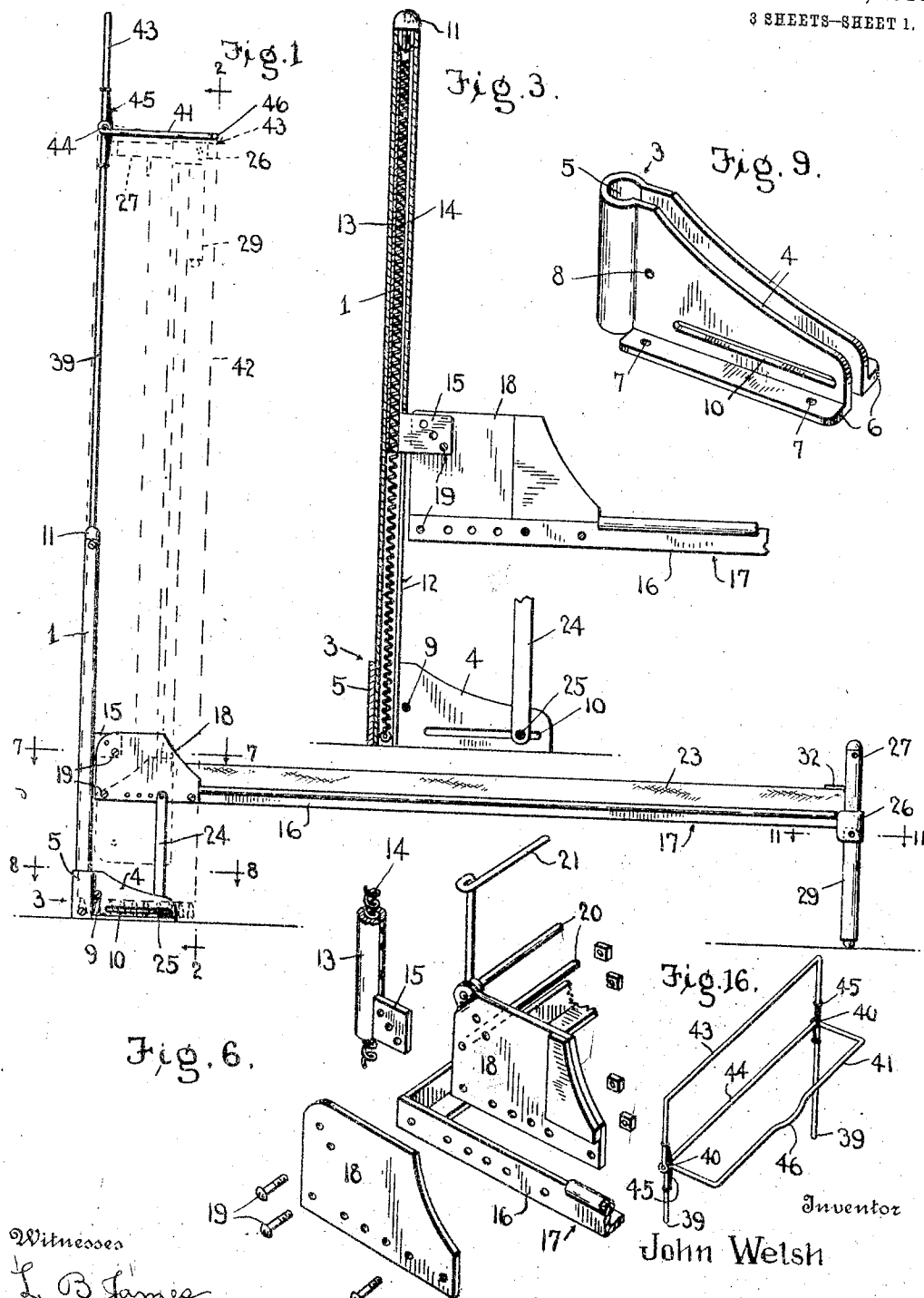


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FOLDING BED.
APPLICATION FILED DEC. 5, 1912.

