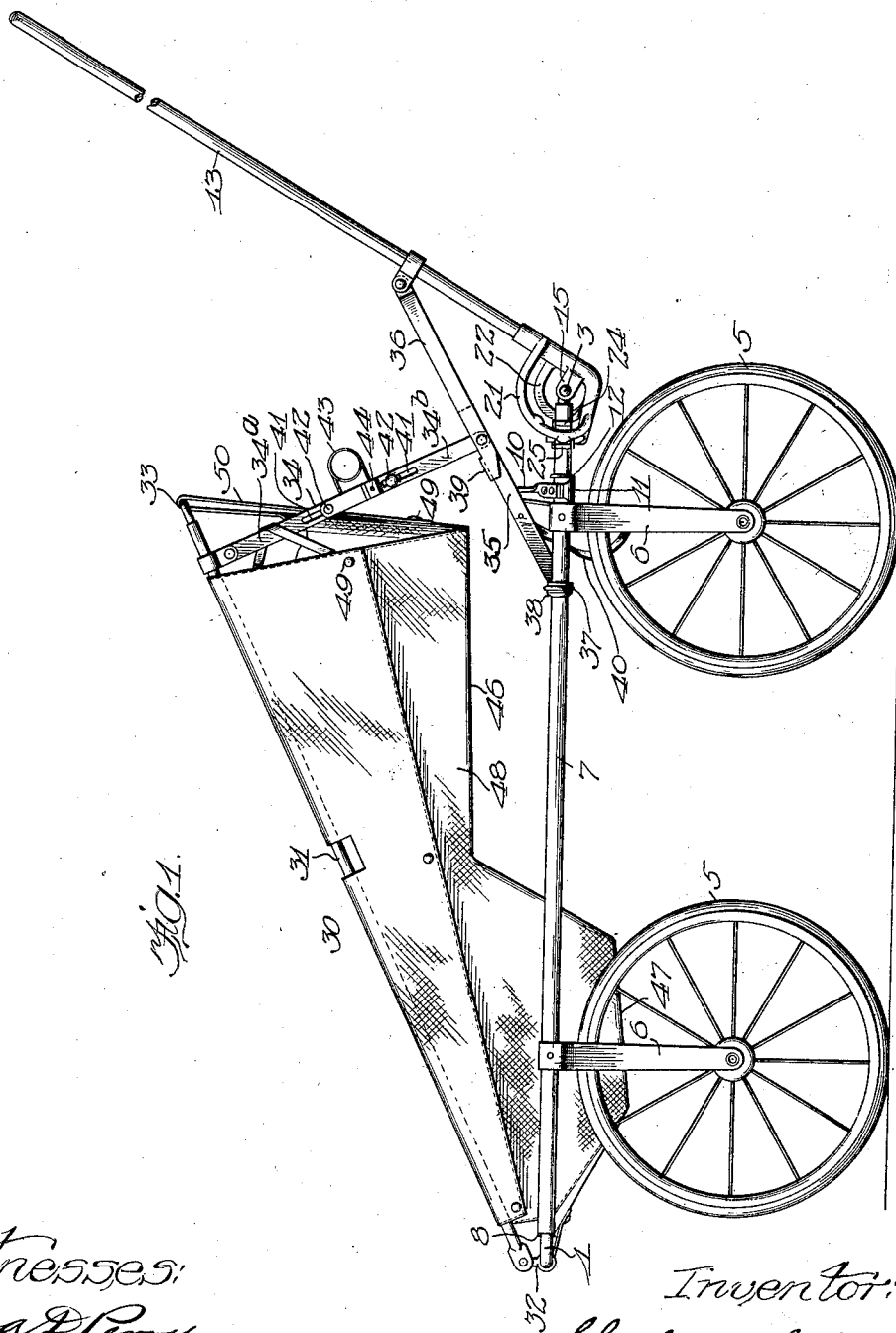


C. H. SMITH.
CHILD'S FOLDING CARRIAGE.
APPLICATION FILED FEB. 26, 1909.

1,053,325.

