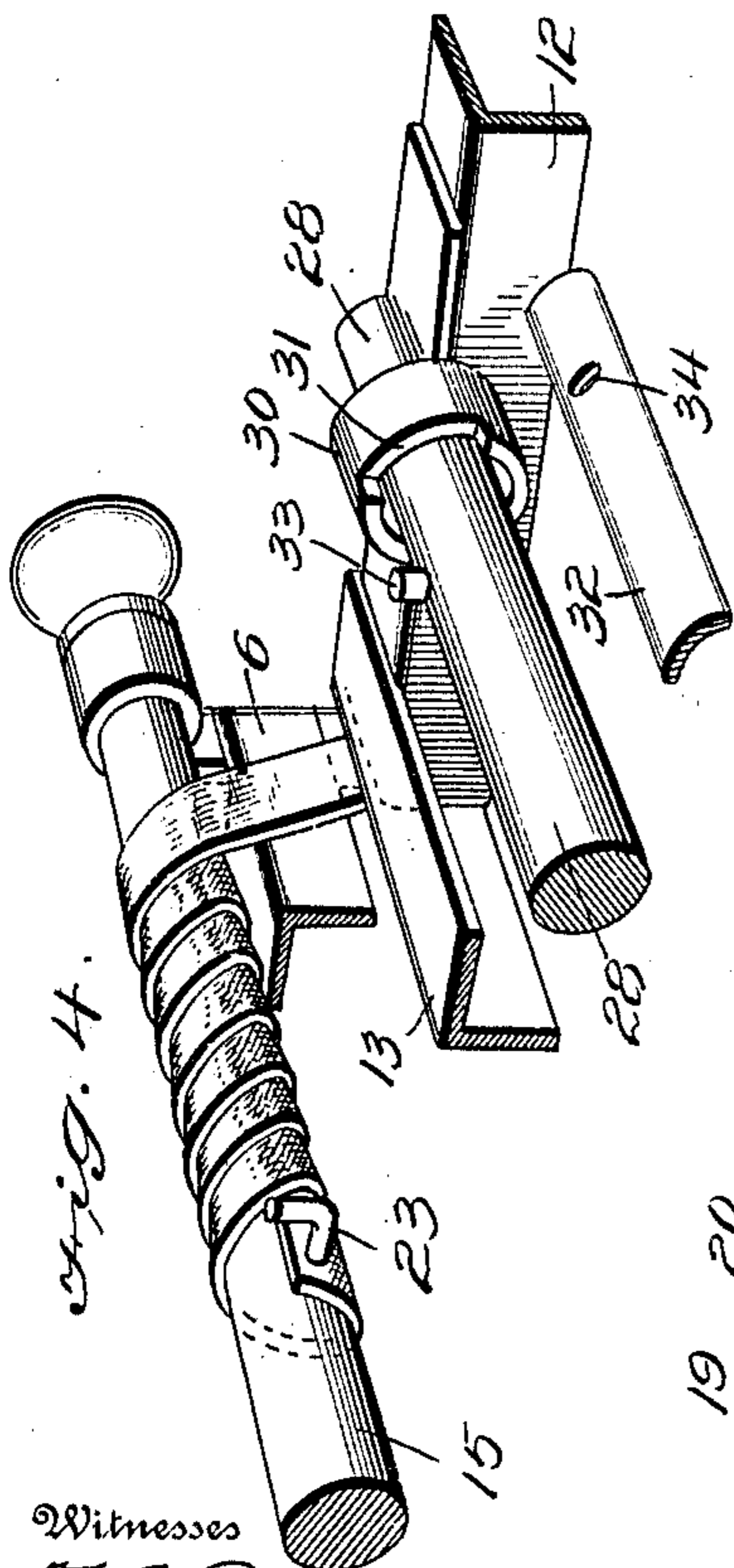
