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Inventor:
John W. Boren,
By: Arthur W. Wilcox
Attorney.

Witness:
E. Camporini

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HOSPITAL BED CONSTRUCTION

John W. Boren, Marinette, Wis.

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8 Claims. (Cl. 5—60)

This invention relates to improvements in hospital bed constructions and more particularly to the bedstead as distinguished from the spring structure thereof, and it consists of the matters hereinafter described and more particularly pointed out in the appended claims.

One of the objects of the present invention is to provide a hospital bed construction, with which certain adjuncts may be associated to make the same universal in its use for hospital purposes.

Another object of the invention is to provide a hospital bed construction whereby one or more standards may be quickly, easily and detachably applied to any of the four corners thereof to sustain intravenous bottles, enema cans, or other adjuncts, thus avoiding the necessity of using standards for this purpose which have floor bases that are relatively heavy, make handling difficult and which occupy floor space adjacent the bed that may be better used for other purposes.

Also, it is an object of the invention to provide a hospital bed construction that includes parts with which the corner posts of an overhead frame may be readily and detachably applied, to properly suspend broken or fractured limbs or even the entire body if necessary.

Furthermore, it is an object of the invention to provide, in a hospital bed construction, means so disposed as to be conveniently grasped by the occupant of the bed to assist in drawing himself or herself from a prone position into a sitting position on the bed.

The above mentioned objects of the invention, as well as others, together with the advantages thereof will more fully appear as the specification proceeds.

In the drawings:

Fig. 1 is a perspective view of a hospital bed construction that embodies one form of the invention and illustrates the same as having a so-called "lee rail" applied to one side of the bed and a bottle or can supporting standard applied to one of the corners of said construction for support in operative position thereon.

Fig. 2 is a view in side elevation of the hospital bed construction shown in Fig. 1 after the "lee rail" and the standard shown in Fig. 1 have been removed therefrom.

Fig. 3 is a view in end elevation of the improved hospital bed construction as viewed from the foot end thereof.

Fig. 4 is a horizontal detail sectional view, on a further enlarged scale, through a part of the improved hospital bed construction as taken on the line 4—4 of Fig. 2.

Fig. 5 is a vertical detail sectional view through parts shown in Fig. 4 as taken on the line 5—5 of said Fig. 4.

Fig. 6 is a view in side elevation of a so-called "lee rail" that may be detachably applied to the improved hospital bed construction at one side or the other thereof, to prevent the occupant from rolling off the bed.

Fig. 7 is a perspective view of a conventional type of so-called "Balkan" frame that may be detachably applied to the improved hospital bed construction for supporting one or more fractured limbs of the occupant of the bed.

Referring now in detail to that embodiment of the invention illustrated in the drawings: 10 and 11 indicate the head end and the foot end respectively of the bed. Both are preferably made of metal tubing.

The head end 10 and the foot end 11 are substantially alike in structure, the head end, however, having a height greater than that of the foot end. Therefore, only one end (the foot end) will be described in detail as to like parts and like parts of the head end will bear similar reference numerals.

The foot end of the bed embodies a pair of laterally spaced upright posts or legs 12 and a top horizontal connecting bar 13 which is preferably offset laterally from a plane passing through said posts. Preferably, said posts or legs are made from a single length of metal tubing bent into an inverted U shape. The bottom end of each post 12—12 is provided with a caster wheel 14.

The foot end 11 further includes a pair of upright stems 15—15, one disposed adjacent each post 12 and disposed in the plane before mentioned. Each stem 15 is curved outwardly at its bottom end to be fixed to the bottom end of the adjacent post 12. To brace the lower portion of the foot end against spreading, a horizontal bar 16 connects the mid portions of said stems 15. To further brace and rigidify the foot end as an open frame, the same also includes a pair of oppositely disposed L-shaped members, each comprising an upright leg 17 and a horizontal leg 18. The major lower portions of the legs 17 and all of the legs 18 are disposed in the plane previously mentioned, as passing through said upright posts or legs 12—12. The upper end of each leg 17 is curved out of its vertical plane to meet and be connected to the cross bar 13 of said foot end. The horizontal leg 18 of each L-shaped member extends toward the adjacent post 12 and is not only fixed thereto but to the associated stem 15.

Also, the horizontal leg of each L-shaped member is connected to the member 16 by a spacer tube 19.

With the arrangement described, and partly due to the offset of the top member 13, the head end and the foot end each provides an open frame structure which is extremely rigid and ably resists any torsion stresses imparted thereto in use so that it cannot be racked or twisted out of shape.

