

May 17, 1932.

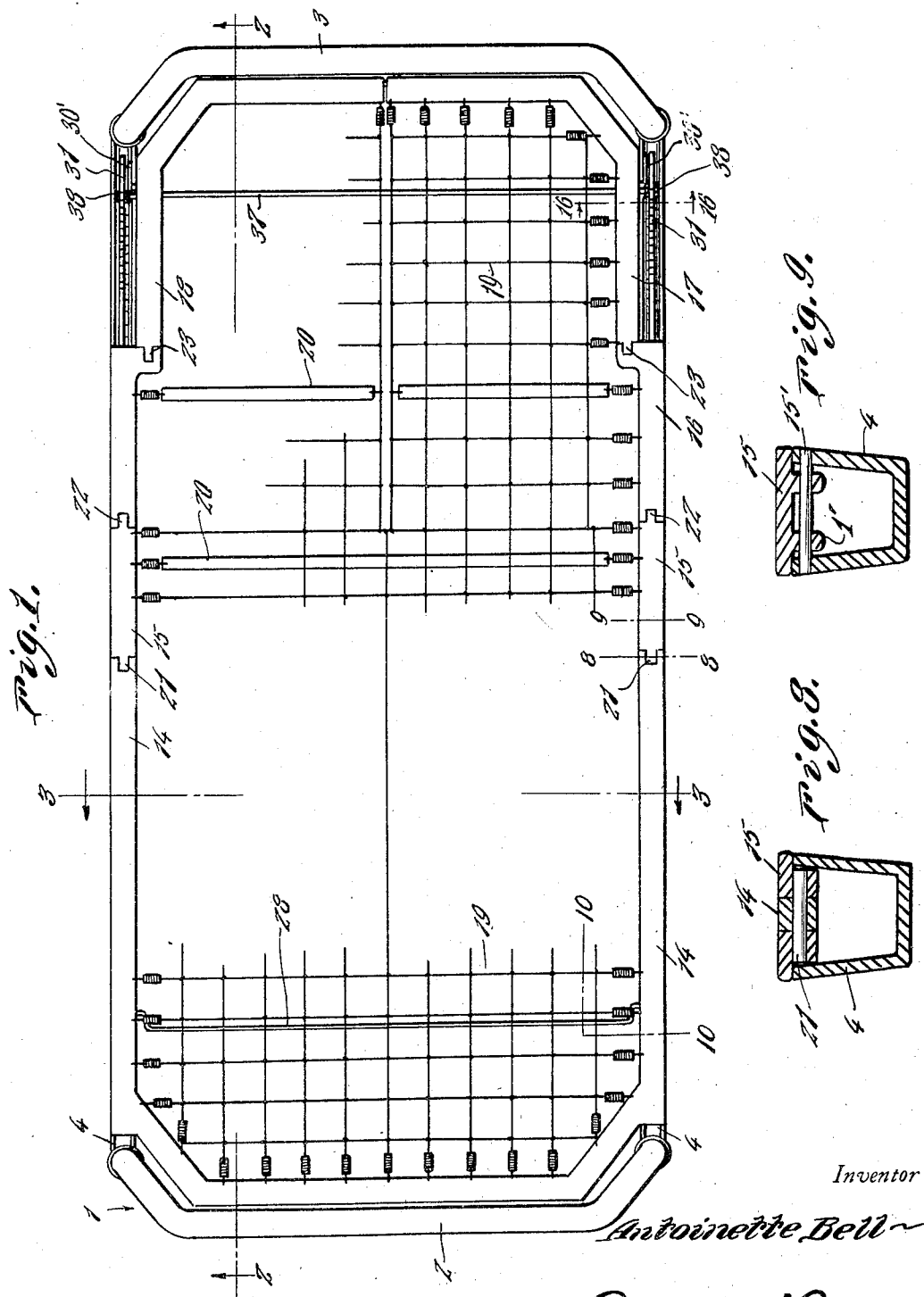
A. BELL

1,858,657

BED

Filed Jan. 25, 1929

5 Sheets-Sheet 1



Inventor

By *Clarence A. O'Brien*
Attorney

May 17, 1932.

