

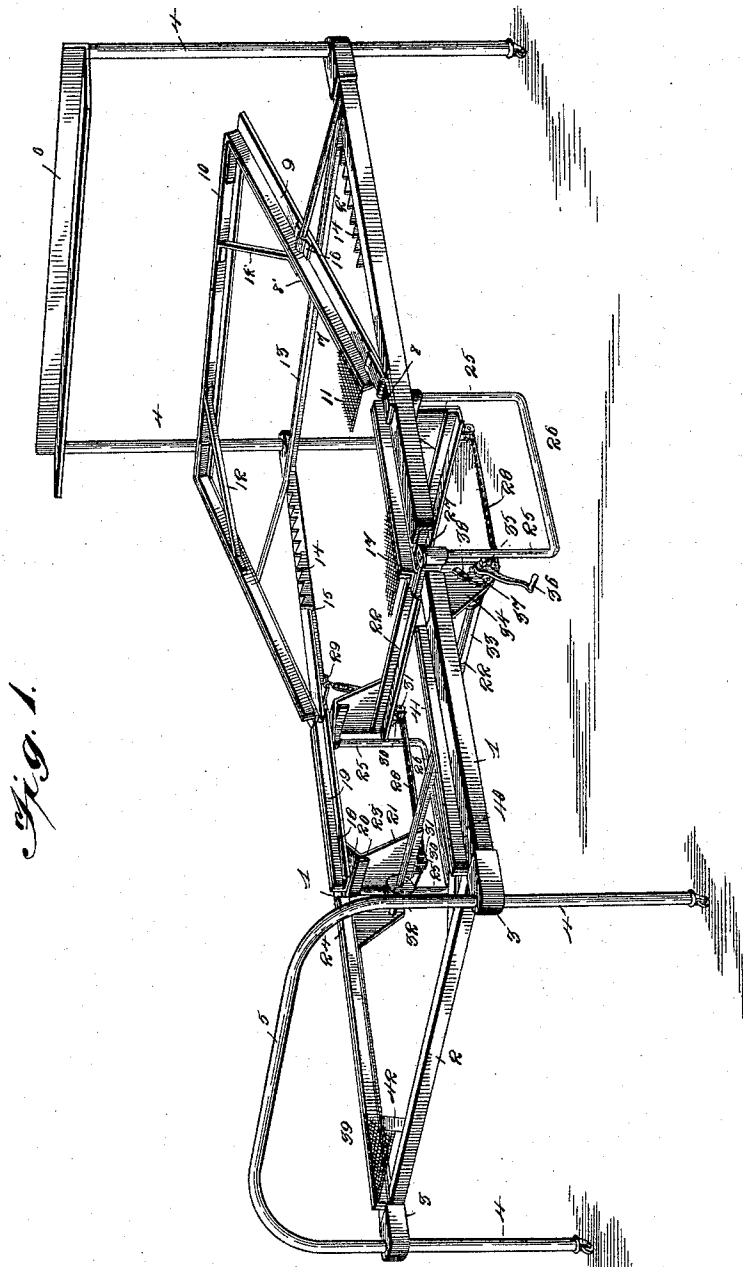
(No Model.)

2 Sheets—Sheet 1.

H. A. AMES.
INVALID'S BED.

No. 585,646.

Patented July 6, 1897.



WITNESSES
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

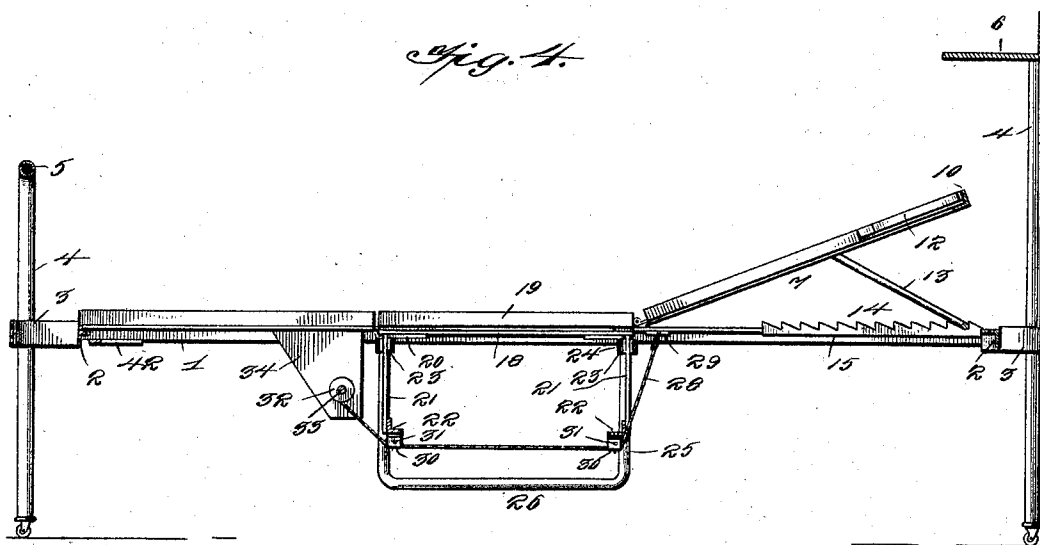


Fig. 6.

