A. E. McGILL.

GO-CART.

APPLICATION FILED FEB. 17, 1909.

1,123,908.

Patented Jan. 5, 1915.

3 SHEETS—SHEET 1.

Fig. 1.

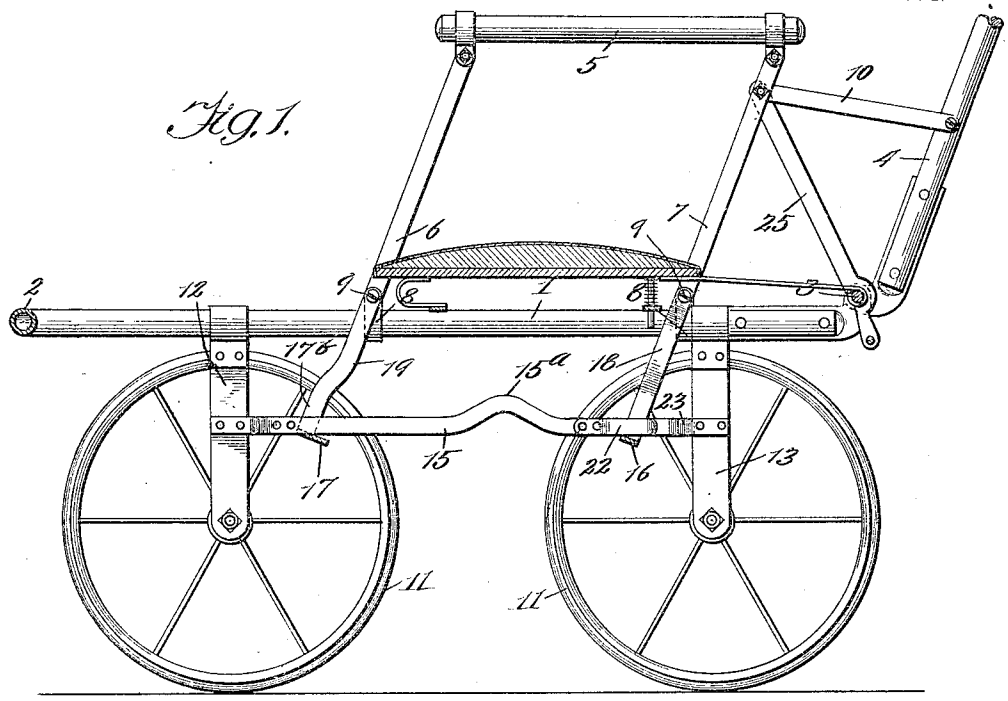
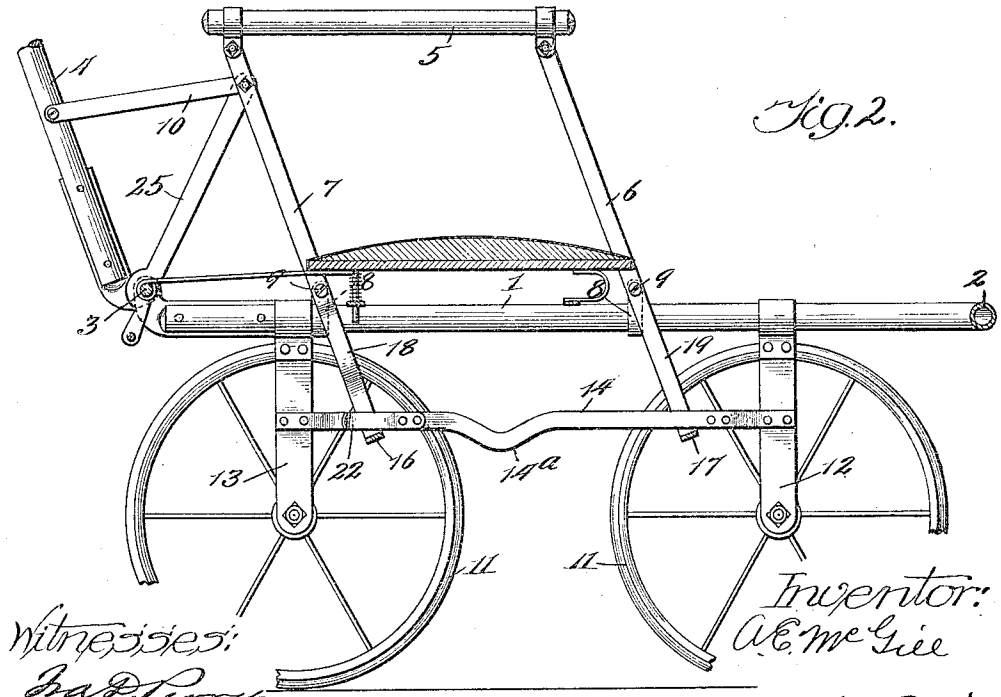