Patented Feb. 18, 1913.

3 SHEETS-SHEET 1.



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3 SHEETS-SHEET 2.

Fig. 2.

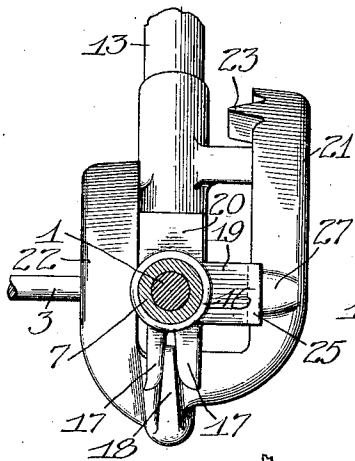


Fig. 3.

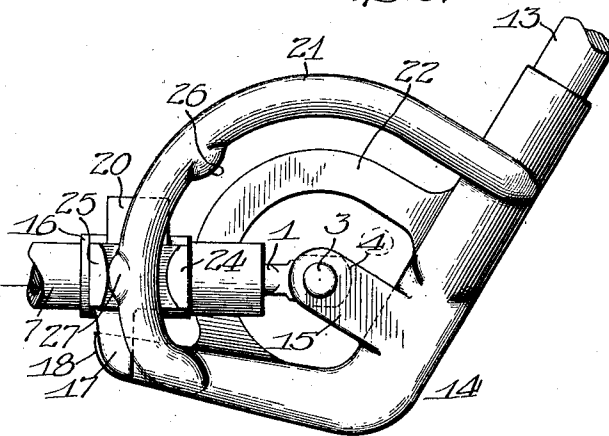


Fig. 4.

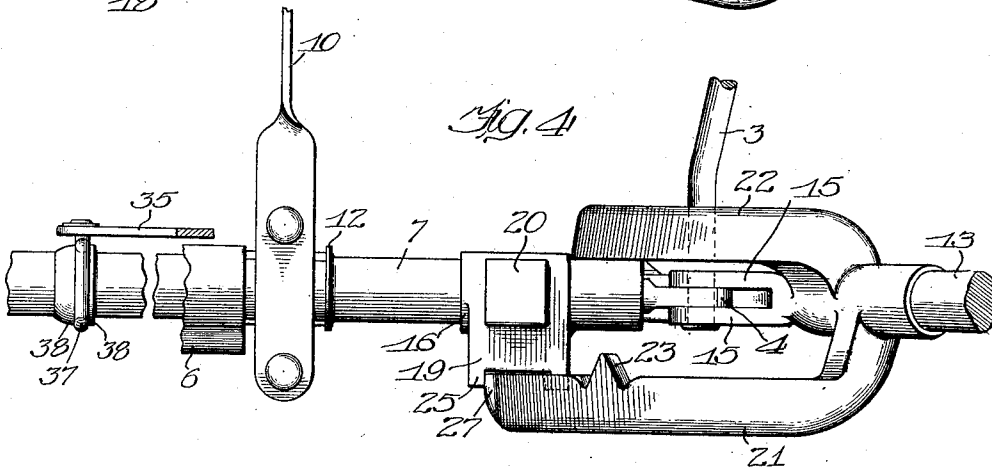
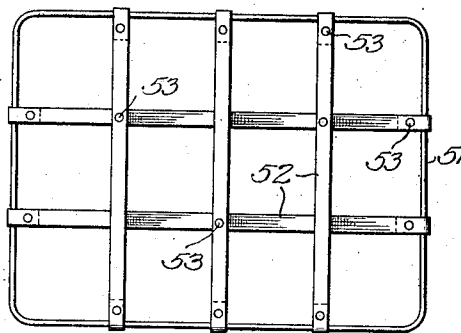


Fig. 11.



