May 19, 1953 R. F. WARDLAW 2,638,966

INFANT'S SWING SEAT ASSEMBLY

Filed Oct. 6, 1950 2 Sheets-Sheet 1

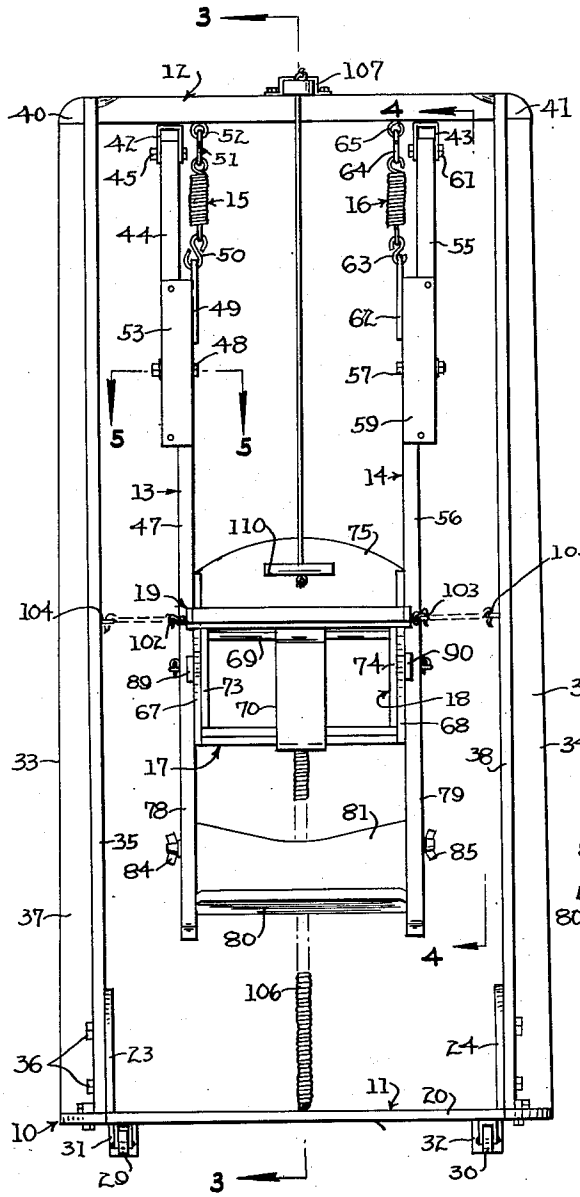


FIG. 1

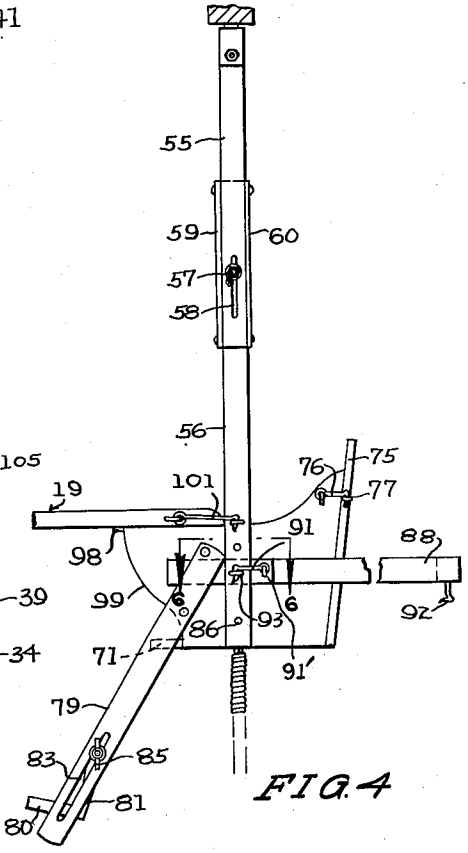


FIG. 4

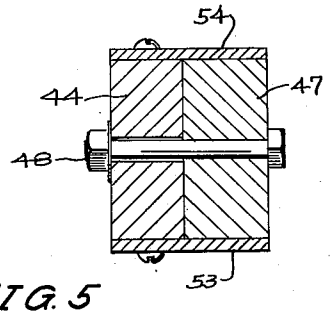


FIG. 5

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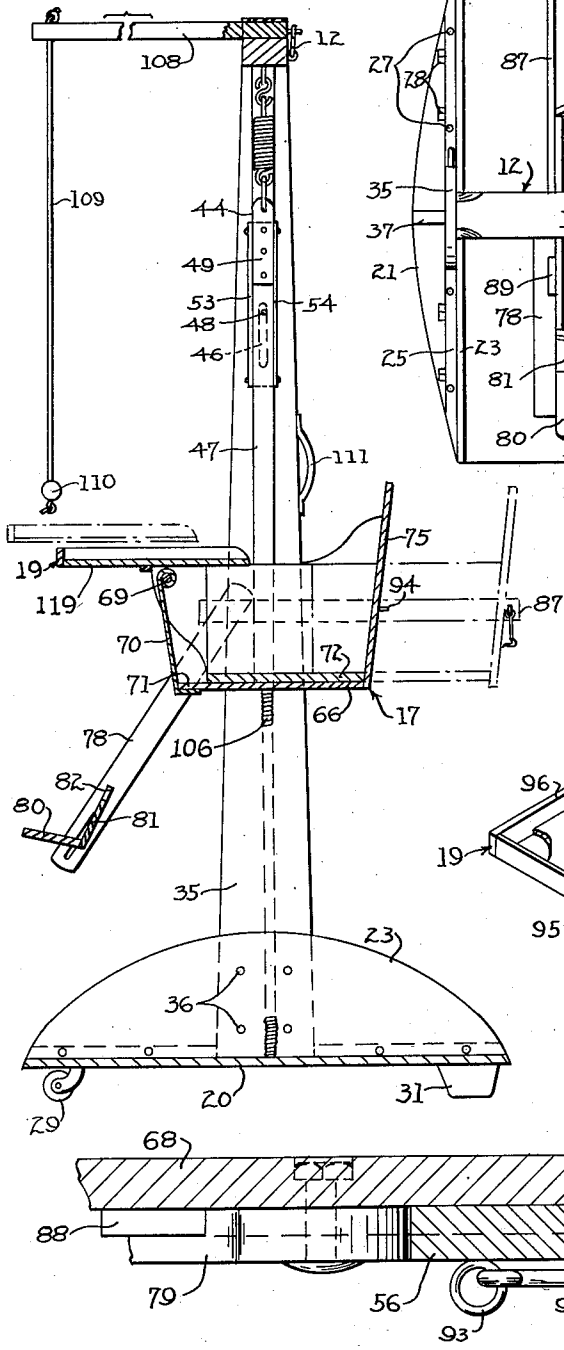
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May 19, 1953 R. F. WARDLAW 2,638,966

INFANT'S SWING SEAT ASSEMBLY