1,057,191.

Patented Mar. 25, 1913.

3 SHEETS-SHEET 1.



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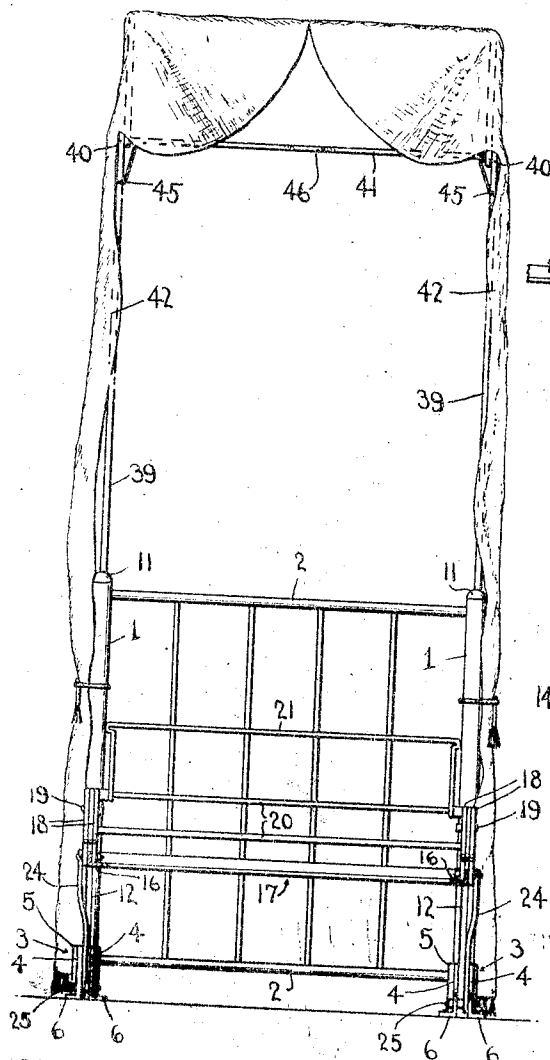
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3 SHEETS—SHEET 2.

Fig. 2.



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Fig. 5.

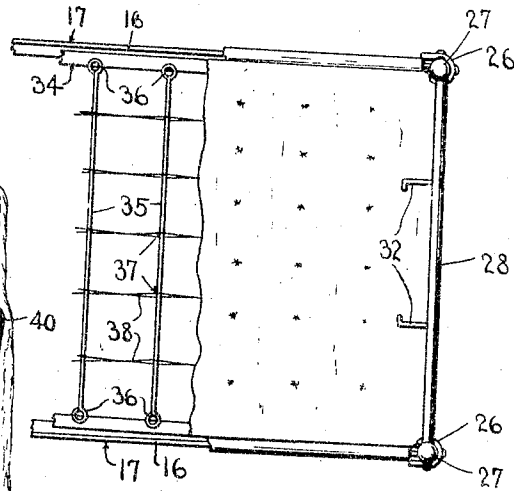


Fig. 11.

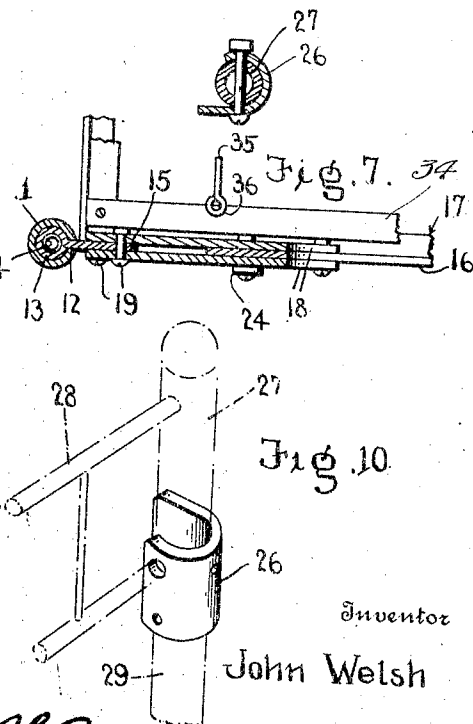


Fig. 10.

