

June 23, 1964

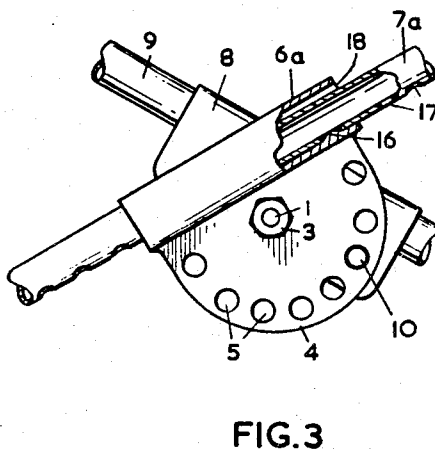
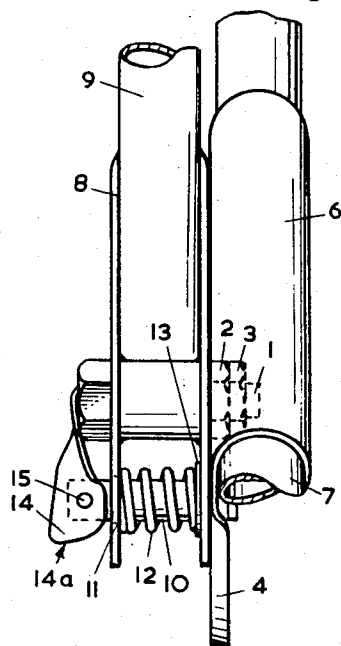
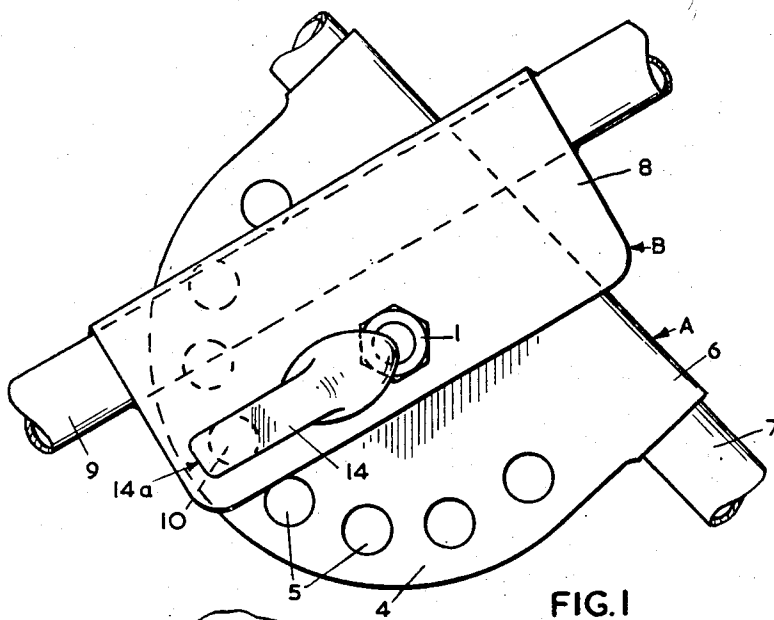
T. REID

