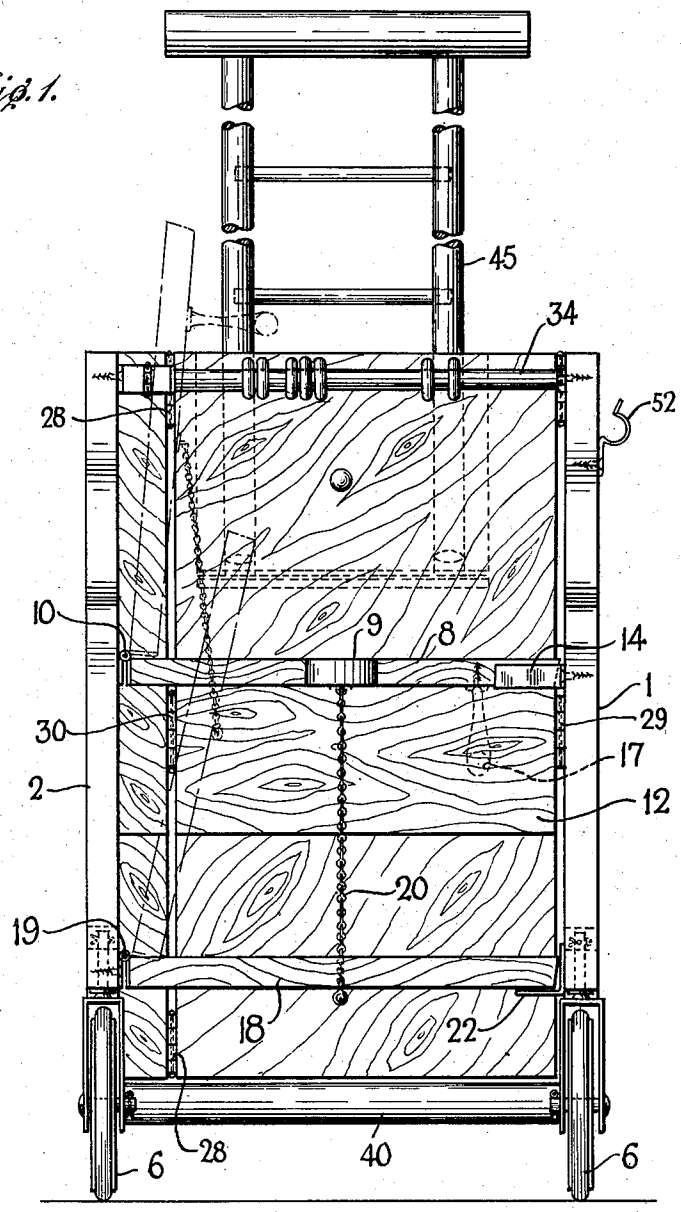
April 12, 1949. W. H. BUCHHAGEN 2,466,760

FOLDING GOCART

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Fig. 1.




