June 25, 1963 W. M. BROOKS ET AL 3,095,234

CONVERTIBLE SEAT-BED ASSEMBLY

Filed Feb. 21, 1962 2 Sheets-Sheet 1

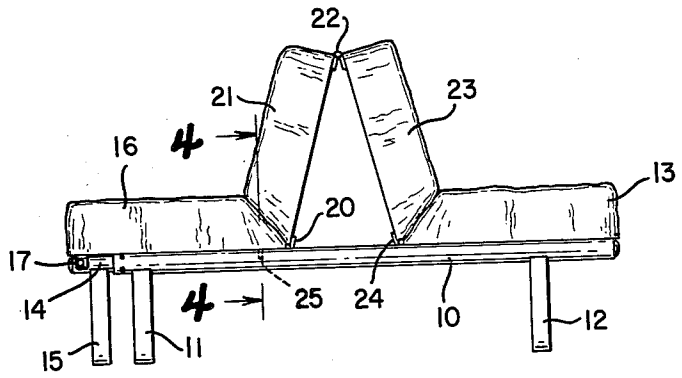


Fig. 1

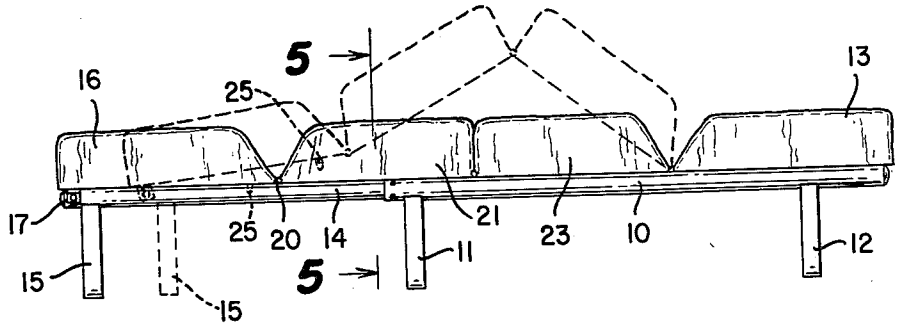


Fig. 2

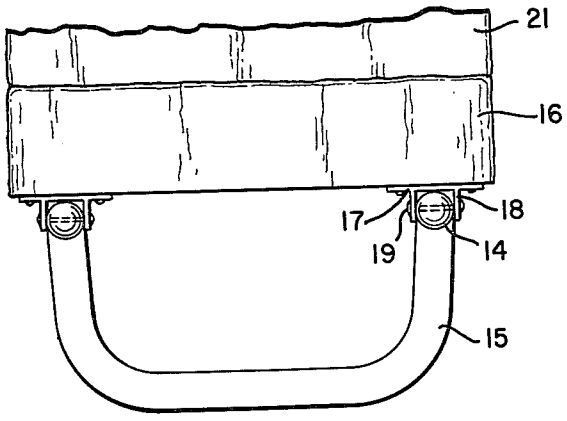


Fig. 3

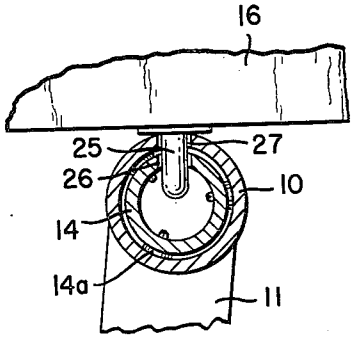


Fig. 4

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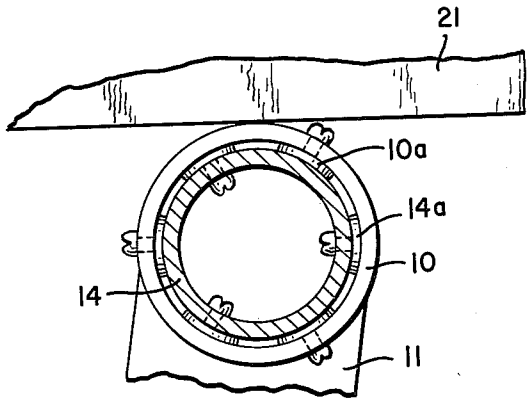