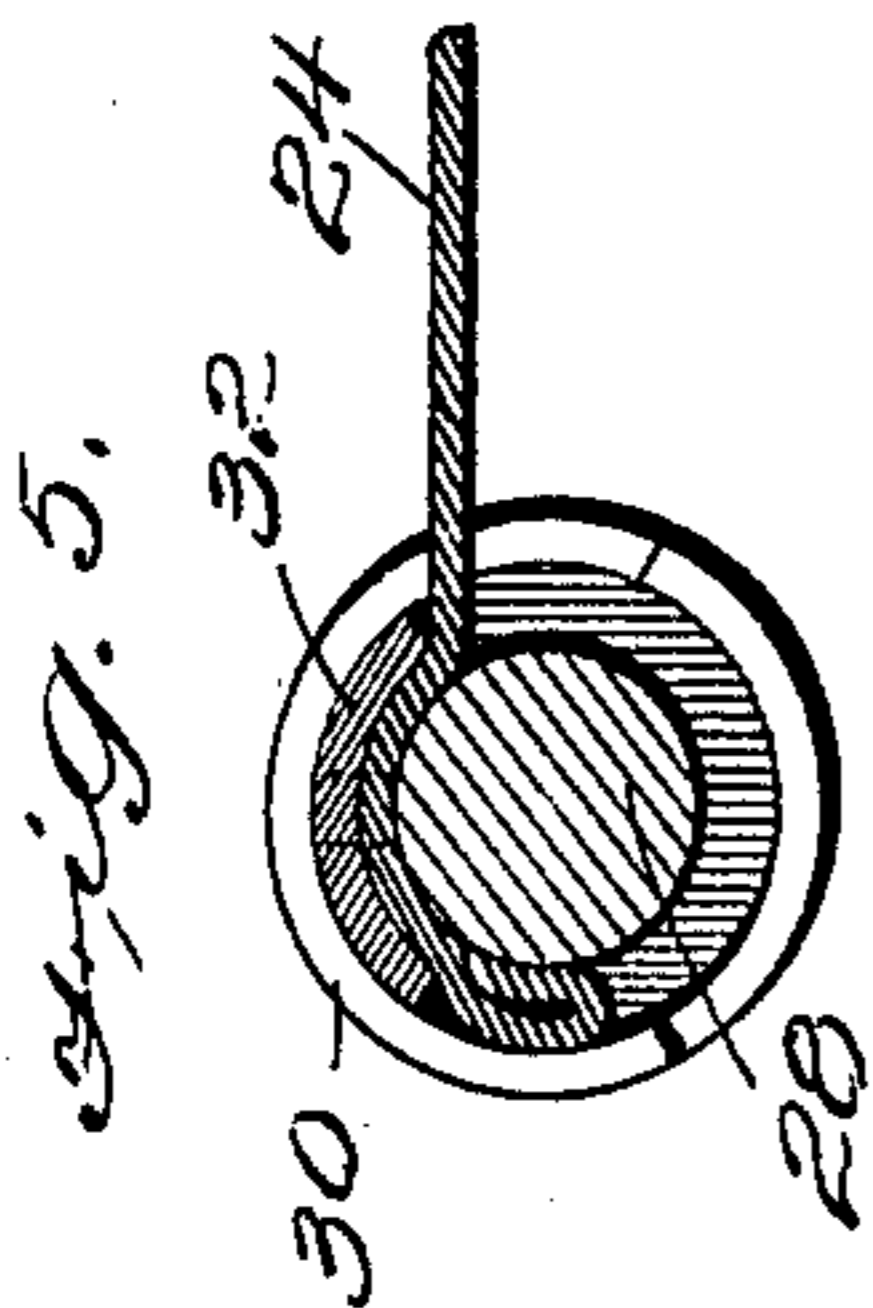


