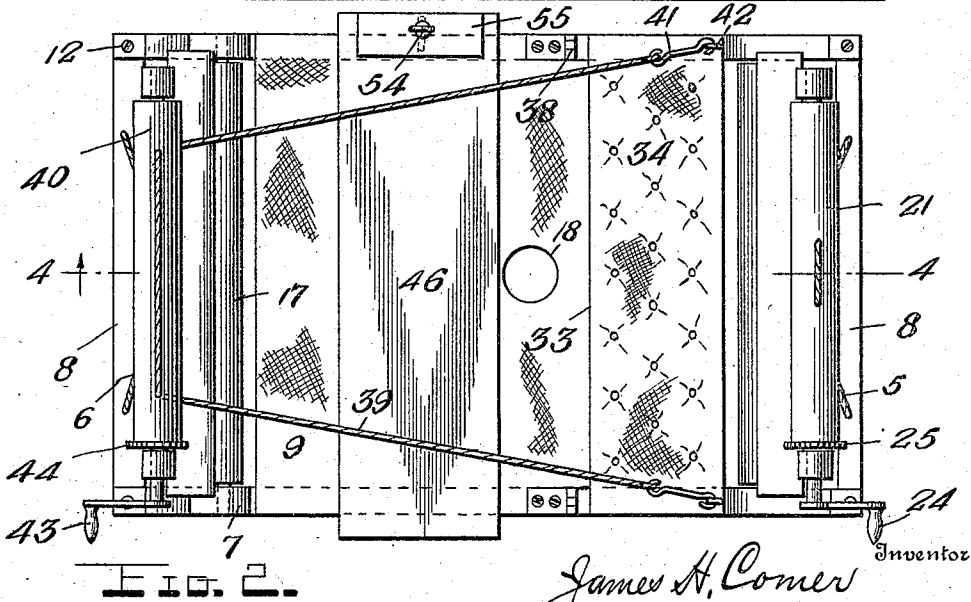
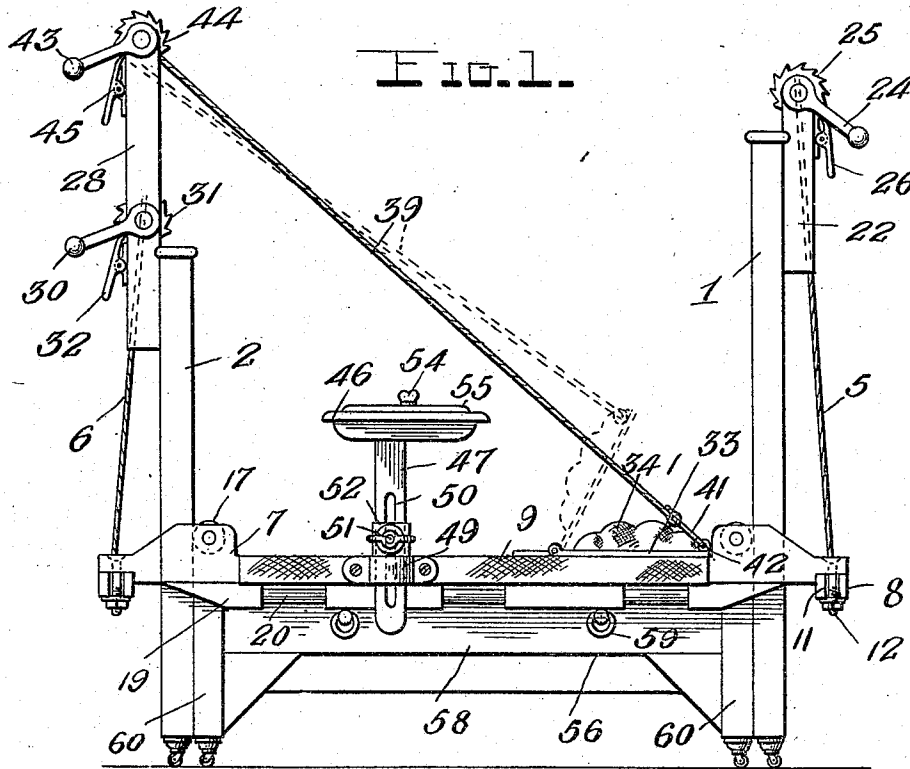


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INVALID BED.
APPLICATION FILED MAR. 5, 1909.

