Feb. 6, 1934. J. KERSTEN 1,945,781

CHILD'S SEAT

Filed April 7, 1933 3 Sheets-Sheet 1

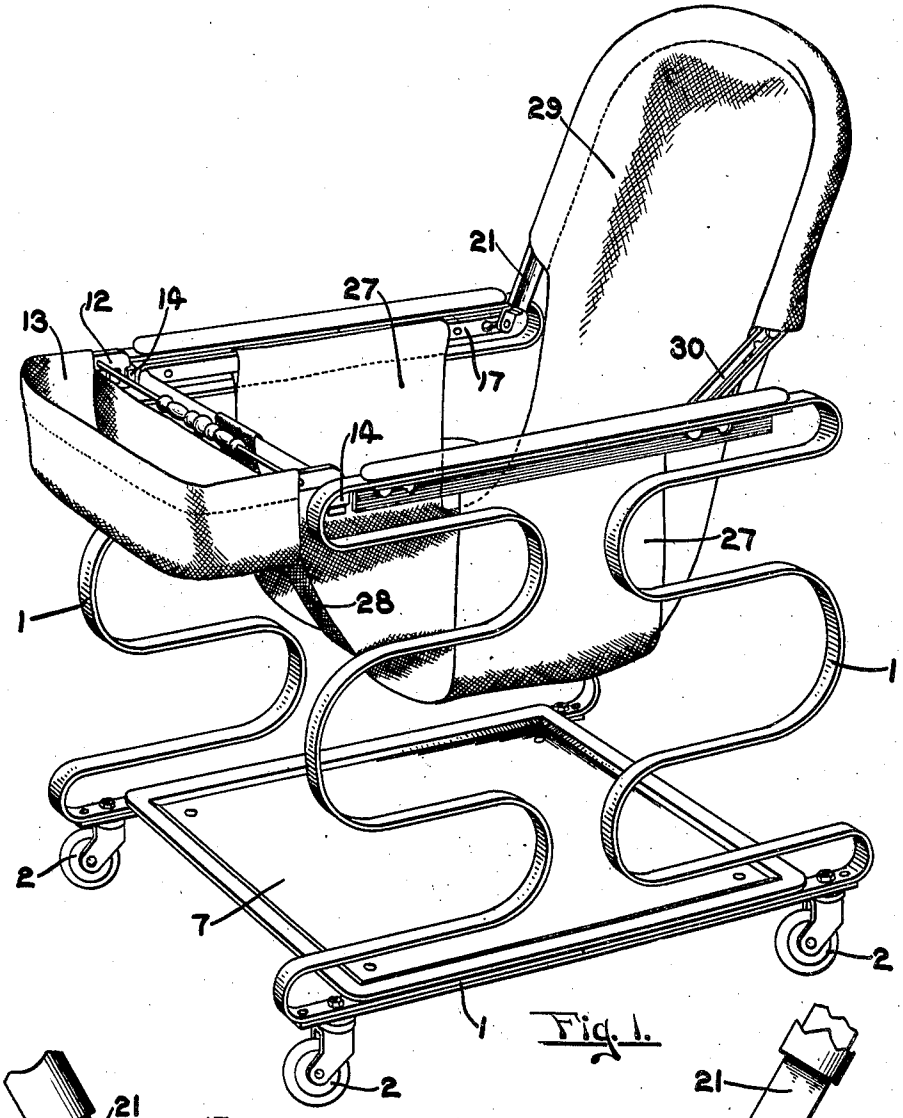


Fig. 1.

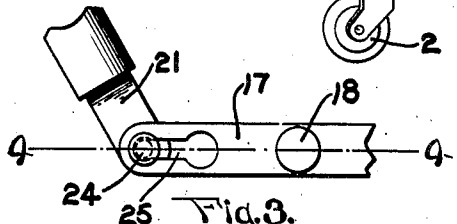


Fig. 3.

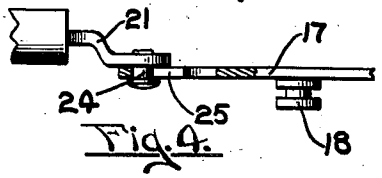


Fig. 4.

