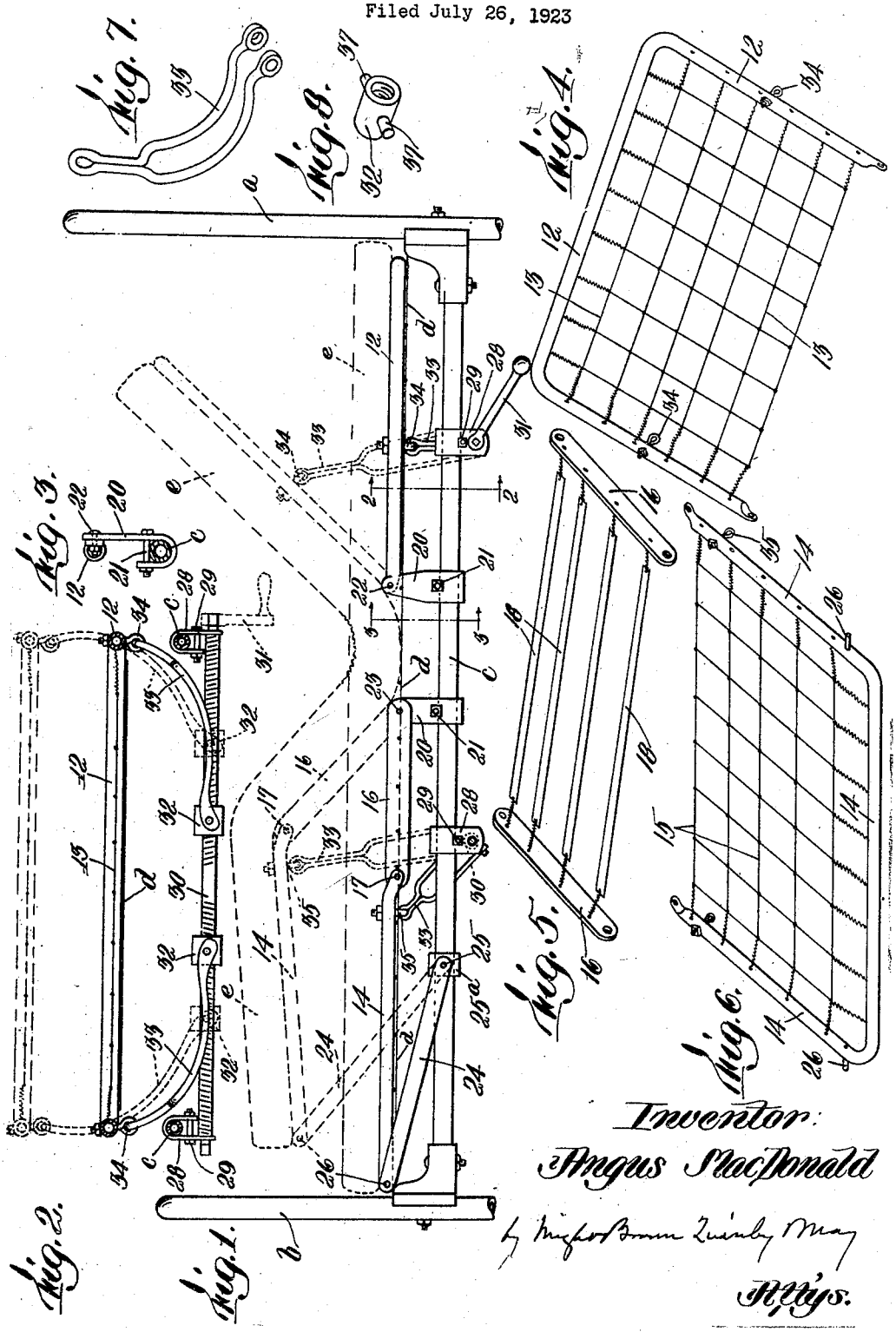
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HOSPITAL BED

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HOSPITAL BED.

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To all whom it may concern:

Be it known that I, ANGUS MACDONALD, a citizen of the United States, residing at Melrose, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Hospital Beds, of which the following is a specification.

This invention relates to mattress-adjusting means applicable to an ordinary type of hospital bed, and including an auxiliary mattress-supporting spring bottom, adapted to lie flat on and supplement the mattress-supporting action of the primary spring bottom of an ordinary bed, when the mattress is to be supported horizontally, and to be adjusted at an angle to the primary bottom to support a portion of the mattress in an inclined position.

One object of the invention is to provide a mattress-adjusting means composed of a plurality of sections, each adapted to support a different portion of a mattress, the sections being adapted to be differently inclined and impart to the mattress a form approximating that of a reclining chair, without interposing anything rigid or unyielding between the mattress and the primary spring bottom.