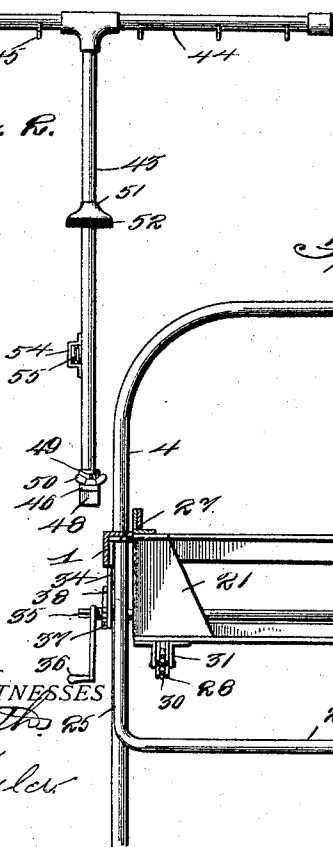
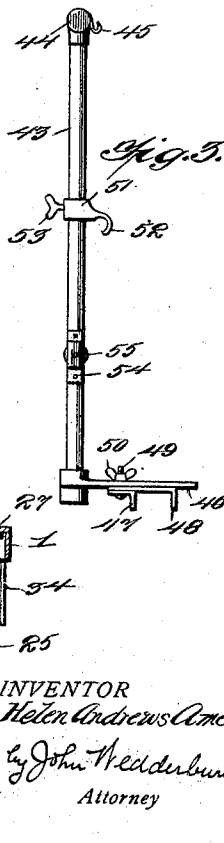


Fig. 5.



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UNITED STATES PATENT OFFICE.

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INVALID'S BED.

SPECIFICATION forming part of Letters Patent No. 585,646, dated July 6, 1897.

Application filed January 7, 1897. Serial No. 618,305. (No model.)

To all whom it may concern:

Be it known that I, HELEN ANDREWS AMES, a citizen of the United States, residing at Brookline, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Invalids' Beds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to invalid-beds.

The principal object of the present invention is to provide a sectional cot or bed in which the central portion or section thereof is made depressible, so that it can be raised or lowered for the purpose of facilitating the changing of the bed-clothing and in order to provide for the application of suitable trays, pans, or vessels of any sort and description of varying sizes for washing, dressing, or otherwise treating a patient.

A further object of the invention is to so construct the top or bed frame that the head portion thereof may be inclined at an angle to serve as a back and head rest when it is desired to have the patient assume an inclined or sitting position.

Another object of the invention is to provide a removable attachment by means of which vessels or water-bags may be suspended at an elevation, the said device being also useful for supporting and stretching fractured limbs.

Other objects and advantages of the invention will appear in the course of the subjoined description.

The invention consists in an improved invalid-bed embodying certain novel features and details of construction and arrangement of parts, as hereinafter particularly set forth, illustrated in the drawings, and incorporated in the claims hereto appended.

In the accompanying drawings, Figure 1 is a perspective view of an invalid-bed constructed in accordance with this invention, the parts thereof being broken away to better illustrate the construction. Fig. 2 is a front elevation of the removable attachment for suspending vessels, slings, &c. Fig. 3 is a side elevation of the same. Fig. 4 is a longitudinal section through the bed. Fig. 5 is a cross-section through the same.

Similar numerals designate corresponding parts in the several figures of the drawings.

The improved bed is constructed wholly of metal and in such a simple manner as to be thoroughly hygienic, being accessible at all points for facilitating the thorough cleansing thereof. The main frame of the bed is rectangular in form, comprising the longitudinal bars 1 and the head and foot end bars 2. These several bars are formed of angle-iron, being L-shaped in cross-section, the longitudinal side bars 1 being so disposed as to have upper horizontal flanges and depending vertical flanges extending downward from the outer edges of the horizontal portions, while the end bars 2 have their horizontal flanges bolted, riveted, or otherwise secured to the under side of the horizontal flanges of the side bars. The rectangular frame is provided at its four corners with sockets 3, through which pass the standards 4, forming the legs of the bed. The legs at the foot of the bed are preferably formed in one piece with the top foot-rail 5, said rail and the legs forming a U-shaped frame which may be made of tubing or solid, as preferred. The legs 4 at the head of the bed may be connected by a suitable head-board 6, having a shelf for the reception of various articles used in treating the patient.

