Aug. 11, 1931. L. R. BERRY 1,818,598

HEADREST AND INVALID RAISING MECHANISM FOR BEDSTEADS AND COTS

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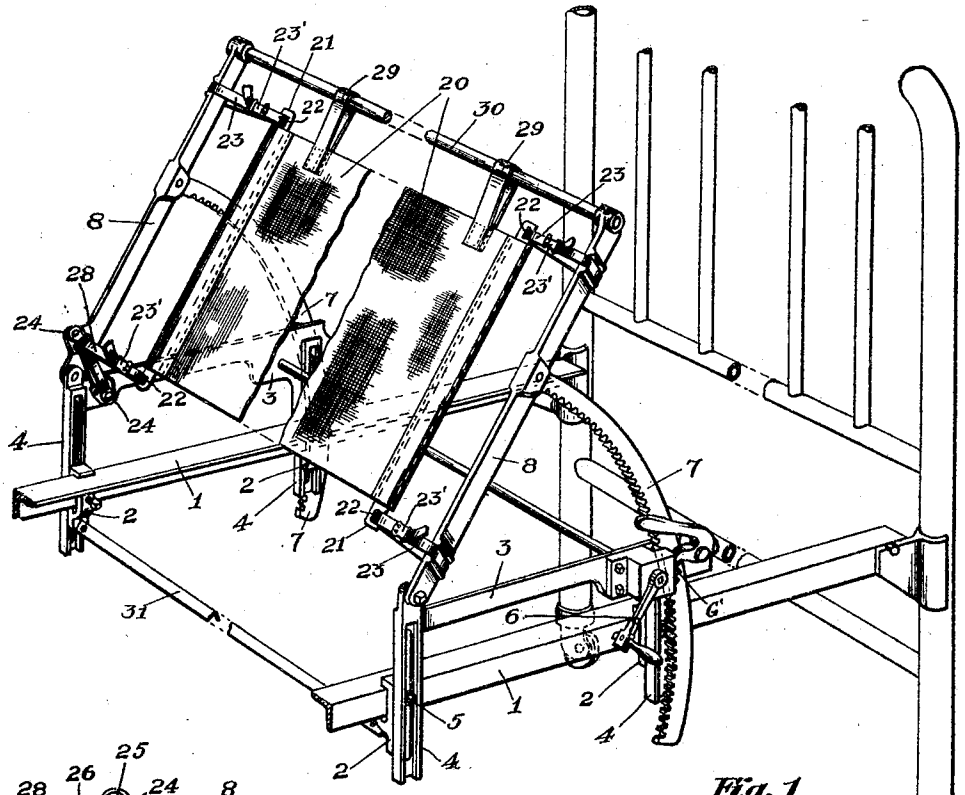


Fig. 1

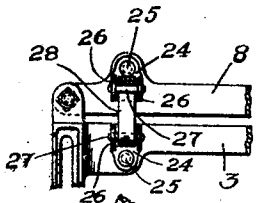


Fig. 2

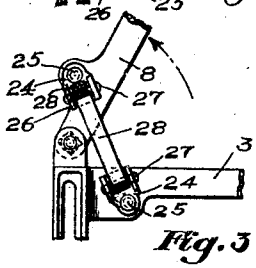


Fig. 3

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UNITED STATES PATENT OFFICE

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HEADREST AND INVALID-RAISING MECHANISM FOR BEDSTEADS AND COTS

Application filed May 20, 1929. Serial No. 364,486.

This invention relates, in general terms, to apparatus adaptable for use on bedsteads and cots to raise or lower by mechanical means the head and upper body portion of a person lying thereon.

The object of the present invention is to provide improvements in a device, a patent on which was granted me May 14th, 1929, numbered 1,713,164, relating to a head-rest and invalid-raising mechanism for bedsteads and cots.

The present device, while embodying substantially the same principles with respect to the actual raising and lowering of the head-rest, has, incorporated in its structure, certain novel and essential features which are of particular advantage in its operation.

Specifically, the objects sought in this invention are:

1. To provide a flexible material, preferably sheet fabric, for the transverse element in the head-rest, to support the head and the upper body portions of the invalid.

2. To provide means to automatically tighten the lower portion of the fabric sheet in a progressive manner as the head-rest is elevated, and conversely, to loosen it when the head-rest is being lowered.

The character of the invention may best be understood by reference to the description found in the following specification, when taken in connection with the accompanying drawings in which is disclosed an illustrative and preferred embodiment thereof, and in which—

Fig. 1 is a fragmentary perspective view of the frame work of a cot with my apparatus installed thereon—the spring and mattress of the cot not being shown, and

Figs. 2 and 3 are side elevations of the tightening element—the former showing the head-rest in flat-wise and the latter in elevated position.

Similar reference characters are employed to identify like parts in all views of the drawing.

Referring to the drawings, 1 represents the side rail of a cot or bedstead, in this instance shown as an angle iron but which may be in the form of a pipe or wooden side member—as disclosed in my former patent hereinbefore referred to.

