

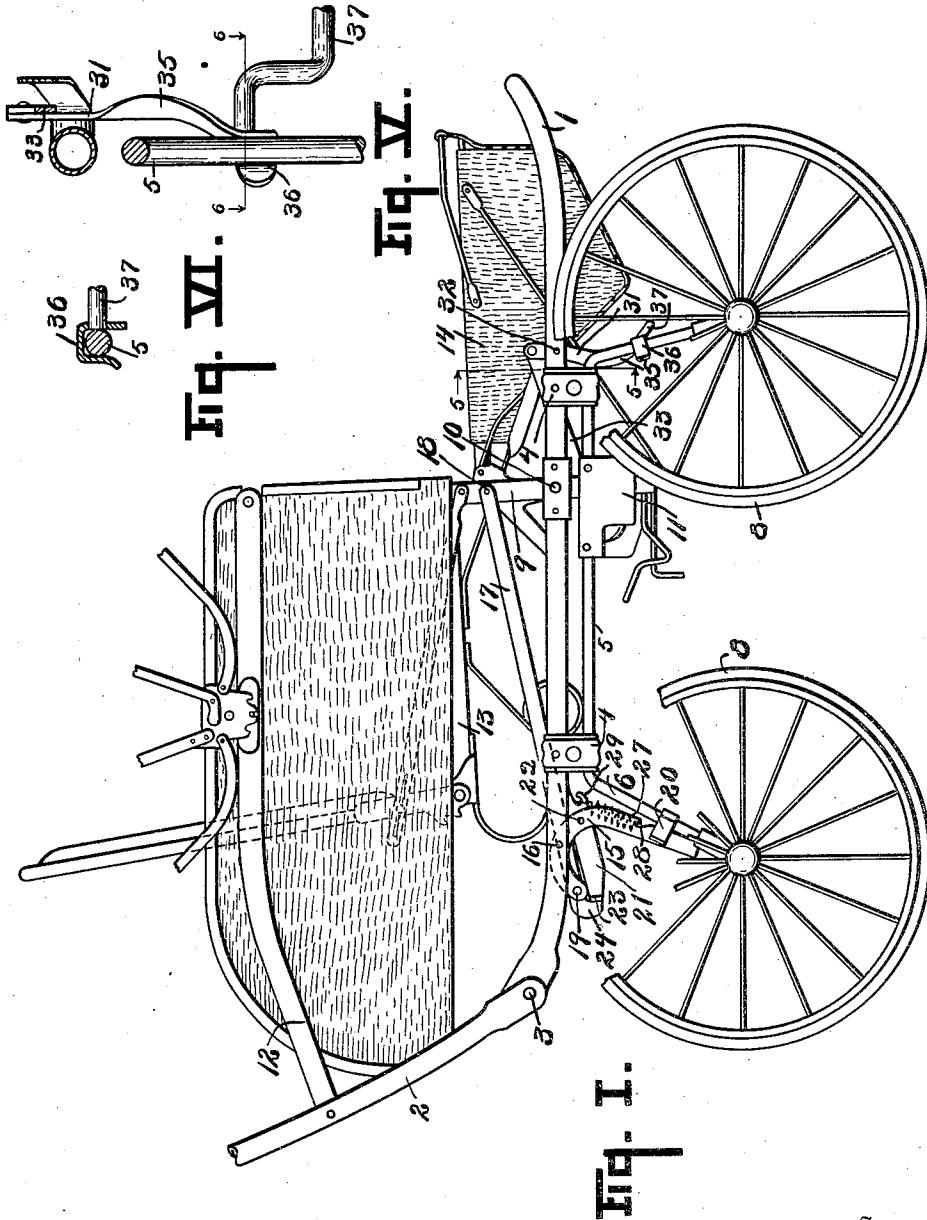
C. S. SPOFFORD & F. W. JONAS.
COLLAPSIBLE CARRIAGE.

APPLICATION FILED FEB. 5, 1912.

1,047,322.

Patented Dec. 17, 1912.

