July 21, 1931. J. H. SCHIFFHOUER 1,815,742

ADJUSTABLE COILED SPRING BED

Filed Nov. 14, 1929 2 Sheets-Sheet 1

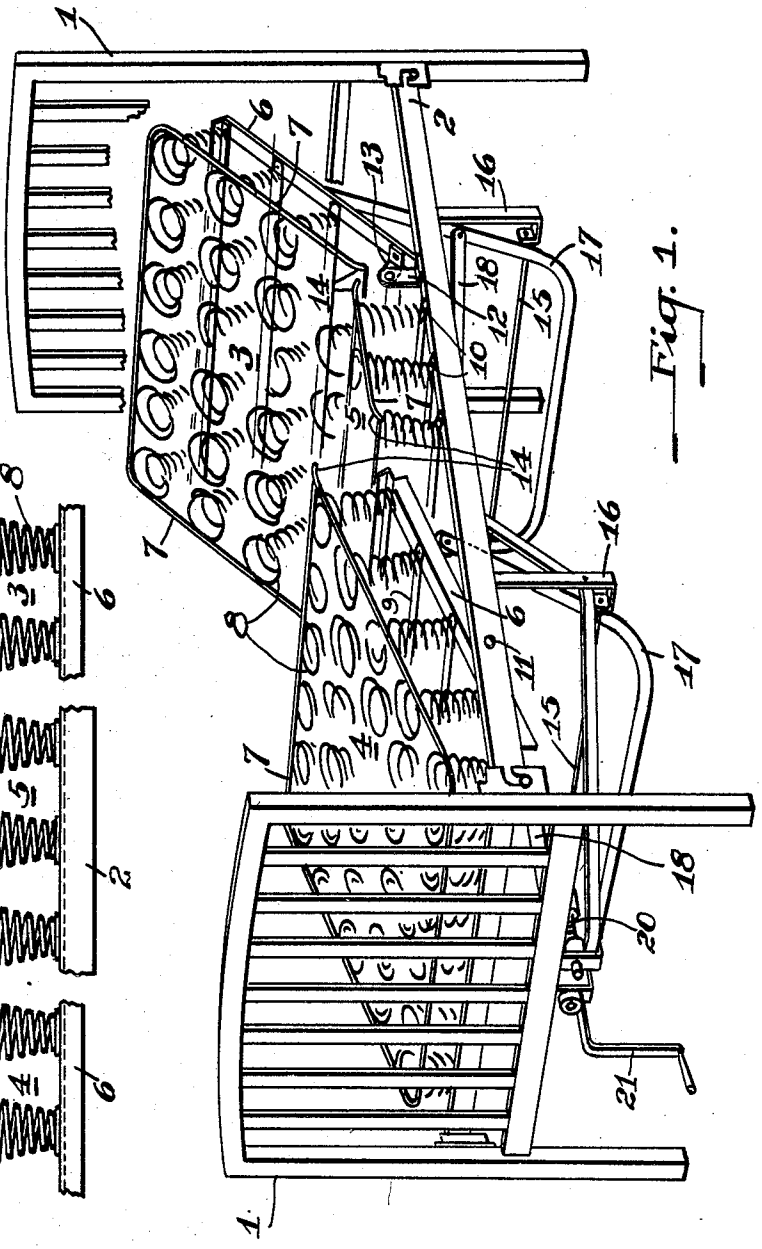


Fig. 1.

Fig. 3.

WITNESSES

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Fig. 2.

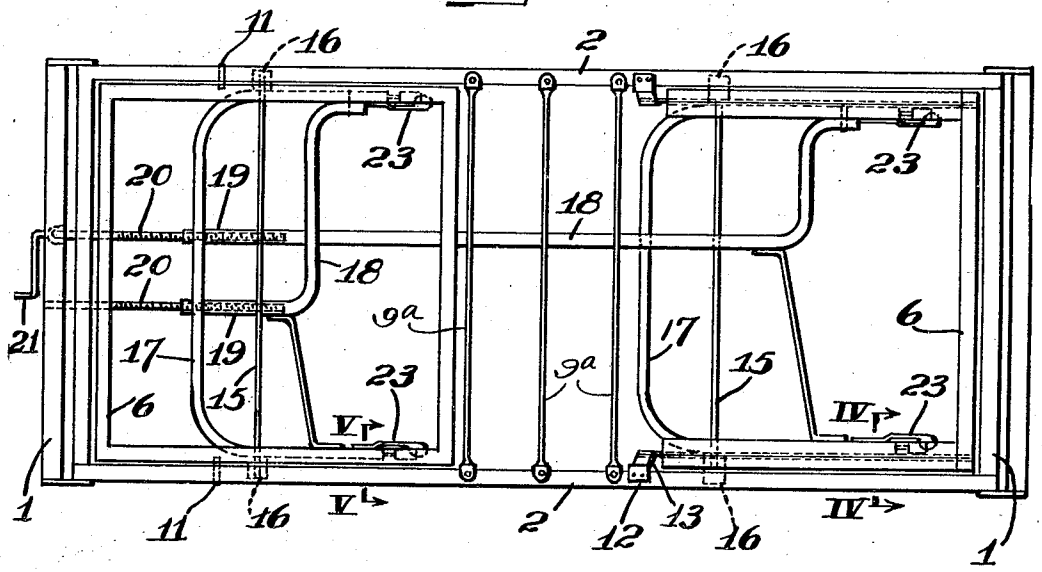


Fig. 5.