Fig. 5

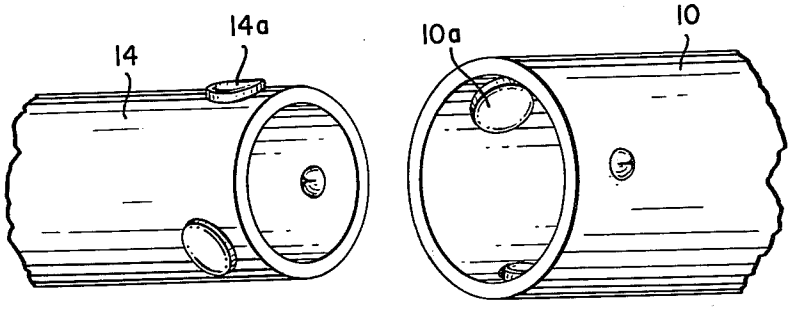


Fig. 6

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CONVERTIBLE SEAT-BED ASSEMBLY

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This invention relates to an article of furniture which is convertible from a seat or chair arrangement to that of a bed or couch.

An object is to produce a new and improved structure of this character involving telescoping frame parts and positive means for retaining the parts in positions of adjustment.

Another object is to produce a chair-bed arrangement incorporating telescoping frame members provided with anti-friction spacer elements thereby to facilitate conversion from one use to another with a minimum of friction and noise.

A further object is to produce an article of furniture of the above type which is sturdy in construction, easy to convert from one use to another, and which can be economically manufactured.

Other objects and advantages of the invention will hereinafter appear and, for purposes of illustration but not of limitation, an embodiment of the invention is shown on the accompanying drawings in which

FIGURE 1 is a side elevation of the convertible seat-bed assembly showing the parts in seat or chair position;

FIGURE 2 is a side elevation of the structure in which the parts are arranged in the form of a bed or couch, the broken lines showing the position of the parts assumed during conversion from the seat arrangement to the bed or couch arrangement;

FIGURE 3 is an enlarged fragmentary end elevation of the assembly, viewing FIGURE 1 from the left hand end;

FIGURE 4 is an enlarged fragmentary sectional view on the line 4—4 of FIGURE 1 showing the pin arrangement for locking together the frame parts;

FIGURE 5 is an enlarged fragmentary sectional view on the line 5—5 of FIGURE 2 showing the anti-friction elements interposed between the telescoping frame parts; and

FIGURE 6 is an enlarged fragmentary perspective view of the end portions of a pair of telescoping frame members.

The illustrated embodiment of the invention comprises a seat-bed assembly comprising a main frame having a pair of parallel laterally spaced tubular frame members 10. Adjacent opposite ends of the frame members 10 are leg members 11 and 12 which may be of the U-shaped form shown on FIGURE 3 with the vertical arms of the U connected to the respective tubular frame members. Fixed to the frame members 10 in any suitable manner is a cushion assembly 13 which consists of a framework (not shown) and having a suitably covered upholstered spring assembly as will be readily understood by those skilled in this art.

Mounted for telescoping movement in the respective tubular frame members 10 is a supplemental frame which has a pair of laterally spaced tubular rods 14 which telescope respectively with the frame members 10. At the outer ends of the tubular rods 14 is a U-shaped supporting leg 15. Thus it will be manifest that the supplemental frame can be slid in a telescoping manner toward and away from the main frame depending upon whether the article of furniture is used as a bed or couch or as a seat or chair as will hereinafter appear.

Telescoping movement of the frame members is facilitated by the use of spacer members, in this instance in the form of nylon buttons carried by the respective members. As shown, the tubular rods 14 are spaced from the inside walls of the tubular frame members 10 and interposed in this space are nylon spacers so that there is no metal to metal contact and sliding action of these parts is on the nylon spacers. In this instance three equidistantly spaced nylon spacers 10*a* are connected to the tubular members 10 at the outer ends which are intended for the reception of the tubular rods 14 and are disposed on the inside thereof. Similar nylon spacers 14*a* are mounted on the outer walls of the free end portions of the tubular rods 14 which telescope with the members 10. The spacers 14*a* are three in number and are equidistantly spaced from each other. However the spacers 14*a* extend into the space between the spacers 10*a* respectively, as indicated on FIGURE 5. In this manner substantial bearing area between the tubes 10 and 14 is thus achieved enabling relatively free noiseless sliding movement so that conversion can be readily made from bed to chair position and vice versa.

The spacers 10*a* and 14*a* have disk-like heads sufficiently thin and flexible to conform to the curvilinear engaging surfaces and integral necks which extend through holes in the respective members and are suitably secured. Although nylon has been mentioned because of its inherent properties, it is to be understood that other materials having similar characteristics of anti-friction, durability, toughness and flexibility may be selected.

