

S. D. BUTTERWORTH.
CHILD'S FOLDING CARRIAGE.
APPLICATION FILED NOV. 10, 1911.

1,054,390.

Patented Feb. 25, 1913.
3 SHEETS—SHEET 1.

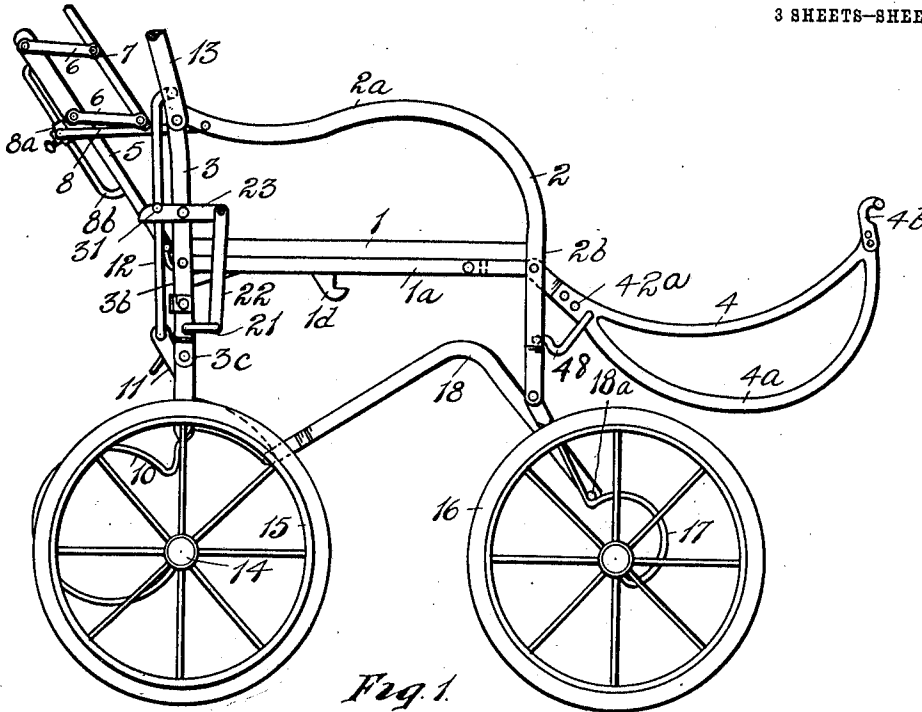


Fig. 1.

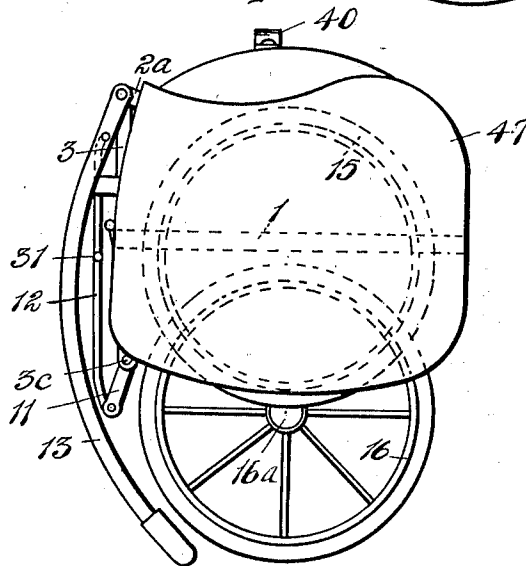


Fig. 3.

Witnesses

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Anelia C. Kolhn.