HOSPITAL OR INVALID'S BED.

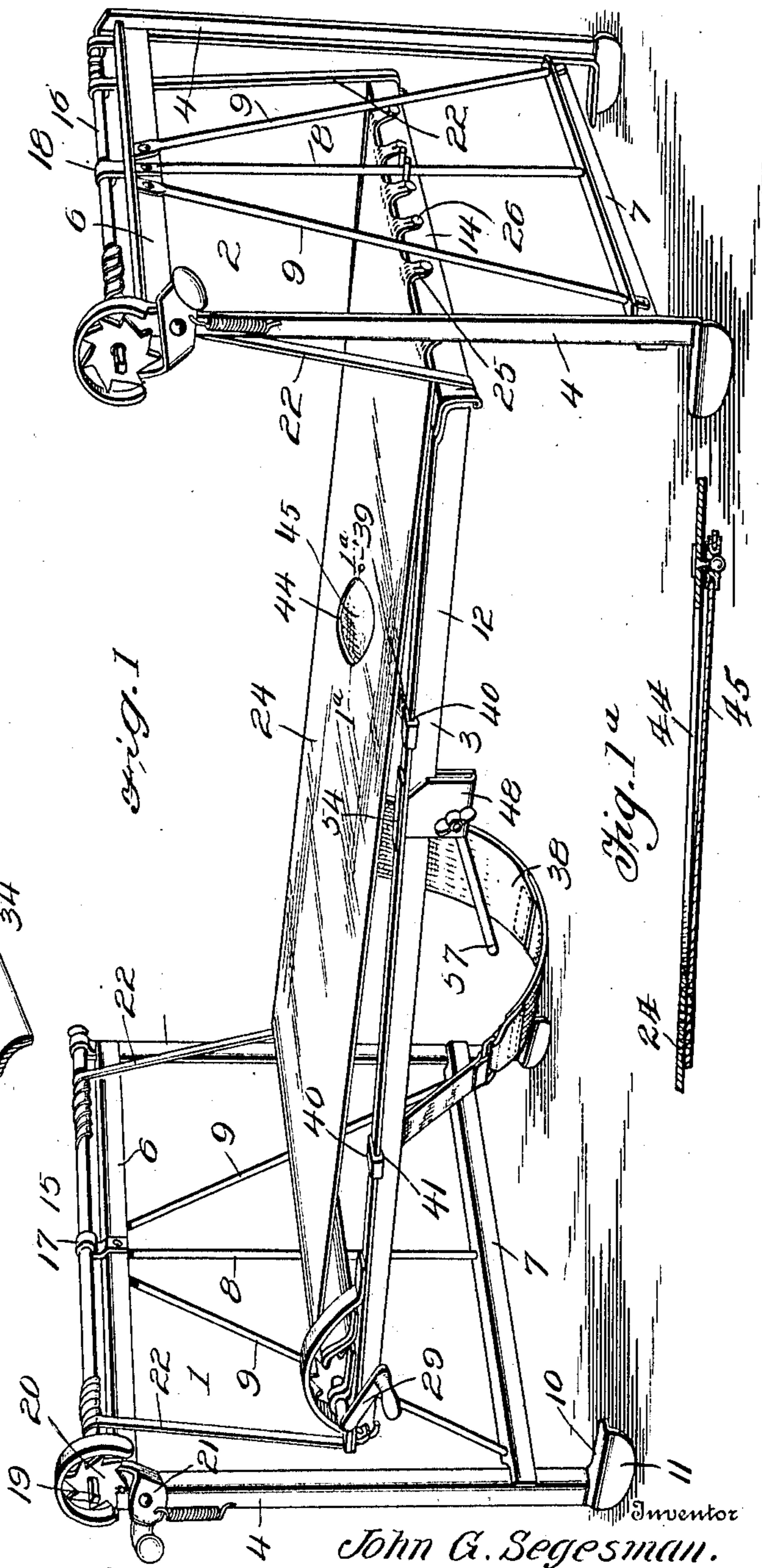
APPLICATION FILED OCT. 5, 1909.

3 SHEETS—SHEET 1.

970,357.



