Sept. 5, 1950 G. STARR 2,521,265

AUXILIARY COLLAPSIBLE SEAT

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FIG. 1

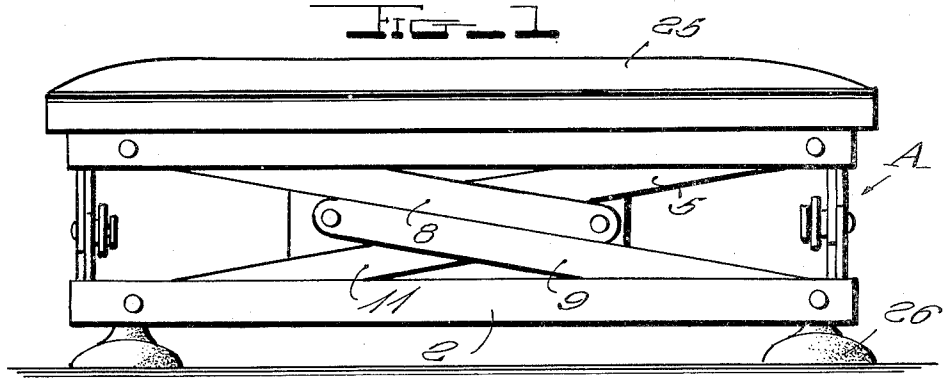
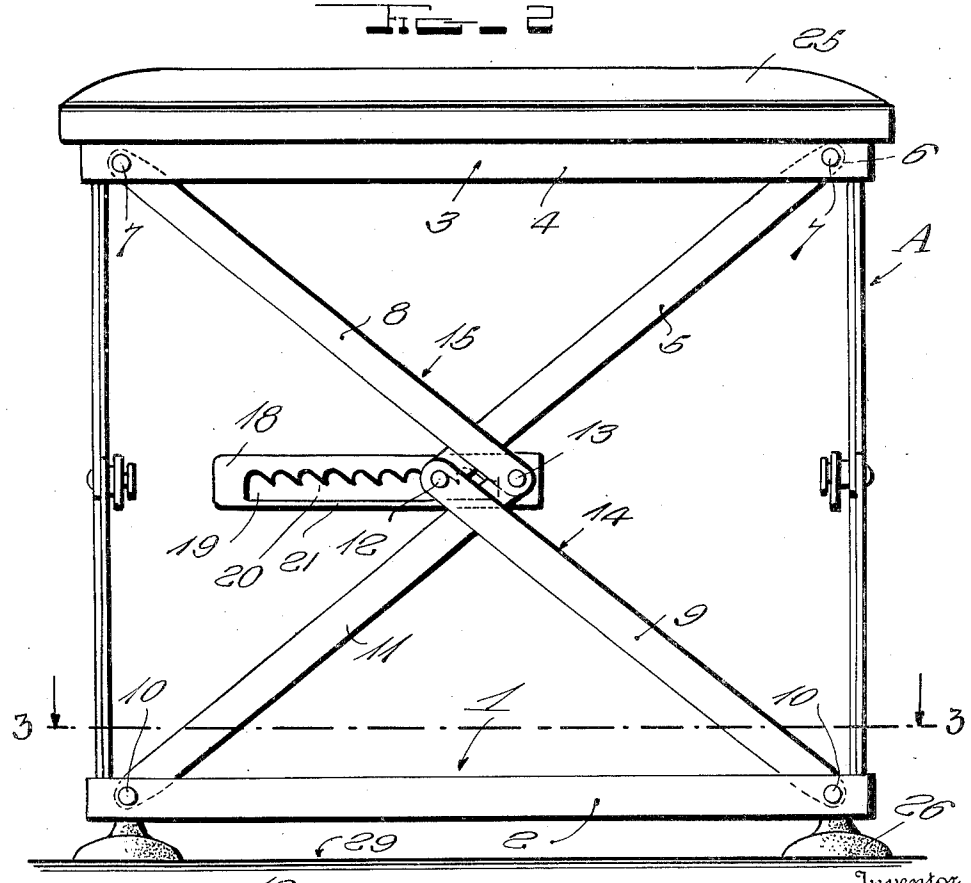


