

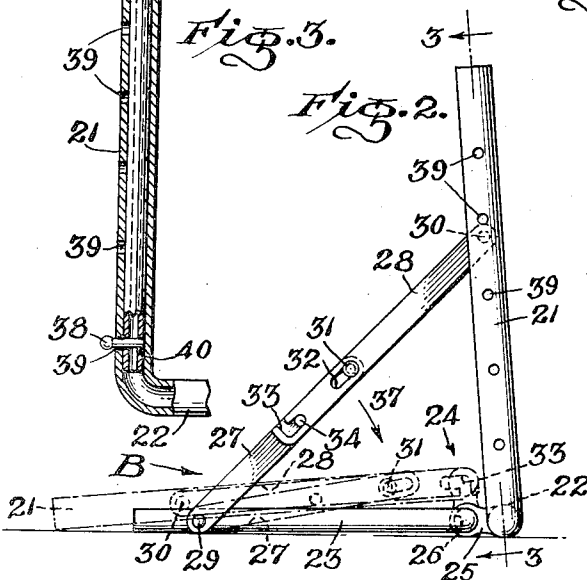
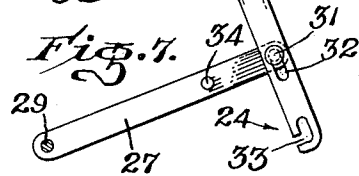
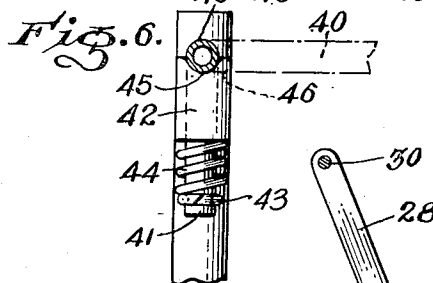
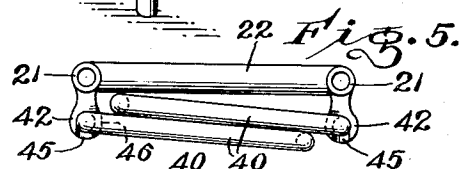
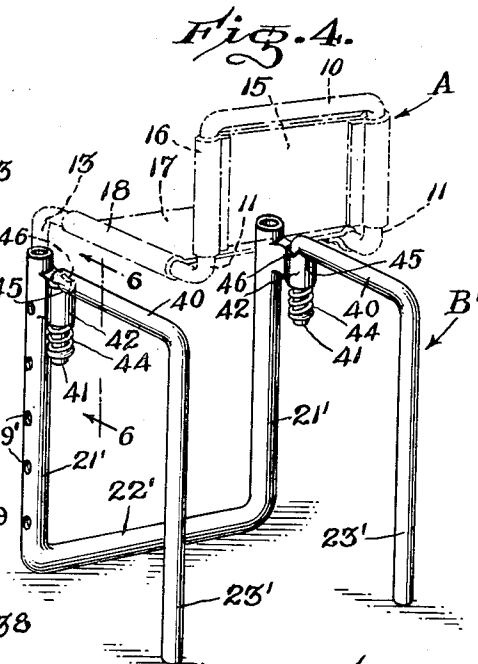
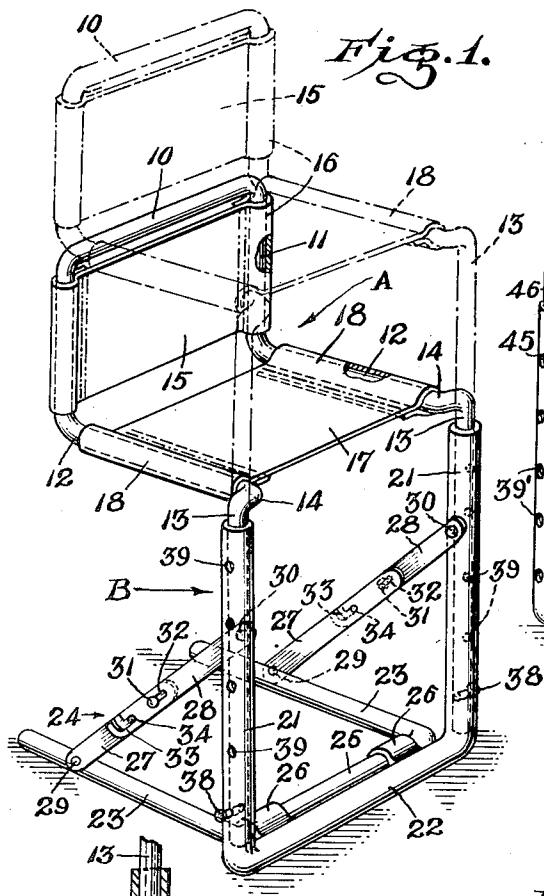
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FOLDING EXTENSIBLE HEIGHT CHAIR

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FOLDING EXTENSIBLE HEIGHT CHAIR

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4 Claims. (Cl. 155—88)

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This invention relates to an improved seat, adjustable for height, and collapsible. The invention is particularly adaptable for a seat for supporting a child in an elevated position at a parade or other gathering, although it is also applicable to other uses.