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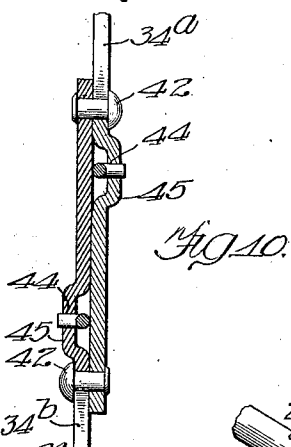
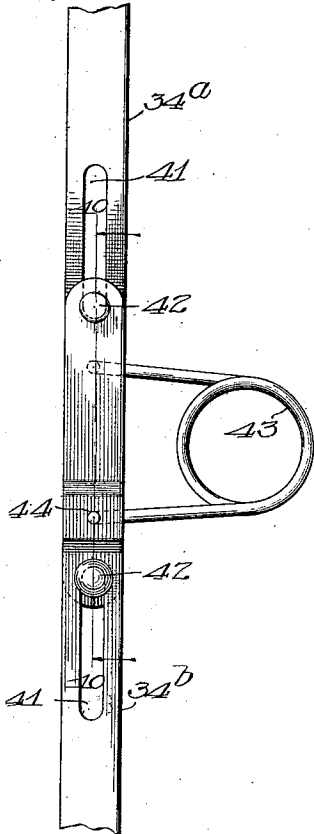
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3 SHEETS—SHEET 3.

1,053,325.

Fig. 9.



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Fig. 5.

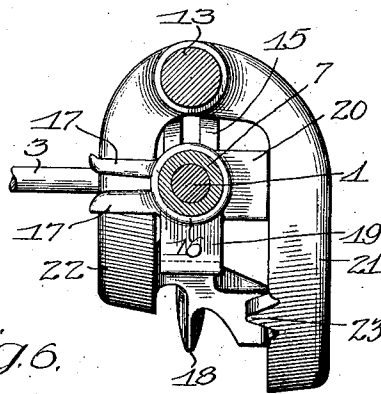


Fig. 6.

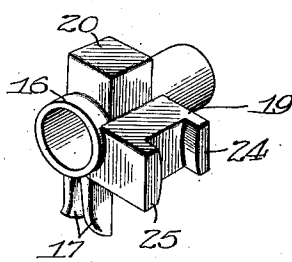


Fig. 7.

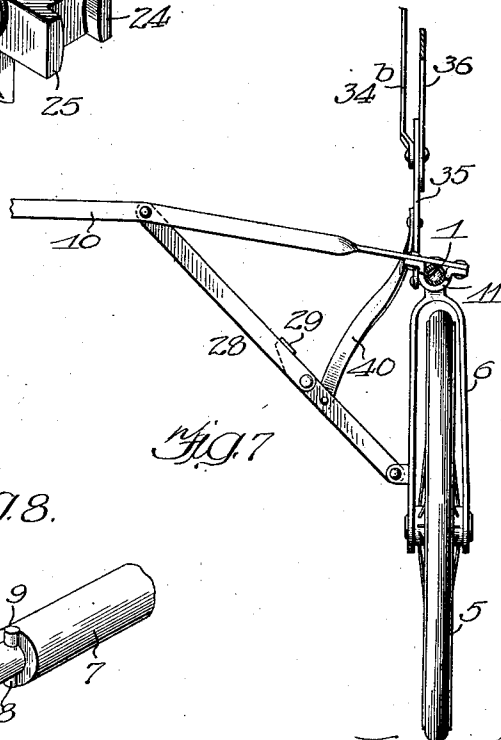
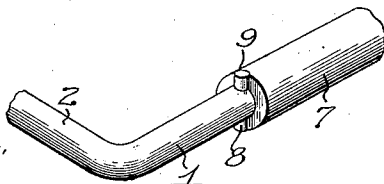


Fig. 8.



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UNITED STATES PATENT OFFICE.

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CHILD'S FOLDING CARRIAGE.

1,053,325.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed February 26, 1909. Serial No. 480,252.

