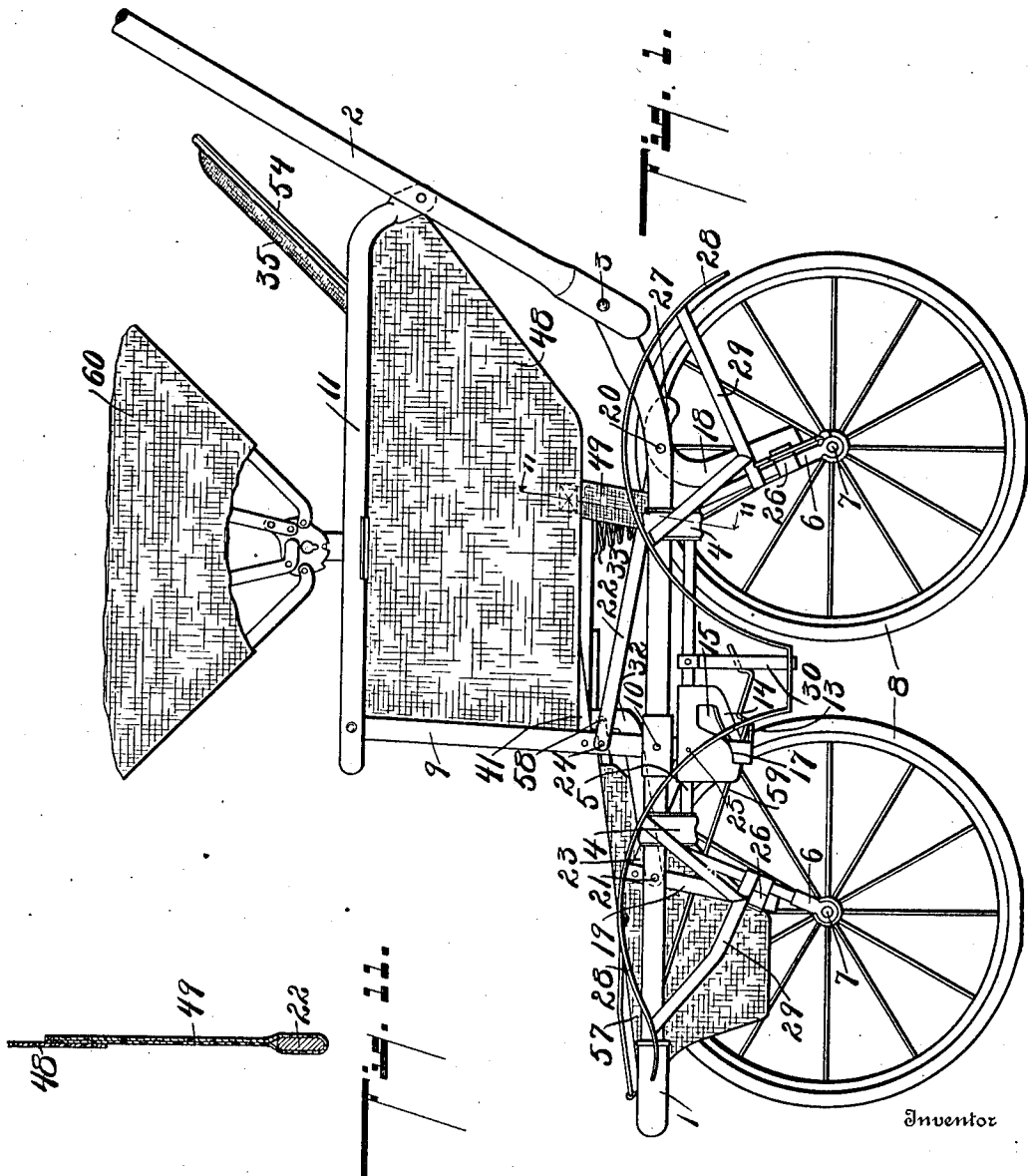


G. E. CLEVELAND.
 COLLAPSIBLE CARRIAGE.
 APPLICATION FILED AUG. 30, 1909.

1,048,495.

Patented Dec. 31, 1912.

