May 31, 1960 O. J. HESSELBERG ET AL 2,938,219

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FIG. 1.

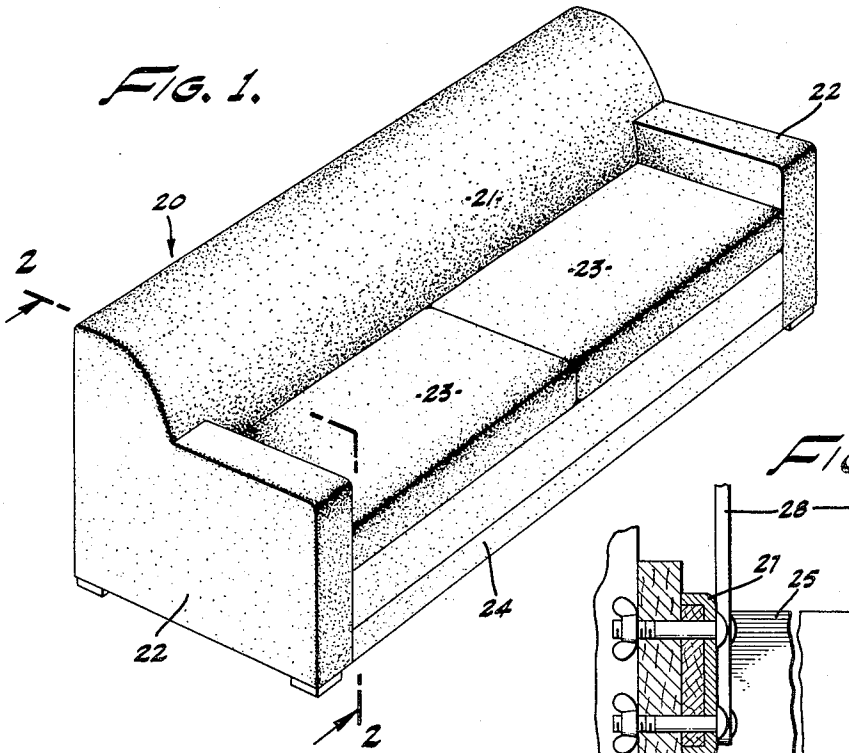
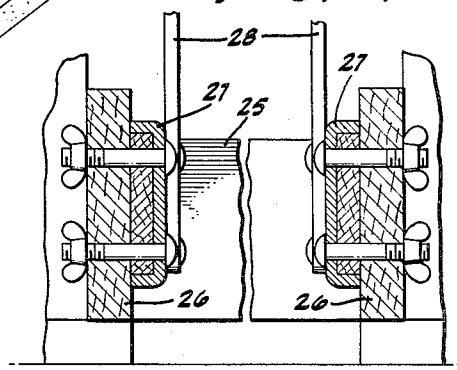


FIG. 4.



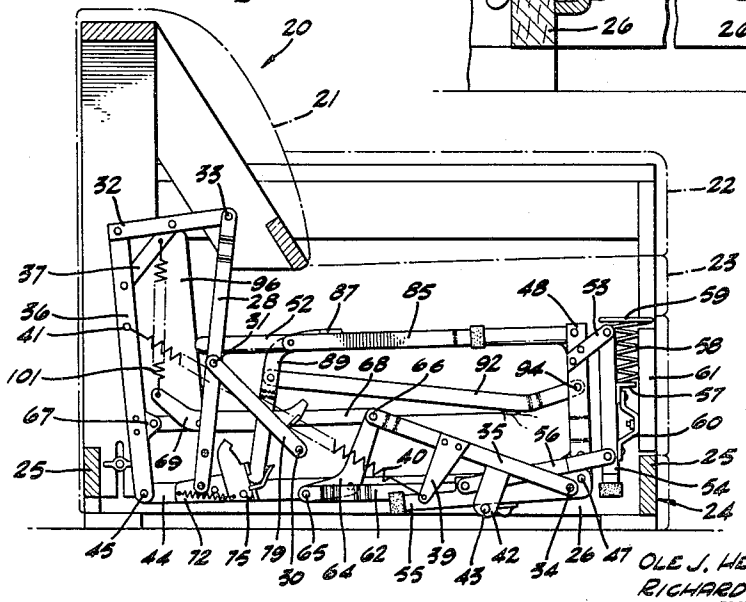


FIG. 2.

