 173, 176 of the pushchair clamps 171, 172 which are intended to be small enough to not hinder the folding
30 mechanism of modern pushchairs.

Other unillustrated embodiments of the present invention may include additional features or accessories. For example, a rain cover could be provided, attachable to

- 27 -

the auxiliary seat device 1/100, to partially or entirely surround a child seated on the device to shelter the child from wind/rain/sleet/snow. The rain cover could incorporate a supporting frame structure attachable to the device. Alternatively, the device could be provided with a sunshade or parasol.

5

The add-on seat 1/100 would preferably include a seat belt or a 3- or 5- point safety harness to secure around the child's waist and/or shoulders when seated, to prevent the child from falling off the seat and being injured.

10

The wheel struts 141, 142, 144 and folding frame members 121, 122 are intended to be made from light-weight steel tubing for optimum strength and rigidity, whilst also remaining light enough to carry easily. This also has the benefit of minimising the weight of the accessory exerted on the side of the pushchair so that when it is in the storage position, it does not cause the pushchair to tip over. It is also envisaged that the seat cover 123 and the backrest cover 124 are easily removable for cleaning, and replaceable when worn or to change the aesthetic appearance of the invention.

15

In addition to the functional accessories mentioned above, the auxiliary seat device 1 may also include an accessory intended to amuse the child whilst the child is in the seat. This could include a toy steering wheel or dashboard arrangement, or a hobby-horse style attachment positionable in front of the child.

20

25

30

Claims

1. An auxiliary seat attachable to a pushchair to enable it to accommodate two children seated side-by-side, the seat comprising a frame having a backrest and a base and a wheel in contact with the ground in an operative position to support a child seated on the base with their back against the backrest, wherein the frame is configured so that the backrest and the base fold substantially flat when the auxiliary seat is not in use and wherein the auxiliary seat, including the base and backrest, can pivot relative to the pushchair to be folded against the side thereof in a storage position with the wheel off the ground, once the base and backrest of the seat have been folded substantially flat.
2. An auxiliary seat according to claim 1 wherein the base and the backrest are pivotable relative to one another such that they are collapsible from the erect operative position to the collapsed folded position by means of a scissor-like mechanism.
3. An auxiliary seat according to claim 2 wherein the scissor-like mechanism includes at least one sliding joint to enable the base and backrest to be erected and collapsed.
4. An auxiliary seat according to claim 3 wherein the backrest is attached to one end of a first support strut and the base is attached to one end of a second support strut, and in which said first and second support struts are pivotable relative to each other and the end of the first support strut remote from the backrest is connected to the at least one sliding joint.
5. An auxiliary seat according to any preceding claim comprising a locking mechanism to retain the seat in the erect operative position.
6. An auxiliary seat according to claim 3 or claim 4 comprising a locking mechanism to retain the seat in the erect operative position and which locks the at least one sliding joint in place.

- 29 -

7. An auxiliary seat according to claim 6 wherein the locking mechanism comprises a latch extending from the at least one sliding joint, operable to lock onto a fixed shaft on the frame.
- 5
8. An auxiliary seat according to claim 7 wherein the latch is located at one end of an arm, the arm rotatably mounted to the at least one sliding joint and operable to move from a first locked position in which the latch snags on the fixed shaft, to a second unlocked position in which the latch is clear of the fixed shaft to allow
- 10 movement of the at least one sliding joint.
9. An auxiliary seat according to claim 1 wherein the backrest and the base are pivotably connected to one another by hinge joints to be pivotable from the erect operative position to the collapsed storage position in which the backrest lies flat
- 15 against the base.
10. An auxiliary seat according to claim 9 wherein the base comprises a base frame and a seat coving attached thereto.
- 20 11. An auxiliary seat according to claim 9 or claim 10 wherein the backrest comprises a backrest frame with a backrest covering attached thereto.
12. An auxiliary seat according to any of claims 9 – 11 wherein the wheel is secured to the frame by a pivotable wheel mechanism which can pivot from an
- 25 extended operative position to a folded storage position in which the wheel mechanism lies substantially flat against the frame.
13. An auxiliary seat according to claim 12 wherein the wheel mechanism includes a telescopic strut to allow the distance of the wheel from the frame to be
- 30 telescopically adjusted independently of the pivoting of the wheel mechanism between the operative position and the storage position.

- 30 -

14. An auxiliary seat according to claim 13 wherein the telescopic strut includes a locking mechanism to lock the strut in the desired position.
15. An auxiliary seat according to any of claims 12 to 14 wherein, in the storage position, the wheel mechanism lies flat against the base on the opposite side thereto to the backrest.
16. An auxiliary seat according to any of claims 12 to 15 wherein the wheel mechanism is connected to the frame at said hinge joints.
17. An auxiliary seat according to claim 16 wherein the backrest and the wheel mechanism are mechanically connected to one another to be moveable together between their respective operative position and their folded storage position.
18. An auxiliary seat according to claim 16 wherein at least one hinge joint includes a locking means to lock the backrest in the operative position or in the storage position.
19. An auxiliary seat according to claim 17 wherein at least one hinge joint includes a locking means to lock the backrest and the mechanically associated wheel mechanism in the operative position or in the storage position.
20. An auxiliary seat according to claim 18 or claim 19 wherein the locking means includes a pair of ratchet plates operated by a cam lever to move from a locked position in which the ratchets of each plate engage with each other, to an unlocked position in which the ratchets of each plate are out of engagement with each other to allow the backrest and/or wheel mechanism to pivot about the hinge joints.
21. An auxiliary seat according to any preceding claim wherein the frame is attached to the pushchair by a first clamping means extending from one side of the frame.

- 31 -

22. An auxiliary seat according to claim 21 wherein the first clamping means is attached to a first support strut which is hingedly attached to the frame.

23. An auxiliary seat according to claim 21 or claim 22 wherein the frame is
5 further attached to the pushchair by a second clamping means extending from said one side of the frame.

24. An auxiliary seat according to claim 23 wherein the second clamping means is hingedly attached to the frame.

10

25. An auxiliary seat according to claim 23 or claim 24 wherein the first and second clamping means are attachable to a supplementary pushchair frame bar which includes further attachment means operable to fix the bar and seat attached thereto, to the conventional pushchair.

15

26. An auxiliary seat according to claim 23 or claim 24 wherein the first and second clamping means are attachable to a replacement pushchair frame bar which can be fitted in place of an existing section of frame of a conventional pushchair to fix the seat thereto.

20

27. An auxiliary seat according to any of claims 1 – 20 including at least one clamp to secure the add-on seat to a frame of a pushchair.

28. An auxiliary seat according to claim 27 wherein the at least one clamp is
25 attached to a connection bar, and the frame is attached to the connection bar by at least one hinge connector to be pivotable relative to the connection bar.

29. An auxiliary seat according to claim 28 wherein the at least one clamp and/or the at least one hinge connector are slidable relative to the connection bar to
30 allow the position of the frame to be adjusted relative to the pushchair.

- 32 -

30. An auxiliary seat according to claim 28 or 29 wherein the frame, at least one hinge connector and connection bar are releasably attached to the at least one clamp.
- 5 31. An auxiliary seat according to any of claims 28 to 30 wherein the at least one hinge connector includes a locking mechanism to lock the auxiliary seat in the operative position.
32. An auxiliary seat according to any preceding claim which is releasably
10 attachable to said pushchair.
33. An auxiliary seat according to any preceding claim wherein the at least one wheel is detachable.
- 15 34. An auxiliary seat according to any preceding claim including locking mechanism to secure the auxiliary seat in the storage position.
35. An auxiliary seat according to any preceding claim wherein the at least one wheel is positioned such that when the auxiliary seat is mounted on the pushchair in
20 an operative position, the at least one wheel is in alignment with a rear wheel of the pushchair.
36. An auxiliary seat according to any preceding claim wherein the at least one wheel is positioned such that when the auxiliary seat is mounted on the pushchair in
25 an operative position, an axle of the at least one wheel is coaxial with an axle of a rear wheel of the pushchair.
37. An auxiliary seat according to any preceding claim attachable to a pushchair to enable two children to be seated side-by-side and facing the same direction.
30
38. An auxiliary seat according to any preceding claim wherein the seat includes a safety harness to retain a child in position thereon.

- 33 -

39. An auxiliary seat according to any preceding claim including a rain cover attached to the seat to at least partially surround a child sitting on the seat.
40. An auxiliary seat according to any preceding claim including a sunshade
5 attached to the seat to shade a child sitting on the seat.
41. An auxiliary seat according to any preceding claim including a toy steering wheel positionable in front of a child sitting on the seat.
- 10 42. An auxiliary seat according to any preceding claim including a toy hobby-horse style attachment positionable in front of a child sitting on the seat.
43. A pushchair incorporating an auxiliary seat according to any preceding claim.
- 15 44. An auxiliary seat substantially as hereinbefore described with reference to the accompanying drawings.

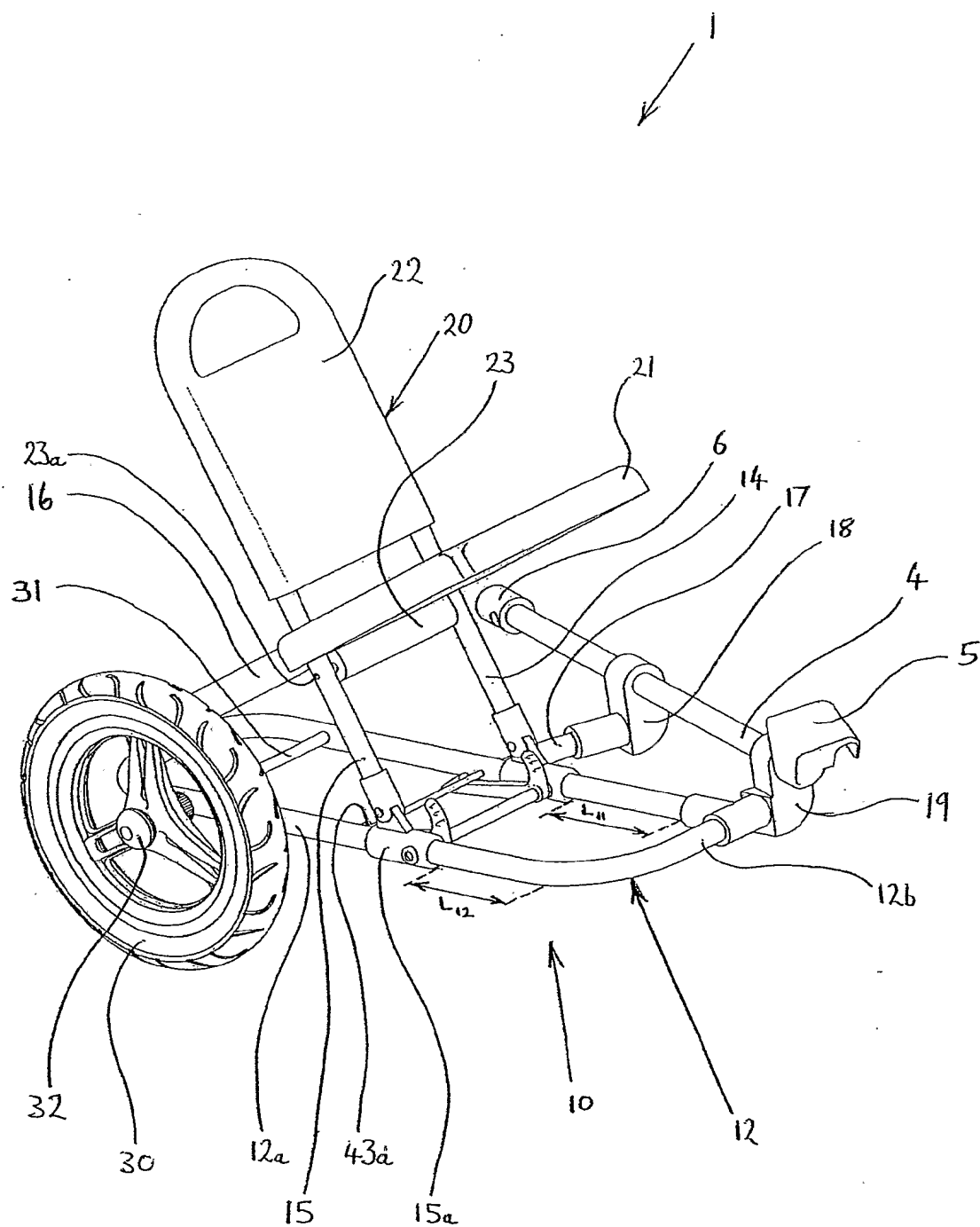


FIGURE 1

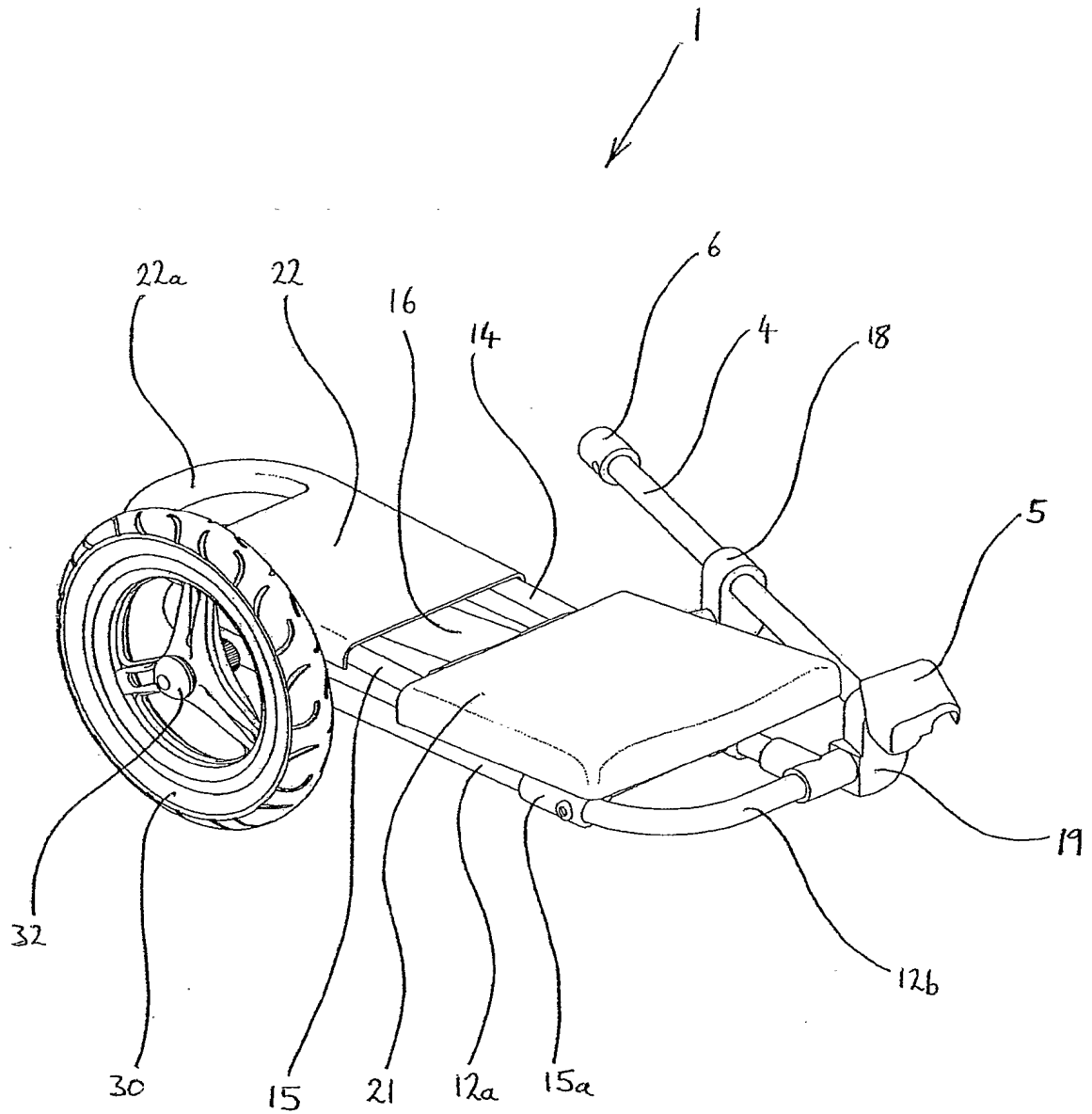


FIGURE 2.

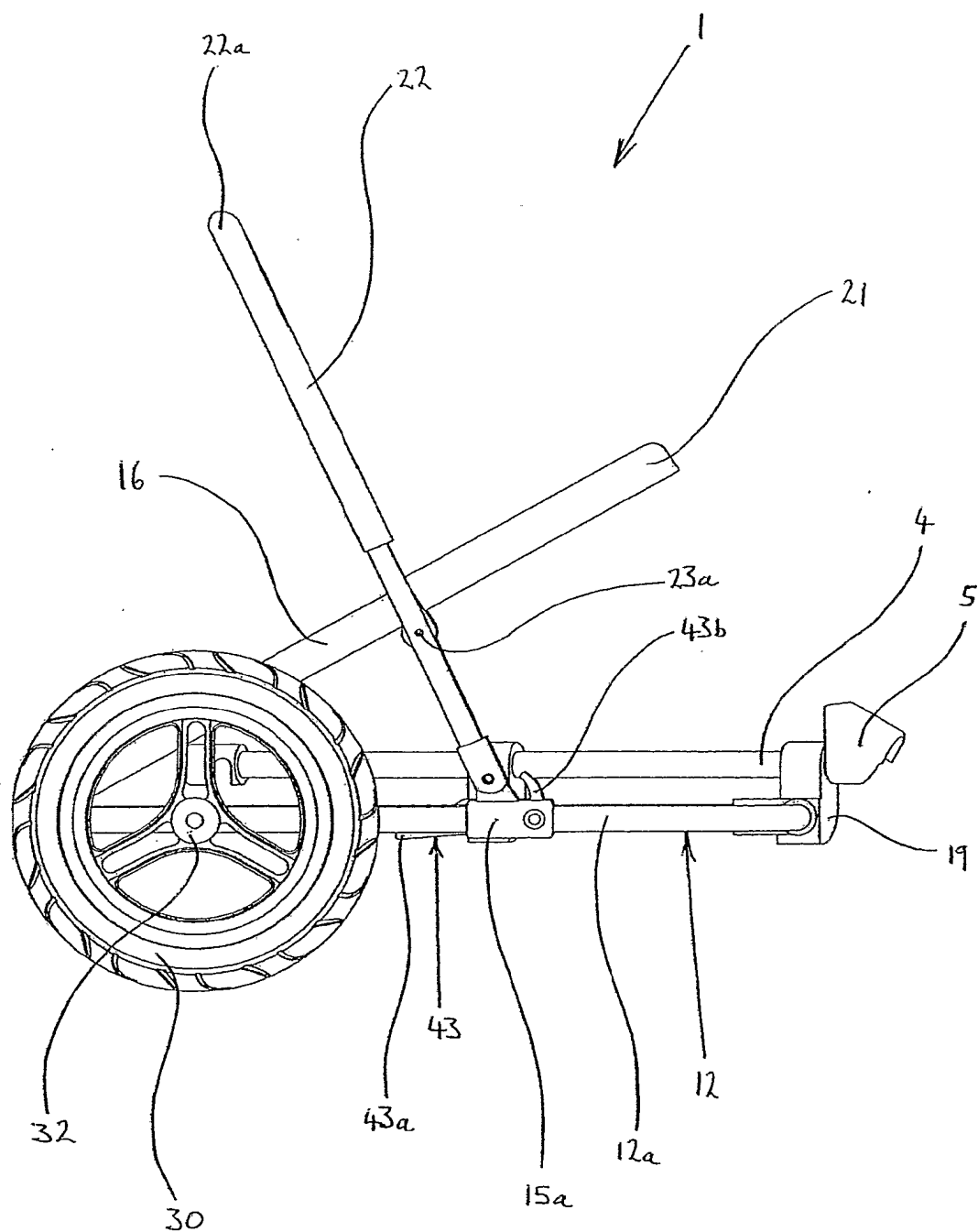


FIGURE 3

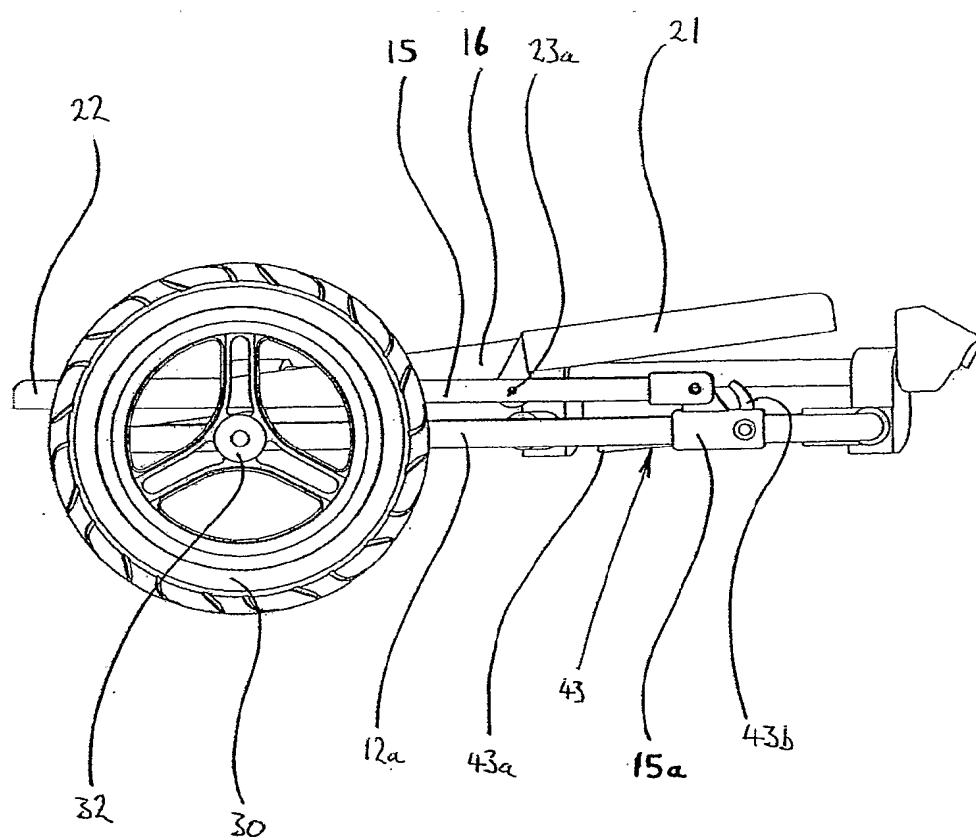


FIGURE 4

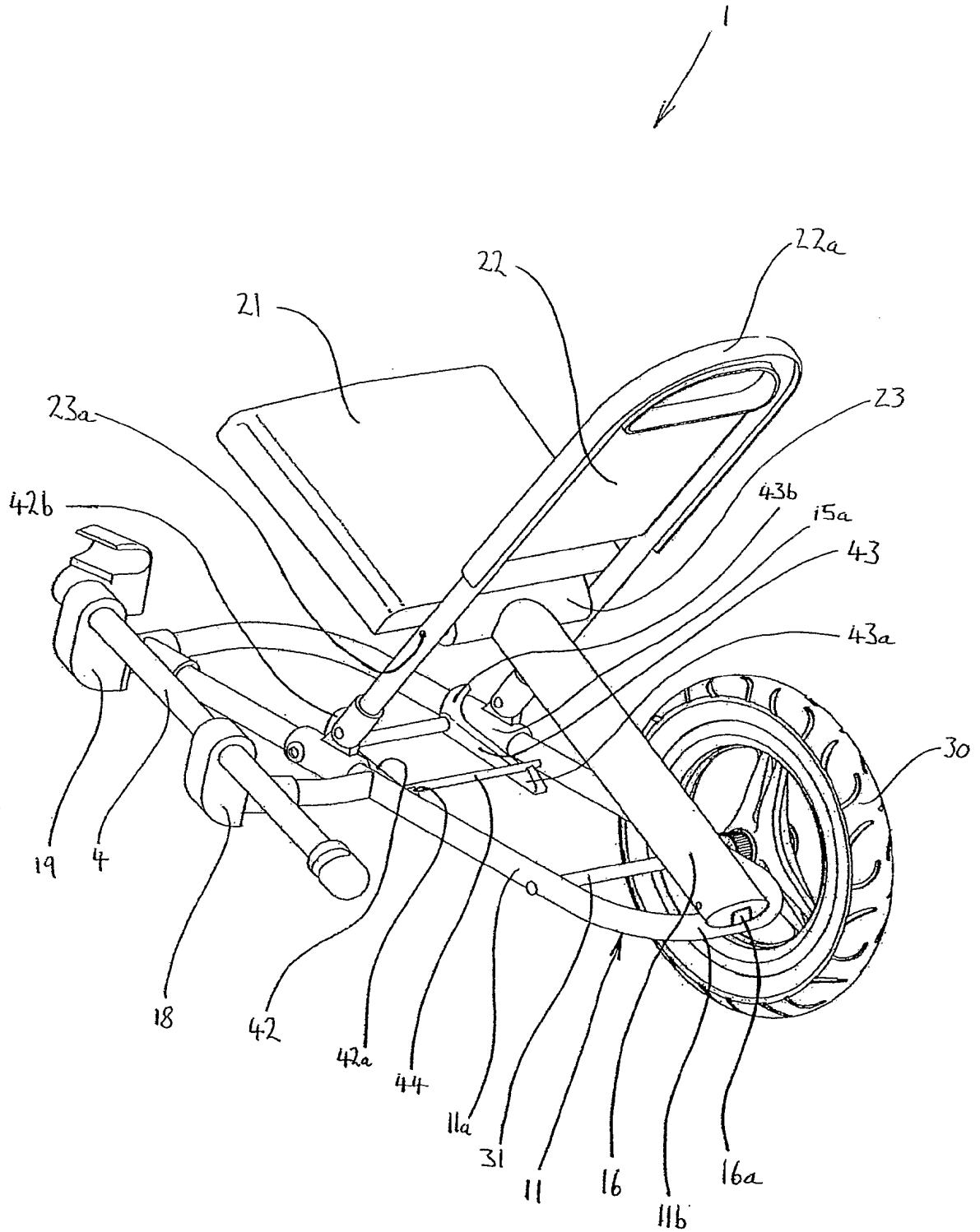


FIGURE 5

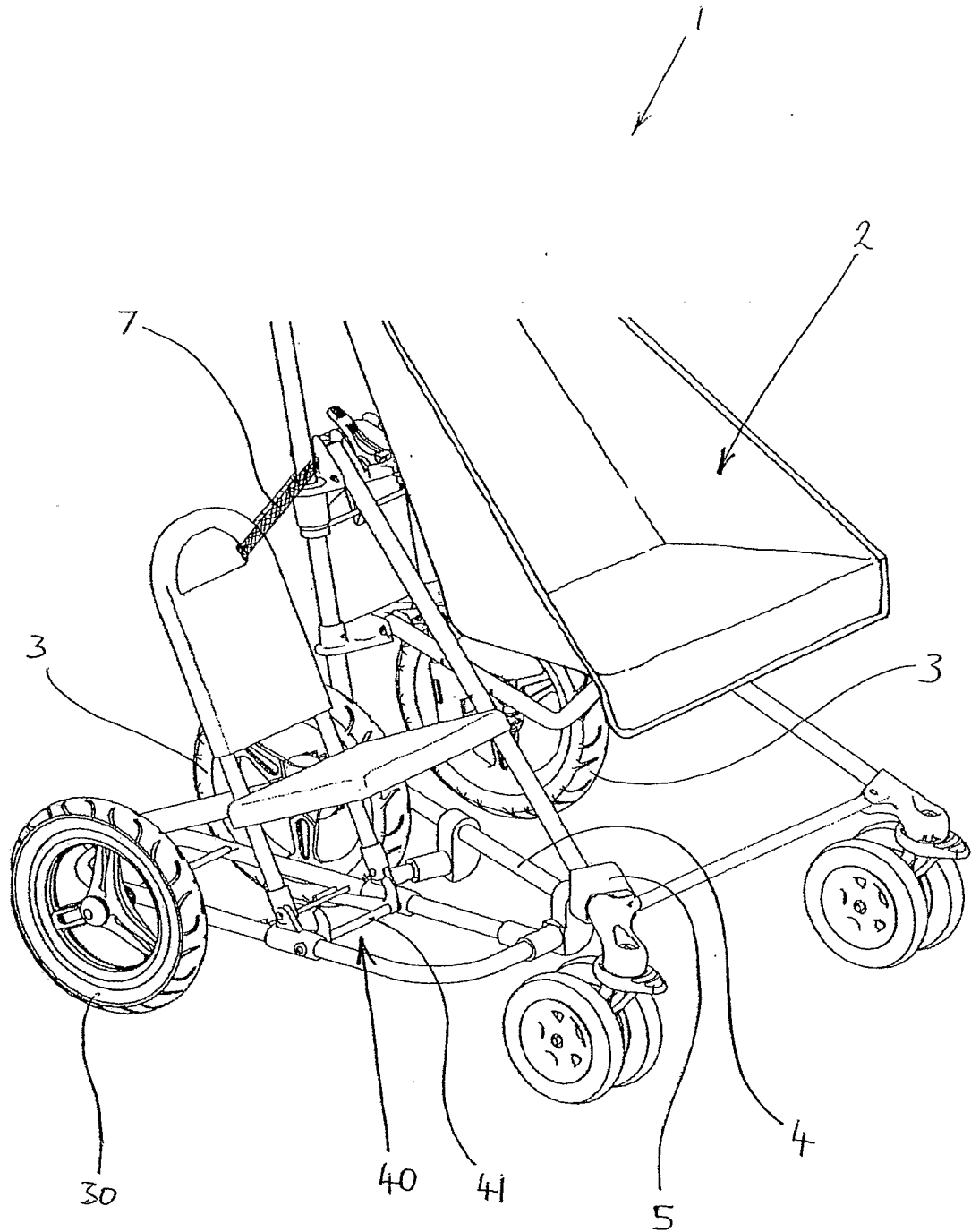


FIGURE 6.