To all whom it may concern:

Be it known that I, CHARLES H. SMITH, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Children's Folding Carriages, of which the following is a specification.

One of the objects of this invention is to provide improved means for bracing the pivotally mounted wheel arms against accidental movement.

Another object of the invention is to improve the yielding support for the seat frame.

A further object is to improve the operating connection between the handle and the wheel-arms.

In the accompanying drawings, Figure 1 is a side elevation of a carriage embodying the features of my invention. Figs. 2, 3 and 4 are front, side and top plan views, respectively, of the operating connection between the handle and the wheels. Fig. 5 is a front view of said connection in the position assumed by it when the carriage is fully folded. Fig. 6 is a detail perspective view of one member of said operating connection. Fig. 7 is a fragmental rear side view illustrating the connection between the handle and the rear braces for the wheels. Fig. 8 is a fragmental perspective view of the lock or brace for the front end of the wheel-carrying sleeve. Fig. 9 is a side elevation of the spring support for the seat frame. Fig. 10 is a section on dotted line 10 10 of Fig. 9. Fig. 11 is a top plan view of the spring seat.

The embodiment which I have chosen for illustration comprises a bed formed in this instance by bending a rod to provide two side bars 1 and a front bar 2 (Fig. 8), the rear ends of the side bars being rigidly connected by a rod 3. The connection between each side bar 1 and the rear bar 3 may be formed by a perforated ear 4 (Fig. 4) on the side bar fitting over the rear bar.

The wheels 5 are rotatably mounted within forks 6, the forks at each side of the bed being rigidly fixed to a sleeve 7 which is rotatably mounted upon the adjacent side bar. The forward end of the sleeve abuts against a stop or locking pin 8 (Fig. 8) fixed in the side bar, said sleeve being recessed at 9 to receive substantially one-half

of the periphery of said pin. A cross bar 10 extends from one of the sleeves 7 to the other, said cross bar having bearings 11 at its ends in which said sleeves are rotatably mounted. Each of the bearings 11 lies between the hub of the rear wheel fork and a collar 12 formed on or attached to the sleeve.

The wheels 5 are swung into and out of operative position by means of the handle 13 and mechanism connecting the handle with the sleeves 7. The handle consists, in this instance, of a bar bent into U-form, the ends of the U being pivotally mounted upon the rear bar 3. As herein shown, the lower ends of the handle arms are rigidly secured to a member 14 (Fig. 3) comprising two perforated lugs 15 which are rotatably mounted upon the bar 3 at opposite sides of the ear 4. The ends of the rear bar 3 may be riveted, as shown, to secure the parts together.

The operating connection between each of the wheel-carrying sleeves 7 and the handle 13 comprises the member illustrated in Fig. 6. Said member consists of a hub 16 rigidly secured to the sleeve 7 and provided at one side with two locking fingers 17 adapted to lie at opposite sides of a locking projection 18 forming part of the member 14. Upon the periphery of the hub 16 are two locking or guide lugs 19 and 20 having flattened ends. Fixed with relation to the handle 13 are two guide arms 21 and 22 curved upon the arcs of circles concentric with the pivotal axis of the handle. The arm 21 is located outside of the vertical plane of the wheel-carrying sleeve 7 and extends into position to contact with the square ends of the lugs 19 and 20. One side of the arm 21 has a plane surface, as indicated in Figs. 2 and 4, at about the middle of which surface is located a spur 23 adapted to engage the lugs 19 and 20. At the base of said spur, and at each side thereof, is a recess to facilitate the rotation of the lugs 19 and 20, as will appear hereinafter. The arm 22 lies inside the vertical plane of the wheel-carrying sleeve 7 in position to move past the rear end of the hub 16, and has a plane inner surface, as indicated in Figs. 3 and 4. The function of the arms 21 and 22 is to hold between them the parts 16, 19 and 20, and thus lock the wheels against swinging movement except when the spur

23 engages one or the other of the lugs 19 and 20. The parts 15, 18, 21 and 22 may be an integral casting.