941,620.

Patented Nov. 30, 1909.

3 SHEETS—SHEET 1.



Witnesses
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3 SHEETS—SHEET 2.

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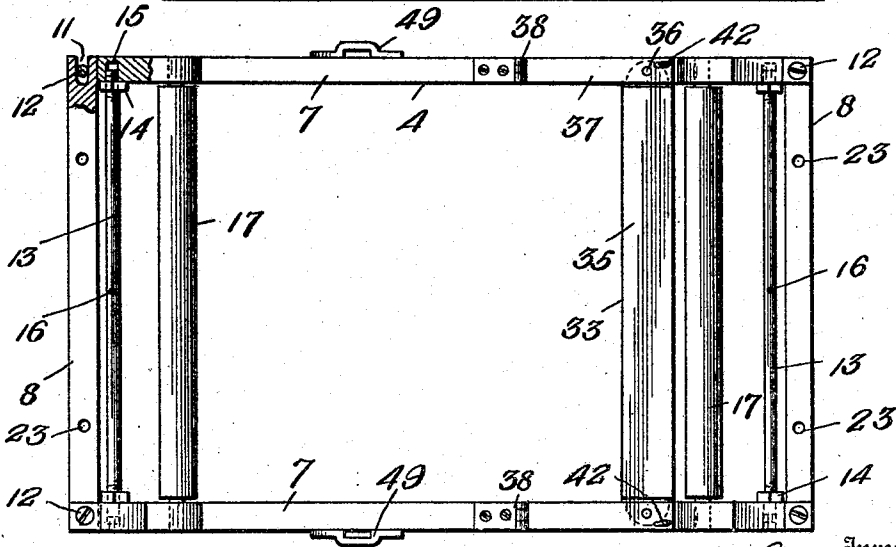
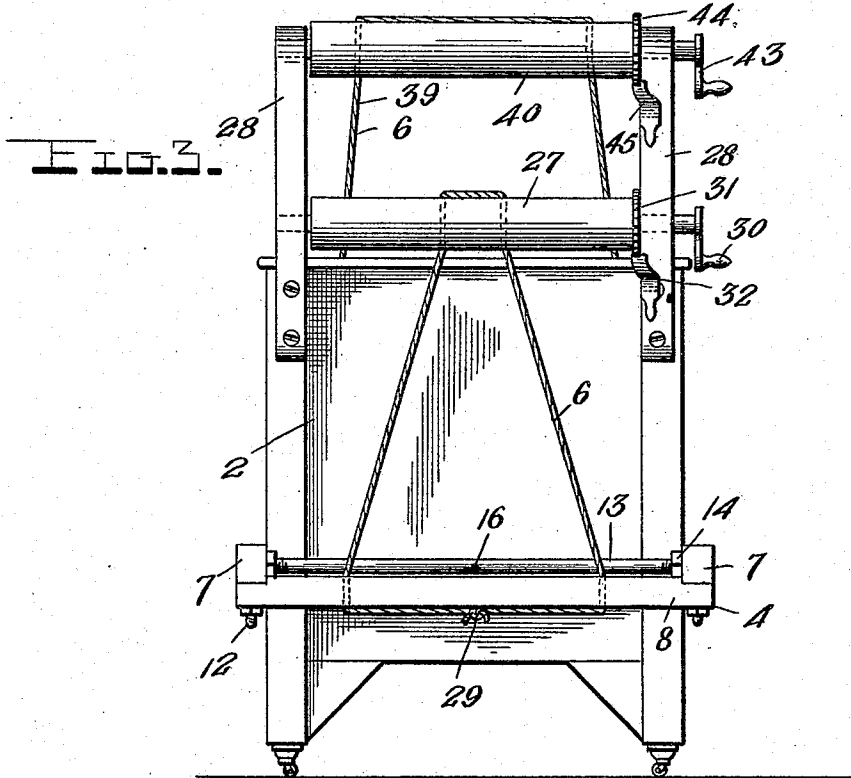


FIG. 5.

