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H. T. HALLERAN ET AL

2,169,728

GLIDER

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3 Sheets-Sheet 1

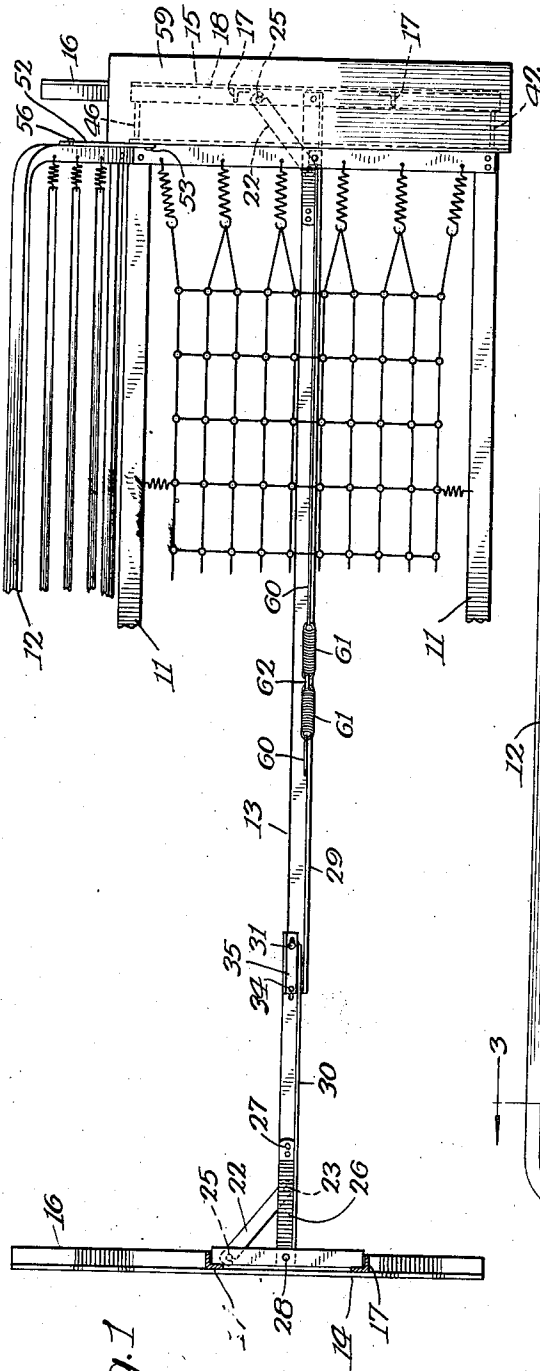


Fig. 1

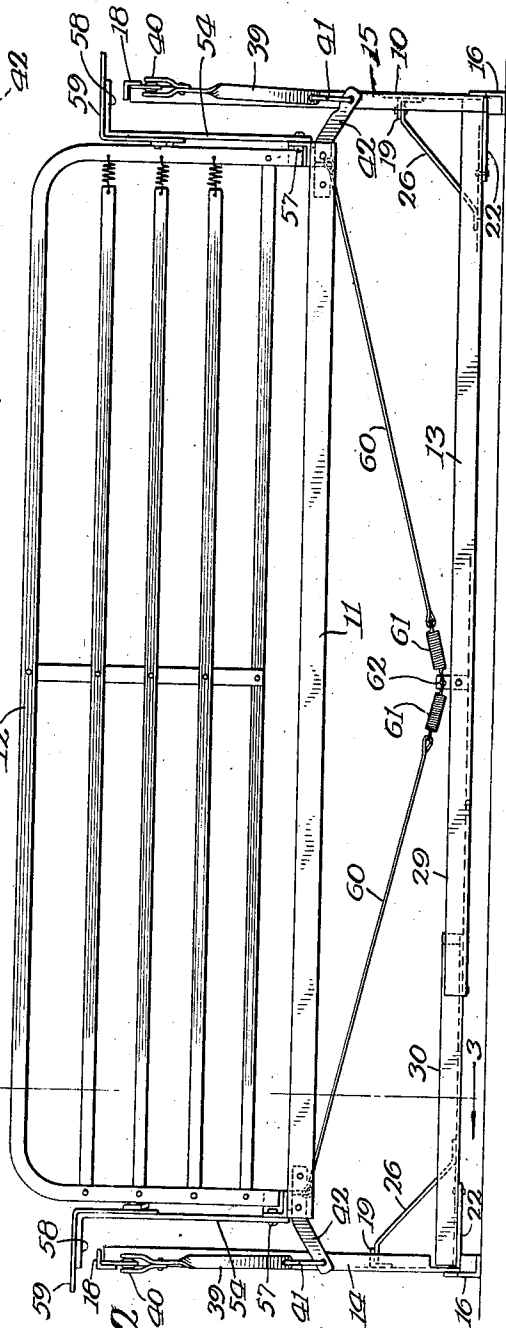


Fig. 2

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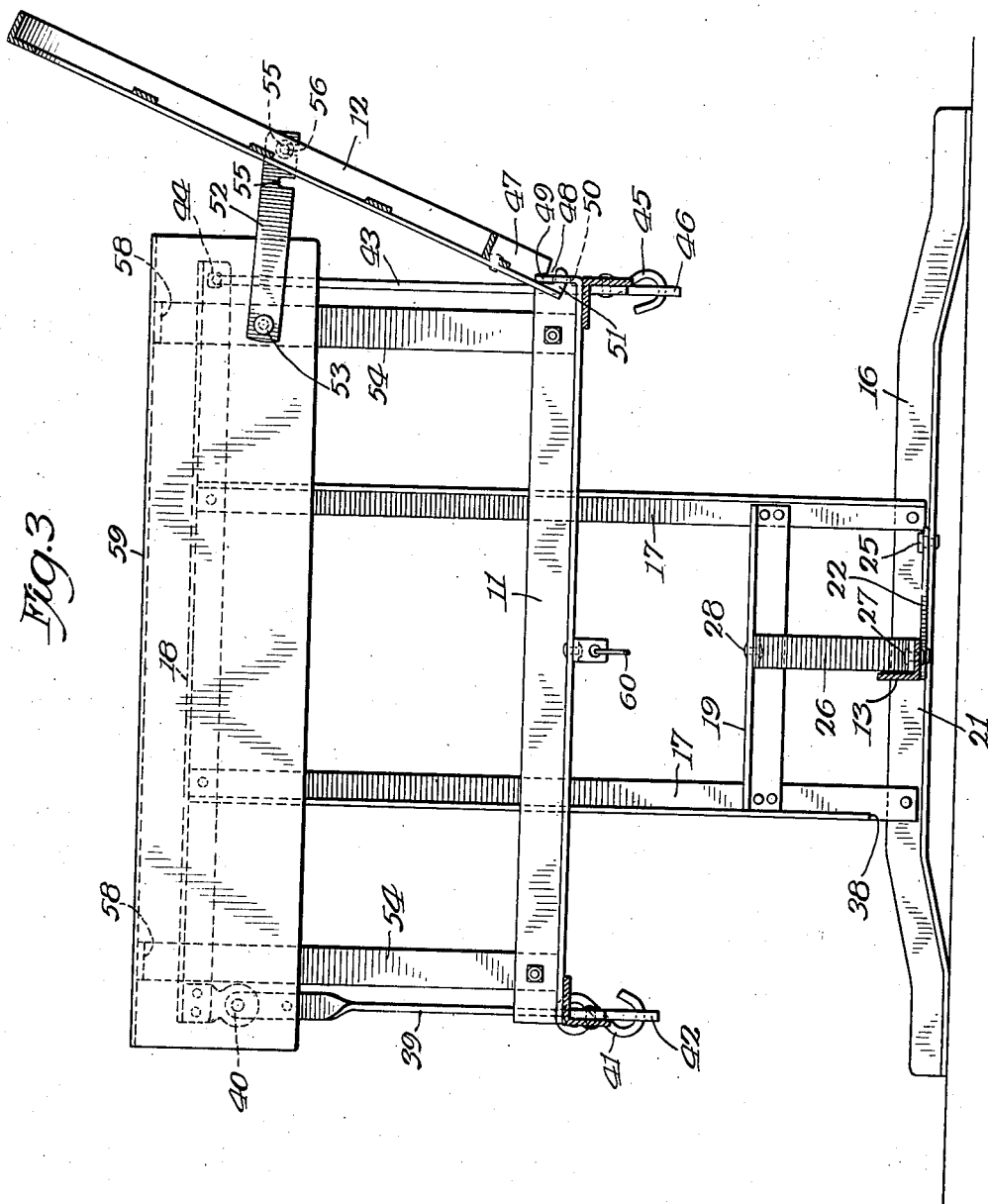
