

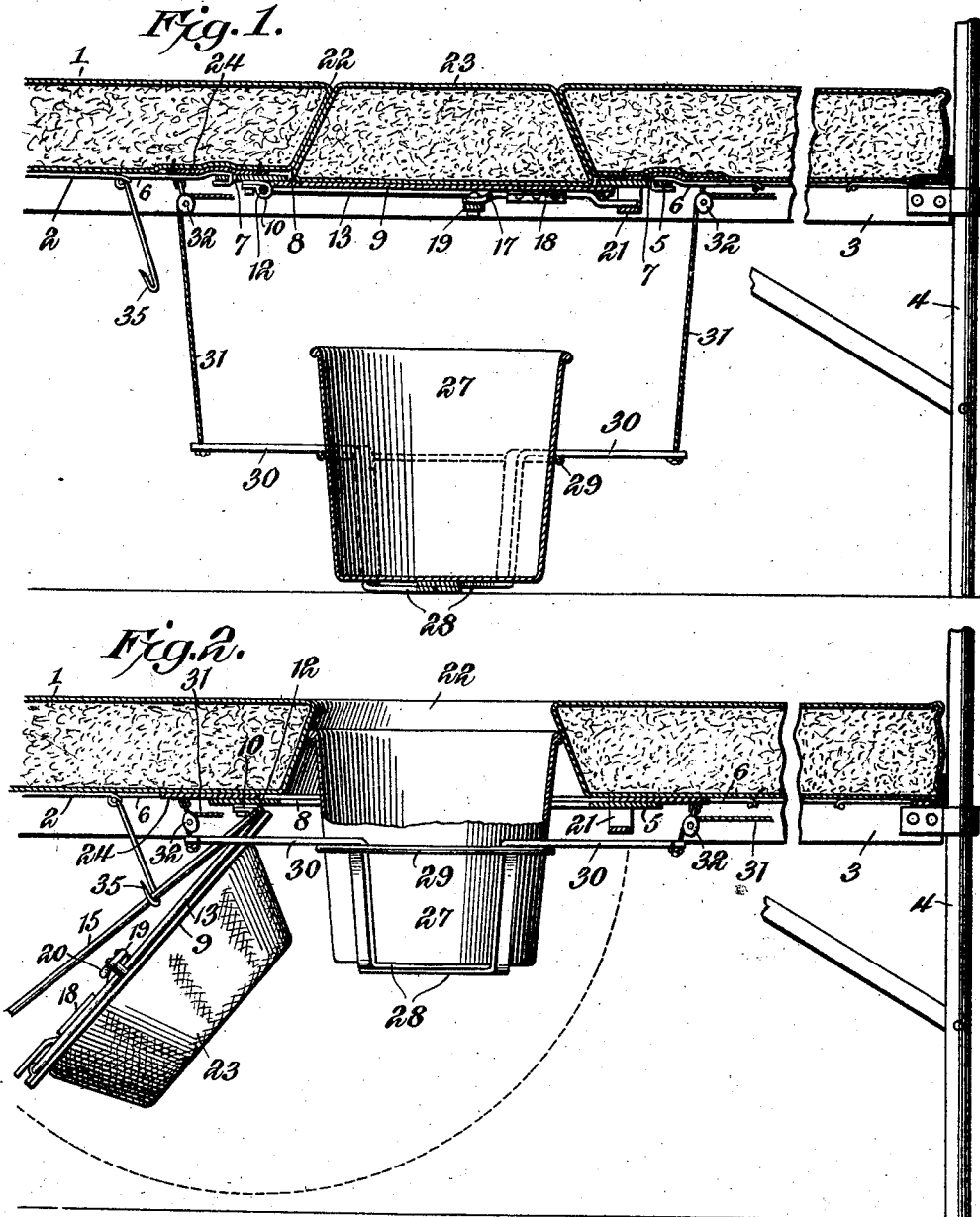
J. J. HENDERSON.
INVALID BED.

