Sept. 17, 1957 J. N. WHALEN 2,806,512

ADJUSTABLE BACK FOR CHAIRS

Filed Aug. 13, 1953 2 Sheets-Sheet 1

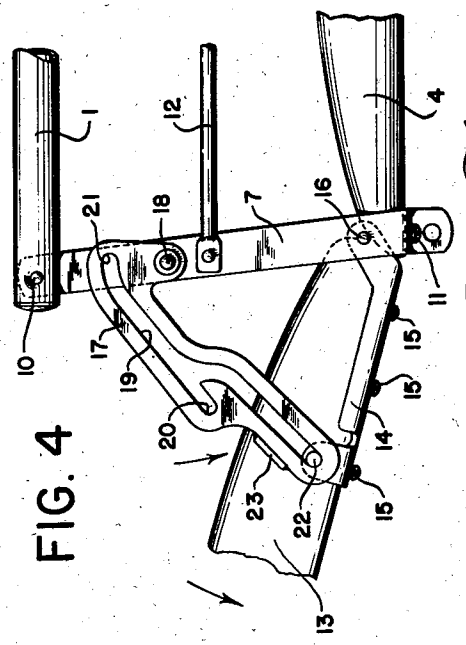


FIG. 4

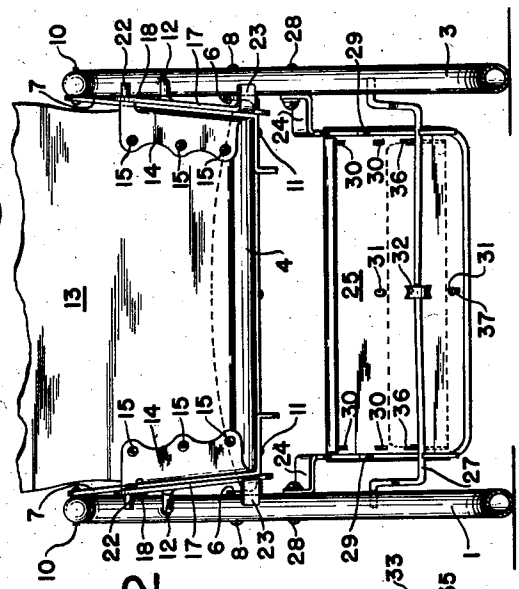


FIG. 2

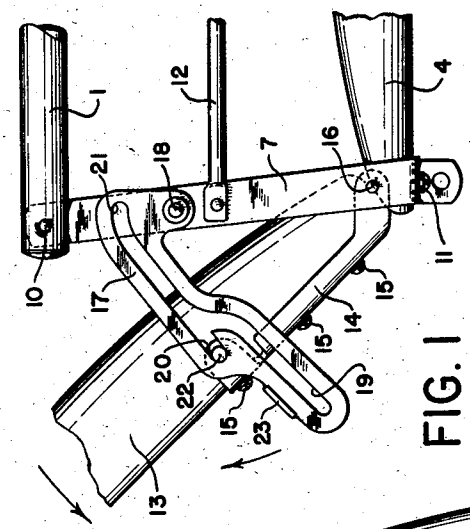


FIG. 3

FIG. 1

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ADJUSTABLE BACK FOR CHAIRS

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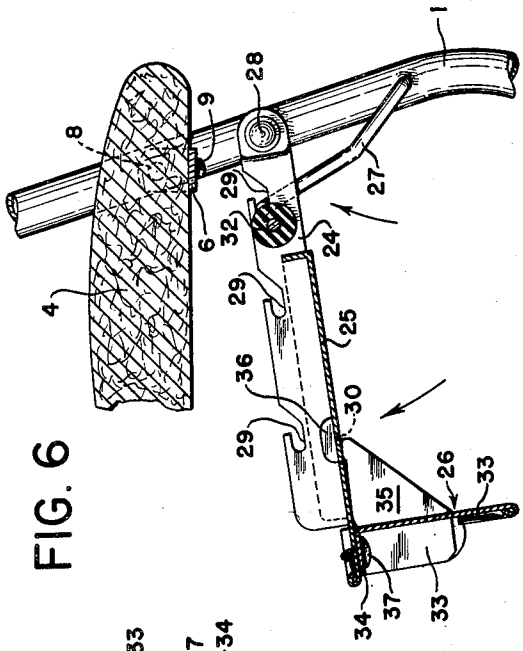