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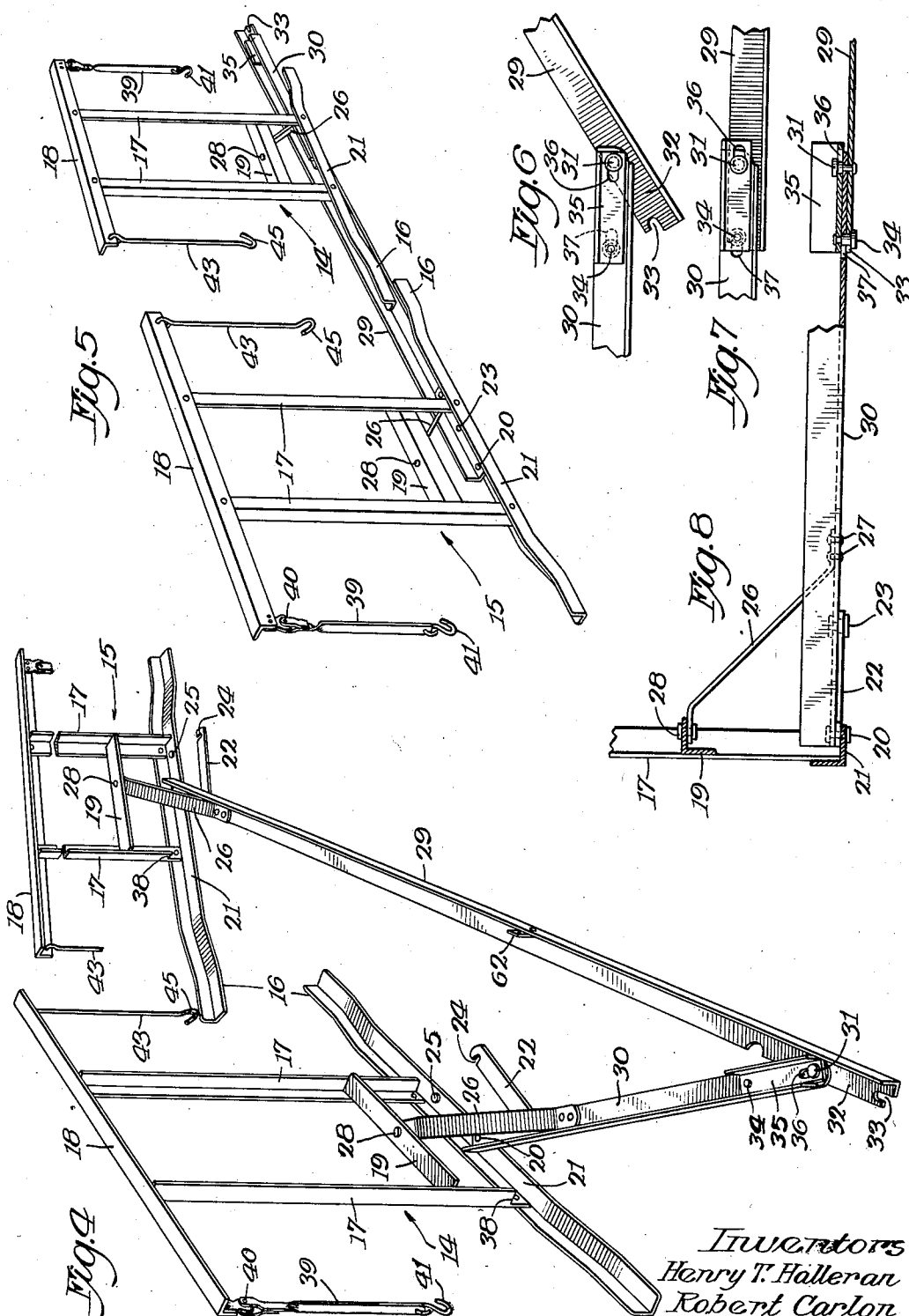
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UNITED STATES PATENT OFFICE