A particular object of the invention is to provide a knock-down seat having provision for extension of height, and being of relatively simple, inexpensive yet durable construction. A further object is to provide such a seat, constructed primarily from light weight metal tubing such as aluminum tubing, together with flexible webs stretched between members of the tubing to provide seat and back members.

A further object is to provide a knock-down extensible seat having an improved folding supporting leg structure.

Other objects will become apparent in the ensuing specifications and appended drawings in which:

Fig. 1 is a perspective view of a seat embodying the invention;

Fig. 2 is a side view of the folding supporting leg structure thereof;

Fig. 3 is a detail sectional view thereof taken on the line 3—3 of Fig. 2;

Fig. 4 is a perspective view, viewed from the rear, of a seat embodying the modified form of the invention;

Fig. 5 is a side view of the same in folded condition;

Fig. 6 is a detail sectional view of the same taken on the line 6—6 of Fig. 4; and

Fig. 7 is a detail of the jackknifing brace.

As an example of one form in which the invention may be embodied, I have shown in Figs. 1, 2 and 3 a seat structure embodying a seat and back unit, indicated generally at A; and a folding, supporting leg unit, indicated generally at B.

The seat and back unit A is constructed entirely from a length of light weight metal tubing and a pair of flexible web members. The tubing is bent to provide an upper cross bar 10, a pair of downwardly extending back frame members 11, a pair of forwardly extending seat frame members 12, and a pair of downwardly extending shanks 13. Shanks 13 are connected to the forward extremities of seat arms 12 by outwardly offset portions 14.

Cross member 10 and back frame members 11 constitute a frame for the back of the device. The flexible web 15 of sheet fabric, plastic, leather or the like, is stretched between the back members 11, being provided at its respective ends with integral sleeves 16 through which the back members 11 extend. Sleeves 16 may be formed by folding the end portions of the material back upon the central web portion thereof and stitching the end extremities to the central web portion. Web member 15 provides a back rest.

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Similarly, a seat member is provided by a web member 17 having at its end sleeves 18 through which the seat frame members 12 extend.

Shaft members 13 are telescoped into the upper ends of a pair of leg members 21, forming part of the supporting leg unit B. Leg members 21 are of tubular construction, and are formed integrally with a connecting bar 22, which is adapted to rest upon the supporting surface.

In their operative positions, leg members 21 are supported in upstanding relation by a pair of foot members 23 and a pair of brace units 24 connecting with foot members to the leg members 21. Foot members 23 constitute integral side arms bent from a connecting bar 25 which is hingedly connected to the cross bar 22. The hinged connection may comprise a pair of hinge loops 26 welded to the rear side of said cross bar 22, the bar 25 extending through the hinge loops 26.

Brace units 24 may each comprise a pair of base bars 27, 28, the former pivoted at 29 to the outer sides of respective foot member 23, and the latter pivoted at 30 to the inner side of the respective leg member 21. At this point it may be noted that the cross bar 25 is sufficiently shorter than the cross bar 22 so that the leg members 21 may be folded into embracing relation to the foot members 23, with sufficient space between the adjacent members 21, 23 to receive the folded brace units 24. Brace bars 27, 28 are pivotally connected by a pivot 31 extending through slot 32 in bar 27 and anchored in bar 27. Pivot 31 may be in the form of a rivet extending through bar 28 and having a head at both ends, the inner head being shown in Fig. 1 and engaging the inner face of bar 27. Slot 32 allows limited longitudinal movement of bars 27, 28 relative to each other. Such longitudinal movement effects the release, from a bayonet slot 33 in the end of bar 28, of a pin 34 which is anchored in bar 27 and is receivable into the bayonet slot 33. Thus, by tilting the leg members 21 forwardly and drawing the pivots 31 to the lower extremities of slots 32, pins 34 are brought to positions where they may be removed from bayonet slot 33, whereupon brace unit 24 may be broken, so as to allow pivots 31 to be moved as indicated by arrow 37, until the brace units 24 are in the folded positions indicated in broken lines in Fig. 2.

With pins 34 bottoming in bayonet slots 33 as shown in Figs. 1 and 2 in full lines, the legs 21 will be tilted slightly from the vertical (in the neighborhood of 5–10°) so as to be inclined over the foot members 23. Accordingly, the weight of the person seated upon seat member 17 will maintain the bottoming of the pins 34 in the bayonet slots.

It will now be apparent that by removing section A and then collapsing the braces 27, 28, the leg members 21 may be folded downwardly to positions in which they lie substantially in the plane

of foot members 23 as indicated in broken lines in Fig. 2. Thus the units A and B may be aggregated together in a fairly compact package.

Shaft members 13 are substantially co-extensive in length with leg members 21, and are adapted to be connected thereto in various positions of extension, by means of pins 38 extending through registering openings 39 in leg members 21 and a pair of openings 40 in the lower ends of shaft members 13. There are a series of vertically spaced openings 39 in leg members 21, to provide for selective adjustment of the seat unit A to various heights.

