

(19)



(11)

**EP 3 095 431 A1**

(12)

**EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**23.11.2016 Bulletin 2016/47**

(51) Int Cl.:  
**A61H 3/04 (2006.01)**

(21) Application number: **16168890.8**

(22) Date of filing: **10.05.2016**

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

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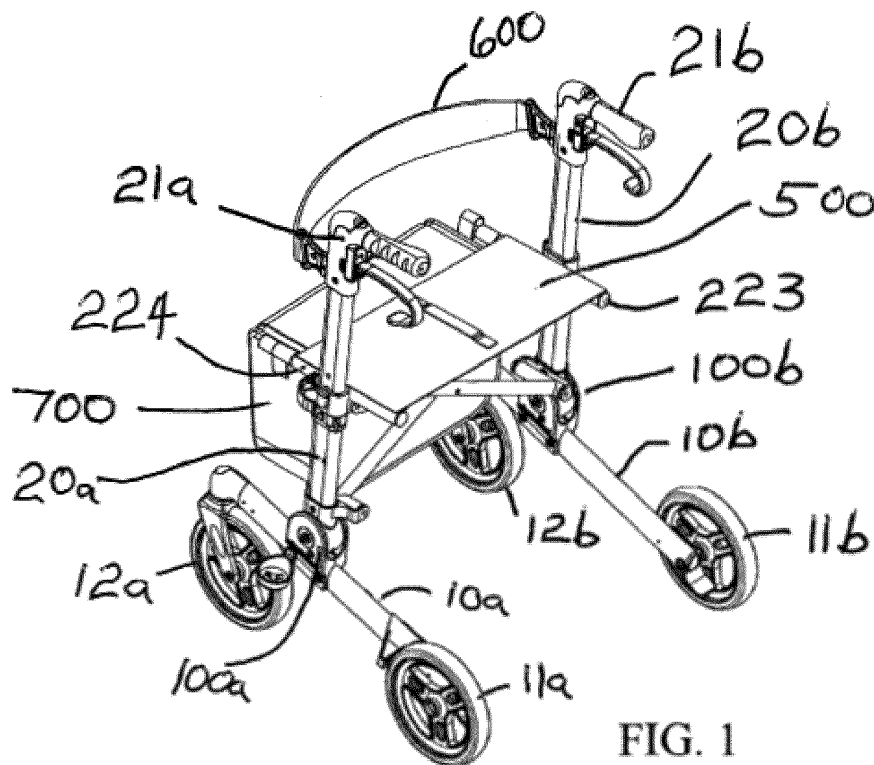
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(30) Priority: **11.05.2015 US 201562159908 P**

(54) **DOUBLE FOLDING ROLLATOR**

(57) The invention relates to an improvement in a rollator comprising left and right frame sides, each frame side comprising a lower portion that extends laterally and an upper portion that is pivotally attached at one end to said lower portion, said lower portion having wheels mounted thereon, and said left and right frame sides being connected by foldable cross-members; the improvement for which comprises each of said pivotal attachments having two locked positions, a first locked position

corresponding to an open position of the upper portion and a second locked position corresponding to a folded position of the upper portion, and wherein each of said pivotal attachments is operably connected to an unlocking actuator located on said upper portion closer to the opposite end than said pivotal attachment such that when activated the actuator unlocks and/or prevents locking of said pivotal attachment.



**FIG. 1**

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**Description**

## FIELD OF THE INVENTION

**[0001]** The present invention relates to a rollator, more in particular to a rollator that is suitable for double folding.

## BACKGROUND OF THE INVENTION

**[0002]** The present invention relates to a rollator that can be folded or collapsed in two directions for easier storage or transport.

**[0003]** A rollator is an apparatus that can assist a person in walking. Sometimes referred to as a walker with wheels, a person can hold on to part(s) of the upper portion of the rollator with their hands in order to provide support and/or stability while in motion (and while standing if needed). The bottom portion of a rollator has wheels so that the apparatus rolls along as the user walks. Rollators will often have additional features such as a seat, a compartment for carrying items, a wheel brake, etc. Another desired feature is the ability to reduce the size of the rollator for storage or transport. Typically, the rollators can fold in one direction: either transversely of the walking direction (i.e., bringing the sides together) or laterally of the walking direction (i.e., folding front to back or top to bottom).

**[0004]** For example, US 7,559,560 shows a rollator with a seat suspended between the left and right side support frames. The seat is supported by a folding mechanism that is provided under the seat and that is connected to the left and right side support frames. The folding mechanism is generally "X" shaped and permits the rollator to be folded transversely by pulling the seat up and thereby bringing the left and right sides together. The resulting collapsed structure generally remains self-standing, which is convenient for storage, but cannot be further collapsed laterally and thus is still-somewhat large and bulky for space requirements. Other transversely folding rollators are shown in DE 20 2014 101 240 and in CN 101889936(A). These rollators also use a generally X-shaped cross member to permit the left and right frame sides to collapse towards each other. While various other desirable features are shown in these publications, the ability to fold the rollator laterally is not shown.

**[0005]** In contrast, Application Publication No. US 2002/0070533 shows a rollator constructed with a modified A-frame and having a flip-up seat. A pivot point (the top of the A-frame) is located near the height of the seat and permits the front wheels to collapse toward the back wheels by closing the "A." Thus, the rollator permits lateral folding, but not transverse folding. US 2013/0062864 and US 2014/0265188 also show rollators with A-frame construction that permit lateral folding wherein the front and rear wheels are brought together. But, again, these publications do not show any transverse folding of the rollator.

**[0006]** US 8,434,780 shows a rollator that provides lat-

eral folding where the wheels are not drawn closer together, but rather the upper structure rotates downwardly and collapses on the lower structure. Instead of using an A-frame design, this rollator uses a pair of bases for attaching the wheels and having vertical support structures, each attached to the bases via pivots. A main vertical structure provides adjustable handles and a minor vertical structure provides support for the seat. A catch under the seat can be released to permit rotation of the two vertical structures (with the seat) about their pivots on the base structures until the vertical structures are essentially horizontal on top of the base structures. This causes the height of the rollator to be considerably reduced, but no transverse folding of the rollator is taught.

**[0007]** Some double folding rollators have been proposed. Application Publication US 2002/0195785 shows a modified A-frame rollator that can fold laterally by bringing the front and rear wheels together and transversely via two articulated V bars. A locking mechanism can be present near the apex of the A-frame such that upon disengagement the lateral and transverse folding can occur. A problem with this design, however, is that the rollator becomes taller in the folded position and thus is not as compact as desired.

**[0008]** Another double folding rollator is shown in CN 202961085. This rollator uses a pair of bases with vertical members wherein the left and right side are connected by an X-shaped folding mechanism. Releasing the upper ends of the X-shaped cross member permits transverse folding. The transverse folding action also removes a block that otherwise prevents the folding of the vertical members. Once the transverse fold is complete, then the vertical supports can be folded down onto the base members. These transverse and lateral folds make the rollator compact. But the mechanism is complex.

**[0009]** Beyond the patent literature, other rollators have been known including those that seek the advantage of a double fold. But these products often require many steps to permit the folding. Indeed, some products require partial disassembly. Others require the user to bend down to the base of the rollator in order to manipulate parts, which can be difficult for the elderly or disabled. For instance, the WheelzAhead model Track 3.0 uses a pair of lower supports for attaching the wheels and a pair of upper supports for the handles, seat, etc.; the left and right side frames connected by an X-shaped collapsible cross member. Pulling the suspended fabric seat upward unlocks the cross members and facilitates transverse folding. The lateral folding requires the user to manually unlock the pivot connection between the base and upper supports. Then the base and upper supports can be laterally folded. While no tools are needed and the rollator has a sturdy feel when open or closed, it would be desirable to avoid the need of manipulating parts near the floor in order to perform the lateral fold.

**[0010]** Although several rollator designs have been proposed, a need exists for a rollator that is simple to operate and provides compact double folding.