4 SHEETS-SHEET 1.



Inventor

Witnesses
 Margaret P. Glasgow.
 John E. Walker

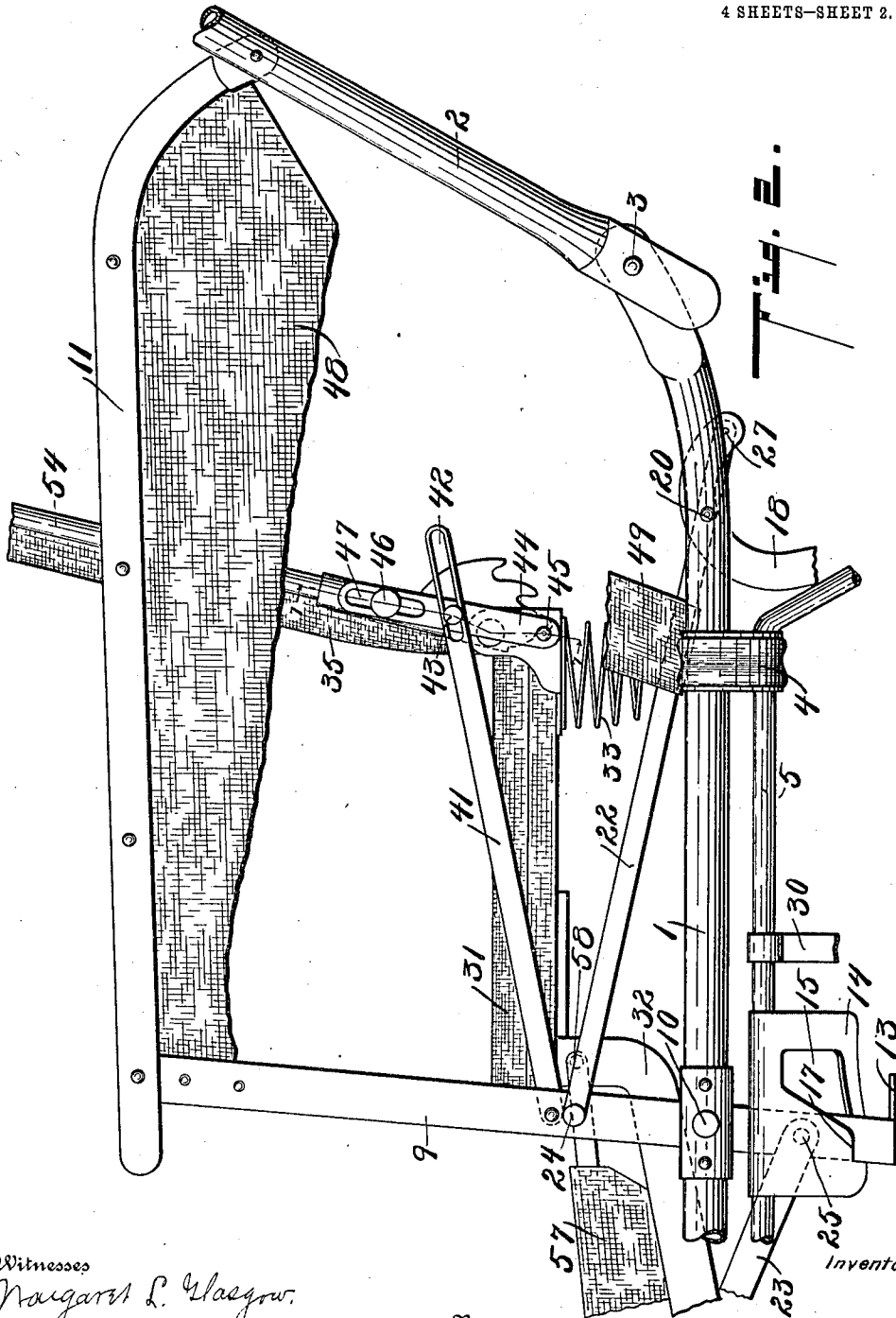
334