3 SHEETS—SHEET 1.



Witnesses

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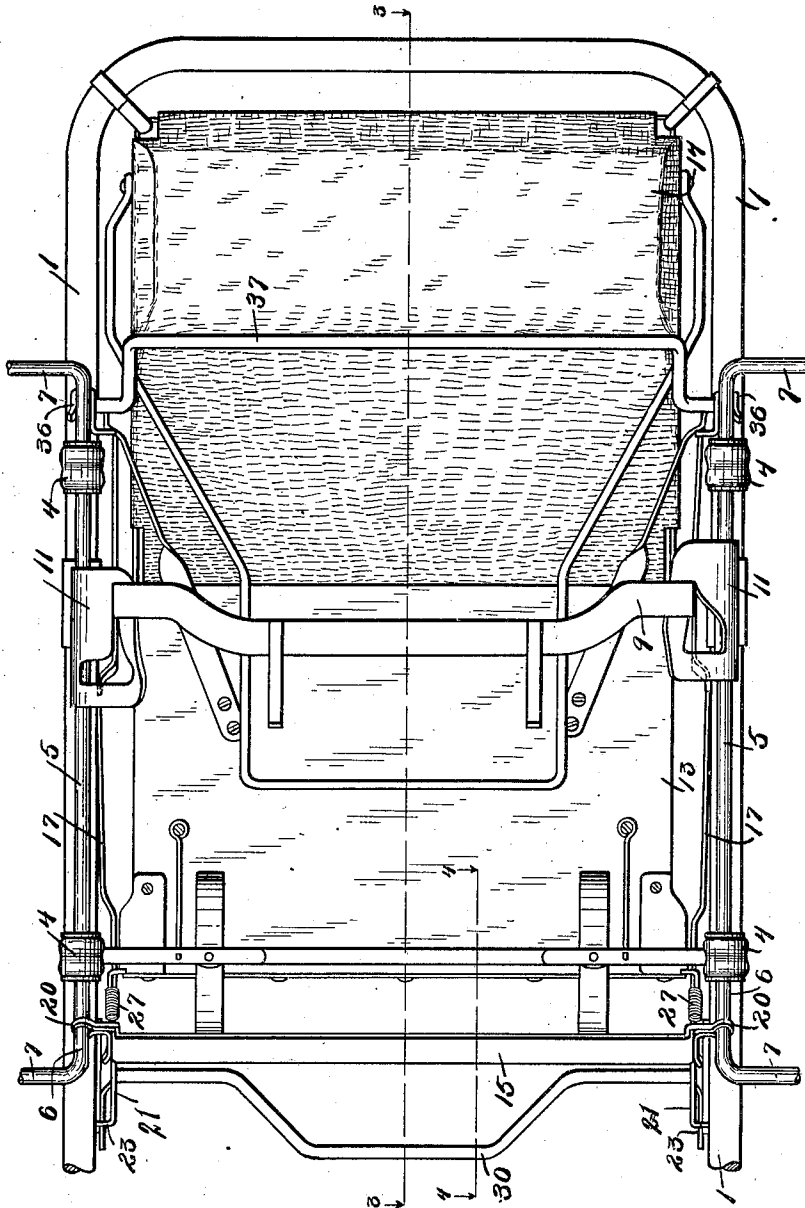


Fig. II.

Witnesses.