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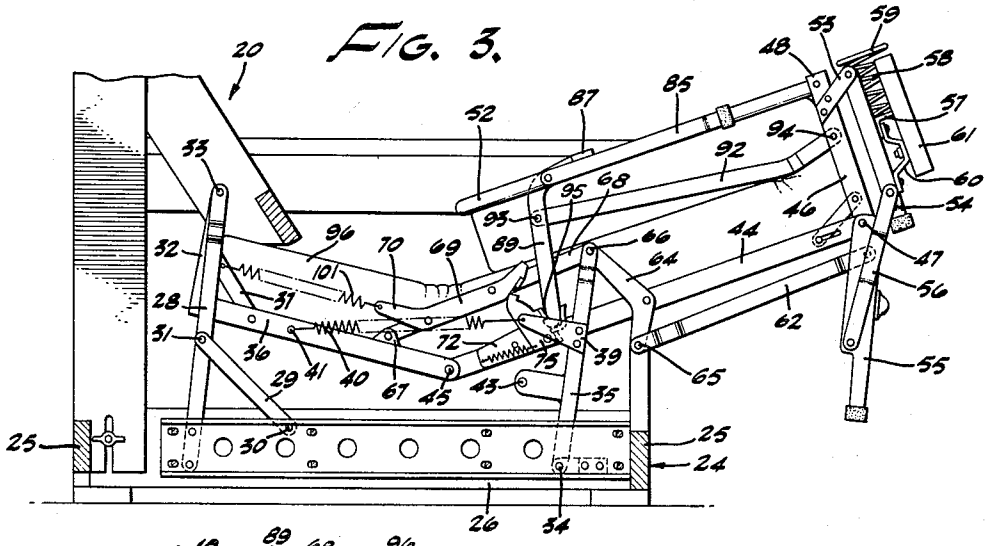
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FIG. 3.



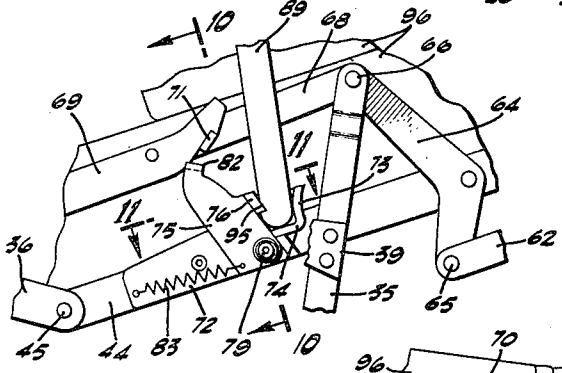


FIG. 5.