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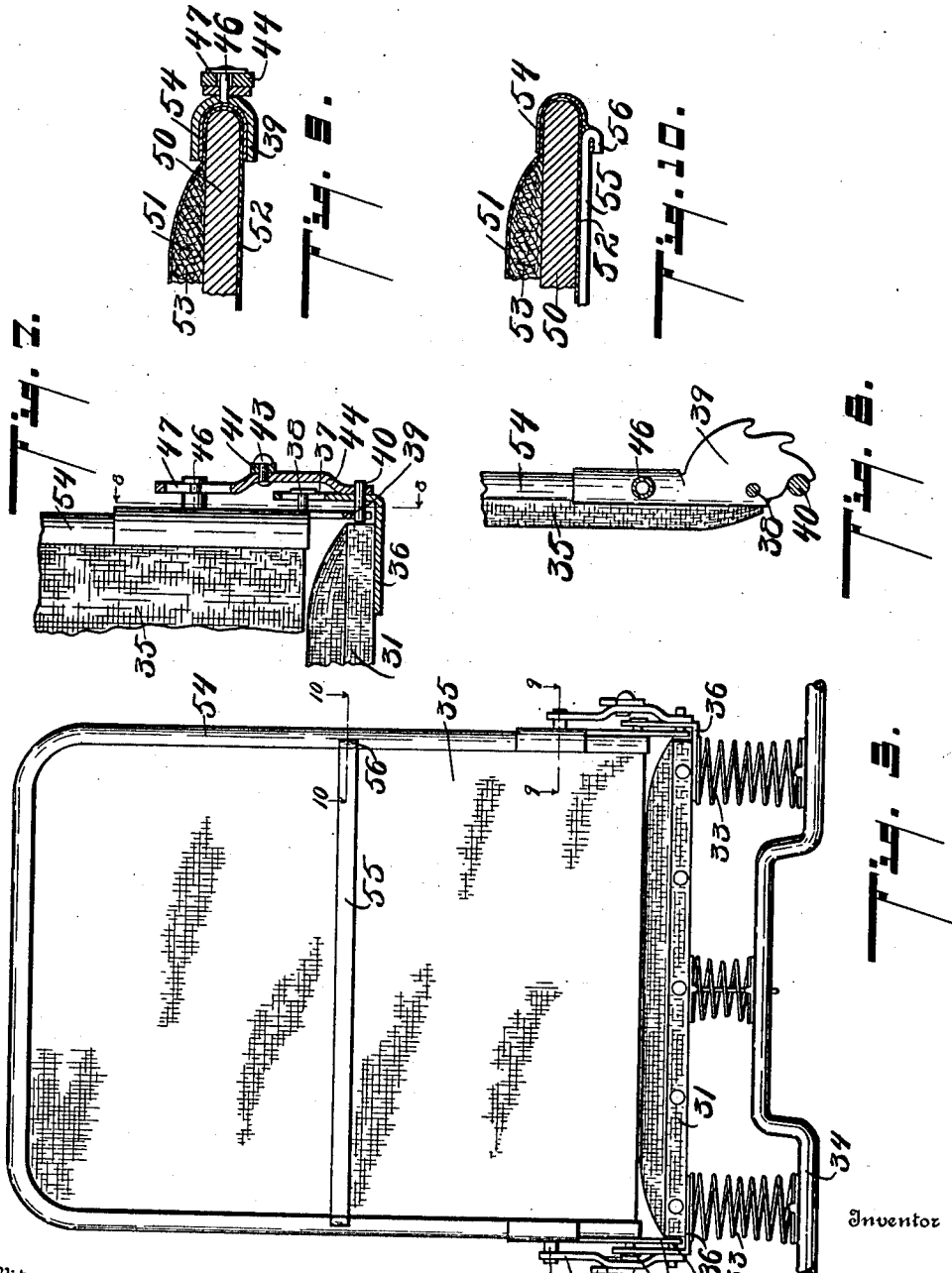
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4 SHEETS—SHEET 3.