## SUMMARY OF THE INVENTION

**[0011]** It is therefore an object of the invention to provide a rollator that overcomes the above described technical problems and which is simple to operate and provides compact double folding. The object is achieved according to a first aspect of the invention in a rollator, which comprises:

- left and right frame sides, each frame side comprising a lower portion that extends laterally and has a front and rear end; a pivoting connector attached to said lower portion; and an upper portion attached at one end to said pivoting connector and having a handle on the opposite end;
- wheels mounted on the lower portion of each of said left and right frame sides, wherein at least one wheel is located substantially near each of the front and rear ends of each of said lower frame portions; and
- foldable cross-members connecting said left and right frame sides adapted to permit at least an open position wherein the left and right frame sides are spaced apart and a closed position wherein the left and right frame sides are brought closer together;

wherein said pivoting connector comprises at least two parallel, and often circular, members connected by an axle, which permits rotational movement of said parallel members relative to each other, wherein at least one parallel member is connected to said lower portion and at least one other parallel member is connected to said upper portion;

at least one of said parallel members having at least two stops spaced apart in the rotational direction corresponding to an open and closed position of said rollator;

at least the other one of said at least two parallel members having a retractable catch that is positioned so as to be captured, when in the non-retracted position, by said stops when rotatably aligned therewith; said stop and retractable catch being configured to substantially prevent rotational movement when said catch is captured; said retractable catch having sufficient retraction motion to disengage from said stop and permit rotational motion; and

wherein said retractable catch is connected to an actuator located on the handle side of said upper portion such that said catch can be retracted and disengaged from said stop by depressing said actuator.

**[0012]** The present invention solves problems in the prior rollators by incorporating a lockable pivot connecting the upper portion of the rollator to the lower or base portion of the rollator. The lockable pivot has (at least) two lock positions; one corresponding to the open position and the other corresponding to the folded or closed position of the upper portion of the rollator frame. The pivot can be unlocked by an unlocking actuator located remote from the pivot on the upper portion of the frame. By activating the unlocking actuator, the pivot is unlocked

and/or prevented from locking so that the upper portion of the frame is able to rotate. Once unlocked, the upper portion can be rotated, typically without need to further contact or activate the actuator, until one of the locking positions is achieved at which point the upper portion can be locked into place. Typically the pivot will automatically lock into place though it is possible that the unlocking actuator or another actuator could be used to cause the lock to engage the pivot. Having the upper portion lock into both the open and folded position provides safety advantages when storing, moving, or deploying the rollator. The automatic nature of the locking pivot, when present, is a convenience to the elderly and simplifies the use of the rollator. Having the unlocking activator remote from the pivot, such as near the far end of the upper portion, reduces the bending over requirements of the operator when deploying or folding the rollator.

**[0013]** In an embodiment, each stop comprises a hole in the parallel member.

**[0014]** In an embodiment, said retractable catch comprises a pin having a total spring biasing force toward said non-retracted position.

**[0015]** In an embodiment, said parallel members comprise circular members and wherein said circular member attached to said lower portion comprises the at least two stops and said circular member attached to said upper portion comprises said retractable catch.

**[0016]** In an embodiment, said lower portion comprises two circular parallel members and said upper portion has a circular member located between said two lower portion circular members; said axle connecting all three circular members.

**[0017]** In an embodiment, said stops are arranged on one or both of said lower portion circular members and said retractable catch is arranged on said upper portion circular member.

**[0018]** In an embodiment, said stops are holes and are arranged on both of the lower portion circular members; and said upper portion circular member comprises two retractable catches, one extending from each side of said circular member and capable of engaging said holes when rotationally aligned.

**[0019]** In an embodiment, said retractable catches comprise a pair of pins having an outward end and an inward end; said pins having a minor spring arranged to provide biasing force toward the inward end of said pin and having a slidable wedge member that is arranged to contact said inward ends of said pins and drive the pins outward, wherein said slidable wedge has a major spring to provide biasing force down onto the pins and provide an overall biasing force in the pins in the outward direction.

**[0020]** In an embodiment, said connection between said actuator and said retractable catch is arranged internal to the upper portion of said frame.

**[0021]** In an embodiment, said actuator comprises a lever or slide.

**[0022]** In an embodiment, a safety cover is attached

on one side to said upper portion and which overlies said actuator.

**[0023]** In an embodiment, the rollator further comprises a collapsible seat attached to said foldable cross-members.

**[0024]** Another aspect of the invention relates to an improvement in a rollator comprising left and right frame sides, each frame side comprising a lower portion that extends laterally and an upper portion that is pivotally attached at one end to said lower portion, said lower portion having wheels mounted thereon, and said left and right frame sides being connected by foldable cross-members; the improvement for which comprises each of said pivotal attachments having two locked positions, a first locked position corresponding to an open position of the upper portion and a second locked position corresponding to a folded position of the upper portion, and wherein each of said pivotal attachments is operably connected to an unlocking actuator located on said upper portion closer to the opposite end than said pivotal attachment such that when activated the actuator unlocks and/or prevents locking of said pivotal attachment.

#### BRIEF DESCRIPTION OF THE DRAWINGS

##### **[0025]**

Fig. 1 shows a perspective view of a rollator of the invention.

Fig. 2 shows a back view of a rollator of the invention.

Fig. 3 shows a side view of a rollator of the invention.

Fig. 4 shows a top view of a rollator of the invention.

Fig. 5A shows a back view of a rollator of the invention as it starts to transversely fold.

Fig. 5B shows a perspective view of a rollator of the invention as it starts to transversely fold.

Fig. 5C shows a perspective view of a rollator of the invention in the transversely folded position.

Figs. 6A and 6B show side views of a left side frame and wheels portion of a rollator of the invention in open and partially folded position, respectively.

Fig. 6C shows a detailed view of the actuator and safety cover in the handle of Fig. 6B.

Figs. 7A and 7B are the assembled and partially exploded view, respectively, of a left side frame and wheels assembly suitable for use in a rollator of the invention.

Fig. 8 shows an exploded view of a circular member having horizontal catches.

Fig. 9 shows a side view of a circular member having horizontal catches.

Fig. 10 shows a section view along line AA of the circular member having horizontal catches.

Fig. 11 shows a perspective view of a rollator of the invention in the double folded position.

Fig. 12 shows a back view of a rollator of the invention in the double folded position.

Fig. 13 shows a side view of a rollator of the invention

in the double folded position.

Fig. 14 shows a top view of a rollator of the invention in the double folded position.

#### 5 DETAILED DESCRIPTION OF EMBODIMENTS

**[0026]** The invention will be further described with reference to certain embodiments and the drawing figures. Figs. 1-4 show a rollator embodying the present invention in the "open" or deployed form and ready for use. The rollator has a left and right frame. Each frame side is composed of a laterally extending lower portion 10a or 10b and an upper portion 20a or 20b. The lower portion extends laterally meaning generally in the forward/backward direction from the users perspective. The lower portion thus terminates in a front end (13a for the left side lower portion) and a rear end (14b for the right side lower portion). The lower portion is not required to be perfectly parallel to the ground, though such is not excluded and often has an incline as shown most clearly in fig. 3. The incline is generally between 0 and 40 degrees above the horizontal, more typically 10 to 30 degrees, when present.

**[0027]** The lower portion of the side frame contains the rollator wheels 11 a, 12a, and 11 b, 12b. The wheels are mounted substantially near the front and rear of the lower portions 10a and 10b. Substantially near the front (or rear) includes attachment on the very end of the lower portion as well as locations that are near thereto. Typically any distance away from the front (or rear) end is to accommodate mounting hardware, housing, or trim. The distance away from an end is thus small so as to maximize stability of the rollator. Thus, the phrase "substantially near" the front end is a strictly literal expression of what is practically and ordinarily referred to as locating the wheel on the front (or rear) end.

**[0028]** At least one wheel is located on the front end and rear end of the lower portion. Dual wheels, not shown, could be used on either or both ends of the lower portion. The wheels on the front end need not be the same height as those on the rear end. Likewise, the mounting need not be the same. As illustrated in figs. 1-4, the front wheels 12a, 12b are mounted on a swivel or caster while the rear wheels 11 a, 11 b are mounted in a non-swiveling manner to the lower portion 10a, 10b. Additional wheels, not shown, could be mounted onto the lower portion if desired; e.g., three wheels on each side.

