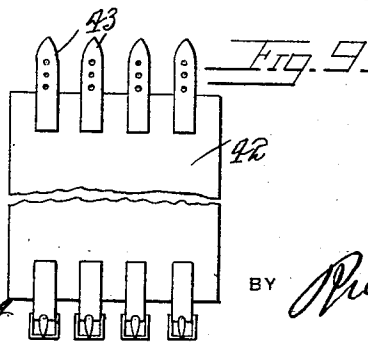
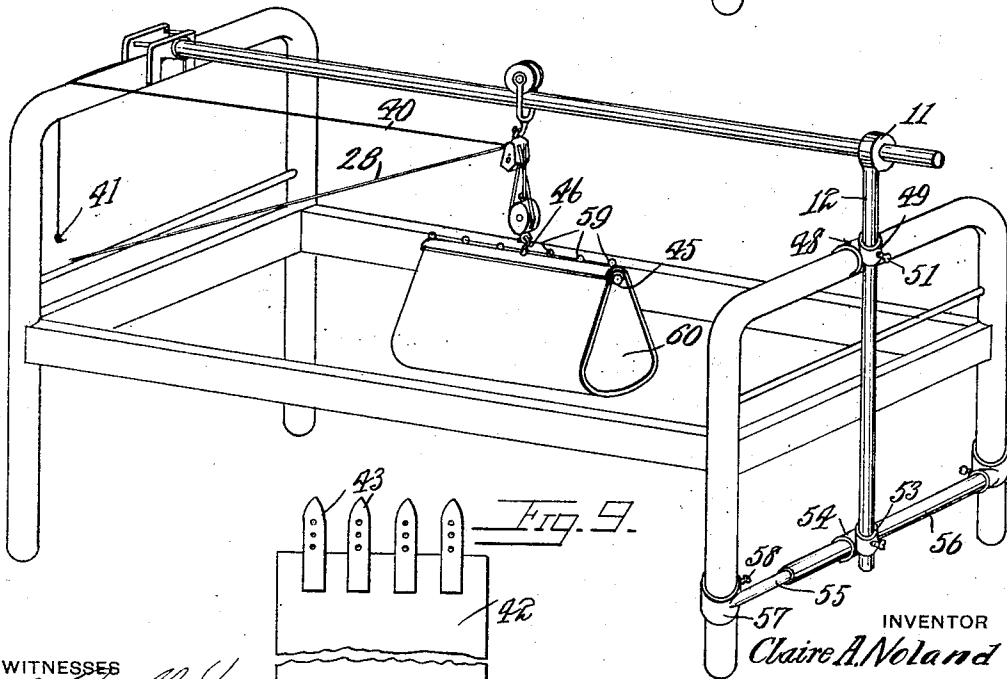
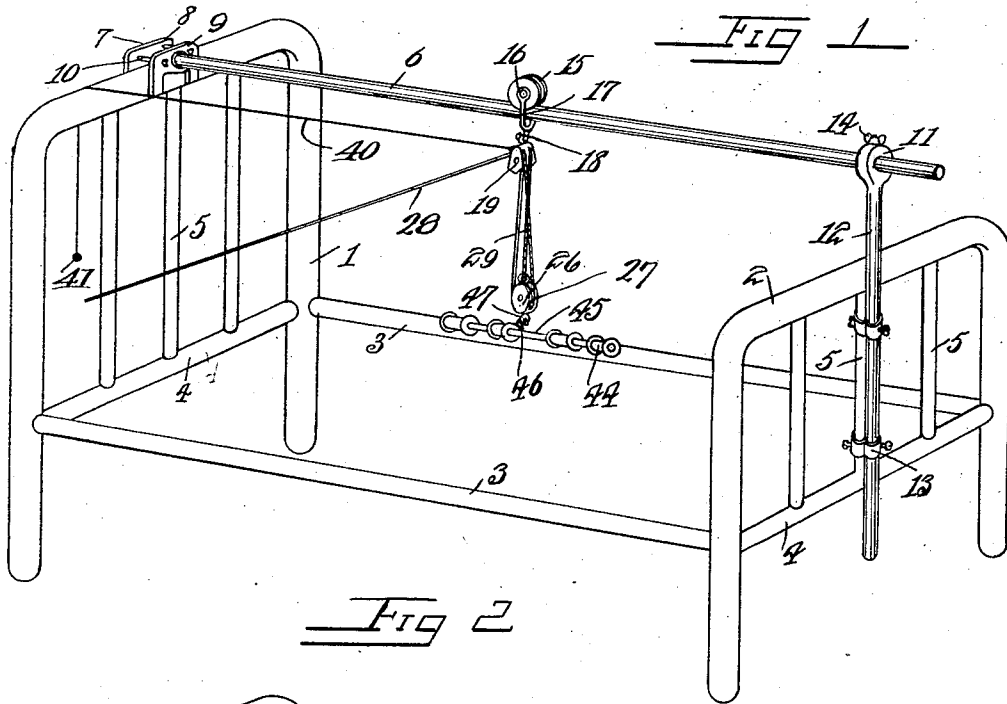


