

May 4, 1943.

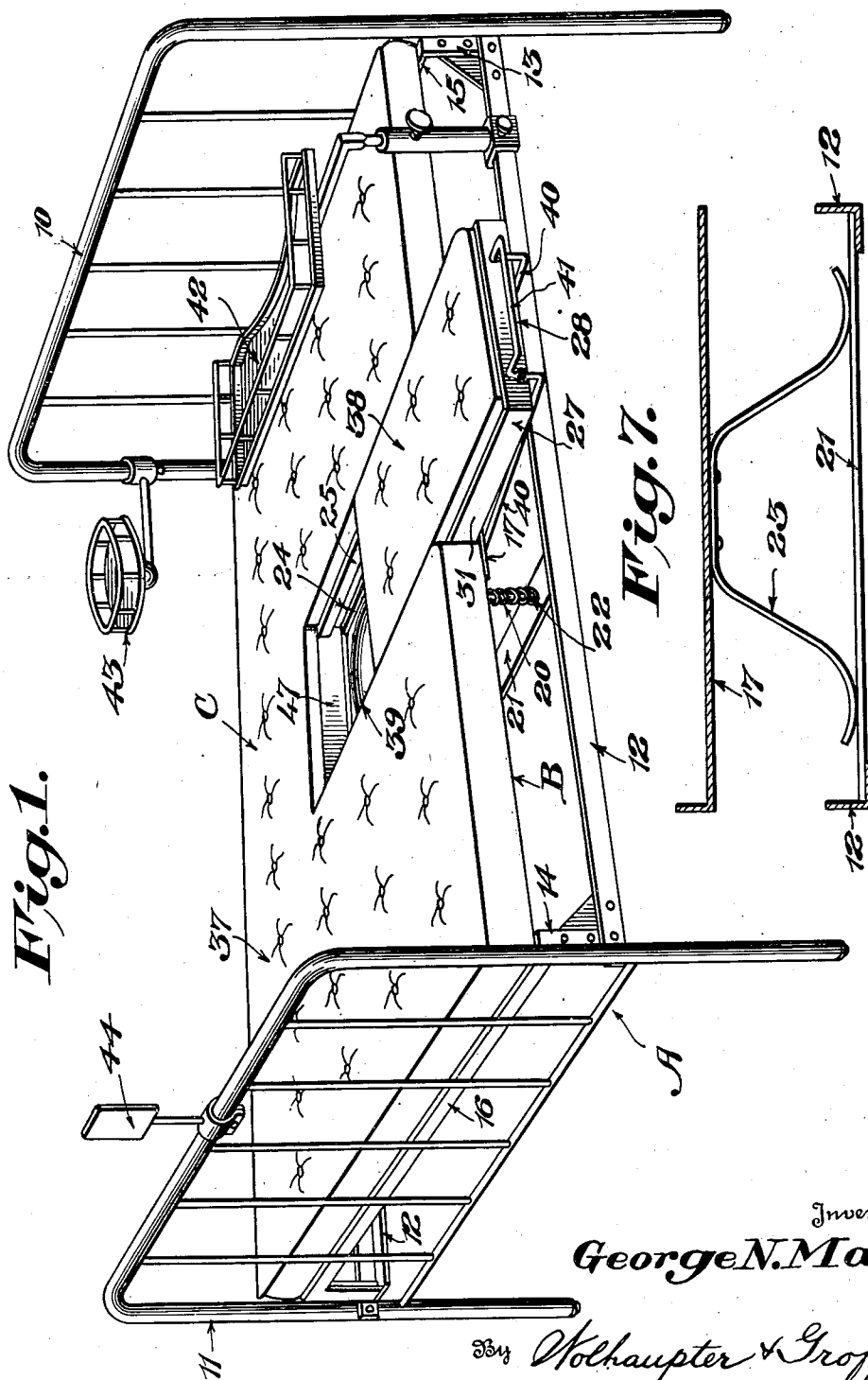
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2,318,240