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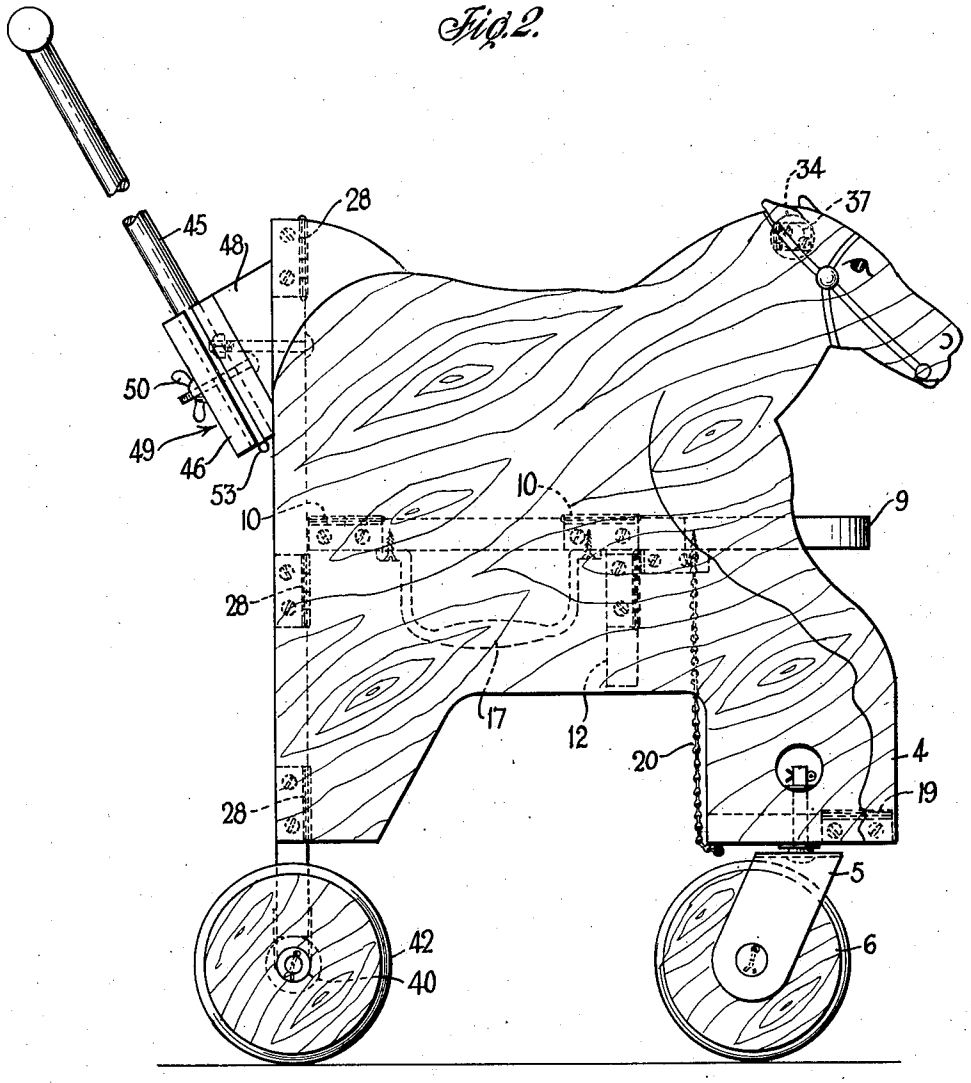
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Fig. 2.




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Fig. 3.