FIG. 6

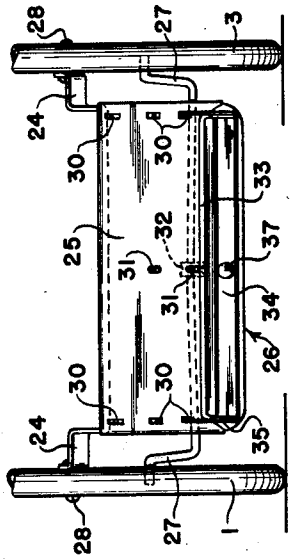


FIG. 8

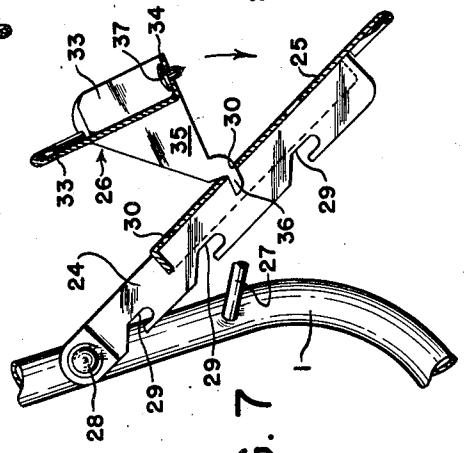


FIG. 7

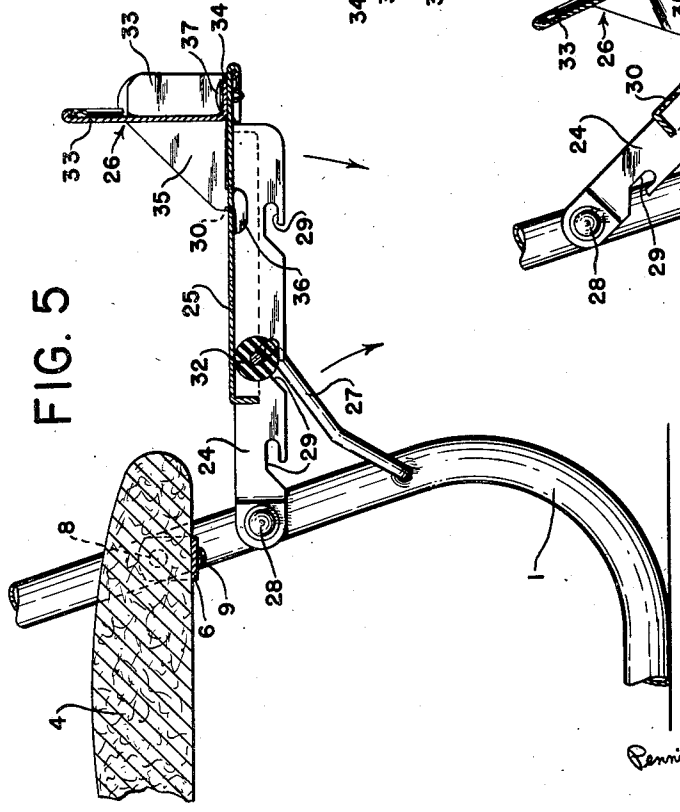


FIG. 5

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ADJUSTABLE BACK FOR CHAIRS

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Application August 13, 1953, Serial No. 373,935

1 Claim. (Cl. 155—163)

This invention relates to a chair having adjustable back and foot supports. More particularly, this invention relates to an adjustably reclining chair suitable for infants which may be adapted to provide a fully reclining chair capable of being used as an infant's bed.

It is desirable to provide an adjustable chair for infants which may be used as a car seat, an ordinary chair, or as a completely reclining chair to enable its use as an infant's bed. A chair suitable for this purpose must of necessity be of sturdy construction, and accordingly infant's chairs are frequently not provided with adjustable features, since they tend to destroy the essential rigidity required. When such features are provided they generally require considerable effort and complicated means in order to adjust the elements into the desired positions.

It is the object of the present invention to provide a sturdy chair capable of withstanding abuse in which the back member and a foot support may be angularly adjusted in selected positions. More particularly the invention contemplates a chair having a back member and a foot support which may be firmly held in various angular positions. Other specific objects and advantages of the invention will be apparent from the following description of a typical embodiment thereof.