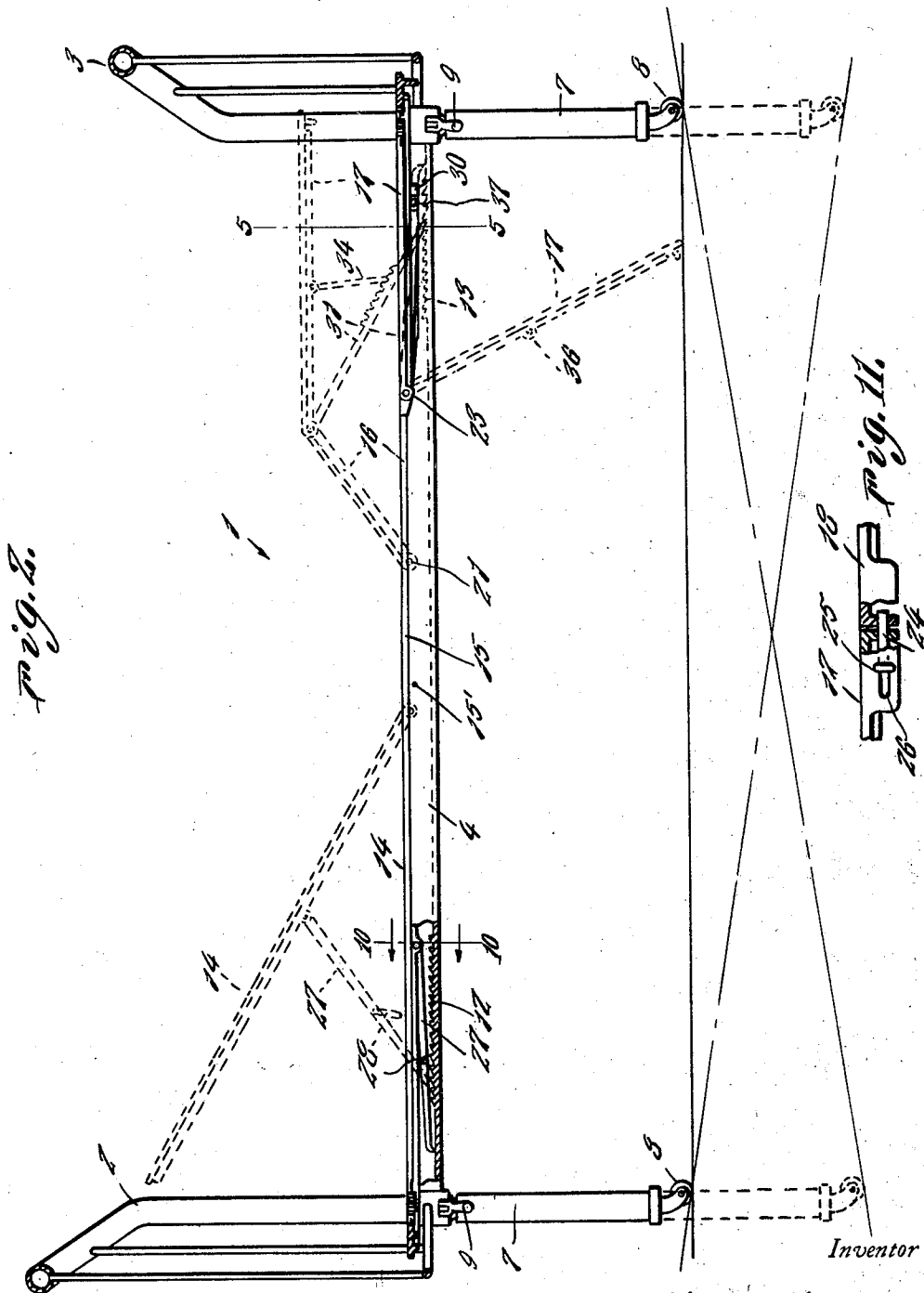
A. BELL

1,858,657

BED

Filed Jan. 25, 1929

5 Sheets-Sheet 2



Antoinette Bell

By *Clarence A. O'Brien*
Attorney

May 17, 1932.

A. BELL

1,858,657

BED

Filed Jan. 25, 1929

5 Sheets-Sheet 3

Fig. 18.