Fig. 2.



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3 SHEETS—SHEET 2.

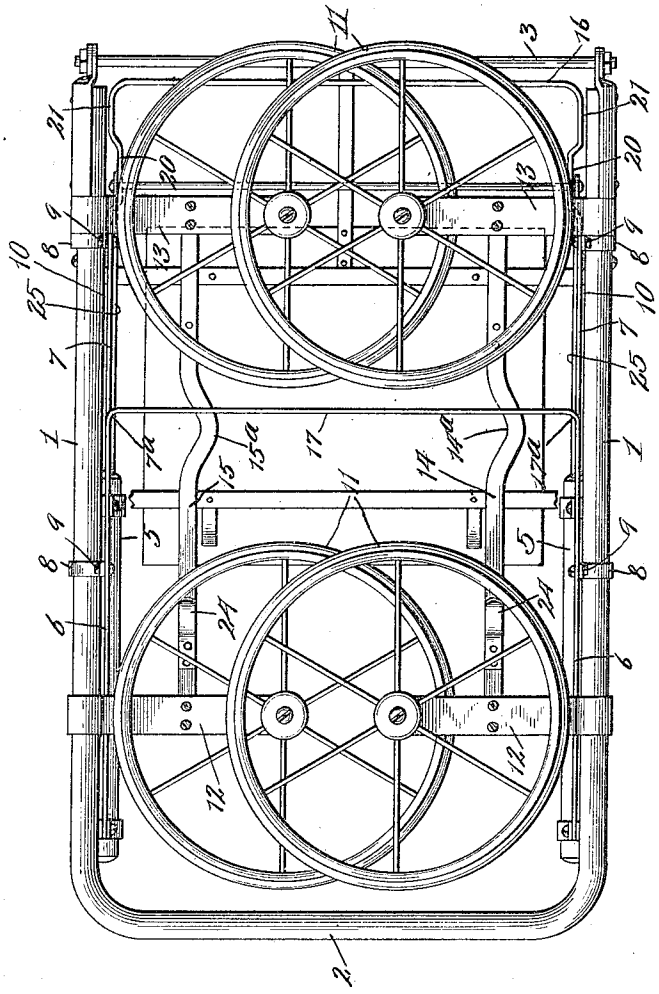


Fig. 3.

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3 SHEETS—SHEET 3.

Fig. 4.