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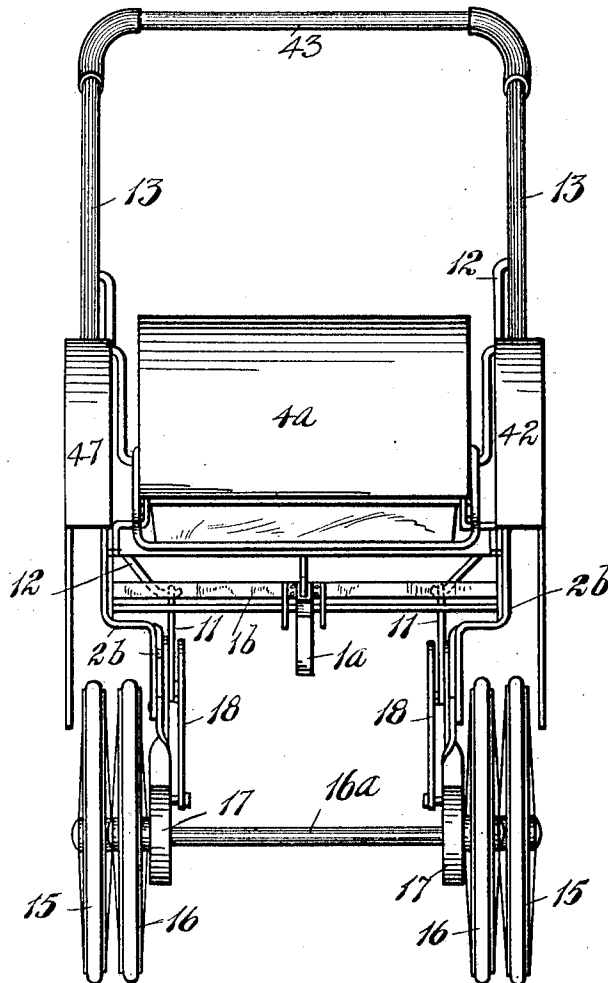


Fig. 2.

Witnesses

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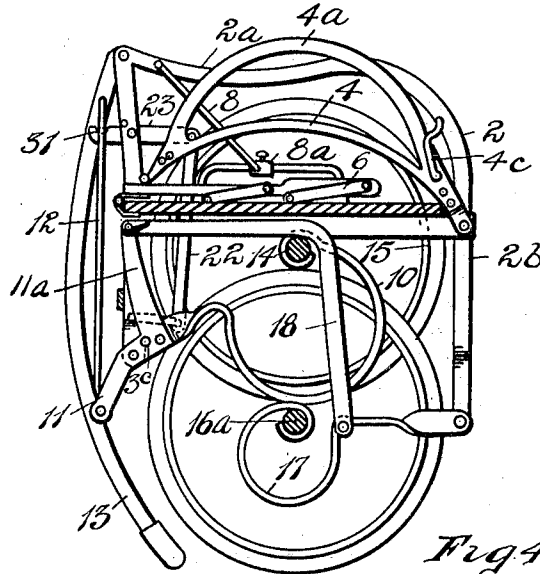


