This invention relates to combined foot and bedcover supports for hospital beds and the like. In beds for sick people, particularly those with foot or leg injuries, it oftentimes becomes desirable to provide, crosswise of the bed, a support member which may be adjusted longitudinally of the bed to satisfy the particular needs of the patient. For example, the patient may have the support member adjusted to touch the soles of his feet so as to offer resistance to the outward thrust of his legs and thereby provide exercise to the injured foot or limb. Or it may be adjusted to support the foot or leg above the general level of the bed. It may also support the bedclothes away from the injury, a feature which may be particularly desirable and necessary with painful injuries. Such support of the bedcovers also provides better access to and better conditions for medication of the injury.

For maximum value such support should be extremely simple in construction and operation so that it may be installed and adjusted by a single individual and without the need for mechanical attitude or training. It should also be adjustable for utilisation of the full length of the bed without interference with or obstruction to other movable parts of the bed. When not in use, it should be easily removable from the bed and capable of being stored as a compact out of the way unit.

Pursuant to the present invention, these and other desirable features have been achieved in a combined foot and bedcover support for beds of the type having side rails of angular cross sectional construction with a downwardly extending portion by providing generally a bracket with upwardly extending supports at the downwardly extending portion of each of the side rails, and across the bed, a foot and bedcover support member with its ends held by the upwardly extending supports so as to permit motion in only a vertical direction.

By providing the bracket with a two sided channel section with the sides projecting upwardly and straddling the downwardly projecting portion of the side rail, an extremely simple and inexpensive clamping and guiding arrangement for bracket adjustment is made possible as well as one which in no way interferes with adjustment of the bedspring in adjustable hospital beds. The clamping arrangement is achieved by the simple expedient of providing thumb or other manually operable screws in one of the sides of the channel section and directed inwardly against the downwardly extending portion of the bed rail.

By turning the screws in the proper direction, the downwardly extending portion of the bed rail is thereby clamped tightly against the other side of the channel section.

By rigidly attaching to the one side of the channel section a pair of substantially parallel members in spaced relation to each other a simple bracket construction is achieved for giving lateral support to the foot and bedcover support member without impairing its vertical freedom of movement. Such vertical freedom of movement permits both easy insertion and removal of the foot and bedcover support member without need for tampering in any way with the bracket setting. It also achieves automatic adaptability of the foot and bedcover support member to adjustments of the bed spring to various reclining positions so as are possible and customary in hospital beds.

By making the other side of the channel section a little shorter than the downwardly projecting portion of the bed rail a guiding relation is thereby established between these members for permitting easy adjustment of the channel section along the rail without changing the perpendicular relation of the downwardly projecting support members to the bed rail.

By making the foot and bedcover support member with a plain surface having an edge of substantially uniform thickness such that it may fit between the sides of the channel section a compact construction for storage is achieved. For storage with this construction requires only the unscrewing of the hand operable screws in the one side of the channel and clamping the bracket over the edge of the foot and bedcover support member in manner similar to that used in clamping to the bed rail. All the components are thereby held firmly together for compact, easy storage with minimum possibility of loss of components. Also the channel section provides a suitable protective shield which makes the foot and bedcover support member less susceptible to injury under rough handling of the assembly for storage.

These and other objects, features and advantages of the invention will become more apparent from the following description taken in connection with the accompanying drawings wherein:

Fig. 1 is a plan view of a bed with the bedcover removed and an embodiment of my invention shown mounted in place across the bed.

Fig. 2 is a side elevation of the arrangement in Fig. 1 and having additionally a cross section of the bedcover in position.

Fig. 3 is an enlarged side view of the bracket.
in my invention shown clamped to the downwardly extending portion of the bed rail which appears in cross section in this view.

Fig. 4 is an enlarged front view of the bracket and section of bed rail in Fig. 3.

Fig. 5 is a front view of the brackets clamped to the foot and bedcover support to form a complete unit for storage.

Fig. 6 is a side view of a portion of the foot and bedcover support and a bracket shown in Fig. 5.

Referring to the drawings in more detail, a bed, designated generally by the numeral 10 (Figs. 1, 2), may be a conventional type hospital bed having bed rails 12 of angular cross sectional construction with a downwardly projecting portion 13 as normally used in such beds and running lengthwise of the bed 10. Resting on the bed rails 12 is a conventional, multisection hospital bed spring 14 supporting a mattress 16 and pillow 18 which may be suitably covered with bed linen in conventional manner. As is customary in hospital beds of this type, cranks 19 are provided to operate through a lever and linkage structure (not shown) to raise and lower selected members of bed spring sections 14, to permit reclining or other desirable positions for a patient occupant. For proper operation of the bed, there must be no obstruction to the movements of the bed spring sections 14 and their lever and linkage system.

