

Nov. 6, 1962

H. SINGER ET AL
ARTICULATED BED

3,061,843

Filed April 18, 1960

3 Sheets-Sheet 1

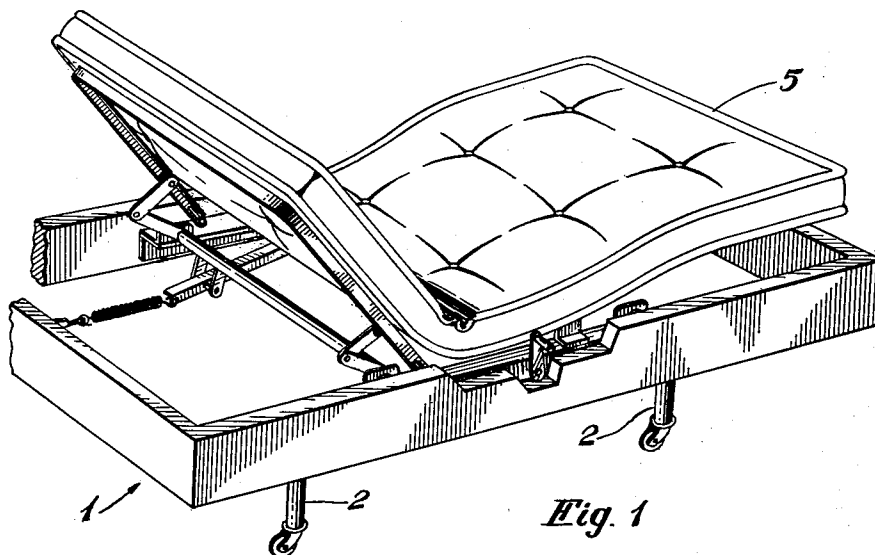


Fig. 1

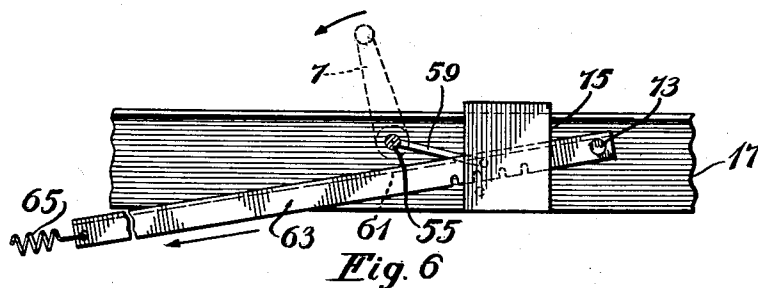


Fig. 6

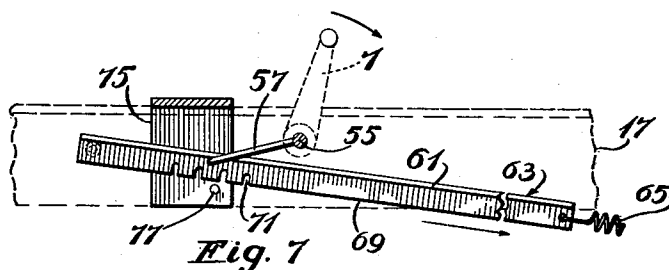


Fig. 7

INVENTORS
Hyman SINGER
Irving SHULKIN
BY *Walter H. Heston*
ATTORNEYS

Nov. 6, 1962

H. SINGER ET AL
ARTICULATED BED

3,061,843

Filed April 18, 1960

3 Sheets-Sheet 2

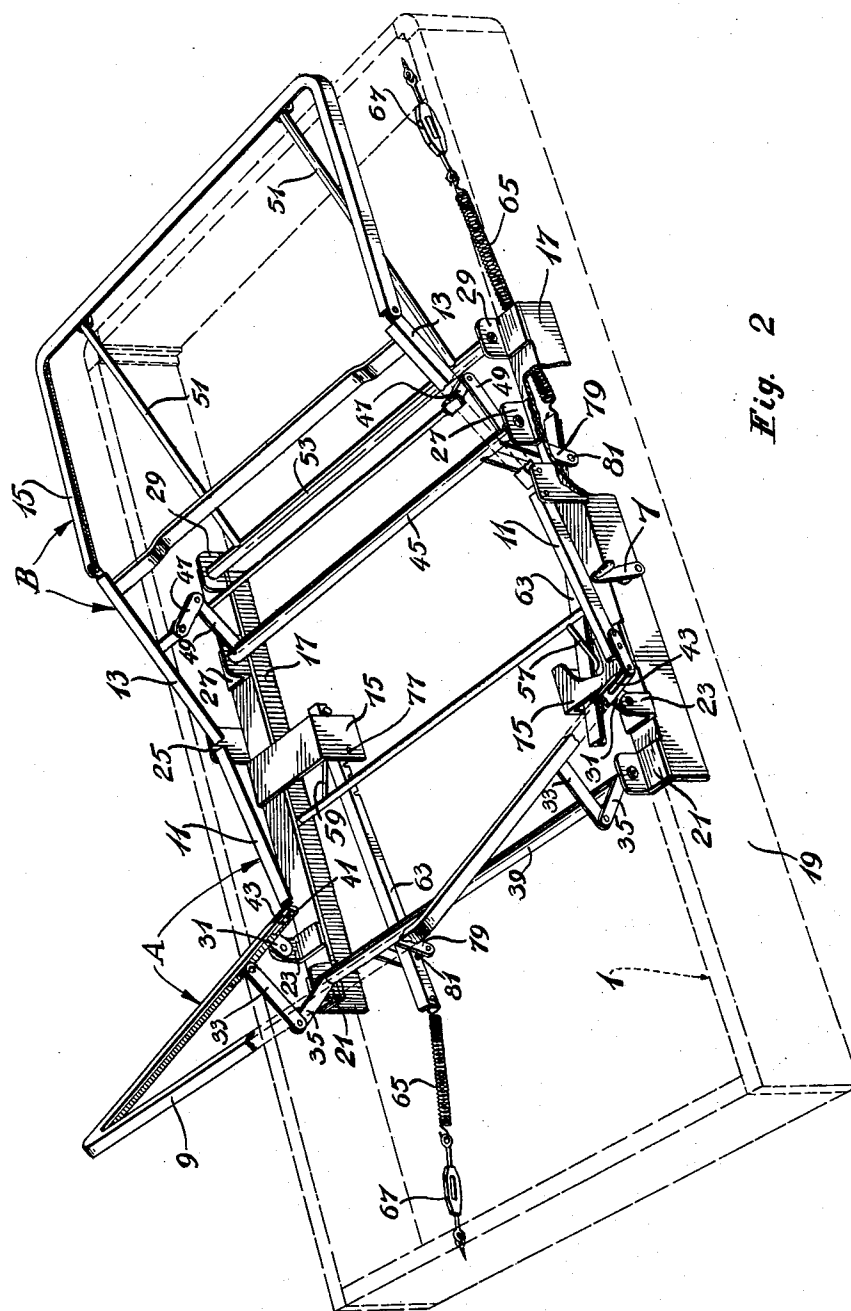


Fig. 2

INVENTORS
Hyman SINGER
Irving SHULKIN
BY *Robert A. Kestner*
ATTORNEYS

Nov. 6, 1962

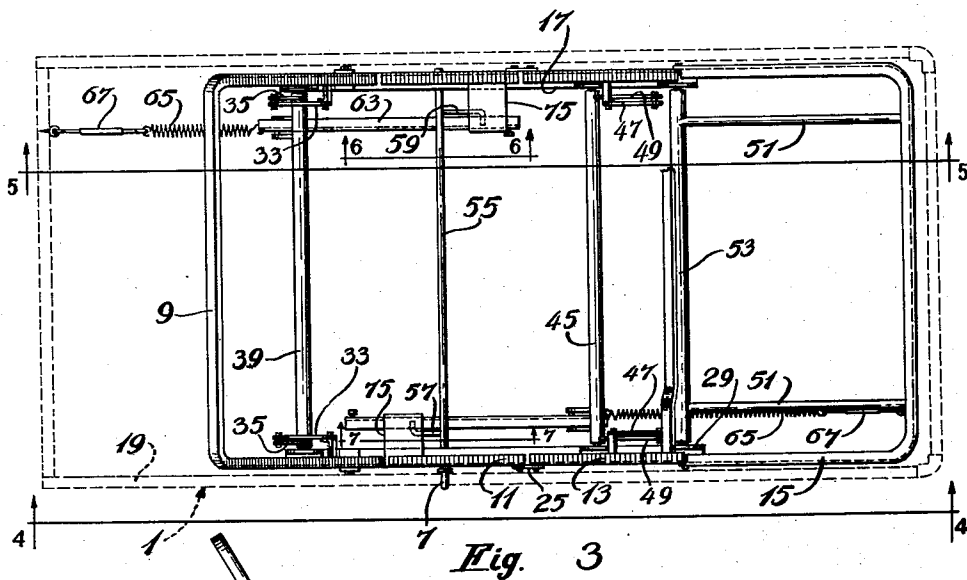
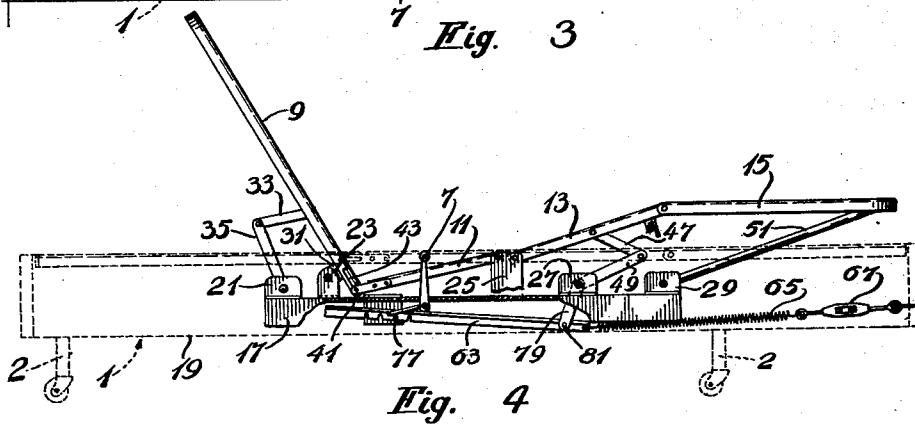
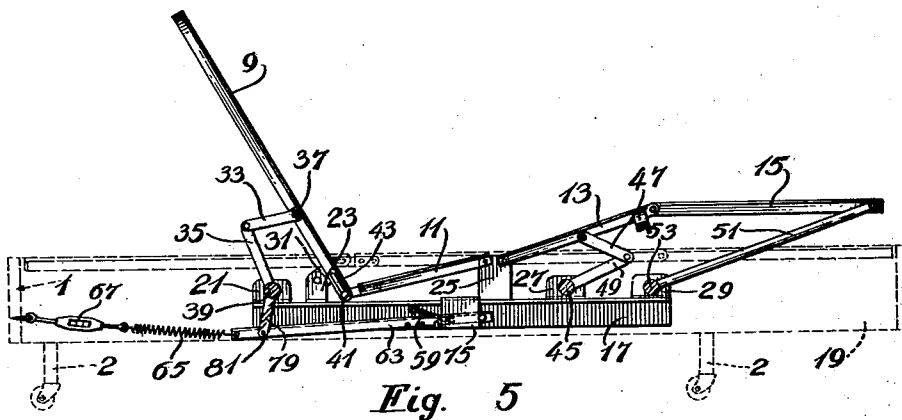
H. SINGER ET AL

3,061,843

ARTICULATED BED