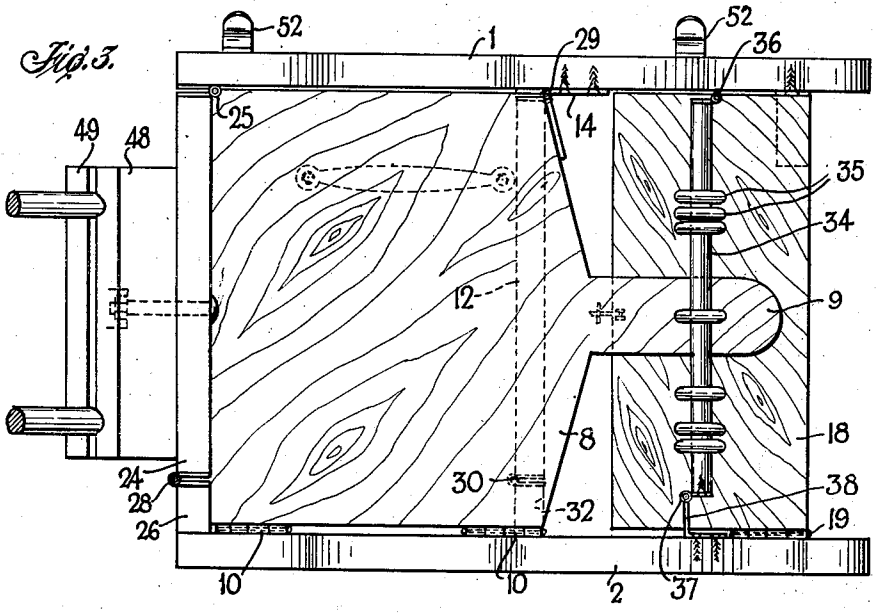
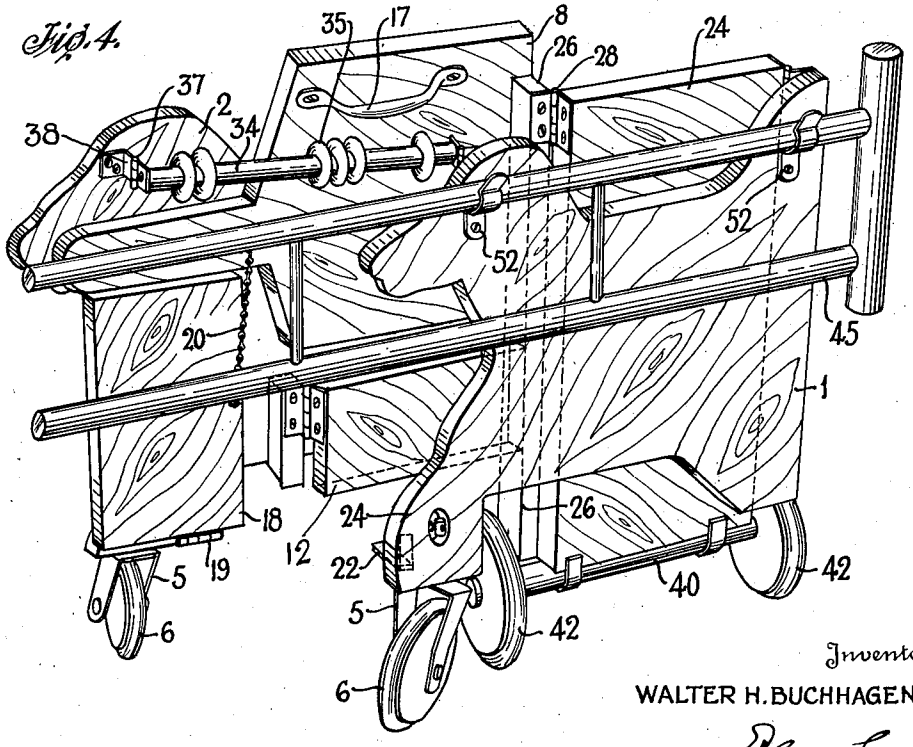



Fig. 4.




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2,466,760

## FOLDING GOCART

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Application September 27, 1944, Serial No. 556,043

20 Claims. (Cl. 280—42)

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The present invention has for its object the design and construction of a child's go-cart which may be folded or collapsed so that it is easy to carry. The usual non-collapsible go-cart is very awkward and difficult to handle, particularly in getting on or off street cars or buses, especially when the adult has to carry the child and possibly miscellaneous packages. A go-cart made in accordance with the present invention is readily collapsed and can be manipulated easily in collapsed position. The construction is such that the go-cart is automatically collapsed after the initial closing operation is performed and will remain in collapsed condition without any tendency to open up. The design is thoroughly practical, and when in collapsed position the entire device is compact, differing in this respect from previous attempts to make a collapsible device of this character.

A further advantage of the design shown herein is that when in collapsed position the supporting wheels are so located as to furnish a stable support for the collapsed go-cart and it may be set on the ground where it will stay in upright condition. Further, the go-cart is so designed that when the collapsing operation is initiated, the go-cart tends to move into its collapsed or flattened condition due to overbalancing the weight of the various elements in the direction in which the elements move for collapsing and, as a result, when the partially collapsed device is lifted from the ground, it will close up automatically. When, however, the go-cart is in its normal or non-collapsed condition, it will not tend to collapse and may be handled and operated exactly as a non-collapsible vehicle of this type.