**[0029]** The upper portion 20a, 20b of the left and right side frame are pivotally attached to the lower portion 10a, 10b. In figs. 1-4 the connector is represented by 100a, 100b. The upper portion of the rollator side frame serves to provide a handle for the user. The handle is located on the opposite end of the upper portion from the pivot attachment. The shape of the handle is not particularly limited and can be any suitable size and shape to permit grasping by a human hand. The handle can be contoured, ergonomic, or a simple bar. A particular handle embod-

iment is shown in fig. 1 as 21 a, 21 b. In this embodiment a hand brake lever is also located just below the handle for convenient application of braking force to the wheels by various known mechanisms, not shown. The upper portion is preferably of telescopic design so as to permit height adjustment of the handles to the user.

**[0030]** The left and right side frames of the rollator are connected by foldable cross-members. This fold is in the transverse direction such that in an open position the left and right side frames are spaced apart and in a closed position the left and right side frames are brought closer together. A variety of foldable cross-member mechanisms are known. Typically an X-shaped mechanism is employed such as the one shown and described in US 7,559,560, the contents of which are incorporated herein by reference. An X-shaped foldable cross member generally has two diagonal shafts of opposite orientation connected at a central intersection; e.g., the center of the X. The bottom ends of each shaft are connected to either the upper portion or the lower portion of the side frames. The upper ends of each shaft can be removably engaged to the upper portion, such as via a block or a lever and catch on the upper portion, but more typically an auxiliary connecting member rotationally connects the upper part of the diagonal shafts to the upper portion of the side frame. Often the diagonal shaft extends beyond the connection to the auxiliary connecting member in order to provide a support for a seat. An embodiment of this preferred X-shaped foldable cross member is shown in figs. 2 and 5A-5C.

**[0031]** In fig. 2, diagonal shafts 210 and 220 are attached on their bottom end to the upper portion 20a and 20b, respectively. Auxiliary connecting members 221 and 211 connect the upper part of the shafts to the upper portion 20a and 20b. The shafts 210 and 220 extend beyond the auxiliary connecting member and terminate with lateral seat supports 223 and 224 for supporting or suspending seat 500.

**[0032]** Figs. 5A-5C show the same X-shaped folding mechanism in partially folded and completely folded positions. Diagonal shafts 210 and 220 are drawing together as auxiliary connecting members 221 and 211 rotate. Lateral seat supports 223 and 224 are more clearly seen as seat 500 is not shown. Also seen is lateral seat support clasp 250 into which support 223 can be located, typically by a reversible press fit into clasp 250.

**[0033]** The foldable cross-members permit the transverse folding or closing of the rollator. The lateral folding or closing of the rollator is provided by the pivot that connects the upper and lower portions of the side frame. The pivotal connector of the present invention is able to lock in at least two positions. One position corresponds to the rollator in the open position, e.g., the upper portion of the side frame extending in a substantially vertical direction up from the lower portion, and the other position corresponds to the rollator in laterally closed position, e.g., the upper portion of the side frame extends in a parallel or parallel-like manner to the lower portion. In a locked po-

sition, the pivot prevents rotational movement of the upper portion. Preventing movement in this context means that under reasonable use, e.g., using the rollator as a walking aid or picking up the double folded rollator, etc., the pivot will not rotate. This does not exclude, however, a small amount of play while in the locked position. Likewise, unreasonable or excessive force may defeat a particular locking pivot such as by material failure, etc. Thus "prevent" is not used in an absolute sense, but rather in a reasonable and relative sense and could also be termed "substantially prevents." The pivot when locked substantially prevents rotation of the upper portion even though some play may exist or the lock can be defeated by some high level of force, so long as the lock keeps the upper portion relatively fixed under normal, or preferably enhanced, levels of force encountered by ordinary use, storage, and transporting, whether open or closed. While the pivot typically has only two locked positions, it is possible to have additional locked positions, such as an intermediary position between closed and open.

**[0034]** In general a pivot has two (or more) members connected on an axle to provide rotational motion relative to each other. One member is attached to the lower portion and another member is attached to the upper portion. One member has two stops, which correspond to the rotational alignment of open and closed positions of the rollator, and the other has at least one retractable catch that can engage the stop. When the catch engages the stop it is captured which prevents further rotational movement and forms a locked position. The stop can be of any convenient design such as a hole on the surface of the member or a protrusion extending above the surface of the member (or a combination of both), etc. The catch is typically a pin but could be block, a key, or other protrusion that can engage the stop. The catch, especially the pin type, can be oriented to travel in an axial direction relative to the axle or in a longitudinal direction (which is the transverse direction in the case of the pivot used in the present invention). For simplicity, the catch is usually a pin and the stop is a hole that can capture the pin. Generally the pin is under a total biasing force in the direction of the hole; i.e., biased toward the non-retracted position. The "total biasing force" includes the concept that multiple springs forces may be used with some forces pushing in the direction of retraction. Nonetheless, whether a single biasing force or multiple, the total force is preferably of the pin in the non-retracted position. This allows for automatic engagement and capture of the pin by the hole; e.g., automatic locking.

**[0035]** The pivot can also be unlocked. This is achieved by retracting the catch so that it disengages the stop and is no longer captured. The pivot is thus free to move. The retraction of the catch is achieved by manipulating an unlocking actuator located on the upper portion of the side frame. The actuator is more than half way up the upper portion. For clarity, when the upper portion is telescopic, the more than half way is with reference to the fully extended upper portion. Typically the actuator is lo-

cated no lower on the upper portion than the top connection of the foldable cross-members. If a seat is present, this means essentially no lower than the height of the seat in the open position. But most conveniently, the actuator is positioned on or around the handle provided on the upper portion of the side frame.

**[0036]** The actuator can be a button, lever, slide, etc., that is connected to the catch. When activated, the connection from the actuator to the catch causes the catch to retract. In a simple example, the actuator can be a lever connected on one side to a rod that extends down the upper portion and into a hole in the axle or axle housing of the pivot. The rod is under a spring bias force in the direction of the axle (e.g. radially toward the axle). Depressing the other side of the lever actuator will lift the rod upward against the spring until the rod has cleared the hole and thus unlocked the pivot. Once the rotational motion of the pivot begins, the rod will usually slide along the surface of the axle or axle housing without the need to touch or activate the activator until it encounters another stop, e.g., another hole, at which point the aligned catch and stop will automatically engage and the pivot will lock.

**[0037]** Some preferred embodiments of the invention use a disk-type pivot. In essence a disk-based pivot has at least two parallel members, one attached to the lower portion and the other attached to the upper portion, that are connected on an axle. The members can rotate relative to one another around the axle. Usually the members are circular. For clarity, the circular members need only be sufficiently circular over the range of motion of the pivot and thus can be circular on one side and square on the other, e.g. semi-circular. In principle, however, the parallel members could be rectangular provided that sufficient space was provided for rotation of the edges. Likewise, one member, such as the one attached to the upper portion, could be partially circular while the other member attached to the lower portion is rectangular or square. Preferably at least one of the parallel members is circular, meaning that the member is circular over the range of rotational motion. In the disk-type pivot, one of the parallel members contains the two stops corresponding in the radial direction to the open and closed position of the upper portion of the side frame. The other parallel member contains the retractable catch. Unlike the above pivot embodiment, in the disk-type pivot the catch moves in the longitudinal or transverse direction relative to the lower portion of the side frame. The retractable catch, usually a pin, can be retracted by manipulation of the unlocking actuator which disengages the pin from the stop, usually a hole, to unlock the pivot. Also, two stops that engage one catch are the minimum for the disk-type pivot. More than one catch can be used to engage corresponding stops. Likewise, more than two stops can be present. And more than two parallel members can be present. For instance, two circular members can be present, each having two stops, and a third circular member with a catch extending from each side can be placed in between so

that the catches engage the stops in each of the outer circular members. These and other variations will be apparent to a worker skilled in the art.