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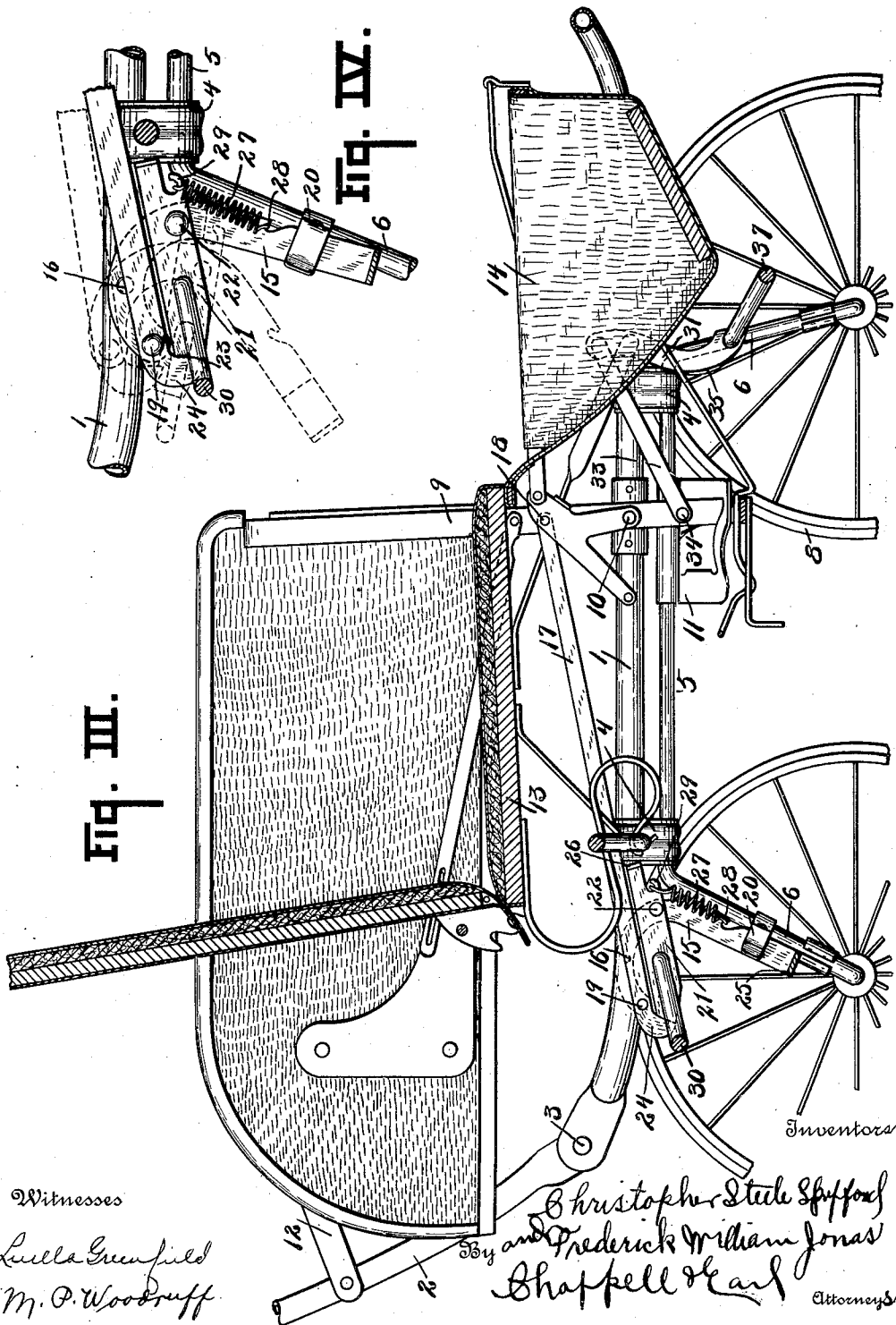
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UNITED STATES PATENT OFFICE.

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COLLAPSIBLE CARRIAGE.

1,047,322.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, CHRISTOPHER STEELE SPOFFORD and FREDERICK WILLIAM JONAS, citizens of the United States, residing at Sturgis, county of St. Joseph, and 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.

The main objects of this invention are, first, to provide an improved means for locking the carriage in its erected position which is very secure and capable of withstanding severe strains and wear without being liable to become accidentally unlocked or released to permit collapsing. Second, to provide an improved collapsible carriage having these advantages which is easily released or unlocked when desired for collapsing. Third, to provide an improved collapsible carriage in which the wheel supports are effectively carried or swung to their erected position.

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

We accomplish the objects of our invention by the devices and means described in the following specification.

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

A structure which is a preferred embodiment of our invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure I is a side elevation of a structure embodying the features of our invention, portions of the handle and wheels being broken away. Fig. II is an inverted view, the rear portion of the running gear frame and the wheels being omitted the rear portion of the running gear frame and portions of the wheel spindles being broken away. Fig. III is a detail longitudinal vertical section taken on a line corresponding to line 3—3 of Fig. II. Fig. IV is a detail vertical section taken on a line corresponding to line 4—4 of Fig. II, showing details of the wheel braces and their actuating and locking means. Fig. V is a detail vertical section taken on a line corresponding to line 5—5 of Fig. I, showing details of the front wheel supporting braces. Fig. VI is a section taken on a line corresponding to line 6—6 of Fig. V.

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, the running gear frame 1 is in the structure illustrated, formed of tubing bent to a U-shape. The handle 2 is secured to the rear end of the frame by pivots 3.

On each side of the side bars of the running gear frame are hangers 4 for the wheel supports 5. These wheel supports are pivotally supported by these hangers and have downwardly projecting arms 6 terminating in spindles 7 for the wheels 8.

A pair of levers 9 are mounted on the side bars by means of the pivots 10, the lower ends of the levers projecting below the side bars to engage the cam members 11 on the wheel supports. As the levers are actuated, the wheel supports are swung to collapse or erect the same. The levers are connected to the handle 2 by links 12 so that when the handle is collapsed forwardly upon the running gear frame, the lower ends of the levers are swung rearwardly and act upon the cams, collapse the wheel supports under the running gear frame and when the handle is swung to its erected position, the wheel supports are actuated. The details of these cam members form no part of our present invention and we do not describe them in detail herein. As our present invention does not relate to the structural details of the seat 13 and the foot rest 14, we do not describe the same in detail herein.