Before the wheel-carrying sleeves 7 can be rotated they must be slid rearwardly out of engagement with the locking pins 8. The means herein shown for effecting this movement comprises lugs 24 and 25 attached to each sleeve 7. In this instance they are located upon the lug 19 at opposite sides of the arm 21. Upon said arm are two projections or cams 26 and 27 adapted to engage the lugs 24 and 25, respectively, for moving the sleeves 7 back and forth. Said cams are so arranged that the sleeves 7 are slid rearwardly out of engagement with the locking pins 8 before said sleeves are rotated, and said sleeves are moved into engagement with said pins and held in such engagement upon the completion of the unfolding rotative movement of the sleeve.

The operation of the wheel-operating mechanism is as follows: Assuming the carriage to be in the position indicated in Fig. 1, the operator grasps the handle 13 and the front bar 2, lifts the carriage off the floor, and folds the bed and the handle together. This movement withdraws the locking projection 18 from between the fingers 17, but such withdrawal does not permit the wheels 5 to swing freely, for the lug 19 is in contact with the arm 21. As the folding movement continues, the cam 26 engages the lug 24 and slides the sleeve 7 out of engagement with the locking pin 8; shortly thereafter the spur 23 presses against the lug 19 and tilts the sleeve 7 through an arc of substantially 90°, bringing the lug 20 into contact with the arm 21. The wheels are now locked in the folded position by reason of the locking engagement between the lug 20 and the arm 21.

The unfolding operation is merely a reversal of the operation outlined above. The wheel-carrying sleeve continues to be locked in its folded position until the spur 23 engages the lug 20, when said sleeve is rotated to place the wheels in operative position. Shortly after the wheels reach a vertical position, the cam 27 thrusts the sleeve 7 forward into engagement with the locking pin 8 and the locking projection 18 enters between the fingers 17.

The operation of the parts at each side of the carriage is the same as that just described, save that one of the wheel-carrying sleeves 7 begins its folding movement before the other, in order to avoid interference. This result is obtained by placing the spurs 23 at different distances from their cooperating lugs 19.

In order to brace the rear wheels rigidly against accidental movement out of the operative position, I provide jointed braces 28, each pivotally attached at its lower end

to the lower end of the adjacent wheel fork and being similarly attached at its upper end to the cross bar 10. One of the sections of each jointed brace 28 overlaps the other, the overlapping end carrying a stop portion 29 that overlies the other section and limits downward pivotal movement between the brace sections. Being connected to the lower ends of the wheel forks, the braces 28 serve efficiently to withstand stresses tending to bend the wheel forks in or out. The lug 29 engages the adjacent brace section when the brace is flexed downwardly a trifle, in order to lock it in operative position.

The seat is supported upon a seat frame 30 which, in this instance, consists of two tubes 31 pivotally connected at their forward ends to lugs 32 fixed upon the front bar 2. The rear ends of the tubes 31 are joined by a bar 33. The seat frame 30 is supported at its rear end by two members 34, one at each side of said seat frame. The upper ends of said members are pivotally connected with the seat frame, and the lower ends thereof are similarly connected with the ends of two links 35 and 36. The link 35 is pivoted to the bed in any suitable way, as, for example, by pivotally attaching said link to a ring 37 which is rotatably mounted between two collars or shoulders 38 (Fig. 4) on the wheel-carrying sleeve. One end of the link 36 is pivotally connected with the adjacent side arm of the handle 13. One end of the link 36 is extended past the point of pivotal connection of the members 34, 35 and 36, and is provided with a lug 39 adapted to overlie the link 35 for limiting pivotal movement between the links 35 and 36 in a downward direction, and thus support the seat frame 30. The parts are so arranged that the lug 39 engages the link 35 when the links 35 and 36 are in alignment or flexed downwardly a trifle. Said links thereby constitute a lock to prevent folding movement between the bed and the handle until the rear end of the seat frame has been lifted by the operator a slight distance to flex the links 35 and 36 upwardly. It will be understood that such upward flexing movement of the links 35 and 36 need be only enough to carry the pivotal joint between said links off "dead center".