While the object of the invention has been to make a thoroughly operative and practical go-cart which will relieve the parent of much trouble in transporting the child and its go-cart, the invention may be applied to other types of vehicles.

The invention is shown and described in its best known and preferred form, but it is possible that variations and modifications may be made in specific embodiments of the invention without departing from the principles thereof as set forth in the appended claims.

In the drawings:

Fig. 1 is a front view of a go-cart made in accordance with the invention, the vehicle being shown in full lines in its expanded or open position, dotted lines being used to indicate the movement of the seat and footrest which initiates the collapsing operation;

Fig. 2 is a side view of the erected go-cart;

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Fig. 3 is a plan view thereof; and

Fig. 4 shows, in perspective, the go-cart in fully collapsed position and standing on the ground.

Referring to the drawings in detail, the right and left side boards or panels of the go-cart, looking at it from the front, are indicated by the numerals 1 and 2, respectively. These side boards may be made in any attractive design and each is formed with a forward leg in the lower end of which is swivelly mounted the caster frame 5 constituting the support for a forward wheel 6.

Midway of the panels is located the horizontal seat 8 with its forwardly extending tongue 9. The seat is connected by the hinges 10 to the side board 2 so that it may be swung upwardly as shown in dotted lines in Fig. 1. When, in its lowered position, the seat rests upon a cross piece or riser 12 which is located substantially midway of the structure and its forward corner remote from the hinges 10 fits behind a bracket 14 attached to the inside of the side board 1. Preferably this bracket has a slight spring action which holds the structure rigid when in open condition. The function of the bracket 14 is to serve as a lock which prevents the two side boards from shifting with respect to each other. A handle 17 is attached to the underside of the seat near its free or unhinged end. When the go-cart is collapsed, the handle is accessible above the assembly and is the means by which the device is carried.

Forwardly of the device and located at the lower end of the legs 4 is the footrest 18 which is also hinged to the side board 2 at 19 so that it will swing upwardly with the seat 8. A chain 20 is attached to the underside of both elements and connects the parts so that they will move in unison. In lowered position, the unhinged end of the footrest is supported on a bracket 22 attached to the leg 4 of the side board 1. As shown in Fig. 4, the seat 8 and the footrest 18 are so arranged and designed that when they are moved to vertical position they will not interfere, but will lie flat against the inside of the side board 2. The fact that the chain is attached to the underside of the footrest causes the latter to lie flat against the side board 2 when the device is collapsed.

The main portion of the back of the go-cart is indicated at 24, being hinged at one end to the side board 1 at 25 by a plurality of vertical hinges. The back does not extend completely to the side board 2, being supplemented by a filler piece 26 to which it is hinged as at the several points 28. The filler piece is slightly wider than

the thickness of the seat and footrest so as to accommodate the parts between the side boards 1 and 2 when the go-cart is collapsed. This filler piece is coextensive with the back so that the axle is supported uniformly between the wheels when the device is erected. It will be noted that the hinges 25 and 28 are reversed so that in the collapsing movement the side board 2 will move to the right of the side board 1. The riser or seat rest 12 is likewise hinged at one end to the side board 1 as at 29. At its other end, the riser is likewise hinged at 30 to a filler 32 of the same thickness as the filler 26. Across the upper front of the side boards is located the bar 34 which may carry a number of colored rings 35 to amuse the child. This bar 34 is hinged similarly to the parts 12 and 24 to the side board 1 at 36 and at 37 to a bracket 38 attached to the side board 2. This bracket extends outwardly from the side board 2 to bring the hinge 37 in line with the hinges 28 and 30.