Fig. 4

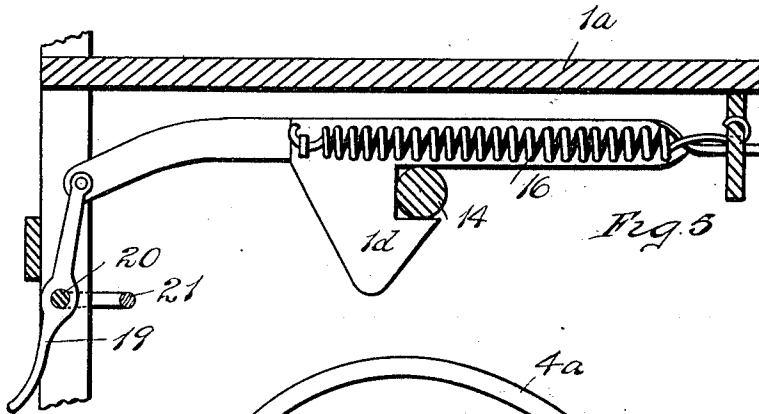


Fig. 5

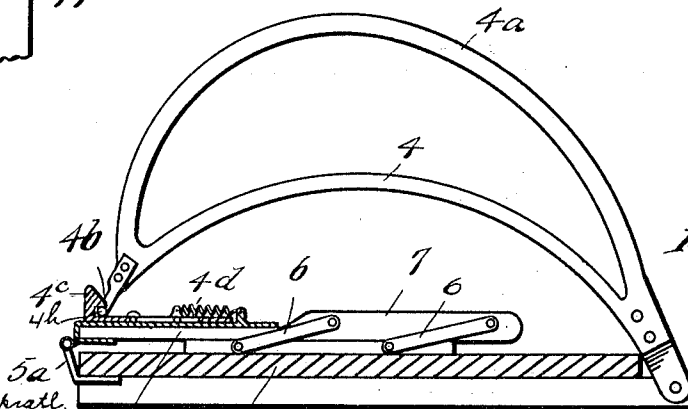


Fig. 6

Witnesses

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UNITED STATES PATENT OFFICE.

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CHILD'S FOLDING CARRIAGE.

1,054,390.

Specification of Letters Patent.

Patented Feb. 25, 1913.

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To all whom it may concern:

Be it known that I, SAMUEL D. BUTTERWORTH, a citizen of the United States, residing at Lansing, county of Ingham, State of Michigan, have invented a certain new and useful Improvement in a Child's Folding Carriage, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to children's folding carriages.

It has for its object an improved carriage adapted to be folded into small compass, or unfolded to present a long wheel base, an adequate seat, a capacious boot and a convenient handle bar.

The locking of the carriage into the folded or unfolded position is readily accomplished by mechanism which may be operated by a pedal, while the folding or unfolding is conveniently accomplished by swinging the handle bar by which the carriage is ordinarily pushed.

A very important part of my invention is the withdrawing of both the rear and front wheels up under the arms and having the front and the rear axle drawn up against the bottom of the seat. This affords a very convenient deposit place for the wheels and when the carriage is in folded position, minimizes the compass of the package. This is accomplished without in any way weakening the axle by providing collapsible wheels in respect thereto, so that there is no danger of staggering or wobbling wheels.

In the drawings:—Figure 1, is a side elevation of the frame without the covering. Fig. 2, is a front elevation with the covering. Fig. 3, is a side elevation of the folded carriage with the covering. Fig. 4, is a section through the center of the carriage showing the operating parts in elevation with the covering removed and with the spokes not shown to avoid confusion. Fig. 5, is an enlarged detail of the mechanism under the seat. Fig. 6, is an enlarged detail of the boot and seat back, in their folded position.

For convenience of description, the seat bottom will be considered as the rigid or stationary part of the vehicle, to which is

secured certain frame pieces that will be mentioned, and around this seat part and frame pieces swing, on pivotal connections, the various foldable or movable parts of the carriage.

1, indicates the seat member, to which are secured at the back, posts 3. The arms 2, at the front of the carriage, rise from the seat 1 parallel to the posts 3 and cross above the seat 1 in a proper curve for the comfort of the child in resting his arm, and are fastened to the posts 3. These members also extend below the seat forming hanger 2^b; and for convenience of reference that part directly parallel with the seat is characterized as 2^a in the drawings. The posts 3 also extend below the seat forming the hangers 3^b. The boot of the carriage is formed by an independent frame 4 and 4^a, which is pivotally connected with the cross bars 1^a that support the seat member 1, and this boot is arranged to fold upward and backward over the seat member, as in the positions shown in Figs. 4 and 6. At the front of the boot the cross rod 4^b is secured by suitable bracket members 4^b. This cross rod is arranged to engage under the hook 4^c which is secured to the back 5, the latter being pivotally connected at the rear of the seat 1, or to the bracket 5^a that is itself secured to the seat member 1. The hook 4^c has a character of a sliding latch controlled by a spring 4^d. Pivoted side bars 6 and 6 engage between the spaced back 5 and the posts 3 connecting the upper portion 7 of the back collapsibly with the lower portion. The back is held in its adjustable position, that inclines with respect to the seat 1, by a link 8 pivoted to the arm 2, and secured by a sliding pivotal connection 8^a to the guide rod 8^b on the inclined back 5. The boot is held in outstretched position by the rods 48 at either side which are pivoted to the hangers 2^b and which may engage the boot in several places, the holes 42^a affording adjustment in the height of the boot. The boot may be folded up and over the seat member and over the inclined back, which is folded down against the top of the seat member, (as shown in Figs. 1, 2 and 6) and is locked in place by the catch 4^c. The strap 40 on the bottom of the boot member, may be used to carry the collapsed carriage.