**[0038]** A specific embodiment of the disk-type locking pivot and remote actuator is illustrated in figs. 6A through 10. Fig. 6A is the left side frame of a rollator in partial cutaway view having the lower portion 10a and upper portion 20a. These portions are attached by connecting pivot 100a. The upper portion 20a is in the open position and so the pivot 100a is locked. Safety cover 25 is covering unlocking actuator 150. Actuator connector 151 is seen in the partial cutaway view of the handle as it travels down the inside of the upper portion 20a. Fig. 6B shows the left side frame of the rollator but with the pivot 100a unlocked and the upper portion 20a in a partially closed position. The safety cover 25, which is hinged on one end, has been opened to gain access to the actuator 150, which has been activated. The configuration of the safety cover and actuator are shown in more detail in fig. 6C.

**[0039]** Fig. 7A shows the left side frame of the rollator in slight perspective view which allows better viewing of the disk-type pivot 100a. Fig 7B is an exploded - view of the pivot 100a. A first circular member 300 is attached to the upper portion 20a. Two more circular members are joined together to form U-shaped piece 310, which attaches to the lower portion 10a. Two stops are seen in the left side circular member of 310 as holes 311 and 312. Hole 311 corresponds to the open locked position and hole 312 corresponds to the closed or folded locked position. Corresponding holes are also present, but not seen in this view, on the right side circular member of 310. Surrounding the circular members 300 and 310 are housing members 320 and 321. Axle 305 goes through housing member 321, the left circular member of 310, circular member 300, the right circular member of 310 and is affixed through housing 320. Housing connectors 325 serve to affix the housing and circular members 310 to the lower portion 10a. This triple disk (i.e., three circular members) locking pivot design has several advantages. The pivot is strong. Also, the central circular member 300 can provide space for cable or wiring to travel from the upper portion into the lower portion. Note the slot in 300 and the adjacent opening in lower portion 10a allows for brake cabling, for example, to be run on the inside of the rollator frame, along with the actuator connector, without interfering or restricting the pivot motion.

**[0040]** The details of the retractable catch mechanism within 300 are shown in figs. 8-10. Fig. 8 shows an exploded view of 300 wherein two sets of retractable catches are shown as pins 301 a and 301 b. The pins can extend through caps 303a and 303b, respectively. The caps also provide a base for minor springs 302a and 302b. These minor springs apply a biasing force away from the stops, e.g., holes 311 and 312 in outer circular member 310 shown in fig. 7B. The pins 301 a and 301 b can be forced out by slidable wedge 152 pushing on the inside edge of the pins. Fig. 10 is a cross section view along sight line A-A shown in fig. 9. Actuator connector

151 attaches to slidable wedge 152. Major spring 153 provides biasing force down on the slidable wedge 151 which pushes pins 301 a and 301 b outward. When unlocking actuator 150 as shown in fig. 6C is manipulated (e.g. slid rearward), connector 151 pulls up on slidable wedge 152 against major spring 153 and removes the force from the inside edge of pins 301 a and 301 b. The minor springs 302a and 302b will push pins 301 a and 301 b into the retracted position and thus unlock the pivot. The pins and the actuator will remain in the unlocked, retracted position, once rotation starts, as there is typically insufficient space for the pins to return to the non-retracted position and thus the slidable wedge 152 will be held in the up position by the pins, though it is exerting a downward force. Once a stop hole is rotationally aligned, however, the slidable wedge will succeed in pushing the pins 301 a and 301 b outward into the hole under the force of major spring 153 and thereby automatically lock the pivot.

**[0041]** The rollator of the invention may have additional options and features that are known in the art. For example, a folding seat 500, a back rest 600, and a removable tote 700, as shown in figs 1-4, are often desired features in a rollator. With these features a user can walk with the assistance of the rollator and then turn around and sit on the seat 500 with back rest 600 upon reaching their destination or merely needing a rest. With the tote, the user can bring small items even though their hands are occupied with the handles of the rollator. Brakes, parking brakes/wheel locks, lights, etc. can be added to the rollator of the invention.

**[0042]** In practice, the rollator of the invention is double folded by first collapsing the foldable cross-members that connect the left and right frame sides. In embodiments where the cross-member connection is connected to a collapsing seat (such as exemplified in figs. 1-4, then the transverse fold can be initiated by pulling up on the seat. Once started, the frame sides are brought together or closed. The unlocking actuators in left and right upper portion can then be simultaneously activated, unlocking the pivot, and allowing the upper portions to fold down onto the lower portion of the side frame. This results in a double folded actuator. A rollator of the invention in the double folded condition is shown in figs. 11-14. This rollator differs from the rollator shown in figs 1-4 in that the seat 500, backrest 600, and tote 700 are not shown.

**[0043]** The invention having been described it will be obvious that the same may be varied in many ways and all such modifications are contemplated as being within the scope of the invention as defined by the following claims.

## Claims

1. A rollator, which comprises:

(a) left and right frame sides, each frame side

comprising a lower portion that extends laterally and has a front and rear end; a pivoting connector attached to said lower portion; and an upper portion attached at one end to said pivoting connector and having a handle on the opposite end; (b) wheels mounted on the lower portion of each of said left and right frame sides, wherein at least one wheel is located substantially near each of the front and rear ends of each of said lower frame portions; and (c) foldable cross-members connecting said left and right frame sides adapted to permit at least an open position wherein the left and right frame sides are spaced apart and a closed position wherein the left and right frame sides are brought closer together;

wherein said pivoting connector comprises at least two parallel members connected by an axle, which permits rotational movement of said parallel members relative to each other, wherein at least one parallel member is connected to said lower portion and at least one other parallel member is connected to said upper portion;

at least one of said parallel members having at least two stops spaced apart in the rotational direction corresponding to an open and closed position of said rollator;

at least the other one of said at least two parallel members having a retractable catch that is positioned so as to be captured, when in the non-retracted position, by said stops when rotatably aligned therewith; said stop and retractable catch being configured to substantially prevent rotational movement when said catch is captured; said retractable catch having sufficient retraction motion to disengage from said stop and permit rotational motion; and wherein said retractable catch is connected to an actuator located on the handle side of said upper portion such that said catch can be retracted and disengaged from said stop by depressing said actuator.

2. The rollator according to claim 1, wherein each stop comprises a hole in the parallel member.

3. The rollator according to claim 1 or 2, wherein said retractable catch comprises a pin having a total spring biasing force toward said non-retracted position.

4. The rollator according to claim 1, 2, or 3, wherein said parallel members comprise circular members and wherein said circular member attached to said lower portion comprises the at least two stops and said circular member attached to said upper portion comprises said retractable catch.

- 5. The rollator according to any one of claims 1-4, wherein said lower portion comprises two circular parallel members and said upper portion has a circular member located between said two lower portion circular members; said axle connecting all three circular members. 5
  
- 6. The rollator according to claim 5, wherein said stops are arranged on one or both of said lower portion circular members and said retractable catch is arranged on said upper portion circular member. 10
  
- 7. The rollator according to claim 6, wherein said stops are holes and are arranged on both of the lower portion circular members; and said upper portion circular member comprises two retractable catches, one extending from each side of said circular member and capable of engaging said holes when rotationally aligned. 15  
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- 8. The rollator according to claim 7, wherein said retractable catches comprise a pair of pins having an outward end and an inward end; said pins having a minor spring arranged to provide biasing force toward the inward end of said pin and having a slidable wedge member that is arranged to contact said inward ends of said pins and drive the pins outward, wherein said slidable wedge has a major spring to provide biasing force down onto the pins and provide an overall biasing force in the pins in the outward direction. 25  
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- 9. The rollator according to any one of claims 1-8, wherein said connection between said actuator and said retractable catch is arranged internal to the upper portion of said frame. 35
  
- 10. The rollator according to any one of claims 1-9, wherein said actuator comprises a lever or slide. 40
  
- 11. The rollator according to claim 10, wherein a safety cover is attached on one side to said upper portion and which overlies said actuator.
  
