

G. L. WISER.
 SINGLE MOTION COLLAPSIBLE GO-CART.
 APPLICATION FILED JAN. 8, 1915.

1,200,563.

Patented Oct. 10, 1916.
 3 SHEETS—SHEET 1.

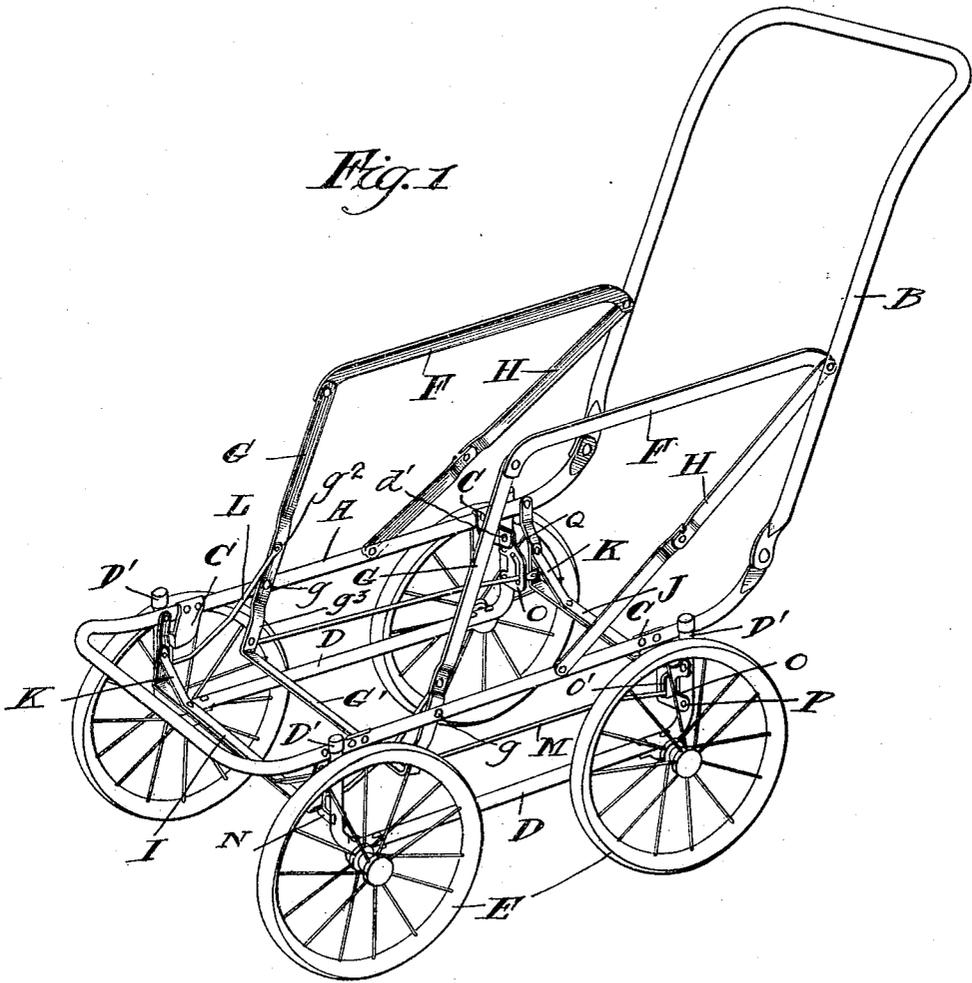


Fig. 1

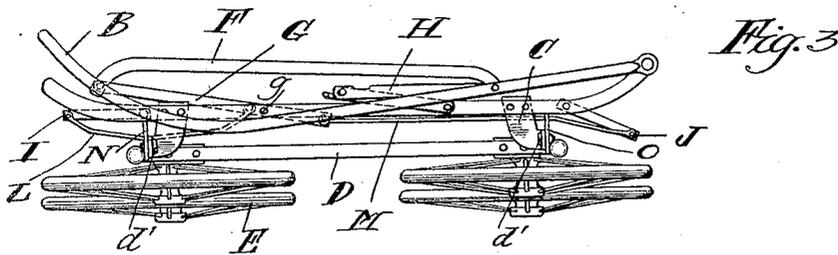
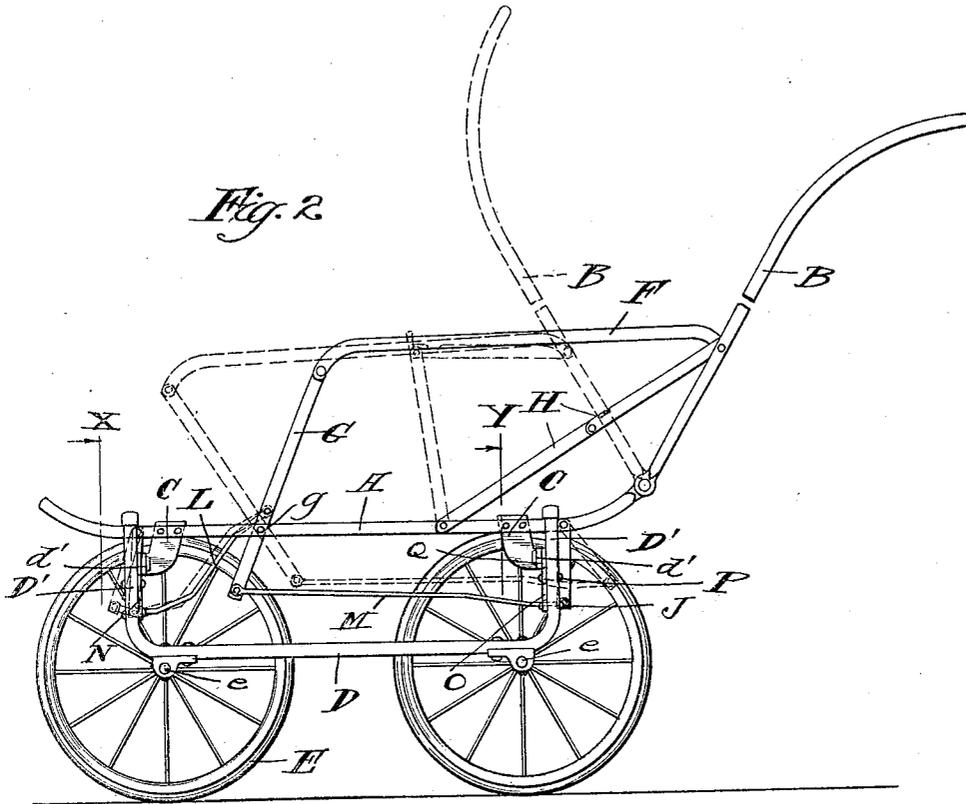
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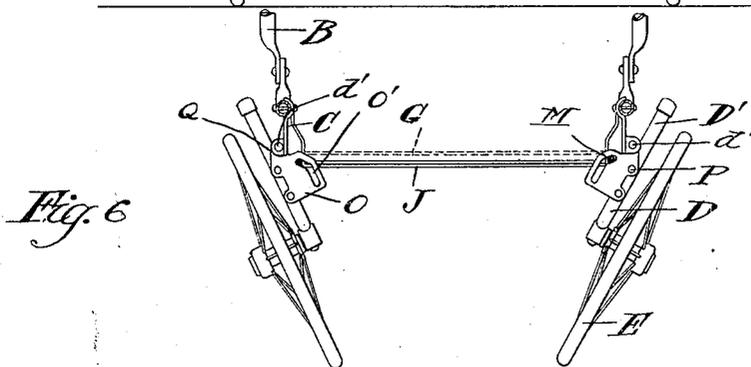