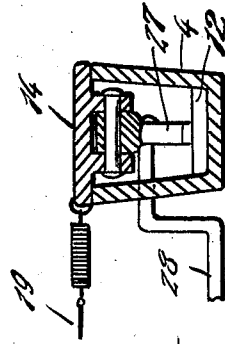
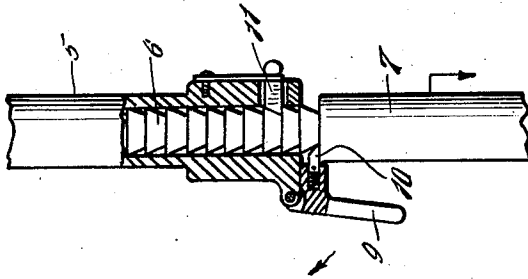


Fig. 19.

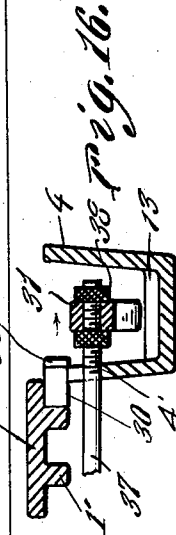
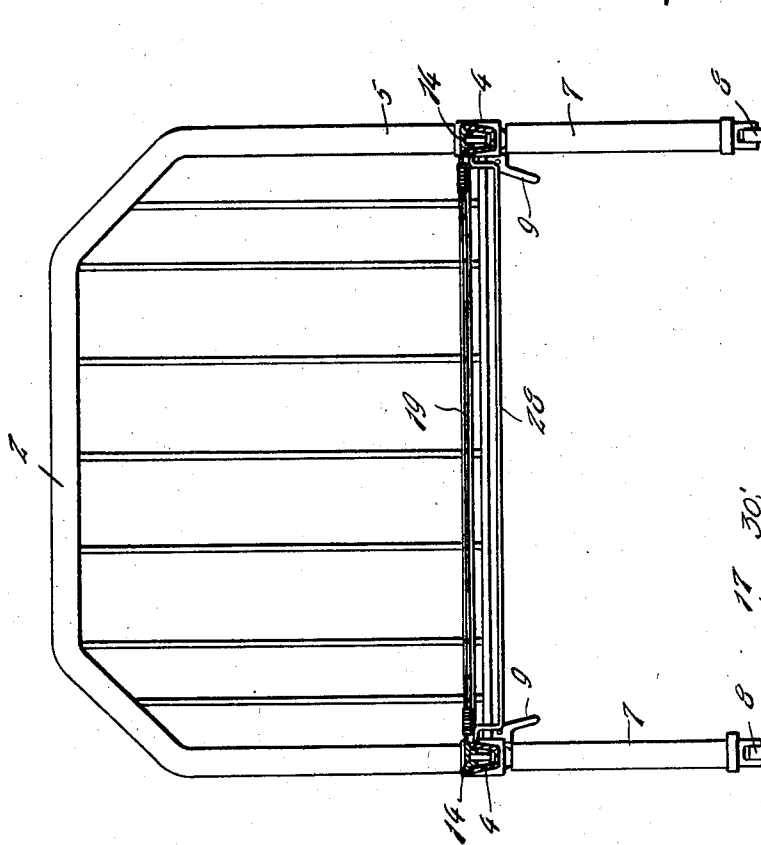


Fig. 21.

Fig. 22.

Inventor

Antoinette Bell

By *Charles A. O'Brien*
Attorney

May 17, 1932.