7 designates the adjustable head portion of the bed, which is in the form of a substantially U-shaped or three-sided frame, connected to the side bars 1 of the bed-frame by means of strap-hinges 8, one on each side of the bed, said hinges being secured to horizontal flanges of said side bars. This head-frame is also composed of angle-irons and these are connected by means of metal straps 8', extending along the inner sides of the side bars 9 of the head-frame, and having their ends bent and riveted or otherwise united to the inner surface of the head-bar 10 of said frame, the straps 9 also serving to secure the side edges of a section of the meshed-wire fabric or woven wire, (indicated at 11.) The head-frame 7 is also strengthened by means of corner-braces 12 and is adjusted and held at any angle by means of a

U-shaped support or prop 13, the central portion of which engages upwardly-projecting teeth 14 on angle-bars 15, the horizontal flanges of which extend under the similar flanges of the side bars 1 and are united rigidly thereto. The teeth 14 project above the plane of the side bars 1, so as to engage the prop 13 and the terminal portions of said support or prop which extend at right angles to the central or connecting portion and have their bearings 16 secured to the horizontal flanges of the head-frame. By means of this construction the head-frame may be adjusted to any angle whatever for giving to the patient an inclined position or an upright or sitting position. This head-frame supports one of the mattress-sections, the mattress being composed of three sections—viz., the head-section, the foot-section, and an intermediate or central section.

The central section of the mattress rests upon a woven-wire support 17, which is stretched between the vertical flanges of angle-bars 18 and held thereto by means of metal straps 19. To the end portions of the horizontal flanges of the bars 18 are secured the horizontal flanges 20 of gusset-plates 21, and to the lower edges of said plates are secured the opposite ends of transverse parallel angle-irons 22, thus forming a rectangular frame, the transverse bars of which are located a considerable distance below the longitudinal bars 18, sufficient to provide for the greatest possible sagging of the woven-wire support 17 under the weight of the patient. This central frame is adapted to have a vertical movement only, all transverse or longitudinal movement being prevented by means of metal straps 23, folded centrally upon themselves and having their terminal portions embracing the plates 21 on opposite sides and secured rigidly thereto. The central portions of said straps are bent to form sleeves 24, which embrace spaced vertical rods or guides 25, connected at their bottoms by horizontal longitudinal rods 26.

The rods 25 and 26 may be either solid or tubular, and the upper ends of the rods 25 are screw-threaded and inserted in internally-threaded sockets 27, secured to the under side of horizontal flanges of the side bars 1 of the bed-frame. The central frame is adapted to move up and down and to be guided by the rods 25, and motion is imparted to the central frame by means of chains 28, arranged one at each side of the bed and each attached at one end to an inwardly-projecting plate or bracket 29 secured to one of the side bars 1. Each of said chains 28 passes beneath a pair of sprocket-wheels 30, journaled in brackets 31, secured to the under side of the central frame, preferably to the ends of the transverse bars 22 thereof. The opposite end of each chain 28 to that which is attached to the bracket 29 passes over and is secured to a drum 32, on one end of a rev-

oluble shaft 33, journaled in bearing-plates 34, secured to the side bars 1 and forming a windlass. At one or both ends this shaft is extended and has its ends squared, as indicated at 35, to receive a detachable crank 36 by which the shaft may be rotated. Said shaft is also provided at one or both ends with a ratchet-wheel 37 fast thereon, and engaged by a pawl or detent 38, which serves to uphold the central frame at any desired elevation. By means of the crank 36 the central frame may be raised or lowered for the purpose of changing the bed-clothing or placing pans or vessels thereon or removing the same.

The foot-section of the woven-wire fabric (indicated at 39) is secured to the angle-bars 40, united to the side bars 1 of the bed-frame, and held by means of longitudinal bars or straps 41, said fabric being adapted to support the foot-section of the mattress, bed-clothes, &c. Corner-braces 42 are also provided at the foot of the frame for stiffening the connection between the longitudinal bars 1 and end bars 2.

Referring to Figs. 2 and 3, 43 represents a vertical standard, either solid or tubular, as may be preferred, provided at its upper end with a cross-bar 44, extending upon both sides thereof and provided with a series of hooks 45 for the attachment of water-bags, slings, &c. This T-shaped frame is adapted to be detachably connected to the foot of the bed hereinbefore described, and for that purpose it is provided at its lower end with a forwardly-extending bracket or arm 46, rigidly connected to the bar 43 and having applied to its under side opposing jaws 47 and 48 for embracing the foot-rail 2 of the bed. The jaw 47 consists of an L-shaped piece of metal having a depending portion forming the jaw proper, and a horizontal portion through which passes a threaded bolt 49, upon the upper end of which is placed a thumb-nut 50. The other jaw is also L-shaped, and its horizontal portion is longitudinally slotted for the passage of the bolt 49 and is inserted between the jaw 47 and the arm 46, so as to be clamped by means of the thumb-nut 50. In attaching this device to the bed the jaws 47 and 48 are caused to embrace the end bar or rail 2 upon opposite sides and are firmly clamped against the same. Intermediate its ends the bar 43 is provided with a sliding clip 51 in the form of a collar or sleeve, embracing said bar and provided with spaced laterally-projecting hooks 52 for engaging over the top foot-rail 5 above referred to. This clip, when brought to the desired point on the bar 1, may be held fast by means of a thumb-screw 53. Intermediate the clip 51 and the arm 46 the bar 43 is provided with a bail-shaped bracket 54, in which is journaled a grooved pulley 55, around which may pass a rope or other flexible connection, by means of which a fractured limb may be stretched.