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2 SHEETS—SHEET 1.



WITNESSES

C. H. Hall
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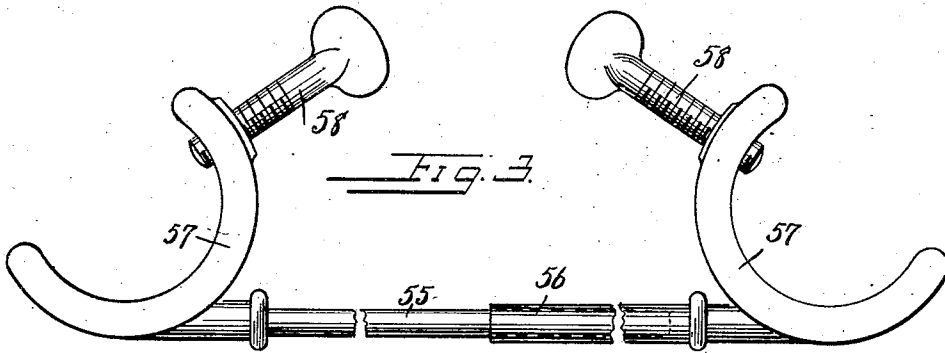


Fig. 4

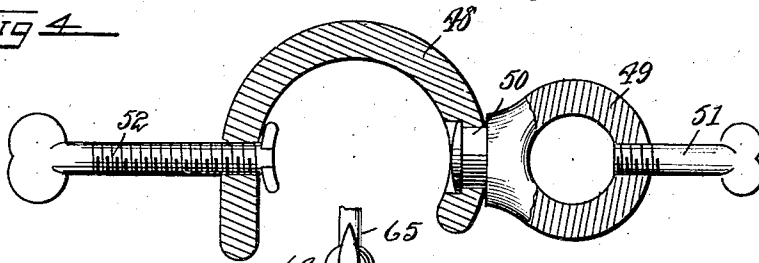


Fig. 5

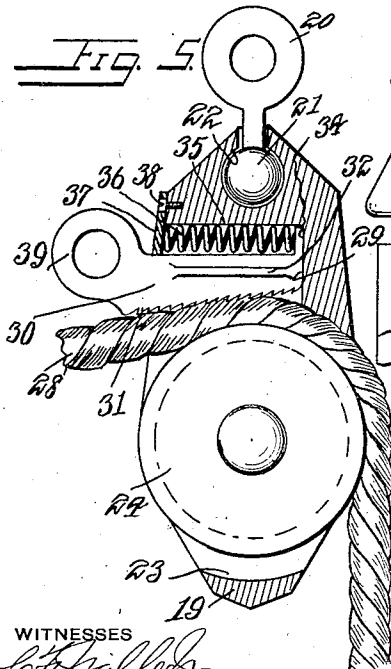


Fig. 7

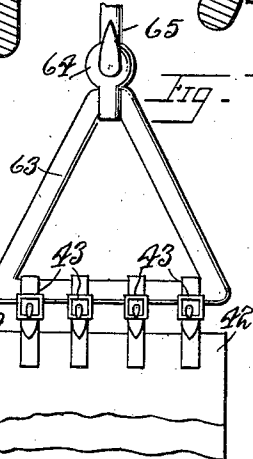
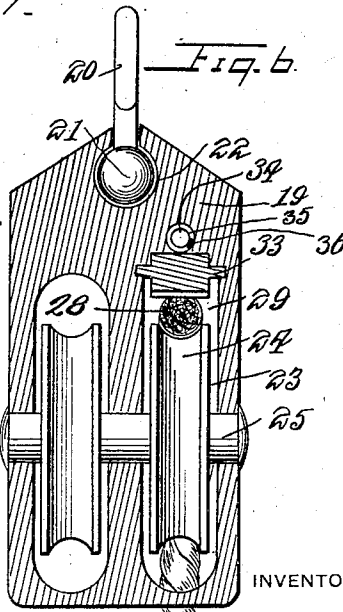


Fig. 6



WITNESSES

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UNITED STATES PATENT OFFICE.