To the lower end of the back 24 is attached the rear axle 40 which carries the rear wheels 42. From an inspection of Fig. 4, it will be seen that when the go-cart is collapsed, the rear wheels 42 are in a line which is midway between the front wheels 6, and this makes a three-point support for the collapsed device so that it will be stable when set down in this position and will not tend to tip over. This facilitates the handling of the collapsed go-cart.

The handle of the go-cart is indicated at 45. It is removably attached to the rear side of the back 24 by a diagonally arranged clamp bracket 46 which may be of any preferred design. As shown in the drawing, this bracket consists of the stationary block 48 and the movable plate 49 hinged at 53. The part 49 is held against part 48 by the wing nut unit 50 to secure the handle. When the go-cart is to be collapsed, the handle is removed and after the device is folded up the handle is conveniently attached in horizontal position alongside the assembly by clips 52 attached to the side board 1. The handle is usually only slightly longer than the over-all length of the collapsed go-cart so that it does not project objectionably beyond either end of the assembly.

It will be seen that the collapsing and re-erection of the go-cart is very simply and easily done. The handle 45 is first detached, then the seat 8 is raised and the footrest moves with it. The side boards 1 and 2, the back 24, the riser 12 and the cross bar 34 now are parts of a parallelogram. The assembly is then picked up by the handle 17 and as the preponderance of weight is to the right of the device as shown in Fig. 4, the whole structure will fold together automatically. As shown in Fig. 4, the handle is located forwardly of the seat so as to accentuate the unbalanced condition of the assembly and thus insure its collapse and also its tendency to remain in collapsed condition. In collapsed position the seat and footrest will lie against the side board 2, while the back 24 and the riser 12 will be against the side board 1. The front bar 34 will lie in the plane of the parts 24 and 12. This makes a very compact, three-layer assembly which is easily handled and which requires no holding device to retain it in collapsed position. The handle 48 may be attached at any convenient point when the device is collapsed, the location shown in Fig. 4 being admirably suited for the purpose.

It will be appreciated that the device as described herein is one form in which the invention is embodied, but that changes, modifications and improvements may be made therein without sacrificing any of the basic principles of the invention. The invention is not necessarily limited to go-carts or even to children's vehicles, but may be employed in other devices where it is desired to collapse the device for compactness and ease of handling.



What is claimed is:

1. A child's vehicle comprising two side boards, a back and a transverse seat support, said parts being hinged together to form a collapsible parallelogram, and a one piece seat hinged to one of said boards and overlying the support when the vehicle is erected and adapted to move to vertical position between the side boards when the parallelogram is collapsed.

2. A child's vehicle comprising two side boards, a back and a transverse seat support, said parts being hinged together so that the vehicle may be collapsed by shifting one side board with respect to the other, and a seat and a footrest hinged to one of the side boards and adapted to move to a vertical position between the side boards when the vehicle is collapsed.

3. A child's vehicle comprising two side boards, a back and a transverse seat support, said parts being hinged together so that the vehicle may be collapsed by shifting one side board with respect to the other, a seat and a footrest hinged to one of the side boards and adapted to move to a vertical position between the side boards when the vehicle is collapsed, and a connection between the seat and the footrest whereby said elements will move in unison.

4. A child's vehicle comprising two side boards, a back and a transverse seat support, said elements being hinged together to form a parallelogram which may be collapsed by shifting one side board relative to the other, a seat hinged to one of the side boards and movable to a vertical plane between the side boards when the parallelogram is collapsed, and a handle on the seat, said handle being so located that it is above the side boards and the unbalanced weight of the vehicle will cause the parallelogram to collapse when the vehicle is supported by the handle.

5. A collapsible device for the uses and purposes set forth, comprising a rectangular frame composed of two oppositely positioned side boards, a back and a transverse seat support, said elements being hinged together so that the frame may be collapsed by shifting one side board relative to the other, a seat member hinged to one side board and overlying the support when the vehicle is erected and movable into parallelism with the side board and into position between the side boards when the frame is collapsed.