On the upper end portion of each stem 15 above the leg 18 of the adjacent L-shaped member is provided a bracket 21 that coacts with said portion in forming an open top end socket 20 which best appears in Fig. 5. All of said sockets, which may be employed either individually or collectively for a plurality of purposes are disposed in a plane below that of the cross bar 13. One of said purposes for said sockets is to receive a standard forming an adjunct for the bed as will be mentioned in more detail later. Each bracket may also be used for the attachment of a bed spring supporting frame as will appear later. Each bracket is in the form of a vertically disposed plate having one end formed as a sleeve 22 which embraces and is welded to the upper end portion of the stem 15. The joint best appears in Figs. 4 and 5. The bracket 21 is disposed in a plane at a right angle to the plane previously mentioned and is provided in that end opposite the sleeve with horizontally opening bayonet slots 23—23, see Figs. 1 and 2.

The head end 10 of the bed is made substantially the same as the foot end with the exception that it is somewhat higher than the foot end. It has a cross bar 13a at the top (see Figs. 1 and 2) which is offset in a direction inwardly of the bed and toward the foot end as a whole, while the cross bar 13 of the foot end is offset in a direction away from the bed as a whole.

Any approved spring structure, only the frame of which is here shown and is indicated as a whole at 24, may be employed with the ends 10 and 11 in the present instance. Said frame includes side rails 25—25 to act as the spreaders or reach bars between said head and foot ends.

As best shown in Figs. 1 and 2, each end of both side rails 25 of the spring structure frame has a vertically disposed plate 26, attached thereto and each plate is associated with and laps an associated bracket 21 along the inner face thereof as best appears in Fig. 4. Each plate 26 carries a pair of studs 27 arranged to register with and engage in the bayonet slots 23 in the associated bracket 21. Registering openings are provided in the associated brackets 21 and plates 26 respectively, to receive a locking bolt 28 that carries a wing nut 29 on its inner end.

When the two bedstead ends 10 and 11 and bed spring frame structure 24 are disposed in operative position to form the bed, shown in Fig. 1, it is apparent that by the engagement of the plate 26 at each corner of the spring frame structure, with an associated bracket 21, the side rails 25 of the spring frame structure act as reaches between said ends. By reason of the stud and slot arrangement and the locking bolt arrangement between each pair of engaged brackets and plates 21—26, a very substantial and rigid bed structure results, which will not warp or twist out of shape when the bed is in use by a patient or when the bed is being moved about on the casters 14 from one place to another.

It is apparent from Fig. 2 that the axes of the sockets 20 of the head end 10 are disposed in a plane to the rear of the axis of the cross bar 13a. In the foot end, the same arrangement is present.

Often a hospital patient desires to change his or her occupied position upon the bed. To this end the cross bar 13a of the head end is so disposed as to be within reach of the patient for grasping, in pulling himself or herself into a sitting position upon the bed. As to the bar 13 of the foot end, as appears in Figs. 1 and 2, it is to be noted that said bar is disposed in a plane outwardly from the end of the associated spring structure.

When a patient-occupant has a foot or leg injury, said bar 13 prevents visitors or the like from so closely approaching the spring structure as to bump the injured limb, from the foot end of the bed.

In some hospital cases, it is necessary to support injured limbs from above, and this is usually done by the use of an overhead frame. A conventional frame 30 for this purpose, known as a "Balkan" frame, is shown in Fig. 7, when disassociated from the bed as a whole. Such a frame includes pairs of end posts 31 and 32 respectively, with the posts of each pair connected together by cross bars 33—33. These cross bars are connected together by a longitudinal bar 34.

Pulleys or other suitable means (not shown) may be pendently supported from the said bars to receive the limb supporting cables. By reason of the offset of the bars 13—13a, it is apparent that the pairs of posts or standard 31—32 readily pass said bars when they are entered bottom end first into the sockets 20 at the four corners of the bed. When the bottom ends of said posts 31—32 have been engaged in said sockets, they are disposed inwardly of the uprights or legs of the head and foot ends.

Should the patient occupying the bed require an intravenous injection, or the like, the apparatus therefor may be suspended from one of the standards 31—32 when the frame is in position on the bed. Should the fracture frame not be in place upon the bed, then under the conditions above mentioned, a standard 35 such as appears in Figs. 1 and 3 may be applied to that socket 20 which is in the most convenient position for the support of the necessary appliance.

Should the patient require side guards on one or both sides of the bed, a so-called "lee rail" 36 such as shown in Fig. 6 is employed. Such a rail has one or more vertical downwardly facing end extensions 37 spaced apart to register with the pair of sockets 20—20 along the same side of the bed and are merely inserted into the sockets at the said side of the bed as appears in Fig. 1.

When the condition of the patient is such as not to require the use of a fracture frame 30, standard 35 or "lee rail" 36 on the bed, the sockets 20—20 may be closed by a cap (not shown) for the sake of appearance.