CLAIRE A. NOLAND, OF MONROE CITY, MISSOURI.

INVALID ELEVATING AND CONVEYING DEVICE.

1,269,734.

Specification of Letters Patent. Patented June 18, 1918.

Application filed September 28, 1916. Serial No. 122,704.

To all whom it may concern:

Be it known that I, CLAIRE A. NOLAND, a citizen of the United States, residing at Monroe City, in the county of Monroe and State of Missouri, have invented certain new and useful Improvements in Invalid Elevating and Conveying Devices, of which the following is a specification.

The present invention has reference generally, to improvements in invalid bedsteads, and more particularly relates to an elevating and conveying device particularly adapted for use in connection with a bedstead.

The invention has for its primary aim and object, to provide improved means for removable association with a bed or other support for supporting the lifting means in such a manner that the said lifting means may be moved along the support consequently providing an effective means for readily assisting a nurse when handling a patient, the device, incidentally, being of such construction that the patient himself may use the appliance.

As an additional object, the invention contemplates the provision of novel means whereby the patient support may be effectively connected to the lifting means.

More particularly, the present invention embraces the provision of an improved means whereby movement of the cable in the pulley wheel is controlled.

Among the other aims and objects of the invention may be recited the provision of a device of the character mentioned, with a view to compactness, the number of parts of which are few, the construction simple, the cost of production low, and the efficiency high.

Other aims and novel details in the construction and arrangement of the various parts of the apparatus will be brought out more in detail in the description to follow, which, for a clear understanding of the invention, should be considered in connection with the accompanying drawings, forming a part hereof, and wherein I disclose for the purpose of illustration, convenient and satisfactory embodiments of the invention: It is to be noted in this connection, that minor changes in the construction and arrangement of parts may be made without departing from the spirit of the invention or the particular operation of the various parts.

The invention is clearly illustrated in the accompanying drawings in which:—

Figure 1 is a perspective view of one form of my invention.

Fig. 2 is a perspective view of another form of my invention.

Fig. 3 is an enlarged side elevational detail of the means for clamping one of the rods to the foot section of a bed or other support.

Fig. 4 is a sectional detail of the means for clamping one of the supporting rods to the telescoping sections.

Fig. 5 is a vertical section of the upper pulley, the clutch member being shown in side elevation.

Fig. 6 is a vertical section of the same.

Fig. 7 is an elevational detail of a modified form of means for attaching the patient supporting band to the lifting means.

Fig. 8 is an enlarged transverse section taken through another form of means for attaching the patient supporting band to the lifting means.

Fig. 9 is a top plan view of another form of patient supporting band.

Similar characters of reference are employed in all of the described views, to indicate corresponding parts.

Referring now, more particularly, to the accompanying drawings I have illustrated a bedstead composed of a head section 1 and a foot section 2 that are connected by the side rails 3. In the embodiment illustrated in Fig. 1, the head section 1 and the foot section 2 are braced by the transverse bars 4 and the vertically spaced rods 5. A supporting bar 6 is arranged longitudinally of the bed and may be secured to the head section 1 by suitable clamping means 7. This means consists of the perforated inverted U-shaped plates 8 and 9 the latter being also provided with an opening that is adapted to receive one end of the bar 6. The bolt and nut assembly 10 serves to removably clamp the plates to the upper end of the head section. The opposite end of the bar 6 extends through an opening formed in the enlarged upper end 11 of a vertical supporting rod 12. This is adjustably clamped on one of the vertically arranged rods 5, of the foot sections, by means of suitable clamping means 13. A set screw 14 extends through the enlarged end 11 and its end is adapted to engage the bar 6 to