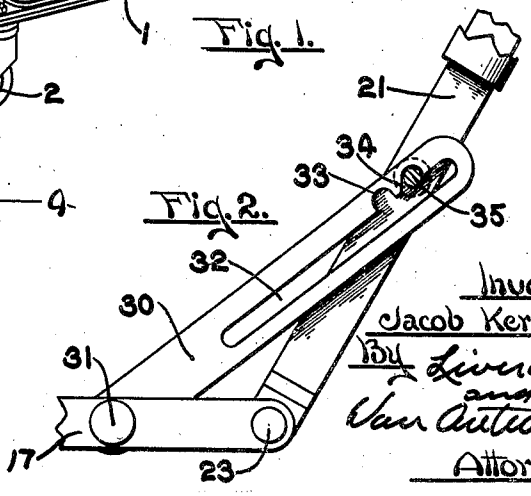


Fig. 2.

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CHILD'S SEAT

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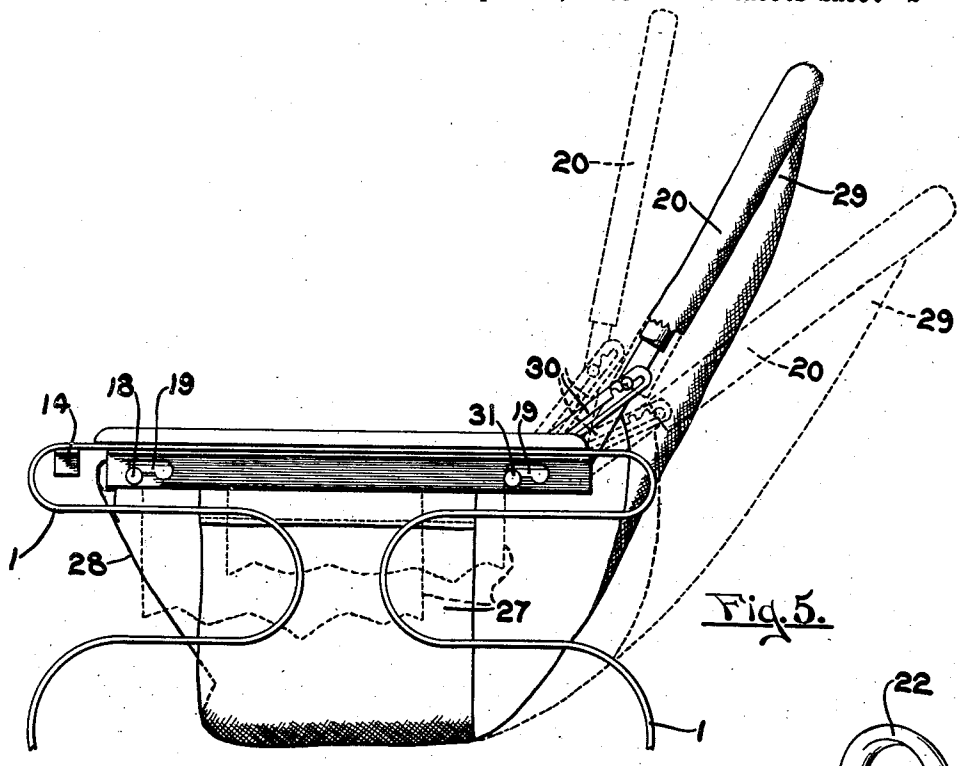


Fig. 5.

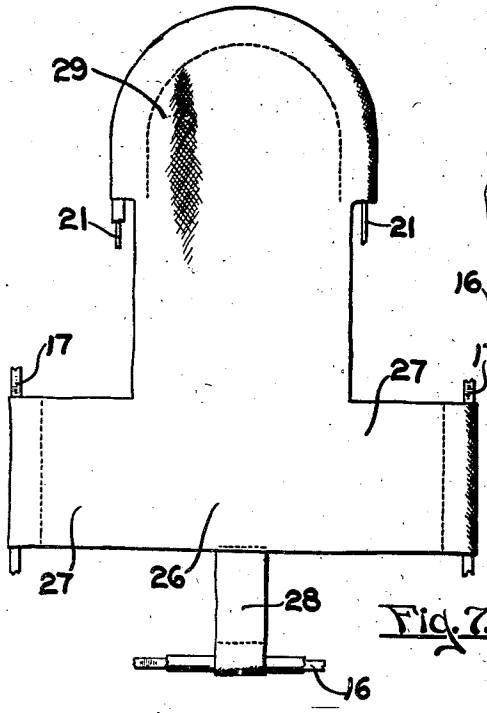


Fig. 7.