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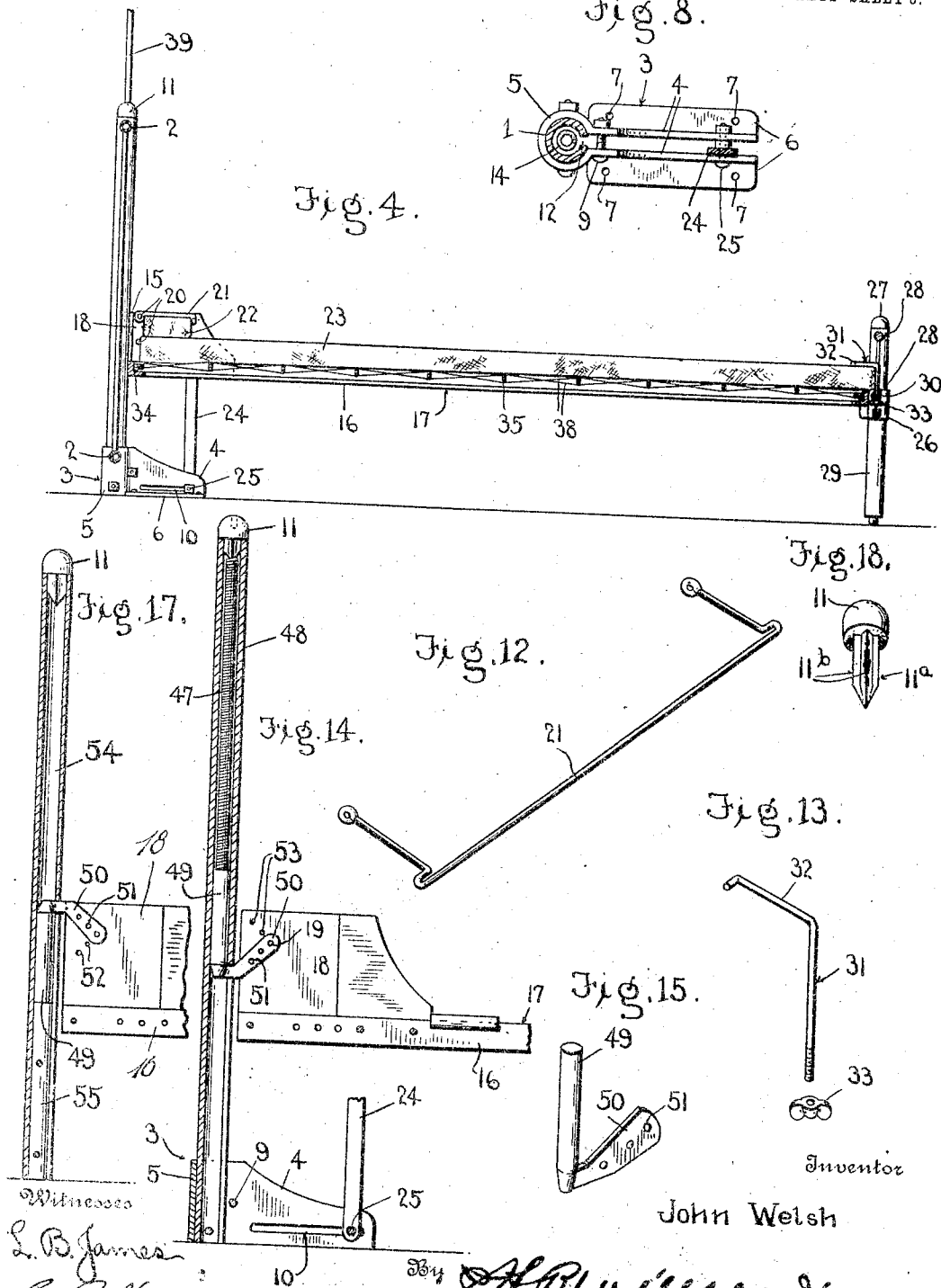
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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FOLDING BED.