hold it in position. Preparatory to the securing of the bar 6 in place, a roller 15 is placed thereon, said roller being carried by a pintle 16, the respective ends of which are journaled in the bifurcated or spaced ends 17 of a supporting hook 18. In order that a patient may be conveniently lifted from the bed and moved relative thereto or else held in a raised position, there is provided lifting means to be used in conjunction with the roller which constitutes the conveying means. In the present instance, the lifting means consists of a sheave or pulley 19 which is supported on the hooked end 18 by means of a ring 20. A shank extends from the ring and terminates in a ball 21 which is universally connected in a corresponding socket 22 in the upper end of the sheave 19 as shown in Figs. 5 and 6. This sheave is also provided with vertically spaced openings 23 in which are rotatably arranged pulley wheels 24. These wheels are carried by a shaft 25 which is in turn journaled in the sides of the sheave. There is provided another sheave 26 that has rotatably mounted therein a pulley wheel 27. A cable 28 has one end connected to the upper end of the sheave 26 and is trained about the pulley wheels 24 and 27. The free end is carried toward the head section 1 of the bed. In order to adjust the position of the sheave 26 I have provided the recess 29 which communicates with one of the openings 23. A movable wedge like clutch member 30 has teeth 31 formed on the lower surface thereof that are adapted to bitingly engage the cable 28. The longitudinal ribs 32 formed on the sides of the member 30 serve to guide the member during its sliding movement. These ribs are adapted to engage and ride in the oppositely disposed grooves 33 formed in the sides of the recess 29. An upstanding disk-like lug 34 is formed on the inner end of the member 30 and is slidably arranged in a correspondingly shaped recess 35, that communicates with the recess 29. A spiral spring 36 is placed in the recess 35 so as to hold the member 30 in the end of the recess 29, by engaging with the lug 34. The spring is held in the recess by means of a plate 37 that is preferably removably secured in position by means of a screw 38. An eye 39 is formed in the enlarged end of the clutch member 30 to which a cable 40 is connected. This cable extends over the upper end of the head section 1 and is maintained in position by means of a weight 41 connected to the opposite end thereof.

In order that the patient may be held in a supported position on the lifting means, there is provided the flexible supporting band 42 having buckle straps 43 secured to and extending therefrom. The band is to be

laid on the bedstead in a flat form and after the patient has been placed thereon, the straps are buckled and arranged on the corresponding spools or drums 44 carried at uniformly spaced intervals on the bar 45. Any convenient means may be employed for connecting the bar to the sheave 26, such as the hook 46 extending from the bar to engage with an eye carried by the sheave 26.

In Fig. 2 I have shown another form of means for connecting the rod 12 to the foot section 2. The connecting means as shown in Figs. 3 and 4, consists of a clamping member 48 having one end swiveled to a sleeve 49 as indicated at 50. A set screw 51 is mounted in the sleeve for frictional engagement with the rod 12 and serves to hold the sleeve on the rod as the clamping screw 52 is being adjusted in the opposite end of the clamping member 48. This screw 52 is engageable with the top of the foot section 2. The lower end of the rod 12 has a sleeve 53 and a clamping member 54 associated therewith of a construction similar to the construction of the sleeve 49 and the member 48. The clamping member 54 is adapted to engage with a cross bar that is composed of telescopic sections 55 and 56. Clamping members 57 are carried by the outer ends of the sections 55 and 56 and have a set screw 58 mounted therein so that the members may be effectively clamped on the vertical side members of the foot section 2 as illustrated in Fig. 2.

I have also shown another form of patient supporting means in Figs. 2 and 8 the same consisting of a plurality of uniformly spaced headed pins 59 on the bar 45 instead of spools 44. The band 60 in the present instance is provided adjacent its respective ends with transverse rows of uniformly spaced openings 61 and arranged to adjustably engage the pins 59.

In Fig. 7 I have shown still another form of means for connecting the supporting means to the raising means, that consists of a triangular frame 63 having an eye 64 rotatably secured to one of the vertices. This eye is adapted to engage a hook 65 carried by the sheave 26. The band 42 is adapted to be connected to the frame in the manner illustrated in Fig. 7 which is practically the same as when connected to the spools 44.