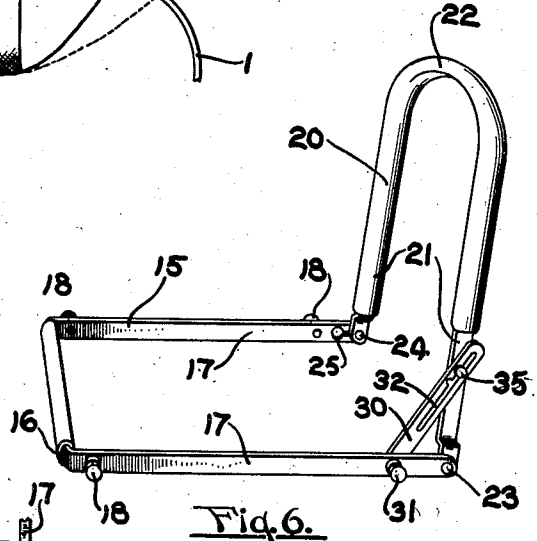


Fig. 6.

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CHILD'S SEAT

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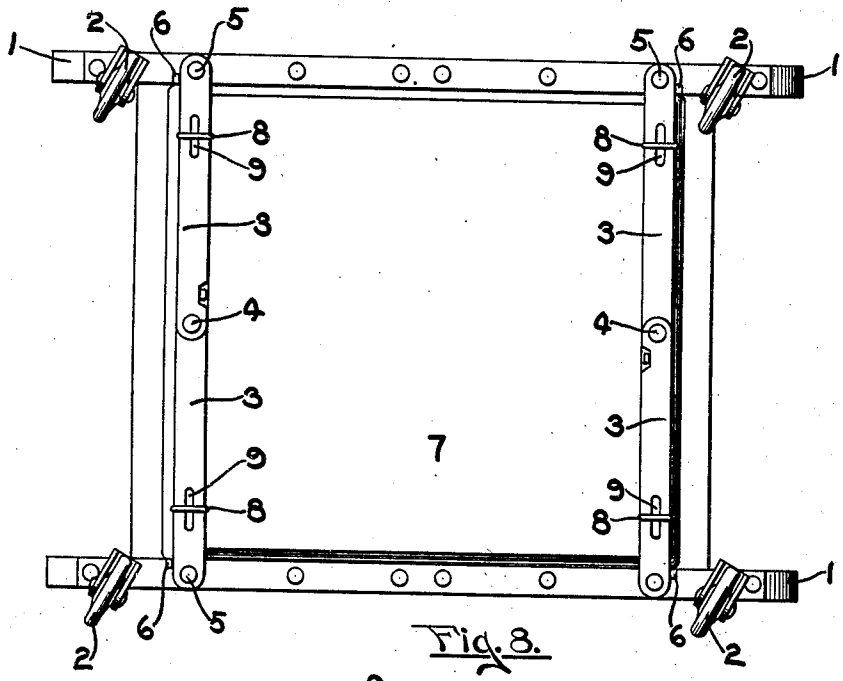


Fig. 8.

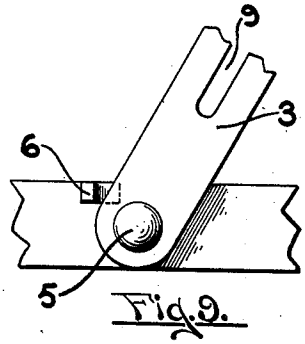


Fig. 9.

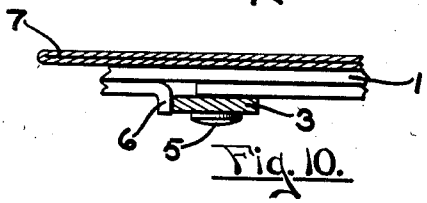


Fig. 10.

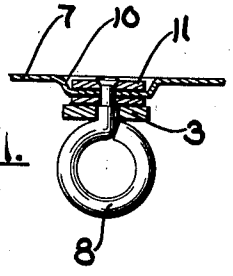


Fig. 11.

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Patented Feb. 6, 1934 1,945,781

UNITED STATES PATENT OFFICE

1,945,781

CHILD'S SEAT

Jacob Kersten, Kalamazoo, Mich.

Application April 7, 1933. Serial No. 664,877

6 Claims. (Cl. 155—17)

This invention relates to improvements in child's seat and particularly to devices of the nature disclosed in my copending patent application for baby jumper, filed March 21st, 1932, Serial No. 600,121.