3,138,400

DECK AND LIKE CHAIRS

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2 Sheets-Sheet 1



INVENTOR

THOMAS REID

June 23, 1964

T. REID

3,138,400

DECK AND LIKE CHAIRS

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2 Sheets-Sheet 2

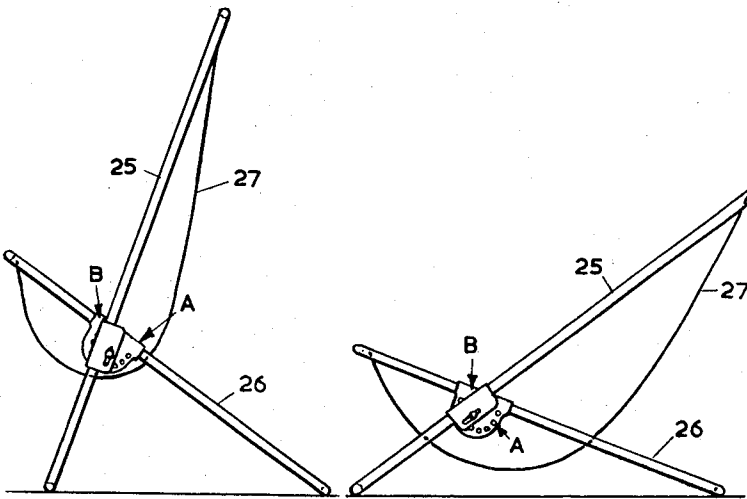


FIG. 5

FIG. 6

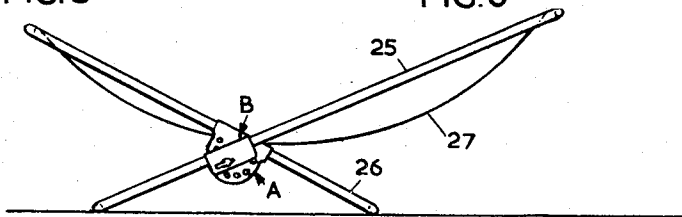


FIG. 7

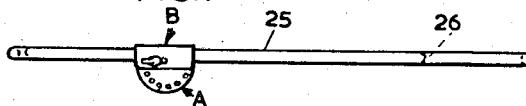


FIG. 8

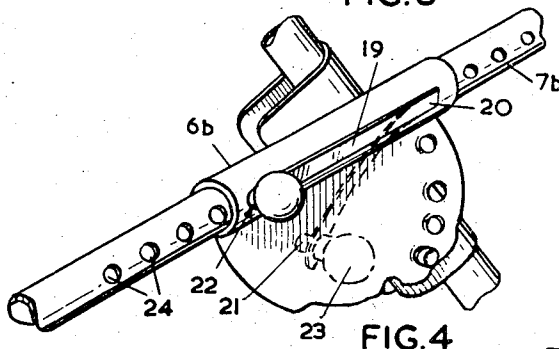


FIG. 4

INVENTOR

THOMAS REID

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3,138,400

DECK AND LIKE CHAIRS

Thomas Reid, 16 Eastern Ave., Aveley, Essex, England

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3 Claims. (Cl. 297—19)

This invention relates to deck and like chairs, its object being to provide an improved construction, the features and advantages of which will be apparent from the following description.

According to the present invention, a chair comprises two frames including a longitudinal side member at each side, the side members of the respective frames being disposed one across the other, first and second coupling elements connected by a pivot, the first coupling element receiving the longitudinal side member of one of the frames slidable therethrough in a plane substantially normal to the axis of the pivot, the second coupling element being secured to the adjacent longitudinal side member of the other of the frames, and means acting between the first and second coupling elements for locking them against pivoting.

The longitudinal side member of one of the frames may be simply slidable freely with respect to the first coupling element, but adapted to engage frictionally against said element either solely under the weight of the chair or under the action of an applied load. Means may alternatively be provided for at least locating the slidable longitudinal side member of the frame with respect to the first coupling element. By way of example, they may include to act between them a series of recesses or apertures along one of them and detent means on the other of them to engage into a selected recess or aperture. In a preferred embodiment, the first coupling element includes a housing within which the side member of the frame is slidable, the side member having a series of indentations or recesses or apertures along its length to engage with an inwardly directed detent or series of such detents) in the housing.

In another embodiment, the first coupling elements carries a locking pin which can be engaged into a selected recess or aperture of the slidable side member preferably under the action of spring-loading.