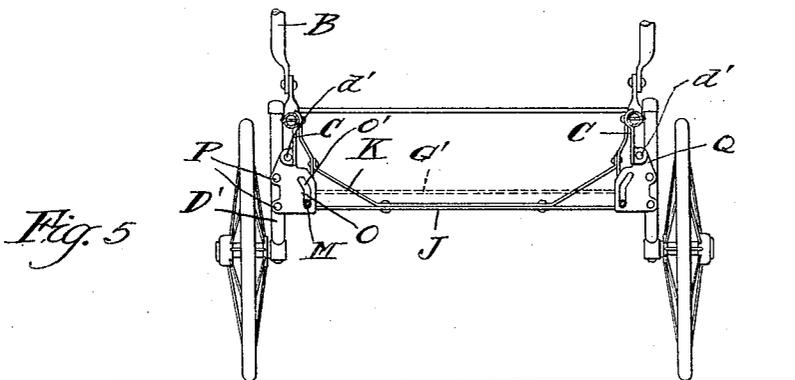
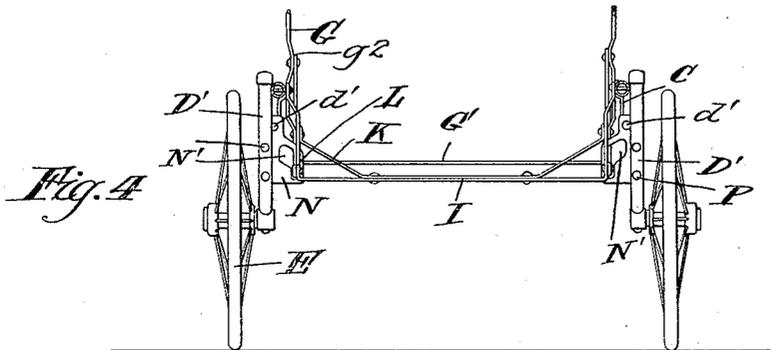
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Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE L. WISER, OF ELKHART, INDIANA, ASSIGNOR TO SIDWAY MERCANTILE COMPANY, OF ELKHART, INDIANA, A CORPORATION OF INDIANA.