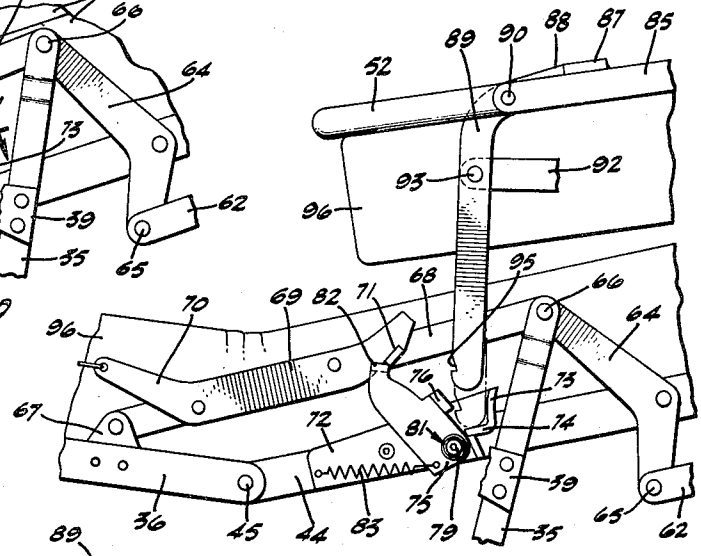
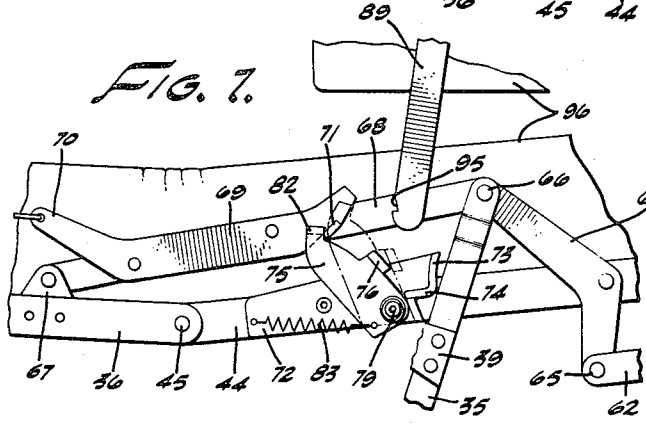


FIG. 6.

FIG. 7.



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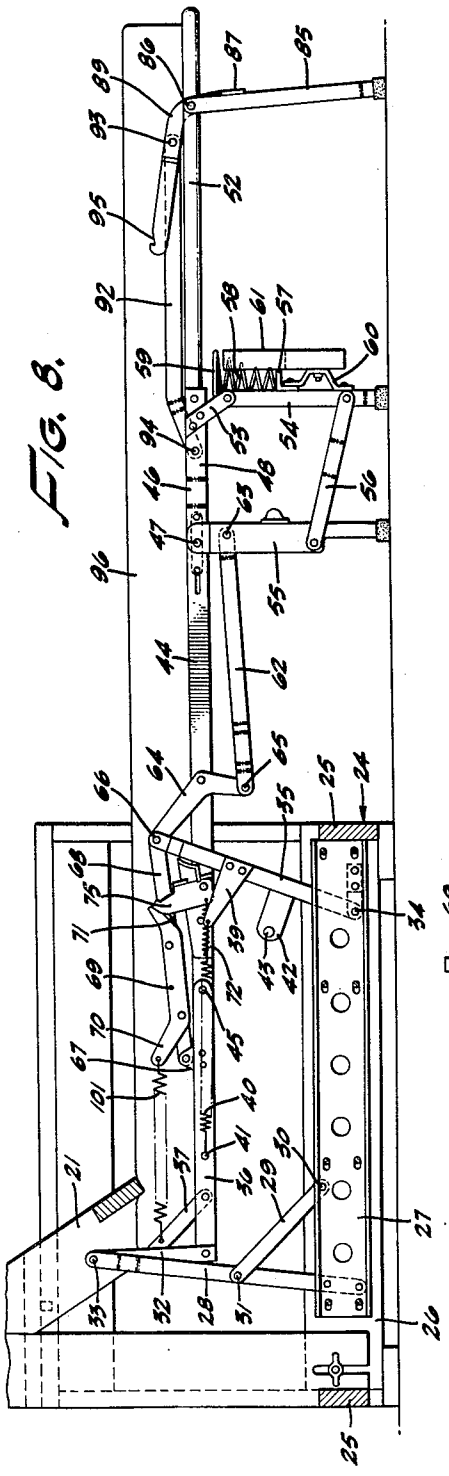


FIG. 8.