1,057,191.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN WELSH, a citizen of the United States, residing at West Berkeley, in the county of Alameda and State of California, have invented certain new and useful Improvements in Folding Beds; and I do 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 improvements in folding beds and particularly to metal folding beds.

One object of the invention is to provide a bed of this character having an improved construction and arrangement of counterbalancing springs by means of which the body of the bed may be readily swung upwardly or downwardly to closed and open positions and held in such positions.

Another object is to provide a metal folding bed which will be simple, strong, durable and inexpensive in construction, attractive in appearance and having means whereby the same may be entirely covered when in a folded position.

With these and other objects in view the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings: Figure 1 is a side view of my improved folding bed showing the same in open or operative position in full lines and in folded or closed position in dotted lines; Fig. 2 is a vertical cross sectional view taken on the line 2—2 of Fig. 1; Fig. 3 is an enlarged vertical sectional view through one of the head corner posts of the bed and the foot or support thereof showing the arrangement of the counterbalancing spring therein and the manner in which one of the side rails of the bed frame is connected thereto; Fig. 4 is a vertical longitudinal section of the bed taken adjacent to one side thereof and showing the mattress and pillow in full lines; Fig. 5 is a plan view of the foot end of the bed showing the manner in which the foot of the mattress is engaged by the mattress holding devices; Fig. 6 is a detail perspective view of one corner of the mattress supporting frame of the bedstead and the adjacent parts showing the latter separated. Fig. 7

is a detail horizontal sectional view of one corner of the bed taken on the line 7—7 of Fig. 1; Fig. 8 is a similar view taken on the line 8—8 of Fig. 1; Fig. 9 is a detail perspective view of one of the feet or base members for the head corner posts of the bed; Fig. 10 is a detail perspective view of one of the clips of the foot corner posts to which the legs at the foot end of the bed are pivotally connected; Fig. 11 is a horizontal sectional view through the parts shown in Fig. 10 and taken on the line 11—11 of Fig. 1; Fig. 12 is a detail perspective view of the pivoted frame for holding the pillow and head end of the mattress in place; Fig. 13 is a similar view of one of the devices for holding the foot end of the mattress in place. Fig. 14 is a vertical sectional view through one of the head corner posts and adjacent parts of the bed showing a slightly modified construction and arrangement of the counterbalancing springs; Fig. 15 is a detail perspective view of one of the members which connect the side bars of the bed with the counterbalancing springs, in the form of the invention shown in Fig. 14. Fig. 16 is a detail perspective view of the upper end of the canopy and curtain supporting frame of the bed. Fig. 17 is a vertical sectional view through the tubular corner post of the head end of the bed illustrating a modified form of my invention wherein the parts illustrated in Fig. 4 may be employed in connection with a non-folding bed; Fig. 18 is a detail perspective view of the self-clenching knob which is preferably employed in the upper end of the tubular corner posts of the bed.

My improved bed comprises tubular head corner posts 1 to which are connected the rods 2 forming the head section of the bed. The lower ends of the standards 1 are secured to feet or base members 3 comprising parallel side plates 4 having at their outer ends an integral socket 5 in which the lower end of the corner post is secured. On the lower edges of the plates 4 are laterally projecting flanges 6 having therein screw holes 7 adapted to receive screws or other fastening devices whereby said feet or base members may be secured to the floor. The plates 4 also have formed therein near the socket 5 aligned bolt holes 8 with which is adapted to be engaged a clamping bolt 9 whereby the socket 5 is clamped around the lower end

of the post and whereby the side plates 4 are held together in spaced relation. In the side plates 4 immediately above the flanges 6 are oppositely disposed longitudinal slots 10 the purpose of which will be hereinafter described.