Filed Oct. 6, 1950 2 Sheets-Sheet 2

FIG. 3



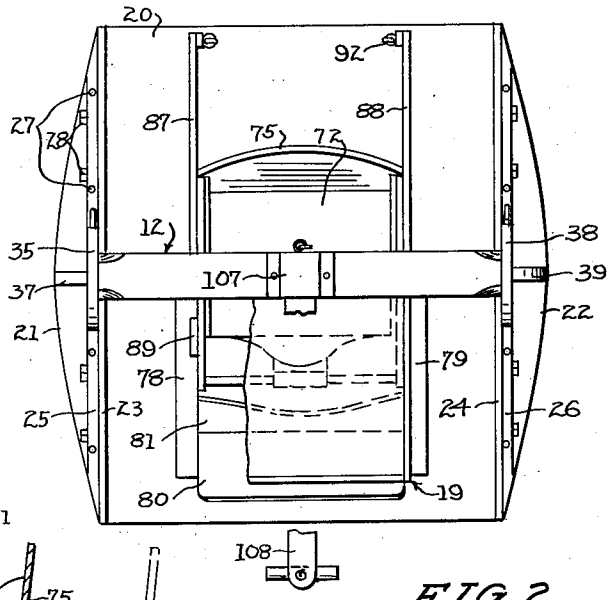


FIG. 2

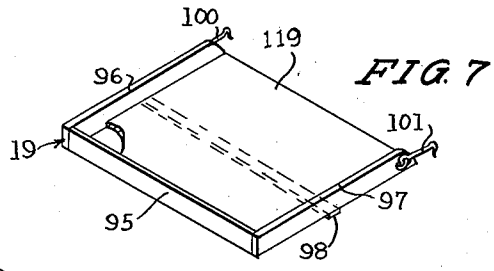


FIG. 7

FIG. 6

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INFANT'S SWING SEAT ASSEMBLY

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5 Claims. (Cl. 155—17)

1

This invention relates to seat assemblies for infants and small children, and more particularly to a portable assembly including a seat which is spring suspended in a frame.