The present invention relates particularly to the adjustable seat construction and provides a seat having a back portion which can be readily adjusted to different angles and which is automatically adjusted to some extent. The invention also provides means for retaining the back in certain adjusted positions relative to the seat portion. The construction of the device is simple and durable and permits ready removal of the fabric portion from the frame for cleaning. The invention also provides improvements in the support for the seat and particularly in alinement of the folding members comprising the seat support.

The invention provides various novel features of construction and arrangement hereafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings, in which,

Fig. 1 is a perspective view of a device embodying this invention.

Fig. 2 is an enlarged fragmentary side elevation of the pivoted portions of the seat frame and back frame illustrating the adjustable brace.

Fig. 3 is a fragmentary elevation of the detachable pivotal connection between the seat frame and the back frame.

Fig. 4 is a sectional view on the line 4—4 of Fig. 3.

Fig. 5 is a side elevation of the seat and upper portion of the seat support illustrating various angular positions of the seat back.

Fig. 6 is a perspective view of the seat frame and back frame.

Fig. 7 illustrates the fabric portion which constitutes the body of the seat and back, said fabric being in flat position with fragments of the frame in place therein.

Fig. 8 is a bottom plan view of the folding seat support or carriage on which the seat is mounted.

Fig. 9 is an enlarged fragmentary view of pivoted portions of the support members and folding braces illustrating the alining stop.

Fig. 10 is a fragmentary elevation of the part shown in Fig. 9, and

Fig. 11 is an enlarged fragmentary section illustrating the turn button and its means of attachment.

Like reference numbers apply to like parts in all the figures.

The article embodying this invention comprises a supporting frame having two side members 1 which are preferably of yielding spring construction. Each of the side members is provided with castors 2 which rest upon the floor and the base portions of the side members 1 are joined by folding braces 3. Each of the folding braces consists of two levers pivoted together at 4 and having their opposite respective ends pivoted at 5 to the respective base members of the frame 1. Alining stops 6 are provided on the base members of the frames 1 in position to be engaged by the folding braces 3 and to limit movement of said braces 3 about the pivots 5 so that the braces will extend at right angles to the frame 1 when in engagement with the stops 6. These stops 6 are preferably formed by being struck integrally from the metal of the base of the frame 1.

A rectangular pan 7 is placed upon the base members of the frames 1 and lies over the folding braces 3 and is held in place by turn buttons 8. These turn buttons are in the nature of eyes rotatably connected to the pan 7 and extending downwardly therefrom. The braces 3 are provided with slots 9 through which the turn buttons 8 may be thrust after which the turn buttons are rotated to extend transversely of the slots 9 to hold the pan 7 in place. The pan 7 is provided with depressed portions 10 at the locations where the turn buttons are attached to it so that the washer 11 and riveted portion of the turn button will not extend above the main surface of the pan 7.

The seat portion of the device is detachably connected to the upper parts of the respective supporting frames 1 when the device is assembled and also a tray is provided and extends between the upper parts of the supporting frames 1. The tray comprises a frame 12 upon which is mounted the fabric receptacle portion 13 and the frame 12 of the tray is inserted in suitable sockets 14 on the frames 1.

The seat frame 15 is of U-shape having a front member 16 and two parallel side members 17. This U-shaped seat frame has headed supporting lugs 18 extending outwardly from the respective side members 17, one being located near each forward and rearward end of each side member and recesses 19 are provided in the upper part of the supporting frames 1 to receive the lugs 18. The recesses 19 have horizontal slots enlarged at their rear ends of sufficient size to receive the heads of the lugs 18 and have

downward extensions at their forward ends of sufficient size to receive the shanks of the lugs 18. Movement of the seat frame rearwardly in the recesses 19 permits the lugs 18 to be removed through the enlarged portions of the recesses to completely detach the seat frame from the supporting frame.

The back frame 20 of the seat has two substantially parallel members 21 joined by an arch member 22 and the ends of the parallel members 21 are pivotally connected to respective ends of the side members 17 of the seat frame. The pivotal connection 23 between one of the members 21 and one of the members 17 is a permanent connection while the pivotal connection between the other member 21 and the other member 17 consists of a headed pin 24 which extends through a recess 25 in the frame 17. The recess has a longitudinal portion of sufficient size to embrace the shank of the pin 24 and an enlarged portion at its forward end of sufficient size to pass the head of the pin 24. The pivotal connection of these parts may be separated by moving the pin 24 forwardly so that its head may be removed through the enlarged portion of the recess 25. Weight and thrust of the body of a child in the seat normally tends to hold this detachable pivotal connection in assembled position.

