Aug. 20, 1935. A. J. RICKETTS 2,011,874

COMBINED BED AND CHAIR

Filed April 24, 1933 2 Sheets-Sheet 1

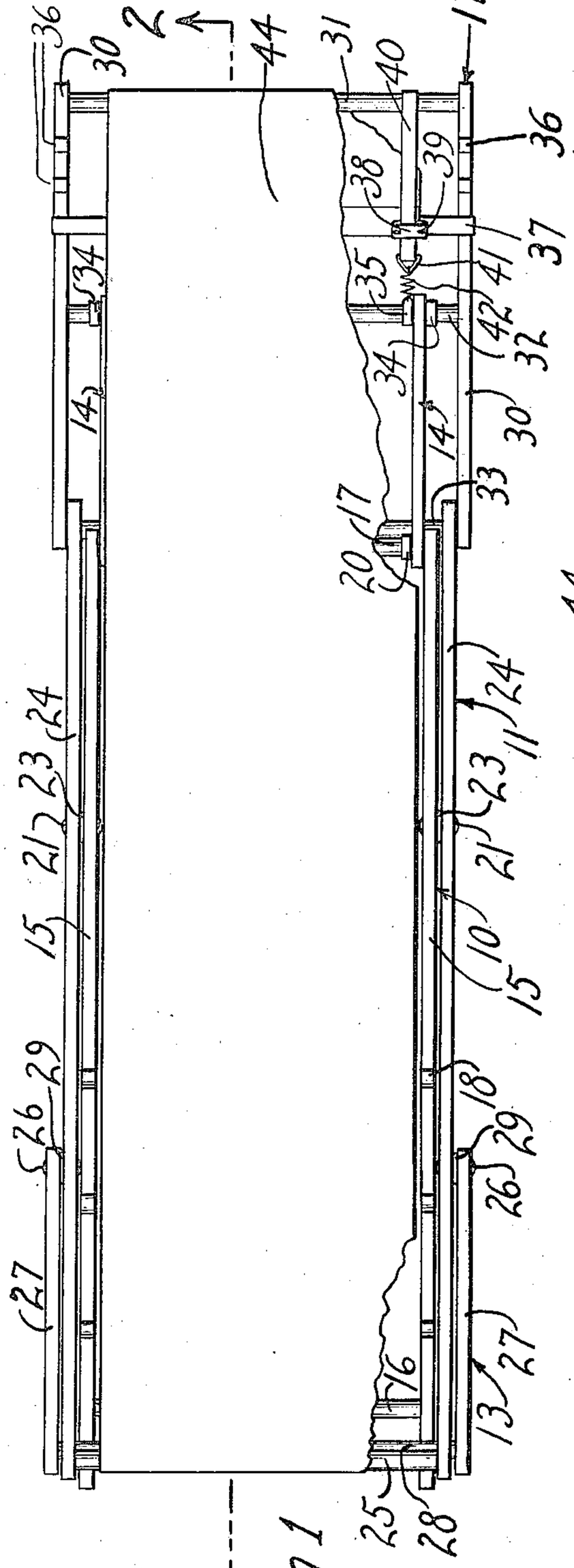

Fig 1