FIG. 2



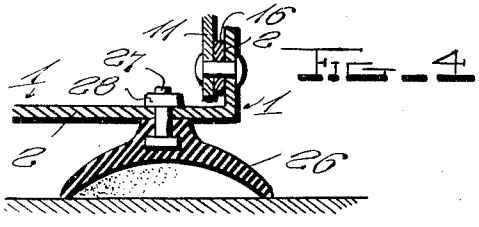


FIG. 4

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FIG. 3

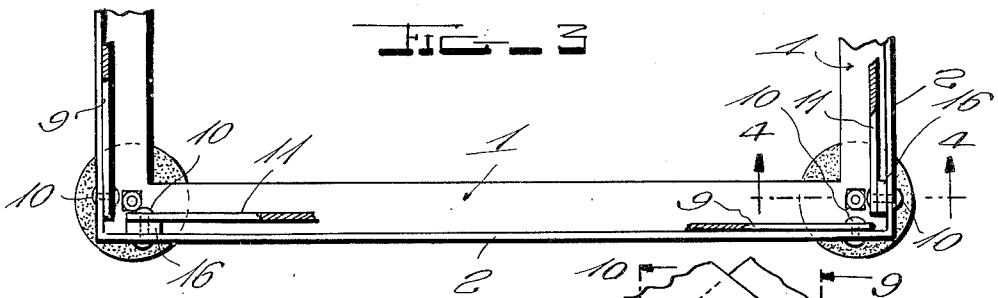


FIG. 5

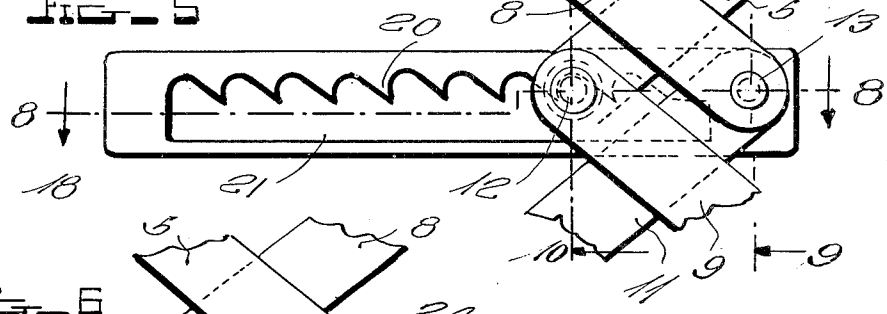


FIG. 6

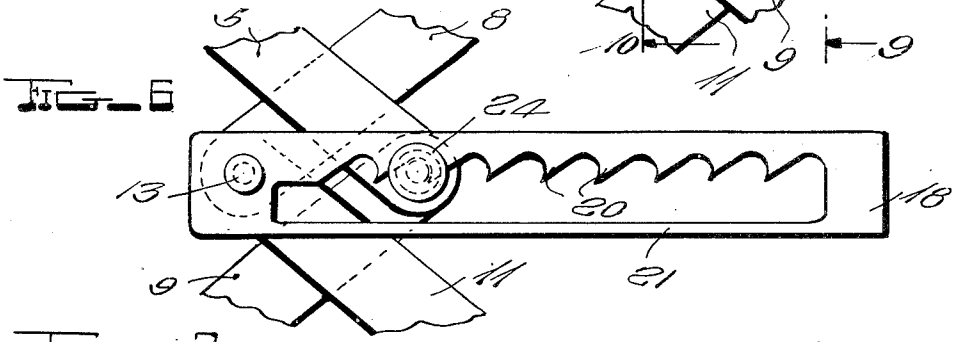


FIG. 7

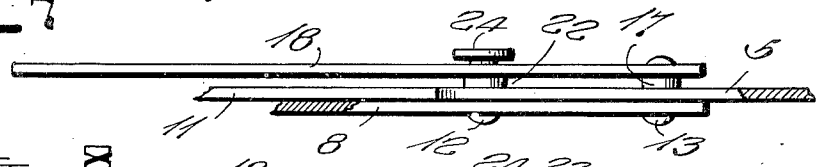


FIG. 8

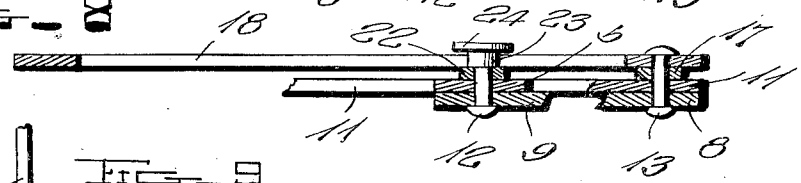


FIG. 9

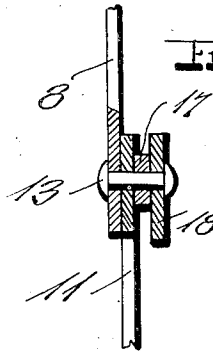
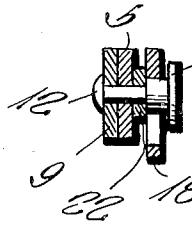


FIG. 10



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UNITED STATES PATENT OFFICE

2,521,265

AUXILIARY COLLAPSIBLE SEAT

George Starr, Somerville, Mass., assignor to The Lock Fast Company, Inc., Boston, Mass., a corporation of Massachusetts

Application May 14, 1946, Serial No. 669,489

5 Claims. (Cl. 155—91)

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Generically this invention relates to seats or chairs, but it is more particularly directed to an auxiliary adjustable seat for children adapted to be supported on a conventional chair, bench, automobile seat and the like.

One of the principal objects of this invention is the provision of a child's chair of the above character adapted to be readily adjusted to different heights and compactly foldable when not in use.

An important object of this invention is the provision of a child's auxiliary seat, including means engageable with a conventional chair or other supported surface adapted to maintain the seat against accidental horizontal and vertical displacement and means for automatically locking the seat portion at any desired height by movement of said portion upwardly within the range of its vertical adjustment.

A further object of this invention is the provision of an auxiliary seat for children including a top and bottom frame structure, a seat surmounting the top frame and suction or vacuum foot means connected to the bottom frame, said frames being connected by compound foldable and extensible brace structures at opposite sides of said frames and gravity controlled releasable locking means in connection with said brace structures adapted to automatically lock said braces at any desired seat supporting position upon elevation of the seat, and upon inversion of said seat, said locking means being automatically releasable to effect folding or collapsing of the seat upon the downward movement of said bottom frame.