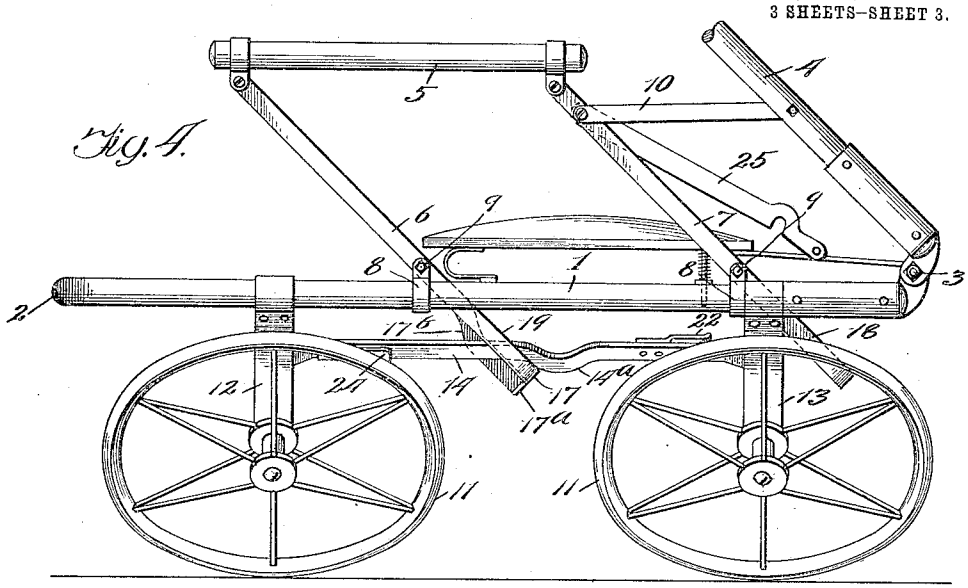


Fig. 5.

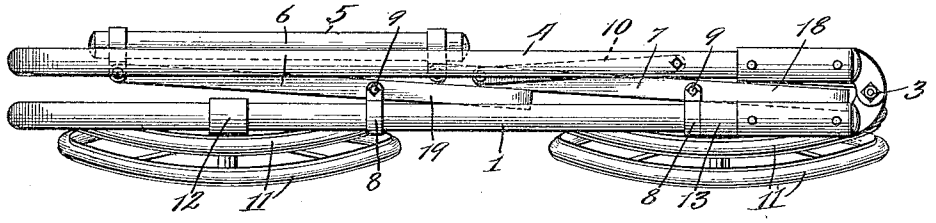
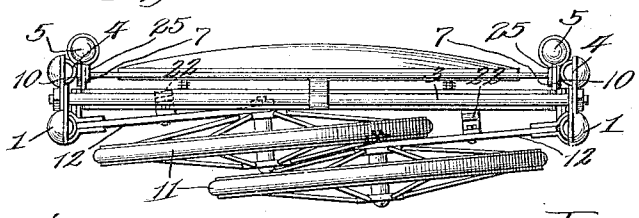


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALBERT E. McGILL, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WILLIAM S. FERRIS, OF ELKHART, INDIANA, AND ALEXANDER B. LEITH, OF CHICAGO, ILLINOIS, TRUSTEES.

GO-CART.

1,123,908. Specification of Letters Patent. Patented Jan. 5, 1915.

Application filed February 17, 1909. Serial No. 478,365.

To all whom it may concern:

Be it known that I, ALBERT E. McGILL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Go-Carts, of which the following is a full, clear, and exact specification.

This invention relates more particularly to the folding type of go-cart, and especially to that type in which a long standing handle is capable of folding down upon the top of the horizontal running gear frame and carrying with it portions of a folding seat structure, while the wheels fold up against the under side of such running gear frame transversely thereof in a substantially flat and compact form, and the invention has for its primary object to provide improved and simple means whereby the folding action of the handle will automatically cause the wheels also to undergo their folding movement, a further object of the invention being to provide means whereby the unfolding action of the handle will also unfold the wheels automatically and place them in their standing or operative position.

Another object of the invention is to provide improved and efficient means whereby the cross-brace which is sometimes employed in go-cart structures of this type for bracing the running gear are utilized for imparting either the folding or unfolding motion to the wheels as a result of bringing the brace into its operative or into its folded position.

A still further object of the invention is to so utilize and position one or more of these cross-braces with relation to the longitudinal bars sometimes employed for connecting the wheel brackets together that the brace or braces will not only serve for holding the wheels separated or unfolded, but will limit their outward or separating movement beyond the required extent.