Witnesses

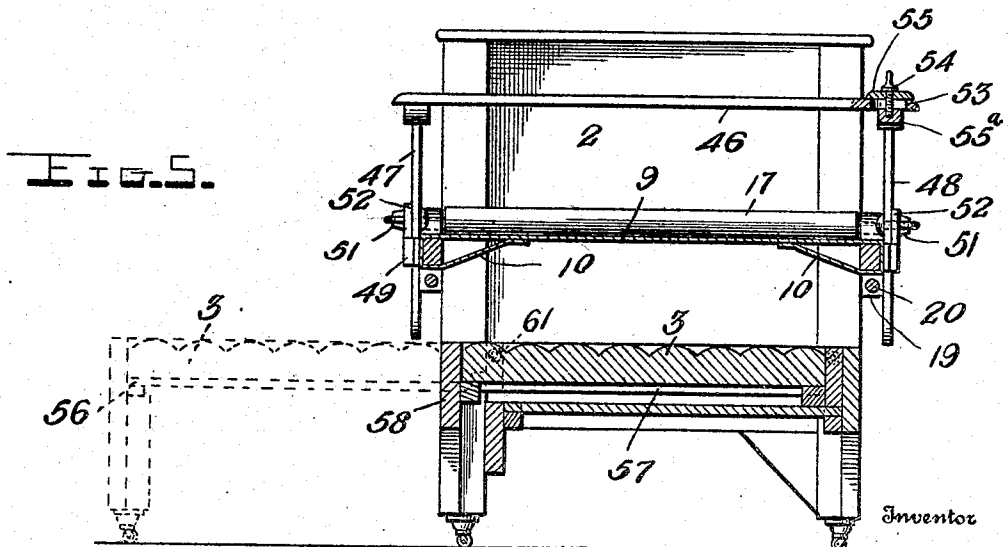
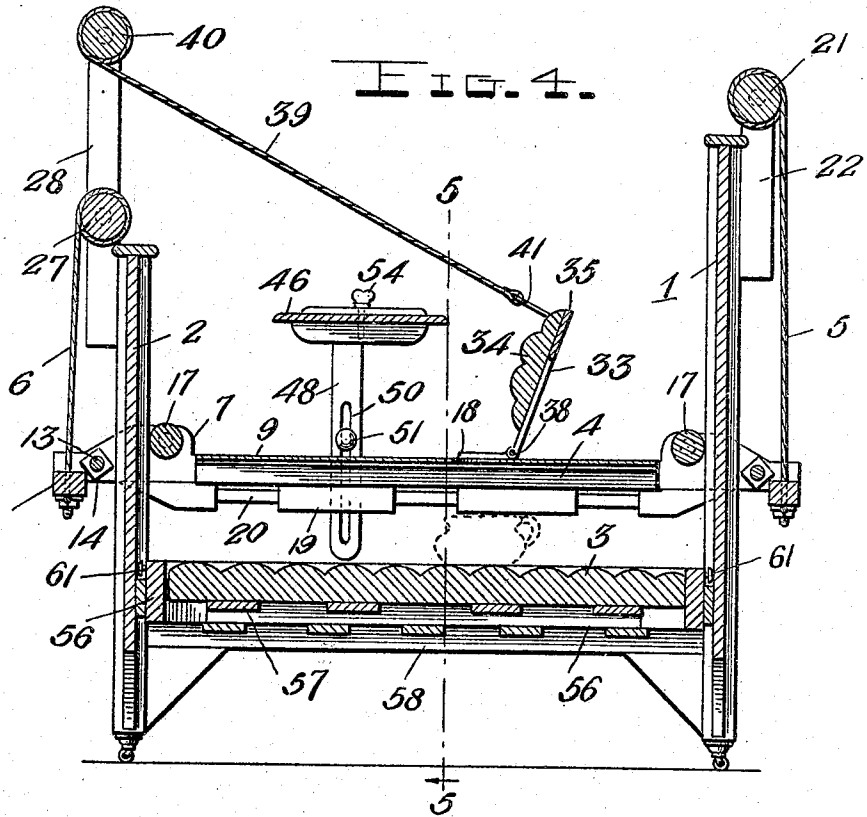
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UNITED STATES PATENT OFFICE.

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INVALID-BED.

941,620.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES H. COMER, a citizen of the United States, residing at Comers Rock, in the county of Grayson and State of Virginia, have invented certain new and useful Improvements in Invalid-Beds, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in beds for the use of invalids, and it consists of the novel construction, combination and arrangement of parts hereinafter fully described and claimed.

One object of the invention is to provide a bed having devices by means of which an invalid or other occupant may be readily raised or lowered or supported in any inclined position without touching him with the hands.