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GLIDER

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Application March 22, 1937, Serial No. 132,248

9 Claims. (Cl. 5—129)

This invention relates to gliders and has particular reference to the construction of a glider so that it may be easily disassembled for shipping and storage purposes and easily reassembled when it is desired to set it up for use.

The main objects are to provide a glider construction in which the main or supporting frame may be folded or collapsed to an unusually compact and flat condition to facilitate storage, packing and shipping of the glider structure; to provide readily engageable and disengageable means for connecting the seat section to the supporting frame; to provide an easily engageable and disengageable but unusually secure connection between a back rest and the seat section; and in general, it is the object of the invention to provide an improved glider of the character indicated.

Other objects and advantages of the invention will be understood by reference to the following specification and accompanying drawings (3 sheets), wherein there is disclosed an improved glider construction embodying a selected form of the invention.

In the drawings:

Fig. 1 is a plan wherein certain portions are only partially shown so as to reveal other portions of the structure;

Fig. 2 is a front elevation;

Fig. 3 is a section on the line 3—3 of Figure 2;

Fig. 4 is a perspective showing the supporting frame in partially folded or collapsed condition;

Fig. 5 is a perspective showing the supporting frame in fully collapsed condition;

Figs. 6 and 7 are fragmentary plan views illustrating a detail of construction and showing two positions of the parts illustrated, and

Fig. 8 is a fragmentary section through a portion of the supporting frame showing certain details of construction.

Referring now to the drawings, the glider construction disclosed comprises a main frame structure 10, a seat section 11 and a back rest 12. The seat section and back rest are suitably interconnected as will be presently described and these parts are swingably mounted on the main or supporting frame 10.

The supporting frame 10 comprises a tie rod 13 and a pair of upstanding normally vertically disposed end members 14 and 15, respectively. The tie rod 13 and the end members 14 and 15 are preferably of angle iron construction and the end members each comprise a base or foot part 16 having its intermediate portion offset upwardly relative to its end portions (as clearly shown in

Fig. 3), so that its end portions constitute, in effect, feet. Risers 17, 17 are rigidly secured to the base members 16 and have secured to their upper ends a transversely extending top rail 18. The risers 17, 17 are also connected intermediate their ends by means of a cross member 19 which has its ends rigidly secured to the respective risers.

The end frames 14 and 15 are pivotally connected to the respectively adjacent ends of the tie rod 13, each pivotal connection being preferably made by means of a pivot pin in the form of a rivet such as indicated at 20, a spacer being interposed between the tie rod portion and the underlying flange portion 21 of the base member, so as to space the tie rod upwardly a distance substantially equal to the thickness of a brace member 22.

A brace member, such as 22, is provided at each end of the structure and such brace member is pivotally secured at one end by means of a rivet 23 to the normally horizontal flange of the tie rod and the other end of the brace is provided with a notch 24 which is adapted to engage a headed pin 25 carried by the foot member of the end frame. It will be seen that when the notched end of the brace 22 is in engagement with the headed pin 25 of the end frame, the latter will be locked in substantially right angular, operative relation to the tie rod.