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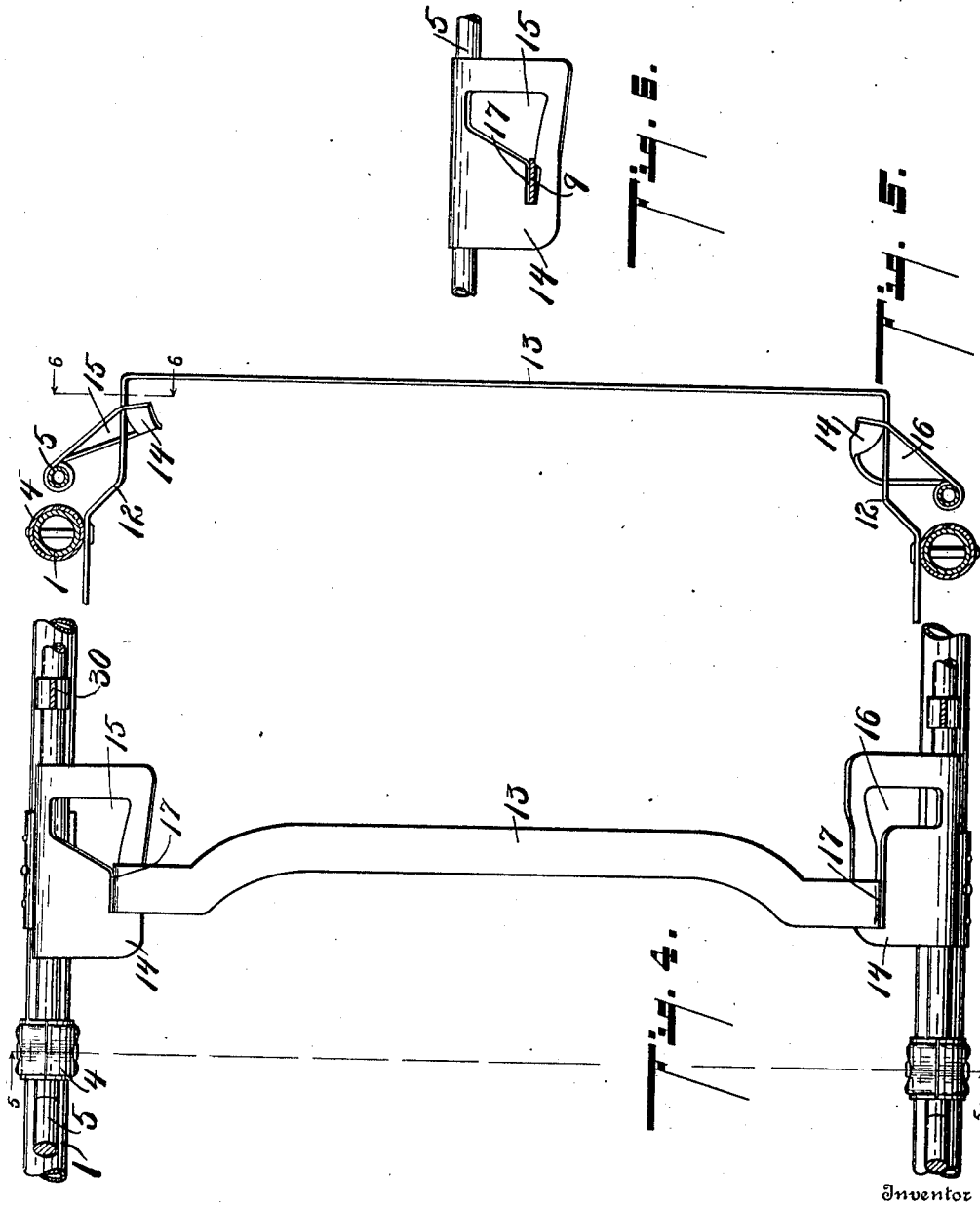
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