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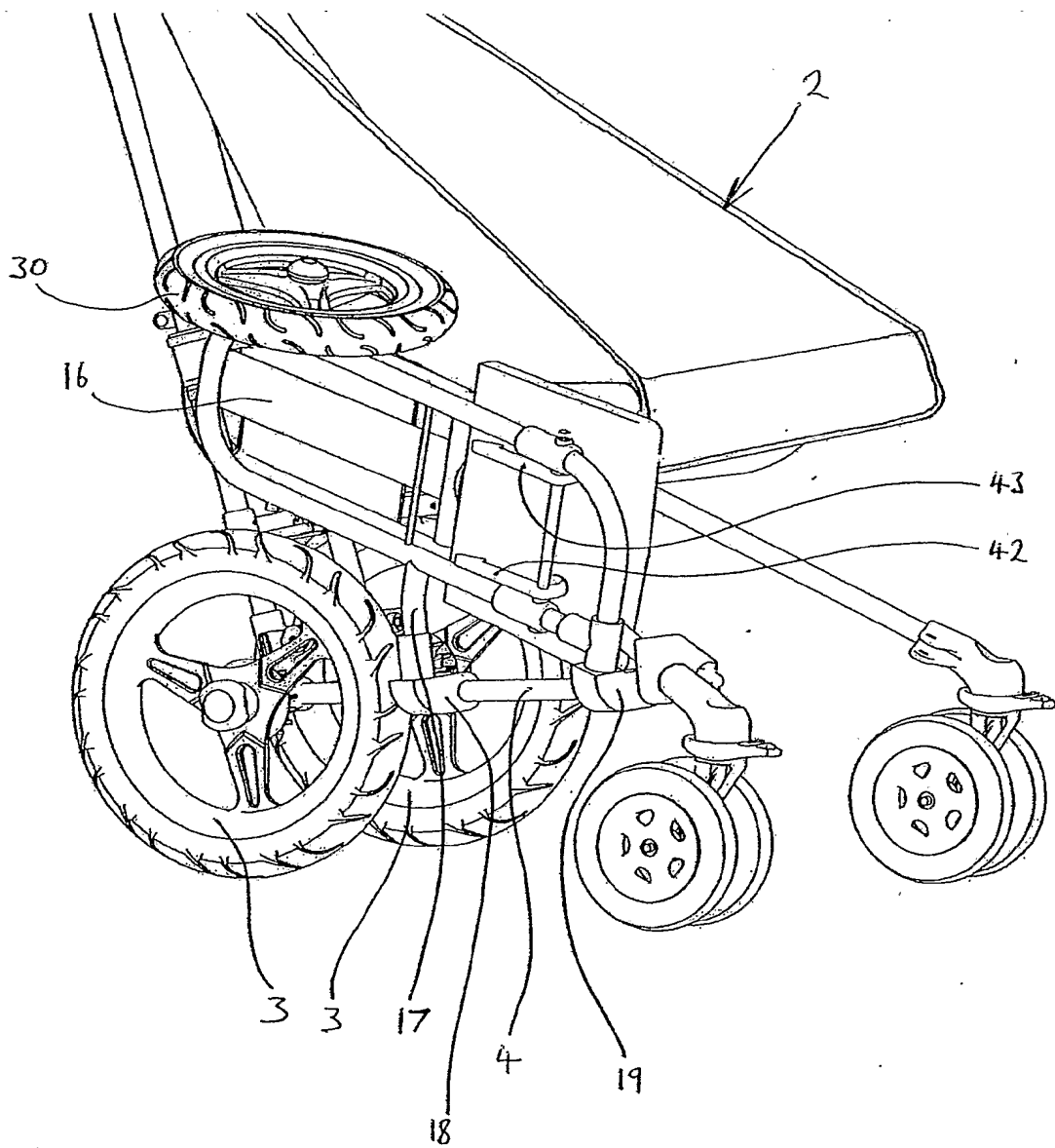


FIGURE 7

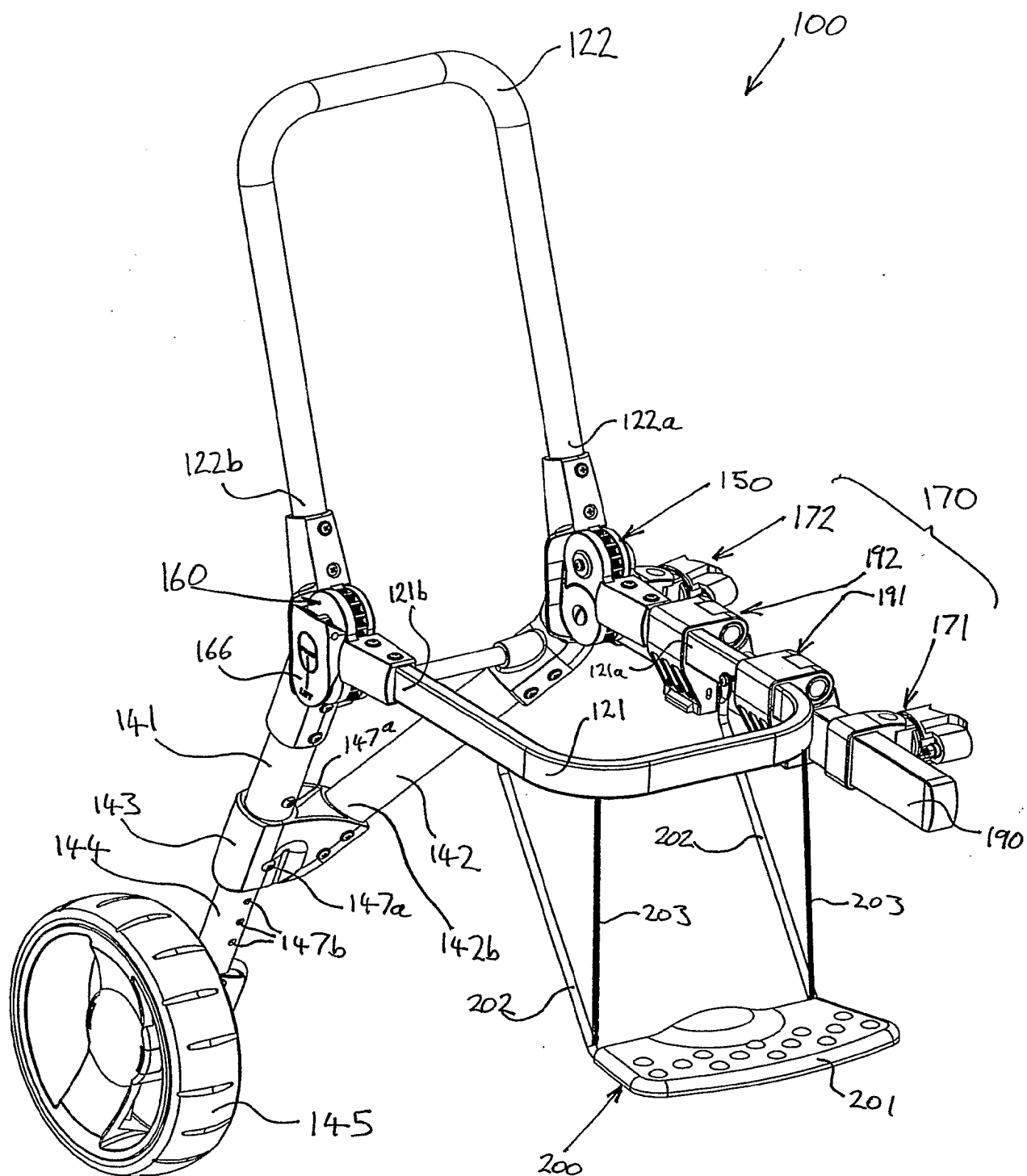


FIGURE 8

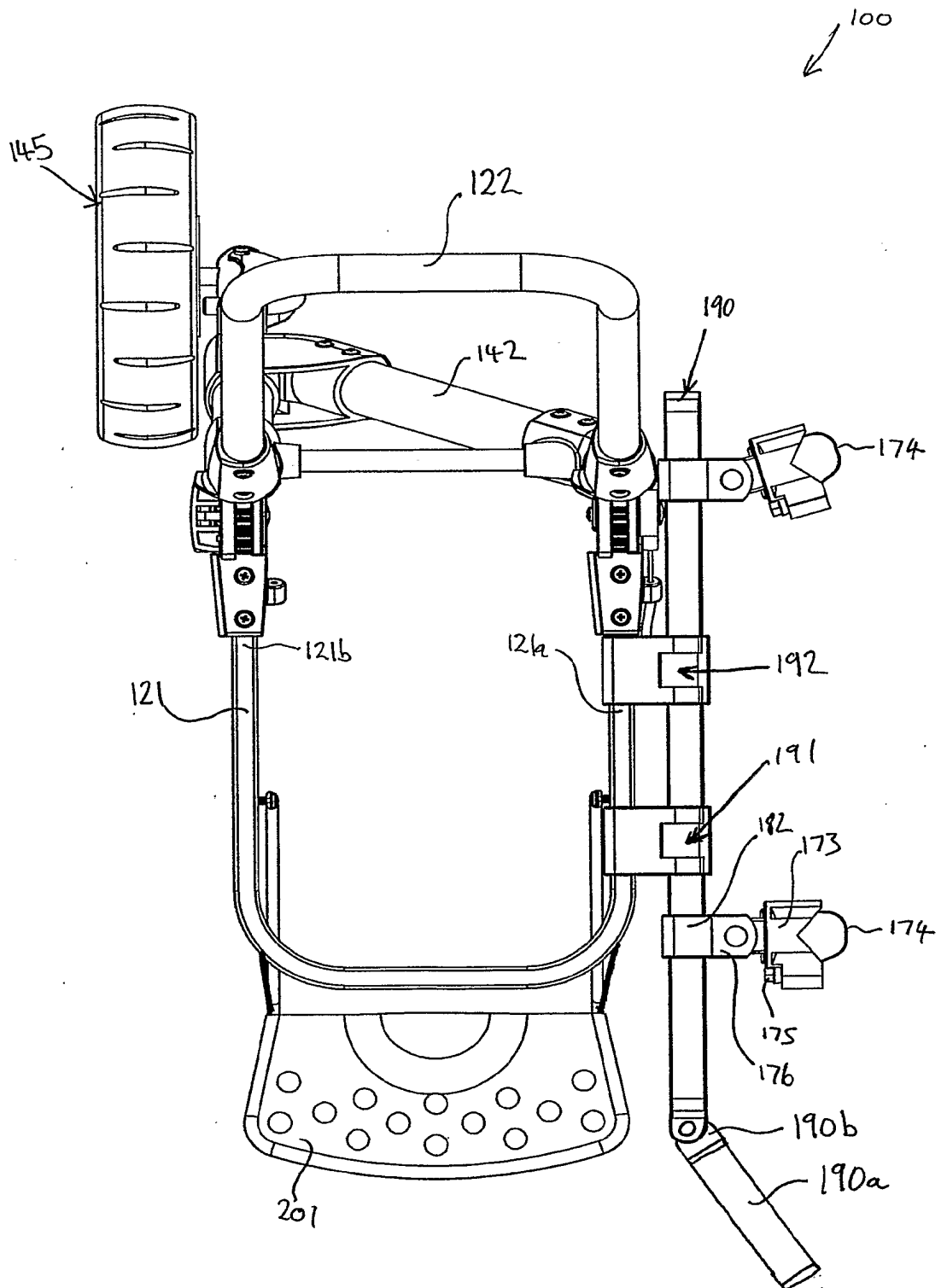
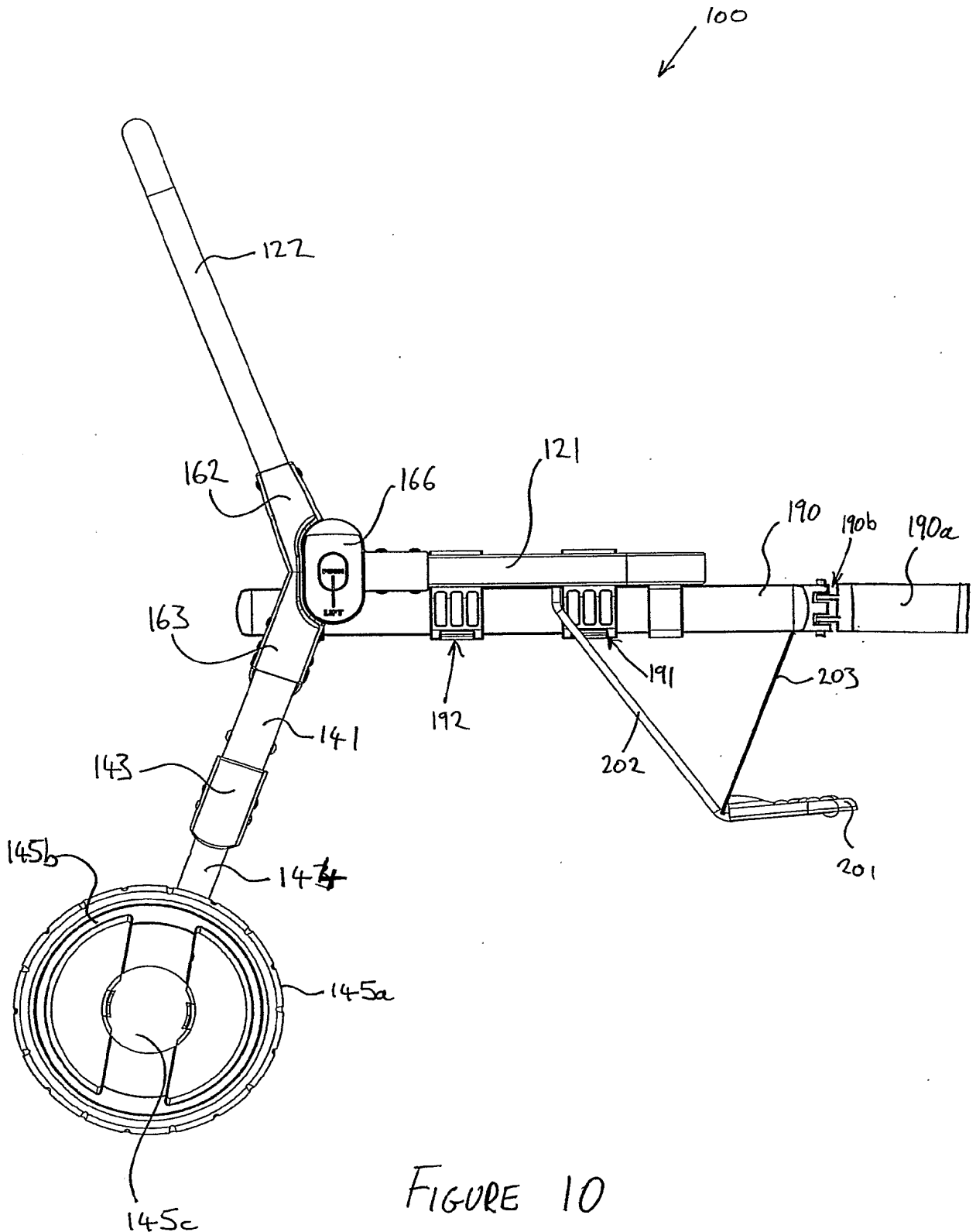
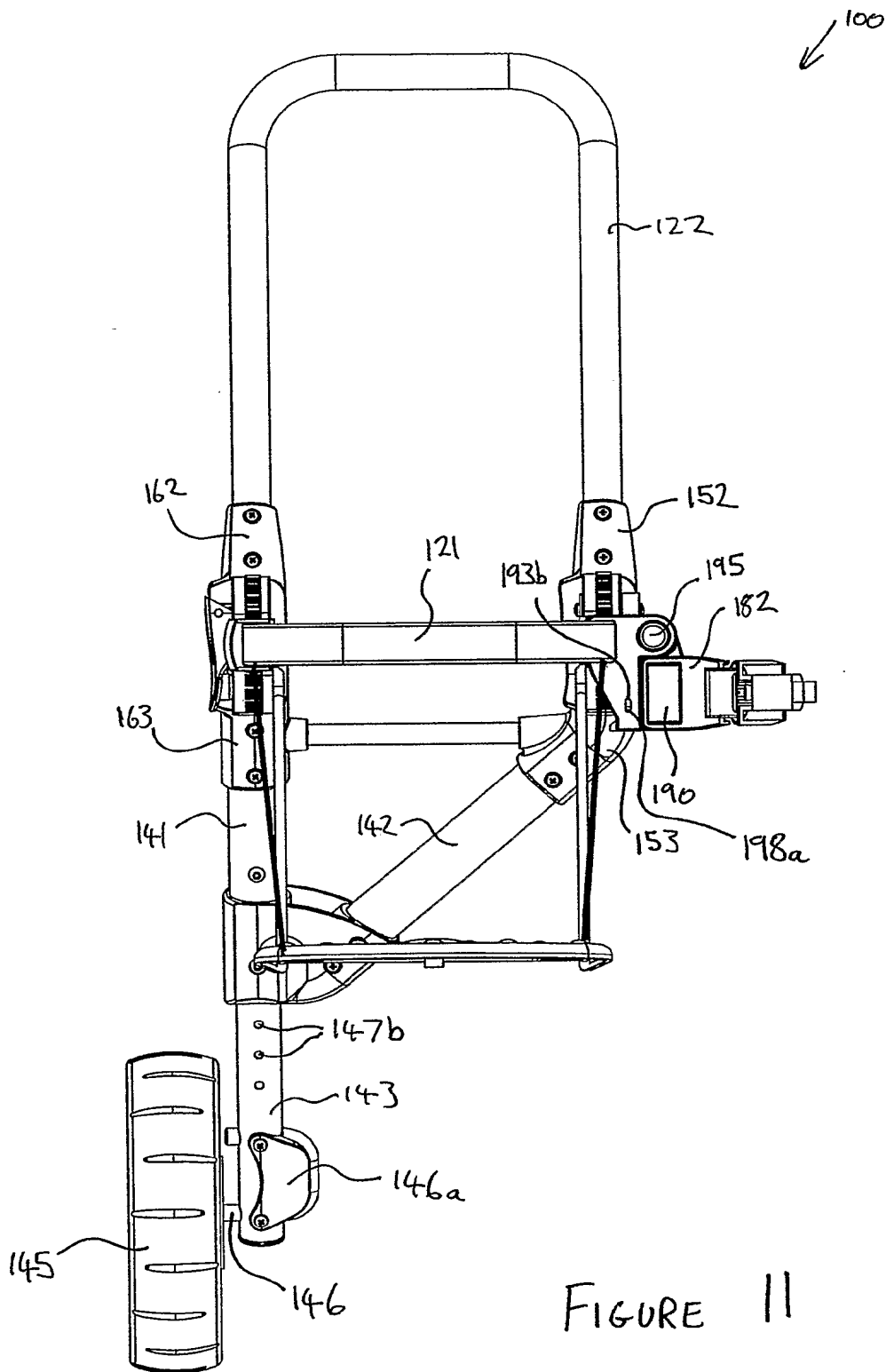