Attached to the bed rail 12 at each side of the bed 10 is a bracket 20. Each bracket 20 consists of a channel section 22, a pair of legs 24 and a thumb or other manually operable screw 26. For proper guide relation between the bed rail 12 and the bracket 20, channel section 22 has its inner plate or side 28 (Figs. 3, 6) slightly shorter than the downwardly extending portion of the bed rail 12 so that the bottom of the channel section 22 rides along the bottom edge 30 of the downwardly extending portion 3 of the bed rail 12. The thumb screws 26 have threaded stems 25, engaging threaded holes in the outside plate or side 34 of the channel section 22. The axes of these holes are substantially perpendicular to the side 34 so that by turning the screws 26, the free ends of the threaded stems 32 may be forced against one side of the downwardly extending portion 13 of the bed rail 12 and cause it to be held firmly between the plate or side 28 and the threaded stems 32.

It will be noted that in this clamped position a small space exists between the downwardly extending portion 13 of the bed rail 12 and the plate or side 34 of the channel section 22. This space at the portion of the channel section adjacent the end segment 33, which fixes the bed rail to the upright member at the foot of the bed 10, is preferably of sufficient width to clear the end segment 33 and thereby permit movement of the bracket 20 to the extreme foot of the bed.

The legs 24 may be separate members rigidly fixed to the channel section 22 as by welds 35 while the legs 24 are located substantially centrally of the channel section 22, it may in some instances be desirable to place them off center. For example, the legs 24 may be offset on the channel section 22 in the direction of the foot of the bed to thereby still further increase the amount of bed length available for a patient occupant. Such a construction might be desirable where the patient occupant is too tall for the occupied bed.

The legs 24 are so placed and attached that when the bottom of the channel section 22 rides along the bottom edge 30 of the downwardly extending portion 13 of the bed rail 12, the legs 24 will extend upwardly in substantial parallel and spaced relation to each other so as to form with the channel section 22 a U-shaped member with a rectangular or slot opening 36 (Figs. 4, 5). Resting in the rectangular opening 36 of each of the brackets 20 attached to the bed 10 is the respective end of a foot and bedcover support member 38. The foot and bedcover support member 38 may be made of a light rigid material as wood, and is preferably flat and fitted at its ends to slide vertically in the slot opening 36 in bracket 20. The central portion of the foot and bedcover support member 38 is preferably thicker than the end portions so as to form a shoulder 40 (Figs. 1, 6) at each of its ends. Lateral movement of the foot and bedcover support member 38 is thereby confined by the upwardly extending legs 24.

When the foot and bedcover support member 38 is slid into place in the slot opening 36 of brackets 20 its lower edge 39 comes to rest on the mattress 60. In this position the foot and bedcover support member 38 is preferably of sufficient height to cause its upper edge to extend above the legs 24 of brackets 20 to provide suitable support to a blanket or other bed cover 42 (Fig. 1). The bed cover 44 supports the foot and bedcover support member 38 and brackets 20 will thereby be lifted away from the feet and other lower extremities of a patient occupant in the bed 10.

By the very simple procedure of loosening the thumb screws 26 and sliding the brackets 20 along the bed rails 12, the foot and bedcover support member 38 may be adjusted to any position along the bed to suit the particular desires and needs of the patient. Such a high degree of desirable simplicity is achieved in this operation, that the adjustment may easily be made by a single individual without special mechanical aptitude or training. Also, since the screws are the only working parts there is virtually nothing in the device to malfunction or get out of order. As clearly seen in Fig. 3, no portion of the brackets 20 projects over or under the upper portion of the bed rail 12 or into the lever and linkage system underneath the bed. The bracket 20, therefore, in no way interferes with the proper seating of the bed spring elements 14 onto the bed rails 12 so that all of the bed spring elements may lie flat and evenly in the normal use position of the bed. It will be noted that side 34 of the channel section 22 and the legs 24, by their construction clear the sides of the bed 10 so as to provide no obstruction to up and down movement of the bed spring sections 14. By clearing the sides of the bed 10, the construction of the brackets 20 is such that the mattress may be moved and mattress covers and bed linens may be changed without the necessity of first removing or otherwise tampering with the adjustment of the brackets 20. From the drawings the vertical sliding arrangement of the foot and bedcover support member 38 in the slot opening 36, adjustment of the spring elements 14 may be made to suit the patient without removing the brackets 20 or foot and bedcover support member 38. If, for example, a bed spring available for a patient occupant. Such a construction might be desirable where the patient occupant is too tall for the occupied bed.