Filed April 18, 1960

3 Sheets-Sheet 3



INVENTORS

Hyman SINGER
Irving SHULKIN

BY

Robert M. Koster

ATTORNEYS

1

3,061,843

ARTICULATED BED

Hyman Singer, Mount-Royal, Quebec, and Irving Shulkin, Montreal, Quebec, Canada; said Shulkin assignor to said Singer

Filed Apr. 18, 1960, Ser. No. 22,933

1 Claim. (Cl. 5-66)

This invention pertains to an articulated bed and more particularly to a mechanism for adjusting various sections of an articulated bed frame and locking it into position.

In structures of this type, it is customary to provide a bed having three or four rests: a head rest, a seat rest, a thigh rest and a leg rest. On present day devices, the various rests are articulated together and in unison, that is, for each position of the head rest, for instance, there corresponds one, and only one position of the seat, thigh and leg rest. This is far from convenient as, often, it is desired to have several accommodating positions of the thigh and leg rests for one particular position of the head and seat rests and vice-versa. Some devices have proposed solutions by providing two separately operating mechanisms, each with its own operating lever, but these were found inconvenient and awkward in operation.

The instant invention proposes to overcome such inconveniences by providing an articulated bed, wherein the rests will be divided into two sections and wherein, each section will operate independently of the other, though using the same control lever.