FIGURE 9





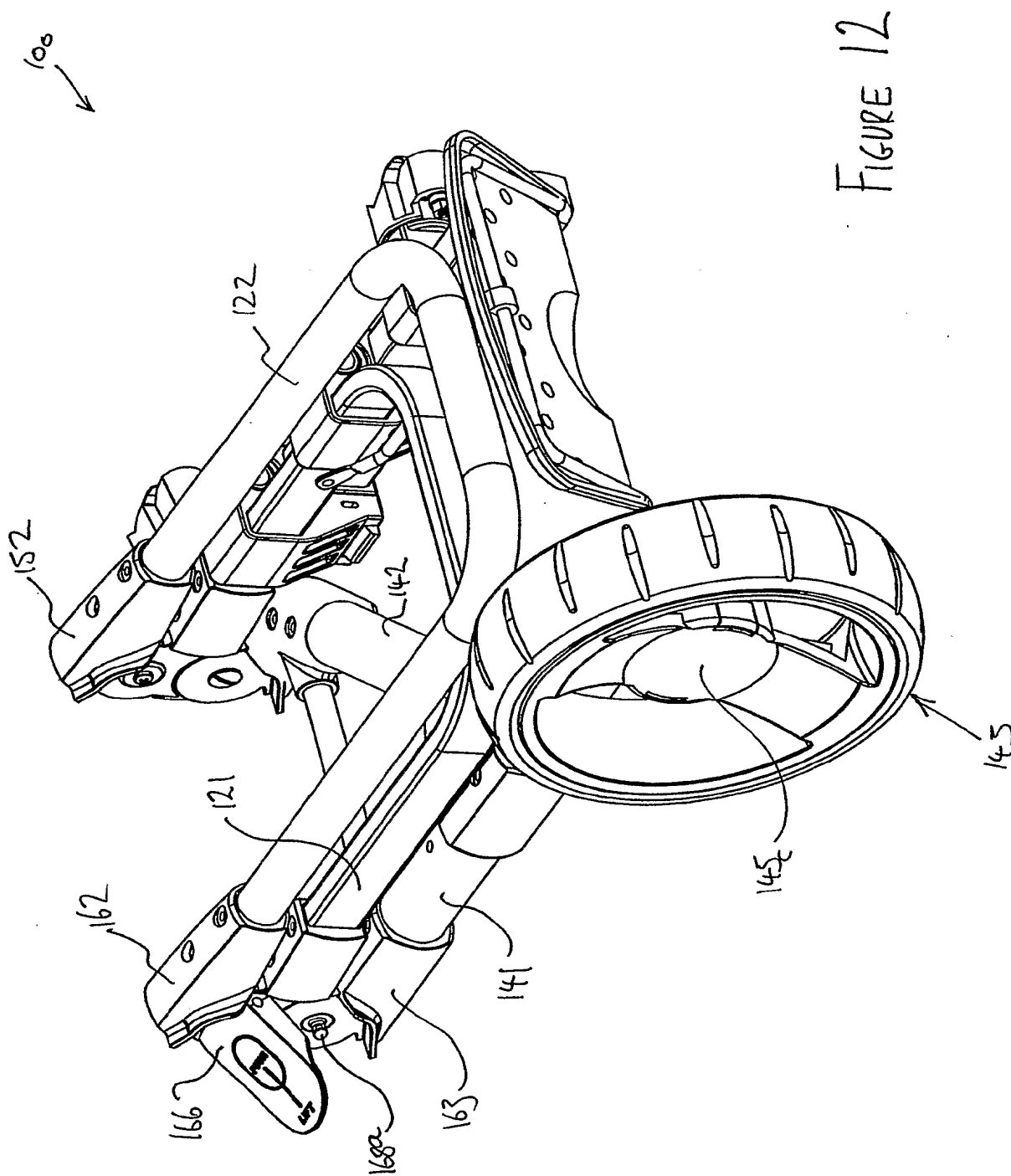


FIGURE 12

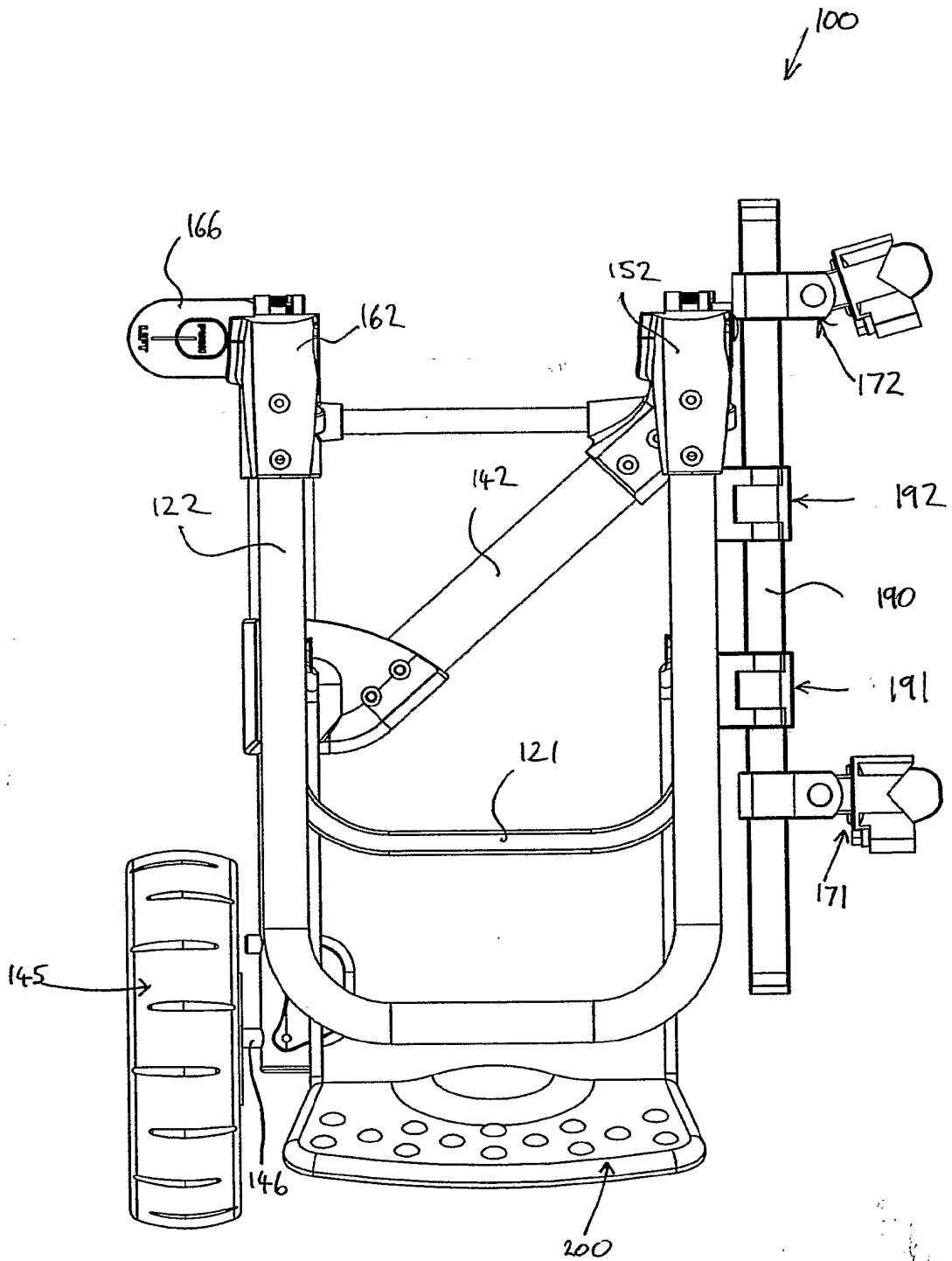


FIGURE 13

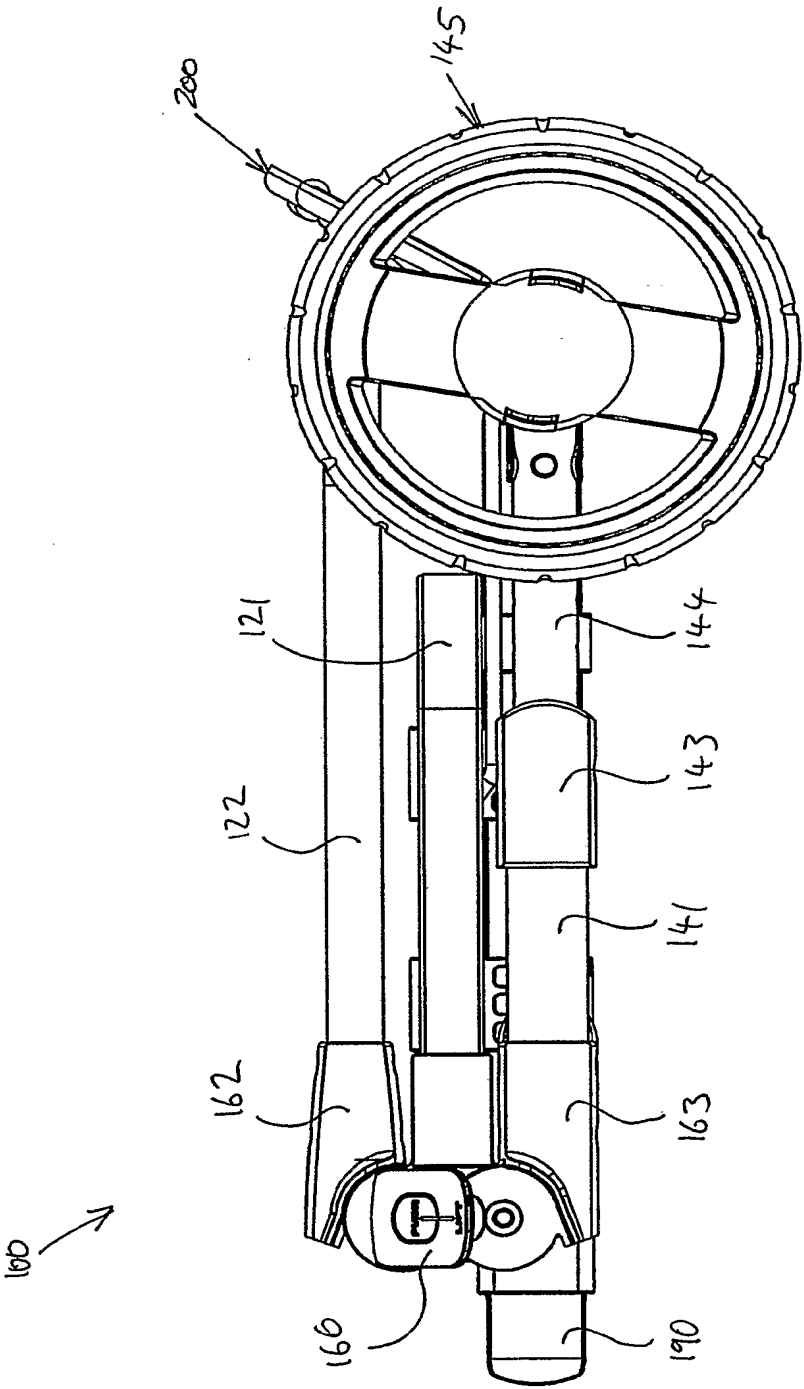


FIGURE 14

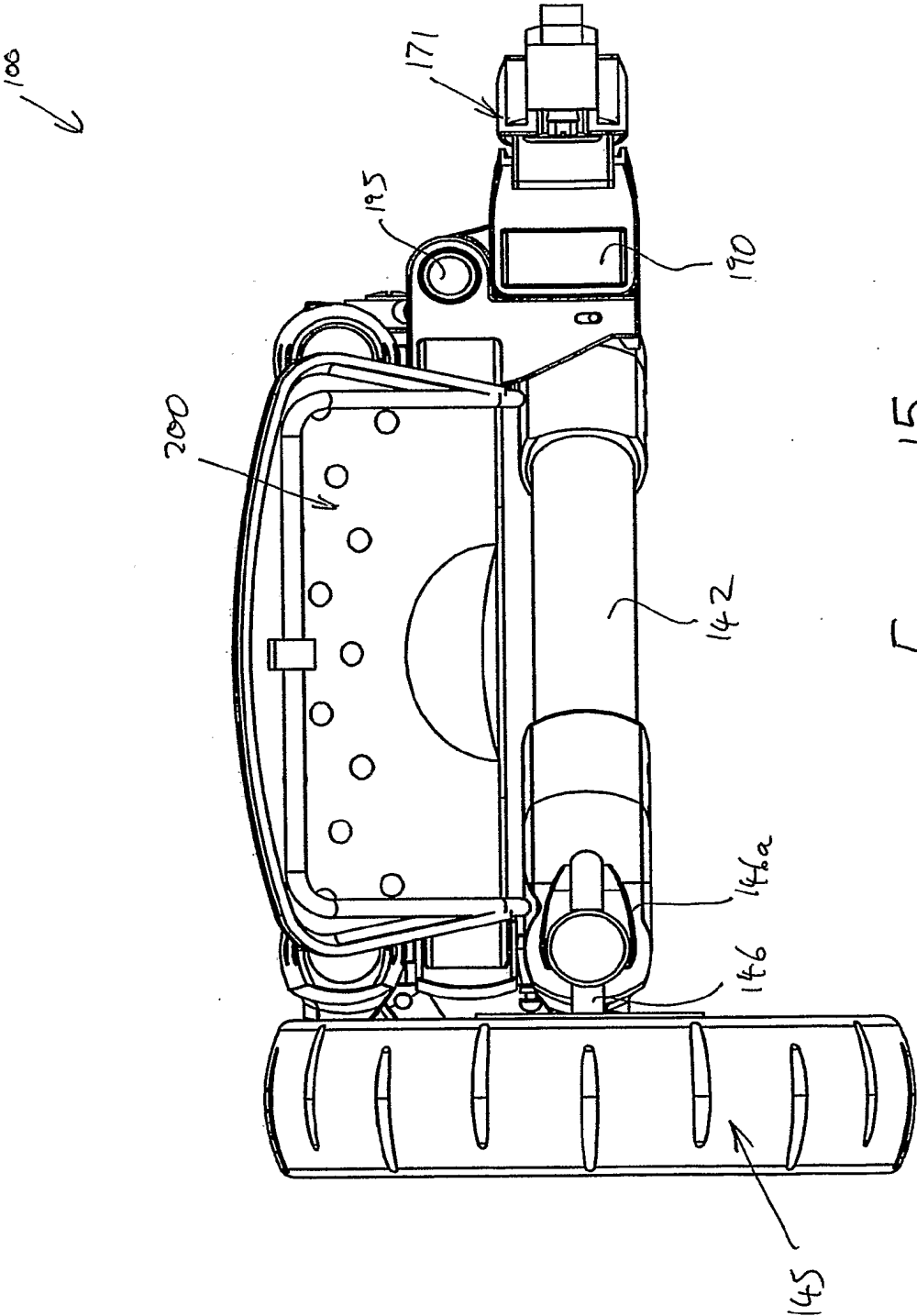


FIGURE 15

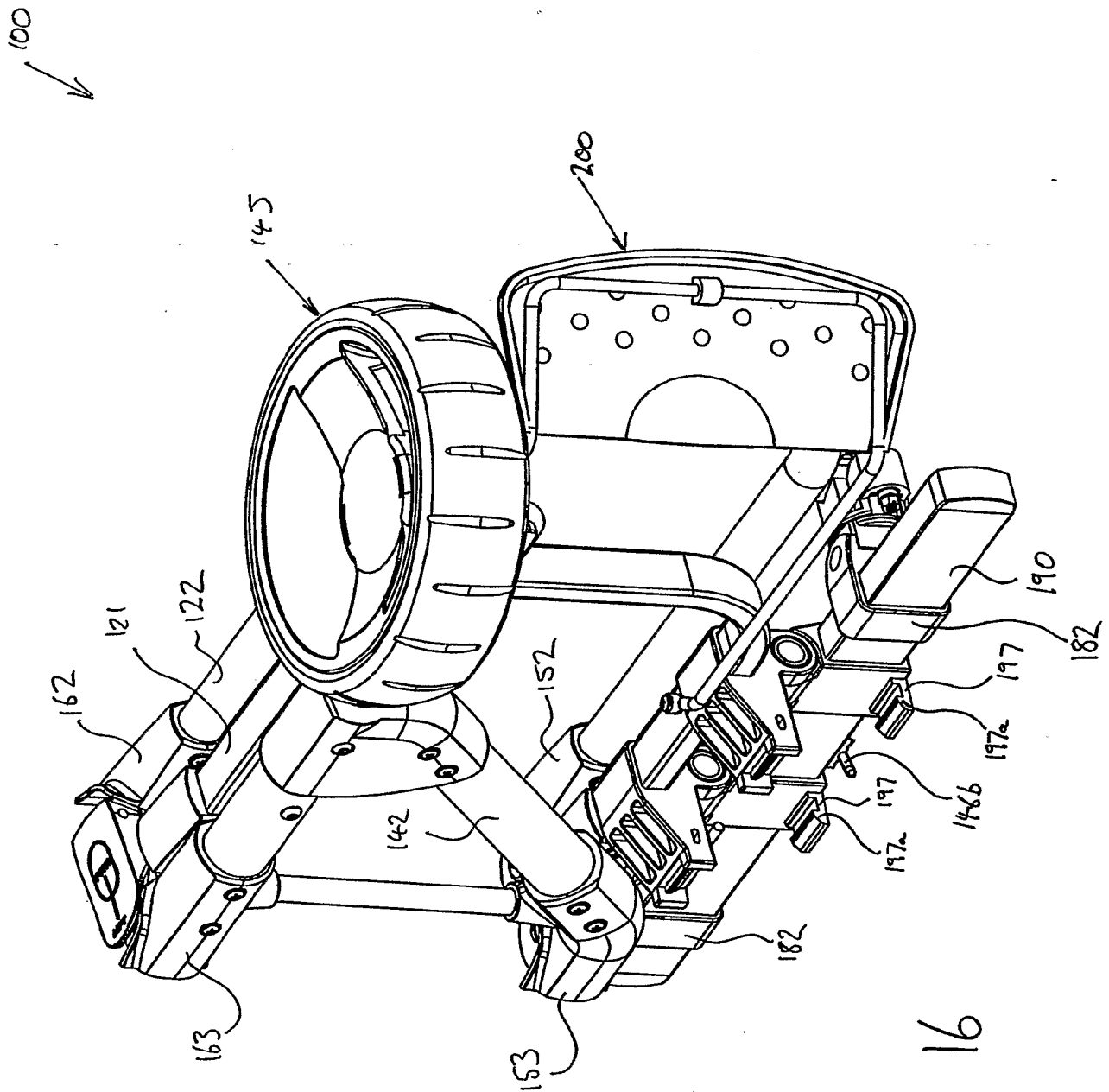


FIGURE 16

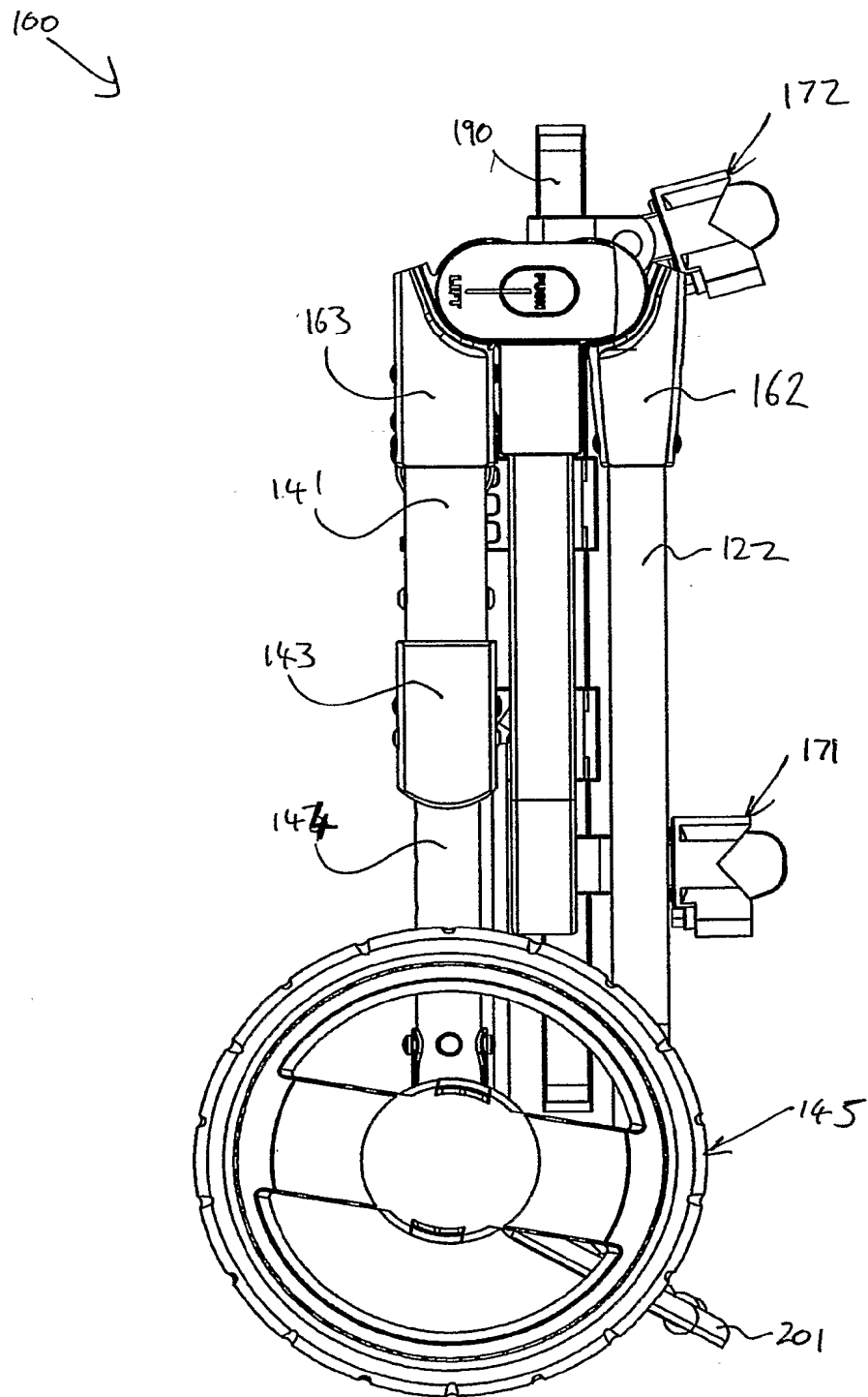
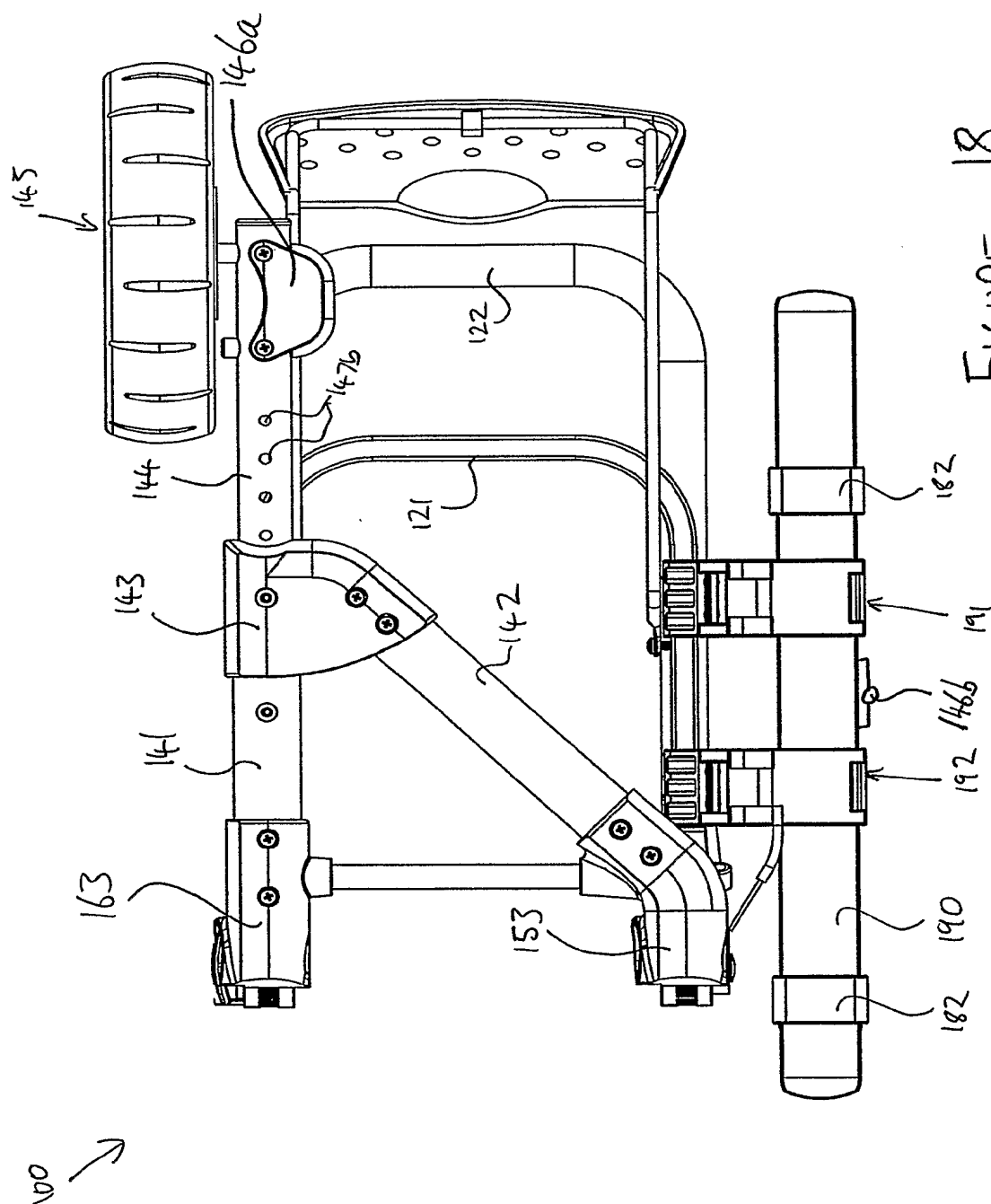


FIGURE 17



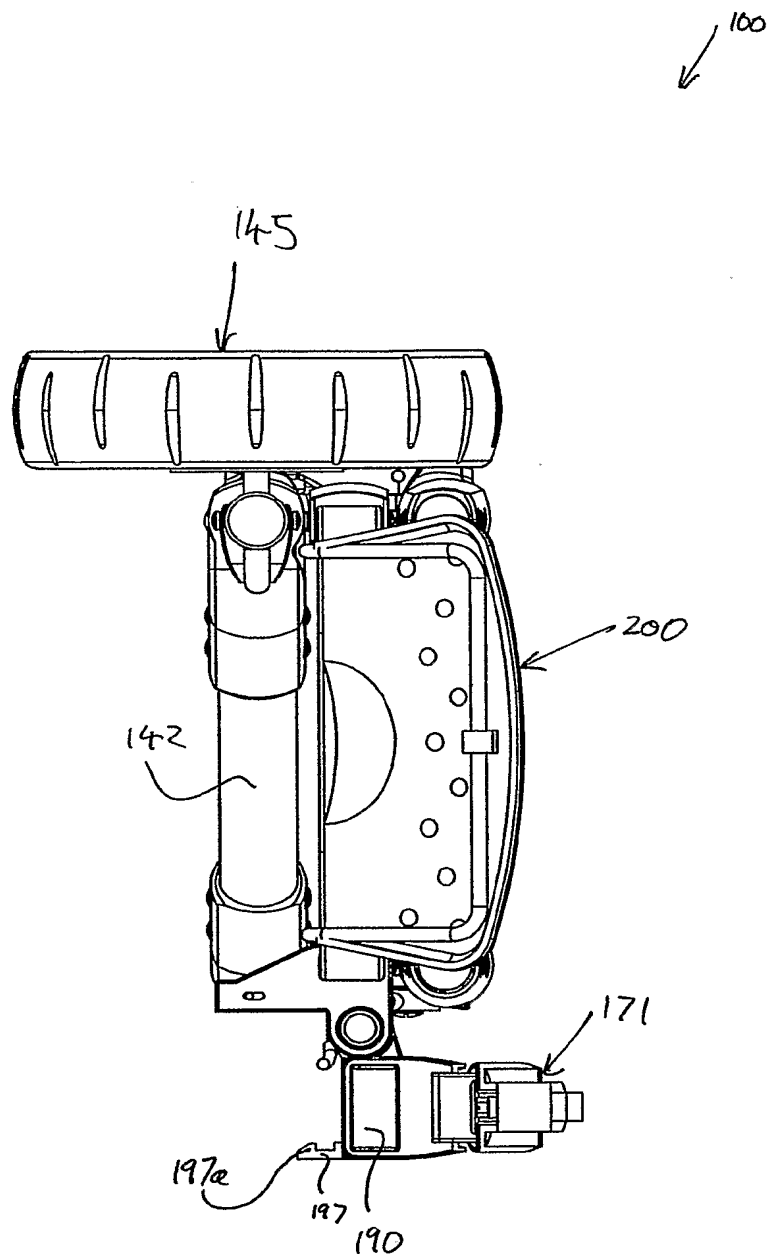


FIGURE 19

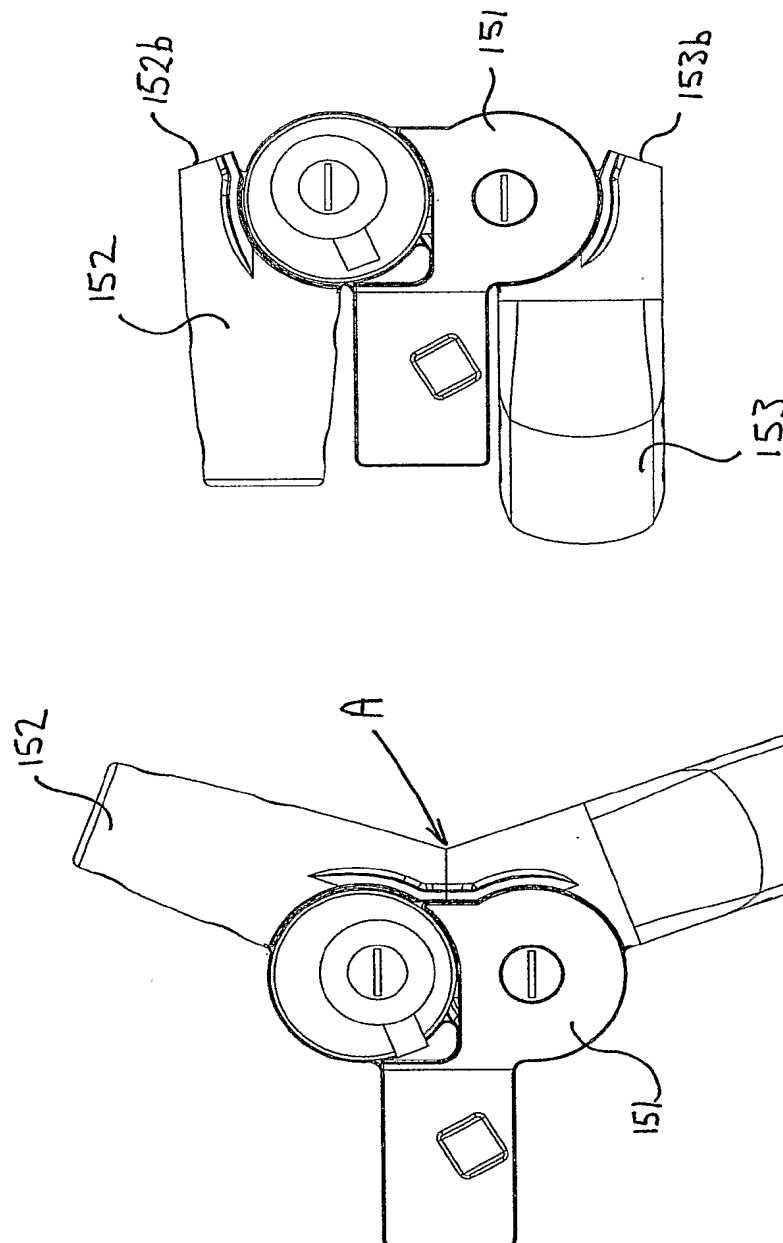


FIGURE 20B

FIGURE 20A

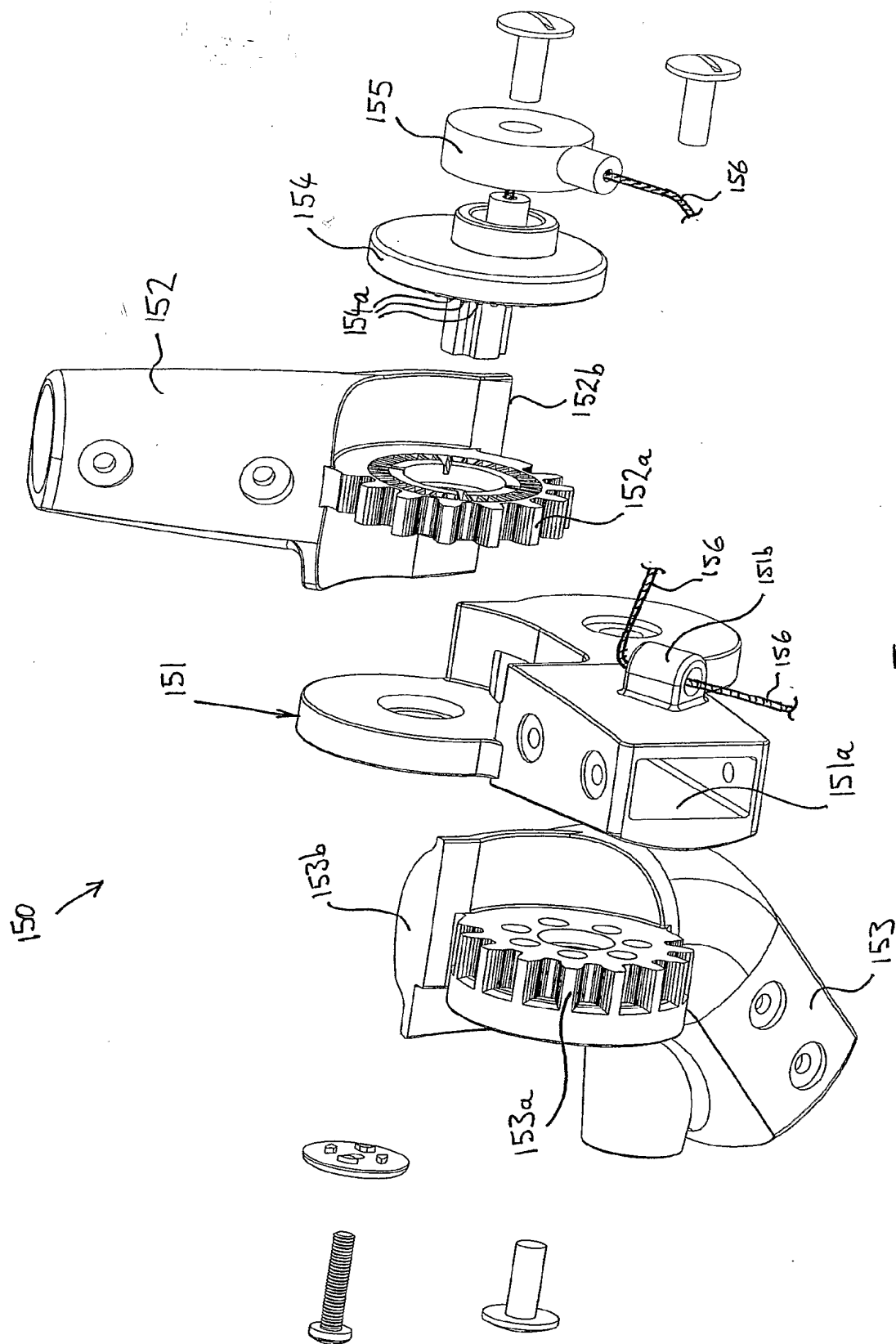


FIGURE 21

FIGURE 22A

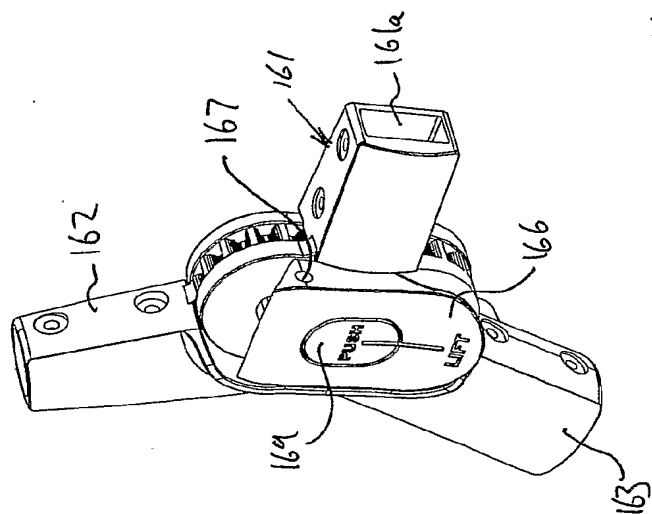


FIGURE 22B

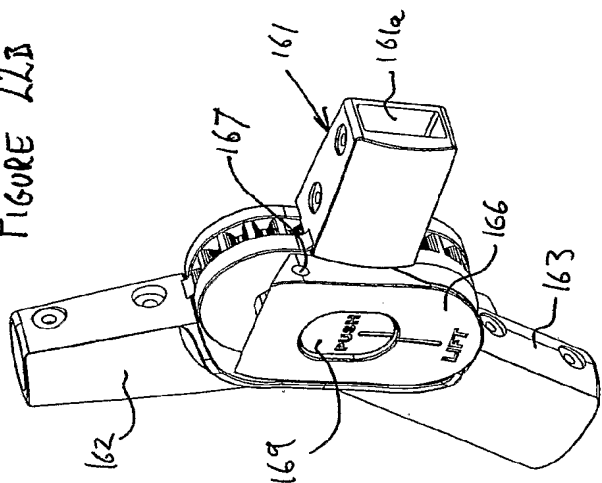


FIGURE 22C

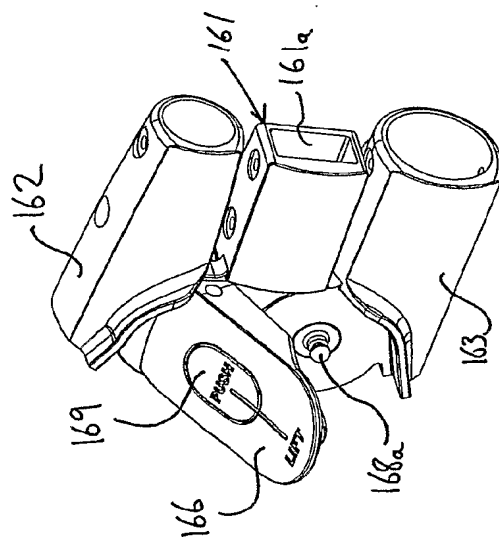
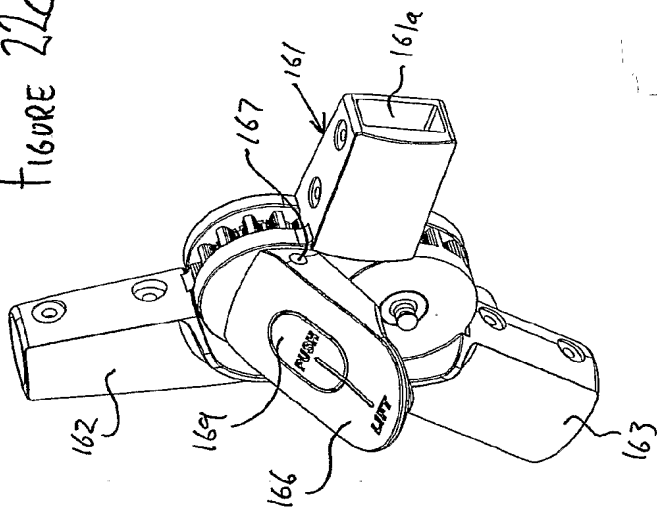


FIGURE 22E

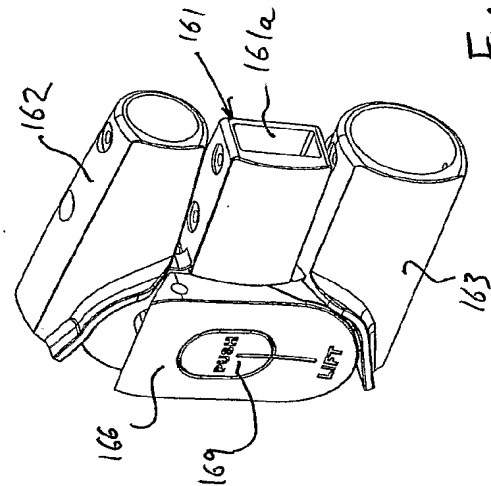
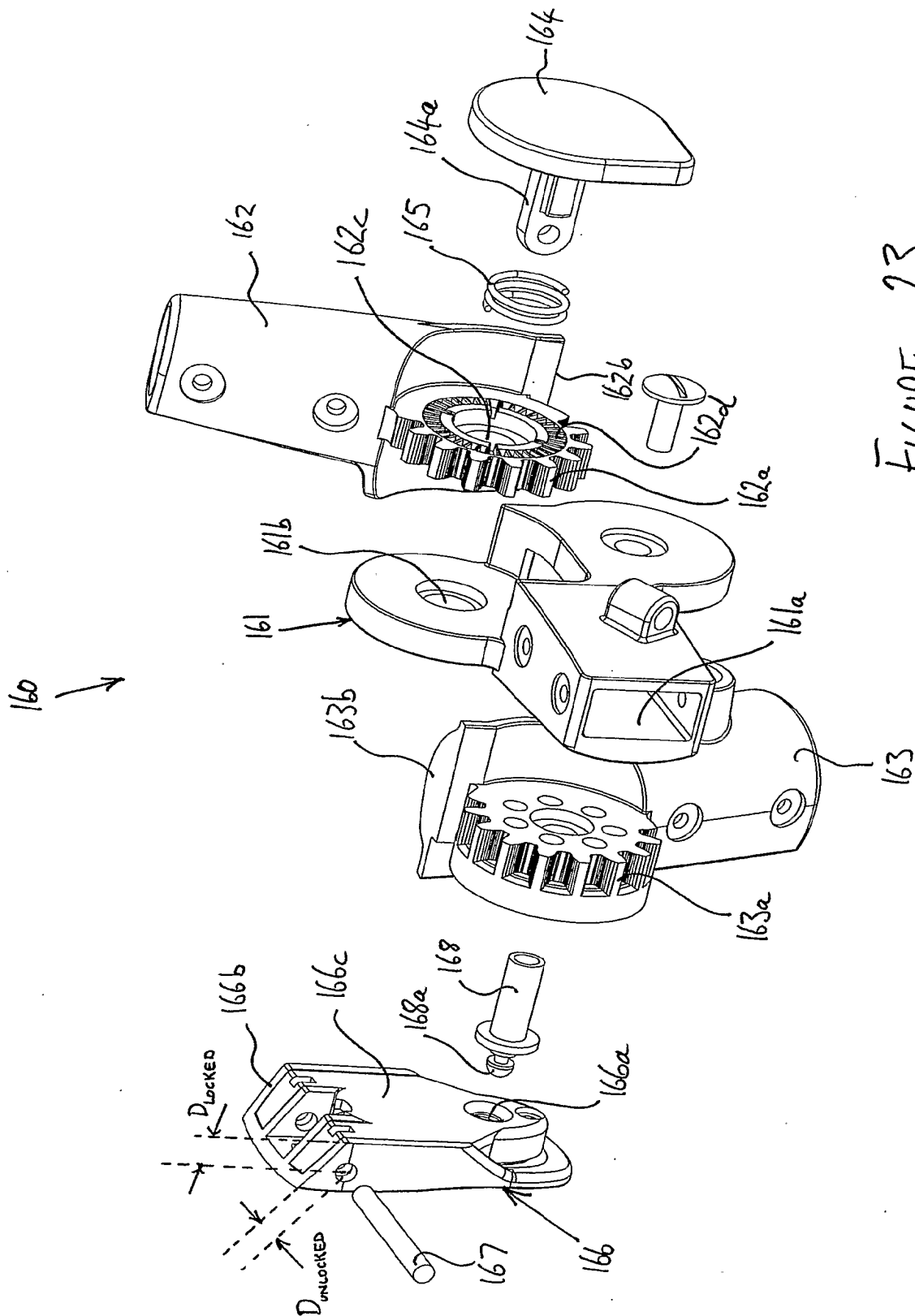