APPLICATION FILED MAY 18, 1917.

1,307,668.

Patented June 24, 1919.

2 SHEETS—SHEET 1.



J. J. Henderson, INVENTOR,

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

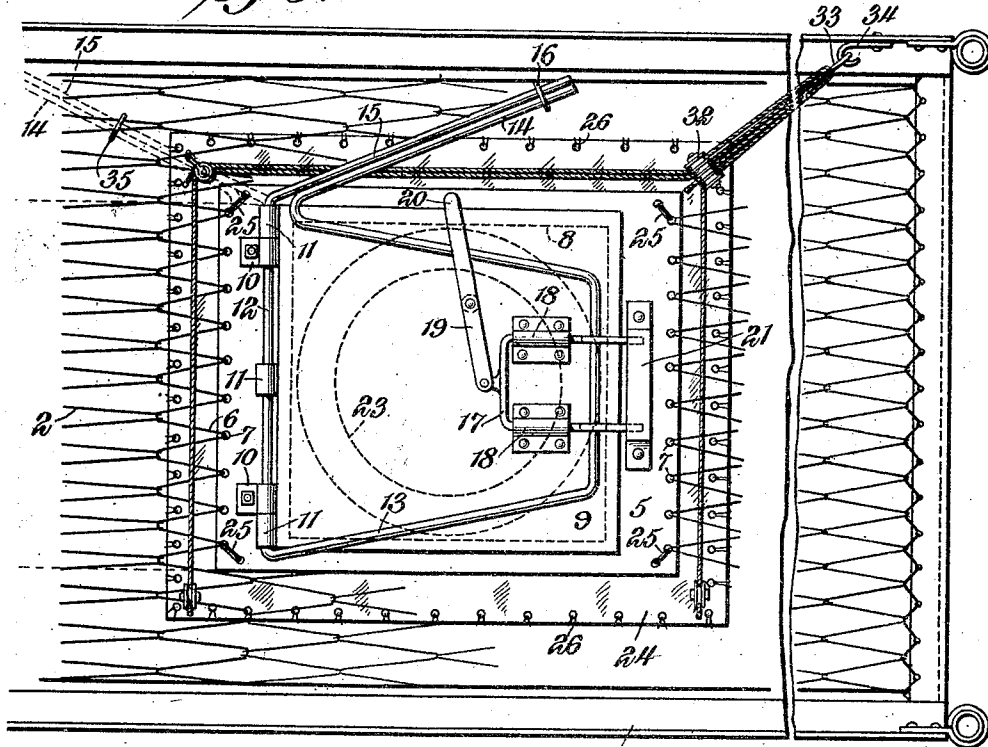


Fig. 4.

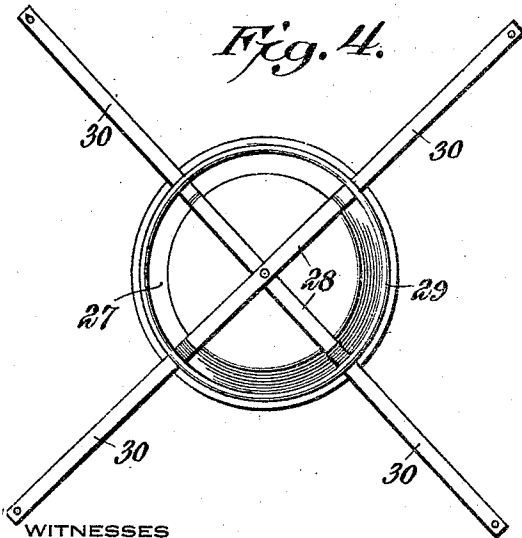
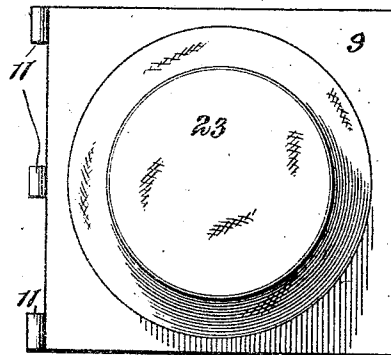


Fig. 5.