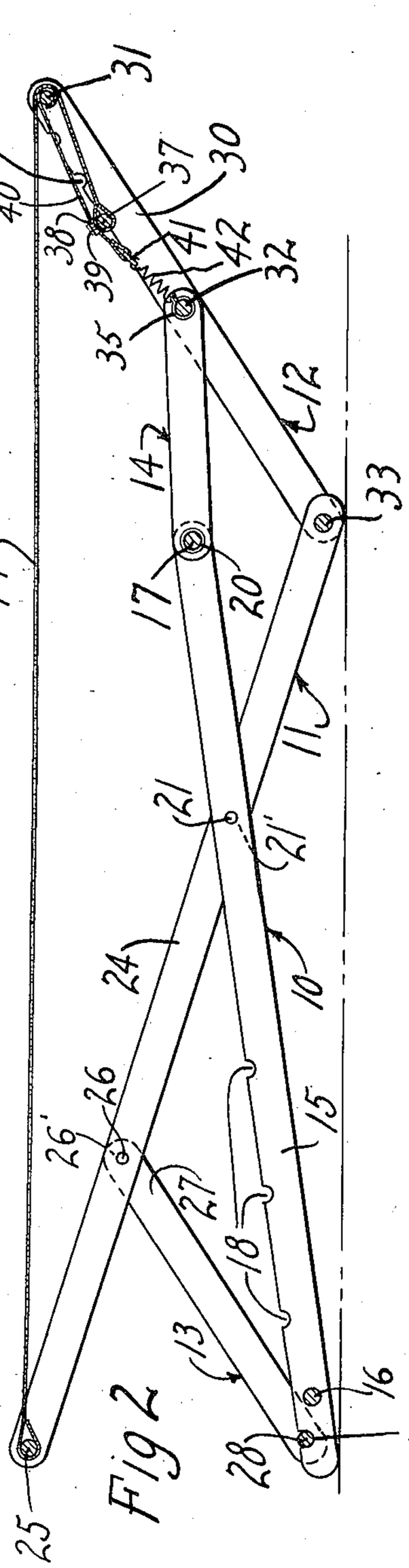

Fig 2

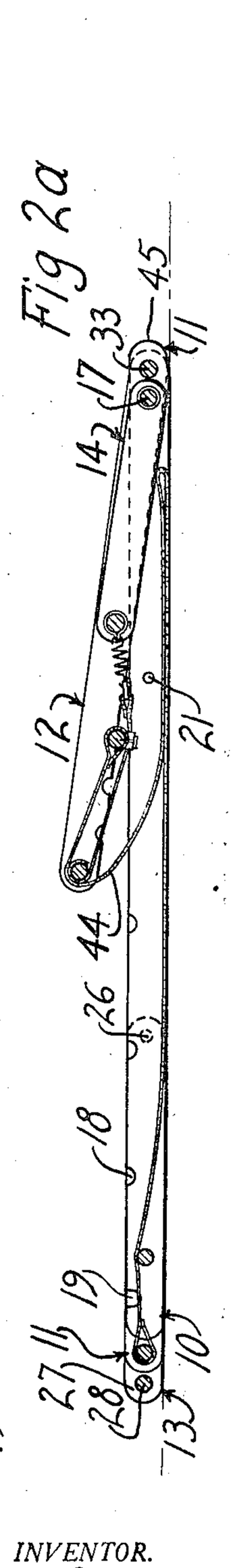

Fig 2a

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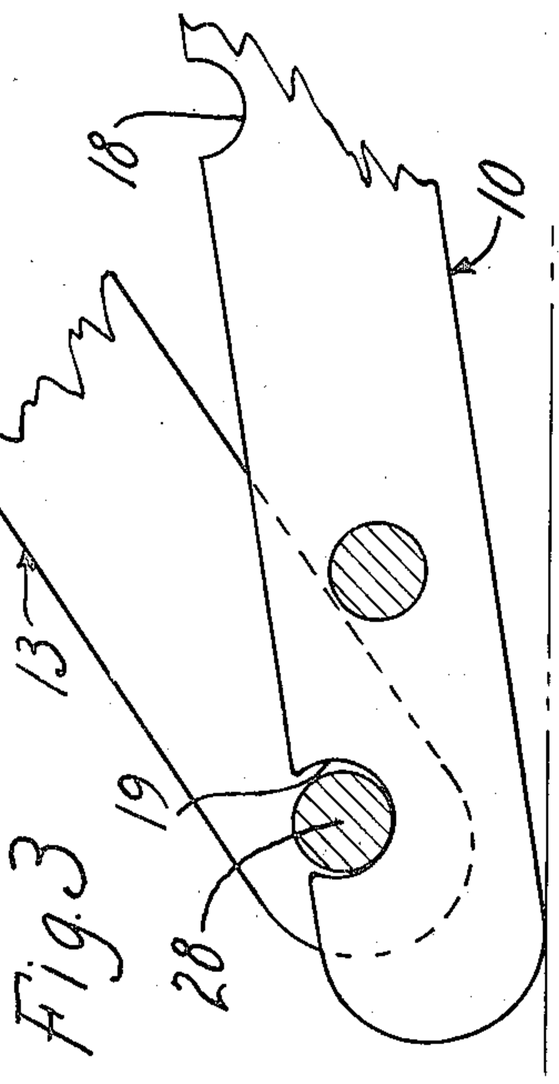