Any suitable means may be provided to act between the first and second coupling element, to lock them against pivoting. Such retaining means may provide smoothly variable adjustment of their relative position or selective step-by-step positioning. In one form, the retaining means consist of a plate on one coupling element having a series of recesses or apertures arranged on an arc of a circle about the pivot axis, and a movable locking detent on the other such element for engagement into a selected recess or aperture of the first element. In a preferred embodiment, the pivot locking detent is a spring-loaded pin slidable under the action of a lever such as a cam lever.

The faculties of locking in position and slidable adjustment of the longitudinal side members of the frame with respect to the coupling permit the usual supporting strut of the deck-chair to be eliminated, and provide a wider range of adjustment than was possible hitherto.

In order that the nature of the invention may be readily ascertained a deck-chair incorporating such a pivot joint is hereinafter particularly described with reference to the figures of the accompanying drawings, wherein:

FIG. 1 is a side elevation of the pivotable coupling;

FIG. 2 is an edge elevation thereof;

FIG. 3 is a side elevation of a first modification of the pivotable coupling;

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FIG. 4 is a perspective side elevation of a second modification of the pivotable coupling;

FIGS. 5, 6 and 7 are side elevations of a deck-chair, incorporating the pivotable coupling, seen respectively in raised, partially-lowered, and fully-lowered conditions;

FIG. 8 is a side elevation showing the deck-chair in completely folded condition with one frame within another.

Referring to FIGS. 1 and 2 the pivotable coupling comprises two coupling elements A and B connected by a pivot bolt 1 fitted with a tightening nut 2 and locking nut 3. Coupling element A comprises a catch plate 4 with a semi-circle of apertures 5, and a housing portion 6 which is one edge of the plate 4 bent round to form a cylinder. Within the housing 6 there is slidably disposed a longitudinal arm 7 forming part of a frame of a deck-chair described below. The other element B of the coupling comprises a body 8 formed of sheet material bent round into "U-section" and secured to another arm 9 of the deck-chair, e.g. by welding. A locking pin 10 is slidable axially in holes 11 of the body 8 against the pressure of the compression spring 12 abutting against the body 8 and against a washer 13 secured on the pin. Means for axial shifting of the locking pin consist of a lever 14 mounted by a pivot 15 on the pin and having a camming surface 14a such that in the position of the lever parallel to the axis of the pin 10, the latter is withdrawn against its spring-loading so as to bring the end of the pin out of engagement with one or other of the holes of the plate 4. Then the lever 14 is in the position illustrated, the other end of the pin lies within a hole 5 and locks the two elements A and B against relative rotation. By lifting the lever 14 fully, the elements A and B are freed to rotate to a selected angle. In this construction the arm 7 is freely slidable in the housing 6, unless and until some transverse pressure (such as the weight of a load) is applied to cause frictional engagement between the two.

In the first modification, shown in FIG. 3, means are applied to positively locate the arm 7a against axial sliding with respect to the housing 6a. These means consist of a nose 16 projecting radially inwards on the interior of the housing 6a, and a plurality of apertures (or indentations) 17 provided along the underside of the arm 7a. The arm 7a is made to have a relatively large clearance 18 with respect to the housing 6a so that, when not pressed into engagement, the arm 7a can be adjusted axially to bring a selected aperture 17 into engagement with the nose 16.

In the second modification, shown in FIG. 4, the housing 6b is provided with a spring-arm 19 secured externally thereon at 20, this arm carrying a pin 21 which can be released into and withdrawn from a hole 22 in the housing by manipulation of a knob 23. In the arm 7b slidable in the housing are provided a series of apertures 24 into any selected one of which the pin 21 can be engaged to lock the arm 7b to the housing. In this construction once the pin 21 has been engaged the parts are locked irrespective of any other forces which may be applied to the members, whereas in the construction of FIG. 3, the members only remain locked together so long as the appropriate part of the arm 7a is pressed into engagement with the nose.