With a view to the attainment of these ends and the accomplishment of certain other objects which will hereinafter appear, the invention consists in the features of novelty shown in the accompanying drawings, described in the specification, and set forth in the claims.

In the said drawings—Figure 1 is a vertical, longitudinal, sectional view of a go-cart embodying this invention. Fig. 2 is a similar section looking from the opposite side to that presented in Fig. 1. Fig. 3 is a bottom view of the go-cart folded up. Fig. 4 is a side elevation of the go-cart partially folded. Fig. 5 is a side elevation of the cart entirely folded. Fig. 6 is an end view of the cart entirely folded, looking from the rear end.

In this particular exemplification of the invention, the running gear frame is composed of two side bars 1, which are connected together at their forward ends by a cross-bar 2 and at their rear ends by a cross-rod 3, which latter serves not only to stiffen the frame and hold the bars 1 from spreading, but constitutes a pivot or hinge for a folding handle, consisting of side bars 4 connected together at their upper ends to make a trilateral frame which is capable of folding down substantially flat against the top of the running gear frame in the manner shown in Fig. 5.

5 are the horizontal arms of the seat structure, the bottom portion of the seat as well as the back being omitted for the sake of clearness, as the same constitute no part of the present invention, and are well understood in the art, various arms being employed which are sometimes supported directly from the arm pieces 5, or in conjunction therewith, and sometimes supported upon the running gear frame independently of these arms. The variations in these arrangements would not vary the operation of the present invention, nor change the result for which the present combination is designed. In this exemplification of the invention, these arms pieces are supported upon the upper ends of four standards or deflectible braces 6, 7, arranged two at each side of the running gear frame and pivoted thereto by any suitable means, such as clips or collars 8 and pivots 9. Both of the rear standards or braces 7 are pivotally connected to the handle bars 4 by means of links 10, so that when the handle is lowered in the act of folding up the cart, the folding seat structure thus constituted will also be lowered into a position close to the running gear frame with the seat arms 5 substantially parallel therewith as shown in Fig. 5, and when the handle 4 is again raised to its standing or operative position, this

seat structure will automatically resume its standing or operative position, as shown in Figs. 1 and 2.

The four wheels 11 are pivotally supported on the running gear frame side bars 1 by means of wheel brackets or supports 12, 13, connected together in pairs by longitudinally connecting bars 14, 15, so that when one wheel on either side of the cart is folded or unfolded with relation to the running gear frame, its companion on the same side will undergo a like movement. When the wheel brackets are in their standing or operative position, they are rigidly braced and held in that position by one or more cross-braces 16, 17, which engage with the connecting bars 14. These cross-braces 16, 17 are also pivoted to the running gear frame, and in order that they may operate in unison with the standards 6, 7, and be caused to perform their functions automatically as a result of folding and unfolding the handles 4, they are preferably formed on or secured to downward extensions or continuations 18, 19 of the braces 7, 6 respectively. The rear brace 16 and its supporting extensions or arms 18 are situated between the connecting bars 14, 15, so that when in the unfolded position, they rigidly brace the connecting bars against inward or folding movement, while the forward brace 17 is situated below the connecting bars 14, 15 and its supporting extensions or arms 19 are situated outside these connecting bars so as to embrace the same and hold the connecting bars against outward movement, whereby the two cross-braces conjointly serve to hold the wheels against lateral movement in both directions.