HOSPITAL OR INVALID BED

Filed Nov. 7, 1941

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

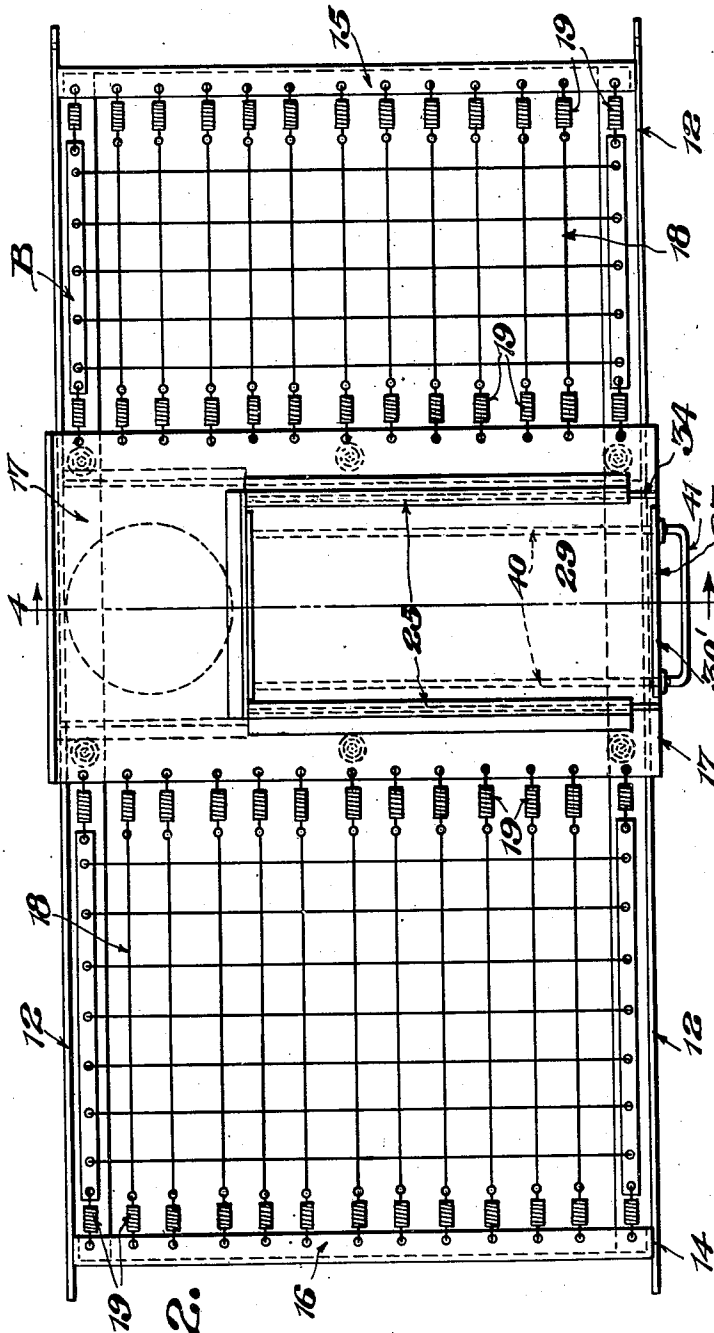


Fig. 2.

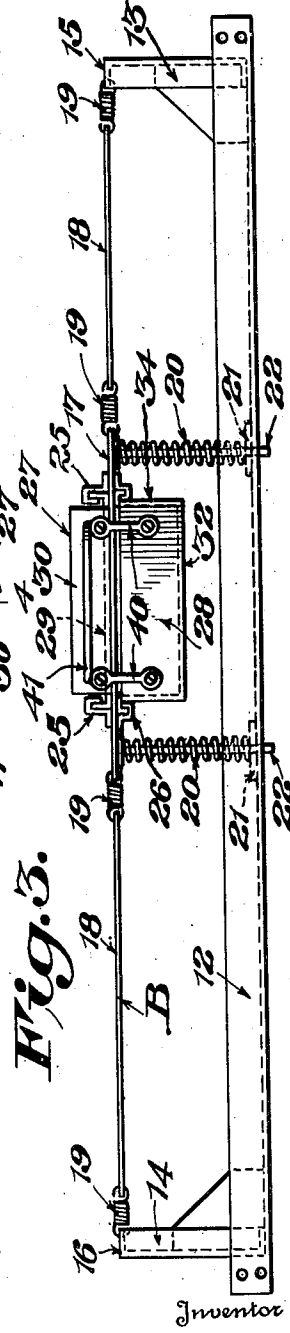


Fig. 3.

