June 30, 1964 D. BENDELL 3,138,804

DUAL PURPOSE SLEEP UNIT

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FIG.1

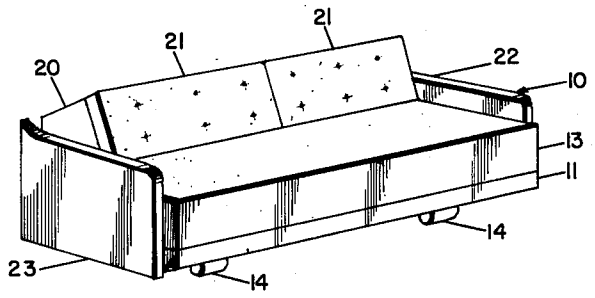


FIG.2

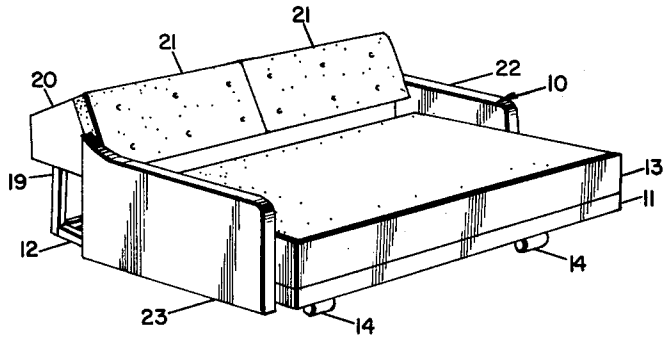
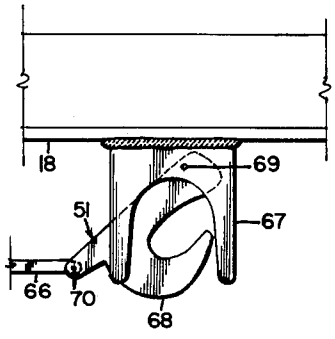