The offsets 14 bring the frame members 11 and 12 sufficiently close together so that they may be embraced between the foot member 23 when the seat is knocked down and brought together in a package for storage or transportation purposes. This facilitates making a package of minimum dimensions.

In the assembled condition of the seat, frame members 11 and 12 are maintained in spaced positions by the cross bar 10 at one extremity and the engagement of shaft members 13 in legs 21 at the other extremity. Resiliency in the members 11 and in legs 21 respectively is such as to maintain seat web 17 under tension, and to allow the same to sag somewhat under the weight of a person sitting thereon, in order to provide a rounded contour, conducive to comfort.

In the form of the invention shown in Fig. 4, the supporting leg structure B' includes tubular legs 21', 21', formed integrally with a connecting bar 22', a pair of rear legs 23', 23', and arms 40, 40 formed integrally with legs 23', 23' and connecting them to the legs 21', 21'. Arms 40 are disposed at right angles to legs 23'. At their ends, arms 40 are provided with integral trunnion members 41, bent downwardly therefrom and journaled in bearing sleeves 42, 42 which are attached to the leg members 21', 21' near the upper ends thereof. Trunnions 41, 41 have end portions which project below bearing sleeves 42, 42 and are provided with collar members 43, 43, detachably connected thereto (i. e. in the form of split rings seated in annular grooves in trunnions 41, 41). Coil springs 44 are disposed under compression between collar members 43, 43 and the lower ends of bearing sleeves 42, 42. Bearing sleeves 42, 42 are provided with notches 45, 45 which are positioned to receive arms 40, 40 when the latter are in their extended positions shown in Fig. 4 (parallel to each other and at right angles to the plane of the yoke member defined by leg member 21', 21' and cross bar 22'). Thus the leg members are yieldingly latched in their extended positions, from which they may be moved by forcibly pushing the arms 40 toward each other, causing the arms to ride out of the notches 45, 45 and slightly compressing springs 44, 44. Preferably, bearings 42 are provided with a second set of notches 46, 46 for receiving arms 40 when the latter are in the folded positions shown in Fig. 5.

I claim:

1. In a collapsible and vertically extensible seat: a collapsible supporting unit comprising a U-shaped front leg section including a transverse connecting bar adapted to rest on a supporting surface and a pair of tubular front leg members extending substantially at right angles therefrom and parallel to each other; a pair of generally inverted L-shaped auxiliary leg units each including a rear leg member and an arm integrally

connected thereto at right angles, said arm having at its end remote from said rear leg member, a trunnion extending parallel to said rear leg member and in the same direction from said arm, each of said front leg members having at its free end a bearing sleeve in which a respective one of said trunnions is journaled, with an end portion of each trunnion projecting beyond its respective sleeve and provided at the end thereof with radially projecting abutment means; coil springs encircling the said projecting portions of respective trunnions and under compression between said abutment means and the adjacent ends of said bearing sleeves and urging said arms into yielding engagement with the opposite ends of said bearing sleeves; said auxiliary leg units being adapted to swing about the axes of said trunnions between folded positions in which they are disposed in planes lying substantially parallel to and closely adjacent the plane of said U-shaped leg section and extended positions in which they are disposed in planes parallel to each other and at right angles to the plane of said U-shaped leg section; the free ends of said rear leg members swinging in a plane normal to the plane of said U-shaped leg section and substantially intersecting said transverse connecting bar thereof, whereby said free ends of the rear leg members and said transverse connecting bar may engage a supporting surface for cooperatively supporting said U-shaped leg section in a vertical plane with the upper ends of said tubular leg members opening upwardly; and a seat unit having downwardly projecting shanks telescopically receivable in said open upper ends of said tubular leg members.

2. A seat as defined in claim 1, wherein said bearing sleeves are provided, in their ends opposite the ends engaged by said coil springs, with pairs of notches positioned to receive and yieldingly retain said arms in either the folded or the extended positions of said auxiliary leg unit.

3. A seat unit as defined in claim 1, including means for securing said shanks to said tubular leg members in selected positions of vertical adjustment of said seat unit relative to said supporting unit.

4. A seat as defined in claim 1, wherein said seat unit comprises a one-piece frame embodying a top cross bar, a pair of back-frame members extending downwardly therefrom, a pair of seat frame members extending forwardly from the respective back frame members, with said shanks extending downwardly from the forward ends of said seat frame members; and flexible sheet web members secured to and stretched between said back frame members and seat frame members respectively, to provide back and seat members respectively.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
329,850	Overman	Nov. 3, 1885
1,791,453	Mies	Feb. 3, 1931
2,083,716	Klar	June 15, 1937
2,514,524	Steele	July 11, 1950

FOREIGN PATENTS

Number	Country	Date
554,929	Great Britain	July 26, 1943
598,335	Great Britain	Feb. 16, 1948
329,407	Italy	Sept. 6, 1935