SINGLE-MOTION COLLAPSIBLE GO-CART.

1,200,563.

Specification of Letters Patent.

Patented Oct. 10, 1916.

Application filed January 8, 1915. Serial No. 1,140.

To all whom it may concern:

Be it known that I, GEORGE L. WISER, a citizen of the United States, and a resident of Elkhart, Elkhart county, Indiana, have invented certain new and useful Improvements in Single-Motion Collapsible Go-Carts, of which the following is a specification.

My invention relates to improvements in collapsible go-carts for children, and has special reference to improvements in go-carts of the class in which the wheels are arranged upon side frames that are pivoted to the main frame of the cart and in which the handle or pusher is also pivoted to said main frame and is so linked thereto and to the side frames that the folding or collapsing together of the pusher and the main frame automatically accomplishes also the folding or collapsing of the side frames and wheels. Such collapsible go-carts are known as "single motion" go-carts. As here explained, the several members of the collapsible go-cart are pivotally connected yet when the cart is in use all of these parts must be virtually rigid, as though the structure as a whole were a rigid structure. The accomplishment of the desired rigidity coupled with the desired freedom of movement essential to the easy collapsing of the parts is attended with many difficulties, inasmuch as looseness in any of the connections allows the structure to rock and wobble in use and deprives the go-cart of the neat, stable and safe appearance which it should have.

The object of my invention is to improve the construction and operation of single motion collapsible go-carts and to make their operation more easy and certain.

A further object of my invention is to provide a single motion go-cart of light weight and compact construction but nevertheless extremely strong and reliable.

Other and special objects of my invention will appear hereinafter.

My invention consists generally in a single-motion collapsible go-cart of the construction and combination of parts hereinafter described and particularly pointed out in the appended claims.

The invention will be more readily understood by reference to the accompanying

drawings, forming a part of this specification, and in which:

Figure 1 is a perspective view of a single motion collapsible go-cart embodying my invention, the seat and foot well being omitted for sake of clearness; Fig. 2 is a side elevation thereof; Fig. 3 is a side view of the same go-cart in collapsed or folded condition; Fig. 4 is a vertical transverse section substantially on the line *x* of Fig. 2, showing the front end of the running gear; Fig. 5 is a similar section on the line *Y* of Fig. 2, showing the rear end of the running gear; and Fig. 6 is like Fig. 5, but shows the side frames and wheels in intermediate positions which they assume in the acts of folding and unfolding.