- 12. The rollator according to any one of claims 1-11, which further comprises a collapsible seat attached to said foldable cross-members. 45

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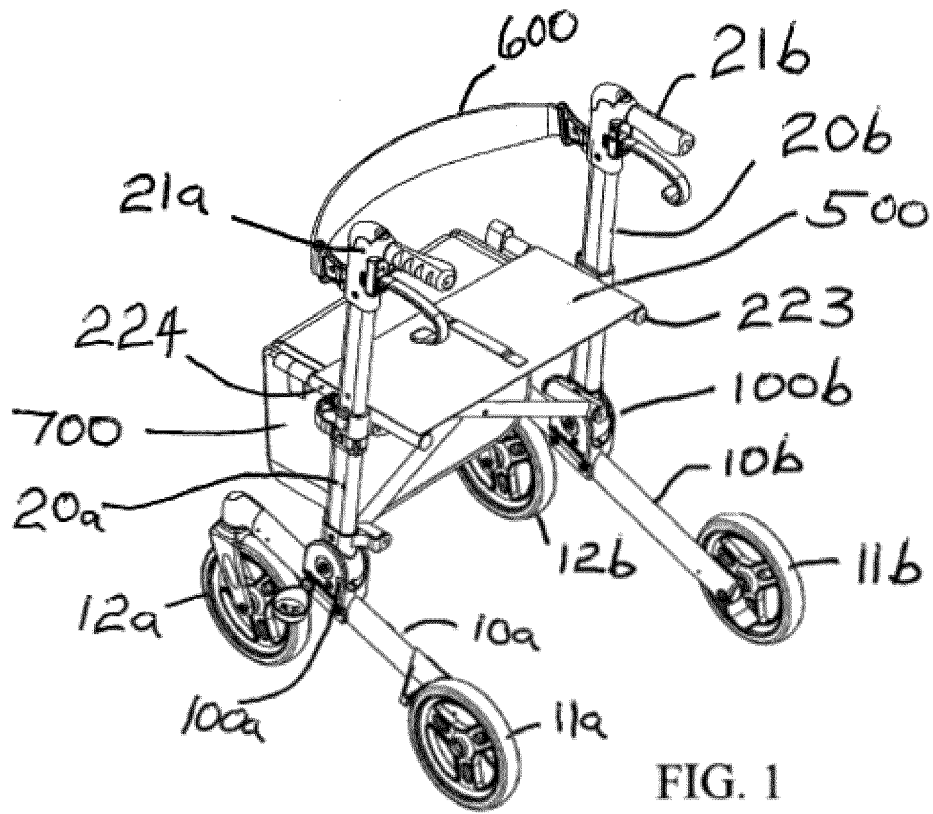