FIGURE 22D



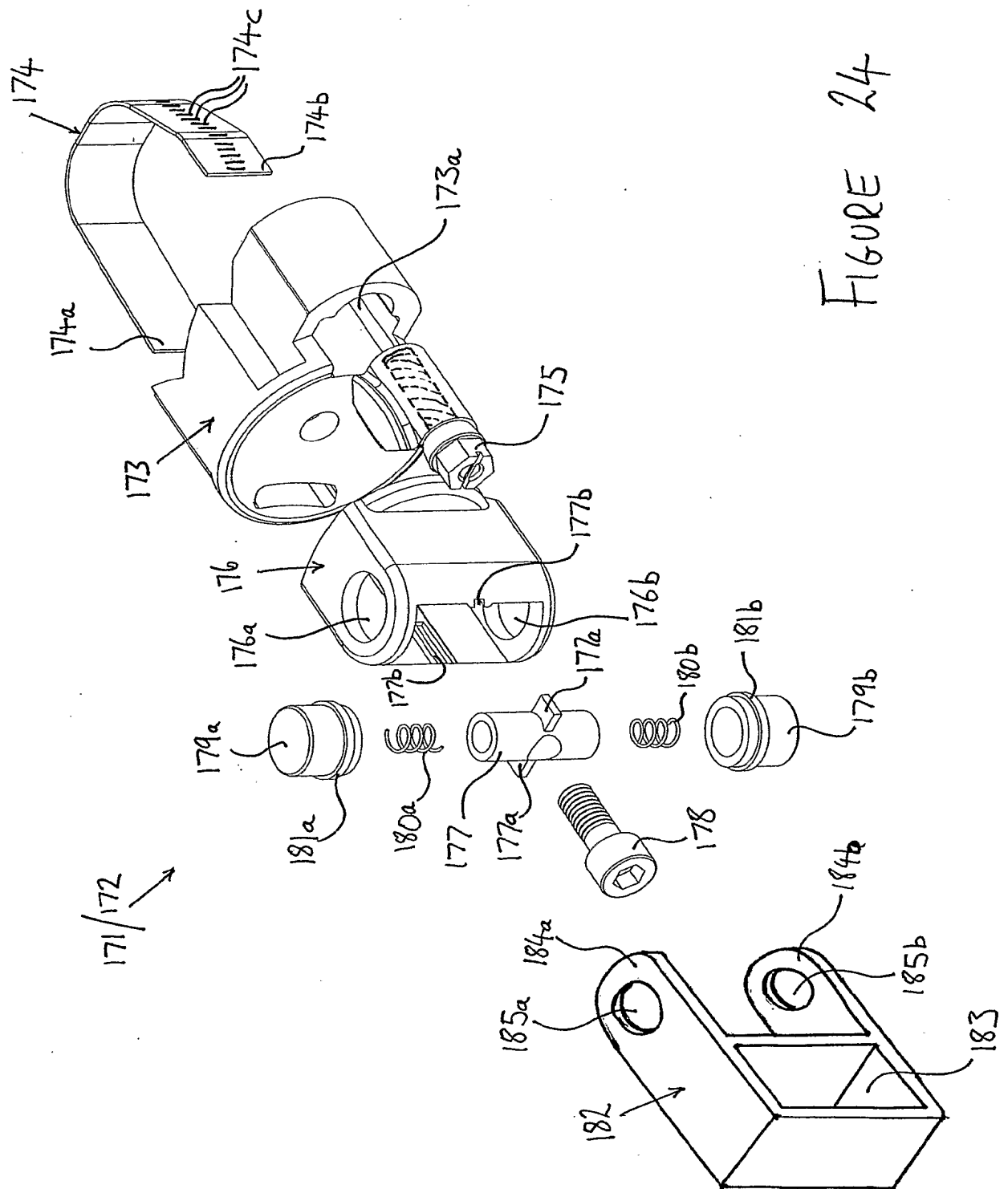


FIGURE 24

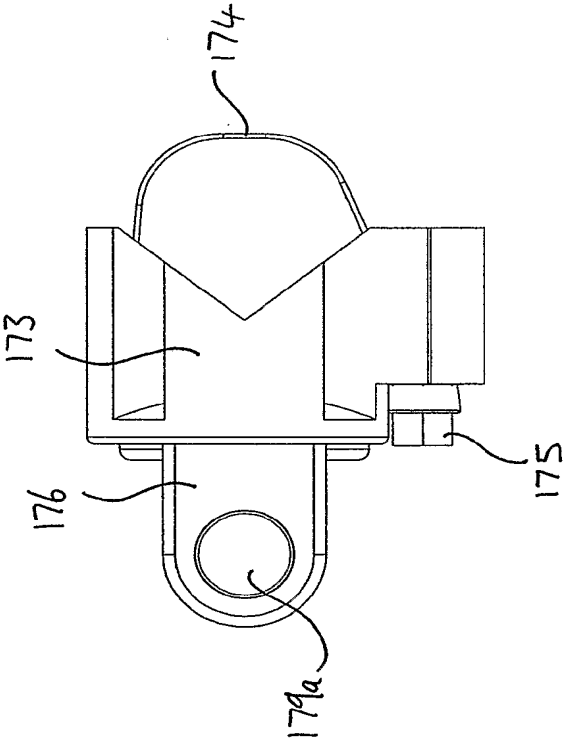


FIGURE 25

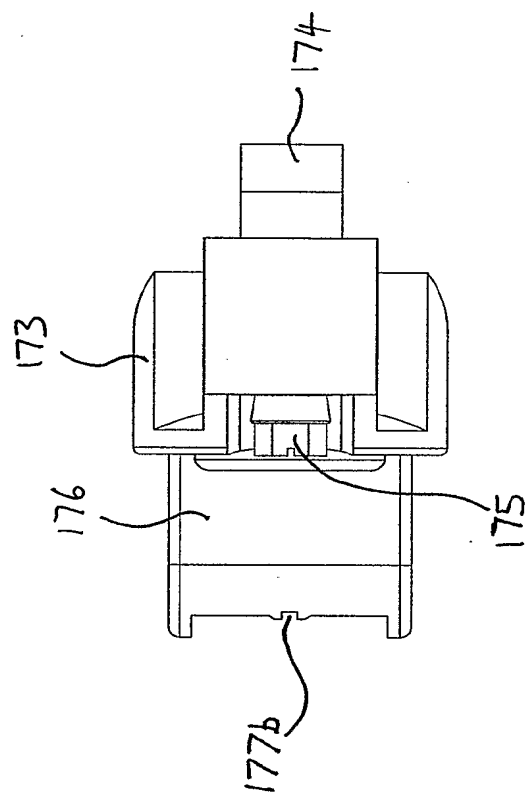


FIGURE 26

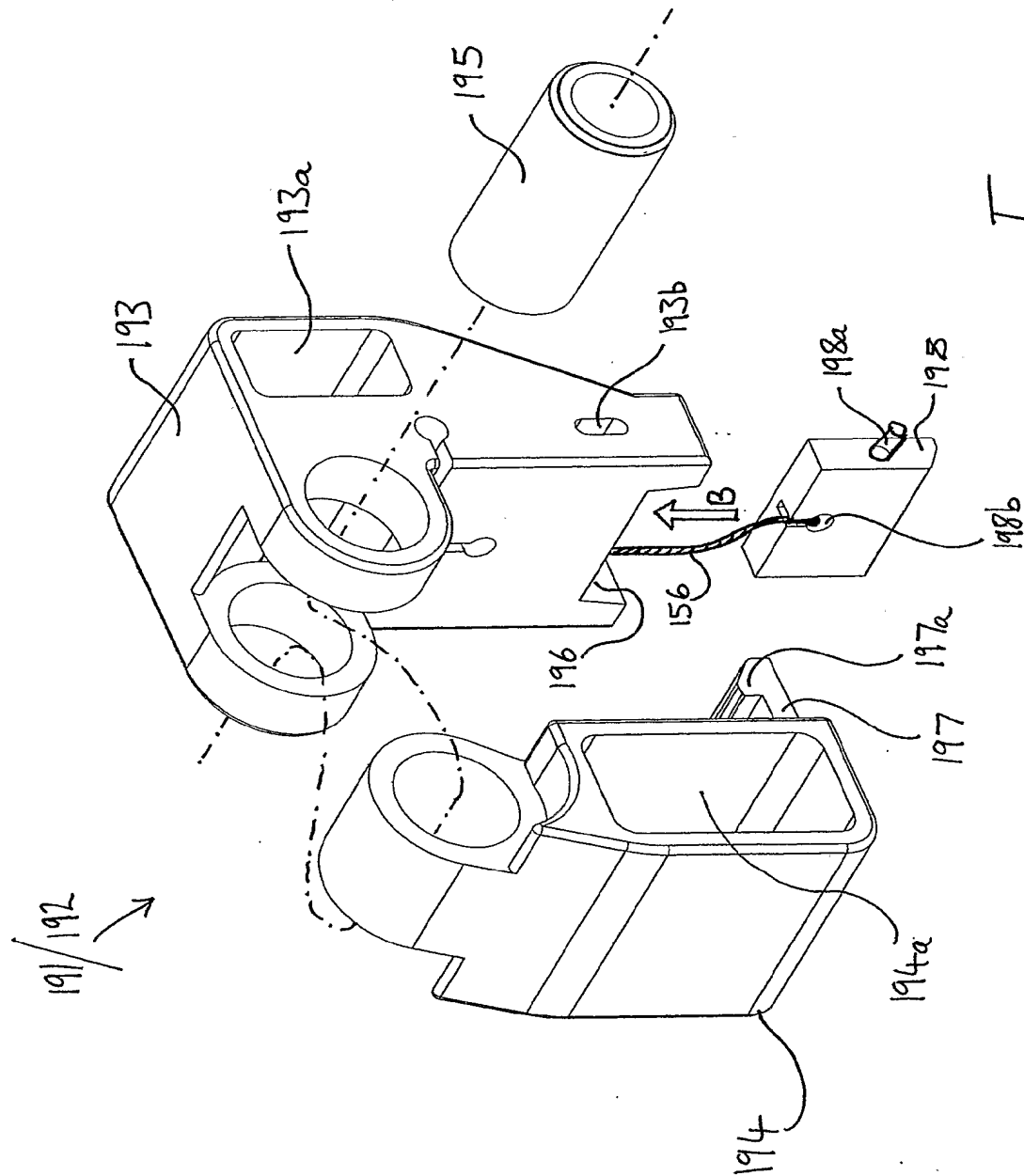


FIGURE 27

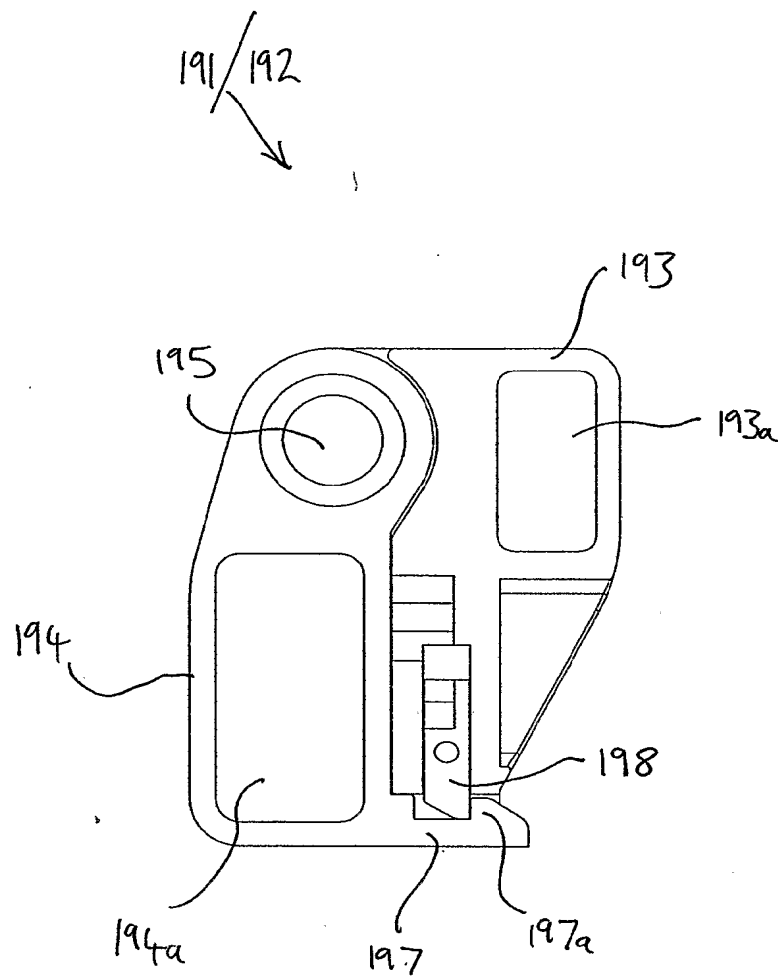


FIGURE 28

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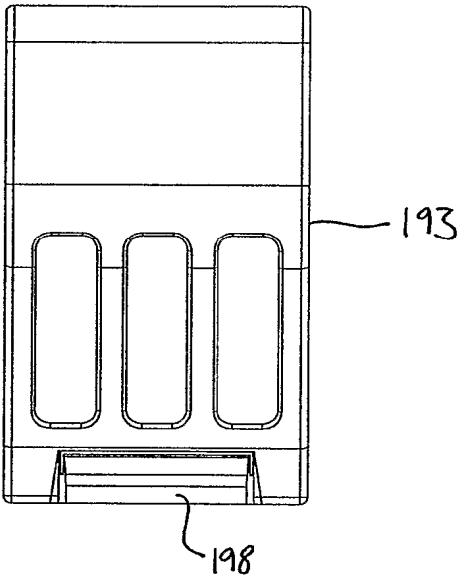


FIGURE 29

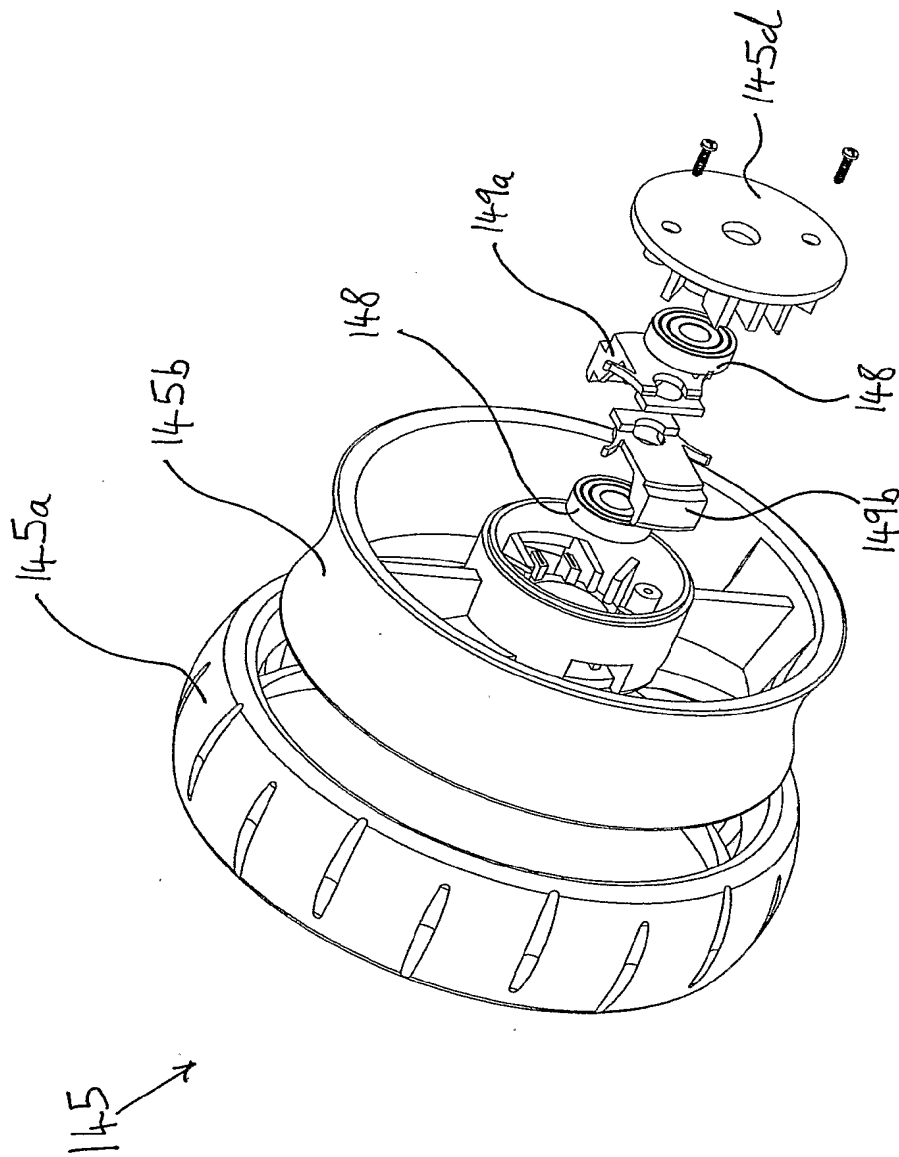


FIGURE 30

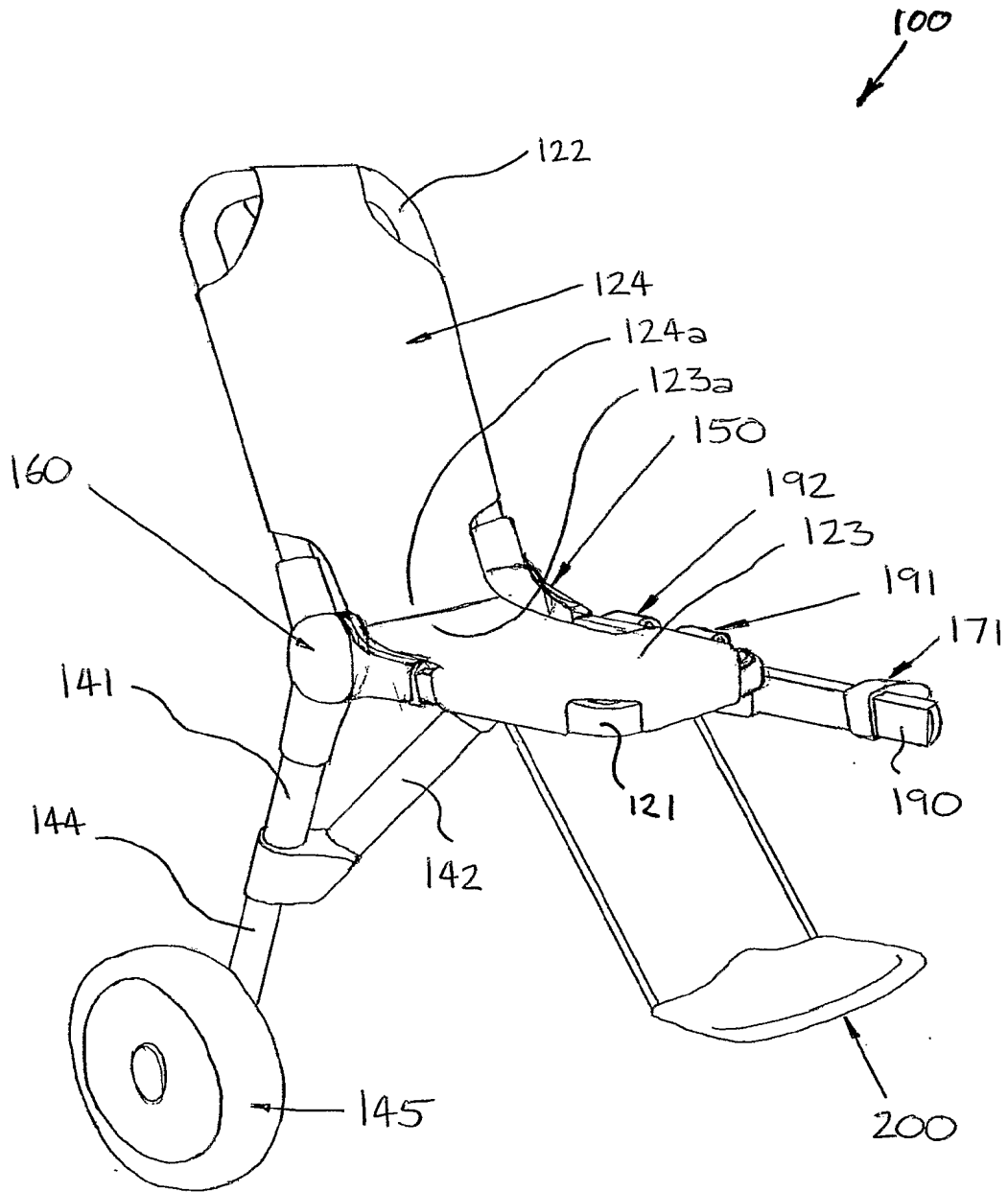


FIGURE 31

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INTERNATIONAL SEARCH REPORT

Intel Application No
PCT/GB2005/001276

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B62B9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B62B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 000 645 A (SCHMIDT CARL O) 19 September 1961 (1961-09-19)	1,5, 9-12, 15-19, 21-28, 30-35, 37,43,44
Y	abstract; figures 1,2,4,7 figures 1,2,4,7	2-4,6
Y	US 6 715 783 B1 (HANSON WAYNE H ET AL) 6 April 2004 (2004-04-06) abstract; figures 4,8,10	2-4,6
A	figures	1
A	DE 40 33 548 A1 (TROAX-AXO AB, HILLERSTORP, SE) 25 April 1991 (1991-04-25) abstract; figure 1	1-4
-/-		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

8 June 2005

Date of mailing of the international search report

15/06/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Lindner, V

INTERNATIONAL SEARCH REPORT

Inte Application No
PCT/GB2005/001276

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 89 08 113 U1 (COMBIPRODUKT TEXTILVERARBEITUNGS GMBH, 5750 MENDEN, DE) 10 August 1989 (1989-08-10) abstract; figure 1 -----	1-4
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INTERNATIONAL SEARCH REPORT

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(71) Applicants and

(72) Inventors: **KATZ, Geva** [IL/IL]; 25C Mark Shagal St.,
28264 Kiryat Ata (IL). **LAZAROVICH, Oron** [IL/IL]; 5
Carmel St., Apt. 52, 76305 Rehovot (IL).

(74) Agent: **PEARL COHEN ZEDEK LATZER**; P.O. Box
12704, 46733 Herzlia (IL).

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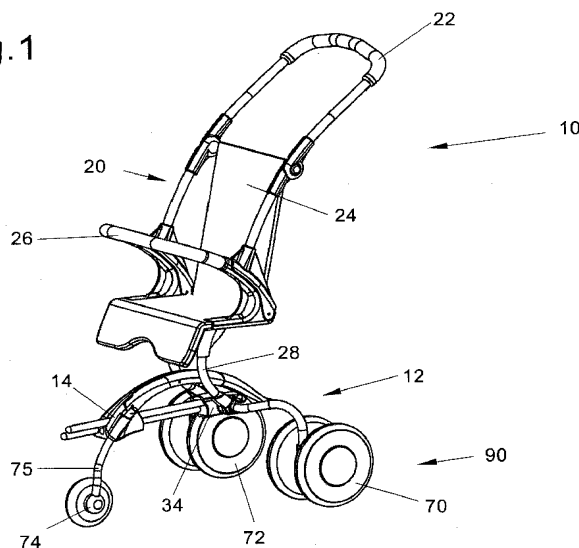
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Fig.1



(57) Abstract: A stroller device comprising at least one carriage, the carriage comprising a support unit for supporting at least one person, typically an infant, a wheels assembly coupled to the support unit, an engagement element for engaging the carriage to another such carriage and a pivoting element coupled to the support unit allowing rotating the support unit with respect to the carriage. The support unit may be rotatably reoriented so as to allow transporting the stroller device such that the support unit of the carriage and the other support unit of the other carriage can be aligned in a train state or alternatively in a side-by-side state.

CONVERTIBLE SINGLE AND MULTI-SEAT STROLLER

FIELD OF THE INVENTION

[0001] The present invention relates to strollers and carriages. More specifically the
5 present invention relates to a convertible single and multi-seat stroller

BACKGROUND OF THE INVENTION

[0002] Strollers and carriages (hereinafter referred to as "strollers") for the transportation
of infants and small children have been in use for many years. Also in common use are
10 strollers offering seating options for two children. Typically present day strollers are
designed so as to have children seated in different and desired inclination angles and in a
fixed-angle position facing forward, in the direction of the advancement of the stroller.
Various assemblies and designs have been developed for reversibly connecting two single
strollers to a single double-seat stroller-unit, thus providing a choice of using a two-seater
15 stroller only when necessary and increasing the ease and safeness of maneuverability when
transporting two small children, not necessarily of the same age.

[0003] Given below are prior art patents listing different techniques for the connection of
two single strollers to a single stroller unit:

[0004] In 1928 Chatfield R., in US 1,707,186 invented a device comprising a stretchable
20 wheel axis composed of a shaft with a sliding bar on which, at will, a single or two
strollers could be positioned.

[0005] In US 4,805,938 Redmond T. and Redmond R. invented a device for connecting
two baby strollers together consisting of a pair of bars or poll bracket units spaced apart
and clamped between frames of the baby strollers so that a single person can operate the
25 strollers simultaneously for transporting two babies therein.

[0006] In Patent Application WO2005/021351 Thompson J. and Peterson T. describe a
device in which two strollers are reversibly connected by aligning and interlocking the
front wheels of a stroller with the rear wheels of second stroller, thus more than two
strollers can be connected in a column forming "a train" of strollers.

30 [0007] In GB 2,368,824 Colin A. describes a device comprising two independent strollers,
referred to as "pushchairs", that can be linked together in either a side-by-side or a column

“train arrangement. The linkage is done by “securement members” that interlock the two strollers without any structural adjustments or changes in either of the pushchairs.

[0008] In GB 2,373,484 Sear L. and Croot C. describe a device comprising rails with a generally rectangular or tubular cross-section that reversibly secure and fasten frames of two strollers in a parallel side-by-side position. In the joint strollers formation one of the two wheels in the front and one of the two wheels in the rear may be inwardly folded by pivots so as to enable the maneuvering of single-stroller unit having just 6 wheels.

[0009] Typically, the present technology of connecting two strollers to a single stroller-unit, as described in the quoted patents, predetermines the fixation of the two strollers in either a side-by-side positioning or a longitudinal, “train” positioning.

[0010] In order to be conveniently store and easily transport various mechanical devices have been developed to enable the folding and collapsing of strollers. An example of such a prior art technique for folding is given in US 5,221,106 by Shamie L. in which a stroller comprises two side frames supporting a fabric seat between them; the frames having the ability to fold inwardly by a scissor-motion of a support structure that connects the side frames together. Typically in present day strollers, either collapsible or fixed-frame stroller-units, are composed so that the length dimension of the strollers is predetermined and fixed.

[0011] The advantage of a stroller in accordance to the present invention is the ability to reversibly connect two independent strollers to a single stroller-unit and when doing so to have the ability to choose a desired state, either a side-by-side or longitudinal, “train” position. In addition to determining the state of two strollers, it is possible in accordance to the device of the present invention, by varying the swirl-angle of the seats to determine the direction-position of two children in connected strollers, either facing each other, facing opposite directions or partially facing each other.

[0012] Another advantage of a stroller in accordance to the present invention is the ability to change at will the longitude distance between two connected strollers, thus having the possibility of reducing the footprint of the connected strollers by shortening the length dimension of the stroller-unit, facilitating better maneuverability when required.

[0013] The ability to change at will the distance between two connected strollers has a significant bearing on tempering with the interaction between the children in the strollers, a factor that can be of major importance in transporting children.

SUMMARY OF THE INVENTION

[0014] There is thus provided, in accordance with some preferred embodiments of the present invention, a stroller device comprising at least one carriage, the carriage comprising a support unit for supporting at least one person, typically an infant, a wheels assembly coupled to the support unit, an engagement element for engaging the carriage to another carriage of said at least one carriage, and a pivoting element coupled to the support unit allowing rotating the support unit with respect to the carriage, facilitating the support unit to be rotatably reoriented so as to allow transporting the stroller device such that the support unit of the carriage and the other support unit of the other carriage can be aligned in a train state or alternatively in a side-by-side state.

[0015] Furthermore, in accordance with some preferred embodiments of the present invention, the device comprises at least two carriages of said at least one carriage.

[0016] Furthermore, in accordance with some preferred embodiments of the present invention, the engagement element comprises at least one bar and a connector provided with a bore for receiving a matching bar.

[0017] Furthermore, in accordance with some preferred embodiments of the present invention, the engagement element comprises a hollow bar with an opening into which a matching bar may be inserted and slide.

[0018] Furthermore, in accordance with some preferred embodiments of the present invention, the device comprises a compacting mechanism so as to facilitate reducing and alternatively increasing the footprint of the stroller device, when the stroller device comprises at least two carriages.

[0019] Furthermore, in accordance with some preferred embodiments of the present invention, the compacting mechanism comprises a foot actuator.

[0020] Furthermore, in accordance with some preferred embodiments of the present invention, the wheels assembly comprises at least three wheels.

[0021] Furthermore, in accordance with some preferred embodiments of the present invention, the wheels assembly comprises four wheels.

[0022] Furthermore, in accordance with some preferred embodiments of the present invention, the carriage comprises a push-handle.

[0023] Furthermore, in accordance with some preferred embodiments of the present invention, the push-handle is foldable.

[0024] Furthermore, in accordance with some preferred embodiments of the present invention, the length of the push-handle is adjustable.

- 5 [0025] Furthermore, in accordance with some preferred embodiments of the present invention, the wheels assembly comprises an elevating mechanism for elevating at least one of the wheels with respect to the other wheels.

[0026] Furthermore, in accordance with some preferred embodiments of the present invention, at least one of the wheels is detachable from the wheels assembly.

- 10 [0027] Furthermore, in accordance with some preferred embodiments of the present invention, at least some of the wheels of the wheels assembly comprise swivel wheels.