The rear brace 16 and its arms 18 being between the connecting bars 14, 15, it will be seen that when the wheels are folded up, they will be below the brace 16 and its arms. Consequently, when the handle is raised in the act of unfolding the cart, the brace 16 and its arms 18 in making their downward movement will first engage the tire or rim of that one of the wheels which is on top, and thereby start the unfolding movement of the wheels, the unfolding movement of the pair of wheels on one side being started by the direct impact of the brace 16, and those on the other side being forced by the first pair. The movement is thus continued until the rim of the upper wheel passes out of reach of the brace 16 and its supporting arms, and by that time the supporting arms come in contact with the rear brackets 13 of the rear wheels and continue the unfolding motion by crowding these brackets apart. In order, however, that the arms 18 may be effective in carrying the brackets outward to their true vertical position, and may not engage the brackets at points so near to the pivotal centers of the brackets as to be ineffectual in carrying the brackets to the full extent of their outward movement, the arms are provided with offsets 20 bent inwardly, whereby their initial point of contact with the brackets will be sufficiently far away from the axes of the brackets to enable them to turn the brackets upon their centers. By thus offsetting the arms 20, they are elevated with the cam shaped bends 21 at points contiguous to the brace 16, which engage the rear edges of the brackets 13 as the brackets pass beyond the reach of the offsets 20, and by eventually crowding in between the brackets and the rear extremities of the longitudinal bars 14, 15, ultimately force the brackets into their full outward position. As the arms 18 move forward to their full operative position, they engage between the bars 14, 15 and clips 22, secured to each of these bars, so that when in this position, the brace 16 is beneath the clips 22 and the arms 18 are firmly gripped between the bars and the clips. If the brackets 13 occupy planes outside of the vertical planes touching the inner edges of the bars 1 of the running gear frame when the said brackets are in their vertical position, it will be desirable to bend the connecting bars 14, 15, inwardly between their extremities to produce bevels 23 at the rear ends so as to enable the cam bends 21 to push the bars 14, 15 outwardly a sufficient distance to put the brackets 13 in their operative planes, but this is a mere detail which will vary according to the particular construction selected for carrying out the invention.

Having described the movement whereby the wheels are unfolded, the means for causing the wheels to fold in pairs and successively, or one pair slightly in advance of the other, will now be explained.

It is quite apparent that the forward arms 19 being arranged outside the connecting bars 14, 15, and the points of conjunction between these arms and the forward cross-brace 17 being rounded as shown at 17ª, the upward movement of these arms and cross-braces in response to the folding action of the handle will naturally crowd the longitudinal bars 14, 15 inwardly, and carry the wheels toward the plane of the running gear frame, but in order that this folding action of the two pairs of wheels may take place sequentially, so that the wheels of one pair will not clash with those of the other, and thereby defeat the folding movement, the longitudinal bar on one side is provided with a cam bend 14ª with which the cross-bar 17 engages as the brace moves to the rear during the folding action, and consequently hastens the folding action of the pair of wheels on that side. It is of course possible to make this cam bend of sufficient dimensions to impart to the pair of wheels on that side the desired degree of speed in

their folding action to carry them fully beyond the reach of the wheels on the other side in time to insure one pair passing the other, but in order that this bend 14[a] may not be so excessive as to be objectionable, it is desirable to provide the longitudinal bar 15 on the other side with an oppositely extending bend 15[a], which produces on the folding action on that side just the opposite effect of the bend 14[a], inasmuch as it allows the brace 17 and its arms 19 to approach the plane of the running gear frame without acting upon the bar 15 to fold the wheels. In other words, the cam bend 14[a] on one side hastens the folding action of the wheels on that side, while the bend 15[a] on the other side retards the folding action of the wheels on that side. In practice, however, even this amount of bend in the bar 15 is not wholly adequate, and in order that it may not be so excessive as to be objectionable, the cross-brace 17 is provided with an offset 17[b] where the brace engages the bar 15, so that the engagement of the brace with the bar will be still further delayed, and as a consequence, the folding action of the pair of wheels on that side will be even slower than if the brace 17 extended straight across. The arms 19 also engage between the longitudinal bars 14, 15 and clips 24 secured to these bars 14, 15 respectively, so that while the arms 19 hold the wheels against outward movement by direct engagement with the bars 14, 15, they also hold the wheels against inward movement by engagement with the clips 24.