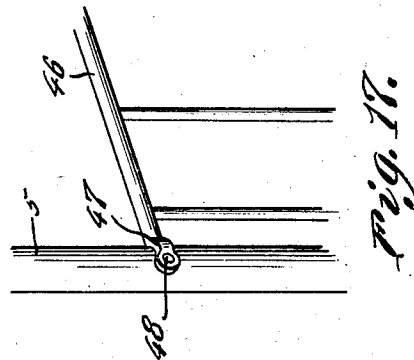
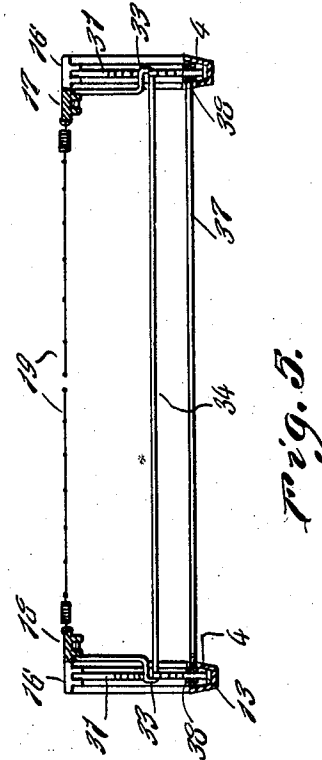
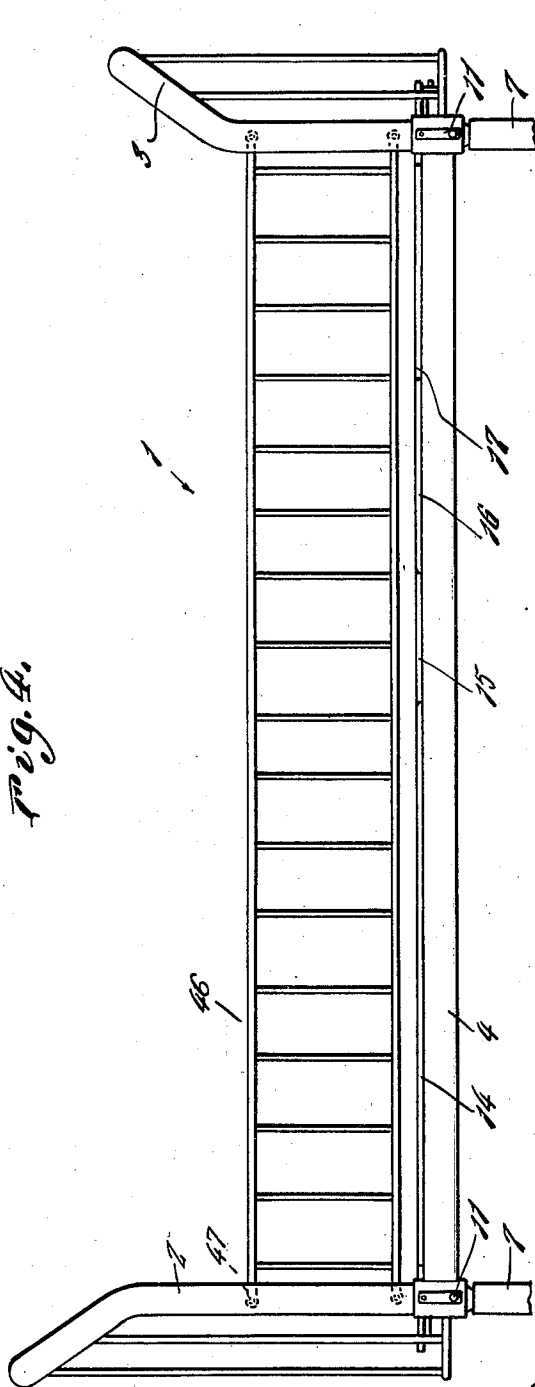
A. BELL

1,858,657

BED

Filed Jan. 25, 1929

5 Sheets-Sheet 4



Inventor

Antoinette Bell

By *Clarence A. O'Brien*
Attorney

May 17, 1932.