[0028] Furthermore, in accordance with some preferred embodiments of the present invention, the swivel wheels have a fixed position allowing fixing the swivel wheels in at least one orientation.

- 15 [0029] Furthermore, in accordance with some preferred embodiments of the present invention, the swivel wheels can be fixed in four perpendicular orientations.

[0030] Furthermore, in accordance with some preferred embodiments of the present invention, the support unit comprises a seat with an adjustable back-rest.

- 20 [0031] Furthermore, in accordance with some preferred embodiments of the present invention, the support unit comprises an adjustable leg-rest.

[0032] Furthermore, in accordance with some preferred embodiments of the present invention, the carriage is foldable.

BRIEF DESCRIPTION OF THE DRAWINGS

- 25 [0033] In order to better understand the present invention, and appreciate its practical applications, the following Figures are provided and referenced hereafter. It should be noted that the Figures are given as examples only and in no way limit the scope of the invention. Like components are denoted by like reference numerals. In the Figures the term "frontal side" refers to the side of the single, small wheel, in a single stroller state, as
30 illustrated in Fig. 1 given below and does not necessarily relate to the direction of motion of the stroller. The "rear side" refers to the side of a single stroller state with the relatively larger wheels and does not necessarily relate to the direction of motion of the stroller.

[0034] Fig. 1 is an illustration of a single stroller in accordance with a preferred embodiment of the present invention.

[0035] Fig. 2A is an illustration of a Wheels Assembly Construction (WAC) of an infant stroller in accordance with the present invention, as viewed from the front. The WAC is shown in a stretched state.

[0036] Fig. 2B is a detailed illustration of the frontal section of a WAC, as shown in Fig. 1, with a securing-pin in an opened state.

[0037] Fig. 2C is a detailed illustration of the frontal section of a WAC, as shown in Fig. 1, with a securing-pin in a closed state.

[0038] Fig. 3A is an illustration of a WAC viewed from the rear. The WAC is shown in a stretched state.

[0039] Fig. 3B is an illustration of a WAC viewed from the rear. The WAC is shown in a compact state.

[0040] Fig. 4A is an illustration of two stretched-state WACs placed in a front to front position prior to being connected.

[0041] Fig. 4B is a detailed illustration of a section of a frontal wheel axial structure (FWAS) that serves in connecting two WACs, thus connecting two strollers to a single stroller unit.

[0042] Fig. 5 is an illustration of two stretched-state WACs connected front to front.

[0043] Fig. 6 is an illustration of two compact-state WACs connected front to front.

[0044] Fig. 7 is an illustration of two strollers in accordance to the present invention, connected in a stretched longitudinal train-state with the frontal seat swirled perpendicularly to the rear seat.

[0045] Fig. 8 is an illustration of two strollers in accordance to the present invention, connected in a compact longitudinal train-state.

[0046] Fig. 9 is an illustration of two strollers in accordance to the present invention; connected in a side-by-side state.

[0047] Fig. 10A is an illustration of an apparatus for connecting the push-handle of two strollers in accordance to the present invention in a locked position.

[0048] Fig. 10B is an illustration of an apparatus for connecting the push-handles of two strollers in accordance to the present invention in a semi-opened position.

[0049] Fig. 10C is an illustration of an apparatus for connecting the push-handles of two strollers in accordance to the present invention in an opened position.

[0050] Fig. 11A is an illustration of an assembled swirl-wheel apparatus used in a stroller in accordance to the present invention.

5 [0051] Fig. 11B is an illustration of a disassembled swirl-wheel apparatus used in a stroller in accordance to the present invention.

[0052] Fig. 12A is a detailed illustration of the components of the seat apparatus shown in Fig. 8 and Fig. 9.

10 [0053] Fig. 12B is a detailed illustration of an assembled seat apparatus shown in Fig. 8 and Fig. 9.

[0054] Fig. 13 is a detailed illustration of two not identical strollers positioned to be connected in a longitudinal train-state.

[0055] Fig. 14 is an illustration of the components of two not identical strollers, positioned to be connected in a longitudinal train-state.

15 [0056] Fig. 15A is an illustration of two not identical strollers connected in a stretched longitudinal train-state.

[0057] Fig. 15B is an illustration of two not identical strollers connected in a compact longitudinal train-state.

20 [0058] Fig. 16 is an illustration of two not identical strollers connected in a stretched longitudinal train-state with the seats facing each other.

[0059] Fig 17A is a side-view illustration of a single, compactable stroller, as shown in Fig. 14 in an assembled and ready to be rolled state.

[0060] Fig 17B is a side-view illustration of the stroller in Fig. 17A in a folded and minimized state.

25 [0061] Fig. 17C is an illustration of the components of two not identical strollers, connected in a side-by-side configuration.

[0062] Fig. 18 is an illustration of a single stroller with a wheels axial-structure with a two parallel-bars assembly.

30 [0063] Fig. 19 is an illustration of two connected strollers as shown in Fig. 18, in a longitudinal train-state.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0064] The present invention is directed at a stroller device that enables the user to reversibly engage or connect (i.e. may be disconnected later) with ease two strollers to obtain a single stroller-unit. The connection can be by either coupling the two strollers in a longitudinal train-state or in a side-by-side state. When connecting, the distance between the connected strollers can be varied at will, from a "compacted" state, referred to as a state where the seats are close to each other, to a "stretched" state, where the seats are wide apart. In the "stretched" state the back of the seats of the frontal seating-position may be reclined substantially more than in the "compacted" state, adding to the comfort of transport. In the compacted state the footprint of the stroller-unit is considerably reduced as compared when in the extended "stretched" state, enabling easier maneuverability in crowded and narrow locations such as when traveling in narrow elevators or strolling along aisles in a shop.

[0065] When in a longitudinal train-state the direction of the two seats in the stroller-unit can be varied to either having both seats facing the direction of advancing, having the front seat facing the back seat, or having the seats perpendicular to each other. Together with the side-by-side state of the stroller unit, where the seats are positioned in parallel to the direction of advancing, the person guiding the stroller-unit can at will determine the sitting interaction between the two children in the stroller-unit, depending on circumstances and mood of the children.

[0066] Given below are schematic illustrations of the stroller in accordance with the present invention. It should be clear that the description of the embodiments and attached Figures set forth in this specification serves only for a better understanding of the invention, without limiting its scope.

[0067] In order to simplify the text describing and explaining the present invention the following abbreviations are used:

[0068] Seat Support Unit: SSU. The term "seat" refers to include both a proper seat and a cradle or crib for infants. The proper seat can be adjusted and fixed in various sitting states from up right sitting to reclining.

[0069] Wheels Assembly Construction: WAC. The term "wheels" refers to either a single wheel or a pair wheels assembled in parallel in a single functional unit.

[0070] Rear Wheel Axial Structure: RWAS,

[0071] Frontal Wheel Axial Structure: FWAS

Fig. 1 is an illustration of a single stroller 10 in accordance with the present invention. The stroller is composed of a SSU 20 and a WAC 12 connected between them by poles or bars designated 28 (of swirling seat support unit 144, see Fig. 12A). The SSU is composed of a push-handle 22 a seat 24 and a sitting support-rail 26. The WAC is composed of an FWAS 14 and RWAS 34. Two pairs of relatively large side-wheels 70 and 72 are connected to both sides of the RWAS by a curved bar or pole 46 and 48 (seen in Fig. 2A). Each pair of wheels is connected to the end of the connection-bar by a pivot that enables to have the wheels in either a locked, pre-determined position or in freed position, allowing a full free circular movement. The angle of positioning of the wheels 70 and 72 depends on the desired state of connecting two strollers; the implication of which is clarified later in the text. The smaller wheel 74 is either a free swivel wheel or a wheel that can be altered between a free swirl wheel state and a locked, pre-determined position connected by an arm 75 to the FWAS. Further description of the construction of the WAC is given below in the description and explanation of Fig. 2.

[0072] Fig. 2A is detailed illustration of the WAC 12 viewed from the front. The WAC is composed of two parallel and diagonally running poles 30 and 32 rigidly connected at one end to a RWAS 34 and near the other end, running through, without being permanently fixed in place, to a FWAS 14. The FWAS has a securing-pin 36 on its vertical sidewall with an opened and closed positions and a release lever 38 for opening the securing-pin. On being closed the securing-pin locks rigidly in place the poles 30 and 32 of the adjacent stroller, running through the FWAS. Two bores run through the FWAS 40 and 42 parallel and diagonally to poles 30 and 32. The bores, seen more clearly in Fig 2B and 2C, are used for connecting two strollers to obtain a single stroller-unit by joining the WACs of the strollers. The connection mechanism is elaborated in Fig. 4 and Fig. 5, given later in the text. The FWAS and the RWAS are bridged by a segmented bar 50 connected by a hinge 51 to the FWAS and by bearing-rings 44 and 45 (45 seen in Fig. 3A) positioned around the two wheels-connector bars, 46 and 48, running perpendicular from both sides of the RWAS. Bar 50 terminates on the RWAS end with a foot-activator 52 that serves as a step-lever for the compaction of the WAC. The compacting mechanism of the WAC is clarified in Fig. 3A and Fig. 3B given below. The segments of bar 50 are connected by a pivot, designated 58, seen in Fig. 3A and 3B.

[0073] Fig. 2B is a detailed illustration of the frontal section of a WAC, as shown in Fig. 1, with a securing-pin in the FWAS in an opened state.

[0074] Fig. 2C is a detailed illustration of the frontal section of a WAC, as shown in Fig. 1, with a securing-pin in the FWAS in a closed state.

5 [0075] To further clarify Fig. 2A, Fig. 3A is an illustration of a WAC 12 viewed from the rear and shown in a stretched state. FWAS 14 and RWAS 34 are bridged by a segmented bar 50 connected by a hinge 51 to the FWAS and by bearing-rings 44 and 45 positioned around two bars, 46 and 48, running perpendicular from both sides of the RWAS. Bar 50 terminates on the RWAS end with a protruding foot-activator 52 that serves as a step-lever
10 for the compaction of the WAC.

[0076] Fig. 3B is an illustration of a WAC viewed from the rear, shown in a compact state. Compaction of the WAC is obtained by pushing the step-lever foot-activator 52 groundwards. The movement of the step-lever to a vertical position causes the bar bridging the FWAS 14 to the RWAS 34 to fold at a hinge 58. The bar folding causes overlapping
15 segments of the bar, 60 and 62, to disengage. With bar 50 folding FWAS is slid on the poles, 30 and 32, towards the RWAS till both units are in contact. With FWAS slid towards the RWAS the two polls protrude in a “bare” state. The compact state is elaborated in Fig. 6.

[0077] Fig. 4A is an illustration of two stretched-state WACs 12 placed in a front to front
20 position prior to being engaged with the poles of each WAC, 30 and 32, placed so as to fit into the bores 40 and 42 of the adjacent and matching WAC. The securing-pins 36 in the FWAS 14 of both WACs are opened automatically – pushed by the head of the adjacent stroller-inserting pole and close automatically when the secure pin meets the pole hole (by spring or by the elastic of the material-snap). A detailed illustration of the
25 configuring of the poles 30 and 32, and bores 40 and 42 in a stretched state of a FWAS 14 shown in Fig. 4A is given in Fig. 4B. The securing-pins 36 of each of the FWAS, respectively, is inserted into hole, 19, in poles 30 of the adjacent stroller.

[0078] Fig. 5 is an illustration of two stretched-state WACs 12 connected front to front. Poles 30 and 32 of each WAC are inserted into the matching cavities 40 and 42 (seen in
30 Fig. 2A and 4B) in the adjacent WAC and the securing-pins 36 in both WAC in a locked state.

[0079] Fig. 6 is an illustration of two compact-state WACs engaged front to front. With the FWAS 14 and the RWAS 34 drawn close to each other in both WACs the poles 30 and 32 in each WAC are inserted into the cavities 40 and 42 (seen in Fig. 2A and 4B) of the other WAC in a state that places the four poles in a fixed and tight parallel bundle.

5 [0080] Reversing the activities detailed above reverses the connection of compact-state strollers and reverses the compact state of each of the stroller. The bridging bar 50 is stretched by stepping on segment 62, illustrated in Fig. 3B, and the RWAS is distanced from FWAS by sliding on the polls 30 and 32. The polls 30 and 32 of each stroller are withdrawn from the cavities of the adjacent stroller, 40 and 42 after the releasing of the
10 securing pins 36. In order to separate the strollers the securing pin is released and the strollers are pulled away from each other simultaneously.

[0081] Fig. 7 is an illustration of two strollers 10 engaged in a stretched longitudinal train-state to form a single stroller-unit 11. The SSU 20 and the WAC 12 in each stroller are connected by vertical poles or bars 28 connected to the RWAS. Bar 28 connects to the
15 RWAS by a ring around the wheel-axial bar, 46 and 48, as is further illustrated in Fig 3A, Fig 3B and Fig. 8. The connection of the SSU to the RWAS and the structure of the seat support section and its swirling ability are clarified in detail in Fig. 12A and Fig. 12B. The swirling of the seats enable a full circular motion with ability to fix the seats in 90 degree swirling increments, facilitating to seat two infants in either a facing position, a back-to-
20 front position, a side by side position or in a perpendicular 90 degree angle sitting positions, as shown in the Figure. The push-handle 22 in the SSU can be folded by the aid of a pivot 23 on both sides of the handle, thus eliminating obstruction when two strollers are connected. The folding of the push-handle also assists in maneuvering with the stroller in a narrow and/or crowded location. When WAC are connected wheel 74 of each stroller
25 is drawn near the FWAS by pulling the bar-arm connection 75 (see Fig. 1) through a position-fixing tube 77. The placement of the fixing tube 77 in the FWAS is shown in 2B, and 4B When two WAC are connected the side wheels 70 and 72 roll on the ground while the wheel 74 of both WAC are kept in an elevated position, not touching the ground. The side wheels 70 and 72 in the front, in the direction of movement, may be left to swirl freely
30 while the side wheels at the back are fixed in place in the direction of movement. The ability to lock or fix the wheels in 90 degrees increments is elaborated in Fig. 11B.

[0082] Fig 8 is an illustration of two strollers 10 connected in a compact longitudinal train-state to a single stroller unit 11. Figure 8 illustrates the positioning of the two SSU of the

strollers in closer vicinity than the positioning in stretched-state, as shown in Fig. 7, thus enabling easier maneuverability with the stroller-unit 10. A leg-rest (17a, 17b) is provided for supporting the legs of the infant sitting on the stroller, bearing in mind the fact that in the process of growing the legs become longer, rendering the leg-rest unnecessary, in which case it is folded away, leaving room for the longer legs (also see Fig. 15A).

[0083] Fig. 9 is an illustration of two strollers 10 connected in a side-by-side state to form a single stroller-unit 11. The WAC of the two strollers are connected in a compact-state, as illustrated in Fig. 6 and Fig. 8, and wheels 70 and 72 positioned in the breadth-direction of advancement of the stroller-unit 11. To improve the maneuverability of the stroller 11 in a side-by-side state, depending on circumstances, the frontal direction wheels and/or the back direction wheels of the connected strollers can either be pre-directionally fixed in place or left to be rotationally free to swirl in the advancing direction of movement. See below Fig. 11A and Fig. 11B for illustration and explanation of the wheels apparatus. The push-handles 22 of both strollers are connected by a bridging apparatus 80 illustrated in detail in Fig. 10A, 10B and 10C. The mechanism of connecting the push-handles 22 can be of various constructions. The connection, as shown in Fig 10A to Fig. 10C, is a typical example of such a connection mechanism.

[0084] Fig. 10A, 10B and 10C illustrate in a sequence the opening (or closing, if viewed from 10C to 10A) of the bridging apparatus 80 connecting the push-handles of two strollers, as shown in Fig. 9.

[0085] Fig. 10A is an illustration of an apparatus for connecting the push-handle of two strollers in a side-by-side state in accordance to the present invention in a locked position. Apparatus 80 comprises two units, 88 and 89 each positioned on another stroller. Each of the units is hinged by a tube that surrounds push-handle tubes 83 and 85, respectively, and has an extending plate 84 and 86 (shown in Fig. 10C). An elongated knob on a pivot 82, positioned on plate 86, is inserted into an elongated narrow cavity 87 in plate 84. By turning the knob by 90 degrees it can no longer exit the cavity and plates 86 and 84 are interlocked.

[0086] Fig. 10B is an illustration of an apparatus for connecting the push-handle of two strollers in a semi-opened position. The knob 82 is turned to be aligned with the narrow cavity 87.

[0087] Fig. 10C is an illustration of an apparatus for connecting the push-handle of two strollers in accordance to the present invention in an opened position. Knob 82 is turned and aligned with the narrow cavity 87. Plate 84 is swirled upwards around tube 85 and liberates the knob 82. Plate 86 is swirled downwards and the push-handles of the two strollers are disengaged.

[0088] Fig. 11A is an illustration of an assembled swirl-wheel apparatus used in a stroller in accordance to the present invention. The connection of a swirl-wheel apparatus 90 in both of the large wheel pairs in the RWAS is illustrated in Fig. 1.

[0089] Fig. 11B is an illustration of a disassembled swirl-wheel apparatus 90, shown in Fig. 11A. Bar or pole 46 and 48 of the RWAS, as illustrated in Fig. 3A and 3B are each inserted into ring fixture 92 which is mounted on a protruding tube 94 extending from an axial-block 96. Ring 92 has a hollow hole 106 running through it and a framed slit on its side 109 opened at the bottom. The protruding tube 94 has four equally circumference-spaced vertically framed slits that have the exact width of the slit on tube 92. A rectangular plate 107 with a handle-ring is inserted through the slit on ring 92 and into one of the four slits of the protruding tube 94. The slit of choice in the protruding tube determines the connection-direction of the wheels in 90-degree increments. If the rectangular plate is not inserted into the protruding tube 94 the wheels are free to swirl around pole 46, with no pre-determined orientation. On insertion of the plate 106 the angle of the wheels in respect to the RWAS is determined. A securing-pin 108 is inserted through the ring 92 and through hole 113 in bar or pole 46 of the RWAS, thus connecting and fixing the swirl-wheel apparatus 90 to the RWAS. A pair of cogwheels 100 (only one seen in the figure) connects to the axially center of the internal facing side of the pair of wheels 98 and 99. A stop-paddle is pivotally connected (105) to the axial-block and has protruding bulges that, on lowering the paddle, insert amongst the cogs of the cogwheels 100 and the stroller comes to a stop.

[0090] Fig. 12A is a detailed illustration of some of the components of the Seat Support Unit: SSU designated 20 in Fig. 1. The seat-connection apparatus comprises a seat-base unit 174 and a swirling-seat-support unit 144. The seat-support unit comprises a ring frame 176 positioned horizontally and connected by protruding platform-plates 196 to two vertical support bars 28 that connect to the RWAS. The ring frame 176 has four evenly spaced horizontal holes 192 in the circumference running horizontally through the middle of the wall of the ring. A securing-pin with a handle 182, having a spring 184 and a screw

nut 186 are provided for securing the seat-base unit in place in the seat-support unit. The seat-base unit 174 comprises a ring 188 that fits and “wraps around” the circumference of the seat-base unit 144 and protrudes from a plate 190 in which the ring is embedded. The seat-support ring 188 has horizontal two holes in the circumference running horizontally
5 through the middle of the wall of the ring placed across from each other and both fit to align with the holes of the seat-support frame ring 176. The locking and securing of the swirl seat-support unit 144 to the seat-base unit 174 is done by inserting the securing-pin 182 through one of the holes, designated 194, in the “wrapping” ring 188 and through an aligned hole in the “Wrapped” 176. The decision which of the holes in ring 176 will be
10 aligned with the insertion hole in ring 188 determines the direction positioning of the seat-base unit 174 of the swirl-seat support unit. In connecting the seat-base unit 174 with the seat support unit 144, spring 184 is compacted and keeps the securing-pin 182 in tension so that when hole 194 is aligned with hole 192 by the swirling of ring 188, the securing-pin will be automatically inserted into 192 by the power of the spring. Spring 184 is
15 connected to nut 186, so that when pin 182 is drawn out from the hole spring 184 pulls the pin inwardly, so that when the pin is in front of a hole the pin locks the seat in position.

[0091] Fig. 12B is a detailed illustration of an assembled seat-connection apparatus whose components are shown in Fig. 12A.

[0092] Another embodiment of the present invention is an easy and comfortable
20 connection of two not identically composed strollers, shown in Fig. 13 through Fig. 17B

[0093] Fig. 13 is an illustration of two disassembled strollers, designated 120 and 122, having different compositions in a position to be engaged in a longitudinal train-state. For a better understanding Fig. 13 should be viewed together with Fig. 14. Stroller 122 comprises a hollow bar 124, encompassed on one end by sliding ring-bar 128 and on the
25 other end having two “L”-shaped plates, designated 143 and 145, that protrude vertically on both sides of bar 124. The “L”-shaped plates are pivotally connected to connector 227 on bar 124 and wheel axis designated 47. The sliding ring bar 128 has a reversible snapping mechanism 250 that snaps into bar 124 and locks ring bar into place on bar 124. On releasing the snapping the sliding bar is free to move. Sliding ring bar 128 has two
30 flanks 132 running diagonally downward in both side-directions. Wheels 134, 136, are connected by connecting-support bar 150, which can be locked in an engaged lower position or raised to a disengaged position through slots 148 of each flank and (see Fig. 14 for elaboration). The wheels can be folded and lifted upward, towards bars 124 pulling and

changing the state of the support bar 150 in slot 148. Stroller 120 comprises a hollow bar 126, encompassed on one end by sliding ring-bar 130 adjacent to a sliding ring bar 152 and having on the other end having two “L”-shaped plates, designated 142 and 140, that protrude vertically on both sides of bar 126. The sliding ring bar 152 has a reversible snapping mechanism 252 that snaps into bar 126 and to sliding bar 130, locking the ring bar into place on bar 126. On half releasing the snapping the sliding bar is free to move connected sliding bar ring 152. Full releasing, allows removing the sliding bar 130 with the connected wheels 138,139 (the wheels of the other stroller can also be removed similarly). A “U” shaped bar 141 is pivotally connected at 141a to the axis points of connector 227 and points 141b are connected to connection points 155a of “U” shaped bar 155. Points 155b of “U” shaped bar 155 are connected to connecting points 152a of sliding ring bar 152 (see Fig. 14 for further clarification). By stepping down on bar 141 sliding bars 152 and 130 slide along bar 126 towards the “L”-shaped plates and bar 155 rises vertically from bar 126, so that the two strollers are drawn together to a compact state. In order to return to the stretched position bar 155 is activated, forcing the compacting mechanism back.

[0094] The “L” plates 140 and 142 of stroller 120 and plates 143 and 145 of stroller 122 are pivotally connected to connector 227 of bar 126 (and similarly to bar 124).

[0095] Curved bar 47 is perpendicularly and fixedly connected to the corners of the “L” shaped plates, 140 and 142. The bar runs through the “L” plates and has swirl wheel mechanisms 90 connected at both ends. The swirl wheel mechanism 90, as clarified in Fig. 11B, can be fixed at different angles.

[0096] Sliding ring bar 130 has two flanks 132 running diagonally downward in both side-directions. Wheels 138, 140, are connected to the bottom end of the flanks by a slot 148 (better seen in Fig. 14) and the flanks of each two wheels are held rigidly in place by a connecting-support bar 150 engaging the two flanks (see illustrated in Fig. 14 of elaboration). The wheels can be folded and lifted upward, towards bars 124 pulling and changing the state of the support bar 150.

[0097] To connect stroller 120 to stroller 122, sliding ring bar 128 is connected to sliding bar 130 using reversible locking mechanism (protruding snap pin 256 on bar 128 and catcher 258 on bar 130). The reversible snapping mechanism 252 and snap 250 (on sliding ring bar 128) are released from bar 124 and 126. Bar 126 is inserted into bar 124 and simultaneously, bar 124 is inserted into sliding bar 130 and sliding bar 152. When bar 124

reaches inside sliding bar 152, the reversible snapping mechanism 252 locks it in position. The wheels 134, 136 of stroller 122 and wheels 138, 139 of stroller 120 can be disengaged by raising them.

[0098] The sliding ring bars 128 and 130 of strollers 122 and 120, respectively, that support the wheels, can be individually of both removed when connecting the two strollers 120 and 122, leaving four ground rolling wheel-units without additional suspended wheels. The “L” plates (140, 142 in stroller 120 and 143, 145 in stroller 122) in both strollers support on the top a swirling seat-connection unit 135, which supports a seat 146. The push-handles 220 of the strollers, 120 and 122, comprise of folded open-ended rectangle bar 222 that can be either stretched or inserted, at will, through connection tubes 226 and into receiving tubes 224, fixed on both sides of the seat 146. See Fig. 14 for the stretched and compacted states of the push-handles.

[0099] The seat 146 has either an opened, “seatable” state or a folded, compacted state. To understand the transition from one state to the other Figures 13, 14A, 14B, 17A and 17B should be viewed. When in an opened position bar 232 is locked at an angle of about 45 degrees by bar 230, which is pivotally connected to the seat 146. Bar 232, on both sides of the seat, holds the push- handles 220 in an upright “pushable” angle. When folding the seat, a securing pin protruding from opposite sides of the seat, and which resides inside groove 232a of bar 232 (bars 232 are symmetrical) is disengaged so that the groove is allowed to slide over it until bars 230 and 232 are aligned in a horizontal position.

[00100] To fully fold and compact the stroller (stroller 120) the “L” shaped plates 140 and 142 are folded. See Fig. 17A and Fig. 17B for further clarification.

[00101] Fig. 14 is a detailed illustration of two strollers 120 and 122 positioned to be joined together in a longitudinal train-state. Fig. 14 should be viewed in conjunction with Fig. 15A and Fig. 15B. Stretched state joining of the two strollers is illustrated in Fig. 15A, a compact joining of the strollers is given in Fig. 15B.

[00102] Disengaging of the two strollers, 120 and 122, is done by reversing the activities described above for the joining of the strollers.

[00103] Fig. 16 is an illustration of two strollers 120 and 122 joined in a stretched longitudinal train-state with the seats facing each other. The changing of the angles of the seats 146 is obtained by changing the relative angle of the swirl-seat 146 in respect to the swirling seat-connection unit 135, seen in Fig. 13.

[00104] Fig 17A is a side-view illustration of stroller 120, shown disassembled in Fig. 13 and assembled in Fig. 14. The stroller is illustrated in stretched state and ready for use.

5 [00105] Fig 17B is a side-view illustration of one of the stroller 120 shown in Fig. 13 and in Fig. 14 in a folded and minimized state. Wheel 90 is raised and reoriented sideways, reducing the overall profile of the folded stroller. The seat and the push handles are horizontally aligned.

[00106] Fig. 17C is an illustration of the components of two not identical strollers, connected in a side-by-side configuration

10 [00107] Another embodiment of a stroller that can connect to form a multi-seat stroller, in accordance to the present invention, is given in Fig. 18 and Fig. 19.

[00108] Fig 18 is an illustration of a single stroller 200 with a two parallel-bars wheels axial-structure 206. The axial-structure 206 is designed two parallel bars 202 and 204. The bars enable two independent strollers 200 to be connected and form a single
15 stroller state, as seen in Fig.19.

[00109] Fig. 19 is an illustration of two connected strollers 200 as seen in Fig 18, forming a single stroller state 210. The connection of the strollers is done by the attachment of the parallel bars of both strollers.

[00110] The present invention introduces a novel design for strollers, allowing
20 connecting two strollers in a side-by-side and alternatively in train configuration. At the same time, in some preferred embodiments of the present invention the joined strollers can be compacted offering greater maneuverability and comfort.

[00111] Conveniently, the two joined strollers can be easily disengaged and used separately.

25 [00112] It should be clear that the description of the embodiments and attached Figures set forth in this specification serves only for a better understanding of the invention, without limiting its scope.

[00113] It should also be clear that a person skilled in the art, after reading the present specification could make adjustments or amendments to the attached Figures and
30 above described embodiments that would still be covered by the present invention.

CLAIMS

1. A stroller device comprising at least one carriage, the carriage comprising a support unit for supporting at least one person, typically an infant, a wheels assembly coupled to the support unit, an engagement element for engaging the carriage to another carriage of said at least one carriage, and a pivoting element coupled to the support unit allowing rotating the support unit with respect to the carriage, facilitating the support unit to be rotatably reoriented so as to allow transporting the stroller device such that the support unit of the carriage and the other support unit of the other carriage can be aligned in a train state or alternatively in a side-by-side state.
2. The device as claimed in claim 1, comprising at least two carriages of said at least one carriage.
3. The device as claimed in claim 1, wherein the engagement element comprises at least one bar and a connector provided with a bore for receiving a matching bar.
4. The device as claimed in claim 1, wherein the engagement element comprises a hollow bar with an opening into which a matching bar may be inserted and slide.
5. The device as claimed in claim 1, comprising a compacting mechanism so as to facilitate reducing and alternatively increasing the footprint of the stroller device, when the stroller device comprises at least two carriages.
6. The device as claimed in claim 5, wherein the compacting mechanism comprises a foot actuator.
7. The device as claimed in claim 1, wherein the wheels assembly comprises at least three wheels.
8. The device as claimed in claim 1, wherein the wheels assembly comprises four wheels.

9. The device as claimed in claim 1, wherein the carriage comprises a push-handle.

10. The device as claimed in claim 9, wherein the push-handle is foldable.

5 11. The device as claimed in claim 9, wherein the length of the push-handle is adjustable.

12. The device as claimed in claim 1, wherein the wheels assembly comprises an elevating mechanism for elevating at least one of the wheels with respect to the other
10 wheels.

13. The device as claimed in claim 1, wherein at least one of the wheels is detachable from the wheels assembly.

15 14. The device as claimed in claim 1, wherein at least some of the wheels of the wheels assembly comprise swivel wheels.

15. The device as claimed in claim 14, wherein the swivel wheels have a fixed position allowing fixing the swivel wheels in at least one orientation.