The wheel supports are braced and the levers 9 locked in their erected position, thereby locking the carriage in its erected position by means of brace members 15 which are pivoted to the running gear frame at 16, the upper ends of the braces being extended rearwardly beyond the pivots.

The braces 15 are connected by the links 17 to the levers 9, the links being connected to the levers by the pivots 18 and to the braces by the pivots 19. On the wheel supports are forked clips 20 adapted to engage the braces when the parts are in their erected position.

The pivots 16 and 19 are so disposed relative to each other that when the braces are in their engaging position, the pivots 16 swing past a plane running through the pivots 16 and 18 thus providing a locking toggle.

To relieve the parts of undue stress or strains when the carriage is erected, and to prevent the accidental breaking of the toggle, we provide locking members 21 which are pivoted at 22 on the braces 15 and provided with inclined engaging members 23 at their rear ends adapted to engage the downwardly projecting inclined keepers 24 on the links 17. These keepers 24 and the engaging portions of the members 21 are preferably serrated to add to their frictional engagement. The braces 15 are provided with a cross piece 25 adapted as a foot piece for forcing them into engagement with the clips 20 on the arms of the wheel supports. The members 21 are provided with lateral projections 26 at their forward ends adapted to coact with the links 17 so that the members 21 are forced to their engaging position as the links are forced into position by the engagement of the braces.

The springs 27 are secured to the hooks 28 on the braces and to hooks 29 on the members 21. The members 21 are connected by cross piece 30 adapted as a foot piece for the disengagement of the locking members.

The disengaging movement of the members 21 causes their forward ends to engage the links 17 and continued movement breaks the toggle and disengages the braces 15 so that the disengaging movement of these members 21 not only swings the locking members out of their engaging position, but also breaks the toggle and disengages the braces. This arrangement of parts is very effective as a locking means and in supporting the members so that they are capable of withstanding severe strains without rendering the carriage liable to accidental collapse.

To brace the front arms 6 of the wheel supports and to insure the complete erection of the same even under such conditions as when a part of the weight of the carriage is allowed to rest upon the wheels during the erecting, we provide braces 31 for the front wheels, the braces being pivoted at 32 to the running gear frame and connected by the links 33 to the levers 9. These links are pivoted to the levers 9 at 34 below the pivots 10 for the levers, while the pivots 18 for the links 17 are above the pivots 10 so that the front and rear braces are swung in opposite directions.

The braces 31 are provided with cams 35 which engage the front arms 6 and force or carry them to their erected position as the braces are swung into position by the links.

At the ends of the cams are clips 36 adapted to engage the arms when the parts are fully erected, the clips being formed on the ends of the braces. The braces are connected by cross piece 37 to add to their rigidity. By this arrangement of parts, we provide a structure in which the wheel supports are positively carried to their erected

position and relieve the levers and cams of undue strain or stress. These braces co-acting with the rear braces described, support the wheel supports in their erected position so that the wheels are not likely to get out of alinement. And further, the carriage is enabled to sustain very heavy loads.

We have illustrated and described our improvements in detail in the structure in which we have embodied the same. We are aware that they are capable of embodiment in other structures, but as we believe the disclosure made will enable those skilled in the art to apply our invention as conditions or taste dictates, we have not attempted to illustrate or describe the various modifications possible. We desire, however, to be understood as claiming the invention specifically in the form illustrated as well as broadly within the scope of the appended claims.

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

1. In a folding carriage, the combination with the running gear frame, of collapsible wheel supports; a handle pivotally mounted on said frame; means for actuating said wheel supports comprising levers pivotally mounted on said frame; connecting links for said levers to said handle; braces for said wheel supports pivotally mounted on said running gear frame; connecting links for said braces to said levers, the connecting pivots for said links to said braces being adapted to swing past the center of the pivots for said braces; rearwardly facing forked clips adapted to receive said braces, said braces being provided with a cross piece adapted for a foot piece for forcing said braces into engagement with said clips; locking members pivotally mounted on said braces, said links being provided with forwardly facing inclined serrated keepers at their rear ends, said locking members having coacting inclined serrated engaging portions, the forward ends of said locking members being adapted to engage said links when said locking members are disengaged; springs connected to the forward ends of said locking members and braces; and a cross piece connecting said locking members adapted as a foot piece.