GROVER EZRA CLEVELAND, OF STURGIS, MICHIGAN, ASSIGNOR TO STURGIS STEEL GO-CART COMPANY, OF STURGIS, MICHIGAN.

COLLAPSIBLE CARRIAGE.

1,048,495.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed August 30, 1909. Serial No. 515,206.

To all whom it may concern:

Be it known that I, GROVER EZRA CLEVELAND, a citizen of the United States, residing at the city of Sturgis, county of St. Joseph, State of Michigan, have invented certain new and useful Improvements in Collapsible Carriages, of which the following is a specification.

This invention relates to improvements in collapsible carriages.

My improvements are particularly applicable to, and I have embodied them in practice and here illustrate them in, a structure of the type shown in the patent to Kurz, No. 866,145, of September 17, 1907 for collapsible carriages, although they may be modified and adapted for use in various other relations.

The main objects of this invention are: first, to provide in a collapsible carriage an improved means for actuating the collapsible wheel supports. Second, to provide in a collapsible carriage an improved means for bracing the wheel supports when in their erected position. Third, to provide in a collapsible carriage an improved guard or fender whereby the wheels are guarded in their erected and also in their collapsed condition. Fourth, to provide in a collapsible carriage an improved adjustable and collapsible back.

Further objects, and objects relating to structural details will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The structure described constitutes one effective embodiment of my invention.

Other embodiments would be readily devised by those skilled in the art.

The invention is clearly defined and pointed out in the claims.

A structure constituting an effective and preferred embodiment of the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure 1 is a side elevation of a structure embodying the features of my invention, the wheels on one side being removed and a portion of the top and handle being broken away. Fig. 2 is an enlarged detail side elevation showing the means for actuating the

wheel supports and the collapsible back. Fig. 3 is a detail rear elevation showing the arrangement of the seat and the back and means for adjustably supporting the back. Fig. 4 is an inverted detail plan showing the details of the wheel supports and the actuating means therefor. Fig. 5 is a vertical section taken on a line corresponding to line 5—5 of Fig. 4. Fig. 6 is a detail section taken on a line corresponding to line 6—6 of Fig. 5. Fig. 7 is a detail vertical section taken on a line corresponding to the broken line 7—7 of Fig. 2, showing details of the back supports. Fig. 8 is a detail section taken on a line corresponding to line 8—8 of Fig. 7. Fig. 9 is a detail horizontal section taken on a line corresponding to line 9—9 of Fig. 3. Fig. 10 is a detail section taken on a line corresponding to line 10—10 of Fig. 3 showing details of the back construction. Fig. 11 is a detail section taken on a line corresponding to line 11 of Fig. 1.

In the drawing, similar reference characters refer to similar parts throughout the several views and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, 1 represents the running gear frame which is preferably U-shaped in form. The handle 2 is pivotally secured to the rear ends of the side bars of the running gear frame by means of the pivots 3. On each of the side bars of the running gear frame are clip-like hangers 4 for the wheel supports 5. The wheel supports 5 are preferably formed of rods having downwardly projecting wheel carrying arms 6 thereon provided with suitable journals 7 for the wheels 8. The wheel supports are pivotally supported on the hangers so that they are free to swing therein to permit the wheels to be folded upon each other under the running gear frame.

The supports are erected and collapsed by means of a pair of levers 9 which are pivoted on the running gear frame at 10. The upper ends of the levers are connected to the handle by means of the links 11 so that the levers are actuated through the handle. The handle is adapted to swing forwardly upon the running gear frame when the structure is collapsed. The levers 9 are projected downwardly below their pivots and are

preferably offset inwardly as at 12, and connected by a cross piece 13, the cross piece serving as a brace therefor. In practice the levers are preferably formed of a single piece bent into a U-shape.

On the wheel supports are inwardly projecting lever engaging members 14. These are preferably plate-like in form the same being preferably formed of sheet metal as illustrated. These members 14 are provided with lever engaging cam openings 15 and 16, the openings being of different shape so that one wheel support is actuated before the other. The cam openings 15 and 16 are preferably provided with slot-like extensions 17 adapted to receive the levers when the parts are in their erected position, thus the levers serve as braces for the wheel supports. The wheel supports are held both in their erected and collapsed position.

The levers 9 are locked in their erected position and the wheel supports further braced by means of the braces 18 and 19 which are arranged in pairs and pivoted at 20 and 21 respectively on the running gear frame. These braces are connected by the links 22 and 23 to the levers 9, the links 22 being pivoted to the rear braces 18 and the links 23 being pivoted to the forward braces 19. The pivots 24 for the links 22 are arranged above the pivots 10 for the levers 9 while the pivots 25 for the links 23 are arranged below the pivots 10 so that the braces are actuated in opposite direction and are folded up under the running gear frame or swung into engagement with the clips 26 provided therefor on the wheel support arms 6. The rear braces 18 are preferably curved at their upper ends so that the pivots 27 thereof swing past the center of the pivots 20 when the parts are in their erected position, thus forming a locking toggle for the levers 9. The wheel supports are, by this arrangement of the parts, collapsed or erected through the actuation of the handle and also are effectively locked and braced in their erected position.