The upper ends of the posts 1 are closed by suitable knobs 11 which may be of any ornamental design. The lower portions of the posts 1 are provided on their inner sides with vertical slots 12 which extend upwardly a suitable distance as shown. Slidably mounted in the upper portion of each post is a tubular spring holding casing 13 in which is arranged a coiled spring 14 the upper end of which is firmly secured in the upper end of the casing while the lower end thereof is firmly secured in the lower end of the post as clearly shown in Fig. 3 of the drawing. Secured to or formed integral with the lower end of the casing 13 is a laterally projecting frame attaching lug or plate 15 which projects and works through the slot 12 in the post 14 and is provided with a series of bolt holes whereby the same may be adjustably secured to the head ends of the side rails 16 of the mattress supporting frame 17 of the bed. The frame 17 is preferably formed of angle iron bars, and to the rails 16 of the frame 17 at the head end thereof are secured parallel upwardly projecting plates 18 which are spaced a suitable distance apart and between which is adjustably connected the plate or lug 15 of the spring casing 13, said lug and the adjacent portions of the plates 18 having therein bolt holes to receive fastening bolts 19 whereby these parts are connected. The inner plate 18 on each side of the frame has engaged therewith the ends of brace rods 20 which extend across the bed and also serve as stops to receive one end of the mattress. Pivottally connected to the upper brace bar 20 near the inner plate 18 is a pillow bar 21 which is adapted to be swung down into engagement with the pillow 22 whereby the latter and one end of the mattress 23 are held in position on the mattress supporting frame of the bed. The head end of the frame 17 is pivottally supported by supporting links 24 one of which is arranged at each side of the bed frame and has its upper end adjustably pivoted to the plates 18 and side rails 16 and its lower end pivottally and slidably attached to and between the side plates 4 of the foot or base member 3 by a pivot bolt 25 which is engaged therewith and with the slots 10 in said plates of the base member 3 as shown.

The foot end of the mattress supporting frame of the bed has secured thereto foot post and leg attaching clips 26 which are substantially U-shaped and in the upper ends thereof are secured the lower ends of

the foot corner posts 27 to which and to the inner sides of the clips 26 are secured the foot frame bars 28 as clearly shown in dotted lines in Fig. 10 of the drawings. Pivottally secured to the lower ends of the clips 26 are short legs 29 which when the mattress and supporting frame is in an open or operative position will swing down to vertical positions for engaging the floor and which when the mattress supporting frame is swung upwardly or folded, will swing down against the outer or lower sides of the side rails of the mattress frame as clearly shown in dotted lines in Fig. 1 of the drawings.

Slidably mounted in vertical passages 30 in the foot frame bars 28 are mattress holding members 31 comprising rods having right angularly projecting upper ends 32 the extremities of which are bent laterally or offset as shown. The lower ends of the rods are threaded to receive thumb nuts 33 which when screwed up on said threaded ends and into engagement with the bars 28 draw said angular upper ends 32 of the rods into engagement with the upper side of the foot end of the mattress thereby firmly clamping the latter to the bedstead as clearly indicated in Fig. 4 of the drawing.

Any suitable bed bottom or springs may be employed in connection with my improved bedstead, said bed bottom being here shown and preferably comprises a frame 34 having an angle iron side and end bars which are adapted to engage and rest on the angle iron side rails and end bars of the bed frame. Arranged between the side bars of the frame 34 are a series of parallel cross bars 35 in the ends of which are formed eyes 36 having slots which receive the edges of the angle iron side bars of the frame 34 and hold the cross bars in place. The cross bars 35 are notched at intervals as at 37 and with said notches in the cross bars are engaged longitudinal rods or wires 38 each of which is passed over and under each alternate cross bar 35 or are engaged with the upper side of one cross bar and with the lower side of the next adjacent cross bar, said rods crossing or passing each other between the cross bars as clearly shown in Fig. 4 of the drawing. The ends of the rods or wires 38 are securely fastened in any suitable manner to the end cross bars of the frame. The bed bottom or springs when thus constructed form a strong support for the mattress of the bed.