6. A collapsible device for the uses and purposes set forth, comprising a rectangular frame composed of two oppositely positioned side boards, a back and a transverse seat support, hinges adjacent the corners of the frame, said hinges permitting the frame to be collapsed by the shifting of one side board relative to the other side board, a seat hinged to one of the side boards, said seat being movable into a vertical position between the side boards when the frame is collapsed, a handle on the under side of the seat, said handle being so positioned that the unbalanced weight of the device when supported thereby will tend to collapse the frame.

7. A collapsible device for the uses and purposes set forth, comprising a rectangular frame composed of two oppositely positioned side boards, a

back and a transverse seat support, said elements being hinged together so that the frame may be collapsed by shifting one side board relative to the other, a seat member hinged to one side board and movable into parallelism with the side board and into position between the side boards when the frame is collapsed, a removable handle attached to the back, a supporting wheel at the forward end of each side board, and a pair of supporting wheels mounted on the back.

8. A collapsible device for the uses and purposes set forth, comprising a rectangular frame composed of two oppositely positioned side boards, a back and a cross member, said elements being hinged together so that the frame may be collapsed by shifting the side boards relative to each other and swinging the back and the cross members into a common plane lying between the side boards, supporting wheels at the forward end of each side board, and a pair of supporting wheels carried by the back.

9. A collapsible device for the uses and purposes set forth, comprising a rectangular frame composed of two oppositely positioned side boards, and transverse members, said transverse members including a back and a seat support, hinges connecting the side boards and the transverse members, said hinges being so arranged that the frame may be collapsed by shifting the side boards relative to each other, and a seat hinged to one of the side boards and fitting between the side boards to hold the frame in rectangular condition when the seat is horizontal, said seat overlying the seat support when the vehicle is erected and being movable to vertical position between the side boards when the frame is to be collapsed.

10. A collapsible device for the uses and purposes set forth, comprising a rectangular frame composed of two oppositely positioned side boards and transverse members, said transverse members including a back and seat support, hinges connecting the side boards and the transverse members, said hinges being so arranged that the frame may be collapsed by shifting the side boards relative to each other, a seat hinged to one of the side boards and fitting between the side boards to hold the frame in rectangular condition when the seat is horizontal, said seat being movable to vertical position between the side boards when the frame is to be collapsed, and interengaging means between the seat and the other side board which prevents the side boards from shifting when the seat is in horizontal position.

11. A collapsible device for the uses and purposes set forth, comprising a rectangular frame composed of two oppositely positioned side boards and transverse members, said transverse members including a back and a seat support, hinges connecting the side boards and the transverse members, said hinges being so arranged that the frame may be collapsed by shifting the side boards relative to each other, a seat hinged to one of the side boards and fitting between the side boards to hold the frame in rectangular position when the seat is horizontal, said seat being movable to vertical position between the side boards when the frame is to be collapsed, a footrest hinged to the same side board, and a flexible connection between the seat and the footrest.

12. A collapsible device for the uses and purposes set forth, comprising a rectangular frame composed of two oppositely positioned side boards and transverse members, said transverse members including a back and a seat support, hinges connecting the side boards and the transverse members, said hinges being so arranged that the frame may be collapsed by shifting the side boards relative to each other, a seat hinged to one of the side boards and fitting between the side boards to hold the frame in rectangular position when the seat is horizontal, said seat being movable to vertical position between the side boards when the frame is to be collapsed, a supporting wheel at the forward end of each side board, a pair of supporting wheels carried by the back, and a handle for carrying the device when in collapsed position, said handle being attached to the under side of the seat.

13 A child's wheeled vehicle, comprising a rectangular frame composed of two oppositely positioned side boards and transverse members, said transverse members including a back, a seat support and a front cross bar, hinges connecting the side boards and the transverse members, said hinges being so arranged that the frame may be collapsed by shifting the side boards relative to each other, a seat hinged to one of the side boards and fitting between the side boards and overlying the seat support to hold the frame in rectangular position when the seat is horizontal, said seat being movable to vertical position between the side boards when the frame is to be collapsed, a removable handle, and means to attach the handle to the back.