To accomplish the important feature of folding the wheels and axles into a close

relation with the body of the carriage, without collapsing the wheels and axles, I employ several levers and links. The rear axle 14 carrying the rear wheels 15 is attached to the C-spring 10, which in turn is pivoted to the hanger 3^b by the pivot 3^c so as to act as a radius arm. The front axle 16^a, carrying the front wheels 16, is attached to the C-spring 17, that in turn is pivoted to the front hangers 2^b so as to act as a radius arm. These two axles are connected with the movable handle of the carriage by linkage, which is composed of the link 12 pivoted to the upright member 13 of the handle, which in turn is pivoted to the post 3. At the other end of the link 12, is a lever 11, which is riveted to the C-spring 10 and which has a bell crank arm 11^a (Fig. 4). This bell crank arm is connected with the C-spring 17 of the front wheel by the link 18, which is provided with a pin that engages in a sharp bend of the spring. The bent link 18 is bent to such a shape that when in the collapsible position, as shown in Fig. 4, it runs parallel with the seat and will engage very close thereunder.

1^b is a cross bar connecting and bracing the hangers 3^b.

The levers, the linkage and springs are identical on each side so that the description of them at one side is sufficient for the other side.

The wheels and frame are kept in their respective folded position by locks which are operated by the lever or pedal 19 rigidly secured to a lock bar 20 from which there extends forward a rock arm 21 that engages with the link 22. The link 22 engages a lever 23, the free end of which projects to the rear of the post 3 and is provided with a catch rest which engages and supports a pin 31 that projects from the side of the link 12. When the free end of the lever 19 is swung forward toward the front wheels of the vehicle, the engaging end of the lever 23 swings downward and releases the link 12.

In folding the carriage from open position, the lever or pedal 19 is given a kick, thereby disengaging the link 12 from the lever 23 and the handle 13 is then moved downward, thereby depressing the lever 11 which forces the rear wheels and axle upward and also drawing the front wheels upward by means of the links 18. The handle describes an arc of about 180 degrees to the position shown in Fig. 3. The rear axle is then against the bottom of the seat and the front wheel felly is against the rear axle, as shown in Fig. 4. About one-half of the rear wheel then projects up beyond the seat and below the arm. In order to afford a convenient and neat pocket for these wheels, I have provided the covering 47 for one arm and the covering 42 for the other arm (shown in Fig. 2). This covering extends down below the side of the vehicle, as shown in Fig.

3. The wheels, as shown in the drawings, are both of the same size, but if desired, the front wheel may be made much smaller, say one-half the size of the rear wheel, for all the strain is taken by the rear wheel and axle and the front wheel is in reality nothing more than a caster wheel. If these proportions are observed, when the wheels are in a position, as shown in Fig. 4, both of the wheels will be entirely within the pockets formed by the arms and a considerable portion of both of the front wheels will be concealed in the pockets, and hence a package of very small compass is afforded. From Fig. 5, it will be noticed that when the rear axle 14 is swung up under the seat, that it engages the latch 1^d that is controlled by the spring 16, effectually locking the rear wheel in position and indirectly the handle and the front wheels by reason of the connecting linkage.

When it is desired to open out the carriage, the lever or pedal 19 is given a kick and, as seen in Fig. 5, this lever also controls the latch 1^d, thereby releasing the axle 14. By raising the handle 13, the linkage, as heretofore described, is set in motion and the wheels take their proper positions and the handle, being drawn up to its extreme upright position, automatically interlocks the pin 31 carried on the link 12 with the catch rest on the lever 23, the same sliding over the inclined bill of this lever.