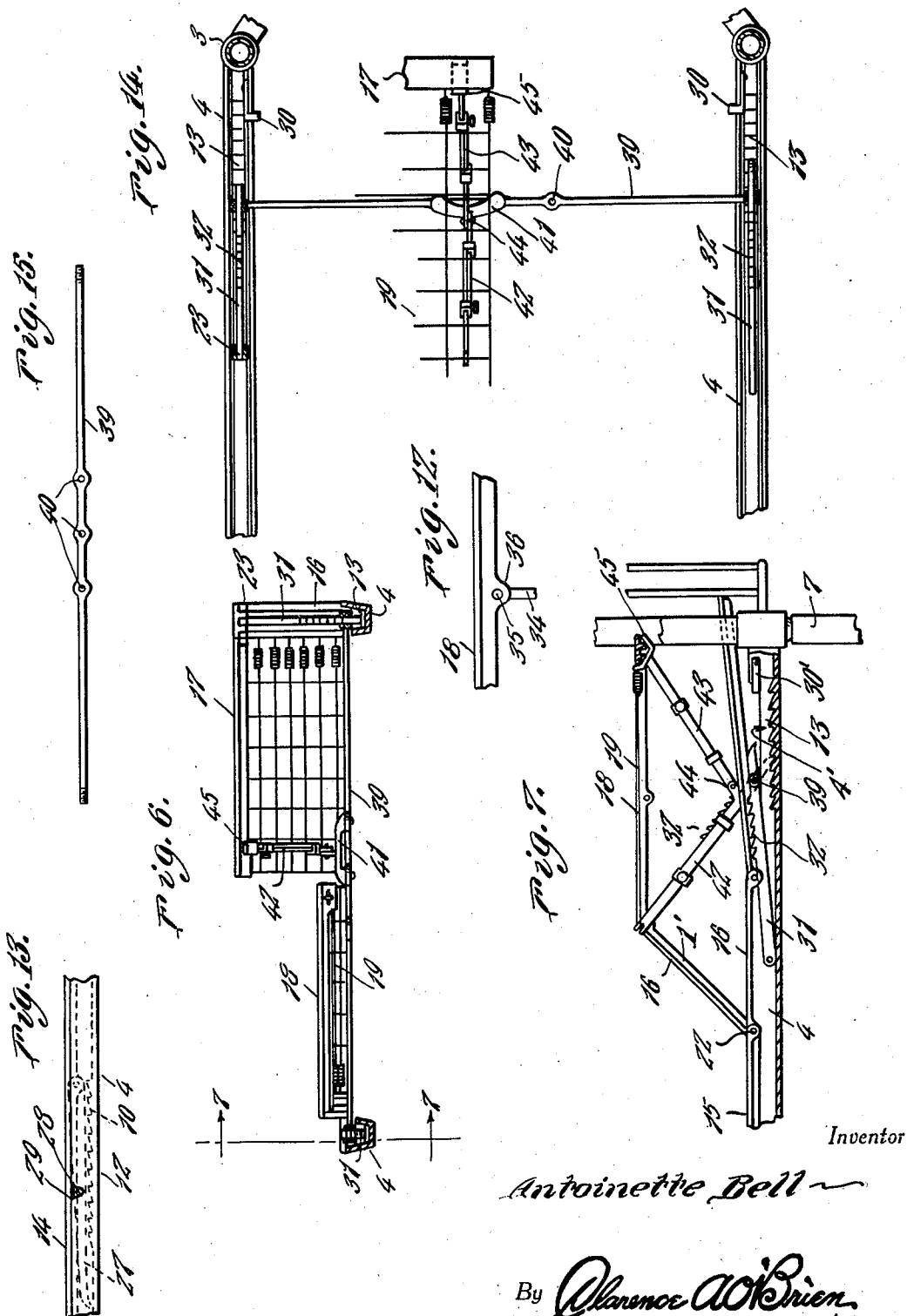
A. BELL

1,858,657

BED

Filed Jan. 25, 1929

5 Sheets-Sheet 5



UNITED STATES PATENT OFFICE

ANTOINETTE BELL, OF NEW HARTFORD, NEW YORK

BED

Application filed January 25, 1929. Serial No. 335,094.

The present invention relates to improvements in beds and has for its principal object to provide a structure wherein a flat bed can be readily and easily converted into a hospital bed.

One of the important objects of the present invention is to provide a bed of the above mentioned character which includes an adjustable bed bottom, the latter including a head section, a seat section, and independent foot sections, said sections being capable of adjustment to admit of the occupant assuming a recumbent position or a sitting posture so that in the event of a convalescent patient, it is not necessary to remove the patient from the bed to a chair.

A further object is to provide an adjustable bed of the above mentioned character wherein the parts are capable of adjustment in a simple and efficient manner, means being associated with the sections of the bed bottom whereby to maintain the same in their properly adjusted positions.

Still a further object is to provide a bed of the above mentioned character wherein removable side guards are attached to the head and foot frames of the bed so as to convert the same into a crib whenever necessary.

Still a further object is to provide an adjustable bed of the above mentioned character wherein the leg members of the head and foot frames are capable of vertical adjustment so that the bed may be disposed in any angularly adjusted position with respect to the floor.

A further object resides in the provision of an adjustable bed which is simple in construction, inexpensive, strong and durable and further well adapted to the purpose for which it is designed.