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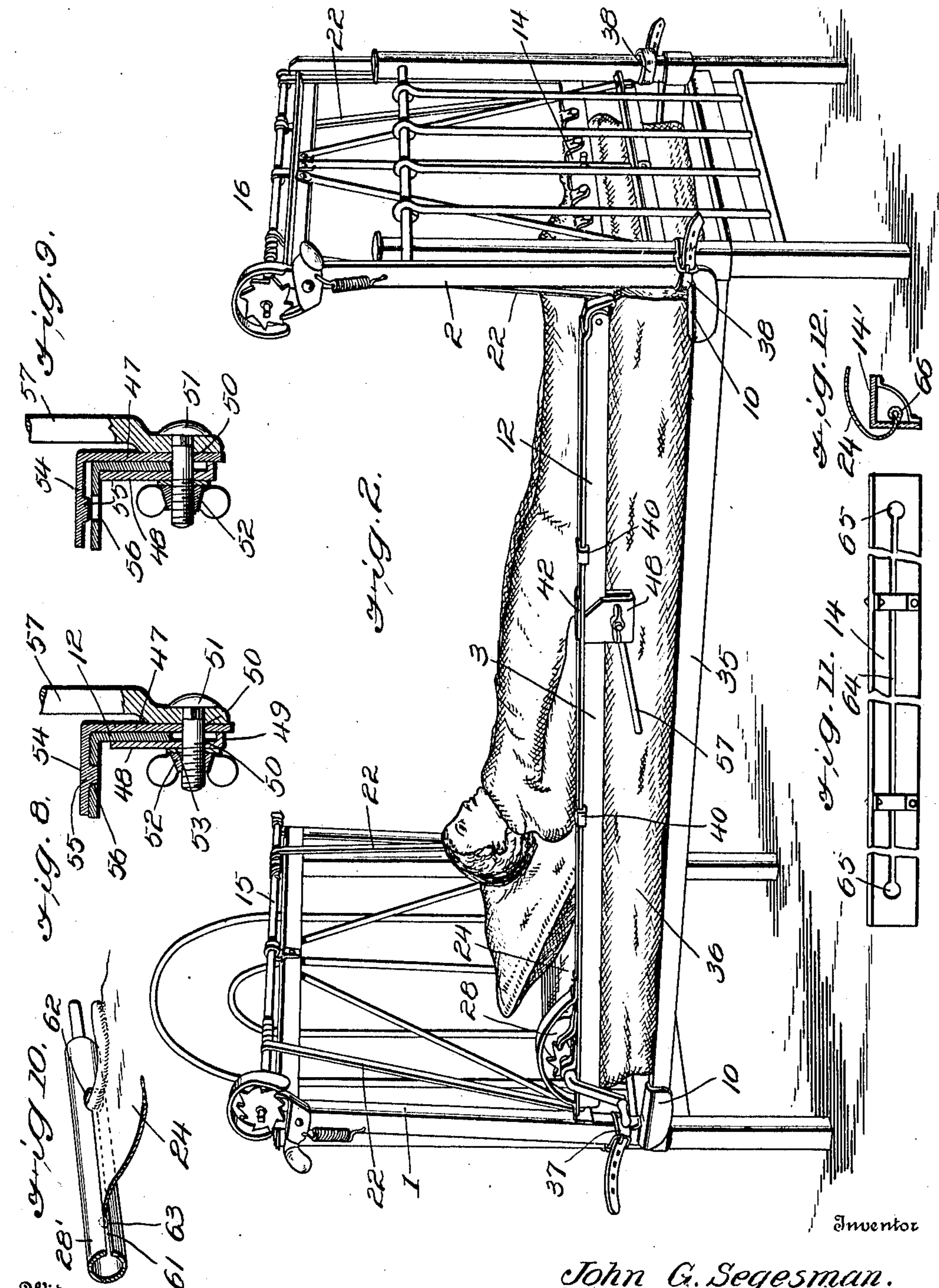
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APPLICATION FILED OCT. 5, 1909.

970,357.

Patented Sept. 13, 1910.