20

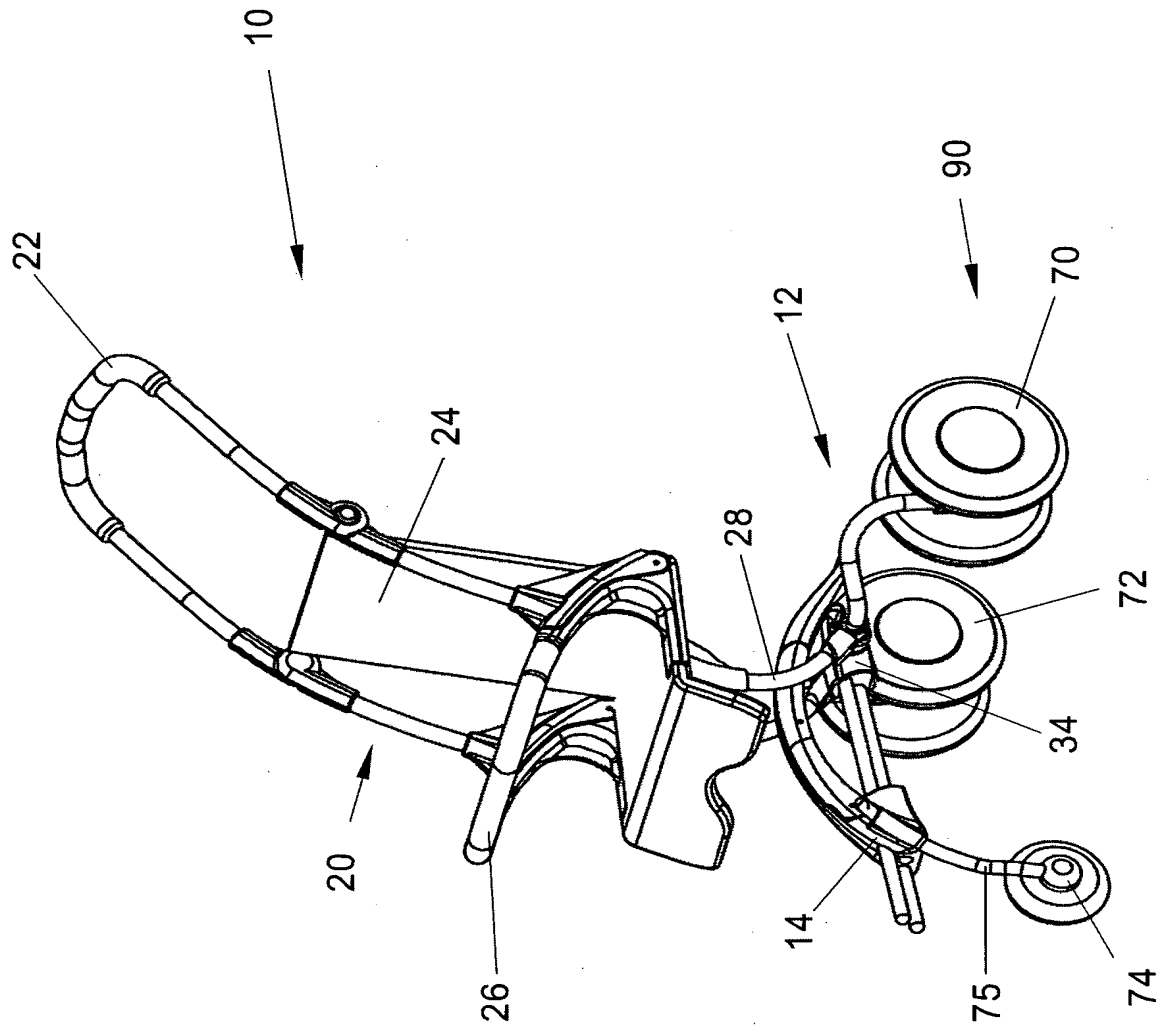
16. The device as claimed in claim 15, wherein the swivel wheels can be fixed in four perpendicular orientations.

17. The device as claimed in claim 1, wherein the support unit comprises a seat with an
25 adjustable back-rest.

18. The device as claimed in claim 1, wherein the support unit comprises an adjustable leg-rest.

30 19. The device as claimed in claim 1, wherein the carriage is foldable.

Fig.1



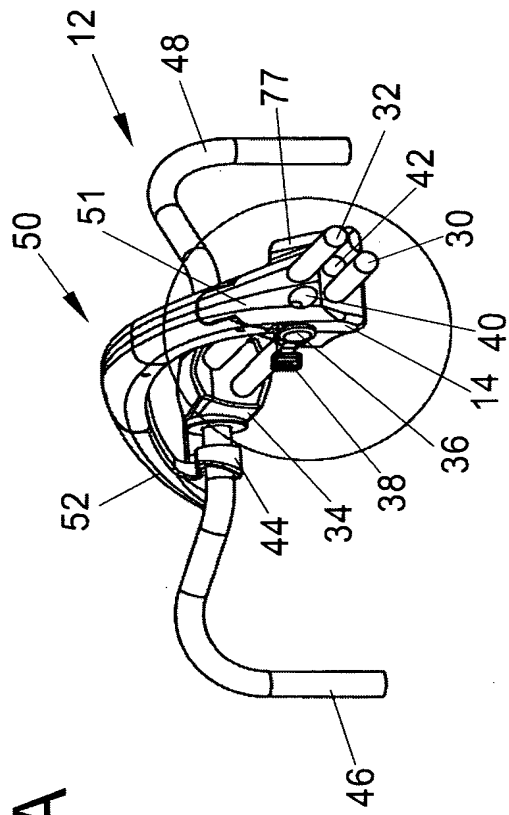


Fig. 2A

Fig. 2B

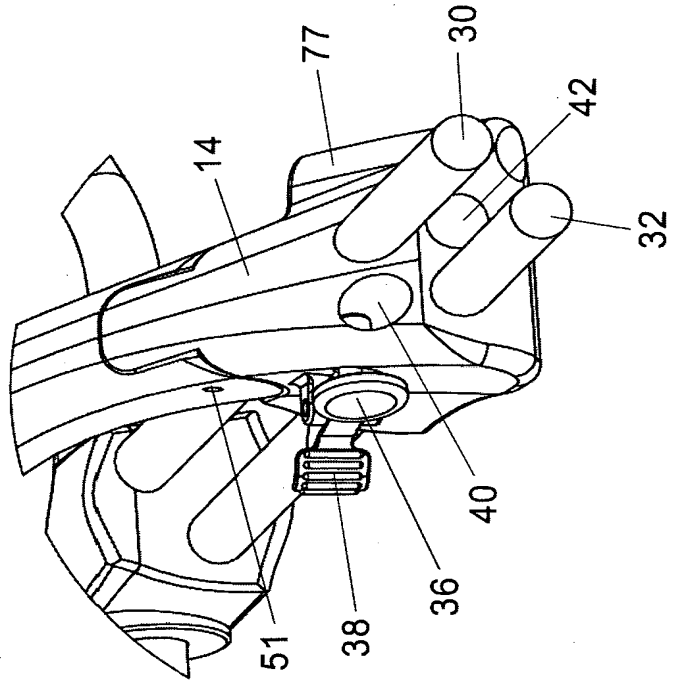
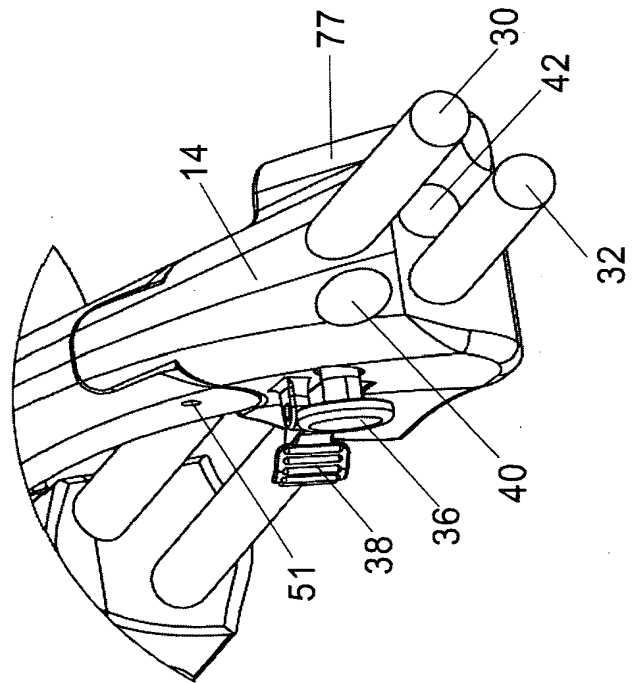


Fig. 2C

3/20

Fig. 3A

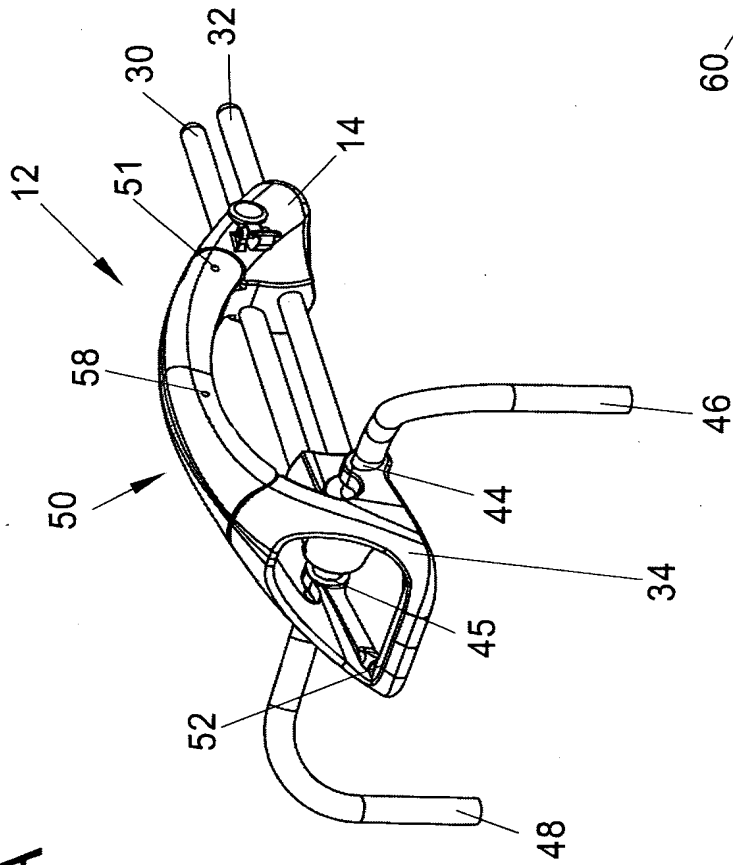
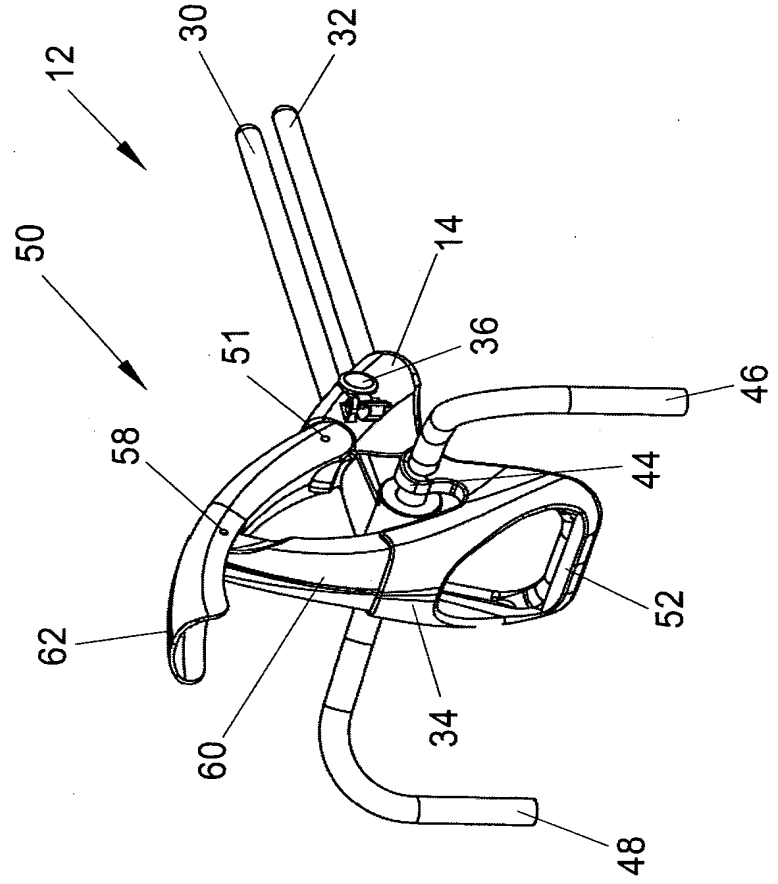


Fig. 3B



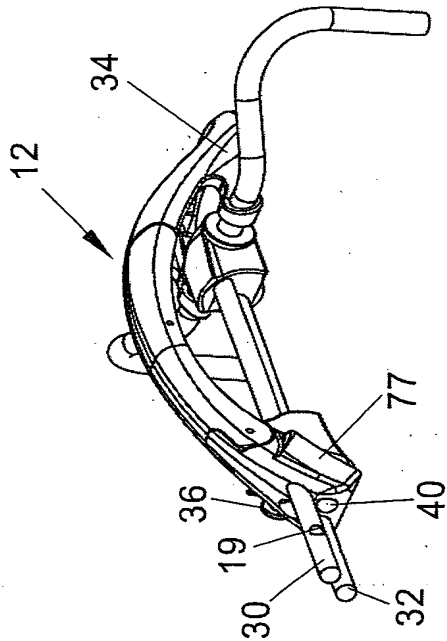


Fig. 4A

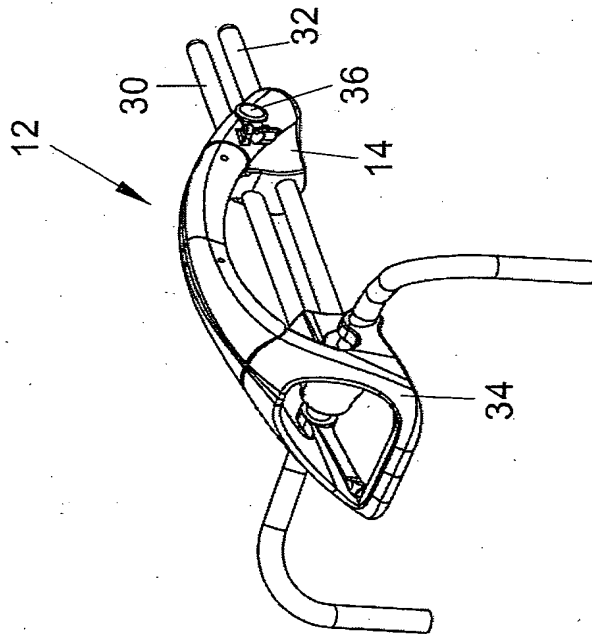


Fig. 4B

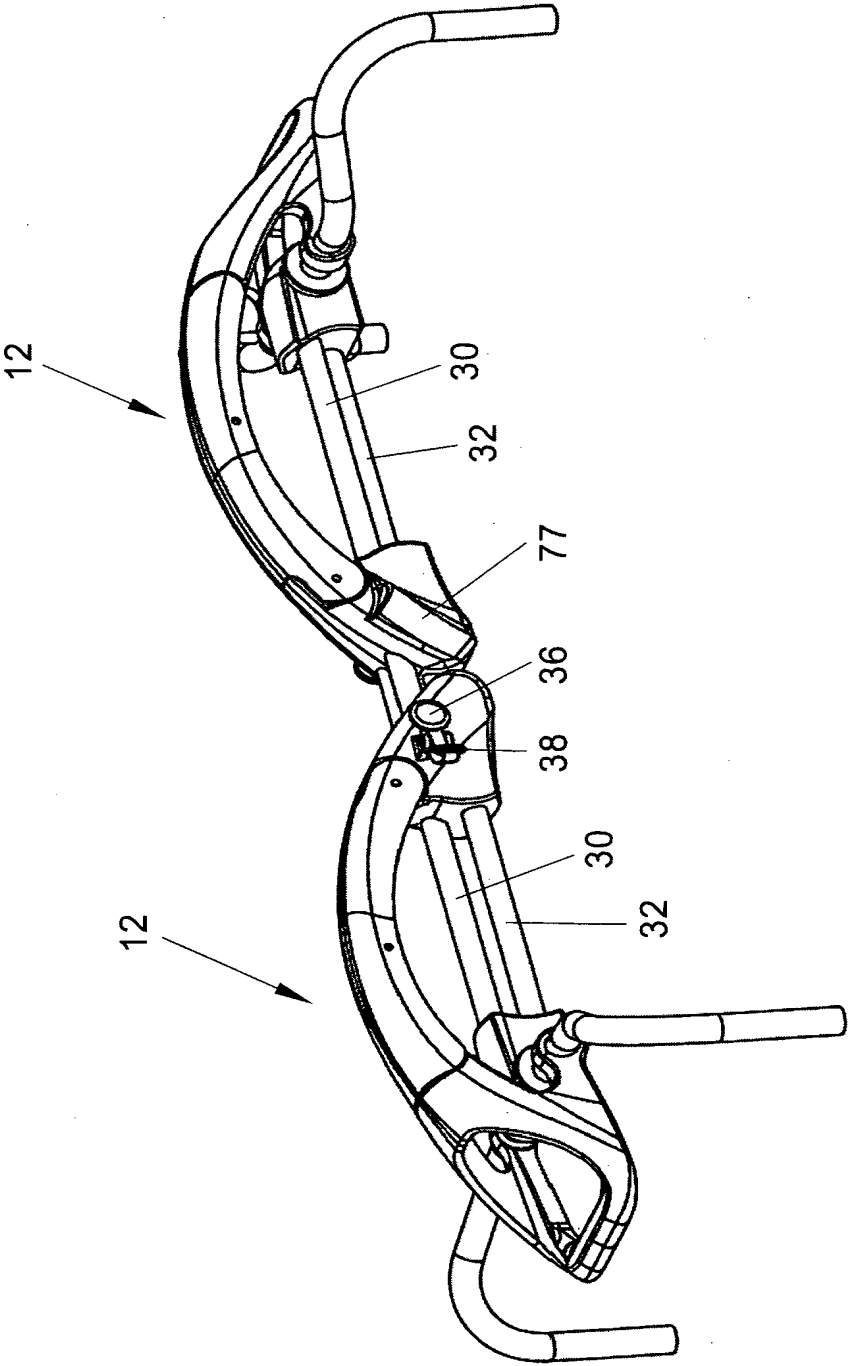


Fig.5

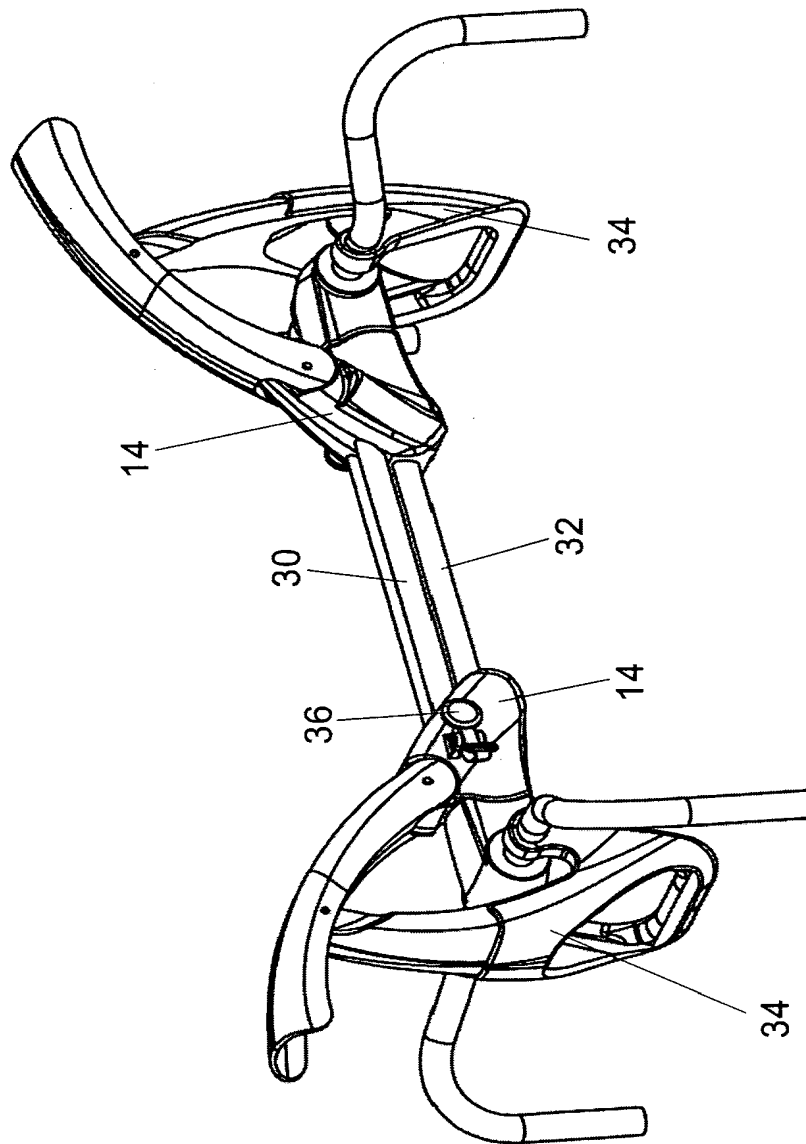
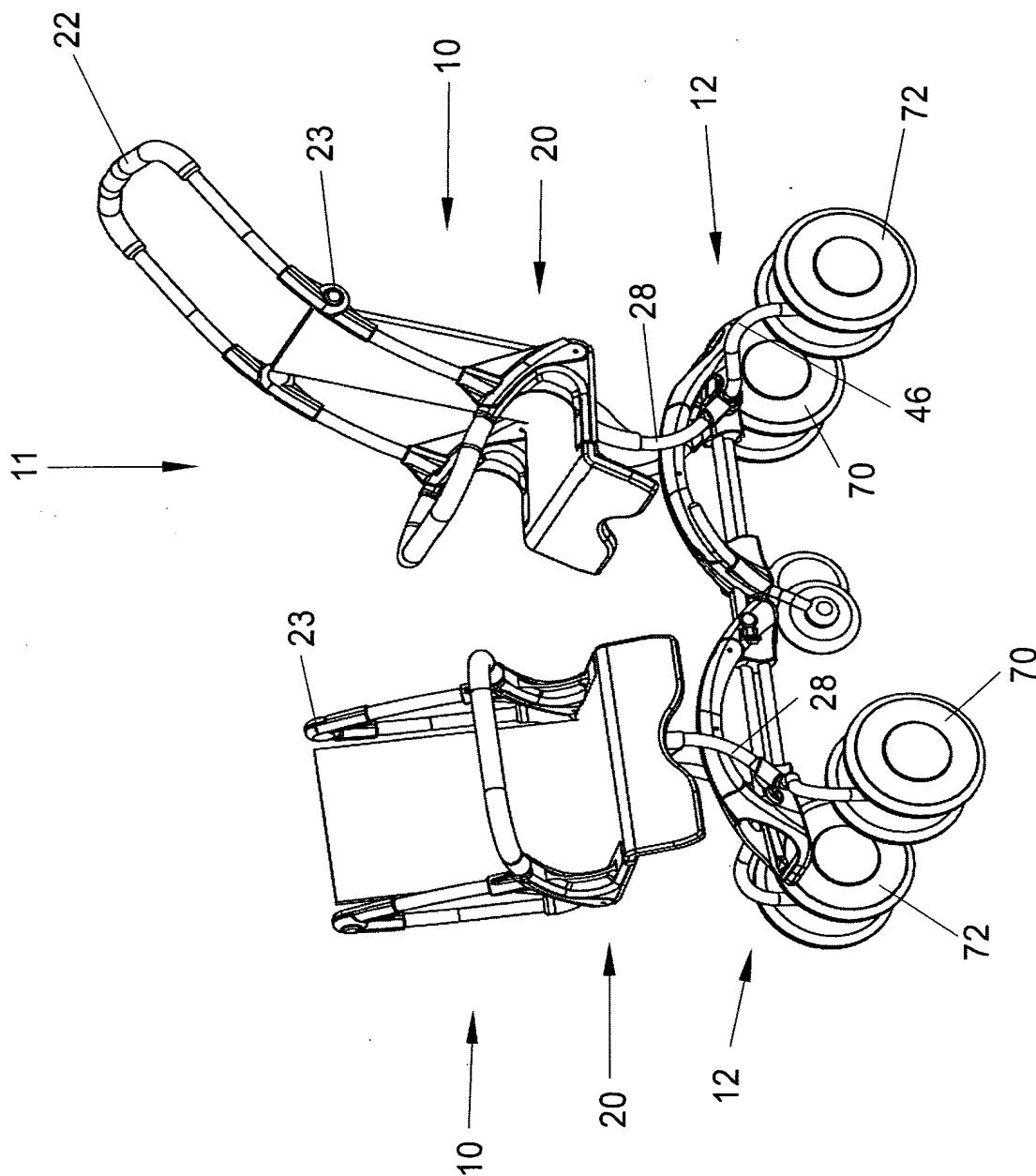