The chair of this invention includes two side supporting members having a seat member fixedly mounted therebetween and having a back member pivotally mounted between the supporting members adjacent the rear portion of the seat member. Pivotally mounted above the seat member on each side supporting member is a lever arm containing a closed slot which extends above the pivot point of the lever arm. An outwardly projecting element or pin extends from each side of the back member adjacent each lever arm and each element is slidably carried in the slot of its adjacent lever arm whereby the back member may be adjusted and held in angular relation to the seat member. In order to provide a completely reclining chair, a further feature of this invention relates to an improved foot support which includes longitudinal slide members pivotally mounted on the supporting members closely adjacent and below the forward portion of the seat member. The longitudinal side members carry a kickboard and have a plurality of notches in their lower surfaces. An elongated bracket bar is pivotally mounted between the supporting members below the pivot point of the longitudinal members and is adapted to engage the notches of the longitudinal members to thereby adjust the angle of the foot support in relation to the seat member. The elongated bracket bar is centrally bowed and carries a resilient element which is adapted to firmly engage the rear surface of the kickboard when the bracket bar engages the longitudinal member notches thereby providing a firm and noiseless support. A foot rest is mounted on the kickboard substantially at right angles thereto.

In the accompanying drawings I have shown an embodiment of this invention as applied to an infant's chair. In the drawing:

Fig. 1 is a side view of a chair incorporating the improvements of this invention;

Fig. 2 is a sectional view taken substantially along line 2—2 of Fig. 1;

Fig. 3 is an enlarged partial side view of the chair showing the slotted lever arm supporting the chair back when at its intermediate position;

Fig. 4 is a side view similar to Fig. 3 showing the back of the chair in its extended reclining position;

Fig. 5 is an enlarged partial side view, partly in section, of the chair showing the foot support;

Fig. 6 is a side view, partly in section, showing the foot support in its retracted position;

Fig. 7 is a side view, partly in section, of the foot support showing the adjustable features of the foot rest;

Fig. 8 is a front view of the foot support.

As shown in Figs. 1 and 2, the supporting side members 1 and 3 of the chair are laterally spaced and the seat 4 is mounted therebetween by means of angle pieces 6 and vertical bars 7. Angle pieces 6 are rigidly secured by means of rivets 8 and 9 to the respective supporting members 1 and 3 and the seat 4. A pair of vertical bars 7 is likewise firmly joined to the seat 4 and the respective supporting members 1 and 3 by rivets 10 and 11. Horizontal support bars 12 are firmly connected between each of the vertical bars 7 and the respective supporting members 1—3 and are provided to add further rigidity to the frame of the chair and protection to its occupant. The chair back 13 has secured thereto by means of the screws 15 a pair of supporting members 14, each of which is pivotally joined to the adjacent vertical supporting bar or member 7 by means of a bolt 16. Thus the back 13 is capable of assuming any angular relation with respect to the seat 4, thereby providing a back which may be reclined in any position.

Each vertical bar 7 carries a lever arm 17 which is pivotally secured thereto by means of a rivet 18. Each lever arm 17 is provided with a closed slot 19 having at least one intermediate notch 20. The uppermost portion 21 of the slot 19 is arcuately formed and extends above the pivot point of the lever arm 17. An outwardly projecting element or pin 22 extends from the side of each back supporting member 14 and extends into and is slidable in the slot 19. A thumb rest 23 is provided on each lever arm 17 to permit easy movement of the lever arm 17 to its desired position.

With the described construction, it is possible to adjust the back 13 into a plurality of angular positions with relation to the seat 4. If desired, additional notches may be provided in the lever arms 17 in order to provide a further number of adjusted positions for the back 13. An important feature of the invention lies in the location of the outwardly projecting elements or pins 22 in the uppermost portion 21 of the slots 19 above the pivot point of the lever arms 17 when the back 13 is in an upright position. When in this position, any force exerted against the back 13 by a person seated in the chair tends to hold the lever arms 17 in the upright positions shown in Fig. 1, and it is not necessary to provide a catch or lock to hold the back 13 in an upright position.

Fig. 3 illustrates the back 13 in an intermediately reclining position wherein the elements or pins 22 are held in the notches 20. Fig. 4 indicates the position of the back 13 in a completely reclining position wherein the elements 22 rest against the lower ends of the slots 19.