In order that the braces 28 may be unlocked (that is to say, flexed upwardly slightly) before the wheel-carrying sleeves 7 are rotated, each brace is connected with the adjacent link 35 by means of a flexible link or strap 40, as shown in Figs. 1 and 7.

Preferably the seat frame 30 is yieldingly supported. This result may be obtained in various ways, as, for example, by forming each member 34 of two overlapping bars 34^a and 34^b. Each of said bars has an elongated opening 41 therein and a headed stud 42 extending through the elongated opening

of the other bar. A coiled spring 43 tends to hold the bars 34^a and 34^b in the position shown in Fig. 9. As herein illustrated, the spring 43 is attached to said bars by bending the ends of the spring at an angle and inserting the bent ends into openings 44 in the bars. The latter are bent at 45 to provide space between said bars for said spring.

Any common or suitable form of seat and foot rest may be employed, but the construction preferably is as illustrated in Fig. 1. The seat 46 and the foot rest 47 are supported by the flexible sides 48 of cloth or other suitable material, said sides being looped over the side bars 31 and the free ends detachably secured to the sides in any suitable way, as by means of stud and socket fasteners 49. A plurality of such fasteners may be provided at different heights to afford an adjustment of the height of the seat. The front end of the foot rest 47 is connected with the front bar 2 of the carriage bed. The back 50 is of cloth or other suitable material looped over the bar 33 and secured in place by stud and socket fasteners 49. A number of such fasteners may be employed in order to permit of adjusting the length of said back. Preferably the seat 46 and the foot rest 47 are of resilient construction. As herein shown, each comprises a support similar to the one shown in Fig. 11. Said support consists of a frame 51 which may be rectangular, as shown, and of rod or wire, across which frame are placed metal bands 52, said bands preferably being secured in place by lapping their ends around the frame and closing the loops with a rivet 53. The bands 52 may be secured together, at one or more of the points where they cross each other, by rivets 53.

The support just described is preferably placed between the two thicknesses of cloth, leather or other material from which the body of the carriage is formed, and is secured in place between said thicknesses in any suitable way, as by taking one or more stitches through the cloth.

When the cart is to be folded, the operator lifts the bar 33 sufficiently to carry the links 35 and 36 out of alinement, and then, grasping the handle 13 and the front bar 2 of the bed, he brings said handle and front bar together, at the same time lifting the carriage clear of the floor. The seat frame 30 folds against the carriage bed as the links 34, 35 and 36 fold together. Before the spurs 23 act upon the lugs 19, the jointed braces 28 have been unlocked by reason of their connection with the links 35.

It is apparent that the construction and arrangement of the parts of this carriage may be changed in various ways, therefore no undue limitation should be understood from the detailed description herein contained.

I claim as my invention:

1. In a folding carriage, in combination, a bed frame comprising side bars; a wheel-carrying sleeve mounted for rocking movement and longitudinal movement on each of said side bars; a locking pin fixed to each of said side bars near its forward end, each sleeve having a recess in its forward end to receive said pin; a handle comprising two side portions pivoted to the rear portions of said side bars; and devices fixed to said handle side-portions near their pivotal centers and engaging said sleeves for reciprocating and turning said sleeves.

2. In a folding carriage, in combination, a bed frame; wheel-carrying sleeves rotatably connected to said frame; locking members on said frame adapted to be engaged by said sleeves; a U-shape handle pivoted to the rear end of the bed frame at opposite sides of the carriage to fold downwardly against the bed frame; and connections between the handle and the sleeves for longitudinally moving the latter away from the locking members when the handle is folded.

3. In a folding carriage, in combination, wheels mounted to fold; means at the forward end of the carriage for locking said wheels against folding; a device fixed with relation to said wheels; a pivoted member; and two curved arms fixed to said pivoted member and lying at opposite sides of said device, one of said arms being adapted to operate said device to fold and unfold the wheels and unlock said forward locking means to permit folding.