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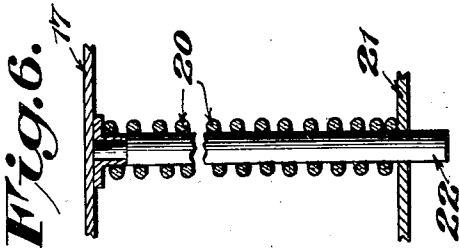
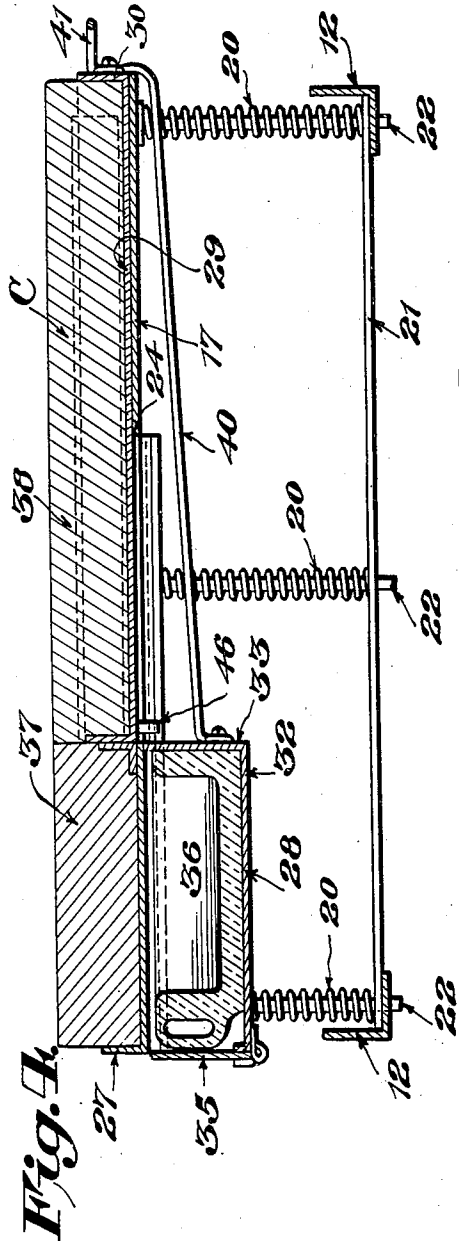
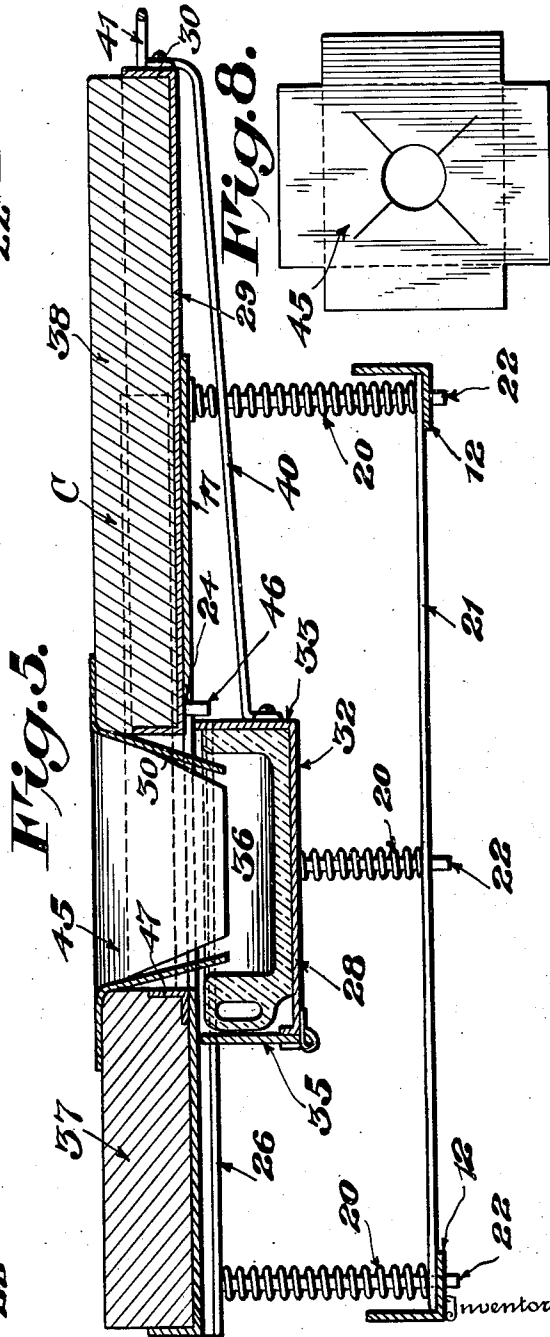
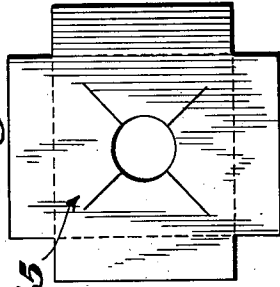


Fig. 8.