3 SHEETS—SHEET 2.



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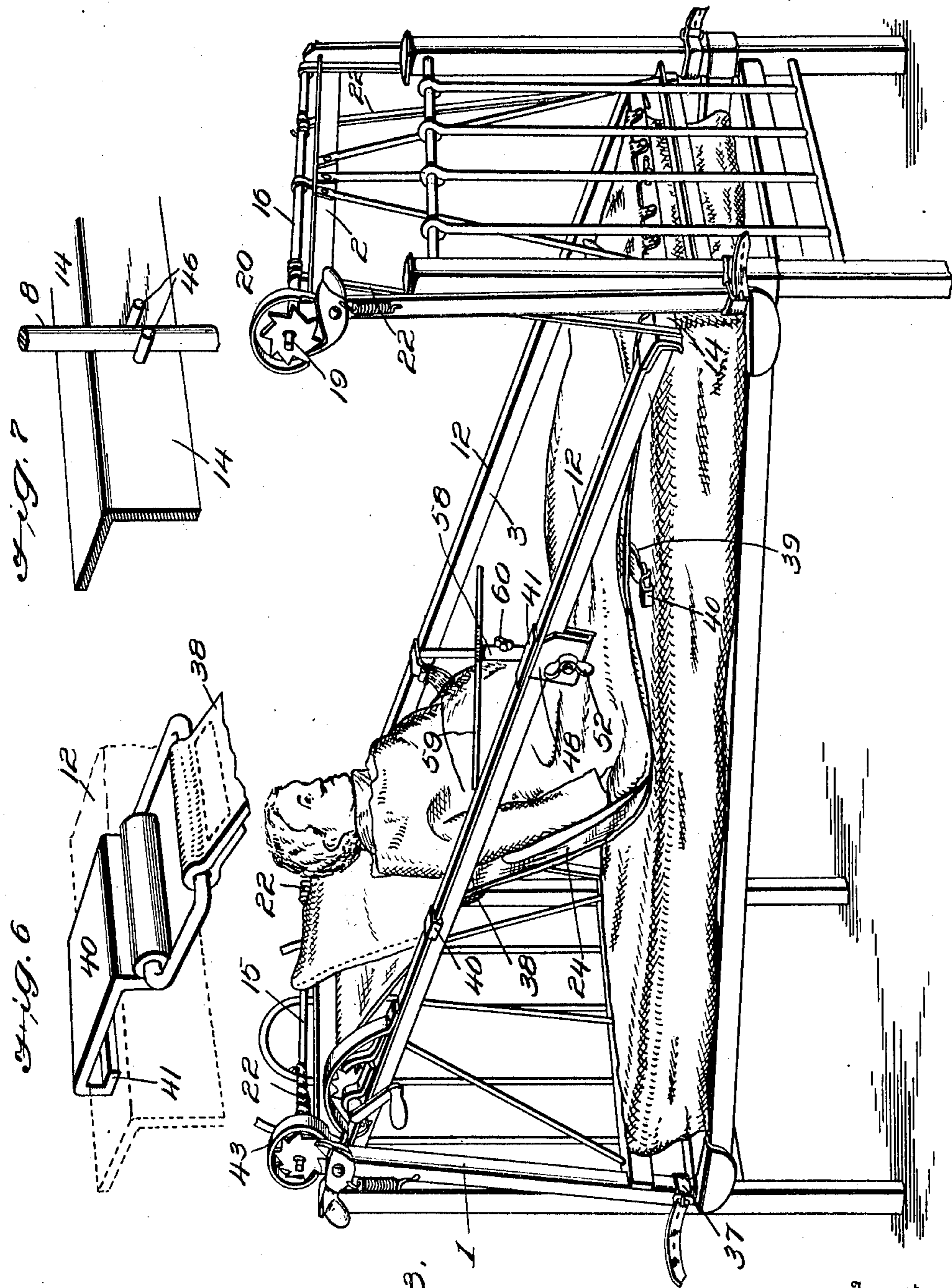
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APPLICATION FILED OCT. 5, 1909.

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3 SHEETS—SHEET 3.

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UNITED STATES PATENT OFFICE.

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HOSPITAL OR INVALID'S BED.

970,357.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed October 5, 1909. Serial No. 521,084.

To all whom it may concern:

Be it known that we, JOHN G. SEGESMAN and GOTTLIEB BINGGELI, citizens of the United States, residing at Salem, in the county of Columbiana and State of Ohio, have invented new and useful Improvements in Hospital or Invalids' Beds, of which the following is a specification.

This invention relates to a hospital or invalid's bed, and more particularly to an attachment for ordinary bedsteads whereby the patient may be raised or lowered and supported in different positions as circumstances may require.

The object of the invention is to provide an attachment of the character described which may be applied to either metal or wooden bedsteads, and which embodies novel features of construction affording increased conveniences in adjusting and disposing the patient in different positions.

With these and other objects in view, the invention consists of the features of construction, combination and arrangement of parts hereinafter fully described, illustrated and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a perspective view of the attachment. Fig. 1^a is a detail section through the apron on the line 1^a—1^a of Fig. 1. Fig. 2 is a perspective view showing the attachment applied to a bedstead and arranged to support the patient in a reclining position. Fig. 3 is a similar view showing the patient supported in a sitting position. Fig. 4 is a fragmentary perspective view of the head frame, stretcher frame and associated parts. Fig. 5 is a cross section through the windlass for stretching the cover of the stretcher frame, showing said cover clamped to the shaft. Fig. 6 is a detail perspective view of one end of one of the supporting belts, showing the means for connecting the same with the side rail of the stretcher frame, the latter appearing in dotted lines. Fig. 7 is a detail perspective view showing the guiding connection between either end of the stretcher frame and the adjacent end frame of the attachment. Figs. 8 and 9 are transverse sections through one of the side rails of the stretcher frame and the table supporting means, showing the latter clamped and released for adjustment. Fig. 10 is a sectional perspective view showing a modification in the means for connecting the upper

end of the apron with the windlass. Fig. 11 is an inner side view of the bottom rail of the stretcher frame, showing a modified construction thereof. Fig. 12 is a cross section through the same, showing the end of the apron connected therewith.