It is among the objects of the invention to provide an improved seat assembly for infants and small children, which assembly is light in weight, easily portable from place to place and effective to maintain an infant or small child comfortable for long periods of time, which includes a seat that is spring suspended in a frame for swinging movement and a seat extension for converting the seat into a crib or bed, when desired, which includes a demountable table of a size to serve as a play or work table as well as a feeding tray, which supports the child or infant against accidental falls, and which is of simple, strong and durable construction, economical to manufacture, and neat and attractive in appearance.

Other objects and advantages will become apparent from a consideration of the following description and the appended claims in conjunction with the accompanying drawings, wherein:

Figure 1 is a front elevational view of a seat assembly illustrative of the invention;

Figure 2 is a top plan view of the seat assembly illustrated in Figure 1;

Figure 3 is a longitudinal cross-sectional view on the line 3—3 of Figure 1;

Figure 4 is a fragmentary cross-sectional view on the line 4—4 of Figure 1;

Figure 5 is a transverse cross-sectional view on an enlarged scale on the line 5—5 of Figure 1;

Figure 6 is a fragmentary cross-sectional view on an enlarged scale on the line 6—6 of Figure 4; and

Figure 7 is a perspective view of a demountable table constituting a component of the assembly.

With continued reference to the drawings, the seat assembly comprises, in general, an upright, rectangular frame 10 having a base 11 and a top bar 12 substantially parallel to the base and supported in substantially horizontal position when the base rests on a substantially horizontal supporting surface, such as a floor, a pair of variable length of struts 13 and 14 disposed in the frame and spaced apart in substantially parallel relationship to each other and pivotally connected at their upper ends to the top bar 12, springs 15 and 16 connected between the top bar 12 and the struts 13 and 14, respectively, and resiliently resisting elongation of the variable length struts, a seat 17 disposed between and secured to the struts 13 and 14 below the top bar 12, an extension 18 telescopically received in the seat for converting the seat into a crib or bed, and a table 19 detachably mounted on the seat in a location to be disposed in front of a child or infant seated in the seat 17.

2

The base 11 of the frame 10 comprises a substantially rectangular base plate 20 of suitable material, such as plywood, having convexly curved side edges, as indicated at 21 and 22 in Figure 2, and two gusset plates 23 and 24 mounted on the base plate 20 one on each side of the base plate and extending perpendicularly upward from the base plate in spaced-apart and substantially parallel relationship to each other. The gusset plates 23 and 24 extend between corresponding corners of the base plate, so that the curved portion 21 of the base plate is disposed outwardly of the gusset plate 23, and the curved portion 22 of the base plate is disposed outwardly of the gusset plate 24. The gusset plates each have a straight edge disposed against the base plate and an arcuately curved edge opposite such straight edge. A batten 25 of rectangular cross-sectional shape is disposed at the outer side of the gusset plate 23 and against the base plate 20, and a similar batten 26 is disposed at the outer side of the gusset plate 24 and against the base plate 20. Suitable screws or bolts 27 extend through the batten 25 and through the base plate to rigidly secure the batten to the base plate, and screws or bolts 28 extend through the batten and through the gusset plate 23 to rigidly secure the gusset plate to the batten so that the gusset plate will be firmly supported in its perpendicular relationship to the base plate. Similar bolts extend through the batten 26 and the base plate and through this batten and the gusset plate 24 to rigidly secure the gusset plate 24 to the base plate in perpendicular relationship thereto.

Suitable caster wheels or rollers 29 and 30 are secured to the under side of the base plate 20, one at each front corner of the base plate, and blocks 31 and 32 are secured to the under side of the base plate, one at each rear corner thereof, these blocks and caster wheels supporting the frame in upright position on a horizontal supporting surface and the rollers permitting easy movement of the assembly from place to place.