In rising in this manner the foot and bedcover support member 38 merely slides in
the slot openings 38. It will nevertheless be held in position by the legs 24 and may continue to be used in this new raised position if desired.

When not in use, the entire foot and bedcover support arrangement may be very simply removed from the bed 10 and stored as a desirably compact, space conserving unit. To remove the foot and bedcover support member 38, it is simply lifted out of the slot opening 38 until it clears the legs 24. The brackets 20 may then be removed by merely loosening the thumb screws 26, whereupon the force of gravity alone will cause the brackets 20 to fall away from the bed 10, so that the channel section 22 is disengaged from the downwardly extending portion 13 of the bed rail 12.

To form a compact unit for storage, the brackets 20 are then mounted on the foot and bedcover support member 38. The channel sections 22 are made to straddle the ends of the foot and bedcover support member 38 in manner similar to its straddling the downwardly extending portion 13 of the bed rail 12. Then by means of the thumb screws 26, the brackets 20 are rigidly fixed to the ends of the foot and bedcover support member as shown in Figs. 5 and 6. This compact combination may then be conveniently stored in a minimum of space. In this compact arrangement, the bracket 20 which is made preferably of such relatively hard and durable material as steel or aluminum also provides physical protection to the foot and bedcover support member as shown in Figs. 5 and 6. This protection is desirable particularly against chipping and other damage which might otherwise result from abusive and rough treatment during transporting and storing of the assembly.

This invention is not limited to the particular details disclosed as equivalents will suggest themselves to those skilled in the art. I therefore intend that my invention be limited only by the appended claims which are to be given a broad interpretation commensurate with the scope of the invention within the art.

What I claim is:

1. A foot and bedcover support for a bed of the type having angular cross sectional bed rail construction with a downwardly extending portion along each of the two sides of the bed, comprising a two sided channel section for positioning at each of the bed rails with the sides disposed upwardly to straddle the downwardly extending portion of the bed rail and to make guiding contact therewith, screw means in one of the sides of each channel section disposed to clamp said downwardly extending portion of the bed rail and the other side of the channel section together, a pair of substantially parallel upwardly extending legs for each channel section rigidly fixed at one end to said one side of each channel section and in spaced relation to each other, and a footboard member of rectangular cross section for placement across said bed and with its ends in said spaces between the upwardly extending legs, the thickness of said footboard member being of a dimension permitting mounting thereon the two sided channel sections in manner similar to mounting on the bed rails to thereby provide a compact unit for storage.

2. In combination, a bed having two ends and two sides; a segmented adjustable bed spring; a mattress on said bed spring; a rail with an angular cross sectional construction at each of said two sides and having horizontally and downwardly extending portions, said downwardly extending portion being at the extreme sides of the bed and said horizontal portion extending inwardly of the bed and providing support for said bed springs; a bracket attached to each of the bed rails, said bracket comprising a two legged channel section with the legs directed upwardly and straddling said downwardly extending portion of the bed rail, the inner of said legs having a height such that the downwardly extending portion of the bed rail makes guiding contact with the channel section, hand operable screws in the outer of said legs disposed inwardly to clamp said inner leg and downwardly extending portion together, and a pair of substantially parallel members rigidly fixed at their lower ends to said outer leg and extending upwardly in spaced relation to each other beyond the side of the bed and above said mattress; and a vertically disposed foot and bedcover support member across said bed and with its ends supported in the space between and in vertically slideable engagement with the respective pairs of parallel members, the thickness of said foot and bedcover support member being of a dimension permitting mounting thereon the two said legged channel sections in manner similar to mounting on said bed rails to thereby provide a compact unit for storage.

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References Cited in the file of this patent

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>738,699</td>
<td>Robertson</td>
<td>Mar. 29, 1904</td>
</tr>
<tr>
<td>920,056</td>
<td>Swenson et al.</td>
<td>July 25, 1911</td>
</tr>
<tr>
<td>2,300,228</td>
<td>Allen</td>
<td>Nov. 3, 1942</td>
</tr>
<tr>
<td>2,547,942</td>
<td>Hinton</td>
<td>Apr. 10, 1951</td>
</tr>
</tbody>
</table>