FIG.9



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FIG.3

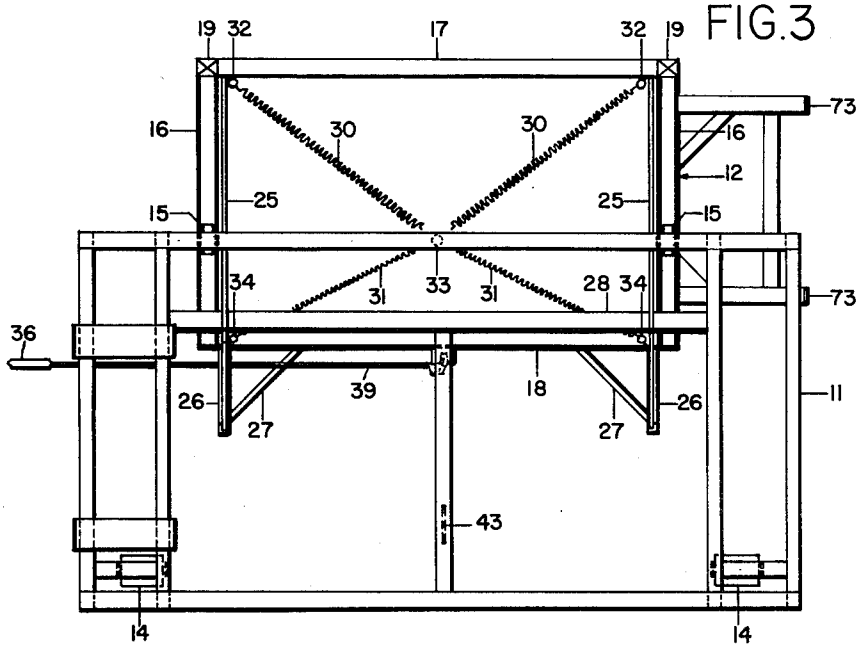


FIG.4

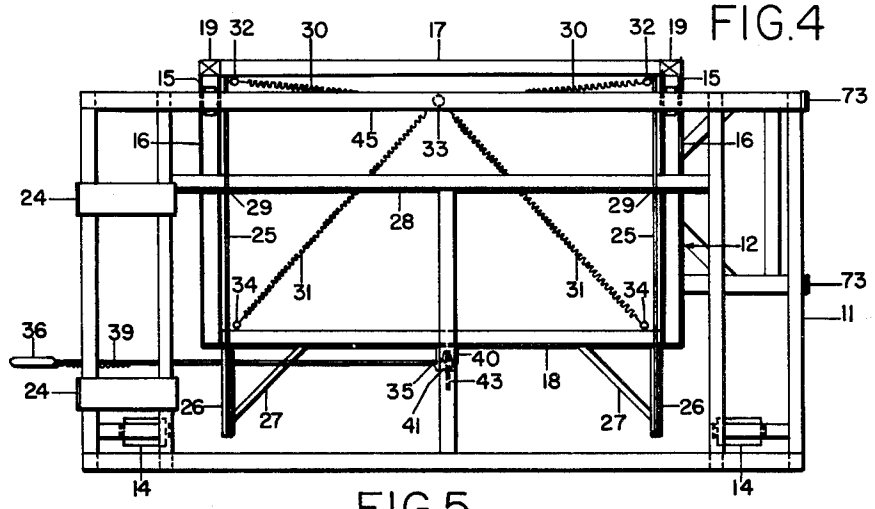
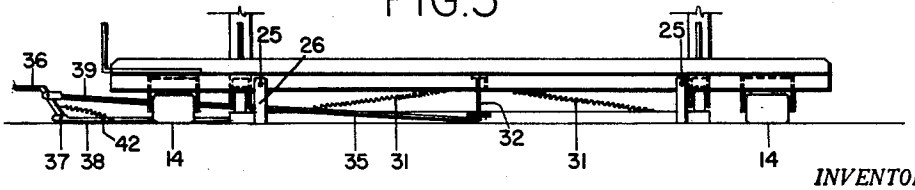


FIG.5



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FIG.6

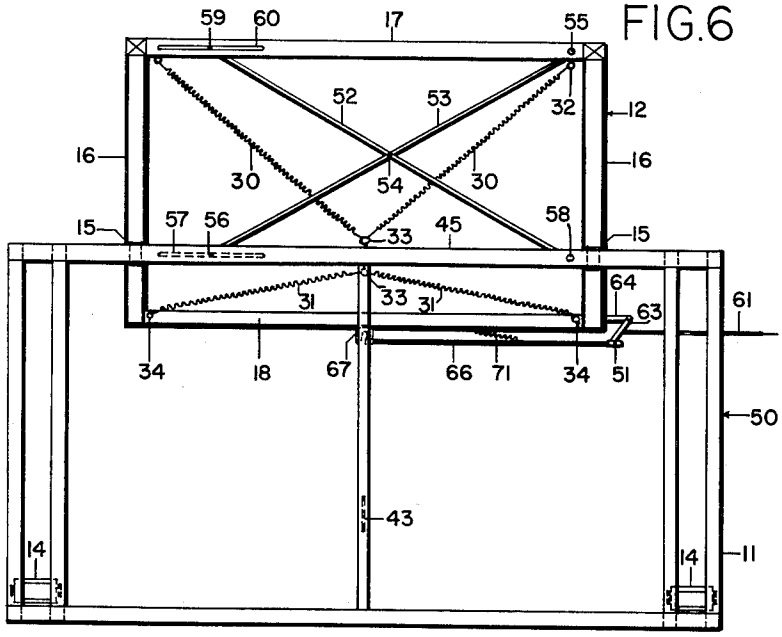


FIG.7

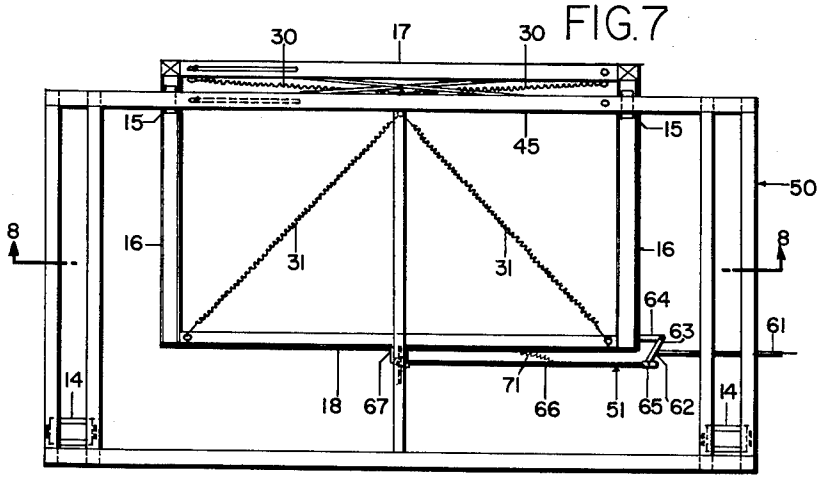
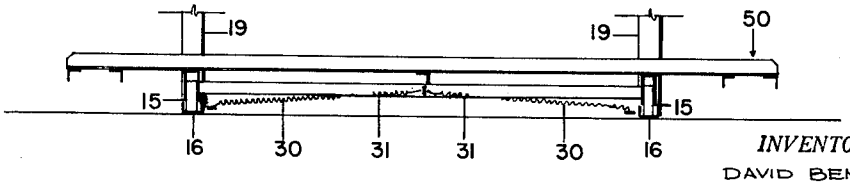


FIG.8



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3,138,804

DUAL PURPOSE SLEEP UNIT

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Filed July 27, 1961, Ser. No. 127,378
3 Claims. (Cl. 5—18)

This invention relates to sofa beds and is more particularly directed to such a sofa bed which rolls from one position to another for effecting its dual purpose.