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JOHN JAY HENDERSON, OF TOPEKA, KANSAS.

INVALID-BED.

1,307,668.

Specification of Letters Patent. Patented June 24, 1919.

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To all whom it may concern:

Be it known that I, JOHN JAY HENDERSON, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented a new and useful Invalid-Bed, of which the following is a specification.

This invention has reference to invalid beds and its object is to provide means whereby access may be had through a mattress on the bed, with the mattress supported upon springs, to a vessel below the mattress, and when the vessel is not in use the supporting surface of the mattress is restored to its original condition, wherefore the patient is not in any way discommoded by uneven support despite the fact that a considerable section of the mattress may be bodily removed therefrom. The arrangement is such that parts to be manipulated may be readily reached from one side of the bed, and the full thickness of the mattress is utilized for supporting purposes, while the patient is enabled to rest easily, since even when the removable section is in its normal position in the mattress, all parts are spring supported.

The invention will be best understood from a consideration of the following detailed description, taken in connection with the accompanying drawings forming part of this specification, with the further understanding that while the drawings show a practical form of the invention, the latter is not confined to any strict conformity with the showing of the drawings, but may be changed and modified so long as such changes and modifications come within the scope of the appended claims.

In the drawings:—

Figure 1 is an upright section through the portion of the bed embodying the invention, showing the mattress opening closed and the vessel lowered.

Fig. 2 is a similar section showing the removable mattress section to one side and the vessel raised.

Fig. 3 is an inverted plan view of the structure shown in Fig. 1 with the vessel and carrier omitted.

Fig. 4 is a bottom plan view of the vessel and the carrier.

Fig. 5 is a top plan view of the removable mattress section and the door structure carrying it.

Referring to the drawings there is shown a mattress 1 supported upon springs 2 indi-

cated as of the link fabric type, but it is to be understood that the invention is susceptible of use with other types of springs, wherefore the showing of the drawings is to be taken as indicative of any form of springs which may be adopted. Furthermore, there is shown in the drawings a bed frame 3 including legs 4 all of which may conform to the usual practice in invalid beds.

At an intermediate point in the length and width of the springs, or at any other desired point, a section of the springs is cut away and the edges of the cut away portion are made fast to a frame 5 which may be a metallic frame preferably of flat material of sufficient gage for the purpose. The frame is indicated as a rectangular frame of suitable size and shape, and while a rectangular and approximately square frame is found to be preferable, such frame may be of other shapes than rectangular. The spring 2 has the edge portions surrounding the cut out part made fast to the frame 5 in any suitable manner, as by strands 6 engaging the springs and extending through perforations 7 in the edge portions of the frame 5. The inner edges of the frame 5 define an opening 8 which may be of rectangular or other suitable shape. Normally covering the opening 8 is a door 9, which, like the frame 5, may be made of sheet metal of suitable gage to render it resistant to distorting forces. The door 9 is connected along one edge to a corresponding portion of the frame 5 by hinge members 10, 11, the members 10 being fast to the frame 5 and the members 11 to the door 9 in suitably spaced relation, while a rod or bar 12 extending through the hinge members 10 and 11 serves as a pintle. One end 13 of the bar 12 is continued from the hinge portion of the door across what constitutes its under face, then along that edge of the door remote from the hinged edge and returned back toward the hinged edge at the side of the door remote from the beginning of the bar 13, which latter is then further continued in the form of an extension 14 reaching toward one side of the bed, while the other end of the pintle 12 has an extension 15 lying close to and parallel with the extension 14, and together with the latter constituting a manipulating handle. The bar or rod 13 forms a support for the door from the hinge end to the opposite end, thus greatly stiffening the door. The two extensions 14 and 15 constituting a manipu-

lating handle are normally engaged behind a hook or support 16 close to one edge of the bed, and from which hook or support the manipulating members 14 and 15 may be readily disengaged when it is desired to permit or cause the door to swing downwardly about its hinges away from the opening 8, it being understood that the door 9 is on the under side of the mattress 2 in the installed position of the bed, and swings downwardly away from the mattress and upwardly toward the mattress.