Another brace 26 is employed at each end of the structure for maintaining the adjacent end frame in substantially vertically extending right angular relation to the tie rod. Each brace 26 is pivoted as indicated at 27 to the horizontal flange of the tie rod, and as indicated at 28 to the horizontal flange of the cross member 19. The pivot connection 20 between the tie rod is substantially axially aligned with the pivot connection 28 between the end frame and the brace 26 so that the end frame may be folded relative to the tie rod into substantially parallel relation to the latter while maintaining the indicated normal vertical relationship thereto. It will be understood also that the end frames assume a position substantially parallel to each other when they are folded as indicated.

The tie rod 13 is preferably formed of two sections, one being a long section 29 and the other a shorter section 30, these sections being pivotally connected as indicated at 31. The pivot 31 is, in this instance, closely adjacent the end of the short tie rod section 30 and spaced somewhat from the adjacent end of the tie rod section 29, so that a short end portion 32 of the tie rod

section 29 extends beyond the pivot 31. The free end of the projecting end portion 32 is provided with a notch 33 for receiving a locking pin 34 which is carried by a locking device. The locking device comprises an elongated member 35, preferably a length of angle iron, the locking pin 34 being fixedly secured in one flange of the member 35. The other end of the same flange of the member 35 is provided with a slot 36 which receives a portion of the pivot pin 31, so that the member 35 may slide longitudinally relative to the tie rod sections. The pivot pin 31 is preferably headed over as best shown in Fig. 8, so as to permanently anchor the member 35 to the tie rod while permitting the said sliding movement thereof to be effected. The tie rod section 30 is provided with a slot 37 through which the locking pin 34 projects and in which slot the said locking pin is adapted to move back and forth incident to adjustment of the locking member 35.

When the tie rod sections 29 and 30 are disposed in longitudinal alignment, i. e., in operative position, the slidable locking member 35 is adjusted to cause the locking pin 34 to enter the notch 33. When the locking pin is so positioned it will be apparent that the tie rod sections 29 and 30 are locked against folding movement. When it is desired to collapse the frame, the slidable locking member 35 is adjusted lengthwise to disengage the pin 34 from the notch 33, thereby permitting the tie rod sections to be folded one upon the other as indicated in Figs. 4 to 7 inclusive.

It is preferable that the arrangement be such that the end frames may be folded into substantially coplanar relation to the respective tie rod sections to which they are attached. To facilitate such folding, one of the risers 17 of each of the end frames has its inwardly extending flange portion notched out as indicated at 38 to receive portions of the tie rod and the brace 26 when the end frame is folded. By this means the end frames may be folded to substantially parallel coplanar relation to the respective tie rod sections with which they are associated. As shown, the arrangement is such that the end frames are folded in opposite directions so that they are disposed on opposite sides of the tie rod. When the tie rod is folded upon itself, so that the parts are disposed in the position indicated in Fig. 5, both end frames are located on one side of the collapsed tie rod and in nearly coplanar relation to each other. This arrangement results in a compactly folded structure which may be packaged with the other parts of the glider or stacked with such other parts in a neat, orderly and compact arrangement.

The seat section 11 is suspended for swinging movement from the ends of the cross members 18. As best shown in Figs. 2 and 3, the front edge of the seat section is supported by a hanger 39 which is pivotally connected as indicated at 40 to the front end of the cross bar 18. The pivot connection 40 is preferably so constructed that it is somewhat elongated to thereby provide spaced points of supports for the hanger which tends to prevent swinging of the hanger in the direction of its pivot axis. The lower end of the hanger 39 is provided with a suitably formed hook 41 which engages the free end of a bracket bar 42 which extends from and is rigidly secured to the frame structure of the seat section 11. The rear edge of the seat section is similarly suspended by means of a hanger rod 43 which is equipped at its upper end with a hook for entering an

opening 44 provided in the adjacent end of the cross member 18, the lower end of the tie rod being also equipped with a hook 45 suitably connected to the hanger and engaging a projecting bracket 46 similar to the front bracket 42. The seat structure may be disconnected from the end frame by disengaging the hooks 41 and 45 from the brackets 42 and 46. The hangers 39 and 43 may remain in operative association with the cross bar 18 since the said hangers normally occupy positions within the plane of the end frames and hence offer no interference with the folding or packaging of the frame structure.