Referring to the drawings, A is the main rectangular frame of the go-cart; B is the handle or pusher, which is pivoted, usually, to the rear end of the main frame, A. Rigid brackets, C, are fixed on the main frame, two on each side bar thereof. The side frames, D, whatever their form, have the wheels, E, attached to them as by short stud axles, *e*. The upright ends *D'* of the side frame are attached to the brackets, C, by pivots, *d'*, which are parallel with the sides of the main frame. Being thus pivoted upon the main frame, it is obvious that the side frames, with their wheels, may be folded inwardly and upwardly beneath the main frame, as best shown in Fig. 3. Side arms, F, have their ends pivoted to the pusher, B. Their forward ends are pivotally carried by the links, G, which latter are intermediately pivoted upon respective side bars of the main frame, as by the rivets, *g*. For sake of economy in manufacture and to give rigidity to and between the lower ends of the links, G, I connect said lower ends by means of a cross bar, G'. This bar is preferably integral with the upright parts, G. The operating member, G, G', as a whole, has a rectangular U-shaped form.

When the pusher is opened or raised from the main frame (see Fig. 3) and when it is folded or closed upon the main frame, the arms F, and the links, G, are correspondingly opened and closed, as partially represented by the dotted lines in Fig. 2. Toggle lever locking devices, H, or the like, are

usually interposed between the pusher, B, and the frame, A, to secure the parts in open or unfolded condition, as shown in Fig. 1.

Upon the side bars of the main frame, at points adjacent to the forward brackets, C, I pivot the upper ends of the novel combined cross brace and operating bail I. Similarly, at points adjacent to the rear brackets, C, I pivot the upper ends of a second cross-bracing bail, J. It will be noted that the cross-bracing bail, I, is in front of the forward bracket, C, whereas bail J is back of the rear brackets, C.

The bails, I and J, are the braces which give rigidity to the running gear, when in unfolded or operating condition. Each bail preferably comprising a flat bar bent to general rectangular shape and strengthened or reinforced by a rigidly attached inner, U-shaped brace bar or strut, K.

Between the operating member, G, and the cross bracing bails, I and J, I interpose mechanism which causes them to act together and in so doing to positively open and close the wheel frames. These connections are so constructed that they afford constant engagement between the wheel frames and the folding mechanism, and likewise a constant interlocked relation, which insures the reliable action of the folding mechanism as a whole.

The interposed interlocking and operating mechanisms are of a simple character. They are the same on both sides of the structure. Each comprises two links, L and M, and two cam slot plates which are fixed to the upright parts, D', of a side frame D. The cam plates N and O are of the same external shape but differ as to the forms of their cam slots. Each plate is secured to the side frame by two rivets, P, and each is provided with an upstanding projection, Q, which receives the side frame pivot, d', heretofore mentioned. The cam plates are inwardly offset from the side frames and contain respectively the cam groove, N' and O', for the reception of respective operating links, L and M. At this point it should be noted that the upright ends of the operating bails are also inwardly offset; this being done to place them in line with the cam slots, so that the contained links may play back and forth in vertical planes, parallel with the sides of the main frame, A. For a like reason, I prefer that the parts, g^2 and g^3 , of the links or levers, G, shall be inwardly offset. It will be noted that the links, M, extend through the cam slot, O', and are pivoted to the bail, J. Similarly, the links, L, extend forwardly through the cam slots or openings, N', of the plates N and are pivoted to the bail, I. The links, M, are connected to the lower ends of the levers, G, while the links, L, are pivoted to said levers, G, at points above the pivots, g .

Hence the bails I and J swing in opposite directions. When the cart is opened the bails occupy vertical positions directly adjacent to the cam plates and are in firm bracing engagement therewith through the medium of respective links, L and M.

The cam slots of the plates O are of substantially the same width as the link rods, M. Said slots, O', are angular, the upper ends terminating close to the pivots d' . Obviously the rods, M, are in constant engagement with the cam plates, O, there being little, if any, lost motion between the parts.