Standards 33 and 34 are secured at their lower ends to the base plate 20 and project upwardly from the base plate in spaced-apart relationship to each other and symmetrically disposed relative to a line extending through the center of the base plate and disposed perpendicular thereto.

The standard 33 comprises a flat plate 35 hav-

ing one end disposed against the outer side of the gusset plate 23 and with its width symmetrically disposed relative to the mid-length location of the base plate. This standard plate 35 is secured to the gusset plate 23 by suitable screws or bolts 36 and tapers symmetrically in width in a direction away from the base plate. The standard 33 further comprises a reinforcing rib 37 extending along the outer side of the plate 35 symmetrically of the width of the plate 35 from the base plate 20 to a location adjacent the upper end of the plate 35 remote from the base plate. The outer edge of this reinforcing rib 37 is preferably inclined slightly toward the plate 35 in a direction away from the base plate 20. The standard 34 is of the same construction and includes a flat plate 38 secured at its lower end to the gusset plate 24 and a reinforcing rib 39 extending along the outer side of the plate 38 symmetrically of the width of the latter plate.

The plates 35 and 38 are provided in their upper ends with rectangular notches disposed at mid-width locations of these plates and extending downwardly to the upper ends of the reinforcing ribs 37 and 39, respectively, and the top bar 12 is a member of rectangular cross-sectional shape having reduced end portions 40 and 41 which are received in the notches in the plates 35 and 38, respectively, and rest on the upper ends of the reinforcing ribs 37 and 39, the upper corners of these reduced end portions of the top bar being rounded off, as illustrated in Figure 1, to improve the appearance of the device and eliminate the sharp corners which would otherwise be present. The top bar 12 and the standards 33 and 34 are preferably formed of wood, the standards being preferably formed of plywood and the top bar from a solid piece of suitable wood.

Two U-shaped brackets 42 and 43 are secured to the under side of the top bar 12 and depend therefrom, one near the standard 33 and the other near the standard 34. Each of these brackets has a pair of spaced-apart and substantially parallel legs provided near the open lower end of the bracket with mutually aligned apertures.

The variable length strut 13 comprises a first section 44 of rectangular cross-sectional shape and preferably formed of solid wood. This section 44 has a rounded upper end received between the legs of the bracket 42 and provided with an aperture registering with the apertures in the bracket legs and a pivot bolt 45 extends through the bracket legs and the first strut section 44 to pivotally connect the strut to the top bar 12. Near its lower end the section 44 is provided with an elongated slot 46. The strut 13 further includes a second or lower section 47 comprising a wooden bar of rectangular cross-sectional shape, and this second strut overlaps at its upper end the slotted lower end portion of the first section 44. The second section 47 is provided near its upper end with an aperture and a bolt 48 extends through the aperture in the section 47 and through the slot 46 in the section 44 to connect these two sections together with a lost-motion connection.

An eye plate 49 is secured to the strut section 47 at the upper end of the latter and provides an eye above the upper end of this strut section and a double hook 50 is secured at one end in the eye of the eye plate 49 and at its other end in the lower loop of the coil tension spring 15. The upper loop of the spring 15 is connected by a double hook 51 to the eye of an eyebolt 52 secured in the top bar 12.

Two plates 53 and 54 are secured to the first or upper section 44 of the strut 13 near the lower end and at respectively opposite sides of this section and overlap the edges of the upper end portion of the section 47 so that the section 47 will not swing relative to the section 44, but may move longitudinally of the section 44 because of the elasticity or resiliency of the spring 15.

The strut 14 is similar in construction to the strut 13 described above, and includes upper and lower sections 55 and 56 overlapping at their adjacent ends and secured together with a lost-motion connection including the bolt 57 received in the slot 58 in the section 55 and the side plates 59 and 60 secured to the section 55 at respectively opposite sides thereof and overlapping the edges of the section 56. The upper section 55 is pivotally secured to the bracket 43 by the bolt 61, and the upper end of the section 56 carries an eye plate 62 secured by the double hook 63 to the lower end of the spring 16, the upper end of which is secured by the double hook 64 to the eyebolt 65 carried by the top bar 12.