Other objects of the invention are to provide an improved adjustable carrying frame, an improved adjustable table for use on the same and an improved adjustable back rest.

The above and other objects of the invention are attained in the preferred embodiment of the invention illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the improved bed; Fig. 2 is a top plan view; Fig. 3 is an end elevation; Fig. 4 is a longitudinal section; Fig. 5 is a transverse section taken on the line 5—5 in Fig. 4; and Fig. 6 is a plan view, partly in section, of the carrying frame.

The present embodiment of my invention is in the form of an attachment which may be applied to any bedstead having head and foot pieces 1, 2 and a mattress or bottom 3.

The invention comprises a vertically movable and longitudinally tilting invalid carrying frame 4 which moves upon the pieces 1, 2 and is supported and adjusted by means of cables 5, 6. The frame 4 consists of side bars 7 connected by end bars 8 and it is covered by a sheet 9 of flexible material such as fabric which supports the invalid or patient. Said sheet 9 has its side edges looped around the side bars 7, as shown at 10 in Fig. 5; and in order to permit said sheet to be kept stretched and kept taut, the side bars 7 are adjustably connected to the end bars 8. This adjustable connection is clearly shown in Fig. 6 and consists in forming slots 11 in the bars 8 to receive clamping bolts 12 in the bars 7; and it further consists of ad-

justing rods 13 having their ends formed with right and left screw threads to receive nuts 14. The ends of the rods 13 enter sockets 15 in the bars 7 and the nuts 14 bear against the latter so that when the rods are turned in the proper direction the nuts will be moved outwardly upon them to force the bars 7 apart to stretch the sheet. The bolts 12 are then tightened to clamp the frame in adjusted position to hold the sheet taut. To permit the rods 13 to be easily turned, they are formed with openings or sockets 16 to receive a rod or the like which may be used as an operating lever. To permit the frame to move freely and to prevent it from swinging, I provide between the side bars 7, rollers 17 which engage the inner faces of the head and foot pieces or boards 1, 2 of the bedstead, as shown.

The sheet 9 may be formed with a suitable opening 18 so that a bed pan or chamber may be placed beneath it on the mattress 3 when the frame is elevated, as shown in Fig. 4.

For the purpose of permitting an insane person or other patient to be strapped on the sheet, I may provide beneath the side bars 7 of the frame, supplemental bars 19 having reduced portions or rods 20 to which latter the holding straps or bands may be fastened.

The cable 5 which supports the end of the frame 4 nearest the head piece 1 of the bedstead is attached to and wound upon a transverse roller or drum 21 journaled in brackets 22 suitably secured to said head piece. The cable is preferably applied to the drum by forming the latter with two transverse openings through which the ends of the cable are passed and said ends are then passed through vertical openings 23 in the upper cross bar 8 of the frame and brought together and united. One of the journals of the roller is extended and carries a crank handle 24 by means of which the drum may be rotated to wind the cable thereon or to unwind it for the purpose of raising or lowering said end of the frame 4. On the same end of the roller 21 is also provided a ratchet wheel 25 adapted to be engaged by a spring pressed pivotally mounted pawl lever 26 arranged upon the adjacent bracket 22. It will be seen that when the finger piece of the pawl or catch 26 is depressed to retract the latter from engagement with the ratchet 25 the lever 24 may be readily rotated to wind or unwind the

cable. The cable 6 for supporting and adjusting the opposite end of the frame 4 is similarly attached to a similar winding drum 27 journaled in the lower portions of upright brackets 28 secured to the foot piece or board 2, as clearly shown in Fig. 3 of the drawings. The lower extremities of the two branches of the cable 6 are passed through vertical openings in the lower end bar 8 of the frame 4 and are brought together and united, as shown at 29, in Fig. 3, or in the same manner in which the ends of the cable 5 are secured. A crank handle 30 is provided upon the extended journal of the drum 27 and upon the adjacent end of the latter is also secured a ratchet wheel 31 which is engaged by a pawl or catch 32 similar to the pawl 26. By mounting and arranging the cables 5, 6 in this manner, it will be seen that the invalid carrying frame 4 may be raised or lowered vertically and also inclined longitudinally in either direction so that the patient may be supported with his head higher than his feet or vice versa.