Fig. 3

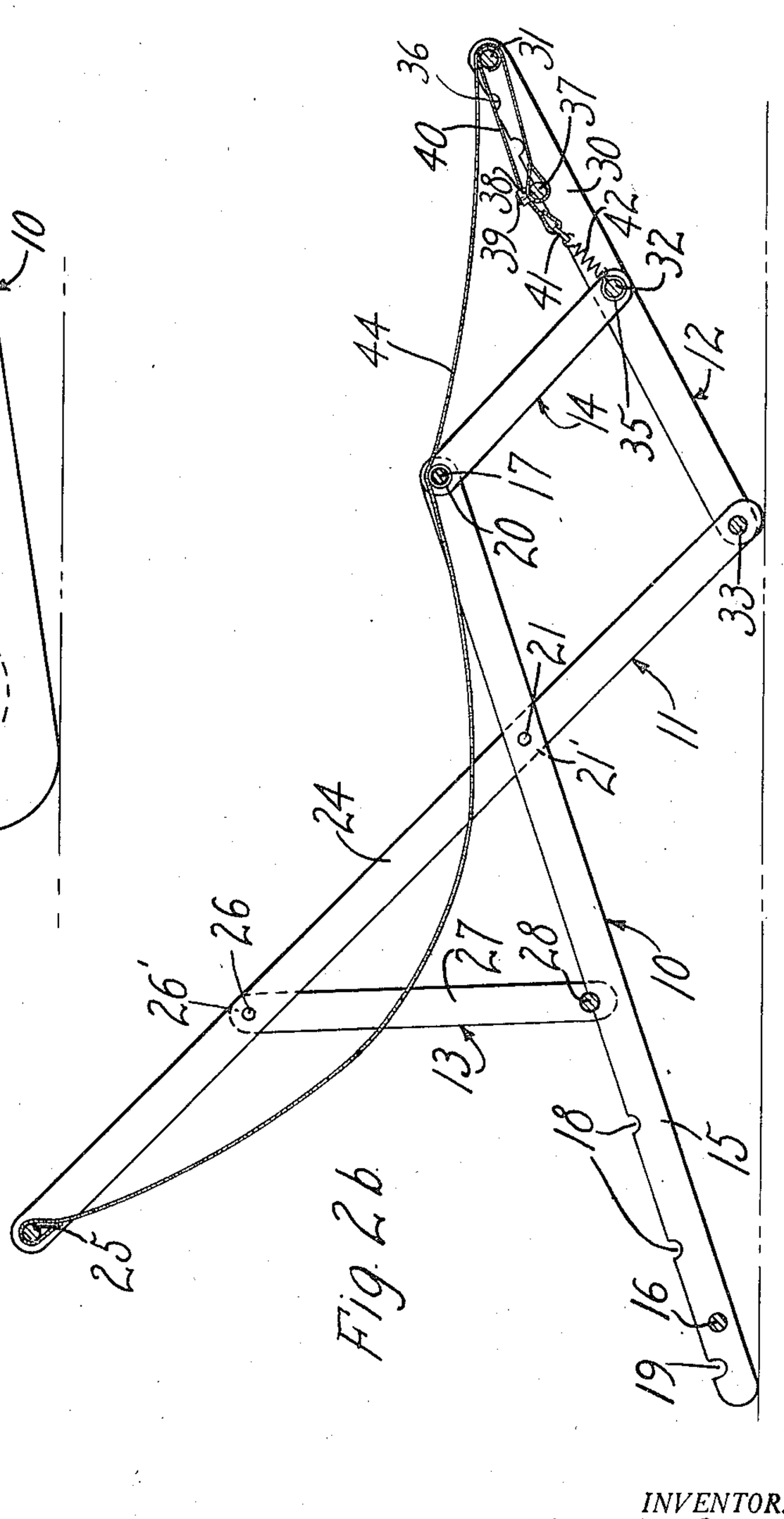

Fig. 2

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2,011,874

COMBINED BED AND CHAIR

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Application April 24, 1933, Serial No. 667,576