From the above, it is apparent that the bed structure described is of a universal character, because almost any condition required in a hospital bed is ably accommodated.

While in describing the invention, I have referred in detail to the form, arrangement and construction of the parts involved, the same is to be considered only in the illustrative sense so that I do not wish to be limited thereto except as may be specifically set forth in the appended claims.

I claim as my invention:

1. A hospital bed construction embodying therein head and foot ends, each including upright side portions and a top connecting portion, a post-like member spaced inwardly from and

fixed to each side portion of each of said ends, a plate-like member fixed to each post-like member and each adapted to receive a part of a bed spring supporting structure, at least one of said plate-like members being formed to provide an upwardly opening socket adapted to receive a part of an adjunct for the bed.

2. A hospital bed construction embodying therein a head end and a foot end and bed spring supporting means between said ends and spacing them apart, one of said ends including laterally spaced uprights, a member spaced inwardly of and arranged in the plane of both uprights and fixed at the top and bottom to and supported by an associated upright, and means carried by the upper end of each member and each including a part providing an upwardly opening socket to receive a part of an adjunct for the bed and each also including another part that extends toward the other end of the bed and is operatively engaged by an associated part of the bed spring supporting means for the support thereof.

3. A hospital bed construction embodying therein a head end and a foot end and bed spring supporting means between said ends and spacing them apart, each end including laterally spaced uprights, members spaced inwardly of and arranged in the plane of both uprights, one adjacent each upright, and respectively fixed to and supported by an adjacent upright and means carried by the upper end of each member and each including a part providing an upwardly opening socket to receive a part of an adjunct for the bed and each including another part that extends toward the other end of the bed and is operatively engaged by an associated part of the bed spring supporting means to support the same.

4. A hospital bed construction embodying therein a head end and a foot end and bed spring supporting means between said ends and spacing them apart, said ends being of an open frame construction and each including upright side posts and a top connecting member, a post-like member spaced laterally inwardly from each side of each end, means connecting the side posts and top connecting member of each end together and to the associated post-like members thereof, a member fixed to the upper end of each post-like member and providing an upwardly opening socket below said top member of the associated end and which sockets are each adapted to receive a part of an adjunct for the bed, and each of said members including a portion extending toward and engaging an associated part of the bed spring supporting means to support the same.

5. An end for the bedstead of a hospital bed including laterally spaced upright posts and a member connecting upper portions of said posts together, an upright member associated with each post and disposed substantially in the plane of said posts and each fixed at its bottom end to an associated post, means connecting the mid portions of said posts together, and to the associated upright member and also connected to said first mentioned member, and means providing an upwardly opening socket at the top end of each upright member for receiving a part of an adjunct for the bed, each of said last mentioned means including a part to operatively engage a part of a bed spring supporting means.

6. An end for the bedstead of a hospital bed including laterally spaced upright posts and a member connecting upper portions of said posts together, an upright member associated with each post and disposed substantially in the plane of said posts and each fixed at its bottom end to an associated post, means connecting the mid portions of said posts together and to the associated upright member and also connected to said first mentioned member, and a bracket-like member formed with a sleeve part and a flange part associated with each upright member, with said sleeve part embracing a part of the associated upright member and extending above the same to form an upwardly opening socket thereon, the flange part of each bracket-like member extending in a plane at a right angle to the plane of the upright posts and being formed for attachment to a part of a bed spring supporting means.

7. An end member for a hospital bed embodying therein an inverted U-shaped structure comprising upright side posts and a top connecting member disposed in a plane laterally of the plane of said posts, an upright member spaced laterally inwardly of each post and fixed at its bottom end thereto, a brace connecting the mid portions of said upright members together, members fixed to said top connecting member and extending downwardly therefrom and then laterally to be fixed to said brace and to said posts and upright members respectively, and means fixed to the upper end of each upright member and extending above the top thereof to there form an upwardly opening socket, adapted for supporting engagement with a part of a bed spring structure.

8. An end member for a hospital bed embodying therein an inverted U-shaped structure comprising upright side posts and a top connecting member disposed in a plane laterally of the plane of said posts, an upright member spaced laterally inwardly of each post and fixed at its bottom end thereto, a brace connecting the mid portions of said upright members together, members fixed to said top connecting member and extending downwardly therefrom and then laterally to be fixed to said brace and to said posts and upright members respectively, and means fixed to the upper end of each upright member and extending above the top thereof to there form an upwardly opening socket adapted for supporting engagement with a part of a bed spring structure, each of said last mentioned means including an upright flange-like part arranged at a right angle to a plane passing through said posts and formed for supporting engagement with a part of a bed spring structure.

JOHN WM. BOREN.