Referring to the slots, N', it will be noted that only the lower parts fit the rods, L, that is, they are in positive engagement only when in locked position. The upper parts of the slots, N', are enlarged. The inner side edge of each cam N, however, substantially conforms to the corresponding edge of the corresponding plate, O. The links, L, are bent or curved, as shown in Figs. 1 and 2, in order that they may rise from the pivot points on the bail, I, to those on the levers, G, and yet remain in proper engagement with the plates, N, during the folding operation.

The operation of the folding structure is as follows: In folding or collapsing the go-cart the toggle locks, H, are first broken or flexed. The person then raises the cart from the ground by grasping the cross-bar of the pusher, B, and the front end of the frame, A. At the same time the pusher is folded forward onto the main frame. This action moves forward the arms, F, and hence swings the links or levers, G. The swinging of the levers, G, imparts forward motion to the operating links, L, and rearward motion to the links, M; thus displacing the bracing bails, I and J, and swinging them upward, substantially into the plane of the main frame, A. Obviously this results in raising the operating ends of the links, L, and M, toward the plane of the main frame; and while part of this vertical movement of the operating links is permitted by the vertical portions of the slots in the cam plate, the remainder of the motion causes the links to act against the tops of said slots and lifts and swings the side frames and wheels upwardly beneath the main frame, A. The folded positions of the parts are well shown in Fig. 3. The cam plates upon opposite sides of the cart are arranged at slightly different elevations so that one side frame moves inwardly in advance of the other, as required to lap the wheels of opposite pairs.

In unfolding the cart, the pusher and the main frame are grasped and separated. The first part of the consequent swinging movement of the members, G, causes the links, M, to engage with the outer lower sides of the cam slots, O', and to thus forcibly distend

the wheel frames. The last part of the opening movement causes both links to sink into the bottoms of the vertical parts of respective cam slots, O', and, N', and thus effectively locks the side frames in distended positions. Meantime the cross bracing bails assume their bracing positions.

The cam slots in the plates, N, may be the same as those in plate, O, but in such case greater accuracy would be required in assembling of the parts, and it is for this reason that I rely upon a single pair of cam plates for the intermediate movements of the side frames, and enlarge the upper parts of the slots, N', to substantially free the links, L, during the intermediate unfolding or distending action.

Because of the novel manner in which the parts are related they may be relatively small, no considerable size or strength being required to yield the requisite durability and rigidity.

As various modifications of my invention will readily suggest themselves to one skilled in the art, I do not confine the invention to the specific structures herein shown and described.

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

1. In a single motion collapsible go-cart, a main frame in combination with a side frame pivoted thereto, an upright operating lever intermediately pivoted on said main frame, two cross bracing bails pivoted on the main frame, operating links pivoted on said lever and having their opposite ends

pivoted to respective bails, and cam plates fixed upon said side frame adjacent to said bails and containing cam slots wherein respective links operate.

2. In a single motion collapsible go-cart, a main frame in combination with a side frame pivoted thereto, an upright operating lever intermediately pivoted on said main frame, two cross bracing bails pivoted on the main frame, operating links transversely pivoted on said lever and having their opposite ends pivoted to respective bails, and cam plates fixed upon said side frame adjacent to said bails and containing cam slots wherein respective links operate.

3. In a single motion collapsible go-cart, a main frame in combination with a side frame pivoted thereto, an upright operating lever intermediately pivoted on said main frame, two cross bracing bails pivoted on the main frame, operating links transversely pivoted on said lever and having their opposite ends pivoted to respective bails, and cam plates fixed upon said side frame adjacent to said bails and containing link locking cam slots wherein respective links operate, and the cam slots which cooperate with the lowermost link being adapted to closely fit said link in all positions.

In testimony whereof, I have hereunto set my hand, this 1st day of December, 1914, in the presence of two subscribing witnesses.

GEORGE L. WISER.

Witnesses:

F. D. FIELDS,
F. C. WERK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."