These rails provide the structure to which the rail blocks 2 are secured, the latter in turn supporting the inverted U-shaped side frames 3 having slotted legs 4 which are adjustably secured to the rail blocks by bolts 5.

The raising and lowering mechanism in the present device is quite similar to that employed in my former invention and, briefly, consists in the compound gearing G actuated by the hand crank lever 6 to operate the quadrants 7 which are connected at their upper ends to the swinging side bars 8.

Referring to the drawings it will be observed that, in my present device, a radical departure from the construction shown in my former invention, in two particulars at least, has been made. The slats 15 which connected the two side bars 13 (characters in drawing of my Patent No. 1,713,164) have been eliminated and as a substitute I now employ a fabric sheet 20, each lateral edge of which is folded and sewed to form a loop within which operates a bar 21.

The ends of this bar, 21, are provided with slots 22 through which are reeved the adjusting straps 23, there being one of the latter located at each upper corner and at one lower corner of the fabric sheet, and in each case they extend outwardly and embrace the adjacent side bar 8.

At the fourth corner of the fabric sheet my automatic tightening mechanism is located, one of these ordinarily being sufficient when it forms equipment for a narrow cot. When the head-rest is supplied for full width bedsteads it may be advisable to use two of the tighteners—one at each lower corner of the sheet.

The sheet tightening apparatus includes two rotatively mounted cleats 24, one being secured on the side frame 3 and the other on the side bar 8, by screws or studs 25, 25, respectively.

Each cleat has outstanding ears 26 through which passes a pin 27. The strap 28 is looped around the pin 27 in the cleat attached to the side frame 3, extends toward

the side bar 8 in a double thickness and is reeved around the pin in the cleat on the bar 8, thence it passes inwardly of the head-rest to the bar 21 within the slot in which it is secured. An adjustable buckle 23′ is provided for this strap as also for the three other straps 23. Non-extensible straps 29 operable over the cross member 30 prevent sagging of the sheet when the head-rest is in elevated position; and to resist lateral strain on the side rails 1, when the sheet is tightened, an angle bar 31 is provided, it being secured to the rail blocks 2.

In Fig. 2 the head-rest, in which are included the two side bars 8, is shown in its lowermost position on the cot.

In this position of the head-rest the lower buckles 23′, or those nearest the pivotal point of the side bars with the side frames, are adjusted so that the sheet fabric 20 hangs somewhat loosely and capable of accommodating itself or conforming to any changes in the shape of the spring incident to the weight of the patient on the mattress.

When the side bars 8 are raised, however, as seen in Fig. 3, the upper cleat swings away from the lower one, and that portion of the strap 28 which lies between the upper cleat and the sheet fabric is shortened. This has the effect of tightening the sheet—the tightness depending on two conditions, the initial adjustment of the buckle 23′ and the center to center distances of the cleats 24. By providing other holes for the reception of the bolts 25, or by otherwise arranging for vertical adjustability of the cleats, a variation in the range of the tightening device may be procured.

Without doubt the most appealing characteristic of my improved head-rest is its capacity to give support to the patient when needed and to entirely withdraw this support when no need appears. While lying on the cot, either on his back or side, the patient gets the full benefit of the resiliency of the mattress spring—just as though no head-rest was beneath him. As he is being elevated to an inclined position he senses a gradual but gentle tightening of the support applied more particularly to the small of his back, or that portion of his body immediately above his hips, and this brings him to a posture both comfortable and healthful.

It is to be further noted that the tightening and loosening of the fabric supporting sheet 20 is effected automatically—it being accomplished incidentally to and synchronously with the raising and lowering of the head-rest.

It is obvious that the apparatus just described is susceptible of modifications in structure without departing from the meaning and intent of the invention. I desire it to be understood, therefore, that I do not restrict or limit myself to the exact mechanical details as herein set forth and illustrated in the drawings, as it is possible to carry out the invention in other ways which will be in conformity to and within the scope of the subjoined claims.

What I claim and desire to secure by Letters Patent is:

In a device of the character described, adapted to be attached to the side rails of a bedstead, the combination of a side frame secured to each of said rails, a side bar pivotally connected to each of said side frames, a fabric sheet disposed interjacent said side bars, extensible straps securing said fabric sheet to said side bars at its two upper corners and one lower corner, a cleat pivotally mounted on one of said side frames, a cleat pivotally mounted on the adjacent one of said side bars—said cleats being spaced from the pivotal connection of said side bar with said side frame, toward the head of the bed, a strap, one end of which is fixed in said first mentioned cleat and slidably secured in said second mentioned cleat, the other end of said strap extending inwardly and secured to said fabric sheet, and means to oscillate said side bars whereby on the upward and downward movement of said side bars the portion of said last mentioned strap lying between the said side bar and the said fabric sheet may be shortened and lengthened, respectively.

In testimony whereof I affix my signature.

LEWIS R. BERRY.