Another object is to provide simple, convenient, and relatively inexpensive manually operable means for adjusting an auxiliary mattress-supporting section or sections, and holding the same at various inclinations.

I attain the above-mentioned and other related objects by the improved construction hereinafter described and claimed.

Of the accompanying drawings forming a part of this specification,—

Figure 1 is a side elevation, showing an ordinary hospital bed including the usual primary spring bottom and auxiliary mattress-supporting and adjusting means embodying the invention,

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a partial section on line 3—3 of Figure 1.

Figures 4, 5 and 6 are perspective views, showing separately the sections of the auxiliary supporting and adjusting means shown by Figure 1.

Figures 7 and 8 are perspective views, respectively, of one of the nut-operated links hereinafter described, and of the nut with which the link is engaged.

The same reference characters indicate the same parts in all the figures.

a designates the head portion, *b* the foot portion, and *c* the longitudinal side bars comprising the chief portions of the frame of an ordinary hospital bed. *d* designates the usual horizontal spring bottom supported higher than the side bars, and supporting the mattress.

A complete auxiliary mattress-supporting and adjusting means in which my invention is embodied, includes a plurality of sections, each comprising a spring bottom adapted to lie flat on the primary bottom *d* and supplement the mattress supporting action thereof, and to be inclined relative to the primary bottom, the sections being adapted to be differently inclined, so that the mattress *e* may be supported thereby in approximately the form of a reclining chair, as shown by dotted lines in Figure 1.

The sections include a head end section, preferably composed of a three-sided rigid frame portion 12, and a spring bottom 13, supported by the frame, a foot end section, preferably composed of a three-sided rigid frame portion 14, and a spring bottom 15 supported by the frame, and an intermediate section, preferably composed of spaced apart rigid portions 16, 16, jointed at 17 to the ends of the frame 14, and a spring bottom 18, extending between the rigid portions.

Each of the head and foot end sections is rigid at three edges, and resilient at the fourth edge. The intermediate section is rigid at two opposite edges and resilient at the other two edges. When the sections lie flat on the primary bottom *d*, the rigid portions of the sections are outside the area which supports the mattress, so that the sections have no rigid portions immediately under the mattress. The spring bottoms 13, 15 and 18 of the sections, therefore supplement the mattress-supporting action of the primary bottom, without opposing the yielding of the mattress at any point.

I provide hinge connections between the ends of the rigid frame 12 of the head end section, and the side bars *c*, and like connections between the rigid portions 16 of the intermediate section and the said bars, whereby the said sections are adapted to be inclined relative to the primary bottom *d*. Said connections are preferably provided by two pairs of hinge brackets, each composed

of a metal strip or yoke 20, bent to bestride a bar *c*, and a bolt 21 passing through the arms of the strip above the bar, and bearing on the upper side thereof. Each bracket projects above the bar to which it is attached. The brackets of each pair are spaced from those of the other pair as shown by Figure 1. The brackets of one pair are pivoted at 22 to the ends of the frame 12 of the head end section. The brackets of the other pair are pivoted at 23 to the rigid portions 16 of the intermediate section.

When the intermediate section is inclined, the foot section is raised, as shown by dotted lines in Figure 1, by the intermediate section and by links 24, connected by pivots 25 to the side bars *c*, and by studs 26 to one end of the foot section. The pivots 25 may be formed on sleeves 25ª, adapted to be detachably clamped on the side bars *c*. The arrangement is such that the foot end section, which is horizontal when lowered, assumes a gentle inclination in rising, its higher end being raised more than its lower end.

To adjust the sections I provide manually operable mechanism, preferably organized as next described.

Fixed to and projecting downward from the side bars *c*, are two pairs of bearing brackets, each composed of a metal strip or yoke 28, bent to bestride a bar *c*, and a bolt 29 passing through the arms of the strip below the bar. In the brackets of each pair is journaled a transverse shaft 30, having oppositely threaded end portions, as shown by Figure 2, and squared ends adapted to be engaged and rotated by a crank 31. With the threaded portions of the shaft 30 are engaged nuts 32 which are moved simultaneously in opposite directions on the shaft when the latter is rotated. The nuts on the shaft 30, nearest the head end, are connected by links 33 with eyes or hooks 34 on the frame 12 of the head end section. The nuts on the shaft nearest the foot end are connected by similar links 33 with eyes or hooks 35, on the frame of the foot end section.