Other objects and advantages of the invention will become apparent from the following description when taken in connection with the accompanying drawings.

In the accompanying drawings wherein

like reference characters indicate corresponding parts throughout the same:

Figure 1 is a top plan view of my improved bed.

Figure 2 is a longitudinal sectional view taken approximately on the line 2—2 of Figure 1.

Figure 3 is a transverse section taken approximately on the line 3—3 of the same figure looking in the direction of the arrows.

Figure 4 is a side elevation of the bed showing one of the side guards secured in position whereby a crib is formed, the lower portions of the leg members being broken away.

Figure 5 is a sectional view taken approximately on the line 5—5 of Figure 2.

Figure 6 is a view similar to Figure 5 showing one of the foot sections in a raised horizontal position.

Figure 7 is a sectional view taken substantially upon the line 7—7 of Figure 6.

Figures 8 and 9 are sectional views taken on the lines 8—8 and 9—9 respectively, of Figure 1.

Figure 10 is a section on the line 10—10 of Figure 1 showing the securing means between the independent foot sections of the bed bottom.

Figure 11 is a detail of the securing means between the independent leg sections of the bed bottom.

Figure 12 is a fragmentary detail showing the connection between one of the foot sections and the adjacent portion of the supporting member.

Figure 13 is a fragmentary detail showing the head section lying flat on the side rails.

Figure 14 is a detail plan view of the apertured cross rod showing the means for supporting one of the foot sections in a raised position.

Figure 15 is a detail view of the removable apertured cross rod forming a salient part of the present invention.

Figure 16 is a sectional view taken approximately on the line 16—16 of Figure 1.

Figure 17 is a detail view showing one of the guard members secured to the adjacent corner post, and

Figure 18 is a detail of one of the vertical movable leg members and the adjusting means therefor associated with the hollow corner posts.

In the drawings wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates generally my improved adjustable bed, the same comprising the head and foot frames 2 and 3, respectively. These frames are connected together in spaced relation through the medium of the channel shaped side rails 4. The head and foot frames may be of any desired shape and the side rails are secured to the corner posts 5 of the respective frames in any appropriate manner.

Each of the corner posts of both the head and foot frames are capable of being lengthened or shortened, and to this end the notched shank 6 formed on the upper end of the leg 7 is slidably disposed within the lower open end of the hollow corner post. A floor engaging caster 8 is carried by the lower end of the leg member 7.

A lever 9 is pivotally mounted on one side of the lower end portion of the tubular corner post for vertical swinging movement and carried by this lever is a spring pressed finger 10 that is adapted for engagement with the shoulders of the notches formed in the shank 6 to effect the upward movement of the corner post with respect to the leg member when the lever is swung upwardly. A spring pressed latch 11 is arranged on the other side of the lower portion of the tubular corner post and extends through an opening formed in the corner post also for engagement with the shoulders of the notches to prevent downward sliding movement of the tubular corner post as more clearly disclosed in Figure 18. In this manner either the head or foot frame of the bed may be vertically adjusted to meet certain conditions.

Each of the channel shaped side rails is formed in the bottom thereof with teeth 12 adjacent the head frame engaging end thereof. Similar teeth 13 are arranged in the other end of each channel shaped side rail and the purpose of this construction will be presently apparent.

The bed bottom that is constructed of flat material comprises the head section 14, the seat section 15, the thigh section 16, and the complementary independent foot sections 17 and 18 respectively. Each of these sections is formed on its under side with spaced reinforcing ribs 1'. A flexible spring bottom 19 is provided for each section and transverse steel bands 20 are associated with the seat and thigh sections. As shown in Figure 1, these

sections 17 and 18 are separated at the rear end of the bed, and the spring bottom 19 has its rear part formed of two sections separated from each other at the longitudinal center thereof, so that one of the foot sections with its spring bottom can be adjusted independently of the other foot section and its spring bottom, and it will also be seen that the foot part of the bed bottom composed of the two sections 17 and 18 is of less width than the bed frame so that it can pass between the rear ends of the side rails and the foot part of said bed frame.

The seat section 15 is fixedly secured to the intermediate portion of the channeled side rails 4 as at 15' in Figure 9.