I preferably provide the wheels with fenders 28. The fenders also serve as guards for the wheels when they are collapsed. These fenders are supported on the wheel supports, the ends of the fenders being provided with V-shaped supporting brackets 29 mounted on the arms 6 of the wheel supports and the center with a strap-like hanger 30 mounted on the horizontal portion of the wheel supports. These supports 29 are arranged on the inside of the wheel as clearly appears in the drawing. As the wheels are collapsed the fenders are swung with them so that the wheels are properly guarded while the structure is collapsed which is of very great advantage as the cart can then be handled without the liability of soiling the garments of the person carrying the same,

and also the fenders prevent the wheels from coming in contact with an object against which the cart may be rested.

The seat 31 is preferably supported at its forward end by means of the bracket 32, the bracket having downwardly and forwardly projecting arms thereon which arms are pivoted on the side bars of the running gear frame at 21 as illustrated. This gives the seat a free pivotal movement and secures the full effect of the springs 33 which are arranged at the rear end of the seat. These springs are preferably coiled springs and are preferably secured upon the cross bar 34.

The back 35 is preferably adjustably supported and also supported to be automatically collapsed and erected upon the collapsing and erecting of the carriage. This I preferably accomplish by providing the supporting members 36, which are secured to the seat to project upwardly at the sides thereof. These supporting members are slotted at 37 to receive the pivots 38 for the back. The back is provided with downwardly-projecting segments 39 adapted to engage the pins 40 on the members 36, thus providing a slip connection for the back to the seat and segments for adjustably supporting the back. The teeth of the segments are projected forwardly so that the back can be automatically collapsed whatever its adjusted position may be.

To automatically collapse and erect the back I connect the same to the wheel actuating levers 9, preferably through the links 41 having slots 42 therein adapted to receive the pins 43 on the levers 44 which are pivoted at 45 to the seat. The upper ends of the levers are connected to the back through a slip connection preferably consisting of pins 46 arranged in the slots 47 of the levers. This permits the adjustment of the back and when the carriage is collapsed or erected the back is also collapsed or erected automatically.

The seat is preferably provided with flexible side portions 48 which are secured at their upper ends to the links 11 which, as stated, form the side bars of the seat. To draw these side portions taut when the carriage is erected and permit the collapsing of the carriage without applying the tension or stress to the side pieces I preferably connect their lower edges to the links 22 as by means of the straps 49. As these links are swung downwardly when the braces 18 are swung into engagement with the wheel supports they are firmly held so that they are not only effective for the purpose but have a neat appearance.

The back 36 preferably consists of a board-like body portion 50 provided with a front covering 51 and a rear covering 52, the front covering being provided with a suitable pillow 53. The edges of the covering

are brought to the edges of the body and covered and secured by means of the U-shaped binding 54. This binding is formed of metal and serves not only to secure the covering to the body, but also to reinforce the body so that it may be formed of thin material, the binding extending across the top and down each side of the body. This binding also serves as a means for attaching the back supporting means described. To prevent the spreading of the binding I preferably provide a strap like cross piece 55 which is arranged across the back, as shown in Fig. 3, and secured by arranging its hooked ends 56 through suitable holes provided therefor in the rear edges of the binding, see Fig. 10.

The foot rest 57 is preferably pivotally mounted on the seat bracket 32 at 58 to be adjustably supported by means of the brace like support 59 which engages the cross piece 13 on the lower end of the levers. As the details of this foot rest form no part of my present invention they are not further described herein.

The top 60 is adjustably mounted on the links 11, but as the details of this top form no part of my invention they are not further described herein.

I have illustrated and described my improvements in detail in the form in which I have embodied them in practice. I am, however, aware that they are capable of considerable variation in structural details without departing from my invention, and I desire to be understood as claiming the same specifically as illustrated as well as broadly.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a folding carriage, the combination with the running gear frame, of a handle pivotally connected to said frame; wheels; wheel supports pivotally mounted on said frame; levers pivoted on said frame, said levers being offset inwardly below their pivots and arranged to project downwardly at the sides of said wheel supports; downwardly and inwardly projecting lever engaging members on said wheel supports, said lever engaging members being provided with cam openings through which said levers are arranged, said openings having slot-like extensions adapted to receive said levers when the wheel supports are in their erected position; and connecting links for the upper ends of said levers to said handle.