The operation of the invention may be reviewed as follows:

Assuming that the device has been assembled in a manner shown in either Figs. 1 or 2, the nurse or attendant may pull the cable 40 against the tension of the spring 36 to release the cable 28. During this operation it is necessary to hold the free end of the cable 28, and when the latter is released by properly adjusting the cable, the bar 45, or the triangular frame 63, whichever is con-

5 nected to the sheave 26, may be raised or lowered. When the upper supporting means is properly adjusted, the cable 40 may be released so as to prevent accidental movement of the cable 28, whereupon, by
 10 again pulling the cable 28, the roller 15 may be moved on the supporting bar 6 and the patient placed nearer to either end of the bed. It should be understood that the cable 40 may be either thrown over the head of the bed
 15 1 or the foot of the bed 2 as will be obvious by considering Fig. 1 of the drawing and by pulling upon the cable 40 the entire device may be moved either toward the head or toward the foot of the bed. It of course is
 20 necessary to throw the cable 40 in the correct direction in order to move the pulley 15 in the desired direction either toward the head or foot of the bed. It should be understood however that the weight of the patient upon the supporting device will be sufficient for preventing the longitudinal movement of the carrier upon the supporting rod 6 while the patient is being raised upon the
 25 lifting device. The friction caused by the weight of the body of the patient upon the pulley 15 will be sufficient to prevent the movement of the pulley 15 longitudinally upon the supporting member 6 while the cable 28 is being operated for the purpose of raising the carrier. When, however, it is desired to move the carrier longitudinally upon the support 6 the cable 28 is held or secured in the desired position for supporting the patient at the desired height and then the entire device may be moved longitudinally in the desired direction by pulling upon the cable 40. It is also to be understood that this arrangement can be readily
 30 connected to supports of a construction somewhat similar to the sections of the bed and this device used for conveying a patient from one room to another without causing the least exertion or fatigue on the part of the patient.

45 As many changes could be made in the construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that
 50 the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

65 1. A lifting and conveying device for invalid bedsteads, which comprises a main

supporting bar, means for clamping one end of the bar to the head section of a bedstead, telescopic members connected to and between the sides of the foot section of the bedstead, a vertical rod adapted to receive the other
 70 end of the main supporting bar, means for adjustably clamping the rod to the end of the bedstead, and means for adjustably connecting said vertical rod to one of the telescopic members.

75 2. A lifting and conveying device for invalid bedsteads comprising a main supporting bar, means for clamping one end of said bar to the head section of a bedstead, telescopic members engaging the foot section of
 80 said bedstead, each telescopic member comprising a substantially semi-circular jaw having an open outer side, a clamping screw adjustably mounted through one end of each jaw and adapted to firmly engage the legs
 85 of a bed for clamping said telescopic sections in engagement with said foot section of said bedstead, a clamp adjustably mounted upon one of said telescopic sections, and means adjustably engaging said clamp and extending
 90 vertically of said foot section of said bedstead and supporting one end of said main supporting bar above the foot section of said bedstead.

95 3. A lifting and conveying device for invalid bedsteads comprising an adjustably mounted supporting means, a pulley block suspended upon said supporting means, said pulley block comprising a pulley wheel, a patient supporting member, a cable passing
 100 over said pulley wheel and engaging said patient supporting member, said pulley block provided with a socket formed in one side thereof, a transversely movable clutch member fitting within said socket and provided with an upwardly extending lug
 105 formed upon the inner end thereof, a coil spring engaging said lug and fitting within said socket and adapted to normally urge said clutch member inwardly, and means
 110 formed upon the outer end of said clutch member for facilitating the withdrawal of said clutch member to an inoperative position.

115 4. A lifting and conveying device for invalid bedsteads comprising a main supporting member, a pulley block suspended upon said main supporting member, a patient supporting means extended from said pulley block, a cable passing through said pulley
 120 block, a slidably mounted clutch member provided with teeth formed upon the bottom edge thereof engaging said cable, said pulley block provided with a socket formed therein, said socket provided with channel
 125 ways formed in the sides thereof, said clutch member provided with laterally extending ribs working within said channel ways for guiding said clutch member transversely through said pulley block and permitting
 130

said pulley block to firmly engage said lifting cable, said clutch member provided with an upwardly extending foot, a coil spring mounted within said pulley block and engaging said upwardly extending foot for yieldably urging said clutch member in engagement with said lifting cable, and gripping means formed upon said clutch member for facilitating the withdrawal of said clutch member out of engagement with said 10 lifting cable.

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

DR. CLAIRE A. NOLAND.

Witnesses:

W. D. PIPKIN,
JOSEPHINE NOLAND.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."