The inner end of the head section 14 is hingedly secured to the adjacent side of the stationary seat section 15 as at 21 whereby said head section is capable of vertical swinging movement for a purpose to be presently described.

In a similar manner the thigh section 16 is pivotally secured along its inner side to the opposite side of the stationary seat section 15 as at 22. Thus the thigh section 16 is also capable of vertical swinging movement.

The independent foot sections 17 and 18 are hingedly secured at their inner ends to the respective ends of the thigh sections as at 23 for vertical swinging movement. The head, seat and thigh sections normally are adapted to lie flat upon the upper edges of the channel shaped side rails of the bed, the foot sections are confined between the side rails and normally are supported in a horizontal position in the same plane with the other sections of the bed bottom, by the blocks or buttons 30 carried by the springs 30', the buttons or blocks 30 engaging parts of the side rails of the bed frame with the foot sections 17 and 18 resting on the buttons. By pushing these buttons 30 outwardly against the action of the spring 30' the foot sections 17 and 18 can be lowered to the dotted line position shown in Figure 2.

Attention is directed now to Figure 11 wherein there is disclosed a means for securing the hinged foot sections together at the rear end of the bed and to this end there is provided a sliding bolt 24 that is carried by the rear end portion of the foot section 17. The free end of the bolt 24 is adapted to slide through registering openings formed in the adjacent inner sides of the foot sections. An actuating handle 25 is associated with the sliding bolt, and this handle is operable within a slot 26 formed in the rear end portion of the section 17.

When the parts are arranged as shown in Figure 11, the foot sections are locked together for movement in unison. However, by retracting the bolt so that the free end thereof is disengaged from the foot section

18, said foot sections are capable of vertical swinging movement independently of each other. If desired, the thigh section 16 may be divided into separate units whereby said units will cooperate with the respective pivoted foot sections in the manner as is obvious from the construction illustrated in Figure 1.

Suitable arms 27 are pivotally attached at their forward ends to the respective sides of the head section 14. The lower free ends of these arms are adapted for cooperation with the teeth 12 arranged in the adjacent ends of the channel shaped side rails whereby to support the head section 14 in any angularly adjusted position as indicated by the dotted lines in Figure 2. When the head section 14 is disposed in a horizontal plane, the arms 27 will be confined within the respective channel shaped side rails.

A rod 28 extends between the opposite arms 27 and the upper edges of the opposite sides of the side rails are notched as at 29 as shown in Fig. 13 for receiving the rod 28 so that the head section will rest on the side rails of the bed. This rod facilitates adjustment of the arms 27.

A pair of arms 31 are each formed with a perforation at one end to receive a part of the pin used at each connection 23 provided between the thigh and foot sections, and these arms are capable of vertical swinging movement. The free ends thereof are adapted to co-operate with the teeth 13 formed in the adjacent ends of the channel shaped side rails for the purpose of maintaining the thigh section 16 in any angularly adjusted position.

Each of the arms 31 is furthermore formed with a series of notches 32 adjacent the free end thereof with which cooperates the laterally disposed portions 33 of a substantially U-shaped supporting member 34 that extends transversely across the foot sections, the upper end of the arms of this U-shaped member being directed inwardly to form pintles 35 that engage within suitable openings provided therefor in apertured lugs 36 associated with the respective foot sections, and when this U-shaped unit 34 is employed, the foot sections 17 and 18 are both secured together and held in a raised position.

A general cross rod 37 connects the arms or prop rods 31 together and as is clearly shown in Figures 5 and 16 each end of the cross rod 37 is threaded and is disposed through an opening formed in the respective arm 31. Suitable knurled nuts 38 are threaded on the cross rod for engagement with the opposite sides of each arm or prop or rod 31. The inner flange of each of the side members 4 is cut away at the rear part of the side member, as shown at 4' in Figures 7 and 16 to form rests for this rod 37 when the foot

sections 17 and 18 are in lowered horizontal positions.

When it is desired to maintain only one of the foot sections in a raised position, the general cross rod 37 as well as the U-shaped supporting member 34 is removed and the pivot pins are released from an arm 31 so that the arm can lie in the side member as shown in Figure 7, as the arm 31 is not used for foot section not to be raised. Then a cross rod such as is shown at 39 is substituted for the general cross rod 37. The rod 39 is formed at its central portion with three spaced openings 40 and the ends of this rod are threaded to accommodate nuts similar to the ones associated with the ends of the general cross rod 37.