Fig.6

7/20

Fig.7



8/20

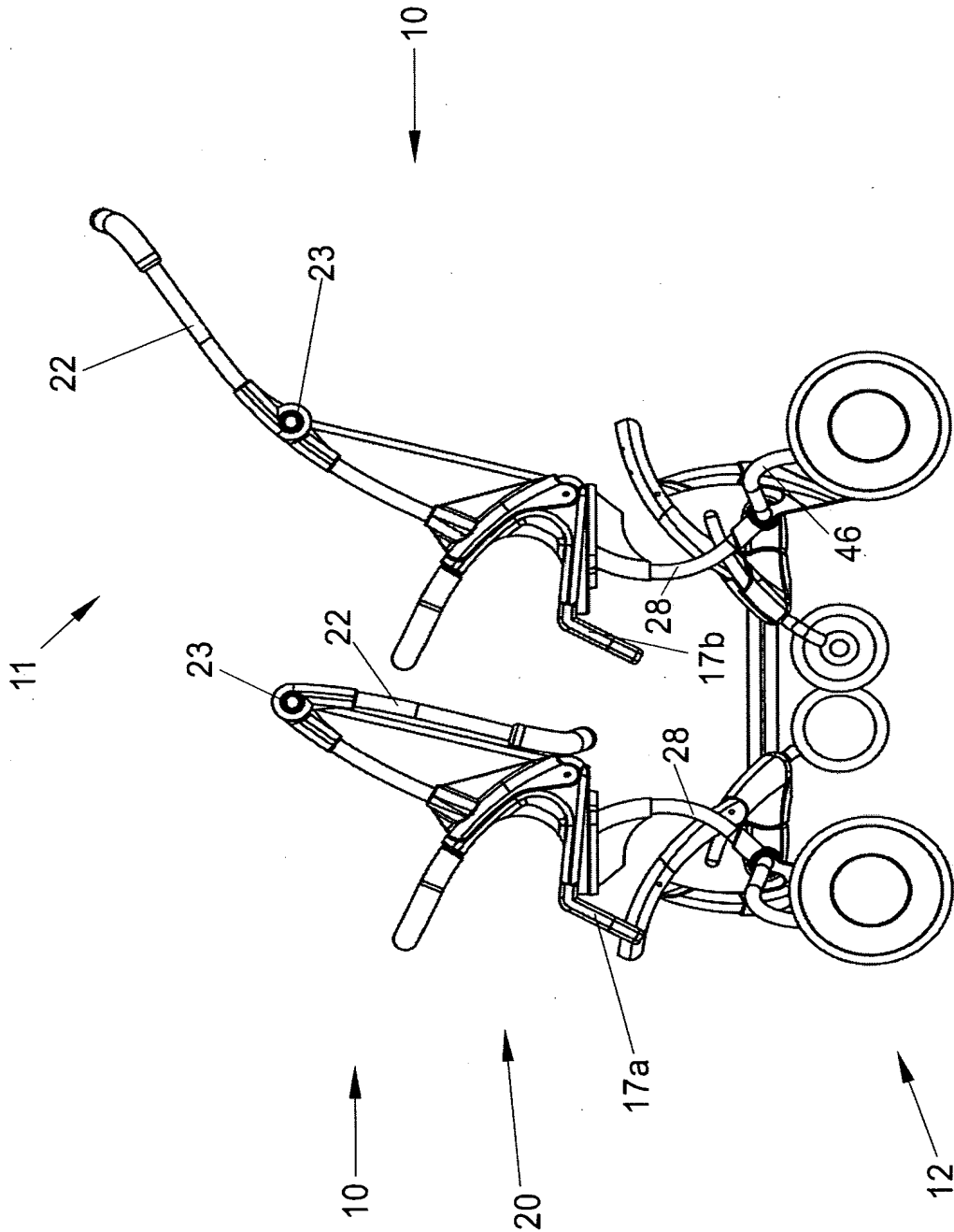


Fig. 8

9/20

Fig.9

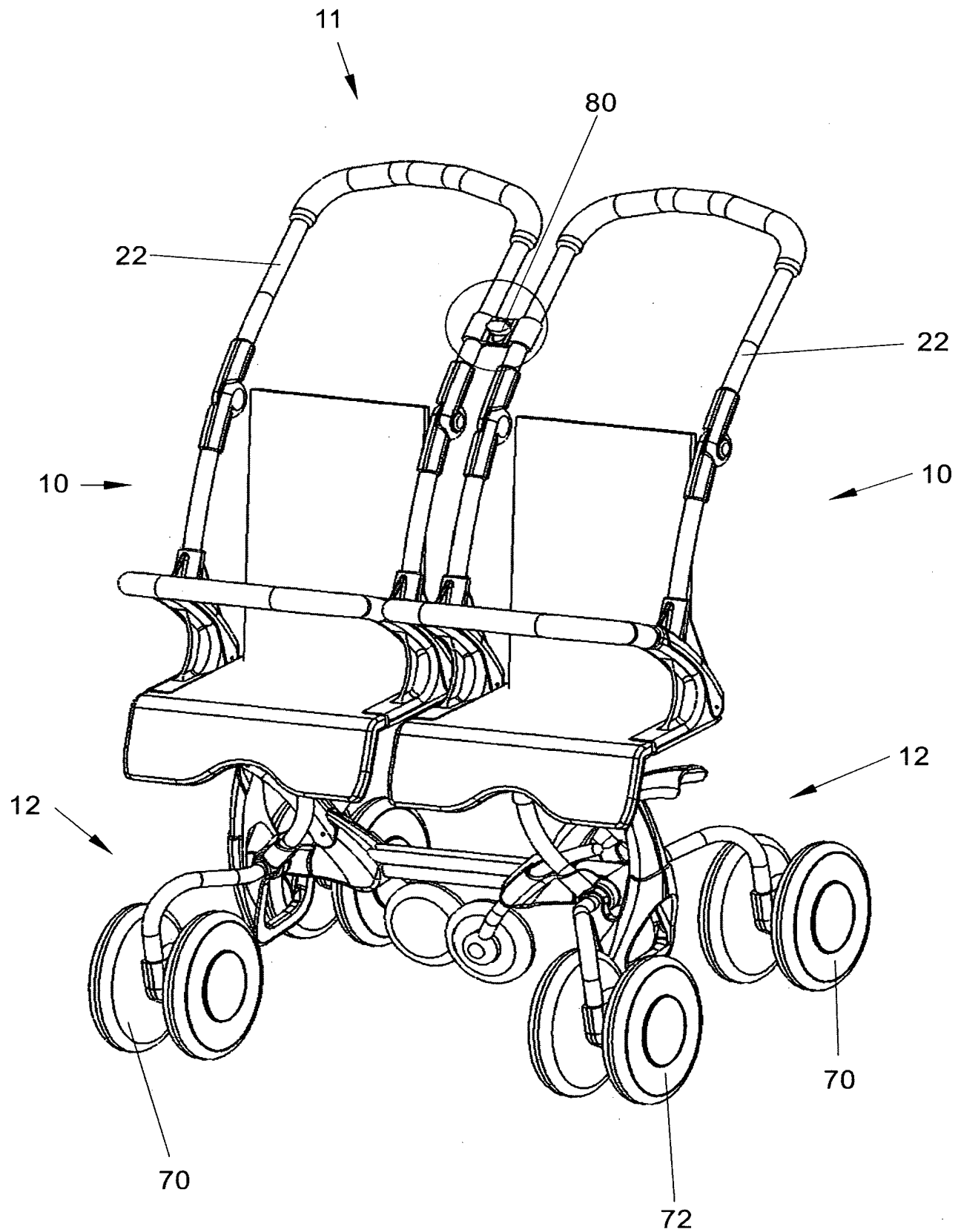


Fig.10A

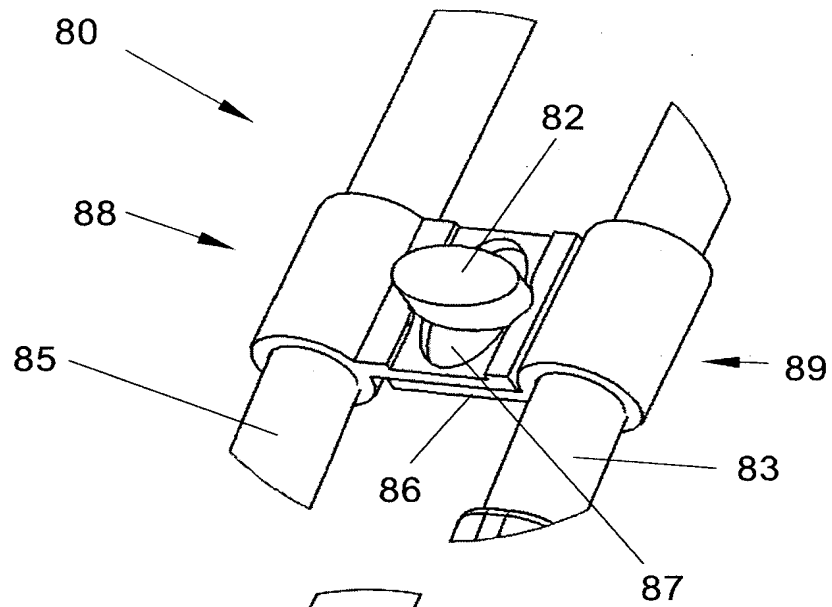


Fig.10B

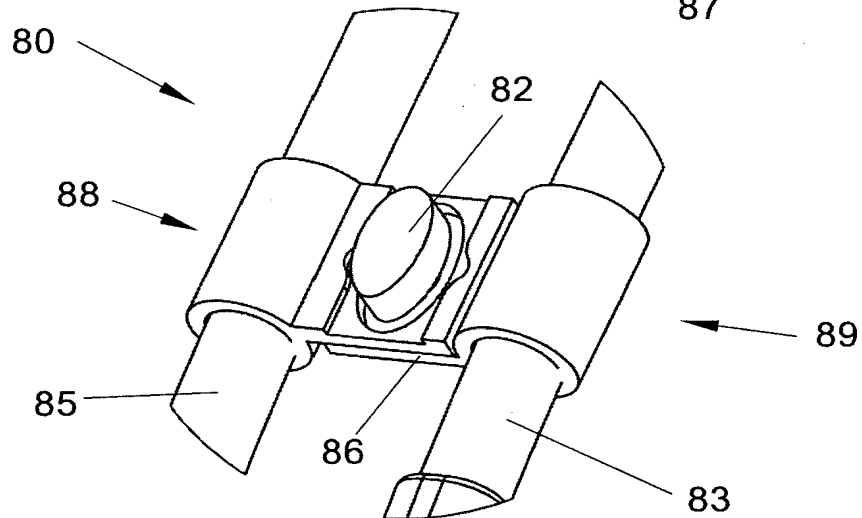


Fig.10C

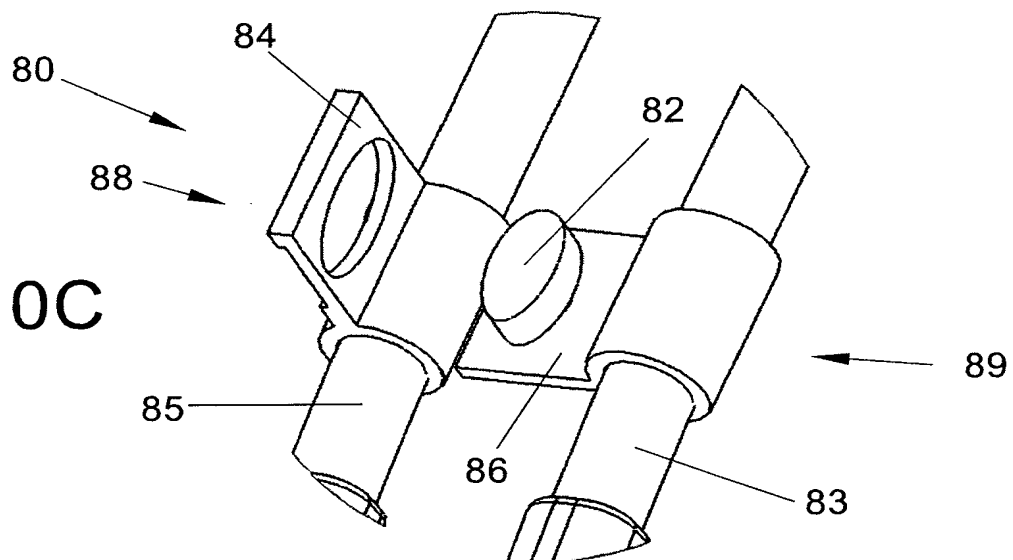


Fig.11A

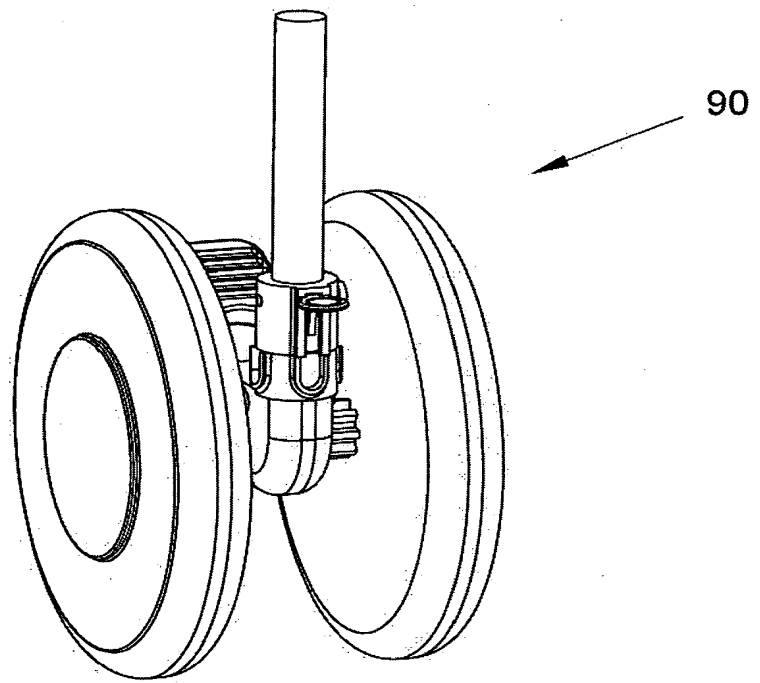
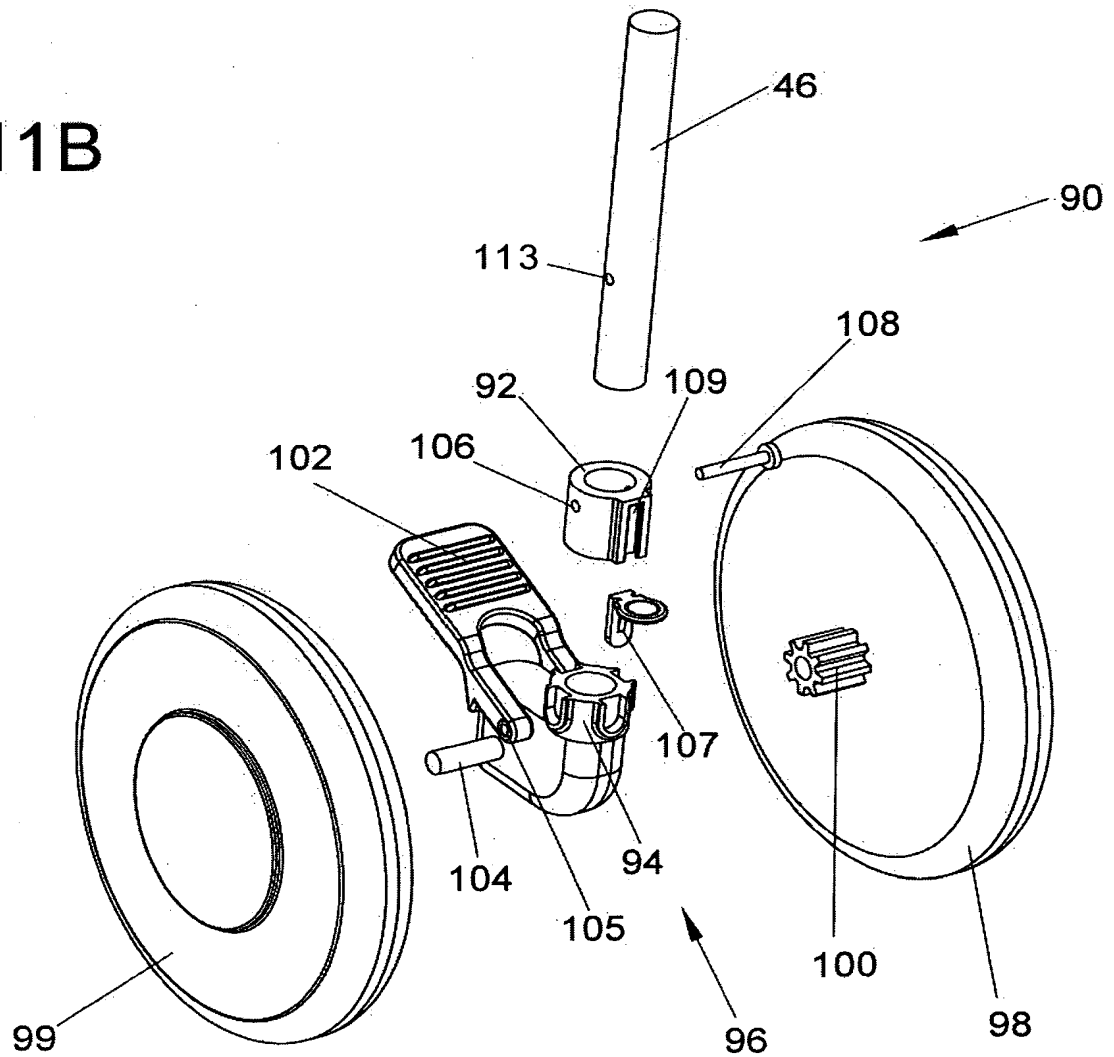


Fig.11B



12/20

Fig.12A

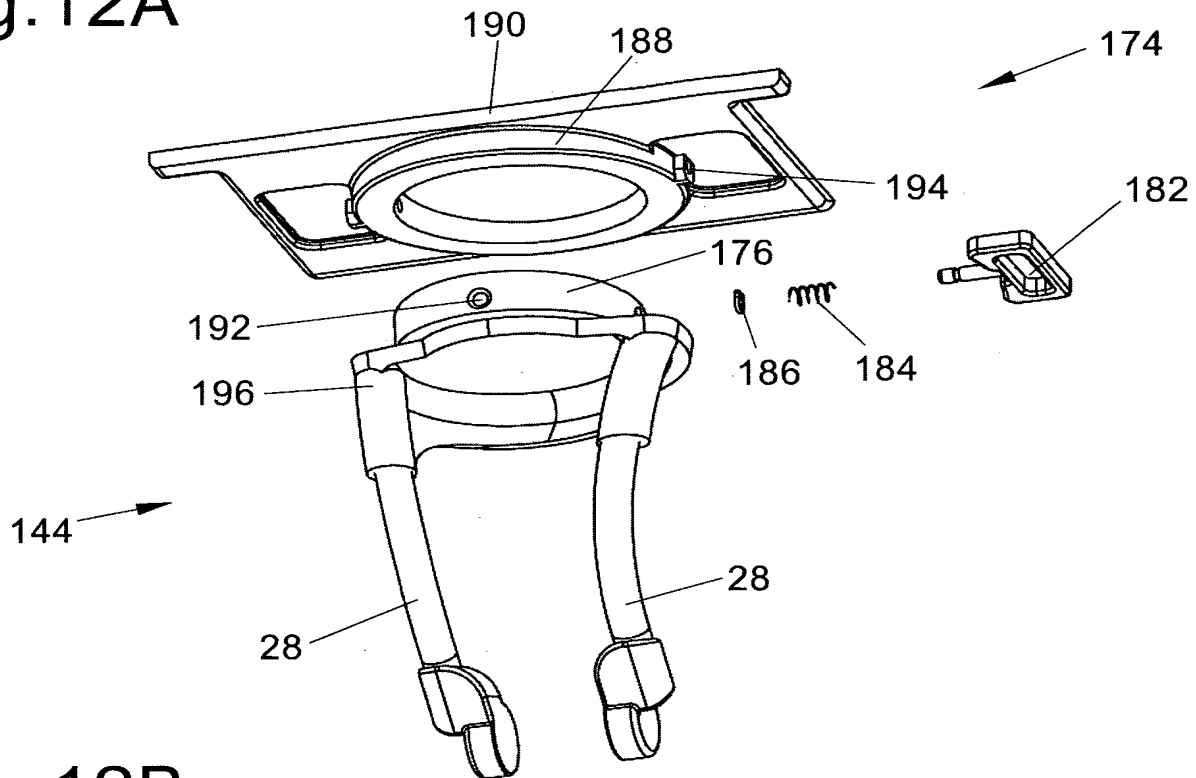
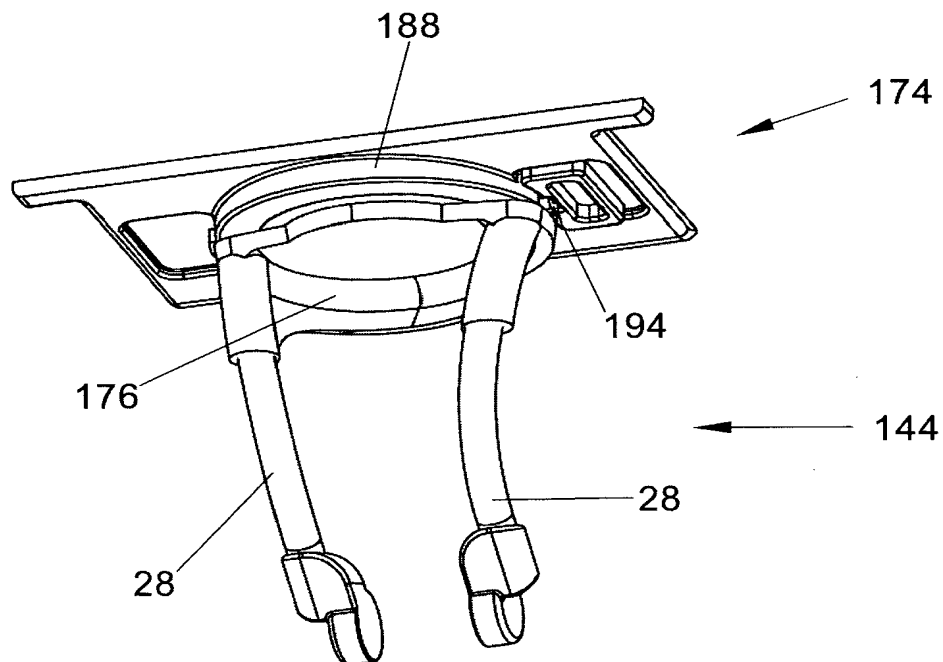


Fig.12B



13/20

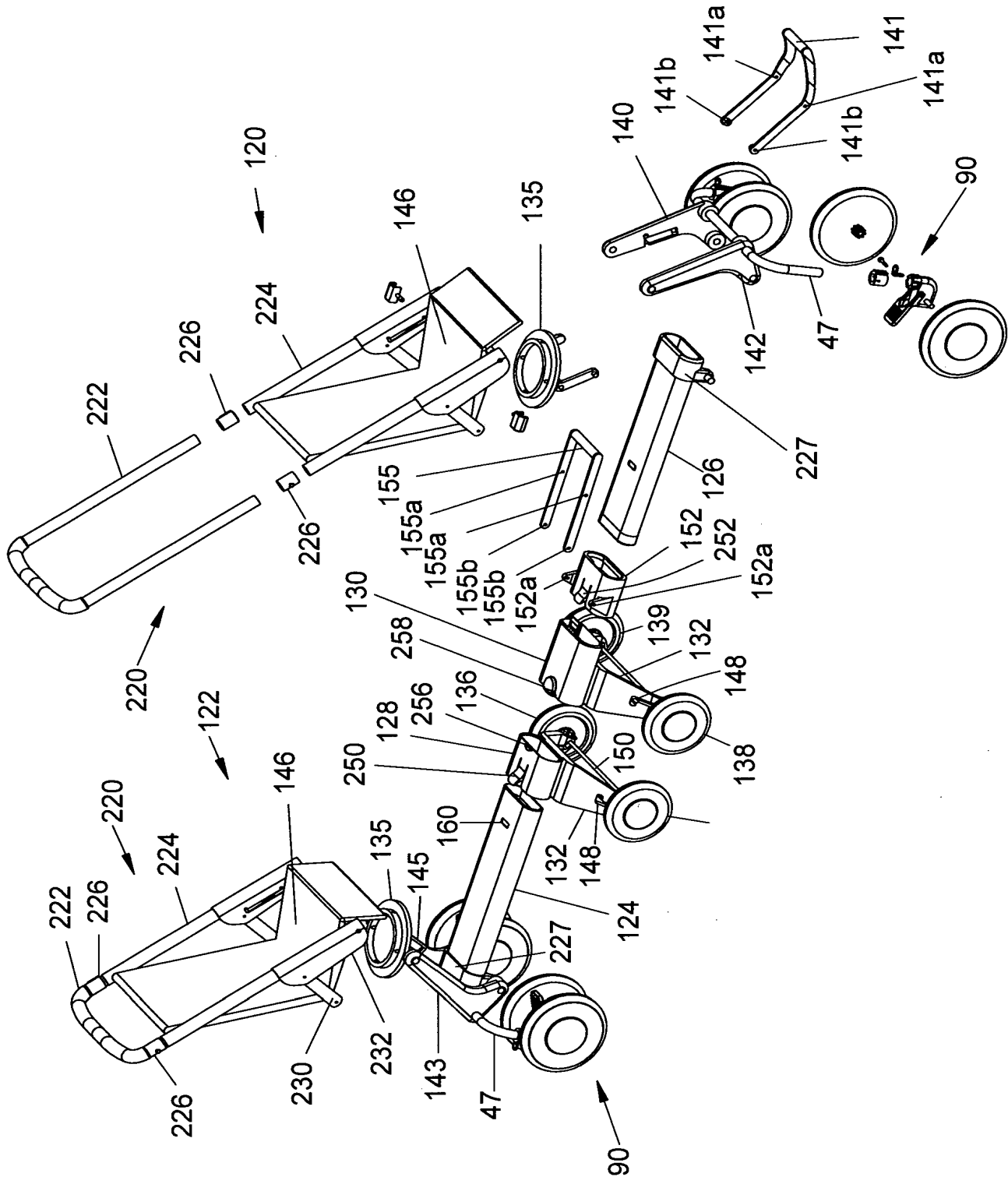


Fig. 13

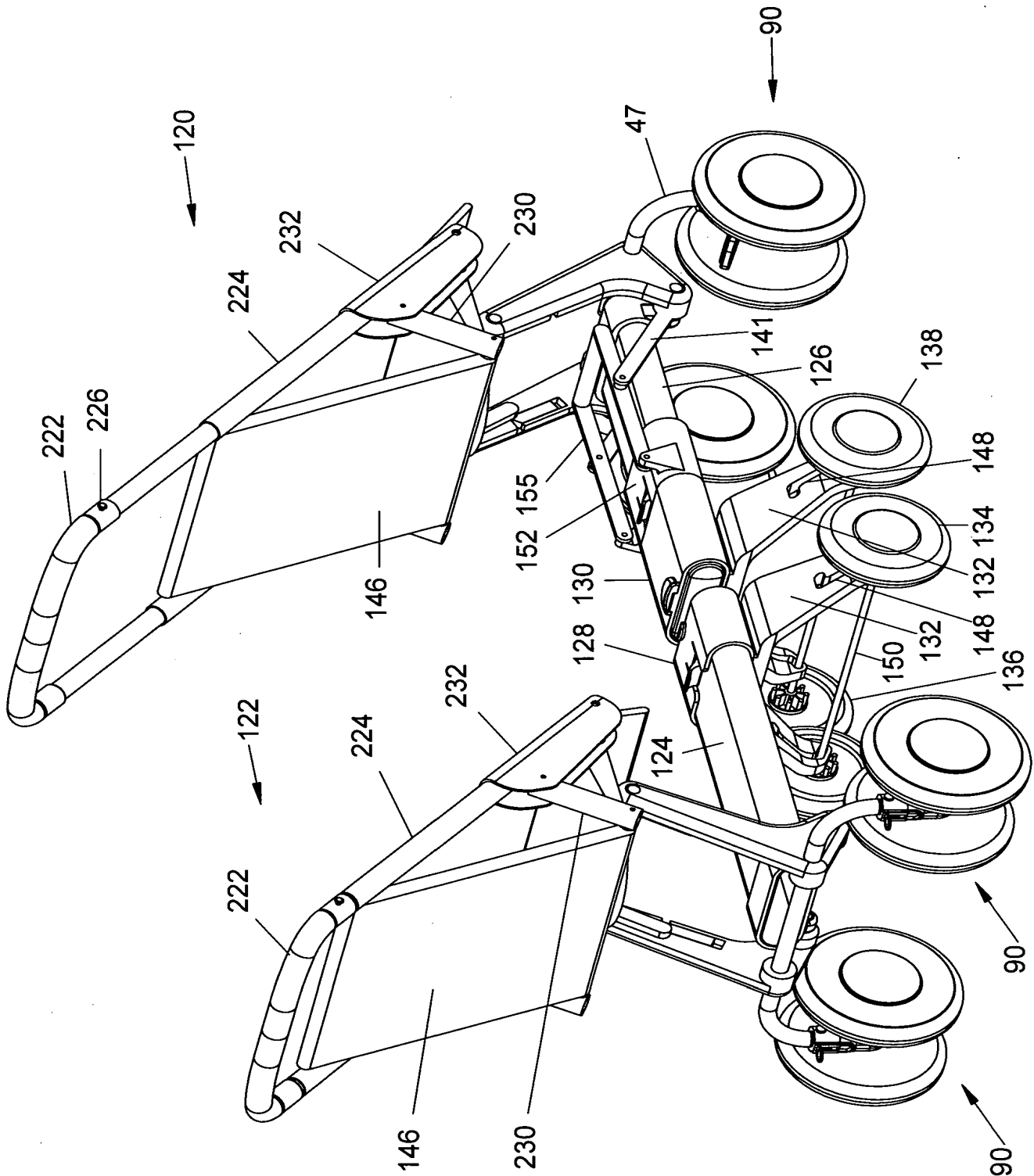


Fig.14

15/20

Fig.15A

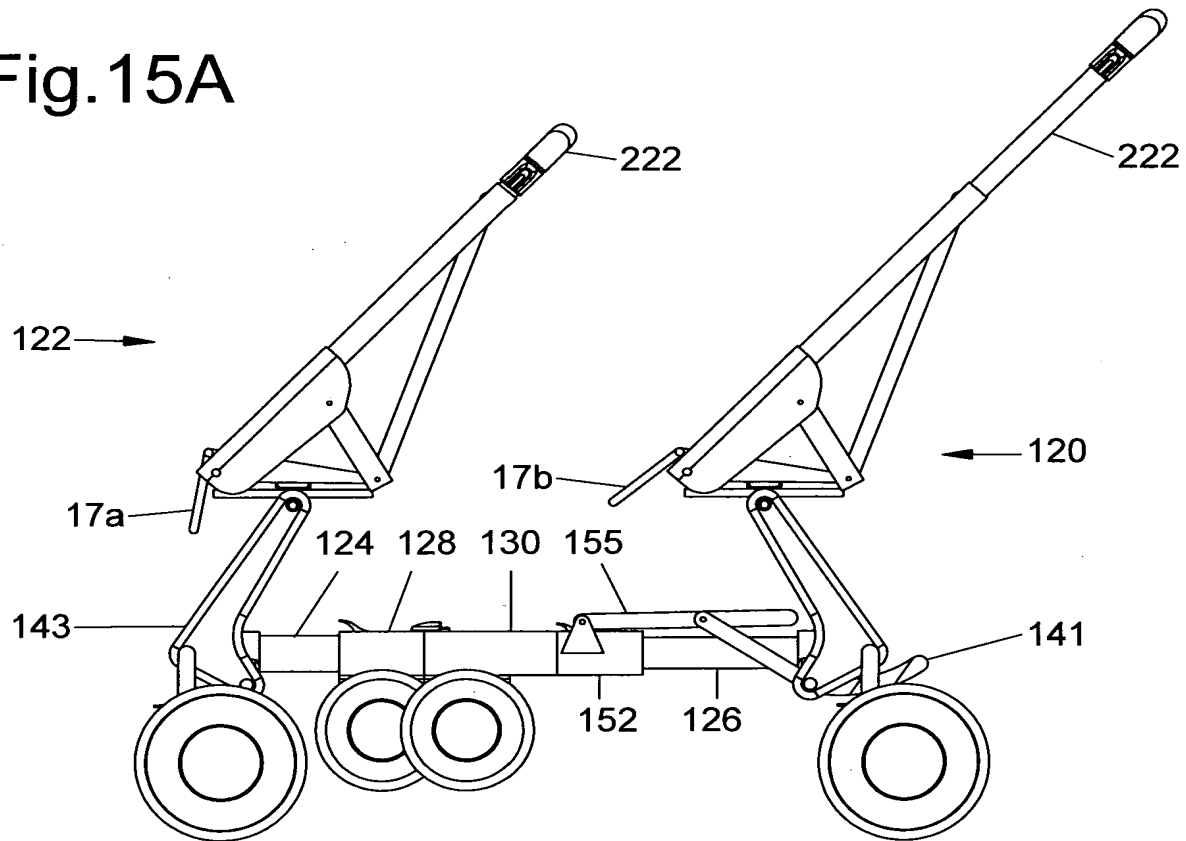
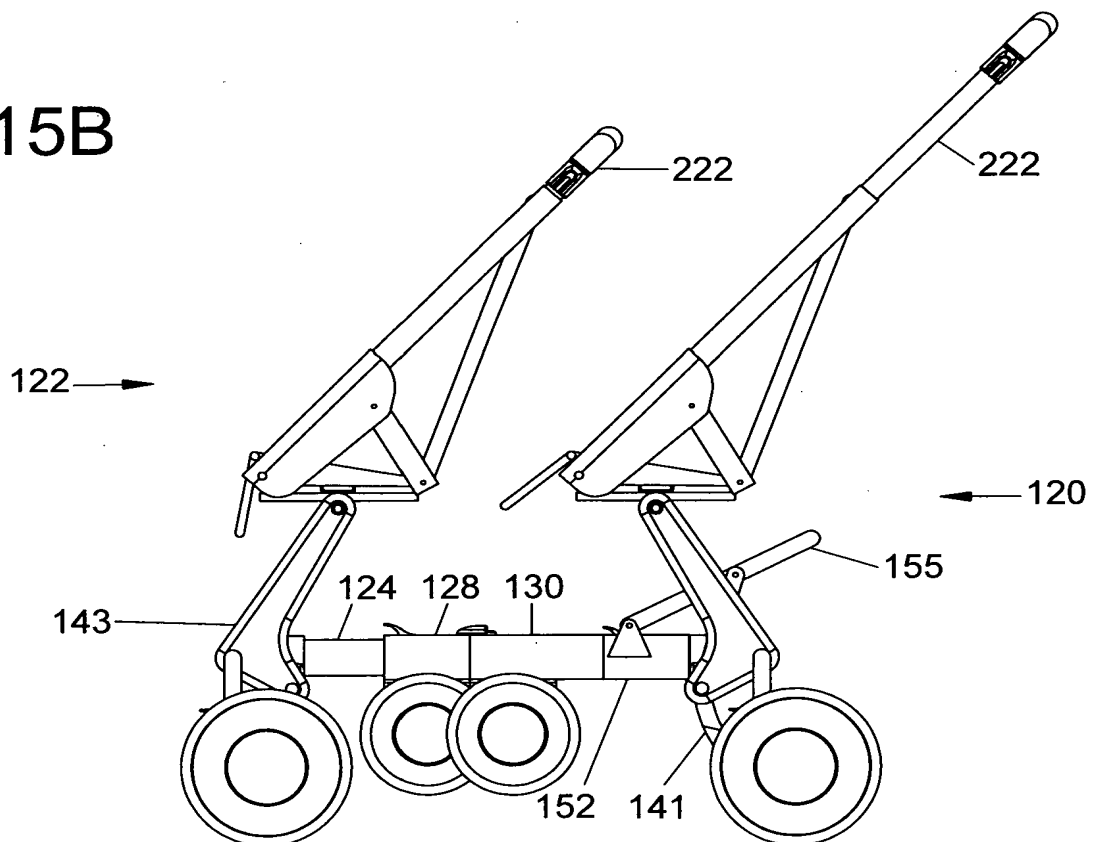