FIG. 1

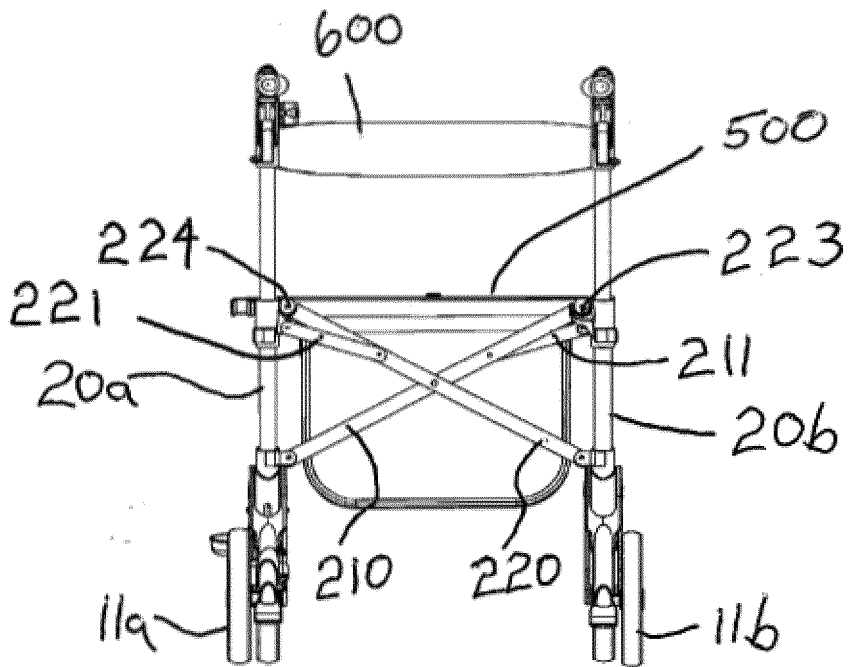


FIG. 2

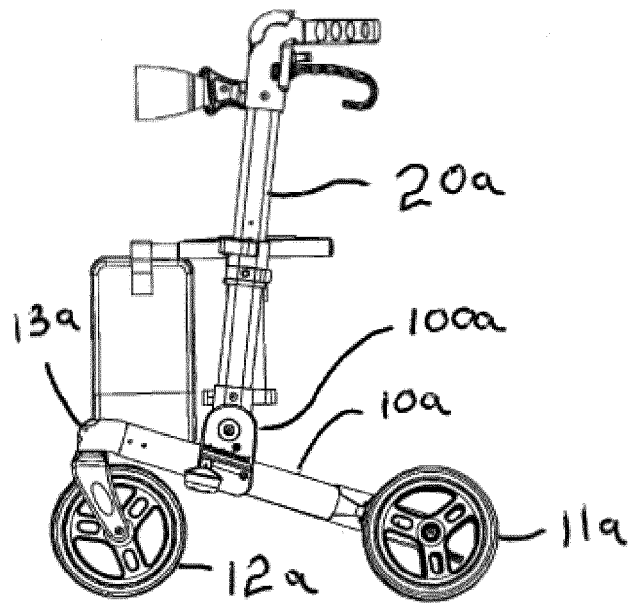


FIG. 3

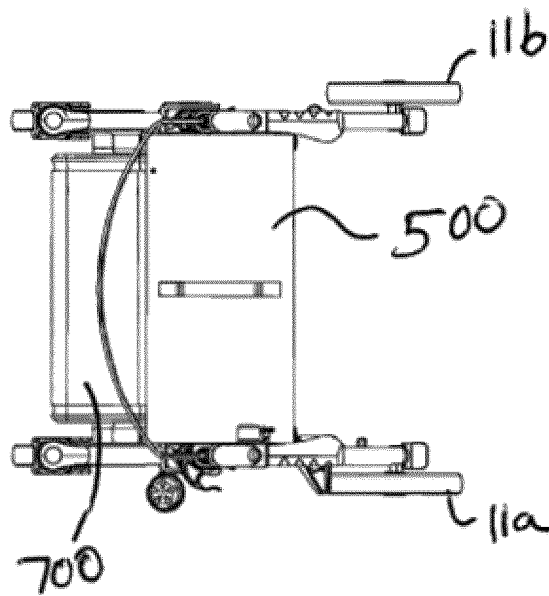


FIG. 4

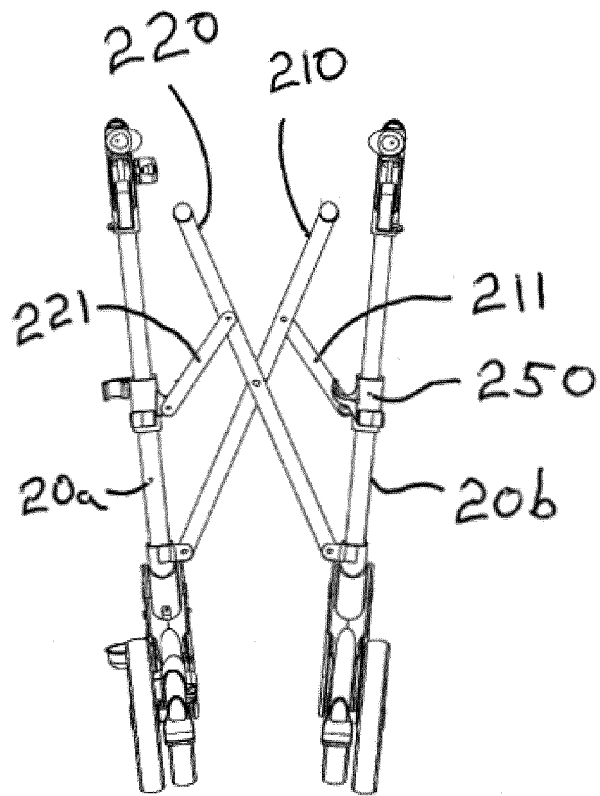


FIG. 5A

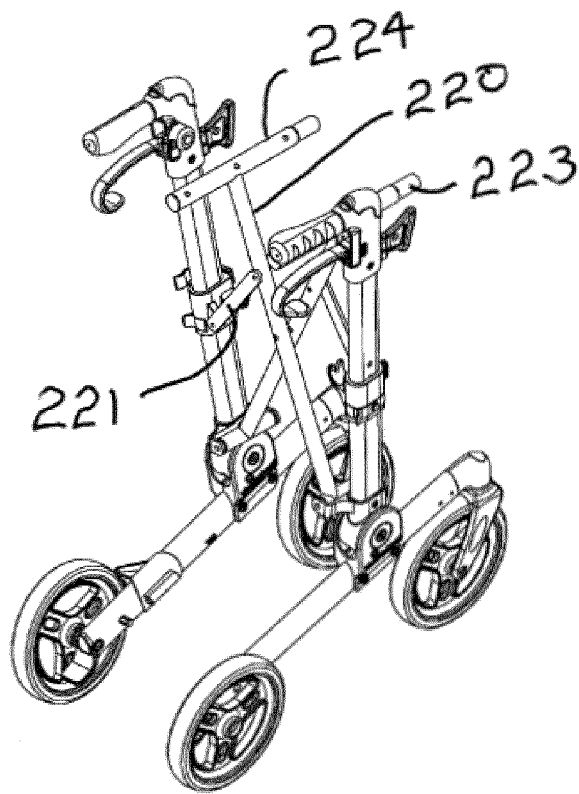


FIG. 5B

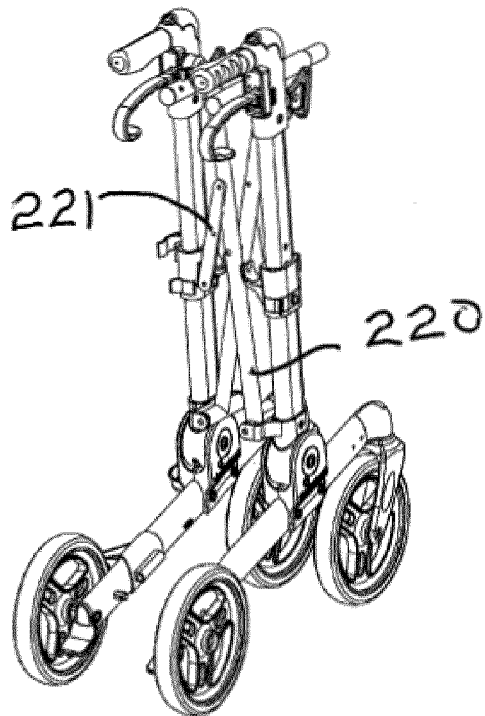


FIG. 5C

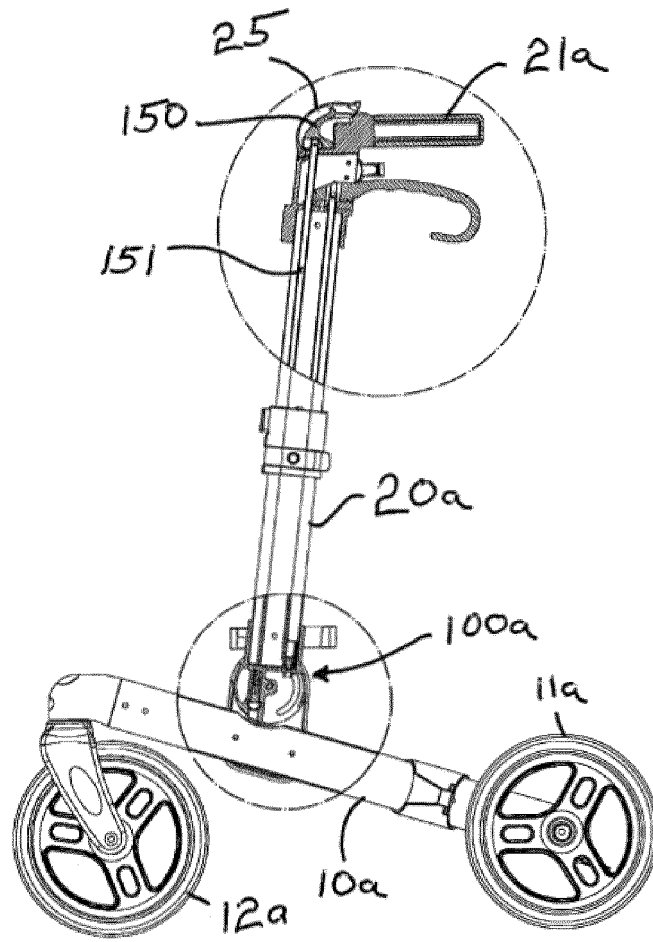


FIG. 6A

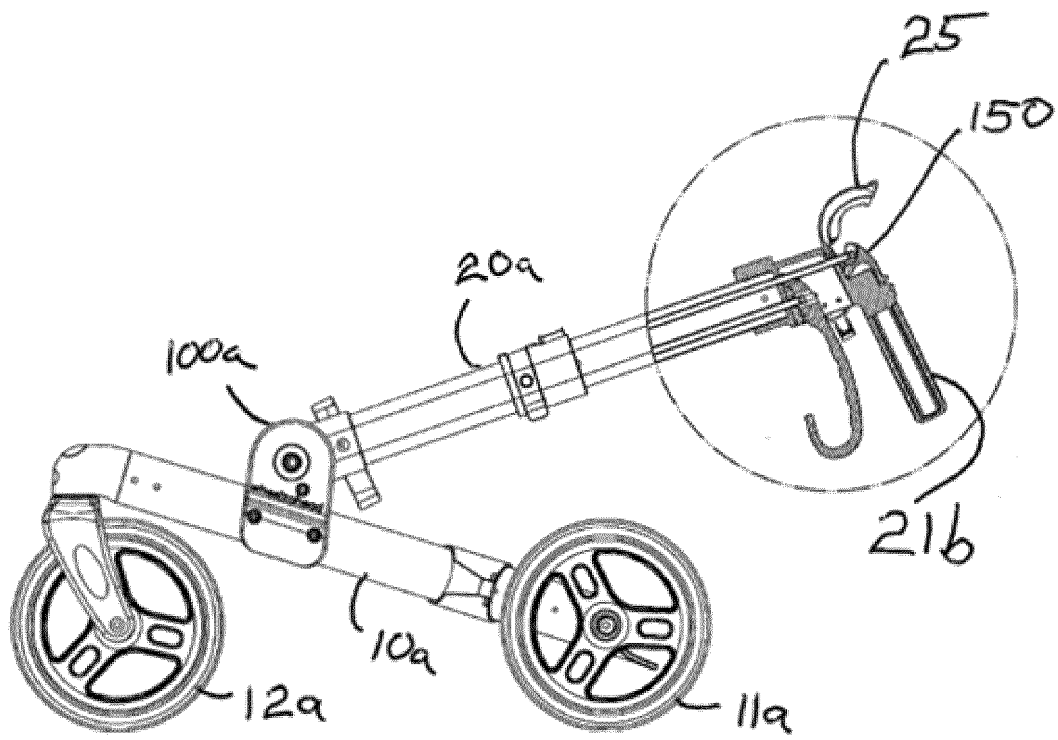


FIG. 6B

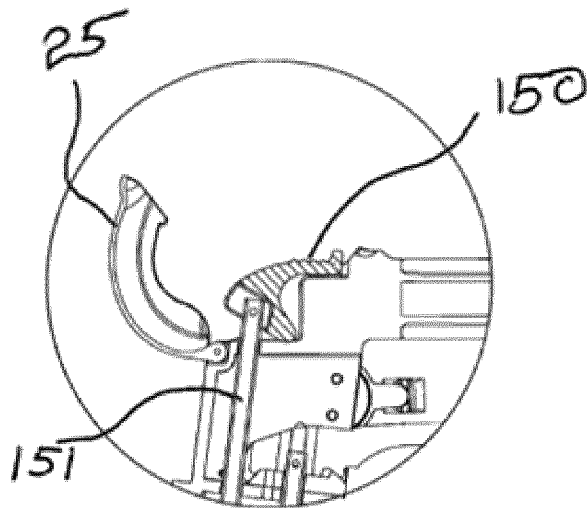


FIG. 6C

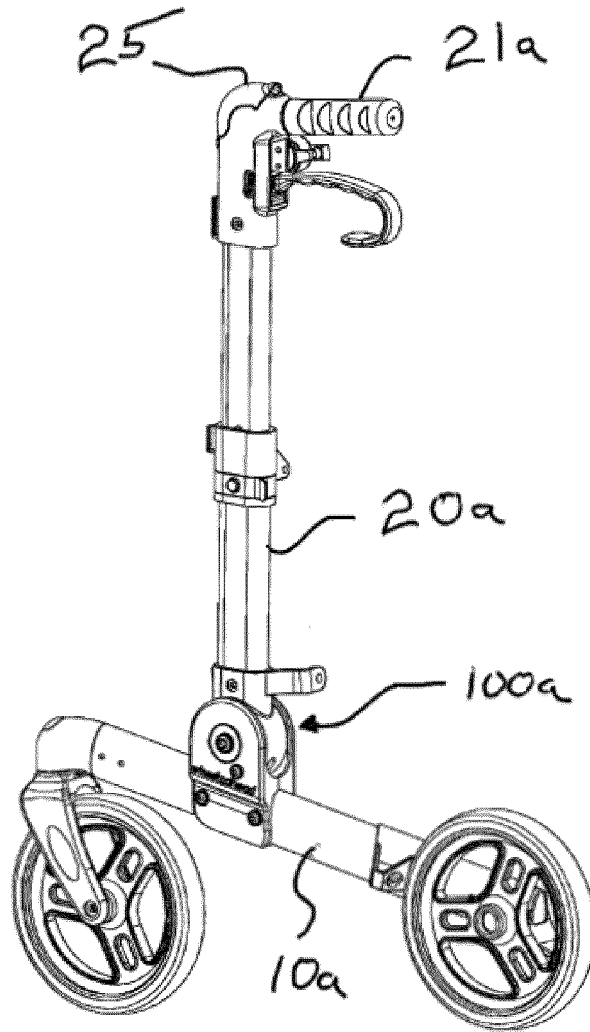