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UNITED STATES PATENT OFFICE

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HOSPITAL OR INVALID BED

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4 Claims. (Cl. 5—90)

This invention relates to hospital or invalid beds, and has for its general object to provide a hospital or invalid bed embodying a practical toilet for the convenient use of the patient without any necessity on the part of a nurse or attendant of lifting or handling the patient, and also for convenient and easy servicing by a nurse or attendant.

According to the invention, the mattress of the bed includes a main section having a recess therein opening through one side thereof, and a filler section for said recess slidable into the same to complete the mattress and slidable outwardly to provide in the mattress a toilet opening, and in this connection a special object of the invention is to provide a holder for a toilet receptacle and a connection between said holder and the mattress filler section whereby outward sliding movement of the filler section to provide the toilet opening in the mattress moves said holder to dispose a toilet receptacle carried thereby beneath and in alinement with said toilet opening, and whereby inward movement of said holder to complete the mattress moves said holder to a position adjacent to one side of the bed for the convenient and easy removal therefrom and replacement therein of the toilet receptacle.

Another special object of the invention is to provide a hospital or invalid bed having the features mentioned and which includes simple, practical means for yieldably suspending the mattress and for mounting the mattress filler section and the toilet receptacle holder upon the mattress suspension means for the movements mentioned.

Another special object of the invention is to provide a hospital or invalid bed having the features mentioned and which is of simple, practical construction and of comparatively low production cost.

With the foregoing and other objects in view, which will become more fully apparent as the nature of the invention is better understood, the same consists in a hospital or invalid bed embodying the novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

In the accompanying drawings, wherein like characters of reference denote corresponding parts in the different views:

Figure 1 is a perspective view of a hospital or invalid bed constructed in accordance with one practical embodiment of the invention and show-

ing the mattress filler section in its outwardly disposed position affording a toilet opening in the mattress.

Figure 2 is a top plan view of the mattress support.

Figure 3 is a side elevation of the mattress support.

Figure 4 is a transverse section through the bed showing the mattress filler section in its normal position filling the recess in the main section of the mattress and completing the latter.

Figure 5 is a view similar to Fig. 4 showing the mattress filler section in its position providing the toilet opening in the mattress.

Figure 6 is a detail sectional view through one of the coil spring supports for the plate of the mattress support.

Figure 7 is a transverse sectional view illustrating an alternative form of spring support for the plate of the mattress support; and

Figure 8 is a plan view of a sanitary shield for use in the toilet opening of the mattress.

Referring to the drawings in detail, it will be observed that the present bed is, generally speaking, of conventional form in that it includes a frame, designated generally as A, composed of head and foot sections designated as 10 and 11, respectively, and side rails, designated as 12, connecting said head and foot sections; a "spring" or mattress support mounted on said frame and designated generally as B, and a mattress supported by said support B and designated generally as C.

The end sections 10 and 11 may be of the construction shown or of any other suitable or preferred construction, and the side rails 12 may be either permanently or detachably secured to said end sections in any suitable manner. Moreover, said side rails may be of any suitable form but preferably are of angle-iron form having vertically disposed outer flanges and horizontally disposed lower flanges extending inwardly from said outer flanges.

The mattress support B comprises head and foot pairs of uprights designated as 13 and 14, respectively; head and foot cross bars designated as 15 and 16, respectively, connecting the upper ends of the uprights 13 and 14, respectively, and a stiff, flat plate of metal or any other suitable material, designated as 17, of any suitable width and of a length corresponding approximately to the width of the bed, located at a suitable point between the cross bars 15 and 16 and connected at its sides with said cross bars by spring elements of any suitable form,

designated generally as 18 and illustrated in the present instance as comprising longitudinal and transverse wires or rods the longitudinal wires or rods of which include coil springs 19, whereby said plate is yieldably suspended from said cross bars 15 and 16.