In order to more certainly maintain the door in the closed position than by the manipulating members 14 and 15 and the hook 16, there is provided a bolt 17, slidable in holding guide members 18 on the bottom face of the door 9, there being two such members 18, since the bolt 17 may be of U form. Fast to the yoke portion of the bolt 17 is a manipulating lever 19 pivoted to the under face of the door and having a handle extension 20 within reach of one side of the bed. A keeper 21 is made fast to the frame 5 in the path of the legs of the bolt 17 to support the corresponding edge of the door in firm relation to the frame 5 when the bolt 17 is thrown to the locking position. It will, of course, be understood that other means for the purpose may replace the bolt 17.

The mattress 1 is formed with an opening 22 therethrough coinciding with the opening 8 through the frame 5. The opening 22 is made tapering in a rising direction, so that its wider portion is at the under face of the mattress. There is also provided a mattress section 23 constituting a plug for the opening 22, and this mattress section may be of a size and shape to snugly fit the opening 22 and when so fitting it the top of the plug 23 is on a level with the top of the mattress, thus leaving the supporting surface of the mattress practically the same all over, wherefore a patient need not be aware so far as feeling is concerned of the fact that the mattress has a hole through it and the hole is provided with a closure or plug.

Sewed or otherwise secured to the under face of the mattress is a strip 24 of fabric such as canvas or the like, and this strip is so located and of such width as to in part be outside of the frame 5 and partly override the outer portion of the frame. By providing the strip 24 with eyelets or other suitable means it may be secured to the frame 5 by lacing 25 or in any other appropriate manner, whereby the mattress is made fast to the frame 5 and therefore to the springs 2 against accidental displacement. By the employment of lacing the mattress may be disconnected from the frame whenever desired, and again secured thereto. The line of sewing of the strip 24

to the under face of the mattress is indicated at 26.

The mattress section or plug 23 is made fast to the plate or door 9 to move therewith and be sustained thereby.

There is also provided a vessel 27, which may be similar to a pail in form or may be actually a pail, preferably of metal. This pail is sustained in a basket or support formed by crossed angularly bent strips 28 fastened together when crossing and at a point about midway of the height of the pail encircled by a hoop 29 to which the strips may be made secure by soldering or in any other appropriate way. The strips 28 have outstanding extensions 30 which may be so arranged as to be substantially radial to the pail and when the parts are in position substantially parallel with the bottom of the springs or mattress. Connected to the outer end of each extension 30 is a cord 31 passed about a pulley 32, or a ring, individual to the cord and suspended from the springs 2. The pulleys 32 are arranged close to the corners of the frame 5 and at one corner there is a group of pulleys 32, or a ring through which all of the cords pass, so that the cords are grouped together and secured to a ring 33 which under certain circumstances may be engaged in a hook 34 fast to the frame 3 near one corner. The length of the cords and their arrangement is such that when the ring 33 is engaged by the hook 34 the basket or carrier 20 is raised close to the under face of the mattress and the pail 27 has its upper end within the opening 22 against the inner wall thereof and also close to the top face of the mattress. In order to permit lifting of the pail it is necessary to remove the plug 23 from the opening 22, and this is accomplished by withdrawing the bolt 17 and releasing the manipulating members 14 and 15 from the holding device 16, whereupon the plug 23 may be dropped about the axis of the pintle 12 until it is well out of the way of the pail 27 and the plug is held in this position by a hook 35 which may depend from the mattress and engage the members 14 and 15.

Where there is sufficient room to drop the plug 23 to the open position without striking the pail 27, the latter may remain directly under the opening 22 and rest upon the floor or other support upon which the bed is placed. Where the distance is too small for this movement the pail 27 when lowered so as to rest upon the floor may be moved to one side or the other of the plug 23 and be afterward moved into position for elevation into the opening 22.