A principal object of the present invention is to provide a dual purpose sleep unit which rolls out readily and automatically to a second position for sleeping purposes upon actuation of a latch lever and rolls back to its first position for seating purposes upon the exertion of a firm push thereon.

Another object of the present invention is to provide a dual purpose sleep unit with a plurality of coil springs some of which exert a strong initial force for sliding the unit to a position for sleeping purposes and the remainder of the coil springs acting as a brake for counteracting the forces of the first named springs when the unit has arrived at said position.

Another object of the present invention is to provide a dual purpose sleep unit described as above with means for compelling the unit to slide in a straight path whereby rollers positioned within tracks will roll freely along the tracks and not bind therein.

With these and other objects in view, the invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

FIGURE 1 is a perspective view of my dual purpose sleep unit shown in its daytime position.

FIGURE 2 is a similar view showing the unit rolled out for sleeping purposes.

FIGURE 3 is a top plan view of the support structure with the mattresses and springs removed showing the position taken when the unit has been rolled out for sleeping purposes as shown by FIGURE 2.

FIGURE 4 is a similar view showing the support structure when the unit is positioned as shown by FIGURE 1.

FIGURE 5 is a front elevational view thereof.

FIGURE 6 is a view similar to FIGURE 3 showing a modified construction of the support structure.

FIGURE 7 is a view similar to FIGURE 4 of the alternate embodiment shown by FIGURE 6.

FIGURE 8 is a cross sectional view taken along the line 8—8 of FIGURE 7.

FIGURE 9 is a fragmentary detailed view of the latch mechanism of the alternate embodiment.

Referring to the drawings wherein like numerals are used to designate similar parts throughout the several views, the numeral 10 refers generally to my dual purpose sleep unit having a support structure consisting of a mattress support frame 11 and a track support frame 12. The mattress support frame 11 is conventional in construction inasmuch as the sole function thereof is to support a mattress 13. However, the frame 11 is provided with a pair of roller type casters 14 at the forward of front edge thereof and a pair of fixed casters 15 at the rear edge of the mattress support frame 11. The casters 15 are each positioned in a U-shaped track 16 which extend forwardly in spaced parallel relation with each other as a part of the track support frame 12. The

ends of the tracks 16 are secured together by cross members 17 and 18.

At the ends of the cross member 17 there is secured an upright support member 19 on top of which is mounted a bolster support cabinet 20 extending the full length of the bed 10. Mounted on the forward wall of the bolster support cabinet 20 are bolsters 21 which with bolster support cabinets 20 are normally positioned over the mattress 13 when the unit 10 is positioned for sitting or day time purposes. However, when the unit 10 has been converted to sleeping or bed time purposes, the mattress 13 will be slid forwardly as is explained in detail hereinafter to a position forwardly of the bolsters 21. See FIGURES 1 and 2. Armrest 22 is secured to the bolster support cabinet 20 so that the armrest 22 remains stationary at all times while armrest 23 is fastened to L-shaped brackets 24 whose lower ends are secured to the mattress support frame 11. Armrest 23 which moves with the frame 11 acts as an armrest when the unit 10 is in its retracted position for sitting purposes and as a headboard when the unit 10 is in its extended position for sleeping purposes.

To compel the frame 11 to move forwardly and backwardly in a straight line and prevent the casters 15 from engaging the side walls of the tracks 16, guide bars 25 are provided extending from the rear cross member 17 to a support member 26 which is secured at its other end to the front cross member 18. A cross brace 27 provides the support member 26 and the guide rods 25 with rigidity. An L-shaped cross member 28 which has its ends secured to the frame 11, is provided with bores 29 on its vertically disposed leg portion, through which the guide rods 25 extend.