In carrying our invention into practice, we provide generally an attachment comprising two upright end frames 1 and 2 and a stretcher 3. Each end frame 1 and 2 is preferably formed of corner posts 4 and 5 connected by upper and lower transverse bars or rails 6 and 7, all preferably formed of angle iron, the transverse bars being connected and braced by a central vertical rod 8 and inclined or diverging side rods 9. The said frames 1 and 2 are adapted to be arranged in practice on the inner sides of the head and foot portions of a bedstead and are provided at their lower ends with feet 10 to rest upon the side rails of the bedstead, said feet being formed with depending flanges to engage the outer sides of said side rails, and thus hold the attachment from shifting laterally on the bedstead.

The stretcher 3 comprises an oblong rectangular frame formed of angle iron and consisting of side rails 12 and upper and lower transverse end rails 13 and 14. This stretcher frame may be varied in width and length to suit different sizes of bedsteads to which the attachment is to be applied, and is of a length to extend snugly between the end frames 1 and 2 and of substantially corresponding width. In order to adjustably support said stretcher frame from the end frames, windlasses are mounted upon the upper ends of said end frames, said windlasses comprising winding shafts 15 and 16 journaled in bearings 17 and 18 on the respective frames, each of said shafts having an angular end 19 for the attachment of an operating crank, such angular end carrying a ratchet wheel 20 adapted to be engaged by a spring-actuated pawl or dog 21 on the corner post 4 by which the shaft may be held against retrograde movement. Secured at their upper ends to each winding shaft is a pair of suspension straps 22, which are suitably fixed at their lower ends to the adjacent end rail 13 or 14 of the stretcher frame, to support the latter from said shafts. As shown, the upper ends of the straps are secured to each shaft by pins or other equivalent fasteners 23 some little dis-

tance inwardly from the ends of the shaft, so that in the operation of the shaft the straps will wind spirally thereon, thus causing them to wind equally to support the
 5 stretcher frame in a level position at all times.

The stretcher is completed by the provision of a flexible covering or apron 24 of canvas or other suitable material, which
 10 forms a soft bed or support for the patient. This covering or apron is detachably secured at its lower end to the end rail 14 in any suitable manner, preferably by providing it with a series of tabs 25 having button
 15 holes therein to engage headed studs or buttons 26 on said end rails, by which the apron may be detached therefrom when occasion requires.

The upper end of the covering or apron
 20 24 is adapted to wind around a transverse windlass shaft 27 journaled in bearings 28 on the upper ends of the guide rails 12 adjacent the rail 13 and provided at one end with an operating handle or crank 29. On
 25 each end of this windlass shaft is a collar or sleeve 30 of greater diameter than the shaft to provide a receiving socket, which collar or sleeve is formed in its edge with a segmental slot 31. The upper end of the
 30 apron 24 is adapted to be extended partially around said shaft 27 and to be secured to the same by a segmental clamping bar or strip 32, which bar or strip extends between the two collars or sleeves 30 and is adapted to
 35 fit at its ends into the sockets formed thereby and to be inserted and removed through the notches 31, by which it will be retained in position. In addition each end of the
 40 shaft carries a projecting pin or stud 33 adapted to fit within an opening 34 in the adjacent end of the strip 32 to connect the same with the shaft and prevent possible
 45 shifting of said strip. By this means the strip will clamp the upper end of the apron firmly to the shaft so that it will wind thereon without liability of slipping. If desired, the apron may also be provided with openings for the passage of the pins 33.