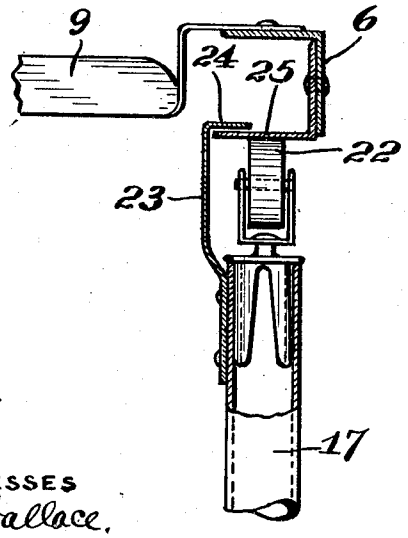
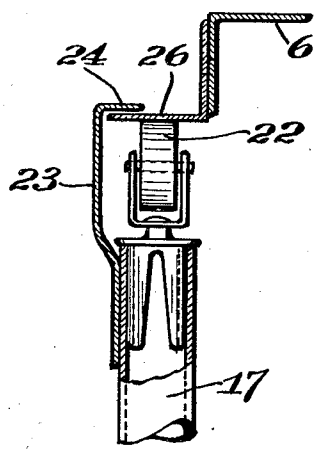


Fig. 4.



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UNITED STATES PATENT OFFICE

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ADJUSTABLE COILED SPRING BED

Application filed November 14, 1929. Serial No. 407,146.

This invention relates to adjustable coiled spring beds of the type adapted for hospital or invalid use.

The primary object of the invention is to provide a coiled spring bed in which the sections are adjustable, and in which adjacent sharp edges are eliminated at and between the spring sections to permit their relative adjustment, enhance the natural comfort of such beds, and to reduce mattress wear.

A further object is to provide a bed of the type referred to in which sections impaired by use are individually replaceable without discarding the entire spring structure.

The preferred embodiment of the invention is shown in the accompanying drawings as applied to a bed having adjustable head and foot sections and a fixed intermediate section. In the drawings Fig. 1 is a perspective view of the bed showing the end sections in elevated positions; Fig. 2 a plan view with the ends lowered, the springs being removed for clarity of illustration; Fig. 3 a fragmentary side elevation of the bed showing the springs in horizontal position, the side rail being broken away at the ends to show the supporting frames of the adjustable sections; and Figs. 4 and 5 cross sections of one side of the head and foot spring sections, respectively, taken on lines IV—IV and V—V of Fig. 2, showing slidable actuating means.

In accordance with this invention, the bed comprises coiled spring sections embodying an upper border frame and coiled springs connected thereto, and the border frames at adjacent ends of the sections are disposed below the general plane of the border frame, or in other words, below the top plane of the section. The beds may comprise one or more adjustable sections, with or without fixed sections, and in the preferred embodiment the sections are detachably connected to the bed frame. In this manner the comfort of coiled spring beds is combined with the advantages of adjustable beds, and, by virtue of the construction provided by the invention, sharp edges between the sections are eliminated.

The invention is illustrated in connection with a bed having a particular type of adjusting means, but it is not limited to use with this particular means, and it may be embodied in adjustable beds of any suitable construction.

In the illustrative embodiment shown in the drawings the invention is represented as applied to a bed having adjustable head and foot sections. The bed comprises the usual end members 1 and side rails 2 which support head, foot and intermediate spring sections 3, 4 and 5 respectively. The head and foot sections are of the usual construction embodying a lower supporting frame 6, an upper border frame 7, and coiled springs 8 connected to the border frame and to cross straps 9 carried by frame 6. Intermediate section 5 also comprises an upper border frame 7 and coiled springs 8, these springs being carried by cross supports 9a removably connected in fixed position to the rails by bolts 10, and foot section 4 is pivotally connected to the rails adjacent the lower end of supporting frame 6 by bolts or pins 11. In the construction shown, the pivotal support for the head frame is disposed above the rails substantially in a plane with the top of the springs, by means of an upstanding bracket 12 connected to rails 2 and bolted to a bracket 13 attached to the lower end of frame 6, as seen in Fig. 1. In this manner interference between the sections is avoided when the head section is adjusted.