For the purpose of supporting the head and back of the invalid or patient, a swinging adjustable back rest 33 is provided. The latter consists of a frame on which may be arranged a removable cushion or covering 34. Said frame of the back rest consists of a longitudinal bar 35 having its ends pivoted at 36 in two side bars or arms 37, which latter have their lower ends hingedly connected, as shown at 38, upon the side bars 7 of the adjustable carrying frame 4. By constructing the back rest frame in this manner, it will be seen that the side bars 37 will be adjusted simultaneously with the side bars 7 of the frame 4 when the latter is adjusted to stretch the sheet 9. For the purpose of permitting the back rest or support 33 to be raised or lowered and secured at any desired angle, a cable 39 is provided. This cable is attached to a winding drum 40 in the same manner in which the cables 5, 6 are attached to their winding drum and its free ends carry hooks 41 adapted to be detachably engaged with eyes 42 upon the upper corners of the back rest 33, as shown more clearly in Figs. 1 and 2 of the drawings. The drum 40 is journaled in the upper portions of the brackets 28 and upon the extended end of one of its journals is provided a crank 43 by means of which the drum may be readily rotated to wind or unwind the cable and thereby raise or lower said back rest. On the corresponding end of the drum 40 is a ratchet wheel 44 which is engaged by a pawl or catch 45 similar to the pawls 26, 32.

46 denotes an adjustable table adjustably mounted on the carrying frame 4 so that it may be used for supporting food, work, or the like within convenient reach of the invalid or patient. The table 46 consists of a

top board and two depending standards 47, 48 which are slotted longitudinally and adapted to enter guide brackets 49 secured to the outer faces of the side bars 7. The slots 50 in the standards 47 are adapted to receive clamping bolts 51 which carry and adjustably secure on said standards blocks 52 to rest upon the upper edges of the brackets 49. By adjusting the blocks 52 vertically on the slotted standards 47, 48, it will be seen that the table top 46 may be raised or lowered to suit the patient and that by removably arranging the lower ends of the standards 47, 48 in the brackets 49, the table may be readily removed from the carrying frame 4 when it is not needed. For the purpose of enabling the standards 47, 48 to be received by the brackets 49 after the side bars 7 of the frame 4 have been adjusted to stretch the sheet 9, the standard 48 is made longitudinally adjustable upon the top board 46. This adjustment is effected by forming one end of the top board with a longitudinal slot 53 for the reception of a clamping screw 54 having a finger piece at its top and having its threaded end passing through a clamping strip 55 arranged upon the table top or through the slot 53 and into a threaded socket in the head or enlarged upper end 55^a of the standard 48, as more clearly shown in Fig. 5 of the drawings.

While, as above stated, the invention may be used upon an ordinary bedstead, it is shown applied to one of special form having a mattress 3 arranged on a slidable support 56 which may be drawn out of the frame or body portion of the bedstead. Said mattress support 56 is in the form of a rectangular frame having an open bottom covered with slats 57 to support the mattress 3 and having its front side bar 58 forming one of the side bars or rails of the bedstead, as shown in Fig. 1, and provided with suitable handles 59 by means of which it may be drawn out of the bedstead. Said front side of the sliding support 56 is also provided with two legs 60 which support said side of the same when it is drawn out of the bedstead, as shown in dotted lines in Fig. 5 of the drawings. The frame 56 slides upon the slats of the bedstead, as shown in Figs. 4 and 5, and its outward movement is adapted to be limited by stop pins 61 arranged at the ends of its inner side and adapted to engage the corner posts of the head and foot pieces of the bedstead, as will be understood upon reference to Figs. 4 and 5 of the drawings. By mounting the mattress 3 on the removable and retractable support 56, it will be seen that when the carrying frame 4 is elevated to raise the patient from the mattress, said support 56 may be drawn out from beneath the sheet 9 to permit the bed to be conveniently made up and also aired.

From the foregoing description taken in

connection with the accompanying drawings, it is thought that the construction, operation and advantages of the invention will be readily understood without a further explanation.

Having thus described the invention what is claimed is:

1. The combination of a bedstead having head and foot pieces, brackets attached to the head and foot pieces at the upper corners of the same, winding drums journaled in said brackets and having crank handles and pawl and ratchet devices for preventing retrograde rotation, a vertically movable carrying frame having side bars to receive the head and foot pieces of the bedstead between them and connecting bars between the side bars and disposed outside of said head and foot pieces of the bedstead, transverse rollers journaled between the side bars of the carrying frame and adapted to engage the opposing inner faces of the head and foot pieces of the bedstead, a sheet stretched between the side bars of the carrying frame and supporting and adjusting cables attached at their lower ends to the connecting bars of the stretching frame and at their upper ends to said drums.