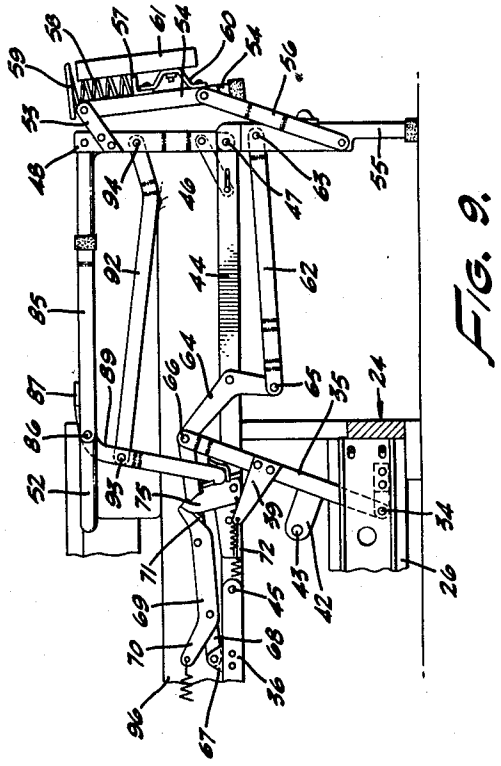


FIG. 9.

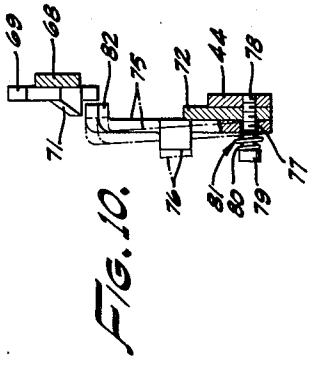


FIG. 10.

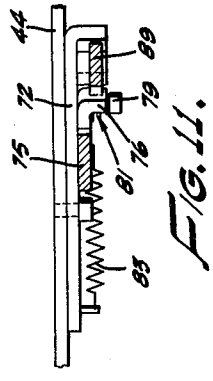


FIG. 11.

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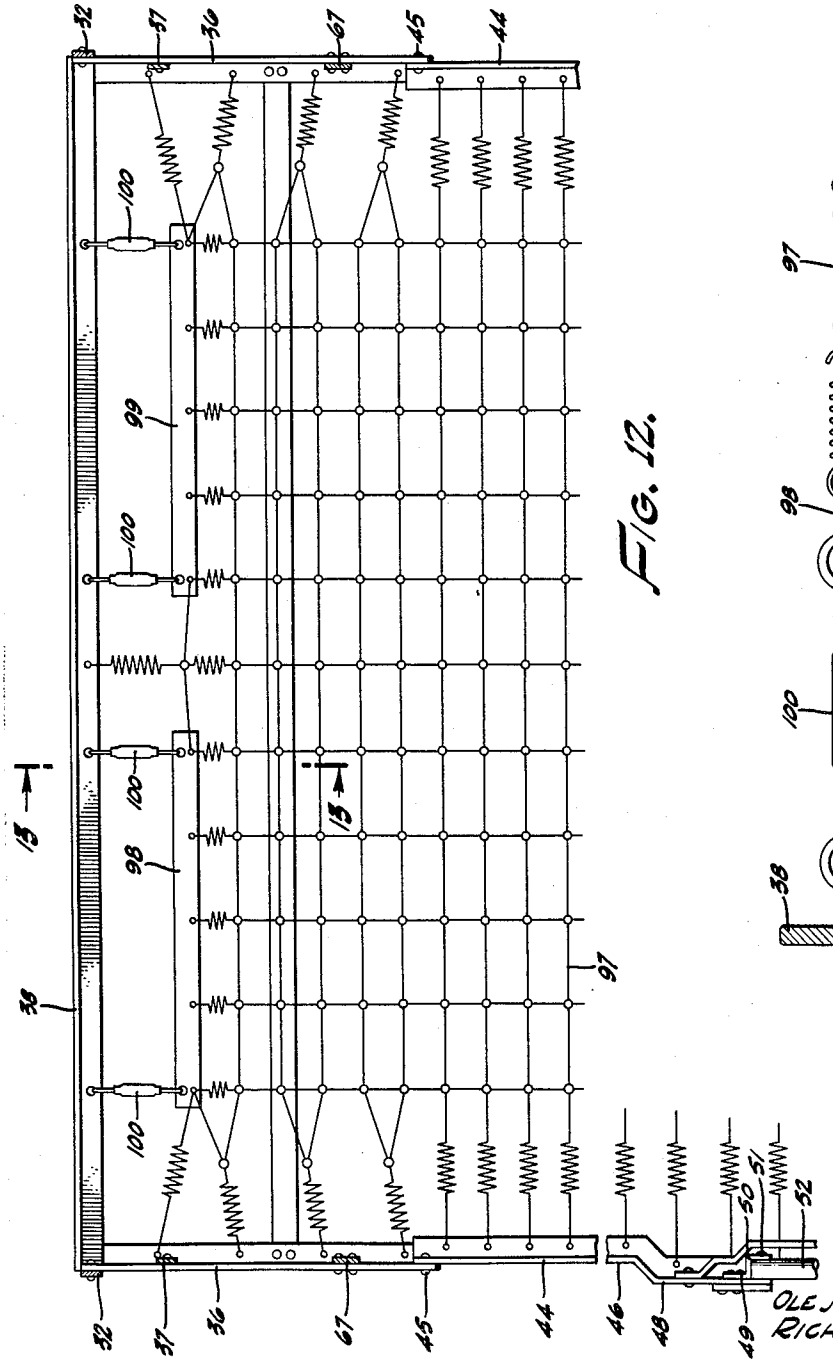