3 Claims. (Cl. 155—45)

This invention relates to improvements in combined beds and chairs of the folding type, and an object of the invention is to provide an adjustable chair readily convertible into a bed by means of simple operations. Another object is to provide a combined adjustable bed and chair with a footrest which may be folded substantially flat. Another object is to provide a chair with a footrest, the chair bottom being adjustable. Another object is to provide in a combined adjustable bed and chair with a footrest a folding adjustable framework, capable of being maintained in adjusted positions. Another object is to provide a continuous wide flexible member or bottom for the bed, chair, and footrest the effective length of which is readily adjustable. Other objects and advantages reside in certain novel features which are evident from the following descriptions and the accompanying drawings, in which:

Figure 1 is a plan view of the invention adjusted as a bed and having sections of the wide flexible member cut away at the head and foot ends.

Figure 2 is a vertical section of Figure 1 taken on the line 2—2.

Figure 2*a* is a vertical section of the structure when folded and taken on the same vertical plane as Figure 2.

Figure 2*b* is a vertical section of the invention adjusted in one of the various chair positions and taken on the same vertical plane as Figure 2.

Figure 3 is an enlarged portion of Figure 2.

A combined folding adjustable bed and chair constructed in accordance with the present invention includes a frame work which is foldable and adjustable. This framework consists of a rear leg frame 10, a front leg frame 11, a supporting frame 13, a footrest frame 12, and links or supporting members 14, assembled as hereinafter described, and as shown on the accompanying drawings.

The rear leg frame 10 consists of two spaced side bars 15, connected near their lower ends by the cross rod 16 and at their upper ends by the cross rod 17, as shown on Figure 2. Spaced apart along the upper edges of the side bars 15 are a plurality of notches or receptacles 18, and near their lower ends are the notches or receptacles 19 having converging mouths as shown in Figure 3.

On each side bar 15 is provided a pivot 21, adapted to securely hinge together the rear leg frame 10 and the front leg frame 11. The front leg frame 11 consists of two spaced side bars 24 connected at their upper ends by the cross rod 25 and at their lower ends by the cross rod 33. The side bars 24 are connected near their lower ends to the pivots 21, and are located outside the rear leg frame 10, and are spaced therefrom as at 21′ by means of the spacers or washers 23.

Near the upper end of the front leg frame 11 is located a pair of pivots 26 securely hinging together the front leg frame 11 and the supporting frame 13. The supporting frame 13 which can swing freely on the pivots 26 consists of a pair of side bars 27 connected at their lower or free ends by the cross rod 28. The side bars 27 are located outside the front leg frame 11 and are spaced therefrom as at 26′ by means of the spacers or washers 29. The cross rod 28 referred to above is intended to engage with the notches or receptacles 18 and 19 on the rear leg frame 10, thereby maintaining the framework in selected positions.

The distance from the pivots 26 to the cross rod 28 is sufficient to allow bringing into parallel alignment with the front leg frame 11 the supporting frame 13 when it is swung about the pivots 26, the cross rod 28 clearing the end of the front leg frame 11 as shown in Figure 2*a*.