4. In a folding carriage, in combination, a bed; a seat frame; front and rear wheels foldingly supported by said bed; a handle pivoted to said bed; two links at each side of the bed, said links being pivotally connected to each other and connecting the handle to the bed; a member at each side of the seat frame, said member connecting the seat frame with the joint between said links; a cross-bar extending from one side of the bed to the other near the rear end thereof; a jointed brace for each rear wheel, the upper ends of said braces being attached to said cross-bar, and said braces being upwardly flexible; and a member connecting each brace with one of said links for flexing said brace upwardly.

5. In a folding carriage, in combination, a wheel-carrying sleeve; a locking member for said sleeve; a pivoted arm; an arm attached to said other arm and curved on the arc of a circle concentric with the pivot of said pivoted arm; and means on said curved arm for engaging said sleeve to move the latter with relation to said locking member.

6. In a folding carriage, in combination, a seat frame, and means for supporting the rear end of said frame, said means comprising two bars each having an elongated open-

ing and a headed stud adapted to extend through the elongated opening of the other bar, and a spring arranged at one side of said bars and having its ends engaged with said bars, said spring tending to move the bars apart.

7. In a folding carriage, in combination, a bed; a pair of wheels supported by said bed for simultaneous turning and sliding movement; locking means for said wheels; a handle pivoted to the rear end of the bed; and a curved member fixed to said handle and connected to said pair of wheels, said member having thereon devices for sliding said pair of wheels into and out of operative relation to said locking means, and for turning said pair of wheels.

8. In a folding carriage, in combination, a bed; a pair of wheels supported by said bed for simultaneous turning and sliding movement; locking means for said wheels; a handle pivoted to the rear end of the bed; an arm fixed to the handle and curved concentric with the pivot of the handle; and a member attached to the pair of wheels, said arm having thereon a spur for engaging said member to turn the wheels, and two cams for engaging said member to slide said wheels into and out of operative relation to said locking means.

9. In a folding carriage, in combination, a bed; a seat frame; wheels foldingly supported by said bed; a handle pivoted to said bed; two links pivotally connected to each other and connecting the handle with the bed; a member connecting the seat frame with the joint between said links; a withdrawable brace for one of said wheels; and a connection between said brace and one of said links.

10. A wheel-operating member for folding carriages, consisting of a pivot lug and two curved arms, one of said arms having two opposed cams thereon for operating a wheel locking member.

11. A wheel-operating member for folding carriages consisting of a pivot lug and

two curved arms, one of said arms having a spur and two cams thereon.

12. A wheel-operating member for folding carriages consisting of a casting comprising a pivot lug, a part to receive the handle, a locking projection, and two curved arms, one of said arms having a spur and two cams thereon.

13. A wheel-operating device for folding carriages comprising two curved arms spaced apart and fixed with relation to each other, one of said arms having wheel-folding means and also having wheel-lock-operating means.

14. In a wheel-operating mechanism for folding carriages, the combination of a pivotally mounted member comprising two curved arms spaced apart and curved on the arcs of concentric circles of different radii, a pivotally mounted member having two locking lugs adapted to slide in contact with the curved arm of larger radius and a portion adapted to contact the other curved arm, a spur on the arm of larger radius adapted to engage said lugs, two projections on one of said lugs arranged to lie at opposite sides of the arm of larger radius, two cams on said arm of larger radius adapted to engage said projections for sliding the second mentioned pivotally mounted member, the latter having two locking fingers, and a projection on the first mentioned pivotally mounted member adapted to lie between said fingers.

15. In a folding carriage, in combination, a seat frame, and means for supporting said seat frame, comprising two bars each having an elongated opening and a headed stud adapted to extend through an elongated opening of the other bar, and a spring, each end of which engages one of said bars, said bars being bent to provide space between them for the ends of said springs.

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