FIG. 12.

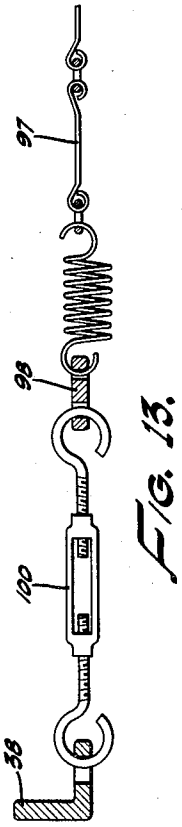


FIG. 13.

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United States Patent Office 2,938,219 Patented May 31, 1960

2,938,219

SOFA BED

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Filed Dec. 4, 1953, Ser. No. 396,184

3 Claims. (Cl. 5—13)

This invention relates to a sofa bed and more particularly to a combined sofa and bed in which the bed frame which supports the mattress is built as a unit, is attached to the remaining frame of the sofa by a pair of anchor plates only which is unfoldable to form a bed and foldable to form a sofa and in which means is provided for releasably locking the outer sections together for movement as a unit.

It is therefore one object of this invention to provide a sofa bed of the type described in which the bed frame is formed as a removable unit.

It is a further object of the present invention to provide a sofa bed of the type described formed of a plurality of articulated sections having a novel latch mechanism for releasably holding two of said sections locked together.

It is a further object of the invention to provide a sofa bed of the type described including a bed frame comprising a flexible spring network including means associated with portions of said spring network for separately adjusting the tension therein.

These and other objects and advantages of the invention will be apparent from the annexed specification in which:

Figure 1 is a perspective elevation of a sofa bed embodying the present invention.

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

Figure 3 is a section similar to Figure 2 showing one stage of unfolding of the bed.

Figure 4 is a fragmentary vertical section showing the attachment of the metal frame to the wooden base.

Figure 5 is a fragmentary side elevation of the latch and associated mechanism in condition as shown in Figure 3.

Figure 6 is a fragmentary side elevation of the mechanism shown in Figure 5 in a further state of unfolding of the bed.

Figure 7 is a view similar to Figures 5 and 6 of a still further stage of unfolding of the bed.

Figure 8 is a section similar to Figure 2 with the bed in the full unfolded position.

Figure 9 is a side elevation showing the bed in the first stage of refolding.

Figure 10 is a section taken along the line 10—10 of Figure 5.

Figure 11 is a section taken along the line 11—11 of Figure 5.