A yoke member 41 has its free ends removably fitted to any pair of openings 40, depending upon which foot section is to be elevated. An adjustable prop unit 42 is operatively connected at its lower end to the yoke member 41 while the upper end thereof detachably engages with and supports the bed bottom 19 of the elevated foot section adjacent the juncture of the foot section with the thigh section 16 as more clearly shown in Figures 6, 7 and 14 of the drawings. An additional adjustable prop unit 43 is pivotally connected at its lower end to the lower portion of rear prop unit 42 as at 44, and the upper end of the prop unit 43 supports the rear end of the elevated foot section as at 45. One of the arms 31 is left attached to the section 16, according to which of the foot sections 17 and 18 is to be raised, as shown in Figure 6.

The foot sections are also capable of being disposed downwardly in an angular position when the supporting means 30 therefor is disengaged, and said foot sections are swung downwardly to the position shown in dotted lines in Figure 2.

The invention further comprehends the provision of detachable side guards 46 that are to be used when the bed is converted into a crib, and the upper and lower rails of each side guard are formed at their respective ends with curved attaching brackets shown at 47 in Figure 17.

These curved brackets 47 engage with the respective corner posts of the head and foot frames 2 and 3, respectively, and suitable fastening means 48 extend through each bracket and the adjacent corner post as also indicated in Figure 17.

It will thus be seen from the foregoing description, that I have provided an adjustable bed that can be readily and easily converted from a flat bed to a hospital bed or crib. The bed bottom is of such construction as to permit the occupants to assume a recumbent position or a sitting posture.

The various sections of the bed bottom may be adjusted to comfortably support the vari-

ous parts of the body of the patient or occupant, and the parts are so arranged as to permit ready and easy adjustment.

A bed of this character will at all times be
 5 positive and efficient in carrying out the purposes for which it is designed, and can furthermore be constructed at a very low cost, yet be strong and durable.

While I have shown the preferred embodiment of my invention it is to be understood
 10 that minor changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention and the scope of the appended claims.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:—

1. A bed of the class described comprising
 a frame consisting of side and end members
 20 and legs for supporting the same, a mattress supporting frame comprising an intermediate section attached to the side members of the bed frame, a head section having its rear end
 25 pivotally connected to the front end of the intermediate section, means for holding the head section in adjusted position, a thigh section having its front edge pivotally connected to the rear edge of the intermediate section, a foot section having its front end pivotally
 30 connected to the rear end of the thigh section, said head, intermediate and thigh section being disposed in superimposed relation to the side rails of the bed frame and said foot section being of less area than the rear
 35 part of the bed frame whereby it can pass through said rear part of the bed frame, spring latch means carried by parts of the side rails for holding the foot section in horizontal position, said foot section comprising
 40 two sections separated at the longitudinal center of the bed, latch means for connecting the two sections of the foot section together at the rear of the bed, means for adjustably holding the thigh section in a raised diagonal position, and means for holding both sections
 45 of the foot section in raised horizontal position.

2. A bed of the class described comprising
 a frame consisting of side and end members
 50 and legs for supporting the same, a mattress supporting frame comprising an intermediate section attached to the side members of the bed frame, a head section having its rear end pivotally connected to the front end of the
 55 intermediate section, means holding the head sections in adjusted position, a thigh section having its front edge pivotally connected to the rear edge of the intermediate section, a foot section having its front end pivotally
 30 connected to the rear end of the thigh section, said head, intermediate and thigh section being disposed in superimposed relation to the side rails of the bed frame and said foot section being of less area than the rear part of
 65 the bed frame whereby it can pass through

said rear part of the bed frame, spring latch means carried by the rear parts of the side rails of the bed frame for holding the foot section in horizontal position, said foot section comprising two sections separated at the longitudinal center of the bed, latch means for connecting the two sections of the foot section together at the rear of the bed, means for adjustably holding the thigh section in a raised diagonal position, and means for holding
 70 either one of the sections of the foot section in raised horizontal position while the other section of the foot section is in lowered position.
 75

In testimony whereof I affix my signature.
 ANTOINETTE BELL.
 80