The footrest frame 12 referring to Figure 1 and to Figure 2*b* consists of two side bars 30 connected at their upper ends by the cross rod 31 and near their mid points by the cross rod 32. The footrest frame 12 is hinged to the front leg frame 11 by means of the cross rod 33 which is journaled in holes or bearings provided near the lower ends of the side bars 30, the holes being normal to the side faces thereof. An alternative method of hinging the footrest frame 12 to the front leg frame 11 is to remove the cross rod 33 to the lower side of the front leg frame near its lower end and to provide pivots near the lower end of each side bar 24 to which the footrest frame may be hinged, in practically the same fashion as to the cross rod 33 previously referred to. As shown the side bars 30 are located outside the side bars 24 of the front leg frame 11. The cross rod 33 is fastened in and extends through holes at the lower ends of the side bars 24 and is normal to their side faces and projects beyond their outer side faces to engage as described above the side bars 30.

The links or supporting members 14 are hinged to the footrest frame 12 by means of the cross rod 32 journaled in holes or bearings provided normal to the side faces of the links or supporting members 14. Similar holes or bearings are provided near their upper ends and in these holes is journaled the cross rod 17, thus hinging the links

or supporting members 14 to the rear leg frame 10. The upper ends of the links or supporting members 14 are inside the side bars 15.

The links or supporting members 14 at their lower ends engage the cross rod 32 of the footrest frame 12 sufficiently far inside the side bars 30 to clear the side bars 15 of the rear leg frame 10 when the structure is folded and they are in parallel alignment with each other. They are held from sliding sidewise on the cross rod 32 by means of the stops 34 fastened to the cross rod 32 outside and adjacent to the links or supporting members 14 and by means of the combination stops and spring anchors 35 also fastened to the cross rod 32 inside and adjacent to the links or supporting members 14. At their upper ends the links or supporting members 14 engage the cross rod 17 of the rear leg frame 10 as previously described and are held from sliding sidewise thereon by means of the stops 20 fastened to the cross rod 17 inside and adjacent to the links or supporting members 14 and by means of the side bars 15 of the rear leg frame 10 outside and adjacent to the links or supporting members 14.

The side bars 30 of the footrest frame 12 have a plurality of notches or receptacles 36 near their upper ends selectively engaged by an adjusting rod 37 which extends across the footrest frame 12. To this adjusting rod 37 is attached one end of the wide flexible member 44 which forms the bottom for the bed and the chair and its footrest.

To this adjusting rod 37 are attached also the guides 38, one near either end, by means of the holddown devices 39. Through the guides 38 pass straps 40 fastened at their upper ends to the cross rod 31 of the footrest frame 12 and at their lower ends to the links 41, the lower ends of the links 41 being hooked to the springs 42 which in turn are hooked to the combination stops and spring anchors 35 on the cross rod 32, the straps 40, the links 41, and the springs 42 being thus held under tension.

The adjusting rod 37 is located sufficiently out of line with regard to the cross rod 31 and the combination stops and spring anchors 35 so that appreciable component parts of the strap tensions are directed against the adjusting rod 37 holding it in engagement with the notches or receptacles 36.

The wide flexible member 44 is directed from the adjusting rod 37 to the cross rod 31 of the footrest frame 12. From the cross rod 31, around which it passes, the wide flexible member 44 is further extended passing over the cross rod 17 of the rear leg frame 10 and resting thereon as in Figure 2b, showing a chair position, thence extending to and being attached to the cross rod 25 of the front leg frame 11. In Figure 2, illustrating a bed position, the wide flexible member 44 clears the cross rod 17 of the rear leg frame 10.

The part oft he wide flexible member 44 extending from the cross rod 31 to the cross rod 25 is its effective length. From the foregoing description it becomes apparent that the device disclosed embodies several desirable features. The transverse members 25, 28, 16, 17, 33, 32, 37, and 31 serve the dual function of providing lateral stability for the structure as well as providing points of support for the stresses imposed upon the device when in use. The use of a plurality supporting points distributes such stresses throughout the structure rather than concentrating them at a single point and thus assures a more substantial structure.

Furthermore, the relative location of the several parts is so made that the user may in one simple operation merely by moving the support member 13 change the structure from a chair to a bed. In addition, as will be pointed out hereinafter, the entire structure may be collapsed and folded into a compact portable unit by means of two simple operations.