The body of the seat and back are integral and formed of fabric and may be considered as having a bottom portion 26, sides 27, a front 28 and a back 29. Each of said sides, front and back are provided with hems forming loops through which parts of the seat and back frame extend and by means of which the fabric body is supported on the frame work. The loops on the sides 27 receive the side members 17 of the seat frame. The loop on the front portion 28 receives the front portion 16 of the seat frame and the loop on the back 29, which is arch-shaped, receives the arch-shaped portion 22 of the back frame and also extends over the upper parts of the side members 21 of the back frame. The front members 16 of the seat frame and the greater portions of the members of the back frame are preferably enclosed by rubber tubing which serves as a cushion over the metal frame work.

An adjustable brace 30 is provided to hold the back portion at various angles relative to the seat portion. The brace 30 is pivotally connected at 31 to one of the side members 17 of the seat frame and extends angularly adjacent one of the side members 21 of the back frame and is located at the side of the structure adjacent the fixed pivot 23. The pivotal connection 31 is preferably constructed to offer some resistance to movement for the purpose hereafter explained. The brace 30 has a longitudinal slot 32 and also near its swinging end has lateral notches 33 and 34 extending from the upper longitudinal edge of the slot 32. A headed stud 35 is fixed to the side 21 of the back frame and its shank extends through the slot 32 and may traverse the slot and also enter either of the notches 33 or 34 as and for the purpose hereafter described.

Operation

When in assembled position the side frames are in spaced apart relation, their bottom portions being maintained in such relative positions by the folding braces 3 and the angularity of the parts is adjusted and maintained by engagement of the brace members 3 with the alined stops 6. The pan 7 is also in place extending between the bottoms of the side frames 1 and over the folding braces 3 and is held in place by the turn buttons 8 which are inserted through the slots 9 and then turned transversely of the slots. The parts of the turn buttons 8 extending through the pan lie in the depressions 10 and do not extend above the main surface of the pan so that there is no protrusion to obstruct or injure the feet of the child using the device.

The seat assembly is carried by the upper parts of the side frames 1, the seat frame 15 being positioned horizontally and its side members 17 being connected to the upper parts of the respective side frames 1 by means of the headed studs 18 which extend through the recesses 19. This seat frame holds the upper parts of the side frames 1 in proper spaced apart relation and the tray frame 12, having the fabric receptacle 13, is also attached to the upper parts of the side frames 1.

The seat portion of the device and the weight of the child sitting therein is entirely supported by connection of the seat frame 15 with the supporting frames 1 and the back frame 20 of the seat with the back portion 29 of the fabric body thereof may be adjusted to the desired angle relative to the seat frame and retained in such adjusted position by means of the adjustable brace 30. The brace 30 is shown constructed to permit three angular positions of the seat back and also a complete forward folded position, not illustrated, but additional lateral notches to receive the shank of the stud 35 may be provided to increase the number of positions in which the back may be held.

As illustrated in Fig. 5 the back is held in its most erect position when the stud 35 is in the notch 33. When the stud is in the notch 34 the back is in its intermediate position and when the stud is at the outer end of the slot 32 the back is at its extreme reclining position. When the back is in its extreme reclining position or in its intermediate position the weight of the child in the seat tends to swing the back rearwardly and therefore stud 35 engages the rear end of the slot 32 in inclined position to prevent further rearward motion of the back and the stud engages the rear edge of the notch 34 which extends at right angles to the direction of thrust in intermediate position. The forward edge of the notch 34 is inclined so that forward movement of the back, when the stud 35 is in the notch 34 will cam the brace upwardly and move the stud into the slot 32 making it unnecessary to manually move the brace 30 when it is desired to move it back or away from its intermediate position. The notch 33 has both forward and rear edges at right angles to the direction of thrust to prevent movement of the back in either direction when the stud 35 is in this notch. This is desirable because it has been found that when the back is in its substantially erect position the weight of the child in the seat may have a tendency to move the back either forward or rearward. The seat back may be folded downwardly into the same plane as the frame 17 by permitting the stud 35 to move forwardly in the slot 32.