A further object of the invention lies in the provision of an articulated bed of the aforementioned type wherein the single lever will actuate the various sections simply by rotation in one direction for one section, and in the opposite direction for the other section.

A further object of the invention consists in the provision of an articulated bed having articulated sections movable into various positions by a swinging action of the weight of the body and locking means arresting the various sections into the desired position.

A still further object of the invention is to provide a bed of the aforementioned type wherein the frame and the mechanism for adjusting the various sections are simple in structure and operation and therefore cheap in manufacture.

Other advantages and objects of the invention will become apparent as the description proceeds having reference to the accompanying drawings wherein:

FIG. 1 is a perspective view of the articulated bed of my invention;

FIG. 2 is a view similar to that of FIG. 1 but with the mattress removed, the structure being shown partly broken away to show some otherwise hidden part of the frame;

FIG. 3 is a plan view;

FIGS. 4, 5, 6, and 7 are sectional views along lines 4-4, 5-5, 6-6 and 7-7 respectively of FIG. 3.

As shown in FIG. 1, the bed generally comprises a substantially rectangular wooden support 1 displaceable on a floor by means of wheel structure 2. Within said support is mounted the bed frame proper and over said bed frame, the resting mattress 5.

The frame itself is perspectively depicted in FIG. 2. This figure clearly shows the inventive idea of the device which resides in the fact that control lever 7 is adapted to control, separately and independently, two sections of the bed; a forward section A which comprises head rest 9 and seat rest 11 and a rearward section B which is made up of a thigh rest 13 and leg rest 15. Previous devices of this type did not have this dual adjustment of the bed sections. For one position of one of the rests 9 to 15 corresponded only one position of the remaining rests. Assuming that the head and back were

2

to stand upright, then there was only one corresponding position of the leg and foot rests. If the head and feet were moved into another position, the original position of the thigh and leg rests could not remain the same.

FIGS. 4 and 5 show the actual working of these forward and rearward sections A and B.

These sections are mounted for articulated movement on brackets fixed to supporting members 17 located centrally of longitudinal members 19 of the support 1. On a horizontal part of the supporting members 17 are located forward, forward-intermediate, central, rearward intermediate and rearward brackets respectively numbered 21, 23, 25, 27 and 29 (FIGS. 4 and 5.)

Head rest 9 is pivoted adjacent the lower end and on both sides thereof to forward-intermediate brackets 23 by means of connecting plates 31. Motion is applied to said head rest 9 through forward lever arms 33, 35; one set of each being located adjacent each side of the head rest. Arms 33 have one end thereof pivotally connected to head rest 9. Arms 35, on the other hand, are rigidly fixed to transverse shaft 39 journaled on the forward brackets 21. Finally arms 33 and 35 are interconnected, for pivotal movement, at their other ends.

Seat rest 11 pivots at one end by its connection to central brackets 25. Its other end is provided with a short pin 41 engageable in a longitudinal slot 43 on head rest 9 and freely moveable therein (FIGS. 4 and 5).

It will thus be seen that rotation of shaft 39 will also rotate arms 35, rigidly fixed thereto, and subsequently entrain arms 33 and set head and seat rests 9 and 11 into position; pin 41 sliding in slot 43 during the movement. Similarly, swinging motion of the body will articulate section A and rotate shaft 39.

The rearward section composed of thigh rest 13 and leg rest 15 is similar in structure and operation to that just described.

Thigh rest 13 pivotally connected to central bracket 25 and leg rest 15, is brought into motion by rotation of transverse shaft 45 or vice versa, which movement is transmitted by means of lever arms 47, 49 to the thigh and leg rests. The motion of leg rest 15 however, is slightly different from that of seat rest 11 as it has its displacement further constrained by means of braces 51, pivotally connected at one end to leg rest 15 and at the other end held fixed for rotation with transverse shaft 53.

Control lever 7, previously mentioned, is integral with control rod 55 extending transversely of the frame and journaled into the vertical portion of supporting member 17. Near each side of members 17 and therebetween, this rod is provided with one forwardly directed and one rearwardly directed hook-like L-shaped releasing arms numbered 57 and 59 respectively. One part of the L-shaped arms 57 and 59 which is parallel to the control rod 55 comes under the web 61 of angle shaped elongated members 63. There are two such elongated members 63, one on each side of the support 1. It will be noted that these two elongated members 63 extend in opposite directions in relation to each other and are tied to the ends of support 1 through the intermediary of springs 65 adjustable as to tension by means of turnbuckles 67.