A cushion assembly 16 similar to the cushion assembly 13 is mounted on the outer end portion of the supplemental frame and is attached thereto by a pair of hinge members 17 connected respectively to the outer ends of the tubular rods 14. Each of the hinge members is connected by screws or the like to the under side of the cushion assembly 16 and has a depending clevis-like portion 18 which straddles the respective tubular rod 14 and is connected thereto by a transverse rivet or pin 19. This enables the cushion assembly 16 to rock pivotally about the hinge members 17.

The inner end of the cushion assembly 16 is connected by one or more hinges 20 to a cushion assembly 21 also similar in construction to the cushion assemblies 13 and 16. The opposite end of the cushion assembly 21 is connected by one or more hinges 22 to another cushion assembly 23 and the latter is connected by one or more hinges 24 to the cushion assembly 13 which as above pointed out is securely fixed to the main frame. To accommodate the pivotal action which takes place between the cushion assemblies 16 and 21 and the cushion assemblies 23 and 13, the adjacent ends of these cushions are tapered as indicated. This enables the cushions to assume the chair position shown in FIGURE 1.

Assuming the parts are in a bed or couch position shown by the full lines on FIGURE 2 in which the tubular rods 14 are extended outwardly so that the leg 15 of the supplemental frame is spaced substantially from the leg 11 on the main frame. In this position the parts are positively retained in place by depending pins 25 fixed to and depending from opposite sides of the inner end of the cushion assembly 16, these pins extending into holes 26 in the tubular rods 14 respectively.

To convert the parts from a bed or couch position to that of a chair, the cushion assemblies 21 and 23 are lifted upwardly and the cushion assembly 16 rocked upwardly about its hinges 17 to remove the pins 25 from the holes 26 in the tubular rods 14. Then it is possible to push the supplemental frame inwardly so that the tubular rods 14 telescope within the tubular frame members 10. The cushions can now be moved to the position shown in FIGURE 1 and, when in this position, the holes

26 in the tubular rods 14 register with holes 27 formed in the tubular frame members 10 so that the pins 25 then can pass into the registering holes 26 and 27 as shown in FIGURE 4, thereby positively to hold the supplemental frame to the main frame and insure that the parts will remain in the position shown in FIGURE 1. Manifestly to convert to a bed or couch position the cushion assembly 16 is rocked about its hinges 17 in order to lift the pins 25 out of the registering holes and permit the supplemental frame to be pulled outwardly to the full line position shown in FIGURE 2.

From the above description it will be manifest that we have produced an exceedingly simple piece of furniture which lends itself admirably to places where space is limited, as for example, on marine craft. The design has been developed so that not only has it appeal esthetically but also functionally since the telescoping feature of the frames contributes greatly to strength as well as ease of adjustment. The simple expedient of locking the frames in adjusted position through the pins engaging in holes provides a fool proof device which is reliable at all times.

Numerous changes in details of construction, arrangement, and operation may be effected without departing from the spirit of the invention especially as defined in the appended claims.

What we claim is:

1. An article of furniture convertible for use as a bed or chair, said article comprising a main frame having a pair of laterally spaced parallel tubular members adapted to be mounted on a suitable support, a supplemental frame having a pair of laterally spaced tubular rods slidable telescopically in said tubular members respectively, a cushion unit fixed to the outer end of said main frame, a cushion unit hinged at its outer end to the outer end of said supplemental frame, a pair of cushion units disposed between said first and second mentioned cushion units, a hinge connecting said pair of cushion units, a hinge connection between said fixed cushion unit and the adjacent cushion unit of said pair, a hinge connection between said second cushion unit and the adjacent cushion unit of said pair, said pair of cushion units being adapted to assume an inverted V for chair use when the supplemental frame unit is slid telescopically into said main frame, and releasable means for positively retaining said supplemental frame in the position where said pair of cushions is disposed in such inverted V position, said releasable means comprising pins depending from the second mentioned cushion unit, and holes in the tubular members and tubular rods which when in registry receive said pins thereby to retain the parts in chair position.

2. An article of furniture as claimed in claim 1 in which the outside of the tubular rods are spaced respectively from the inside of the tubular frame members, and spacer members in the space between said tubular members and rods for facilitating the relative movement thereof and enabling noiseless operation.

3. An article of furniture as claimed in claim 1 in which the outside of the tubular rods are spaced respectively from the inside of the tubular frame members, and spacer members in the space between said tubular members and rods for facilitating the relative movement thereof and enabling noiseless operation, said spacer members constituting plastic elements carried by said tubular members and said rods with the elements arranged in staggered relation so that a plastic element on a tubular member does not interfere with a plastic member on the respective rod.

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