The back rest 12 is also preferably of angle iron construction and it includes end members, the lower end portions 47 of which are provided with forwardly and then upwardly extending slots such as indicated at 48 (Fig. 3). The seat section is so constructed as to have an upstanding flange portion 49 at its rear edge, and adjacent each end thereof, and said flange portion is provided with an opening 50.

The slot 48 serves to provide a hook formation 51 on the back rest structure and said hook is adapted to enter the corresponding opening 50 while the upwardly extending portion of the slot 48 receives the upper edge portion of the upstanding flange 49. It will be observed that the hook element 51 serves to prevent endwise shifting of the back rest structure relative to the seat section and that the upwardly extending portion of the notch 48 serves to prevent transverse movement of the back rest section relative to the seat section. The back rest section may, however, be readily disengaged from or connected to the seat section by permitting the back rest to swing rearwardly and downwardly until the lower edge portion of the back rest may be lifted substantially vertically from the seat section. For holding the back rest in predetermined angular position of adjustment relative to the seat section, there is provided a bracket 52 which is pivoted as indicated at 53 on one of a pair of supporting members 54 which are carried by the seat section. The rearward end of the member 52 is provided with notches as indicated at 55, the said notches being adapted to engage a pin such as indicated at 56, carried by the back rest section for locking the back rest in predetermined position. Various angular positions of the back rest may be obtained by provision of suitably disposed notches 55.

Upstanding supporting members 54, 54 are provided for supporting an arm rest structure. Each of the upstanding supports 54 is bolted as indicated at 57 to the frame of the seat section and the upper end portion 58 of each of said supports 54 is bent laterally outwardly. Suitable arm rest forming members 59 are mounted on the upper ends of said supports 54 and in this instance the said arm rests are shown as comprising sheet metal members 59 bent longitudinally to provide horizontal and vertical portions. When it is desired to collapse and package the structure, the arm rests are separated from the seat section by removing the bolts 57. The arm rest units are sufficiently rigid in the described construction owing to the reinforcing effect of the angular structure 59, the vertical flange portion of which is preferably welded at suitably spaced points to each of the supports 54 so that the latter are maintained in fixed parallel or other predetermined relationship to each other.

To further prevent endwise sway of the swing-

ing structure, any suitable anti-sway device may be provided. In this instance, there is illustrated an anti-sway device comprising a pair of wires or rods 60, 60 which have their outer ends connected in any convenient manner to the respectively adjacent ends of the seat structure approximately centrally of the width thereof. The inner ends of the said wires or rods 60 are connected through the agency of springs 61, 61 to a bracket 62 which is rigidly connected to the tie rod approximately midway of its operative or extended length. Any tendency for the swinging structure to sway endwise will be counteracted by the resistance of the springs 61 to stretch. Said springs are sufficiently flexible, however, to permit stretching thereof to the limited extent required by the normal swinging motion of the seat structure.

The seat frame and the back rest frame may be equipped with any suitable form of spring support for seat and back rest cushions, conventional forms being indicated in Figs. 1 and 2 of the drawings.

The described structure is very simple in its details and is very easy to set up or take down. It may be collapsed into a very compact package for shipment and storage with attendant advantages. It will be observed that by reason of the folding frame construction described, the over-all length of the collapsed frame structure need be no greater than the over-all length of the seat and back rest sections, this being an especially desirable feature. It will also be noted that although the end structures of the frame are folded inwardly, they do not add materially to the thickness of the space required for receiving the tie rod structure.

Changes in the described arrangement may be made without departing from the spirit of the invention, the scope of which should be determined by reference to the following claims, the same being construed as broadly as possible consistent with the state of the art.