From the construction thus far described,
 50 it will be apparent that the stretcher frame may be raised or lowered horizontally to support the patient at any suitable elevation in an inclined position, and it will also be
 55 apparent that by proper operation of the winding shafts either end of the stretcher may be raised or lowered to incline downward toward the head or foot of the bedstead. As shown clearly in Figs. 2 and 3,
 60 wherein we have shown the attachment applied to an ordinary form of metallic bedstead 35, it will be seen that the end frames 1 and 2 are arranged in the inner sides of the head and foot portions of the bedstead with their flanged feet engaging the side
 65 rails of the bed, while the stretcher rests

upon the usual mattress 36. In order to more firmly and securely support the attachment in position upon the bedstead, straps or bands 37, having connecting
 70 buckles, may be provided to fasten the corner posts of the end frames 1 and 2 at their upper and lower ends to the upper and lower ends of the corner posts of the bedstead. In the present instance we have shown the straps applied
 75 for coupling the corner posts at their upper ends firmly. In addition to the above statement of the capabilities of adjustment of the stretcher, it will be understood that by means of the windlass or winding shaft 28
 80 the apron 24 may be held taut to hold the patient outstretched in any of the positions of the stretcher frame, or that it may be slackened to permit the patient to assume a sitting posture, as shown in Fig. 3, and
 85 various other positions such as may be required in performing various operations on or attending to the wants of the patient. In order to support the apron when slackened or sagged, to more effectually support
 90 the body of the patient in different positions, upper and lower transverse supporting straps or belts 38 and 39 are employed and extend between the side rails of the
 95 stretcher frame above and below the transverse center of said frame. Each of these straps or belts consists of two or more sections adjustably connected by buckles or otherwise and is provided at its ends with
 100 pivoted hooks 40 to rest upon and engage the horizontal webs of the side rails 12, said hooks being formed with inturned flanges 41 to engage under the outer edges of said webs, by which the hooks, under the strain
 105 imposed upon the strap or belt, will be held firmly and securely in engagement with the side rails. By slackening the apron 24, detaching the lower belt 39 to allow the
 110 latter to drop down, and properly arranging and tightening the belt 38, when the stretcher is adjusted to a downwardly inclined position, as shown in Fig. 3, it will be seen that the patient may be supported
 115 in a sitting position and the upper portion of his body braced by the belt 38, to allow the patient to eat, read, perform his ablutions and any light work for which he is fitted or to support him in an erect position to secure relaxation or relief at intervals from the discomforts arising from a
 120 constant inclining position. By slackening the belt 38 and tightening the belt 39 the upper portion of the body of the patient may be depressed and the legs supported in an elevated position for operations or other
 125 work to secure ease or comfort. These and many other adjustments may be obviously secured in an easy and convenient manner, so that the advantages arising from the construction and arrangement of parts set
 130

forth may be readily appreciated by those versed in the use of devices of this character.

In order to shield and protect each ratchet wheel 20 and prevent possible injury to a person by coming in contact therewith, each ratchet wheel may be partially inclosed by a guard or shield 43, and if desired the stretcher apron or cover 24 may be provided with a slit or opening 44 adapted to be closed by an underlying flap 45, which opening is designed to facilitate micturition and other like operations. In order to guide the stretcher frame in its vertical movements and prevent any tendency to lateral play thereof, each end rail of the stretcher frame is provided with a pair of spaced pins or other equivalent guide members 46 adapted to engage the rod 8 of the adjacent end frame. Also in order to secure increased conveniences in the use of the attachment, we provide means by which a table, tray or other support may be mounted upon the stretcher frame and held in a position in front of the sitting patient, in order that dishes, a book or other articles may be arranged within convenient reach. This device comprises a supporting bracket composed of inner and outer plates 47 and 48 arranged to bear against the corresponding faces of the vertical web of one of the end rails 12, the outer plate being provided at its lower end with an inturned flange 49 to abut against the inner plate and hold it in proper spaced relation therefrom below the rail. The lower portions of said plates are formed with registering openings 50 for the passage of a bolt 51 provided at its outer end with a wing nut 52 and a clamping washer 53, by which the plates may be drawn together to clamp the rail or forced apart to release the bracket for removal or adjustment. The plate 47 carries at its upper end an outwardly extending flange 54 provided with a pin or stud 55 for engagement with anyone of a series of openings 56 in the horizontal web of the rail 12, by which the bracket may be adjusted within desired limits and firmly held against shifting in adjusted position. The inner or headed end of the bolt supports a rod or arm 57 adapted to pass through a socket or receiving tube 58 on the table or other supporting member 59 designed to be held in position, which socket carries a set screw 60 to clamp the table at any desired elevation on the rod. It will be seen from its construction that the table or article may not only be adjusted by the bracket toward or from the patient, but may be adjusted vertically to the desired elevation on the rod, and also to any desired inclination to the horizontal by turning the rod on the slackened pivot bolt prior to the tightening of the nut 52.