Fig.15B



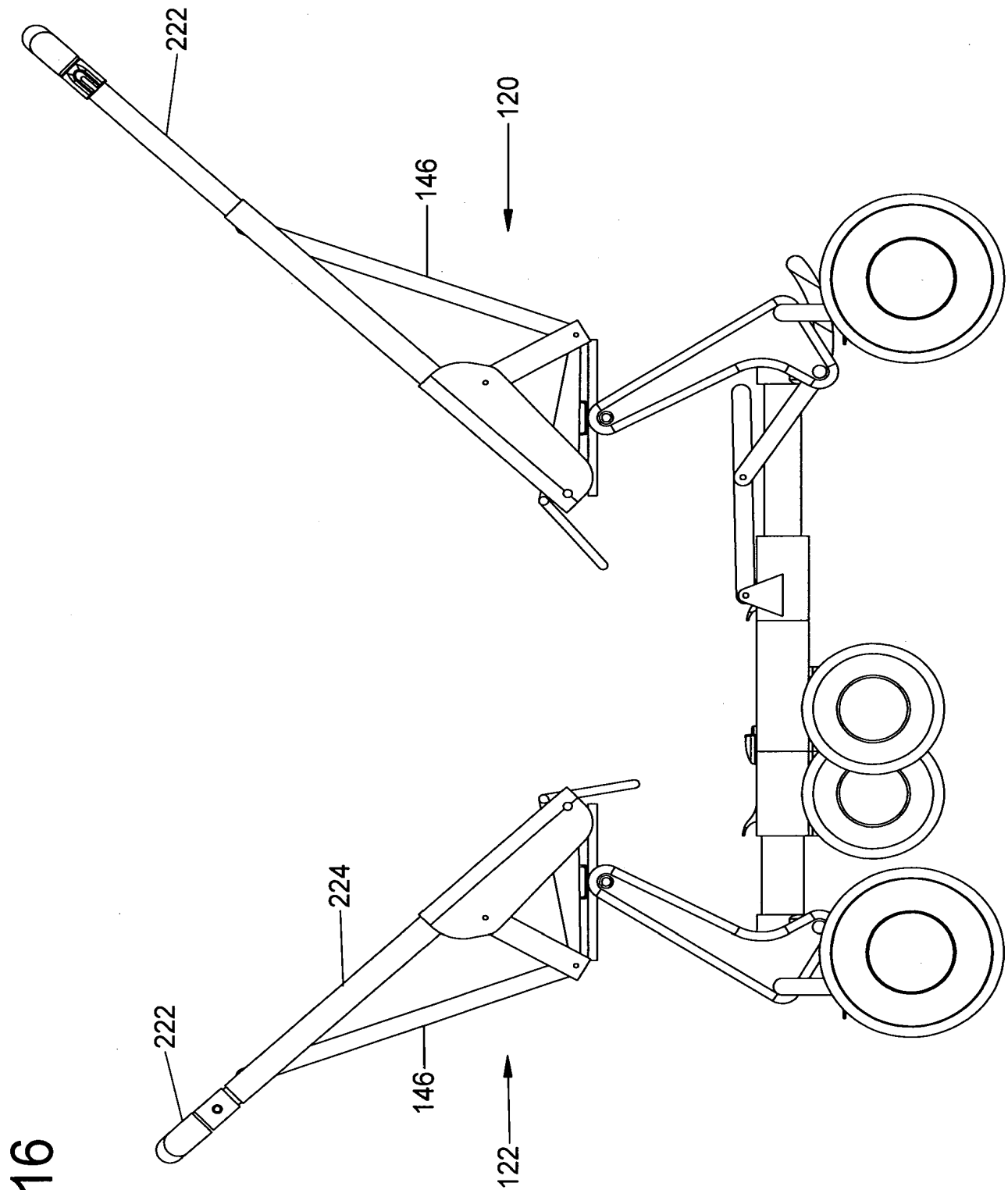


Fig. 16

Fig.17B

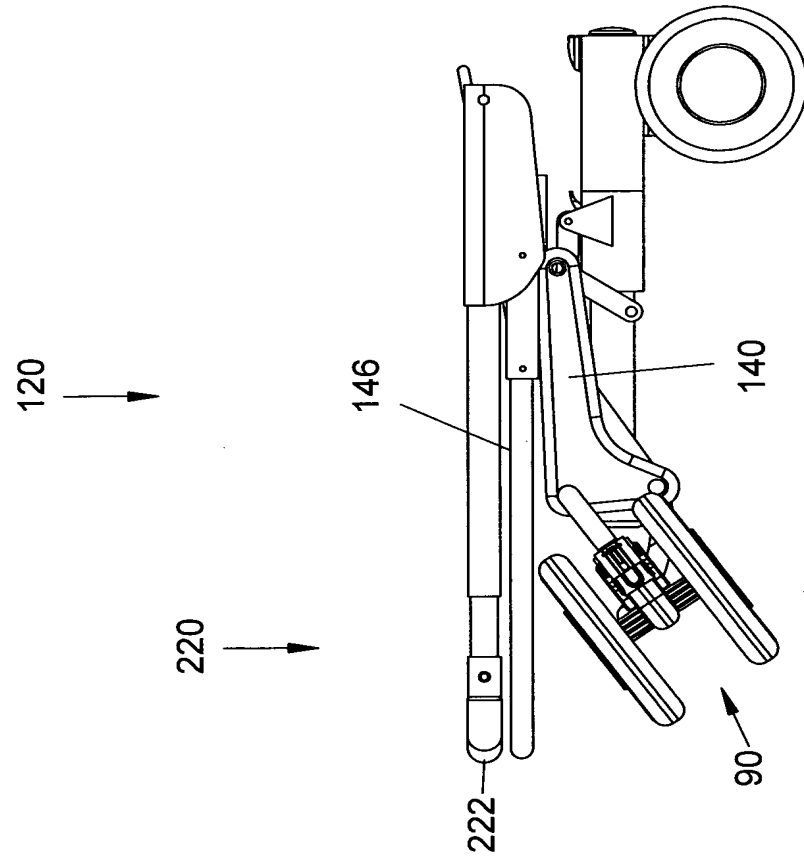


Fig.17A

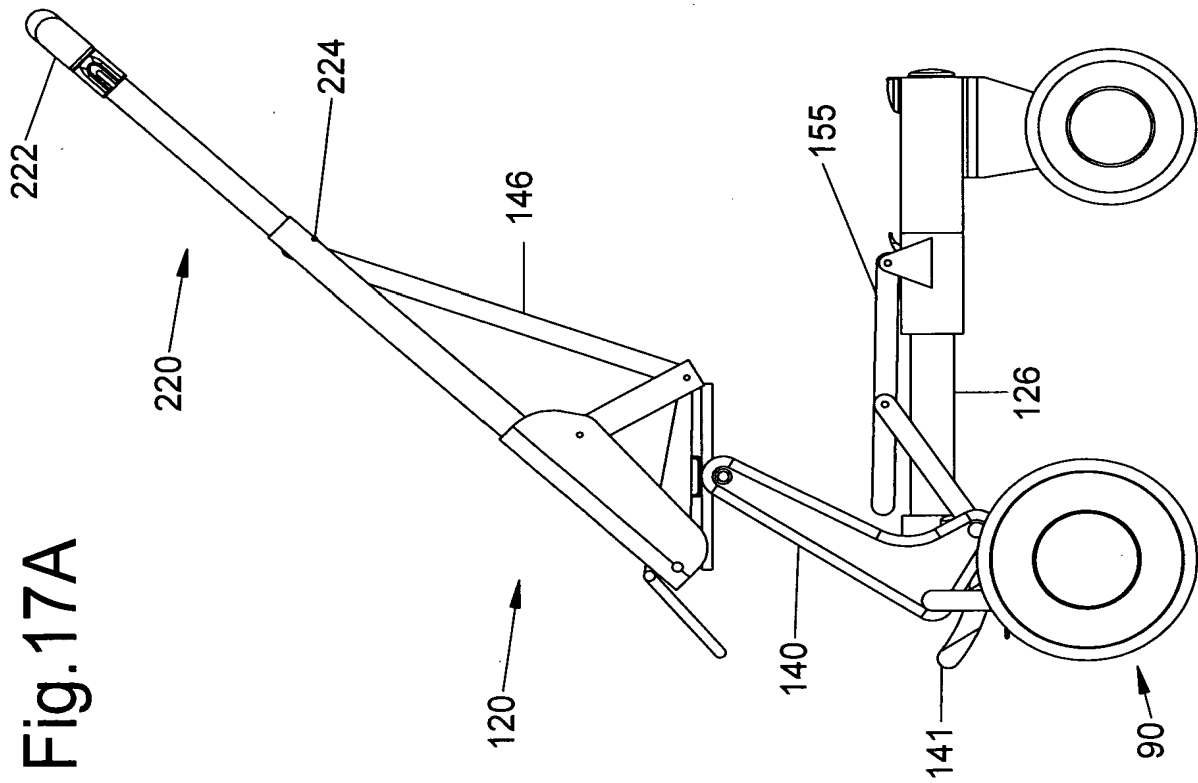
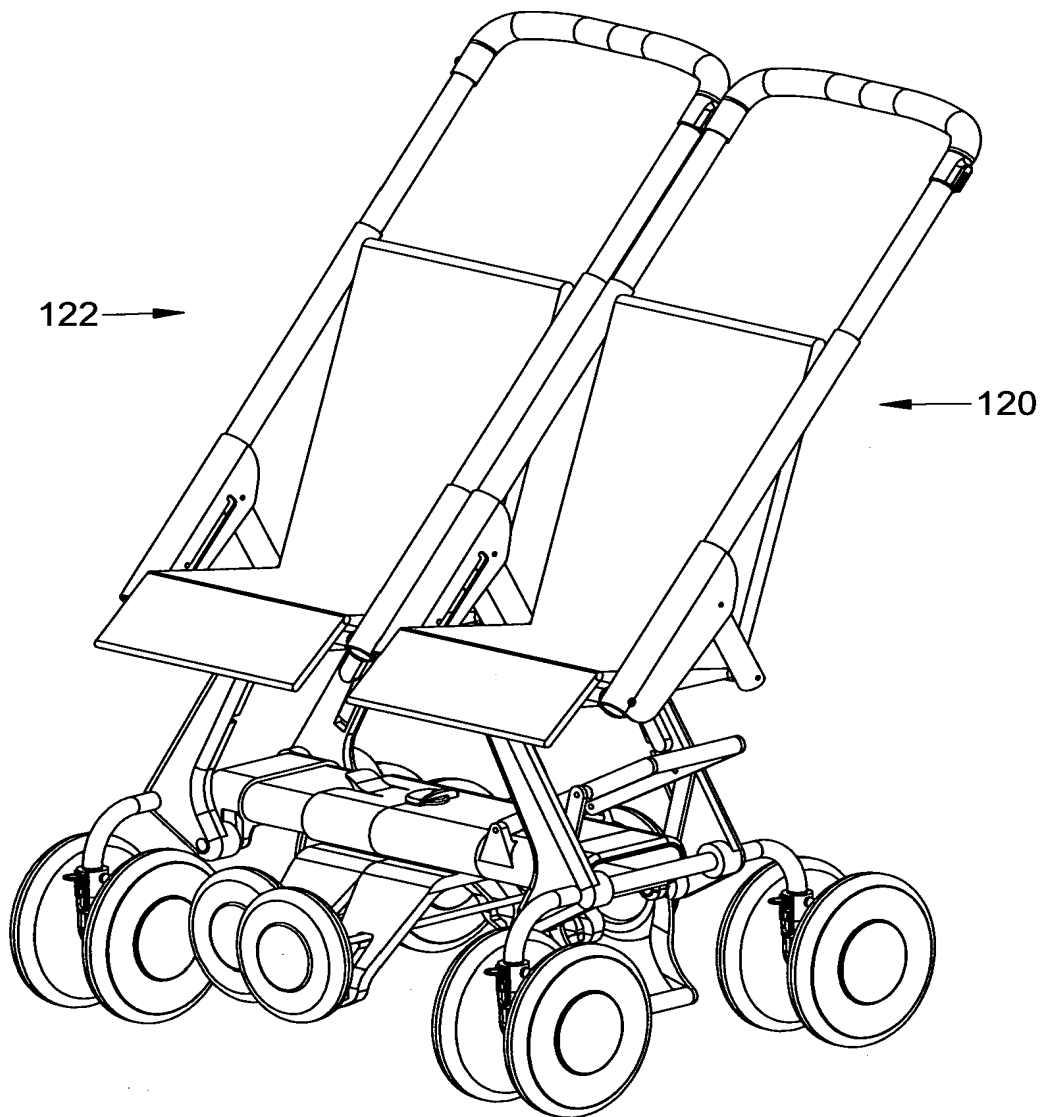


Fig.17C



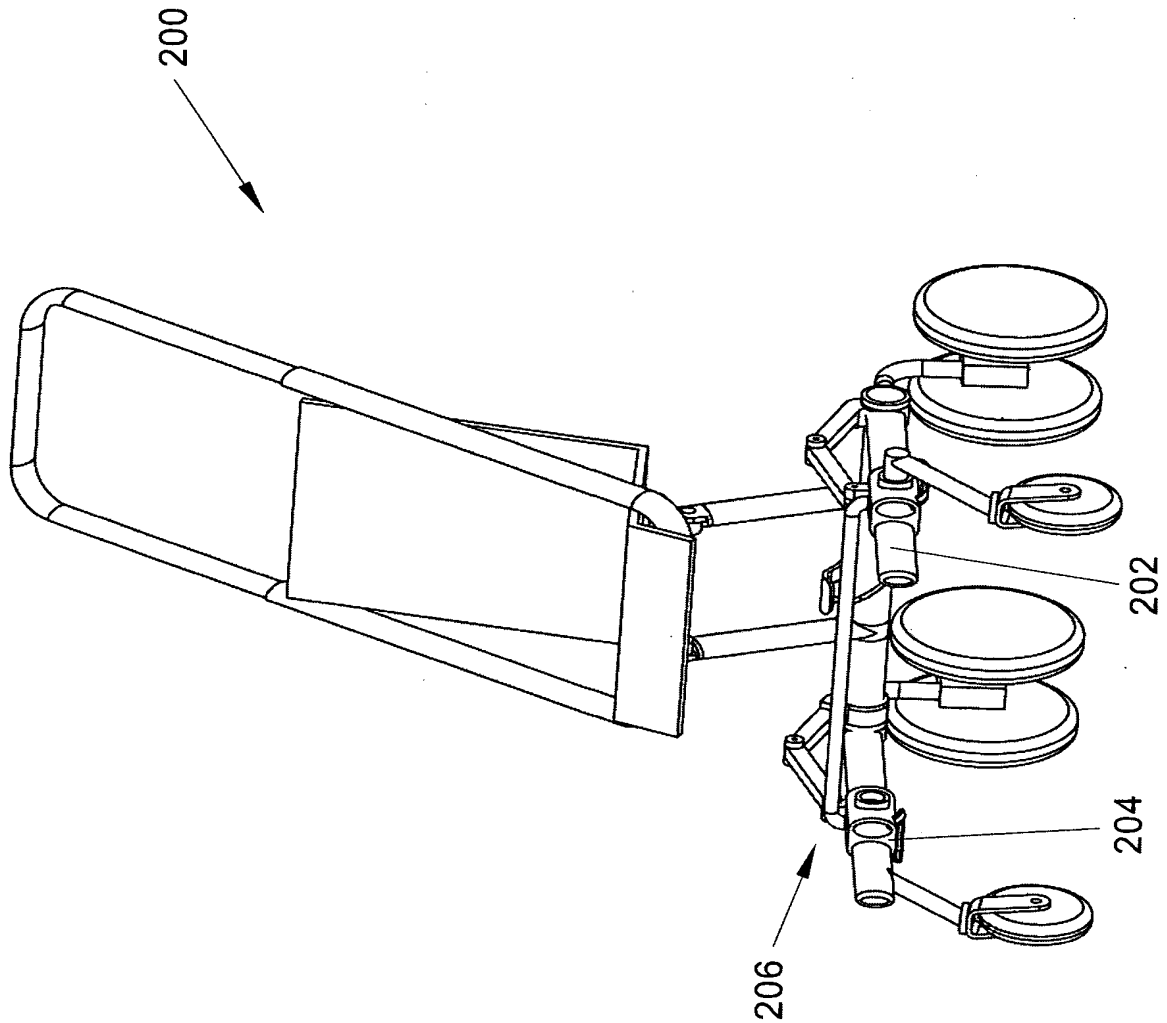


Fig.18

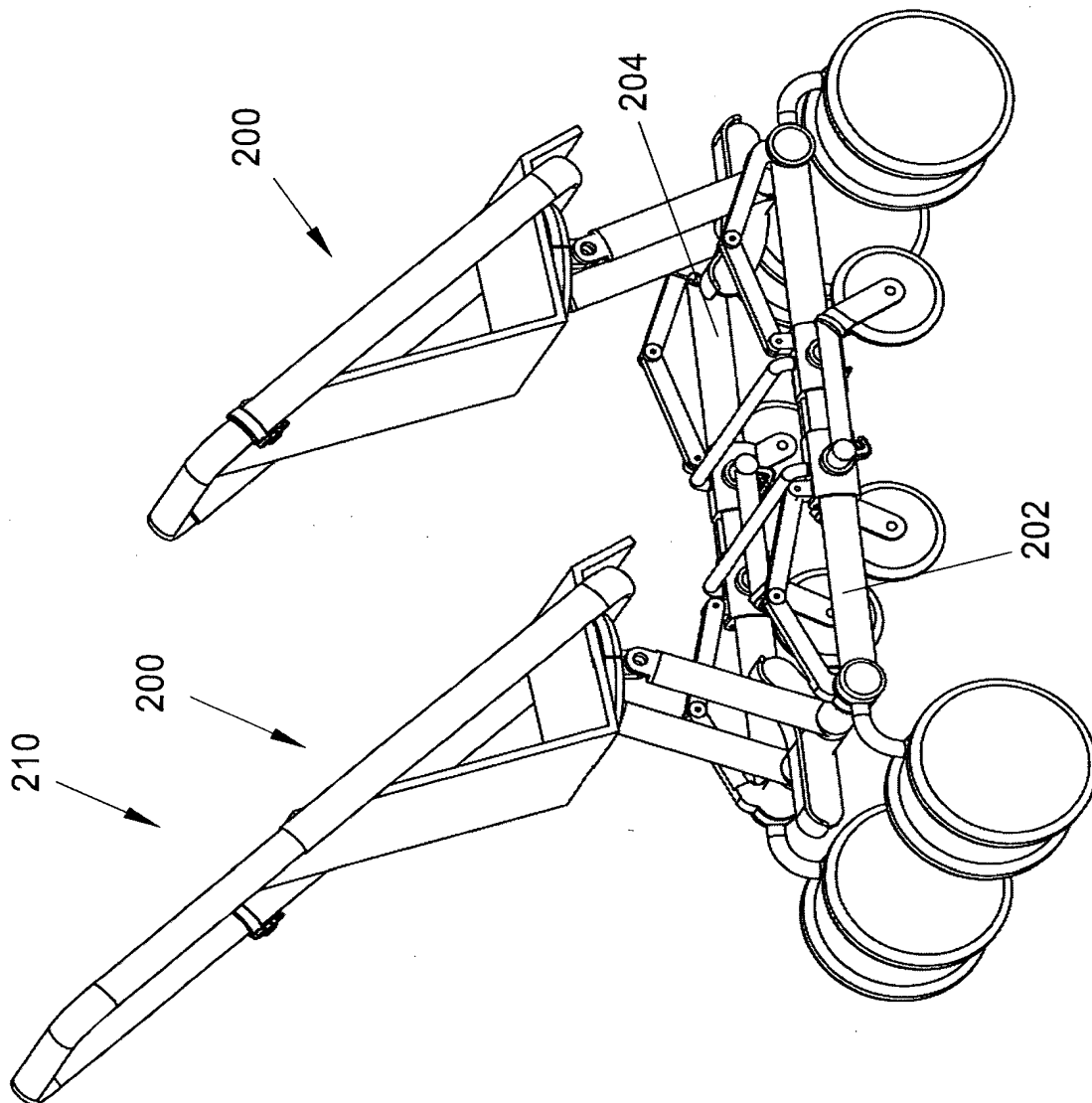


Fig.19

Electronic Patent Application Fee Transmittal				
Application Number:		12631375		
Filing Date:		04-Dec-2009		
Title of Invention:		SEAT ATTACHMENT FOR A STROLLER		
First Named Inventor/Applicant Name:		Mark Zehfuss		
Filer:		Bernard Pike		
Attorney Docket Number:		DYN005		
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
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Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
RCE - 2nd and Subsequent Request	2820	1	850	850
Total in USD (\$)				850

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EFS ID:	19185429
Application Number:	12631375
International Application Number:	
Confirmation Number:	1624
Title of Invention:	SEAT ATTACHMENT FOR A STROLLER
First Named Inventor/Applicant Name:	Mark Zehfuss
Correspondence Address:	PIKE IP LAW, PLLC - P.O. BOX 8592 - RICHMOND VA 23226 US 8046153939 -
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Filer Authorized By:	
Attorney Docket Number:	DYN005
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Payment Type	Credit Card
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RAM confirmation Number		1884			
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Paper No.

Application No.:	12/631,375	Date Mailed:	2014-06-05
			
First Named Inventor:	Zehfuss, Mark,	Examiner:	DOLAK, JAMES M
Attorney Docket No.:	DYN005	Art Unit:	3618
Confirmation No.:	1624	Filing Date:	2009-12-04

Please find attached an Office communication concerning this application or proceeding.

Commissioner for Patents

NOTICE OF IMPROPER REQUEST FOR CONTINUED EXAMINATION (RCE)	Application No. 12/631,375	Applicant(s) ZEHFUSS, MARK	
		Art Unit 3600	Date Mailed:

The request for continued examination (RCE) under 37 CFR 1.114 filed on 02 June, 2014 is improper for reason(s) indicated below:

1. ☐ Continued examination under 37 CFR 1.114 does not apply to an application for a design patent. Applicant may wish to consider filing a continuing application under 37 CFR 1.53(b) or a CPA under 37 CFR 1.53(d). An RCE cannot be treated as a CPA.
2. ☐ Continued examination under 37 CFR 1.114 does not apply to an application that was filed before June 8, 1995. Applicant may wish to consider filing a continuing application under 37 CFR 1.53(b).
3. ☐ Continued examination under 37 CFR 1.114 does not apply to an application unless prosecution in the application is closed. If the RCE was accompanied by a reply to a non-final Office action, the reply will be entered and considered under 37 CFR 1.111. If the RCE was not accompanied by a reply, the time period set forth in the last Office action continues to run from the mailing date of that action.
4. ☒ The request was not filed before payment of the issue fee, and no petition under 37 CFR 1.313 was granted. If this application has not yet issued as a patent, applicant may wish to consider filing either a petition under 37 CFR 1.313 to withdraw this application from issue, or a continuing application under 37 CFR 1.53(b).
5. ☐ The request was not filed before abandonment of the application. The application was abandoned, or proceedings terminated on _____. Applicant may wish to consider filing a petition under 37 CFR 1.137 to revive this abandoned application.
6. ☐ The request was not accompanied by the fee set forth in 37 CFR 1.17(e) as required by 37 CFR 1.114. Since the application is not under appeal, the time period set forth in the final Office action or notice of allowance continues to run from the mailing date of that action or notice.
7. ☐ The request was not accompanied by a submission as required by 37 CFR 1.114. Since the application is not under appeal, the time period set forth in the final Office action or notice of allowance continues to run from the mailing date of that action or notice.

Note: A continued prosecution application (CPA) under 37 CFR 1.53(d) cannot be filed in a utility or plant application. A CPA filed in a utility or plant application that has a filing date **on or after June 8, 1995** will be treated as an RCE under 37 CFR 1.114. The request for a CPA in the instant application, however, has been treated as an improper RCE for the reason(s) indicated above.

A copy of this Notice MUST be returned with the reply.

Direct any questions concerning this notice to

/DIANA BATES/, Technology Center 3600

Telephone Number: (571)272-6573

Doc Code: PET.AUTO Document Description: Petition automatically granted by EFS-Web		PTO/SB/140 U.S. Patent and Trademark Office Department of Commerce
Electronic Petition Request	PETITION TO WITHDRAW AN APPLICATION FROM ISSUE AFTER PAYMENT OF THE ISSUE FEE UNDER 37 CFR 1.313(c)	
Application Number	12631375	
Filing Date	04-Dec-2009	
First Named Inventor	Mark Zehfuss	
Art Unit	3618	
Examiner Name	JAMES DOLAK	
Attorney Docket Number	DYN005	
Title	SEAT ATTACHMENT FOR A STROLLER	
An application may be withdrawn from issue for further action upon petition by the applicant. To request that the Office withdraw an application from issue, applicant must file a petition under this section including the fee set forth in § 1.17(h) and a showing of good and sufficient reasons why withdrawal of the application from issue is necessary. APPLICANT HEREBY PETITIONS TO WITHDRAW THIS APPLICATION FROM ISSUE UNDER 37 CFR 1.313(c). A grantable petition requires the following items: (1) Petition fee; and (2) One of the following reasons: (a) Unpatentability of one or more claims, which must be accompanied by an unequivocal statement that one or more claims are unpatentable, an amendment to such claim or claims, and an explanation as to how the amendment causes such claim or claims to be patentable; (b) Consideration of a request for continued examination in compliance with § 1.114 (for a utility or plant application only); or (c) Express abandonment of the application. Such express abandonment may be in favor of a continuing application, but not a CPA under 37 CFR 1.53(d).		
Petition Fee		
☒ Small Entity		
☐ Micro Entity		
☐ Regular Undiscounted		
Reason for withdrawal from issue		

- ☐ One or more claims are unpatentable
- ☐ Consideration of a request for continued examination (RCE) (List of Required Documents and Fees)
- ☒ Applicant hereby expressly abandons the instant application (any attorney/agent signing for this reason must have power of attorney pursuant to 37 CFR 1.32(b)).

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

- ☐ An attorney or agent registered to practice before the Patent and Trademark Office who has been given power of attorney in this application.
- ☐ An attorney or agent registered to practice before the Patent and Trademark Office, acting in a representative capacity.
- ☒ A sole inventor
- ☐ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application
- ☐ A joint inventor; all of whom are signing this e-petition

Signature	/Mark Zehfuss/
Name	Mark Zehfuss

Electronic Patent Application Fee Transmittal

Application Number:	12631375			
Filing Date:	04-Dec-2009			
Title of Invention:	SEAT ATTACHMENT FOR A STROLLER			
First Named Inventor/Applicant Name:	Mark Zehfuss			
Filer:	Bernard Pike			
Attorney Docket Number:	DYN005			
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Petition Fee-37CFR 1.17(h) (Group II)	2464	1	70	70
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				70



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Decision Date : June 9, 2014

In re Application of :

Mark Zehfuss

Application No : 12631375

Filed : 04-Dec-2009

Attorney Docket No : DYN005

DECISION ON PETITION

UNDER CFR 1.313(c)(3)

This is an electronic decision on the petition under 37 CFR 1.313(c)(3), filed June 9, 2014, to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED**.

Petitioner requests that the above-identified application be withdrawn from issue for express abandonment.
See 37 CFR 1.313(c)(3).

The application is hereby withdrawn from issue, and the abandonment is hereby recognized.

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197

Office of Petitions

Electronic Acknowledgement Receipt	
EFS ID:	19243527
Application Number:	12631375
International Application Number:	
Confirmation Number:	1624
Title of Invention:	SEAT ATTACHMENT FOR A STROLLER
First Named Inventor/Applicant Name:	Mark Zehfuss
Correspondence Address:	PIKE IP LAW, PLLC - P.O. BOX 8592 - RICHMOND VA 23226 - -
Filer:	Bernard Pike
Filer Authorized By:	
Attorney Docket Number:	DYN005
Receipt Date:	09-JUN-2014
Filing Date:	04-DEC-2009
Time Stamp:	11:24:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 70

RAM confirmation Number		8583			
Deposit Account					
Authorized User					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition automatically granted by EFS	petition-request.pdf	30115	no	2
			ef3d7e2b2212e1a39b39667053f95c5ff110dae8		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30161	no	2
			9fa12e6b5d5b05ff431c0cc5de4ad71dead859ae		
Warnings:					
Information:					
Total Files Size (in bytes):			60276		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

PATENT WITHDRAWAL NOTICE

DATE WITHDRAWN

6/10/2014

WITHDRAWAL NUMBER

25762

The following application has been **WITHDRAWN** from the
6/10/2014 issue.

SERIAL NO.

12631375

PATENT NUMBER

8746731

TITLE

SEAT ATTACHMENT FOR A STROLLER

NAME AND ADDRESS

MARK ZEHFUSS
Glen Allen, VA

REASON FOR WITHDRAWAL

Auto-petition to withdraw - Granted

APPROVED

/Kimberly Terrell/, Manager

Patent Publication Branch
Office of Data Management

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	12/631,375
Filing Date	2009-12-04
First Named Inventor	Mark Zehfuss
Title	SEAT ATTACHMENT FOR A STROLLER
Art Unit	3618
Examiner Name	James M. Dolak
Attorney Docket Number	DYN005

SIGNATURE of Applicant or Patent Practitioner

Signature	/Umar R. Bakhsh/	Date (Optional)	
Name	Umar R. Bakhsh	Registration Number	67,307
Title (if Applicant is a juristic entity)	Attorney for Applicant		
Applicant Name (if Applicant is a juristic entity)	BABY JOGGER, LLC		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.



*Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

134811

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☒ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name				
Address				
City	State	Zip		
Country				
Telephone	Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

BABY JOGGER, LLC

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	Date (Optional)
Name	
Title	

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: BABY JOGGER, LLCApplication No./Patent No.: 12/631,375Filed/Issue Date: 2009-12-04Titled: SEAT ATTACHMENT FOR A STROLLERBABY JOGGER, LLC, a Corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose one of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose one of options A or B below):

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: ZEHFUSS, MARK To: DYNAMIC BRANDS, LLCThe document was recorded in the United States Patent and Trademark Office at
Reel 023608, Frame 0530, or for which a copy thereof is attached.2. From: DYNAMIC BRANDS, LLC To: BABY JOGGER, LLCThe document was recorded in the United States Patent and Trademark Office at
Reel 028370, Frame 0128, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Umar R. Bakhsh/

2022-03-29

Signature

Date

Umar R. Bakhsh

67,307

Printed or Typed Name

Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	45341521
Application Number:	12631375
International Application Number:	
Confirmation Number:	1624
Title of Invention:	SEAT ATTACHMENT FOR A STROLLER
First Named Inventor/Applicant Name:	Mark Zehfuss
Correspondence Address:	PIKE IP LAW, PLLC - P.O. BOX 8592 - RICHMOND VA 23226 US 8046153939 -
Filer:	Umar Rahim Bakhsh/Angela Staschke
Filer Authorized By:	Umar Rahim Bakhsh
Attorney Docket Number:	DYN005
Receipt Date:	29-MAR-2022
Filing Date:	04-DEC-2009
Time Stamp:	12:28:42
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	_12631375_POA.pdf	356755	no	2
			6be80da94a621a670d238e266c76c103ce6f1688		
Warnings:					
Information:					
2	Assignee showing of ownership per 37 CFR 3.73	_12631375_373C.pdf	79970	no	3
			d3ab3d3bef2ee838bb8a6c3764e454e3815d0842		
Warnings:					
Information:					
Total Files Size (in bytes):			436725		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/631,375	12/04/2009	Mark Zehfuss	DYN005

PIKE IP LAW, PLLC
P.O. BOX 8592
RICHMOND, VA 23226

CONFIRMATION NO. 1624
POWER OF ATTORNEY NOTICE



OC000000132827113

Date Mailed: 03/31/2022

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/29/2022.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/nrhayden/



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/631,375	12/04/2009	Mark Zehfuss	DYN005

134811
Eversheds Sutherland (US) LLP/NWL
999 Peachtree Street
Suite 2300
Atlanta, GA 30309

CONFIRMATION NO. 1624
POA ACCEPTANCE LETTER



OC000000132827152

Date Mailed: 03/31/2022

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/29/2022.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/nrhayden/