With these and other objects in view, which will become apparent as the description proceeds, the invention resides in the construction, combination, and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which like characters of reference indicate like parts throughout the several figures, of which:

Fig. 1 is a side elevation of my improved seat in collapsed position.

Fig. 2 is a similar view to Fig. 1 with the seat in complete elevated position.

Fig. 3 is a fragmentary horizontal section taken on the line 3—3 of Fig. 2.

Fig. 4 is a detailed transverse section taken on the line 4—4 of Fig. 3.

Fig. 5 is an enlarged side elevation of the locking bar and portions of the brace structures.

Fig. 6 is a view similar to Fig. 5 viewed from the rear.

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Fig. 7 is a plan view of Fig. 5.

Fig. 8 is a horizontal section taken on the line 8—8 of Fig. 5.

Fig. 9 is a transverse vertical section taken on the line 9—9 of Fig. 5.

Fig. 10 is a transverse vertical section on the line 10—10 of Fig. 5.

The auxiliary booster seats for children so as to properly seat them at desired heights at tables, benches, or the like, with which I am familiar, have proven deficient in many respects, such as not being adjustable as to height, and, therefore, requiring makeshift means, not only troublesome but insecure and dangerous, and easily shiftable upon movement of the child causing likelihood of injury by the displacement of the seat, and if adjustable and having means for securing the booster seats to chairs and the like comprising complex means rendering adjustment difficult, such means also being likely to mar the supporting chair, and it was to overcome such disadvantages that I designed my improved adjustable booster chair for children forming the subject matter of this invention, comprising vacuum or suction feet elements adapted by the weight of the child to anchor the seat structure to its supporting surface, thereby obviating accidental displacement, and including pairs of brace members, the members of each pair being pivoted to the upper and lower frames at one end, and to each other at the other end, and locking bar means coacting with the adjacent connected ends of the said pairs adapted upon the upward movement of the seat portion to automatically lock said braces to maintain said seat at any desired level within its range of adjustment, and upon removal of the seat device from its anchored position and reversal thereof, to automatically permit collapsing or folding of said device by downward pressure upon the inverted frame.