2. In a folding carriage, the combination with the running gear frame; of collapsible wheel supports; a handle pivotally mounted on said frame; means for actuating said wheel supports comprising levers pivotally mounted on said frame; connecting links for said levers to said handle; braces for said wheel supports pivotally mounted on said running gear frame; connecting links for said braces to said levers, the connecting pivots for said links to said braces being adapted to swing past the center of the piv-

ots for said braces; rearwardly facing forked clips adapted to receive said braces, said braces being provided with a cross piece adapted for a foot piece for forcing said
 5 braces into engagement with said clips; locking members pivotally mounted on said braces, said links being provided with forwardly facing keepers at their rear ends, said locking members having coacting engaging portions, the forward ends of said
 10 locking members being adapted to engage said links when said locking members are disengaged; springs connected to the forward ends of said locking members and
 15 braces; and a cross piece connecting said locking members adapted as a foot piece.

3. In a folding carriage, the combination with the running gear frame, of collapsible wheel supports; means for actuating said
 20 wheel supports comprising pivotally mounted levers; pivotally mounted braces for said wheel supports; connecting links for said braces to said levers; locking members pivotally mounted on said braces, said links being
 25 provided with forwardly facing inclined serrated keepers at their rear ends, said locking members having inclined serrated keeper engaging portions, the forward ends of said locking members being adapted
 30 to engage said links when said locking members are disengaged; springs connected to the forward ends of said locking members and braces; and a cross piece connecting said locking members adapted as a foot
 35 piece.

4. In a folding carriage, the combination with the running gear frame, of collapsible wheel supports; means for actuating said
 40 wheel supports comprising pivotally mounted levers; pivotally mounted braces for said wheel supports; connecting links for said braces to said levers; locking members pivotally mounted on said braces, said links being provided with keepers at their
 45 rear ends, said locking members having keeper engaging portions, the forward ends of said locking members being adapted to engage said links when said locking members are disengaged; springs connected to
 50 the forward ends of said locking members and braces; and a cross piece connecting said locking members adapted as a foot piece.

5. In a folding carriage, the combination
 55 with the running gear frame, of collapsible wheel supports; means for collapsing and erecting said wheel supports, comprising a lever pivoted to said frame and connected to said wheel supports; a pivoted brace for
 60 said wheel supports when in their erected position; a link connecting said brace to said lever, said link being adapted to swing past

the center of the brace pivot when the brace is in engagement with said wheel supports; and a member pivotally mounted on
 65 said brace with one end adapted to engage said link whereby when the member is actuated said link and brace are swung upward, said member being also adapted to engage the rear end of said link to lock the same
 70 when the carriage is erected.

6. In a folding carriage, the combination with the running gear frame, of collapsible wheel supports; means for actuating said
 75 wheel supports comprising pivotally mounted levers; pivotally mounted braces for said wheel supports; connecting links for said braces to said levers; locking members pivotally mounted on said braces, said
 80 links being provided with keepers, said locking members having coacting keeper engaging portions; and springs for said locking members.

7. In a folding carriage, the combination with the running gear frame, of collapsible
 85 wheel supports; means for actuating said wheel supports; a locking toggle for wheel support actuating means, one member of the toggle being arranged to serve as a brace for said wheel supports when the carriage
 90 is in its erected position; and a lever-like member pivotally mounted on said brace toggle member and adapted to engage the other member of the toggle to lock the toggle when the toggle is in its actuated or lock-
 95 ing position and to engage such toggle member when the lever-like member is actuated to break the toggle.

8. In a folding carriage, the combination with the running gear frame, of collapsible
 100 wheel supports; means for actuating said wheel supports comprising a lever; a brace for said wheel supports; a link connecting said brace and lever; a member pivotally mounted on said brace member to engage
 105 said link to lock the parts in their actuated position and when said member is actuated to release the same to engage said link and swing said brace to its inoperative position.

9. In a folding carriage, the combination
 110 with the running gear frame, of collapsible wheel supports; means for actuating said wheel supports; a locking toggle for said wheel support actuating means; and a member for breaking said toggle, adapted also
 115 as a toggle lock.

In witness whereof, we have hereunto set our hands and seals in the presence of two witnesses.

CHRISTOPHER STEELE SPOFFORD. [L. s.]

FREDERICK WILLIAM JONAS. [L. s.]

Witnesses:

EVA PARKER,

J. W. BENNETT.