The structure is devoid of complicated or heavy mechanism and may be readily manipulated from one side of the bed, and, moreover, the plug 23 fitting snugly into the

opening 22 effectively completes the mattress, so that when in place it is unobtrusive to the patient. Moreover, the attachment so far as the plug 23 and its supports are concerned is effectively a part of the springs, so that the patient is not aware, so far as feelings are concerned, of the presence of the attachment, but may rest as easily upon a mattress provided with the attachment as upon a mattress devoid of the attachment.

It is to be understood that the invention is susceptible of various structural changes which would naturally suggest themselves to one skilled in the manufacture of such devices, and is by no means confined to the shapes and proportions, or even the materials, shown and described.

The invention is susceptible of embodiment in invalid beds already in existence, or the mattress and springs may be specially made for the purpose of embodying the invention.

What is claimed is:—

1. An attachment for invalid beds comprising a mattress with an opening therethrough, sustaining bed springs for the mattress provided with an opening therethrough corresponding in position to the opening through the mattress, a flat metal frame fast to the mattress about the opening therethrough and fast to the springs about the opening in said springs, said frame constituting a connection between the mattress and springs, a door hinged at one side to the frame at one side of the opening therethrough, and a plug for the opening through the mattress fast to the door.

2. An attachment for invalid beds comprising a mattress and sustaining bed springs therefor, both provided with correspondingly located openings, a metal frame surrounding the openings and fast to and constituting a connection between the mattress and springs, a door hinged at one side to the frame at one side of the opening therethrough, a plug for the opening through the mattress fast to the door, and vessel carrying means suspended from the frame and movable from and toward said frame to permit the opening and closing of the door and the movement of the vessel into and out of the opening through the mattress.

3. An attachment for invalid beds comprising bed springs of the continuous supporting type provided with an intermediate opening, a reinforcing frame secured to the springs about the opening, and a mattress having an opening coinciding with the opening through the springs, said mattress being provided with a connecting strip having means whereby the mattress may be made fast to the reinforcing frame.

4. An attachment for invalid beds comprising bed springs, a mattress carried by the bed springs, said mattress and springs having matching openings therethrough with the opening through the mattress tapering from below upwardly, a metal frame fast to the springs about the margins of the opening therethrough and also fast to a corresponding portion of the mattress to serve as a connection between the springs and mattress, a door carried by the frame, a taper plug for the taper opening in the mattress fast on the door, a carrier beneath the frame, a vessel adapted to the carrier and at its upper end of a size to lodge against the walls of the opening through the mattress intermediate of the top and bottom of said opening, and flexible strands for sustaining the carrier from the frame, said strands and carrier having a range of movement to elevate the vessel on the carrier into engagement with the taper walls of the passage through the mattress.

5. In an invalid bed, a mattress with an opening therethrough tapering toward the upper surface of the mattress, and a vessel carrier in underriding relation to the mattress and suspended therefrom, the suspension means comprising a series of flexible strands having a common point of manipulation, said carrier having a range of movement to cause a vessel sustained thereby to enter the taper opening through the mattress and lodge against the wall thereof.

6. In an invalid bed, a mattress with an opening therethrough tapering toward the upper surface of the mattress, a tapering mattress section or plug fitting the opening through the mattress, supporting bed springs for the mattress having a cutaway portion corresponding in location to the opening through the mattress and of larger area, a reinforcing frame fast to the bed springs about the opening therethrough and to the mattress, a door hinged to and carried by the frame and in turn carrying the tapered mattress section or plug, and a vessel carrier suspended from the reinforcing frame beneath the mattress and movable up and down toward and from the frame to carry the vessel into and out of the tapered opening through the mattress to lodge at the upper limit of its movement in said tapered opening against the side walls thereof.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN JAY HENDERSON.

Witnesses:

A. J. WHITE,
C. H. HENDERSON.