When the structure is set up as in Figure 2b it provides a chair with a footrest, and the bottom provided by the wide flexible member 44 is adjustable by causing the adjusting rod 37 to engage the various sets of notches 36 on the footrest frame 12. There is a plurality of such positions. The bottom is further adjustable by manipulating the framework as follows. Swing or rotate the front leg frame 11 and the rear leg frame 10 about the pivots 21, the cross rod 28 of the supporting frame 13 being made to engage with a pair of notches 18 on the rear leg frame 10, the footrest frame 12 and the links or supporting members 14 automatically assuming different relative positions. The chair and footrest and the framework thereof is maintained in selected positions by the engagement of the cross rod 28 with the notches 18. There is a plurality of such positions of the framework each providing a new position for the bottom.

When the structure is to provide a bed the adjusting rod 37 is made to engage a selected set of notches 36 on the footrest frame 12, as shown in Figure 2, and the framework is adjusted to the bed position by rotating the front leg frame 11 and the rear leg frame 10 about the pivots 21 so that the cross rod 28 of the supporting frame 13 can be made to engage with the special notches 19 near the lower end of the rear leg frame 10, the links or supporting members 14 and the footrest frame 12 automatically assuming the positions shown in Figure 2. The framework is maintained in the bed position by the engagement of the cross rod 28 with the special notches 19. The bed bottom has a plurality of positions which are selected by causing the adjusting rod 37 to engage the various sets of notches 36.

When it is desired to fold the structure, the supporting frame 13 is swung in a clockwise direction, referring to Figure 2 and Figure 2b, about the pivots 26 until it is in parallel alignment with the front leg frame 11. The front leg frame 11 is then folded upon the rear leg frame 10, the footrest frame 12 and the links or supporting members 14 moving to the positions shown in Figure 2a which shows the device in the folded position.

To unfold rotate the footrest frame 12 about its hinging arrangement near the end 45, referring to Figure 2a, as far as it will go without forcing. The front leg frame 11 and the rear leg frame 10 are then pulled to the positions shown in Figure 2 or Figure 2b, the links or supporting members 14, and the footrest frame 12 moving automatically to relative positions. The cross rod 28 of the supporting frame 13 is then made to engage the desired notches 18 or 19. Further adjustments may be made as desired.

I claim:

1. A device of the character described comprising a pair of elongated side members mounted in spaced relation, a second pair of spaced side members pivotally secured to said elongated members intermediate the ends thereof and having a series of notches adjacent one end, a pair of support members pivotally secured at one end to the elongated members and having a transverse spacing member attached to the other end, said transverse member being adapted to engage in the notches

and to vary the vertical angles between the pivoted pairs of side members, a third pair of spaced members pivotally attached at one end to the lower ends of the elongated members and connected by a transverse member at their other ends, a pair of links pivotally attached at one end to the upper end of the second pair of side members and pivotally attached at the other end to a point intermediate the ends of the third pair of members, a continuous, flexible covering means providing a supporting surface and affixed to the upper ends of the elongated members and to a point on the third pair of members beyond the transverse member, whereby the covering means may be stretched horizontally to form a bed surface when the support members engage in the lower notches of the second pair of side members and may be suspended from its points of attachment to form a chair surface when the support members engage in the upper notches.

2. A device of the character described in claim 1 having in combination, a series of notches adjacent the upper end of the third pair of members, a transverse rod engaging in said notches and providing a point of attachment for the flexible covering means, and resilient means attached to the third pair of members and to the said rod whereby the rod may be maintained under tension and be held securely in a designated notch.

3. A device of the character described in claim 1 having in combination, a series of notches adjacent the upper end of the third pair of members, a transverse rod engaging in said notches and providing a point of attachment for the flexible covering means, flexible strap means connecting said rod and the transverse member at the upper ends of the third pair of members and resilient means attached to the third pair of members and to the said strap, whereby the rod may be maintained under tension and may be held securely in a designated notch and at the same time may be changed from notch to notch to vary the effective length of the covering means.

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