The seat 17 comprises a flat bottom plate 66 of substantially rectangular shape and two side plates 67 and 68 secured at their bottom edges to the bottom plate 66 at respectively opposite sides of the bottom plate and extending perpendicularly upward from the bottom plate in spaced-apart and substantially parallel relationship to each other. A rod 69 is secured at its ends to the side plates 67 and 68 at the upper front corners of the latter and extends transversely across the seat and a web 70 is secured at its upper end to the rod 69 substantially at the mid-length location of the rod and is secured at its lower end to a centrally located, forward projection 71 of the bottom board or plate 66. A seat extension is slidably received in the seat and comprises a bottom plate or board 72 of rectangular shape and of substantially the same size as the seat bottom board 66 and side plates or boards 73 and 74 secured at their lower edges to the bottom board 72 of the extension and projecting perpendicularly upward from this bottom board in spaced-apart and substantially parallel relationship to each other, and a seat back 75 secured to the edges of the bottom and side boards of the extension at the rear of the seat and marginally overlapping the rear edges of the bottom and side boards of the seat itself. This extension is slidable in the seat and is held in retracted position, as illustrated in Figures 3 and 4, to constitute the seat by suitable means, such as the hooks 76, and carried one by each seat side board at the upper rear corners thereof and engaged in eyes 77 carried by the back 75 on the respectively opposite side edges of the latter.

A footrest is provided for the seat and comprises bars 78 and 79 respectively connected at their upper ends to the outer sides of the side boards 67 and 68 of the seat and inclined downwardly and forwardly from the front end of the seat, and a structure including a step 80 and a kick board or riser 81 secured along its bottom edge to the rear edge of the step 80, the step and kick board being disposed between the lower end portions of the bars 78 and 79. The bars 78 and 79 are provided near their lower ends with elongated slots 82 and 83, respectively, and bolts extend from the opposite ends of the kick board 81 through these slots and are provided at the outer sides of the bars 78 and 79 with wing nuts 84 and 85, respectively, by means of which the step and kick board unit is adjustably

secured in position between the bars 78 and 79.

The seat is disposed between the lower end portions of the lower strut sections 47 and 56, and these sections are secured to the outer sides of the seat side boards 67 and 68, respectively, by fasteners, such as the bolts or screws 86, particularly illustrated in Figure 4. The arrangement is such that the lower strut sections are substantially perpendicular to the bottom board 66 of the seat, and the bars 78 and 79 are inclined downwardly and forwardly relative to the lower end portions of the lower strut sections.

Support bars or slats 87 and 88 of elongated, rectangular, cross-sectional shape are provided for supporting the seat extension in extended position to convert the seat into a crib or bed. The lower strut sections 47 and 56 and the footrest bars 78 and 79 are provided with notches, as indicated at 89 and 90, at the outer sides of the side plates 67 and 68 of the seat, these notches being of the same elongated, rectangular, cross-sectional shape as the slats 87 and 88, and being disposed near the upper edges of the seat side plates and relatively aligned at the opposite sides of the seat, so that, when the slats are inserted through these notches, they will extend rearwardly of the seat substantially parallel to the bottom board 66 of the seat.

Hooks, as indicated at 91 and 92 in Figure 4, are provided on each slat at spaced-apart locations therealong, the hooks 91 being disposed at the outer sides of the corresponding slats and mounted on blocks 91' which are secured on the outer sides of the slats 87 and 88 intermediate the length of these slats. Each lower strut member is provided with an eye, as indicated at 93, to receive the hook 91 and hold the corresponding slat against longitudinal movement through the slots in which it is received, and eyes, as indicated at 94 in Figure 3, are provided on the rear side of the back 75 to receive the hooks 92 for supporting the rear end of the seat extension from the slats and preventing the extension from moving backwardly beyond the limit determined by the hooks 91 and 92 which connect the slats 87 and 88 to the corresponding lower struts 47 and 56 and to the seat extension back 75. The slats 87 and 88 may be hung by the hooks 92 at the ends of the slats from an eye disposed at the under side of the top bar 12 when the slats are not in use.

The table 19 comprises a rectangular bottom plate 119, a front end wall or ledge 95 projecting upwardly from the front edge of the bottom plate and side walls or ledges 96 and 97 projecting upwardly from the plate 94 at the side edges of the latter. Reinforcing bar 98 extends transversely of the table below and substantially along the mid-length location of the bottom plate 119 between the side ledges 96 and 97.