Figure 12 is a fragmentary plan view of the bed with particular reference to the bed springs.

Figure 13 is a section taken along the line 13—13 of Figure 12.

Referring now more particularly to the drawings, there is shown in Figure 1 a sofa bed indicated generally by the reference numeral 20 including a backrest 21, side arms 22, cushions 23 and a frame 24. The frame 24 is of wood, conventionally upholstered, and includes

longitudinal frame members 25 and transverse frame members 26 (Figure 4) to which there is bolted metallic side members 27 having an U-shaped cross section. Each side of the metallic hardware, forming the principal part of this invention, is identical and only one side thereof will be described, it being appreciated of course that the mechanism described is duplicated in connection with the other side of the sofa bed. Each metallic side member 27 has riveted thereto an upstanding arm 28 reinforced by a brace 29 riveted to the side member as at 30 and to the arm 28 as at 31. The upper end of the arm 28 is pivotally attached to a link 32 as at 33. The side member 27 has pivotally attached thereto as at 34 a link 35. The links 35 and arms 28 with reinforcing braces 29 constitute the sole means of attachment of the remaining hardware to the side members 27. The link 32 has riveted thereto an arm 36, and a brace 37 is provided between the link 32 and the arm 36 as shown. Between one of the links 32 on one side of the hardware and the other of the links 32 on the other side of the hardware there extends a longitudinally extending L-shaped member 38. A plate 39 is riveted to the link 35, and a coil spring 40 is attached to the end of the plate 39 at one end to an intermediate portion of the arm 36 as at 41. A second plate 42 is attached to each of the links 35, and a rod 43 extends longitudinally between each of the plates 42. A link 44, L-shaped in cross section, is pivoted to the free end of the arm 36 as at 45. A further link 46 is pivoted to the link 44 as at 47, which link 46 is L-shaped in cross section and has an offset portion 48, in the end of which there is riveted a member 49 providing a section 50 between which and the upstanding flange of the link 46, there is pivotally secured as at 51 a tubular member 52. The tubular member 52 is U-shaped, one arm of which is associated with each link 46, and the web of which extends longitudinally of the sofa bed. An arm 53 is riveted to the link 46, and a leg 54 is pivoted to the end of the arm 53. A leg 55 is pivotally mounted on the link 44, and a link 56 extends from the leg 54 to the leg 55 as most clearly shown in Figure 8. An angle 57 extends between the two legs 54, and a plurality of coil springs 58, having their upper loops fastened to a rectangular open metallic frame 59, are affixed to the horizontal flange of the angle 57. A bracket 60 extends from each leg 54 at an angle and engages the horizontal flange of the angle 57 and provides a seat for the front upholstery board 61. A link 62 is pivoted to the leg 55 as at 63 and to a bell crank 64 as at 65. The other end of the bell crank 64 is pivoted to the upper end of the link 35 as at 66. A plate 67 is riveted to the arm 36 and an arm 68 is pivoted to the plate 67 and to the upper end of the link 35. A member 69, having an upstanding leg 70 and a detent 71, is riveted to the arm 68. Riveted to the link 44 is a member 72 having an upwardly extending portion 73 and horizontally extending portion 74 forming a seat. Pivoted to the member 72 is a latch bar 75, which latch bar is provided with an outwardly extending dogging mechanism 76. The pivotal connection of the latch bar 75 is by means of an opening 77 larger than the shank of the pin 78, which pin is provided with a head 79 against which rests the small end 80 of a spiral coil spring 81. The latch bar 75 is thus mounted for limited lateral movement as indicated by the phantom lines in Figure 10. The upper end of the latch bar is provided with an inwardly extending member 82. A coil spring 83 has one end connected to the latch bar 75 and the other end connected to the member 72 and constantly biases the latch bar 75 to urge the dogging mechanism 76 towards the seat 74.