Means are provided to facilitate the sliding of the mattress 13 and support frame 11, comprising coil springs 30 and 31. Coil springs 30 extend diagonally from eye bolts 32 secured to the rear portion 17 of the track support frame 12 and extend to an eye bolt 33 fastened to the mid-portion of the rear edge 45 of the mattress support frame 11. The coil springs 31 are also connected at one end to the eye bolt 33 and extend diagonally to the forward portion 18 of the track support frame 12 being secured thereto by eye bolts 34. A conventional latch mechanism is provided for locking the mattress support frame 11 and the track support 12 together and releasing them when it is desired to change the unit from its sitting to sleeping functions. The latch mechanism 35 consists of a lever 36 pivoted as at 37 to a support bar 38 which is secured to the support member 26. Pivotally secured to the lever 36 is a link 39 on whose other end is a latch 41 slidably positioned on a latch bracket 40 which is secured to the forward portion 18 of the track support frame 12. A spring 42 maintains the latch 41 in a closed or locked position when the lever 36 is released. A U-shaped latch engaging pin 43 is fastened at its ends to the lower surface of the mattress support frame 11 in the path of the latch bracket 40 so that when the mattress support frame 11 is slid to its rear most position, as shown by FIGURE 4, the pin 43 engages the latch 41 which slides on the latch bracket 40 to permit the pin 43 to slide into the latch bracket 40 and become locked therein as the spring 42 returns the latch 41 to its original position.

It can readily be noted by the above described construction when the unit 10 is in its seating position as shown by FIGURES 1 and 4, the coil springs 31 are in tension and yieldingly urge the mattress support to slide forwardly, but this is prevented by the latch mechanism 35 until the lever 36 in actuated. When it is desired to convert the unit 10 to sleeping purposes, the lever 36 is actuated and the latch 41 releases the pin 43 permitting

the highly tensioned springs 31 to force the mattress support frame 11 to slide forwardly with a great deal of force. The guide bars 25 maintain the casters 15 in the tracks 16 as the casters 15 and the floor engaging rollers 14 roll forwardly of the track supporting frame 12. As the mattress support frame 11 slides forwardly, the untensioned coil springs 30 begin to become tensioned, the tension force increasing proportional to the forward movement of the mattress support frame 11, thereby acting as a brake. By the use of the braking springs 30, the high tensioned coil springs 31 will compel the forceful and rapid initial sliding movement of the frame 11 to halt without an abrupt and jarring stop at the end of the sliding movement. Instead, as the mattress support frame 11 slides forwardly, the braking coils 30 become increasingly tensioned until the springs 30 and 31 become equally tensioned and the frame 11 comes to rest at its extended position for sleeping purposes. When it is desired to return the frame 11 to its closed position for seating purposes, a person pushes rearwardly quite gently on the forward portion of the frame 11 and the frame 11 will slide rearwardly until the latch pin 43 reaches the latch bracket 40 and becomes engaged therein to lock the frame 11 in its closed or seating position. During this operation the coil springs 30 which previously acted as a brake now yieldingly assist the mattress support frame 11 to return rearwardly to the closed position with a minimum of effort. As the support frame 11 approaches its closed position the coil springs 31 become tensioned ready to effect the forward sliding movement of the frame 10 when the operating lever 36 is actuated.

In the modified construction of my dual purpose sleep unit 10 there is shown by FIGURES 6–8 inclusive, a unit 50 which operates identically to that of the unit 10 but differs only in the structure of the means for compelling the mattress support frame 11 to move forwardly and rearwardly in a straight line so that the casters or rollers 15 do not bind in the tracks 16. Also the construction of a latch mechanism 51 differs slightly from the latch mechanism 35 previously described though either latch mechanism is operable in my unit. Since the remaining structure of the unit 50 is identical to that described hereinabove in connection with the unit 10, the description thereof will not be repeated at this time.

The unit 50 is provided with a pair of jointed bars 52 and 53 of approximately equal length and joined at their mid-portion by a pivot pin 54. The bar 53 is pivotally secured at one end as at 55 to the rear portion 17 of the track support frame 12 while the other end is slidably mounted by means of a pin 56 in a slot 57 formed in the rear portion 45 of the mattress support frame 11. The bar 52 is pivotally secured as at 58 at one end to the rear portion 45 of the mattress support frame 11 while the other end is slidably mounted by a pin 59 slidably positioned in a slot 60 formed at the rear portion 17 of the track support frame 12. With this construction as the mattress support frame 11 slides along the tracks 16 of the frame 12, the jointed bars 52 and 53 will pivot at one end on their pivot pins 55, and 58 respectively and the pins 56 and 59 will slide along their respective slots 57 and 60. During all of its movement, the mattress support frame 11 will move in a straight line and the rollers 15 will always be centered in the tracks 16.