We claim:

1. A glider frame comprising normally upstanding end members and a tie rod, said end members being respectively connected to the ends of said tie rod so as to be foldable to substantially parallel relation thereto and to each other while maintaining their vertically disposed relation to said tie rod.

2. A collapsible glider frame comprising normally upstanding end members and a tie rod, said end members being respectively connected to the ends of said tie rod so as to be foldable in substantially parallel relation relative thereto and to each other while maintaining their vertically disposed relation to said tie rod and said tie rod being foldable to reduce the length of the frame when collapsed.

3. A collapsible glider frame comprising normally upstanding end members and a tie rod, said end members being respectively connected to the ends of said tie rod so as to be foldable in substantially parallel relation relative thereto and to each other, but on opposite sides of the tie rod, while maintaining their vertically disposed relation to the latter, and said tie rod being foldable to reduce the length of the frame and so as to be disposed the end frames, when folded, in substantially co-planar relation.

4. A glider frame comprising normally upstanding end members and a tie rod, said end members being respectively connected to the ends of said tie rod so as to be foldable to sub-

stantially parallel relation thereto and to each other while maintaining their vertically disposed relation to said tie rod, and braces at each end of the frame and respectively having one end secured to said tie rod, diverging therefrom in a substantially vertical plane, and pivotally connected at its other end to the adjacent end frame for maintaining said vertical relationship between the end frames and said tie rod.

5. A glider frame comprising normally upstanding end members and a tie rod, said end members being respectively connected to the ends of said tie rod so as to be foldable to substantially parallel relation thereto and to each other while maintaining their vertically disposed relation to said tie rod, and braces at each end of the frame and respectively having one end pivotally connected to said tie rod and diverging therefrom in a horizontal direction and having its other end detachably connected to the adjacent end frame for locking the latter in operative or unfolded relation to the tie rod.

6. A collapsible glider frame comprising normally upstanding end members and a tie rod, said end members being respectively connected to the ends of said tie rod so as to be foldable to substantially parallel relation thereto and to each other while maintaining their vertically disposed position relative to the tie rod, and said tie rod comprising a pair of pivotally connected sections so as to permit the tie rod to be folded upon itself to reduce the length of the frame when collapsed, and means for locking the tie rod in extended or unfolded condition.

7. A collapsible glider frame comprising normally upstanding end members and a tie rod, said end members being respectively connected to the ends of said tie rod so as to be foldable to substantially parallel relation thereto and to each other while maintaining their vertically disposed position relative to the tie rod, and said tie rod comprising a pair of pivotally connected sections so as to permit the tie rod to be folded upon itself to reduce the length of the frame when collapsed, and means for locking the tie rod in extended or unfolded condition, said means comprising an elongated member having a longitudinally extending slot adjacent one end and having a locking pin projecting therefrom adjacent its other end, said slotted end being connected to the pivot pin connection between said tie rod sections so that the member is slidable lengthwise of the tie rod, and one of said tie rod sections having a slot for receiving said projecting pin and the other section having a notch in its adjacent end in normally registering relation to said last mentioned slot, said projecting pin being adapted to engage said notch in one position of adjustment of said elongated member to lock said sections in extended or unfolded relation.

8. A collapsible glider frame comprising normally upstanding end members and a tie rod, said end members being normally disposed in planes extending transversely of said tie rod and being respectively connected to the end portions of said tie rod so as to be foldable to substantially parallel relation thereto and to each other, and said tie rod comprising a pair of sections foldably connected so as to permit the tie rod to be folded horizontally upon itself to reduce the length of the frame when collapsed, and means for locking the tie rod in operatively extended condition.

9. A collapsible glider frame comprising a tie

rod horizontally foldable upon itself to reduced length, and a pair of end members normally occupying planes extending transversely of said tie rod, said end members being respectively connected to the opposite end portions of said tie rod so as to be foldable to approximately parallel relation to the tie rod, one of said end members

being foldable to the front of the tie rod and the other end member being foldable to the rear of said tie rod, whereby when said tie rod is folded upon itself, both of said members are disposed on the same side of the folded tie rod. 5

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