A leg 85 is pivoted to the tube 52 as at 86, and a plate

87 is welded to the leg 85 and to one end 88 of a bell crank 89 pivoted as at 90 to the other side of the tube 52. The crank 89 and leg 85 are thus joined for conjoint pivotal movement about the same axis. A link 92 is pivoted to the crank 89 as at 93 and to the member 46 as at 94. The free end of the crank 89 is notched as at 95. A mattress 96 is provided lying freely on the spring network 97 which extends from the angle 38, side channels 36, 44 and 46 and U-shaped tube 52 as shown in Figure 12.

An adjusting mechanism is provided for adjusting the tension in the spring network. This adjusting mechanism comprises a pair of plates 98 and 99 to which the spring network is attached at one end and which plates are attached to the member 38 by means of turnbuckles 100.

The operation of the above-described device is as follows: assuming the sofa bed to be in the condition shown in Figure 1, the cushions 23 are removed therefrom and the bed unfolded. The first step in unfolding is shown in Figure 3 wherein it will be noted that the notch 95 of the crank 89 is engaged under the dogging mechanism 76 and locked on the seat 74. Thus the outer sections of the mechanism are locked together to pivot as a unit about the pivots 66 which swing outwardly as the links 35 swing about pivots 34.

Further swinging of the assembled unit clockwise about the pivots 66 causes detent 71 to engage inwardly extending member 82 causing latch bar 75 to rock laterally to permit the notch 95 of crank 89 to be disengaged from dogging mechanism (see Figure 6). Further swinging of the unit about pivots 66 causes legs 55 to engage the floor and thereafter the remaining unit is pivoted about pivots 47 until legs 54 engage the floor, after which the remaining mechanism pivots about pivots 51 until legs 85 engage the floor.

To fold up the sofa bed, the outer section is first pivoted counter-clockwise about pivots 51 until notches 95 are engaged under dogging mechanism 76 of latch 75 (see Figure 9). This locks the outer sections together, securely holding the folded mattress 96 therein and permitting springs 101, which may be provided between legs 70 and braces 37, to be employed to balance the weight of the locked sections.

It will be appreciated that further counter-clockwise rotation of the locked unit is about pivots 66 to return the mechanism to the position shown in Figure 2.

By means of the turnbuckles 100, the tension in the spring network 97 may be adjusted at will and in fact the tension in one-half thereof may be adjusted independently of the other half by reason of the separate plates 98 and 99 each having a separate pair of the turnbuckles 100.

While there has been described what is at present considered a preferred embodiment of the present invention, it will be appreciated by those skilled in the art that various changes and modifications can be made therein without departing from the essence of the invention, and it is intended to cover herein all such changes and modifications as come within the true spirit and scope of the appended claims.

We claim:

1. Latch means for a bed-forming and sofa-forming frame for releasably locking a pair of sections of said frame together, comprising: a seat, a detent and spring means biasing said detent towards said seat carried by the inner of said sections and a rod pivotally mounted on the outer of said sections; said rod being engageable with said seat and having means engageable by said detent to lock said sections together as a unit.

2. Latch means for a bed-forming and sofa-forming frame for releasably locking a pair of sections of said frame together, comprising: a seat, a detent and spring means biasing said detent towards said seat carried by the inner of said sections and a rod pivotally mounted on the outer of said sections; said rod being engageable with said seat and having a notch engageable by said detent to lock said sections together as a unit.

3. A device as set forth in claim 1 including an extension on said detent and means carried by said inner section engageable with said extension to disengage said latch.

References Cited in the file of this patent

UNITED STATES PATENTS

984,001	Ingraham	Feb. 14, 1911
1,095,465	Morris	May 5, 1914
1,126,010	Holst	Jan. 26, 1915
1,127,874	Dyke	Feb. 9, 1915
1,228,158	Yates	May 29, 1917
1,265,073	Freedman et al.	May 7, 1918
2,576,062	Bebry	Nov. 20, 1951
2,642,583	Bank et al.	June 23, 1953
2,656,547	Winikoff	Oct. 27, 1953
2,676,335	Goodman	Apr. 27, 1954
2,728,922	Feinstein	Jan. 3, 1956