Referring now to FIGS. 5, 6, and 7, there is illustrated a deck-chair consisting of two rectangular tubular metal frames 25 and 26 carrying between a cross bar of each of them the usual seating "canvas" or the like, flexible sheet material to form a back and seat 27. A pivotable coupling of the kind described in relation to FIGS. 1 and 2 is provided to connect the longitudinal side members of the frame at each side, the side members of the frame 25 constituting the arm 7 slidable in

the housing of the coupling element A. It will be seen from FIGS. 5, 6, and 7, that the deck-chair can be adjusted within wide limits by (i) altering the angle of crossing of the frames 25, 26 and (ii) by adjusting the position of the pivotable coupling as a whole along the side members of the frame 26. Although the pivotable coupling is made slidable on the side members of the frame 26, it is found in practice that the deck-chair is stable itself under the force of gravity, and even more so under the weight of a person sitting on it, because the housing 6 is pressed into firm frictional engagement with the arm 7. Nevertheless, when desired, the arm 7 can slide through the housing 6 to alter the adjustment.

The provision of this sliding adjustment, with appropriate manipulation of the pivot joint, enables the two rectangular frames 25, 26 to be disposed one entirely within the other, whereby the deck-chair can be laid flat, as shown in FIG. 8.

The modified constructions, including locating and locking means for the relatively slidable arm, could likewise be incorporated in such a deck-chair construction.

It will readily be appreciated that, if the pivotable coupling A, B of FIG. 7 is moved to an appropriate extent along the frame member 26 in the direction of the arrow, the "canvas" 27 or the like will tend to assume a more and more horizontal position which may eventually approximate the shape of a hammock and can be used as such or as a substitute for a baby's seat.

I claim:

1. A chair comprising two frames each having at least one crossbar and means connecting said crossbars to form a seat and back and a longitudinal side member, the adjacent side members of the respective frames being disposed one across the other, first and second coupling elements connected by a pivot, the first coupling element receiving one longitudinal side member of one of the frames slidable therethrough in a plane substantially normal to the axis of the pivot, means on the first coupling element to engage with said slidable longitudinal member and lock said longitudinal member against sliding, the second coupling element being secured to the adjacent longitudinal side member of the other of the frames, a plate on one of the coupling elements including a series of openings disposed on an arc of a circle about the pivot axis, and a locking detent movably mounted on the other coupling element and positioned for engagement into a selected opening of the plate to lock said coupling elements releasably in a desired relative angular position.

2. A chair comprising two frames each having at least one crossbar and means connecting said crossbars to form a seat and back and a longitudinal side member, the ad-

jacent side member of the respective frames being disposed one across the other, first and second coupling elements connected by a pivot, the first coupling element receiving one longitudinal side member of one of the frames slidable therethrough in a plane substantially normal to the axis of the pivot, means on the first coupling element to engage frictionally with said slidable longitudinal member when the frames are placed under load and lock said longitudinal member against sliding, the second coupling element being secured to the adjacent longitudinal side member of the other of the frames, a plate on one of the coupling elements including a series of openings disposed on an arc of a circle about the pivot axis, and a locking detent movably mounted on the other coupling element and positioned for engagement into a selected opening of the plate to lock said coupling elements releasably in a desired relative angular position.

3. A chair comprising two frames each having at least one crossbar and means connecting said crossbars to form a seat and back and a longitudinal side member, the adjacent side members of the respective frames being disposed one across the other, first and second coupling elements connected by a pivot, the first coupling element receiving one longitudinal side member of one of the frames therethrough in a plane substantially normal to the axis of the pivot, said longitudinal side member having a series of openings, a locking pin movably mounted on the first coupling element and positioned to engage into a selected opening of the slidable longitudinal side member for locking said side member releasably with respect to the first coupling element in a desired position, the second coupling element being secured to the adjacent longitudinal side member of the other of the frames, a plate on one of the coupling elements including a series of openings disposed on an arc of a circle about the pivot axis, and a locking detent movably mounted on the other coupling element and positioned for engagement into a selected opening of the plate to lock said coupling elements releasably in a desired relative angular position.

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