Referring to Fig. 1, the adjustable foot support consists of a pair of longitudinal side members 24, a kickboard 25 secured to them and a foot rest indicated at 26. A bracket bar 27 adjustably supports the foot support. A longitudinal side member 24 is pivotally secured to each of the side supporting members 1 and 3 closely

adjacent and below the forward portion of the seat 4 by means of rivets 28. The longitudinal side members 24 are provided with suitable notches 29 in their lower edges which receive and hold the bar 27 which angularly supports the side members. Fixedly secured to the two longitudinal side members 24 is a flat kickboard 25. Spaced openings 30 are provided along the side edges of the kickboard 25 and further openings 31 are provided in the central portion thereof. The openings 30 and 31 are provided as means for supporting the foot rest 26 which is described below.

The bracket bar 27 consists of a metal rod pivotally mounted in the supporting side members 1 and 3 below the pivots of the foot support members 24 by means of projecting the outwardly bent ends of the bar into openings provided in the supporting side members 1 and 3. By inserting the bar 27 into a selected pair of the notches 29, the foot support may be selectively adjusted to a desired angle with relation to the seat 4. An important feature comprises the shape of the bar 27 which is bowed in the center portion thereof toward the rear surface of the kickboard 25 and which carries a resilient element 32 at or near its center (Fig. 2). Thus when the bar 27 engages the notches 29, the resilient element 32 is firmly pressed against the back portion of the kickboard 25, thereby preventing rattling or other movement of the bar in the notches which might produce a disturbing noise during the use of the chair.

A further feature of the adjustable foot support, illustrated in Fig. 6, is its retractability. When it is desired to use the chair without the foot support, the entire foot support is swung back to a retracted position beneath the chair seat 4, and the bar 27 is placed in the uppermost notches 29 of the side members 24. This holds the foot support back under the seat 4 in an out-of-the-way position, thus enabling convenient transportation of the chair, use of the chair by older children, and use of the chair in restricted areas.

The foot rest 26 consists of a flat plate 33 having a flanged portion 34 adjacent the kickboard 25 and vertical side plates 35 fixedly secured on each side of the plate 33. Each side plate 35 terminates at its upper end in a hook 36 which is provided for engagement with the spaced openings 30 of the kickboard 25. The hooks 36 are inserted into the openings 30 as illustrated in Fig. 7 and the footrest 26 is then angularly rotated so that the flanged portion 34 rests against the surface of the kickboard 25. In order to firmly hold the footrest 26 in its desired position, a snap button 37 is permanently expanded through an opening in the flanged portion 34 of the plate 33 and is arranged to releasably engage one of the openings 31 in the kickboard 25. The footrest 26 may be adjusted to a desired height on the kickboard 25 by engaging the hooks 36 selectively with the different openings 30 and the footrest 26 is then firmly and releasably secured to the kickboard 25 at substantially right angles thereto by means of the snap button 37.

The described construction provides an adjustable foot support which may be variably adjusted in its angular relation to the seat 4 and in which the distance to the footrest 26 may be adjusted. The adjustments provided are firm and capable of withstanding rigorous use. Because of the bowed nature of the bar 27 carrying the resilient element 32, there is little tendency for the adjustable foot support to develop objectionable rattles after its continued use.

It is readily apparent that by adjusting the back 13 to its fully reclining position as shown in Fig. 4, and the foot rest to its uppermost position as shown in Fig. 5, a completely reclining chair or convenient infant's bed is provided.

The various members and parts of the chair above described may be generally formed out of standard tubular or flat metal stock or stampings. However, any suitable material capable of operating in the above-described manner may also be used.

I claim:

An adjustable reclining chair comprising a pair of side supporting members, each of said side supporting members including a substantially vertically disposed section, a fixed seat member disposed between the vertically disposed portions of the side supporting members in a plane below the upper ends of the substantially vertically disposed portions of the side supporting members, the side supporting members further including horizontally disposed portions extending from the upper ends of the substantially vertically disposed sections and spaced from the side edges of the seat member, vertical supporting members extending downwardly from the rear ends of the horizontally disposed portions of the side supporting members and secured to the seat member adjacent the rear of the seat member, a back member pivotally mounted on the vertical supporting members, a lever arm pivotally mounted on each of said vertical supporting members above the pivots of the back member, each of said lever arms comprising an elongated member pivoted on said vertical member above the pivots of the back seat member and adjacent one end of the lever arm, each of the lever arms having an elongated slot extending from a point beyond its pivot to a point adjacent the other end of the arm, and having at least one intermediate notch therein, and an outwardly projecting pin secured to each side of said back member and projecting into the slot of the lever arm, the pin being disposed in the slot at the end beyond the pivot and the lever arm being in a substantially vertical position when the back member is raised.

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