It will now be seen that the head end section may be adjusted by rotating one of the shafts 30, and held at any adjustment by that shaft, the nuts 32, and the links 33. The foot end and intermediate sections may be adjusted by rotating the other shaft 30, and similarly held at any adjustment. The links 33 are preferably bifurcated and curved, as shown by Figure 7, the ends of their bifurcations engaging studs 37 on the nuts 32. The curvature of the links is such that they are adapted to extend and move across the opposite longitudinal edges of the primary spring bottom *d*, without touching the same when the nuts are moved outward, as indicated by dotted lines in Figure 2.

It is obvious that the head end section and its adjusting means may be used without the other sections, and that the foot end and intermediate sections, and the adjusting means therefor, may be used in a bed having a head end section and adjusting means therefor differently organized.

The spacing of one pair of hinge brackets 20 from the other pair is such that the primary spring bottom *d* has an interlying portion between the pairs, forming a yielding support between the head end section and the intermediate section, for the hips of the occupant of the bed.

It will be seen that the application of the described auxiliary mechanism to an ordinary hospital bed does not require adaptation or alteration of the bed frame, the brackets 20 and 28, and the pivot-supporting sleeves being adapted to be clamped detachably upon the usual side bars *c*.

I claim:

1. The combination with a hospital bed which includes a frame having longitudinal side bars and a primary mattress-supporting spring bottom, supported higher than the side bars; of auxiliary mattress-supporting and adjusting means comprising two pairs of hinge brackets detachably secured to and projecting above the side bars, the brackets of one pair being so spaced from those of the other pair that the primary spring bottom has an interlying portion between the pairs of brackets, a head end section adapted to yieldingly support the head end of a mattress and including a three-sided rigid portion jointed to one pair of hinge brackets; a foot end section adapted to yieldingly support the foot end portion of the mattress and including a three-sided rigid portion; an intermediate section adapted to yieldingly support an intermediate portion of the mattress and including two spaced apart rigid portions jointed to the foot end section and to the other pair of hinge brackets, each of said sections being free from rigid portions under a mattress supported thereby; links pivoted to the foot end section and to the side bars; and manually operable mechanism for adjusting said sections, the arrangement being such that the head, foot and intermediate sections may be inclined and held at different angles to impart a chair-like form to the mattress, and may be adjusted to bear simultaneously on the said primary bottom to supplement the action of the latter in supporting the mattress horizontally, while the said interlying portion forms a fourth section between the head end and intermediate section, for the support of the hips of the occupant of the bed.

2. The combination with a hospital bed which includes a frame having longitudinal side bars and a primary mattress-supporting spring bottom, supported higher than the

side bars; of auxiliary mattress-supporting and adjusting means comprising two pairs of hinge brackets, detachably secured to and projecting above the side bars; a head end section adapted to yieldingly support the head end portion of a mattress and including a three-sided rigid portion jointed to one pair of hinge brackets; a foot end section adapted to yieldingly support the foot end portion of the mattress and including a three-sided rigid portion; an intermediate section adapted to yieldingly support an intermediate portion of the mattress, and including two spaced apart rigid portions jointed to the foot end section and to the other pair of hinge brackets above the side bars; links pivoted to and connecting the foot end section and the side bars; two pairs of bearing brackets detachably secured to and projecting below from the side bars; two transverse shafts oppositely screw-threaded and journaled in the bearing brackets below the side bars; nuts engaged with said shafts and movable simultaneously in opposite directions by the rotation thereof; a pair of links pivoted to the nuts of the said shafts and to the head end section; and a pair of links pivoted to the nuts of the other shaft and to the foot end section, the links of each pair being formed and arranged to extend and move endwise across the opposite longitudinal edges of the primary spring bottom.

3. The combination with a hospital bed which includes a frame having longitudinal side bars and a primary mattress-supporting spring bottom, supported higher than the side bars; of auxiliary mattress-supporting and adjusting means comprising a pair of hinge brackets detachably secured to and projecting above the side bars; a foot end section adapted to yieldingly support the foot end portion of a mattress and including a three-sided rigid portion; an intermediate section adapted to yieldingly support an intermediate portion of the mattress and including two spaced apart rigid portions jointed to the foot end section and to the said hinge brackets above the side bars; links pivoted to and connecting the foot end section and the side bars; two bearing brackets detachably secured to and projecting below the side bars; a transverse oppositely threaded shaft journaled in the bearing brackets below the side bars; two nuts engaged with said shaft and movable simultaneously in opposite directions by the rotation thereof; and a pair of links pivoted to said nuts and to the foot end section, said links being formed and arranged to extend and move endwise across the opposite longitudinal edges of the primary spring bottom.

In testimony whereof I have affixed my signature.

ANGUS MacDONALD.