In accordance with the invention, the uprights 13 and 14 of the mattress support B may simply rest upon the side rails 12 of the frame A, or may be permanently or detachably secured to said side rails in any suitable manner, whereby the mattress support is yieldably supported upon the frame A.

Preferably, but not necessarily, yieldable means in addition to the "spring" elements 19 is provided to assist said "spring" elements in yieldably supporting the plate 17, and while said additional yieldable supporting means may be of any preferred form, one suitable form thereof comprises any suitable number of vertically disposed coil springs 20 interposed between said plate and cross members 21 connecting the side rails 12 of the frame A. In this connection, in order to restrain the plate 17 against undesirable superficial shifting movements and to prevent undesirable "buckling" or bowing of the coil springs 20, rods 22, of diameters to closely fit within said coil springs, are fastened at their upper ends to the plate 17 and extend downwardly from said plate through said springs and at their lower ends are slidably engaged in openings in the cross members 21 and also in aligned openings in the horizontal flanges of the frame side rails 12 wherever certain of said springs 20 overlie said side rails. Alternatively, said additional yieldable supporting means for the plate 17 may have the form of leaf springs 23 of any suitable design interposed between said plate and the cross members 21 as illustrated, for example, in Fig. 7 of the drawings.

Provided in the plate 17 at any suitable point, but preferably centrally or approximately centrally thereof, is a toilet opening 24, while provided on the top and on the bottom of said plate are pairs of parallel track or guide members 25 and 26, respectively, the former or top pair of which extend from opposite sides of said toilet opening any suitable distance toward one end of said plate; i. e., toward one side of the bed, and the latter or lower pair of which likewise extend from opposite sides of said toilet opening any suitable distance toward the other end of said plate or, in other words, toward the other side of the bed.

Disposed upon the top of the plate 17 and mounted by means of the top pair of track members 25 for inward and outward sliding movement along the slideway defined by said top pair of track members 25, is a filler mattress section holder 27, while mounted by means of the lower pair of track members 26 upon the underside of said plate 17 for inward and outward sliding movement along the slideway provided by said lower pair of track members 26 is a toilet receptacle holder 28.

The track members 25 may be of any suitable form and the holder 27 may be of any suitable construction and may be slidably engaged with said track members in any suitable manner, but preferably said track members are of inverted U-shape in cross section to define downwardly and inwardly opening channels, and preferably the holder 27 is in the form of an open-top pan including a bottom wall 29, end walls 30 and side walls 31 which are slidably disposed in the

channels provided by the track members 25. Thus, the holder 27 is mounted upon the plate 17 for inward and outward sliding movement and is held against upward movement relative to said plate.

The track members 26 also may be of any suitable form and the holder 28 may be of any suitable construction and may be engaged with said track members and thereby suspended from the plate 17 for inward and outward sliding movement in any suitable manner, but preferably said track members 26 are of U-shape in cross section to provide upwardly and inwardly opening channels, and preferably the holder 28 is of open-top, box-like form including a bottom wall 32, an inner end wall 33, and side walls 34 which, at their tops, are flanged outwardly and downwardly and engaged in the channels of the track members 26. At its outer end, the holder 28 is open and may or may not be provided with a door 35, as desired, but if it is not provided with a door it preferably is provided with suitable means, such for example as a flange rising a short distance from the outer end of the bottom wall 32, to hold a toilet receptacle 36 disposed therein against accidentally sliding through the open outer end thereof.

The mattress C rests as usual upon the support B and comprises a main section, designated as 37, and a separate filler section designated as 38, the main section 37 having therein a transverse recess 39 opening through one side thereof and aligned with the slideway between the track members 25 and having its inner end portion aligned with the toilet opening 24 in the plate 17, and the filler section 38 being of a size and shape to fill said recess 39 and being disposed in the holder 27 for inward and outward sliding movement therewith into and from said recess. Said mattress sections 37 and 38 may be of any desired construction and when the filler section 38 is disposed in the recess 39 of the main section 37 the mattress is completed. On the other hand, by sliding the filler section 38 outwardly a suitable distance relative to the main section 37, a toilet opening is provided in the mattress in alignment with the toilet opening 24 in the plate 17.