When the child sits in the seat its legs straddle the front fabric portion 28 of the seat and the whole fabric body of the seat yields to conform to the shape and movements of the child. The fabric back portion 29, having no division or cross bar in any part of its length, provides a most

comfortable support for the child's back and properly supports its spine. If the child is in an active mood the seat back is adjusted to its erect position with the stud 35 in the notch 33 and inasmuch as both sides of the notch 33 are straight and at right angles to the direction of thrust, any amount of activity of the child will not cause the brace to be misplaced and the back will be positively retained in this position.

When the child is in a quiet mood the seat back is adjusted to its semi-reclining or intermediate position with the stud 35 in the notch 34 and the weight of the child holds the stud 35 against the rear straight edge of this notch. If the child should fall asleep with the back in its semi-reclining position it is desired to then move the back to its full reclining position so that the child may sleep comfortably and this is accomplished without awakening the child by raising the seat back slightly which will cause the stud 35 to engage and traverse the forward inclined edge of the notch 34 and cam the brace upwardly so that the stud 35 will move into the slot 32 whereupon the back is moved rearwardly until the stud engages the rear end of the slot 32 which limits rearward movement of the back and retains it in its reclining position. The frictional resistance offered by the pivot 31 prevents the brace 30 dropping by gravity and also tends to retain it in engagement with the stud 35 when said stud is in either of the notches 33 or 34.

The whole structure may be disassembled for compactness for storage or for shipment by removing the seat and the tray from the frame support and also by removing the pan 7 whereupon the folding braces 3 may be folded to permit the side frames 1 to be moved adjacent each other. When thus disassembled the seat may be compactly folded by pivoting the back frame 20 forwardly into the same plane as the seat frame 15 in which movement the stud 35 traverses the slot 32 toward the forward end thereof. The detachable pivot at the pin 24 may be disconnected as previously described which separates the back frame and the seat frame at this point making a gap through which the looped portions of the fabric seat body may be passed to remove the fabric body from the frame for cleaning.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. A seat comprising, a U-shaped seat frame, a U-shaped back frame, pivotal connections between the respective ends of said seat frame and back frame, one of said pivotal connections being detachable whereby a gap may be formed between the side frame and the back frame and a fabric seat body having loops by which it is connected to said seat frame and back frame, said loops being removable from said frame members by passing them through said gap.

2. The elements in combination defined in claim 1, in which said detachable pivot connection comprises a headed stud on one of said frame members and a slot at the other of said frame members, said slot being wide enough to receive the shank of said stud and having an enlargement at its end in a direction away from the normal thrust of the stud, said enlargement being large enough to pass the head of the stud.

3. A device of the class described comprising, a supporting member, a U-shaped seat frame attached to and supported by said supporting member, a U-shaped back frame having its respective ends pivotally connected to the respective ends of the U-shaped seat frame, adjustable means for retaining the back frame in a plurality of angular positions relative to the said frame and a fabric seat body attached to said back frame and said seat frame, one of said pivotal connections between the back frame and seat frame being detachable and the attachment of said fabric member to said frames comprising loops which may be removed from said frames at the gap formed by detaching said pivotal connection.

4. A device of the class described comprising, a supporting member, a U-shaped seat frame attached to and supported by said supporting member, a U-shaped back frame having its respective ends pivotally connected to the respective ends of the U-shaped seat frame, adjustable means for retaining the back frame in a plurality of angular positions relative to the said seat frame and a fabric seat body attached to said back frame and said seat frame, said supporting member comprising two spaced apart side frames and said seat frame extending between said side frames and detachably connected thereto to hold the upper portions of said side frame in proper spaced apart relation, combined with collapsible means for holding the lower portions of said side frames in spaced apart relation at proper alinement, said collapsible means comprising folding brace members pivotally connected to said side frames and stops on said side frames engaged by said folding braces when said braces are in extended position.

5. A seat of the class described comprising, an open-ended seat frame, an open-ended back frame, pivotal connections between the open ends of said seat frame and the back frame respectively, one of said pivotal connections being detachable whereby a gap may be formed between the side frame and the back frame and a seat body having a loop extending around said seat frame, said loop being removable by passing it through said gap.

6. A device of the class described comprising, a supporting member, a seat frame attached to and supported by said supporting member, a back frame pivotally connected to the seat frame, adjustable means for retaining the back frame in a plurality of angular positions relative to the said frame, a fabric seat body attached to said back frame and means mounting said fabric seat body onto said seat frame so as to permit a sliding movement for the purpose of automatic adjustment.

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