When placed in operation, the table is mounted on the top edges of the seat side boards 67 and 68 with the open side of the table facing the back 75 and the reinforcing bar 98 against the front edges of the side boards. The side boards are curved downwardly and inwardly from the upper front corners thereof, as particularly shown at 99 in Figure 4.

The side ledges 96 and 97 are provided at their ends adjacent the open or rear side of the table with hooks 100 and 101 which are engageable in eyes 102 and 103 carried by the lower strut members 47 and 56, respectively, to secure the table in operative position on the seat, as particularly illustrated in Figure 4. Eyes 104 and 105 are secured to the standards 33 and 34, respectively, at the level of the table 19 and are engageable by the hooks 100 and 101 carried by the table to secure the seat and table against swinging movement relative to the frame while the table is being used as a feeding table for an infant or child seated in the seat. The eyes 104 and 105 may be so positioned that the seat is held somewhat rearwardly of its normal position when hooks 100 and 101 are engaged in the eyes 104 and 105 respectively and the seat then presses against the reinforcing bar 98 of the table enabling hooks 100 and 101 to hold the seat and table against substantial movement.

When it is desired to limit the extent of swinging movement of the seat relative to the frame, an elongated tension spring 106 is connected between the bottom of the seat and the base plate 20, as particularly illustrated in Figure 1. It is contemplated that the spring 106 will be used to limit the swinging movement of the seat while the child is very small, but may be removed to permit a wider range of swinging movement when the child grows older.

A U-shaped clip 107 is secured to the top surface of the top bar 12 at the mid-length location of the latter, and a beam 108 has one end inserted in this clip and extends forwardly from the top bar substantially perpendicular to the latter. A flexible strand 109 depends from the end of the beam 108 remote from the top bar 12 to a location near the front upper portion of the seat, and a handle 110 is secured to the lower end of this strand to be grasped by a child to assist in imparting swinging movement to the seat. The beam is removable from the clip and is held therein by a hook on the end of the beam engaging with an eye secured to the top bar.

Lifting handles, as indicated at 111, are secured one to each of the standards 33 and 34 intermediate the height of these standards, and at the rear edges thereof, to provide convenient hand grips for lifting and moving the seat assembly.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are, therefore, intended to be embraced therein.

I claim:

1. A seat assembly comprising a frame having a base plate, a top bar and spaced-apart standards supporting said top bar from said base plate, brackets secured to said top bar and depending therefrom one near each of said standards, variable length struts pivotally connected at their upper ends one to each of said brackets and depending therefrom, each of said struts including an upper section pivotally connected at its upper end to the corresponding bracket for swinging movements about an axis substantially parallel to said top bar, a lower section disposed with its upper end overlapping the lower end of said upper section, and means connecting said upper and lower sections at their overlapping ends providing a limited freedom of relative longitudinal movement between said sections while restraining said sections against relative angu-

lar movement, springs connected at their upper ends to said top bar one near each of said brackets and depending from said top bar with their lower ends connected to the upper ends of the corresponding lower strut sections to resiliently resist downward movement of said lower sections, and a seat disposed between and secured to said lower sections at the lower ends of the latter.

2. A seat assembly comprising an upright frame including a base, a top bar and spaced apart standards extending between said base and said top bar supporting the latter above the former, variable length struts depending from said top bar between said standards in spaced apart and substantially parallel relationship to each other and each including an upper section pivotally connected at its upper end to said top bar and a lower section overlapping at its upper end the lower end of said upper section and extending longitudinally from the latter, guide means engaging the overlapping portions of the sections of each strut and holding the corresponding sections longitudinally disposed relative to each other while providing a limited freedom of relative longitudinal movement therebetween, elastic means connected between said top bar and the lower sections of said struts resiliently resisting downward movement of said lower sections, and a seat disposed between and secured to said lower strut sections near the lower ends of the latter.