A major feature of the invention resides in a particular construction of the spring sections which increases the ease and comfort of coiled springs, and permits ready adjustment of the movable sections. In all prior coiled spring constructions known to me the upper border frame is disposed about the section in a single plane; that is, the upper edges of the spring section are sharp, or square. Sections having such border frames are undesirable in beds of this type, because being sharp they project into the mattress and may cause discomfort to the occupant of the bed. Furthermore, the rubbing of sharp corners may cause undue wear of the mattress.

These disadvantages are substantially eliminated in accordance with this invention by disposing the border frames at the adja-

cent ends of successive sections to lie below the top, or border, plane of the section. In this manner, the ends being depressed, a rounded corner is presented by the edge of section, removing the sharp edge and reducing mattress wear. This may be accomplished most suitably by bending the border frame downwardly at the ends of adjacent sections, as shown at 14, and in the preferred embodiment, adjacent ends of the border frames converge downwardly, all as seen in Figs. 1 and 3. This construction has the further advantage that through its use the sections may be placed closer together without interference between them when adjusted, and provide a more nearly continuous spring structure when all the sections are horizontal, than is possible with prior types of border frame construction.

In the beds provided according to this invention, the adjustable section or sections may be raised, lowered and held in position by any suitable means, several of which are known and used in adjustable beds. One form of construction for use with these beds is shown in the drawings, which comprises means for separately adjusting the end sections.

Each of these means comprises a pivot rod 15 supported by brackets 16 depending from rails 2 and a U-shaped crank 17 carried by the pivot rod and having its ends slidably engaging the adjacent end spring section. The arms of each crank are connected beyond the pivot rod to the branches of a forked connecting rod 18 which extends longitudinally of the bed toward the foot. Although various means may be employed to actuate the connecting rods, it is preferred to accomplish this by means of interiorly threaded tubes 19 engaged by screws 20 rotatably supported at the end of the bed and adapted to be revolved by a hand crank 21.

Slidable engagement of the ends of the cranks with the end sections is accomplished by means of rollers 22, Figs. 4 and 5, attached to the ends of the cranks, extension fingers 23 connected to the cranks and bent laterally to form ears 24 which overlie the rollers, and guide plates connected to the spring sections and lying between these rollers and ears. The guide plates preferably comprise horizontal legs of angles 25 and 26 connected, respectively, to the foot and head spring section frames 4 and 3, in the manner shown in Figs. 4 and 5.

The end sections are operable from the foot of the bed, this being the most convenient location for such mechanism. Either end can be elevated or lowered independently of the other various combinations of positions thus being obtainable according to the requirements. Other means of actuating or adjusting the sections may, of course, be used.

The invention thus provides a bed which assures to its occupant the benefits of coiled springs, together with the advantages of adjustability to attain various positions for treatment or increased ease. The spring construction materially decreases the discomfort due to sharp edges in elevated positions, and all of these factors combine to promote the greatest degree of comfort.

A further advantage of the bed resides in the feature of replaceability of separate spring sections. Owing to uneven distribution of weight, coiled springs may become impaired in some sections of the bed before others. In prior beds, the entire spring had to be discarded in such an event in order to renew the worn out portion. In the beds provided by the invention relatively small intermediate sections 5, which usually become damaged first, are replaced at will. The pivotal bolt mounting of the end sections makes it possible to replace these sections individually should it become necessary. Other advantages will be recognized by those skilled in the art.

According to the provisions of the patent statutes, I have explained the principle and operation of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. In an adjustable bed, coiled spring sections each including an upper border frame and coiler springs connected thereto, at least one of said sections being adjustable, and said border frames at adjacent ends of successive sections being disposed below the top plane of the sections.

2. In an adjustable bed, adjustably mounted coiled spring sections each including an upper border frame lying substantially in a horizontal plane, and coiled springs connected to said frames, the border frames at adjacent ends of successive sections converging downwardly below said plane.

3. In an adjustable bed, adjustable head and foot spring sections and a fixed spring section intermediate said head and foot sections, each of said sections comprising an upper border frame and coiled springs connected to the frame, the ends of the border frame of said intermediate section and the adjacent ends of the border frames of said head and foot sections being bent downwardly below the top plane of said sections.

4. In an adjustable bed, the combination of side rails and a spring structure including separate adjustable spring sections at the head and foot portions of the bed each having a lower supporting frame pivotally connected at its lower end to said rails and having coil springs connected to said frames, a

third spring section intermediate said head and foot sections having spring supports removably connected in fixed position to said rails, coil springs connected to said supports, removable means connecting said intermediate section supports to said rails, each of said sections including an upper border frame connected to the springs of the section, and means for separately adjusting the angularity of said head and foot sections, the border frames at adjacent ends of said head, foot, and intermediate sections being bent downwardly below the top plane of said sections whereby to permit adjustment of the sections without interference and to provide a substantially continuous spring structure having no sharp edges between the sections when they lie substantially in the same plane.

In testimony whereof, I sign my name.

JOSEPH H. SCHIFFHOUER.