Details of elongated members 63 are better seen on FIGS. 6 and 7; FIG. 6 showing the member urged forwardly whereas FIG. 7 shows it pulled rearwardly by springs 65.

Adjacent the end of each member 63 opposite that tied to a spring 65 and on flange 69 thereof, are aligned a series of grooves 71 adapted to register selectively with pins 77 welded or otherwise secured to brackets 75 fixed to supporting members 17 (FIGS. 2 and 3). Near the ends of members 63 are located knobs 73. Whenever the control lever 7 is actuated in the direction of the arrows (FIGS. 6 and 7) grooves 71 will be pulled out of engage-

ment with pins 77 and members 63 will be free to be pulled by springs 65 forwardly in the case of FIG. 6 and rearwardly in the case of FIG. 7.

It will be realized however, that as lever 7 on shaft 55 is rotated in one direction, one releasing arm lifts one member 63 out of engagement with one pin 77 but the other releasing arm moves away from web 61 of member 63 and the latter stays in engagement with one pin 77.

An actuating connection exists between transverse shafts 39 and 45 and elongated members 63 which consists in each case of a pair of short parallel bars 79, each extending alongside each member 63 and rigidly fixed to shaft 39 for unison rotation. These two bars are joined together by means of a short rod 81 journaled through flange 69 of member 63 so that the latter can pivot on said rod 81.

It will be observed, particularly from FIGS. 4 and 5 that the point of junction of member 63 and spring 65 always lies below the line joining the centers of pin 77 and the tie point of spring 65 to the support 1 so that said spring 65 always exerts a downward pull on said member 63 so as to draw it towards pin 77.

From the above description it will be seen that the forward section formed of head and seat rests 9 and 11 can be operated independently of the rearward section composed of the thigh and leg rests 13 and 15. Furthermore when elongated members 63 have one of the pins 77 resting in one of the grooves 71, the sections are locked into position.

It will be noted that, if no weight is on the bed, and the lever releases one of the two sections, the rests of that section will be urged into an upright position under the action of the corresponding spring 65. A person lying on the bed can thus gain any position between setting up and horizontal and once the position is reached, the section can be locked into that position simply by releasing lever 7.

We claim:

An articulated bed comprising:

- (a) a supporting frame;
- (b) two pairs of articulated rest sections consecutively mounted on said frame in independently adjustable pairs;
- (c) one of said pairs consisting of a back rest and of a seat rest pivotally interconnected at their abutting ends; the back rest being further pivotally connected, intermediate the ends thereof, to the frame

- and the seat rest being also pivotally connected, at the end away from said abutting ends, to said frame;
- (d) the second pair of sections consisting of a thigh rest and of a leg rest also pivotally interconnected at their abutting ends and the free end of the thigh rest being pivotally connected to the frame adjacent the frame connection of said seat rest;
 - (e) an elongated member, for each of the pairs of sections, having a plurality of locking notches;
 - (f) means interconnecting one of said members to said back rest and the other member to said thigh rest for translating the pivotal movement of the sections into essentially longitudinal movements of the elongated members;
 - (g) means pulling said members axially in reverse directions;
 - (h) a pin on said frame, for each of said members, over which said notches are intended to engage;
 - (i) a control element mounted for rotation across said frame and adjacent said pins;
 - (j) a releasing arm, for each of said members, secured to said control element and extending in opposite directions in relation to a vertical plane through the axis of the said control element; said arms being adapted only for lifting said members out of engagement with said pins; and
 - (k) manual means for rotating said control element, whereby to produce alternate release of elongated notched members from said pins and allow independent articulation, in pairs, of said sections.

References Cited in the file of this patent

UNITED STATES PATENTS

535,430	Wicks	Mar. 12, 1895
608,619	McKnight	Aug. 9, 1898
1,377,605	Starks	May 10, 1921
1,890,177	Derry	Dec. 6, 1932
2,349,701	Buttikofer	May 23, 1944
2,374,488	Knox	Apr. 24, 1945
2,538,993	Travis	Jan. 23, 1951
2,658,209	Travis	Nov. 10, 1953
2,663,356	Lorenz	Dec. 22, 1953

FOREIGN PATENTS

367,084	France	Aug. 21, 1906
313,833	Germany	July 25, 1919
701,077	Great Britain	Mar. 2, 1953
536,244	Italy	Nov. 28, 1955