3. A seat assembly comprising a supporting frame including a base plate, gusset plates secured to said base plate at respectively opposite sides of the latter and upstanding perpendicularly therefrom, standards secured at their lower ends to said gusset plates and extending upwardly from said base plate in spaced apart relationship to each other and a top bar supported by said standards above said base plate, U-shaped brackets secured to and depending from said top bar between said standards, variable length struts suspended from said top bar by said brackets and each including an upper section pivotally connected at its upper end to the corresponding bracket for swinging movement about an axis substantially parallel to the longitudinal center line of said top bar, a lower section extending downwardly from said upper section and guide means engaging the mutually adjacent portions of said upper and lower sections and holding the sections longitudinally disposed relative to each other, elastic means connected between said top bar and said lower strut sections resiliently resisting downward movements of the latter, and a seat disposed between and secured to said lower strut sections near the lower ends of the latter.

4. A seat assembly comprising a supporting frame including a base, a top bar and spaced apart standards extending between said base and said top bar supporting the top bar above the base, variable length struts suspended from said top bar between said standards in spaced apart and substantially parallel relationship to each other and each including an upper strut section pivotally connected at its upper end to said top bar for swinging movement about an axis substantially parallel to the longitudinal center line of said top bar, a lower section extending downwardly from the corresponding upper section and guide means engaging mutually adjacent portions of said upper and lower sections and holding said sections longitudinally disposed relative to each other while providing limited freedom of relative longitudinal movement therebetween, elastic means connected between said top bar and said lower strut sections resiliently resisting downward movement of the latter, and a seat disposed between and secured to said lower strut sections at the lower ends of the latter and comprising spaced apart and substantially parallel side plates rigidly secured one to each of said lower strut sections, a bottom plate marginally secured to said side plates at the lower edges of the latter, a seat extension slidably received in said seat and including spaced apart side plates, a bottom plate marginally secured to said side plates at the lower edges of the latter and a seat back secured to the edges of the side and bottom plates of said extension at one end of the extension, bars secured one to each seat side plate and inclined downwardly therefrom away from said back, a footboard assembly disposed between and adjustably secured to said bars at the lower ends of the latter, slats extending one along the outer side of each seat side plate substantially parallel to the seat bottom plate and beyond the end of said seat adjacent said back, said lower strut sections and said bars being notched to receive said slats, means on said seat side plates and said back releasably securing said back to said side plates, means releasably securing said slats to said lower strut sections against longitudinal movement of the former relative to the latter, and means on said back and said slats at the ends of the slats remote from said seat to secure said back to said slats when said extension is moved outwardly of said seat.

5. A seat assembly comprising a supporting frame including a base, a top bar and spaced apart standards extending between said base and said top bar supporting the top bar above the base, variable length struts extended from said top bar between said standards in spaced apart and substantially parallel relationship to each other and each including an upper strut section pivotally connected at its upper end to said top bar for swinging movement about an axis substantially parallel to the longitudinal center line of said top bar, a lower section extending downwardly from the corresponding upper section and guide means engaging mutually adjacent portions of said upper and lower sections and holding said sections longitudinally disposed relative to each other while providing limited freedom of relative longitudinal movement therebetween, elastic means connected between said top bar and said lower strut sections resiliently resisting downward movement of the latter, and a seat disposed between and secured to said lower strut sections at the lower ends of the latter and comprising spaced apart and substantially parallel side plates rigidly secured one to each of said lower strut sections, a bottom plate marginally secured to said side plates at the lower edges of the latter, a seat extension slidably received in said seat and including spaced apart side plates, a bottom plate marginally secured to said side plates at the lower edges of the latter and a seat back secured to the edges of the side and bottom plates of said extension at one end of the latter, bars secured one to each seat side plate and inclined downwardly therefrom away from said back, a footboard assembly disposed between and adjustably secured to said bars at the lower ends of the latter, a table supported on the upper edges of the seat side plates at the sides of said struts remote from said back, means releasably connecting said table to said struts to secure said

table in place on said side plates, slats extending one along the outer side of each seat side plate substantially parallel to the seat bottom plate and beyond the end of said seat adjacent said back, said struts and said bars being notched to receive said slats, means on said seat side plates and said back releasably securing said back to said side plates, means releasably connecting said slats to said lower strut sections to hold the slats against longitudinal movement relative to the corresponding strut sections, and means on said back and said slats at the ends

of the latter remote from said seat to secure said back to said slats when said extension is moved outwardly of said seat.

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