14. A child's wheeled vehicle, comprising a rectangular frame composed of two oppositely positioned side boards and transverse members, said transverse members including a back and a seat support, hinges connecting the side boards and the transverse members, said hinges being so arranged that the frame may be collapsed by shifting the side boards relative to each other, a seat hinged to one of the side boards and fitting between the side boards to hold the frame in rectangular position when the seat is horizontal, said seat being movable to vertical position between the side boards when the frame is to be collapsed, a removable handle, means to attach the handle to the back, a front supporting wheel on each side board, and a pair of supporting wheels on the back.

15. A go-cart comprising a rectangular frame, hinges adjacent the four corners of the frame, said hinges being so arranged that the frame constitutes a collapsible parallelogram, a seat hinged to one of the frame members and movable from horizontal position across the frame into vertical position within the collapsed parallelogram, and four supporting wheels carried by the frame, the rear wheels being carried by one of said frame members and each of the forward wheels being carried by an adjacent frame member.

16. A go-cart comprising a rectangular frame, hinges adjacent the four corners of the frame, said hinges being so arranged that the frame constitutes a collapsible parallelogram, a seat and a footrest offset vertically with respect to the seat, both hinged directly to one of the frame members, both the seat and the footrest being movable in unison from horizontal position across the frame into vertical position in the same plane located within the collapsed parallelogram.

17. A go-cart comprising a rectangular frame, hinges adjacent the four corners of the frame, said hinges being so arranged that the frame constitutes a collapsible parallelogram, a seat hinged to one of the frame members and movable from horizontal position across the frame into vertical

position within the collapsed parallelogram, and a handle attached at the unhinged end of the seat and movable to a position above the go-cart and at one side of the center of gravity of the go-cart when it is in collapsed position so that the unbalanced weight of the go-cart will tend to collapse it.

18. A go-cart comprising a rectangular frame, hinges adjacent the four corners of the frame, said hinges being so arranged that the frame constitutes a collapsible parallelogram, a seat and a footrest hinged to one of the frame members and movable from horizontal position across the frame into vertical position in the same plane located within the collapsed parallelogram, and a handle attached at the unhinged end of the seat and movable to a position above the go-cart and at one side of the center of gravity of the go-cart when it is in collapsed position, so that the unbalanced weight of the go-cart will tend to collapse it.

19. A device for the uses and purposes set forth, comprising a rectangular frame, hinges adjacent the four corners of the frame, said hinges being so arranged that the frame constitutes a collapsible parallelogram, a one piece seat hinged at one end to one of the frame members, means to support the unhinged end of the seat in horizontal position, said seat being movable into vertical position within the collapsed parallelogram and extending above the frame, and a handle on the



unhinged end of the seat, said handle being above the frame when the device is collapsed and so located that the unbalanced weight of the device will tend to collapse it when lifted by the handle.

20. A device for the uses and purposes set forth, comprising a rectangular frame, hinges adjacent the four corners of the frame, said hinges being so arranged that the frame constitutes a collapsible parallelogram, a one piece seat hinged at one end to one of the frame members, means to support the unhinged end of the seat in horizontal position, said seat being movable into vertical position within the collapsed parallelogram and extending above the frame, and a handle on the unhinged end of the seat, said handle being above the frame and at the side of the center of gravity of the device when the seat is raised so that the unbalanced weight of the device will cause it to collapse when the device is lifted by the handle.

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REFERENCES CITED

The following references are of record in the file of this patent:

FOREIGN PATENTS

| Number | Country | Date |
|---|---|---|
| 3,816 | Great Britain | Mar. 5, 1889 |
| 17,669 | Great Britain | Sept. 1, 1905 |
| 28,174 | Sweden | Jan. 15, 1910 |