In accordance with the invention the holder 27 for the mattress filler section 38 and the holder 28 for the toilet receptacle 36 are suitably connected together so that when the holder 27 is slid outwardly to shift the mattress filler section 38 outwardly to provide the toilet opening in the mattress, the holder 28 is slid inwardly to dispose the toilet receptacle 36 in underlying relationship to and in alignment with said toilet opening, and when the holder 27 is slid inwardly to shift the mattress filler section 38 to its position filling the recess 39, the holder 28 is slid outwardly to a position adjacent to the related side of the bed where it is readily accessible for convenient and easy removal and replacement of the toilet receptacle 36 through the open outer end thereof.

Any suitable connection for the purpose stated may be provided between the holders 27 and 28, but one suitable connection is illustrated in the drawings and by way of example as comprising a pair of rods 40 suitably connected to the front end wall 30 of the holder 27 and extending downwardly and inwardly from said wall 30 beneath the plate 17 and suitably connected to the inner end wall of the holder 28.

At the outer end of the holder 27 is a handle 41 which may be comprised by the medial portion of

a single length of material from which the rods 40 are formed, as shown, or which may be entirely separate from said rods which, if desired, may be separate from each other. On the other hand, only a single rod or any plurality of rods other than two may be employed in lieu of the pair of rods 40.

At 42 is designated a tray which may be mounted on one of the side rails 12 at any suitable point and in any suitable manner for vertical and horizontal adjustments, while at 43 and 44 are designated an article holder and a mirror or chart holder which may be mounted as shown upon the head and the foot sections of the bed for the convenience of the patient.

As will be apparent from the foregoing, the mattress of the present bed is well and yieldably supported and is complete when the filler section 38 is disposed in filling relationship to the recess 39, while on the other hand, when it is desired to provide the toilet opening in the mattress for the convenience of the patient without any necessity of burdensome handling of the patient, this may readily be done simply by shifting the filler section 38 outwardly. In this connection and to protect the mattress, sanitary sheets 45 of paper or other suitable material, may be provided and may be formed as illustrated in Fig. 8 of the drawings to be placed in the toilet opening of the mattress as shown in Fig. 5 of the drawings, while in order to limit outward sliding movement of the filler section 38 of the mattress, any suitable means may be provided, such for example, as a lug 46 on the bottom wall 29 of the holder 27 for engagement with the edge of the plate 17 defining the outer side of the opening 24 therein. Moreover, the plate 17 may be provided with suitable upstanding flange means 47 for engagement with the wall defining the inner end of the recess 39 in the main mattress section to assist in holding the main mattress section properly positioned on its support B, but the provision of said flange means is, of course, optional.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

I claim:

1. An invalid bed comprising supporting means for a mattress composed of a main section having therein a recess opening through a side thereof and a filler section for said recess, said supporting

means having a toilet opening therein with which the inner end portion of the recess in the main mattress section is to be aligned, a holder for the mattress filler section mounted on the upper side of said mattress supporting means for horizontal sliding movement transversely of the bed between an inner position in which it covers said toilet opening and disposes the mattress filler section in filling relationship to the recess in the main mattress section and an outer position in which it uncovers said toilet opening and disposes the inner end of said mattress filler section outwardly with respect to the inner end of the recess in the main mattress section to provide in the mattress an opening aligned with said toilet opening, a holder for a toilet receptacle mounted on the under side of said mattress supporting means for horizontal sliding movement transversely of the bed between an inner position in which a toilet receptacle held therein is disposed beneath said toilet opening and an outer position in which it is disposed adjacent to a side of the bed for convenient removal therefrom and replacement therein of a toilet receptacle, and a connection between said filler section holder and said toilet receptacle holder whereby said toilet receptacle holder is slid to its outer position in response to sliding of said filler section holder to its inner position and is slid to its inner position in response to sliding of said filler section holder to its outer position.

2. An invalid bed as set forth in claim 1 in which the mattress supporting means is yieldable and includes a stiff flat plate having the toilet opening therein, and in which said plate is provided with track means mounting the filler section holder and the toilet receptacle holder thereon for sliding movement.

3. An invalid bed as set forth in claim 1 in which the connection between the filler section holder and the toilet receptacle holder comprises a rod extending beneath the mattress supporting means and joined at its outer end to an outer end portion of the filler section holder and at its inner end to said toilet receptacle holder.

4. An invalid bed as set forth in claim 1 in which the mattress supporting means includes a stiff flat plate having the toilet opening therein, in which the bed frame includes side and end rails and cross members extending between said side rails beneath said plate, in which the mattress supporting means is yieldably suspended from said end rails, and in which springs are interposed between said cross members and said plate to assist in yieldably supporting said plate.

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