What I claim is:—

1. A child's chair, having in combination a body, front and rear axles, C-springs pivoted to the body and supporting said axles, wheels on said axles, levers pivoted to said body and attached to said C-springs of the rear axle, bent links connecting the said levers and the front axle, a handle pivoted to said body, links connecting said levers and said handle, a pin on one of said last mentioned links, a pedal and a spring pressed lever provided with a catch rest adapted to catch said pin, when said handle is swung up to extreme position, the said handle by being pressed down being thereby adapted to draw the axles up under the seat and the wheels up under the arms, substantially as described.

2. A child's chair, having in combination with a body, a spring-pressed latch on the bottom of the seat, a handle, axles and wheels thereon, linkage for connecting the axles with the handle and adapted to swing the axles up under the seat when the handle is swung, one of the axles being adapted to be engaged by said latch and held in place when the chair is in collapsed position, a pin on said linkage, a pedal and lever for controlling the said latch, a lever provided with a catch rest for engaging said pin and a rock arm and a link for connecting said pedal with the catch rest lever, whereby the

interengagement of the catch rest lever and the pin locks the chair in distended position and the pedal controls both the lock for holding the chair in collapsed position and the lock for holding the chair in distended position, substantially as described.

3. A child's carriage, having in combination, a body, arms attached thereto, a covering depending from each arm and forming with the arm a pocket, a front and rear pair of wheels, front and rear axles therefor, radius arms attached to the axles and pivotally connecting the same with the body, a lever pivotally connected with the body portion and secured to one of the axles and a link connecting said lever with the other axle, said link being arranged so that, when the axle to which the lever is attached rises, the link draws the other axle in toward the rising axle, whereby swinging of the lever draws one of the axles up against the bottom of the body, the wheels entering the pockets under the arms and the other axle is drawn up under said last mentioned axle and the wheels of one axle rest against the other axle and the wheels of the lower axle are disposed partially in the said pockets and partially below the said pockets, substantially as described.

4. A child's carriage, having in combination, a body, arms attached to said body, a rear axle and wheels, a front axle and wheels, radius arms for pivotally supporting the axles from the body portion and each radius arm being adapted to swing in toward the other radius arm in the collapsing operation, means for swinging the radius arms in toward each other, one axle resting against the bottom of the seat near its mid-portion and the other axle resting nearly directly under the first mentioned axle and the wheels of one axle resting against the other axle and the wheels of both

axles being arranged directly under the arms on the sides of the seat and means for locking the axles in such relation, substantially as described.

5. A child's carriage, having in combination, a body comprising a seat, a back foldable thereover, a boot foldable also over the seat, arms attached to the seat; a rear axle and wheels, a front axle and wheels, radius arms pivotally supporting the axles on the seat, the axles being adapted, when the carriage collapses, to be swung under the mid-portion of the seat by the radius arms, one resting against the bottom of the seat and the wheels of one axle resting against the other axle, means by which the axles may be swung into such collapsed position and means for locking the members in such collapsed position, the wheels being, thereby, withdrawn up under the arms at the sides of the seat, substantially as described.

6. In a child's carriage, the combination with a body and wheels and axles adapted to swing into collapsed relation with said body, of a handle for swinging said wheels and axles into and out of collapsed relation, a spring-pressed latch for automatically locking said wheels and axles in collapsed relation, a pedal for controlling the spring-pressed latch, a catch rest lever supported by the body, linkage connecting the catch rest lever with said pedal and a member connected with the said handle adapted to be engaged by the catch rest lever and thereby lock the wheels and axles in distended relation, substantially as described.

In testimony whereof, I sign this specification in the presence of two witnesses.

SAMUEL D. BUTTERWORTH.

Witnesses:

GEO. H. VAN BUREN,
F. J. HOPKINS.