Figs. 10, 11 and 12 show a modified construction of means which may be employed for connecting the upper and lower ends of the apron 24 with the winding shaft at the head of the stretcher frame and the lower end rail of said frame. As shown, the winding shaft 28' is hollow and provided with a longitudinal slot 61, which is formed at each end with an enlargement 62. The upper end of the apron is provided with a bead or rib 63 adapted to be inserted and withdrawn through the enlargements. The bead is of greater diameter than the slot 61, so that when the apron is inserted and extended through said slot the bead will retain it in position and hold it from withdrawal except by a reverse movement through one or the other of the enlargements 62. The bottom rail 14' of the stretcher frame is similarly provided with a longitudinal slot 64 having end enlargements 65, and the lower end of the apron is formed with a rib or bead 66 adapted to be inserted and withdrawn through one or the other of said enlargements to admit of the passage of the apron through the slot, as shown in Fig. 12. When so applied the end of the apron will be held from withdrawal from the slot by the rib or bead, which may, however, be withdrawn through the enlargements to release the apron when occasion requires.

Our improved attachment may be employed in hospitals or homes for supporting patients or invalids for the purpose described and for the performance of surgical operations. It is readily adapted for application to and use upon a metallic bedstead in the manner shown and described, and may be similarly applied to a wooden bedstead by simply arranging slats across the side rails of the latter at the ends of the bedstead to sustain the end frames 1 and 2.

The manifold advantages and conveniences of the attachment will be understood without further extended description.

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

1. A device of the character described comprising end supporting frames, winding shafts upon the upper ends thereof, a stretcher frame, guiding connections between said stretcher frame and the end frames, flexible suspension straps connected at their lower ends with the ends of the stretcher frame and attached at their upper ends to the shafts a distance inwardly from the ends of the latter to adapt them to wind spirally on said shafts, a flexible apron carried by the stretcher frame, and means for tightening and relaxing the same.

2. A device of the character described comprising end supporting frames, transverse winding shafts upon the upper ends thereof, a stretcher frame, guiding connections between said stretcher frame and the

end frames, flexible suspension straps wound upon said shafts and connected with the ends of the stretcher frame, a flexible apron carried by the stretcher frame, and means
5 for tightening and relaxing the same.

3. A device of the character described comprising end supporting frames, transverse winding shafts upon the upper ends of said frames, a stretcher frame, guiding
10 connections between the ends of the stretcher frame and the end frames, flexible suspension devices wound at their upper ends upon the shafts and connected at their lower ends with the ends of the stretcher frame, a flexi-
15 ble apron upon the stretcher frame, means for tightening and relaxing said apron, and transverse supporting belts on the stretcher frame below said apron.

4. A device of the character described comprising end supporting frames having
20 flanged feet, transverse winding shafts at the upper ends of said frames, a stretcher frame having guiding connections at its opposite ends with the end frames, flexible
25 suspension devices connected with the ends of the stretcher frame and arranged to wind upon said shafts, a flexible apron upon the stretcher frame, and means for tightening and relaxing the same.

30 5. A device of the character described comprising end supporting frames, a stretcher frame, means adjustably suspending the ends of said stretcher frame from the end frames, a flexible apron carried by

the stretcher frame, means for tightening 35 and relaxing said apron, and adjustable belts on the stretcher frame below said apron, said belts having end hooks adjustably engaging the side rails of said stretcher frame.

6. A device of the character described comprising end frames, a stretcher frame, means adjustably suspending the ends of the stretcher frame from the end frames, a
40 flexible apron connected at one end with the end frame, a winding shaft upon the stretcher frame connected with the other end of the apron for tightening and relaxing the same, and supporting belts upon the
50 stretcher frame beneath said apron.

7. A device of the character described comprising end frames, a stretcher frame, means adjustably suspending the stretcher frame from the end frames, a flexible apron
55 on the stretcher frame, means for tightening and slackening the same, adjustable belts upon the stretcher frame below the apron to support the same in a sagged condition, a bracket adjustably mounted on one of the
60 side rails of the end frame, and a support adjustably connected to the said bracket.

In testimony whereof we affix our signatures in presence of two witnesses.

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GOTTLIEB BINGGELI.

Witnesses:

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PAUL R. ASHBROOK.