In the illustrated embodiment characterizing this invention there is shown a child's booster seat or chair A, comprising, in the present instance, a bottom frame 1 constructed from a one-piece angle iron bent and welded or otherwise connected at its meeting end to form four equal sides 2, and a top frame 3 comprising sides 4 entirely similar to said bottom frame except being in inverted position, and a brace bar 5 rounded at its ends pivotally connected at its upper end 6 to side 4 of frame 3 by rivet or bolt 7, and a similar bar 8 pivotally attached to side 4 at its opposite end by a similar rivet or bolt 7. A similar bar 9 is connected by a pin 10, similar to pin 7, to side member 2 of frame 1

in vertical alignment with pin 7 of bar 5, and a bar 11 is attached to the opposite end of side 2 by pin 10 in vertical alignment with pin 7 of said bar 8. Bars 5 and 9 are of a length adapted to intersect or overlie each other at a point slightly beyond the vertical median line of said interconnected frame structure and at a point substantially central of the height of said frame, as shown in extended position in Fig. 2, and are connected at their meeting ends by bolt 12.

Bars 8 and 11 are similar in length to bars 5 and 9 and are adapted to be connected to each other at their meeting ends by bolt 13, and it will be noted that bars 5 and 9 constitute a pivotally connected pair 14 and bars 8 and 11 constitute a similarly connected pair 15. Bar 8 is adapted to overlie bar 5 and bar 11 to underlie bar 9 so that the free slidable and foldable movement of said bars may be had during the upward and downward movement of frame 3 with respect to frame 1, as will hereinafter appear, and in order to prevent any binding, the underlying bars 5 and 11 are spaced from the sides 4 and 2, respectively, by washers 16 mounted on the pins or rivets 7 and 10, respectively, as will be well understood.

Pivotally mounted on pin 13 spaced from brace 11 by washer 17 is a substantially rectangular locking bar 18 formed with a longitudinal cut-out portion 19, the upper edge of said opening 19 being formed with a plurality of ratchet or locking teeth 20, the lower edge of said opening 19 being formed with a smooth surface 21. Mounted on said pin or bolt 12 and adapted to engage the surface of brace 5 is washer 22, said bolt being preferably formed with an enlarged portion 23 of a size adapted to engage behind the teeth 20 and, the end of said bolt being formed with an enlarged head 24, said head being of a sufficient size to prevent disengagement of said locking bar whether in locking or unlocking position as will directly more fully appear. Mounted on frame 3 and suitably secured thereto by screws or other suitable means is, in the present instance, an upholstered seat 25.

It will be noted that the dual pairs of brace bars or elements 14 and 15 and the locking bar 18 associated with the inner pivoted ends of said pairs as above described, are similarly connected to the remaining three sides of the upper and lower frame sections 3 and 2, and they constitute the extensible and collapsible interconnecting frame structure between the supporting base frame section and the upper seat supporting section.

Connected to the horizontal portion of the lower or base frame section 1 at each of its four corners is a reilient vacuum cup or suction chair supporting foot member 26 constructed of rubber or other suitable material with a bolt 27 having one end moulded therein or extending therethrough, said bolt extending through the horizontal portion of said frame 1 and attached by nut 28 threadedly or otherwise secured thereon. These members 26 when positioned on a supporting surface 29, which may be a conventional chair seat, bench, floor, vehicle seat or the like, are adapted when force or weight is applied to the seat 25 to grip said surface and prevent vertical or lateral displacement of the chair, so that accidental injury to the child occupant by the sliding or shifting movement of the chair occasioned by movement of the child is prevented.

It is thought that the operation of the above device is clear from the above description, but it might be well to further state that the compound and interacting brace structures at opposite sides of the frame sections, together with said frame sections constitute a collapsible seat supporting frame structure, and the respective locking bars 18 pivotally connected to pins 13 of the pairs of brace elements 15 adapted to movably engage pins 12 of the oppositely extending pairs 14 are gravity controlled, so that when the seat 25 is moved upwardly to any desired height, said bars will pass over the pins 12 and drop respectively, into a tooth 20 at whatever height the seat is arrested and automatically lock and retain said seat in such selected position. When it is desired to remove the said device A from surface 29 it will only be necessary to intentionally manipulate the feet members 26 to loosen the gripping action of said members in a well known manner. When it is desired to collapse the said seat or chair device it is only necessary to invert said chair, whereupon the locking bars are gravitationally disengaged from the pins 12 which engage the smooth surface 21, whereby downward pressure upon base frame 1 collapses the device to the completely folded and compact position shown in Fig. 1, so that it may be easily portable and adapted to occupy a minimum space.