The latch mechanism 51 consists of an operating handle 61 fastened at one end to a lever 62 which is pivotally secured as at 63 to a bracket 64. The other end of the lever 62 is pivoted as at 65 to the outer end of a latch arm 66. The latch arm 66 extends to the mid-portion of the track support frame 12 at the cross member 18 where a latch bracket 67 is mounted. A latch 68 which is pivotally mounted as at 69 in the latch bracket 67 is secured to the inner end of the latch arm 66 as at 70. A coil spring 71 yieldingly maintains the latch 68

in a closed position so that the handle 61 need be actuated only to release the mattress support frame 11 in converting the unit to sleeping purposes.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A dual purpose sleep unit comprising a track support frame, a pair of substantially parallel and spaced tracks mounted on said frame, a mattress support frame, a pair floor engaging rollers mounted at a front portion of said mattress support frame, a pair of rollers positioned in said tracks and mounted on a rear portion of said mattress support frame for sliding movement of said mattress support frame along said track support frame, a pair of coil springs secured at one end to said rear portion of said mattress support frame and extending to a front portion of said track support frame, said coil springs yieldingly urging said mattress support frame to slide forwardly along said tracks of said track support frame when said mattress support frame is in its retracted postion on said track support frame and yieldingly braking said mattress support frame in its rearward sliding movement to its retracted position, latch means releasably securing said mattress support frame against said forward sliding movement, a second pair of coil springs secured at one end to said rear portion of said mattress support frame and extending to said rear portion of said track support frame, said second pair of coil springs yieldingly braking the forward movement of said mattress support frame at a predetermined position on said track support frame and yieldingly urging said mattress support frame to slide along said tracks in a rearward direction from its extended toward its retracted position and guide means operatively connected to said mattress support frame and said track support frame for moving said mattress support frame in a direct path along said track support frame and preventing said rollers from binding on said tracks.

2. A dual purpose sleep unit comprising a track support frame, a pair of substantially parallel and spaced tracks mounted on said frame, a mattress support frame, a pair of floor engaging rollers mounted at a front portion of said mattress support frame, a pair of rollers positioned in said tracks and mounted on a rear portion of said mattress support frame for sliding movement of said mattress support frame along said track support frame, a pair of coil spring secured at one end to said rear portion of said mattress support frame and extending to a front portion of said track support frame, said coil springs yieldingly urging said mattress support frame to slide forwardly along said tracks of said track support frame when said mattress support frame is in its retracted position on said track support frame and yieldingly braking said mattress support frame in its rearward sliding movement to its retracted position, latch means releasably securing said mattress support frame against said forward sliding movement, a second pair of coil springs secured at one end to said rear portion of said mattress support frame and extending to said rear portion of said track support frame, said second pair of coil springs yieldingly braking the movement of said mattress support frame at a predetermined position on said track support frame and yieldingly urging said mattress support frame to slide along said tracks in a rearward direction from its extended toward its retracted position and guide rods mounted on said track support frame cooperatively engaging said mattress support frame for moving the latter in a direct path with relation to said track support frame and preventing said rollers from binding on said tracks.

3. A dual purpose sleep unit comprising a track support frame, a pair of substantially parallel and spaced tracks mounted on said frame, a mattress support frame, a pair of floor engaging rollers mounted at a front portion of said mattress support frame, a pair of rollers positioned in said tracks and mounted on a rear portion of said mattress support frame for sliding movement of said mattress support frame along said track support frame, a pair of coil springs secured at one end to said rear por-

tion of said mattress support frame and extending to a front portion of said track support frame, said coil springs yieldingly urging said mattress support frame to slide forwardly along said tracks of said track support frame when said mattress support frame is in its retracted position on said track support frame and yieldingly braking said mattress support frame in its rearward sliding movement to its retracted position, latch means releasably securing said mattress support frame against said forward sliding movement, a second pair of coil springs secured at one end to said rear portion of said mattress support frame and extending to said rear portion of said track support frame, said second pair of coil springs yieldingly braking the movement of said mattress support frame at a predetermined position on said track support frame and yieldingly urging said mattress support frame to slide along said tracks in a rearward direction from its extended toward its retracted position, said rear portions of said frames each having a slotted portion, a pair of jointed levers, pivot means securing said levers at substantially their mid-portion, a pin pivotally securing one end of one of said levers to said rear portion of said track support frame and the other end slidably mounted along said slotted portion of said mattress support frame, a second

pin pivotally securing one end of the other of said levers to said rear portion of said mattress support frame and the other end slidably mounted along said slotted portion of said track support frame for permitting said mattress support frame to move in a direct path with relation to said track support frame and preventing said rollers from binding in said tracks.

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