FIG. 7A

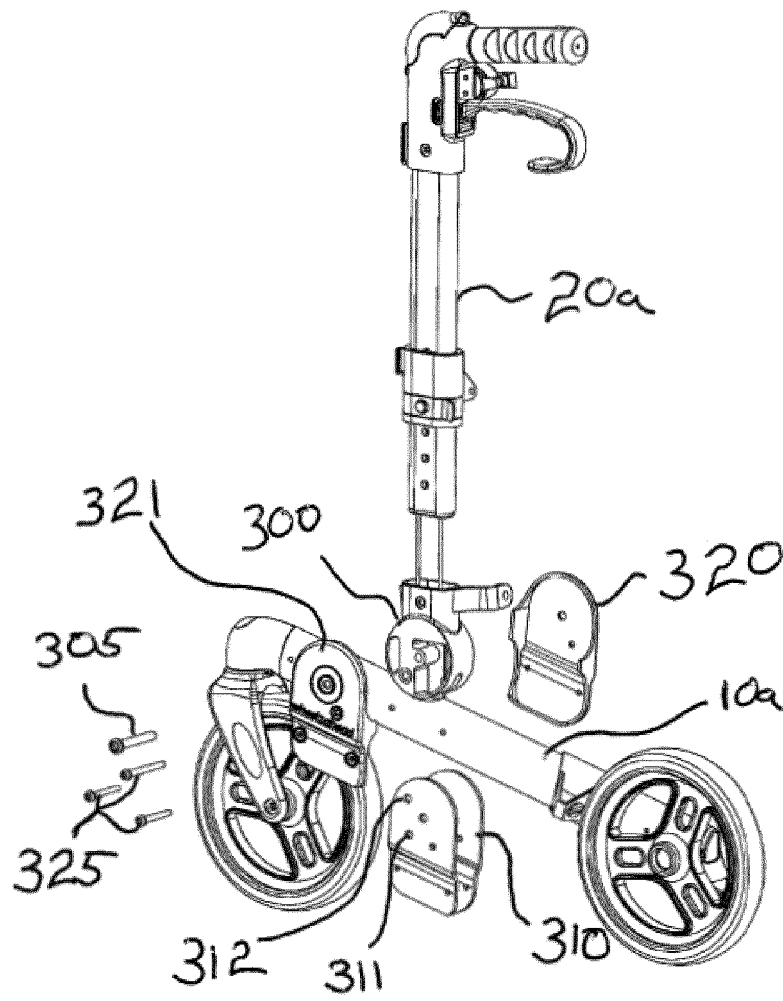


FIG. 7B

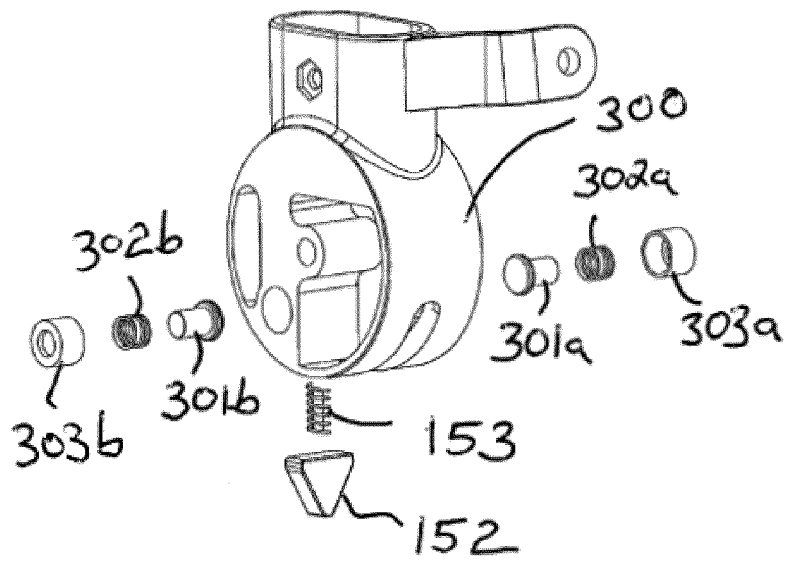


FIG. 8

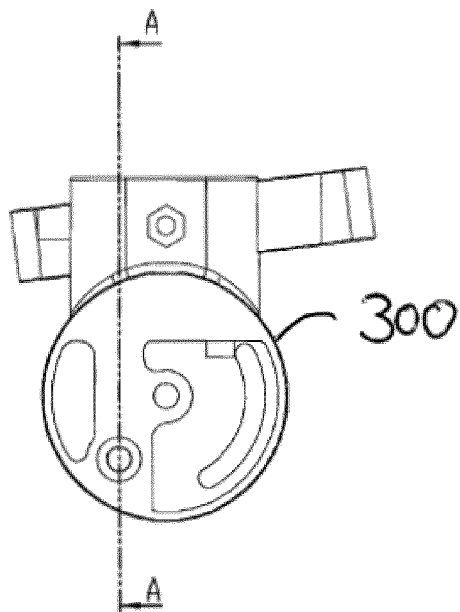


FIG. 9

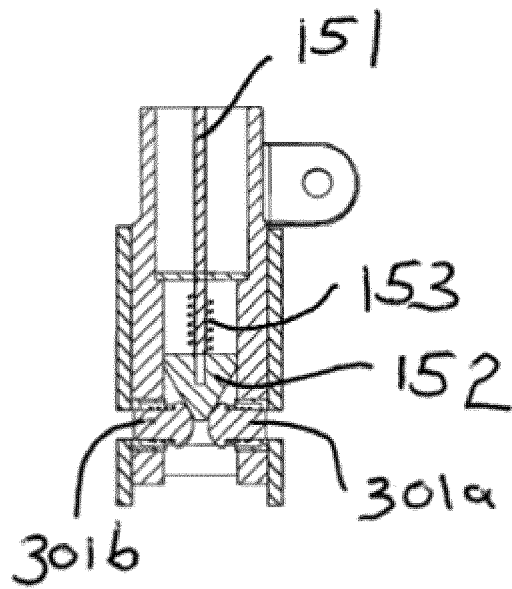


FIG. 10

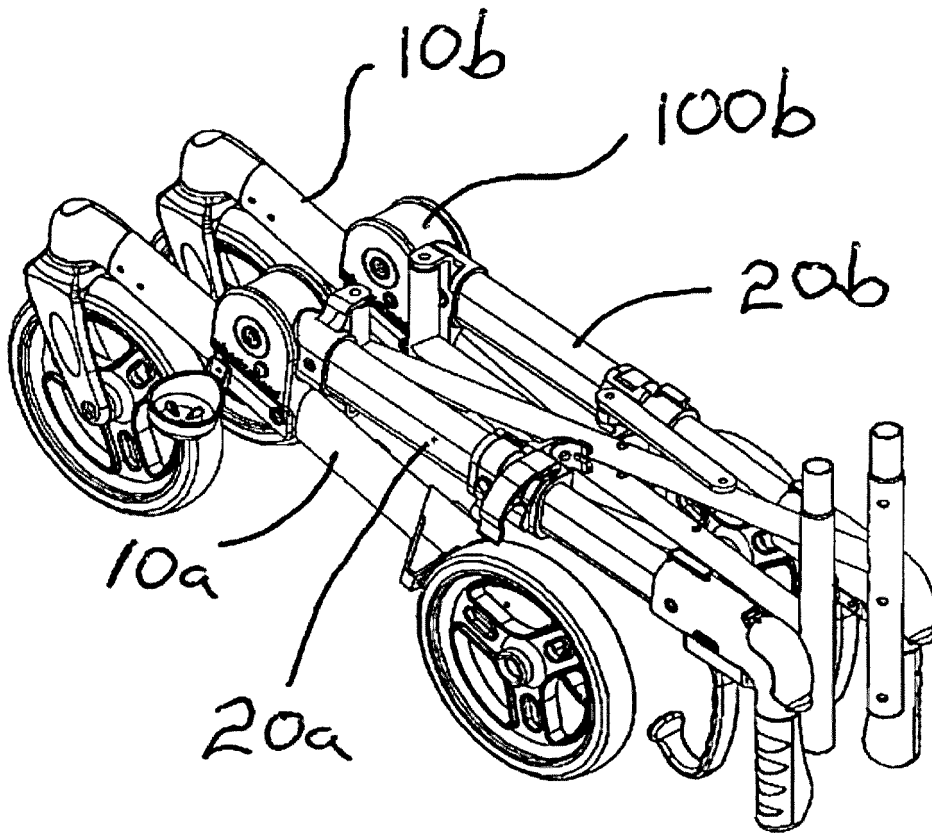


FIG. 11

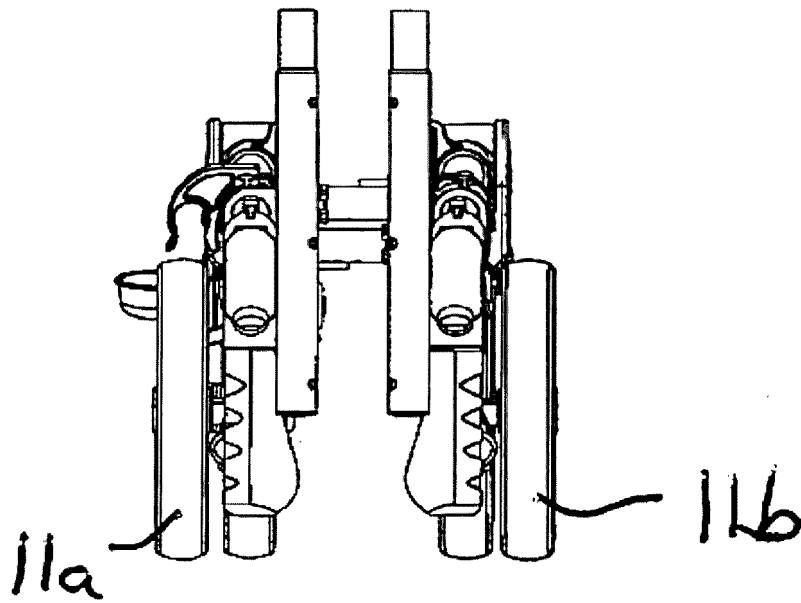


FIG. 12

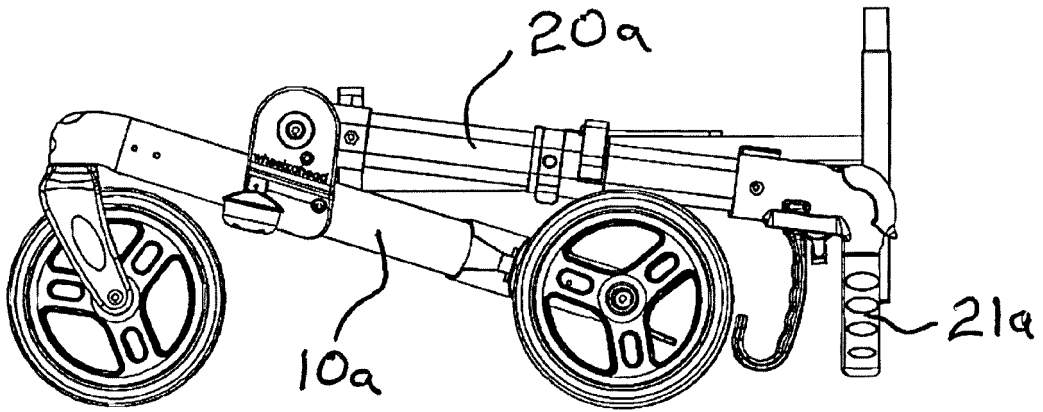


FIG. 13

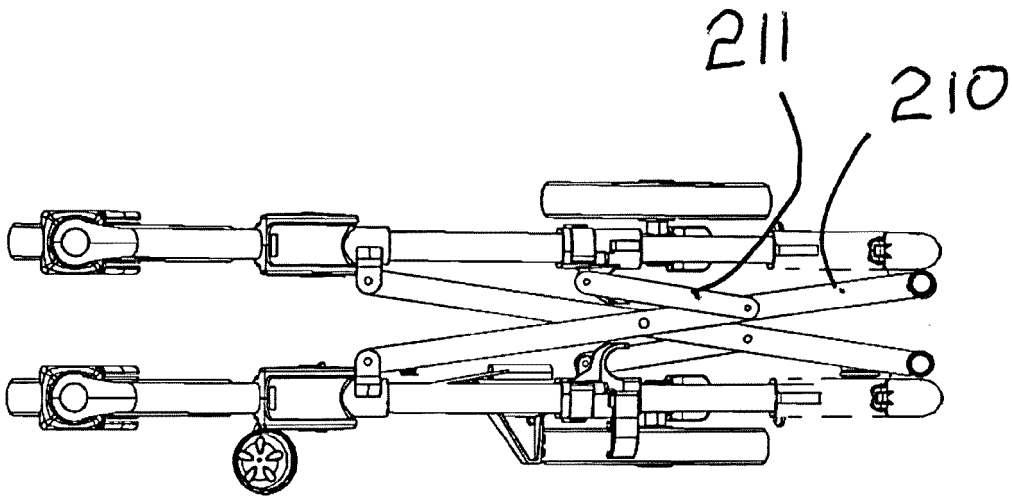


FIG. 14



EUROPEAN SEARCH REPORT

Application Number  
EP 16 16 8890

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Y	----- US 4 216 974 A (KASSAI KENZO [JP]) 12 August 1980 (1980-08-12) * column 4, lines 41-58; figures 3,6 *	1-12	
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			A61H B62B
The present search report has been drawn up for all claims			
Place of search <b>Munich</b>		Date of completion of the search <b>19 July 2016</b>	Examiner <b>Fischer, Elmar</b>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	

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