From the foregoing description it will be

seen that the bed comprises three independent sections, or, in other words, that the mattress is made in three sections, and that one of said sections may be adjusted as to its angle for giving to the patient a reclining or erect position and another or central section raised or lowered in order to facilitate the treatment of the patient. This enables pans, trays, and other articles to be placed near the patient in the treatment of said patient, and also facilitates the changing of the bed-clothing wholly or in part. At the same time adequate support is provided for the patient when the central frame is lowered.

15 The improved invalid-bed above described is simple in construction, and by reason of its being composed entirely of metal is thoroughly hygienic and will not carry contagion. It also economizes in the use of bed-linen, as it is necessary to remove only the central portion thereof, which may be done without disturbing the head or foot of the bed, the said linen being preferably in the form of slips or cases, which may be applied to the sections of the mattress in a manner similar to ordinary pillow cases or slips.

It will be understood that the several parts of the improved bed are susceptible of changes in the form, proportion, and minor details of construction which may be accordingly resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed as new is—

1. The combination with a bed-frame, of a vertically-movable auxiliary frame for carrying a section of the mattress or bed-bottom, a wheel journaled on the auxiliary frame, a chain passing under said wheel, a transverse shaft for winding said chain, and means for rotating said shaft whereby the auxiliary frame may be raised and lowered, substantially as described.

2. The combination with a stationary bed-frame, of a movable auxiliary frame for carrying a section of the mattress or bed-bottom, a sprocket-wheel on said auxiliary frame, a revoluble shaft, a chain adapted to be wound on said shaft and passing under the sprocket-wheel, a ratchet-wheel on said shaft, a detent engaging therewith, and means for operating said shaft, substantially as described.

3. In an invalid-bed, the combination with the bed-frame proper, of an intermediately-located and vertically-movable auxiliary frame, spaced U-shaped guide-frames depending from the under sides of the longitudinal side bars of the bed-frame, spaced sleeves carried by said auxiliary frame and embracing the vertical portions of said guide-frames, and a chain and windlass whereby

said auxiliary frame may be raised and lowered, substantially as described.

4. In an invalid-bed, the combination with the bed-frame proper, of an intermediately-located and vertically-movable auxiliary frame carrying a movable section of the mattress or bed-bottom, wheels journaled on the under side of said auxiliary frame, a chain passing under said wheels and secured at one end to the bed-frame in about the horizontal plane of the bed-frame proper, a transverse shaft journaled in bearings attached to the bed-frame and having a drum mounted thereon and adapted to wind said chain upon it, and means for rotating said shaft, whereby said auxiliary frame is raised or lowered, substantially as described.

5. In an invalid-bed, the combination with the stationary bed-frame, of an intermediately-located and vertically-movable auxiliary frame carrying a section of the mattress or bed-bottom, sprocket-wheels journaled on the under side of said auxiliary frame, a revoluble shaft extending transversely of the bed-frame and journaled therein, a chain winding upon said shaft and passing beneath said sprocket-wheels and attached at its end to a fixed point on the bed-frame, a ratchet-wheel fast on said shaft, a detent engaging therewith, and a detachable crank fitted upon the end of said shaft, all arranged for joint operation, substantially as described.

6. An invalid-bed comprising a transversely-divided or sectional bed-bottom, the head-section of which is pivoted and provided with means whereby it may be held at any desired angle, and an intermediate or central section made adjustable up and down, and a chain and windlass for raising and lowering said intermediate section and holding the same at any desired elevation, substantially as described.

7. An attachment for invalid-beds comprising a substantially T-shaped frame consisting of a vertical standard and a horizontal cross-bar at the upper end thereof, hooks on said cross-bar for the attachment of various articles, an adjustable clamp at the lower end of said standard, a clip having spaced hooks and slidingly mounted on said standard, means for holding said clip fixed to the standard, and a grooved pulley located intermediate the ends of said standard, substantially as and for the purpose described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HELEN ANDREWS AMES.

Witnesses:

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WALTER N. BUFFUM.