2. The combination of a bedstead having head and foot pieces and two side bars, one of the latter being lower than the other, guides upon said head and foot pieces, a mattress carrying frame slidably engaged with said guides and having at the side adjacent to the lower side bar of the bedstead a side piece provided with depending supporting legs, a frame carrying a stretched sheet, and vertically slidable on the head and foot pieces of the bedstead and means carried by the head and foot pieces of the bedstead for raising and lowering said sheet carrying frame.

3. The combination of a bedstead having upright head and foot pieces, a vertically movable carrying frame comprising side bars and connecting end bars, said side and end bars being adapted to receive the head and foot pieces of the bedstead between them, the side bars being formed adjacent their ends with opposing sockets, and the end bars being formed at their ends with longitudinal slots, clamping bolts extending vertically through the side bars and the slots in said end bars, a sheet stretched across the intermediate portions of the side bars, stretching rods arranged between the side bars and adjacent the end bars, said stretching rods being formed with oppositely screw threaded ends and adapted to have said ends project into the opposing sockets in said side bars, nuts engaged with the threaded ends of said stretching rods and bearing against the inner faces of the side bars, whereby the latter will be moved apart to stretch the sheet connecting them when said

stretching rods are rotated in one direction and means upon the upper portions of the head and foot pieces of the bedstead for raising and lowering said frame.

4. The combination with a bedstead having upright head and foot pieces, a sheet carrying frame vertically slidable on said head and foot pieces and including end bars and side bars, the latter being adjustable toward and from each other to stretch the sheet on said frame, a swinging back rest consisting of side bars hinged at their lower ends to the side bars of the frame, a connecting longitudinal bar pivoted at its ends to said side bars of the back rest, whereby the latter will adapt itself to the adjustment of the side bars of the frame, a cushion on the longitudinal bar and side bars of the back rest, means carried by the head and foot pieces of the bedstead for adjusting said frame and independent means for adjusting said back rest.

5. The combination with a bedstead having upright head and foot pieces, a sheet carrying frame vertically slidable on said head and foot pieces and including end bars and side bars, the latter being adjustable toward and from each other to stretch the sheet on said frame, a swinging back rest consisting of side bars hinged at their lower ends to the side bars of the frame, a connecting longitudinal bar pivoted at its ends to said side bars of the back rest, whereby the latter will adapt itself to the adjustment of the side bars of the frame, a cushion on the longitudinal bar and side bars of the back rest, means carried by the head and foot pieces of the bedstead for adjusting said frame, upright brackets on the foot piece, a winding drum journaled in said brackets and having a crank handle and a pawl and ratchet device for preventing retrograde rotation, eyes upon the side bars of the back rest, and a cable attached to said winding drums and having hooks at its ends to engage said eyes.

6. The combination of a frame comprising side bars and connecting end bars, said side bars being formed adjacent their ends and on their opposing inner faces with sockets, and said end bars being formed at their extremities with longitudinal slots, clamping bolts in the extremities of the side bars and extending through the slots in the end bars, stretching rods having oppositely screw threaded ends to project into the opposing sockets in the side bars, nuts engaged with the threaded ends of said stretching bars to bear against the opposing inner faces of the side bars, and a sheet stretched across the intermediate portions of the side bars, substantially as and for the purpose set forth.

7. The combination with a bedstead having upright head and foot members, of a sheet carrying frame having side bars and

connecting end bars, the latter being arranged upon the outer faces of the head and foot members of the bedstead, cylindrical rollers extending transversely across said frame and journaled in the side bars, said rollers being adapted to contact with the opposing inner faces of the head and foot members of the bedstead, and means carried by said head and foot members of the bedstead for raising and lowering said frame.

8. The combination with a sheet carrying frame having parallel side bars and means for adjusting said side bars toward and

from each other, of a back rest consisting of swinging side bars hingedly connected to the side bars of the frame, a longitudinal connecting bar having its ends pivoted to said swinging side bars, whereby the back rest will adapt itself to the adjustment of the frame.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

JAMES H. COMER.

Witnesses:

L. O. LITTLE,
F. A. MILLIGAN.