It is of course apparent that any of the well known or suitable means for holding the cart from accidentally folding during use may be employed in connection with these improvements, and such means may be applied to the structure where most convenient or desirable. For example, a latch bar 25 may be pivoted to one or both of the rear standards 7 and dropped down and hooked over the cross-rod 3, so as to hold the handle 4 against forward movement.

In order that the invention may be understood by those skilled in the art, the details of an exemplification thereof have been thus specifically described, but

What I claim is:

1. In a folding go-cart the combination of a running gear frame, wheel supports below and pivotally secured with relation to the frame and adapted to fold up thereunder transversely thereof, a folding seat structure above the frame, a folding handle operatively connected with the folding seat structure and adapted to fold the seat structure into close relation to the running gear frame braces forming extensions on said seat structure positioned below said frame, and adapted to swing downwardly below the plane of the running gear frame, and means secured to the wheel supports in position to be embraced on the outside by one of said braces and on the inside by the other of said braces.

2. In a folding go-cart the combination of a running gear frame, wheel supports pivotally secured with relation thereto and adapted to fold up thereunder, a folding seat structure supported from the running gear frame and comprising two pairs of upright deflectable standards, two pairs of extension arms continuing downwardly from said standards below the plane of the running gear frame, braces connecting said extension arms together in pairs cross-wise of the running gear frame, and means secured to the wheel supports and projecting between the extension arms of one pair and over the brace of that pair and projecting outside of the extension arms of the other pair, and a hinged handle operatively connected with one pair of said standards.

3. In a folding go-cart the combination of a running gear frame, wheel supports pivotally secured with relation to the frame and adapted to fold up thereunder, longitudinal bars connecting the wheel supports together in pairs, a pair of downwardly swinging arms extending below the running gear frame outside of said bars, a cross-brace connecting said arms together below said bars, one of said bars having a downwardly extending cam for the engagement of said cross-brace and the other of said bars being eased off upwardly to delay the engagement therewith of said cross-brace, a second pair of downwardly swinging arms extending from the frame between said bars, a cross-brace connecting said second pair of arms together below said bars, and means connecting said pairs of arms above the frame for operation in unison.

4. The combination in a baby carriage, of a carriage-body frame, a handle hinged to the rear end of the carriage-body frame, carriage-body sides hinged to the handle and to the sides of the carriage-body frame, wheel supports hinged to the sides of the carriage-body frame, longitudinal rods secured to the wheel supports adjacent to the wheel axes thereon connecting the front and rear wheel supports at each side of the carriage, and a pair of arms connected with and extending downwardly from each side of the carriage-body sides, detached therefrom and engaging said longitudinal rods, whereby the folding of the handle forward and down upon the carriage-body frame operates to fold the carriage-body sides down upon the top of the carriage-body frame, and the wheel supports and wheels thereunder, substantially as set forth.

5. In a folding go-cart the combination of a running gear frame, wheel supports pivotally secured with relation thereto and

adapted to fold thereunder, longitudinal bars connecting the wheel supports together, a cross-brace arranged under said longitudinal bars, arms connecting the cross-brace pivotally with the running gear frame, arranged on the outside of said longitudinal bars and detached therefrom, a second cross-brace, arms connecting the latter and arranged on the inner sides of the longitudinal bars whereby the swinging movement of the last said arms and braces will cause the longitudinal bars to swing outwardly to unfold the wheel supports, the first said arms and braces being adapted to retard the unfolding movement of the wheel supports and being also adapted so that their swinging movement in the opposite direction will cause the longitudinal bars to swing inwardly and fold up the wheel supports, extensions on said arms above the running gear frame, and means connecting said extensions in pairs on corresponding sides and above the frame for operating the arms in unison.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 11th day of February A. D. 1909.

ALBERT E. McGILL.

Witnesses:

J. H. JOCHUM, Jr.,

CHAS. H. SEEM.

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