2. In a folding carriage, the combination with the running gear frame, of a handle pivotally connected to said frame; wheels; wheel supports pivotally mounted on said frame; levers pivoted on said frame; lever engaging members on said wheel supports, said lever engaging members being provided with cam openings through which said levers

are arranged, said openings having slot-like extensions adapted to receive said levers when the wheel supports are in their erected position; and connecting links for the upper ends of said levers to said handle.

3. In a folding carriage, the combination with the running gear frame, of a handle pivotally connected to said frame; wheels; wheel supports pivotally mounted on said frame; levers pivoted on said frame, said levers being offset inwardly below their pivots and arranged to project downwardly at the sides of said wheel supports; downwardly and inwardly projecting lever engaging members on said wheel supports, said lever engaging members being provided with cam openings through which said levers are arranged, the cam engaging portions of said levers being substantially straight; and connecting links for the upper ends of said levers to said handle.

4. In a folding carriage, the combination with the running gear frame, of a handle pivotally connected to said frame; wheels; wheel supports pivotally mounted on said frame; levers pivoted on said frame; lever engaging members on said wheel supports, said lever engaging members being provided with cam openings through which said levers are arranged, the cam engaging portions of said levers being substantially straight; and connecting links for the upper ends of said levers to said handle.

5. In a folding carriage, the combination with the running gear frame, of wheels; wheel supports pivotally mounted on said frame; levers pivoted on said frame, said levers being offset inwardly below their pivots and arranged to project downwardly at the sides of said wheel supports; downwardly and inwardly projecting lever engaging members on said wheel supports, the cam engaging portions of said levers being substantially straight, said members being provided with cam openings through which said levers are arranged, said openings having slot-like extensions adapted to receive said levers when the wheel supports are in their erected positions; and means for actuating said levers.

6. In a folding carriage, the combination with the running gear frame, of wheels; wheel supports pivotally mounted on said frame; levers pivoted on said frame; lever engaging members on said wheel supports, said members being provided with cam openings through which said levers are arranged, said openings having slot-like extensions adapted to receive said levers when the wheel supports are in their erected positions; and means for actuating said levers.

7. In a folding carriage, the combination with the running gear frame, of wheels; wheel supports pivotally mounted on said frame; levers pivoted on said frame, said

levers being offset inwardly below their pivots and arranged to project downwardly at the sides of said wheel supports; downwardly and inwardly projecting lever engaging cam members on said wheel supports, having cam openings therein in which said levers are arranged, the cam engaging portions of said levers being substantially straight; and means for actuating said levers.

8. In a folding carriage, the combination with the running gear frame, of a handle pivotally connected to said frame; wheels; wheel supports pivotally mounted on said frame; levers pivoted on said frame; lever engaging cam members on said wheel supports having cam openings therein in which said levers are arranged and portions adapted to receive and firmly engage said levers when they are in their fully erected positions, the cam engaging portions of said levers being substantially straight; and connecting links for the upper ends of said levers to said handle.

9. In a folding carriage, the combination with the running gear frame, of wheels; wheel supports pivotally mounted on said running gear frame; actuating levers for said wheel supports pivotally mounted on said running gear frame; cam members on said wheel supports coacting with said levers, said cam members being provided with cams terminating in slots adapted to receive

the levers when the wheel supports are in their erected position.

10. In a folding carriage, the combination with the running gear frame, of wheel supports at each side pivotally mounted on said frame; wheels mounted on said supports; cam members on said wheel supports having cam openings therein enlarged at one end, the opposite end portion being substantially straight; levers pivoted in said frame and disposed in said cam openings and adapted to be closely engaged by the straight part thereof when in erected position; and means for actuating said levers.

11. In a folding carriage, the combination with the running gear frame, of wheels; wheel supports pivotally mounted on said running gear frame, said wheel supports comprising rods having horizontally disposed portions and depending wheel hangers; actuating levers; and cam members formed from plate metal stampings arranged on said wheel supports and secured thereto by folding, disposed to coact with said levers.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

GROVER EZRA CLEVELAND. [L. s.]

Witnesses:

H. C. KROFT,

THOS. J. COLLINS.