It will thus be observed that I have designed a child's auxiliary booster seat so that it may be readily adjustable to position the child with respect to a table to accommodate children of different sizes, automatically lockable at any desired height within its range of adjustment and, upon inversion, automatically releasable to permit complete foldability, yet manufacturable at a reasonable cost, and efficient for the purposes intended.

Although in practice it has been found that the form of the invention illustrated in the accompanying drawings and referred to in the above description as the preferred embodiment is the most efficient and practical, yet since conditions concurrent with the adoption of the invention will necessarily vary, it is well to emphasize that various minor changes in details of construction, proportion and arrangement of parts, may be resorted to within the scope of the appended claims without departing from or sacrificing any of the principles of the invention.

Having thus described the invention, what is desired protected by Letters Patent is as set forth in the following claims.

I claim:

1. An auxiliary collapsible seat or chair, comprising a lower frame section, an upper frame section, a seat attached to said upper frame section, and a collapsible frame structure therebetween, said frame structure including dual pairs of brace elements, the elements of each pair being pivotally interconnected at their inner ends and at their outer ends pivotally connected to said upper and lower frame sections, the respective pairs at their inner pivotally connected ends being slidably interlocked, a means pivotally connected to the inner pivoted ends of one pair of said elements and coacting with the pivoted ends of the remaining pair for securing said frame structure in a wholly or partially collapsed condition to support the upper frame section at a selected elevation with respect to the lower frame section.

2. An auxiliary collapsible seat or chair, comprising a lower base frame section, an upper seat frame section, an interconnecting collapsible frame structure including dual pairs of brace

members, each pair of brace members being pivotally interconnected at their inner ends, the free ends of said members being pivotally connected to said upper and lower frame sections, and a locking bar pivotally connected to one pair of said brace members at the interconnected ends thereof, and including means for detachably engaging the pivotal connection of the remaining ends of said braces for securing said collapsible frame at any predetermined position, whereby to support said upper frame section at a selected elevation with respect to said lower frame section.

3. An auxiliary collapsible seat or chair, comprising a lower frame section, an upper frame seat section, and interconnecting means therebetween for supporting the seat upper frame section at a selected elevation above the lower frame section, said means including at opposite sides thereof, divergent collapsible brace elements, the meeting ends of the elements of each brace being pivotally connected to each other and their outer ends being pivotally connected, one to the seat upper frame section and the other to the lower frame section, and gravity controlled locking means coacting with the said brace elements at their meeting ends to automatically secure the seat upper frame section at any selected elevation, and, upon inversion of said chair, to automatically release said locking means, to permit the collapsing of said chair.

4. An auxiliary collapsible seat or chair comprising upper and lower relatively movable frame sections, a seat carried by said upper section, a pair of foldable brace members, one of said members having one end connected to the upper frame section, and the other connected at one end to the lower frame section, at one side of said sections and extending inwardly along said side, and their other ends to each other, and a similar pair of brace members extending inwardly along the other side of said section similarly connected to said frame sections and to each other, and locking means associated with said connected ends operable automatically upon the upward movement of said upper frame section to supportingly lock said frame section at any desired level within its adjustable range.

5. An auxiliary collapsible seat or chair comprising an upper frame section, a seat in connection therewith, a lower frame section, feet means in connection with said lower frame anchoringly engageable with a supporting surface, dual pairs of brace elements, each pair of said elements being pivotally interconnected at their inner ends, and at their outer ends piovtally connected to said upper and lower frame sections, and a gravity actuated locking means pivotally connected to the inner pivoted ends of one pair of said elements and coacting with the pivoted inner ends of the remaining pair for securing said upper frame section at any selected position, whereby to support said seat at a selected elevation with respect to said lower frame section.

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