In connection with the bed I preferably provide a canopy and curtain supporting device comprising standards 39 the lower ends of which are engaged with the knobs 11 in the upper ends of the corner posts of the bed. The standards 39 extend to a height corresponding with the length of the bed frame and are bent at this point to form eyes

40 and a horizontally disposed forwardly projecting canopy frame 41 over which are draped curtains 42 the upper ends of which are secured to a curtain supporting frame 5 43, having its inner ends pivotally mounted on a cross bar or rod 44 the ends of which are engaged with the eyes 40 on the upper ends of the standards 39 (see Fig. 16). The curtain supporting frame 43 has engaged 10 with its ends one of the ends of coiled springs 45 which are arranged on the cross bar 44 and have their opposite ends secured to the standards 39 whereby the pressure of said springs is exerted to swing the curtain supporting frame 43 upwardly to a vertical 15 position above the upper ends of the standards 39 and cross bar 44 in which position the frame will draw and hold the curtains up so that when the bed is open or in position for use the lower ends of the curtains will not interfere with the occupants of the bed.

When the bed is in a closed or folded position the curtain supporting frame 43 will 25 be swung downwardly around the frame 41 and when in this position the front bar of the curtain supporting frame 43 will be sprung over an offset or projection 46 on the front bar of the frame 41, said projection thus holding the curtain supporting frame in a lowered or horizontal position whereby the curtains depending therefrom may be draped over or around the folded or closed bed thereby entirely inclosing and 35 hiding the latter. When the bed is in an open position the curtain supporting frame is released to permit the springs 45 to swing the same upwardly to a vertical position from which the curtains may be draped back and tied or otherwise suitably fastened to 40 the head corner posts of the bed.

In Fig. 14 of the drawing is shown a slightly modified construction and arrangement of counterbalancing springs 47 for 45 counterbalancing the weight of the bed frame and assist in the raising and lowering thereof. In the form of the bed shown in Fig. 14 the spring casings 13 shown and described in the first form of the invention 50 are dispensed with and the spring 47 in each of the corner posts is secured at its upper end to the knob in the upper end of the head corner post 48 or the upper end of the spring may be secured in the upper end of 55 the post in any other suitable manner. The lower end of the spring 47 is engaged with a plunger 49 which is slidably mounted in the lower portion of the tubular corner post 48 and has on its lower end a laterally projecting plate 50 which is provided with a series of bolt holes 51 whereby said plate may be adjustably secured between the plates 18 of the side bars or rails 16 of the bed frame. In the form of the bed shown in 65 Fig. 14 the head end of the side rails are

supported and the other parts of the bed are constructed and arranged in the same manner as the corresponding parts in the form of the bed shown and described in the first figures of the drawings and a further 70 description of these parts is not thought necessary. It will be noted that the spring 47 shown in the last form of the invention is contracted or compressed by the opening 75 movement of the bed frame and that the resistance offered by the compression of the springs 47 serves to counterbalance the weight of the bed frame, while the springs 13 shown in the first form of the invention are stretched or expanded by the lowering 80 or opening movement of the bed frame and that the resistance offered by the stretching or expanding of these springs serves to counterbalance the weight of the bed frame.

In Fig. 17 of the drawings is shown a 85 slightly modified arrangement of the parts illustrated in Fig. 14 of the drawings whereby these parts may be employed for attaching the side rails 16 to the corner posts for forming a rigid or non-folding bed. It will 90 be noted that the plates 18 on the side rails 16 have two series of bolt holes 52 and 53 arranged therein in diverging lines or at right angles to each other. In thus arranging the bolt holes 52 and 53 it will be seen 95 that the plunger 49 and the plate 50 may be removed from the corner post 48 and from the side rail 16 as shown in Fig. 14 and said plunger 49 and plate 50 turned over or reversed and secured by suitable bolts en- 100 gaged with the upper series of bolt holes 53 in which position the plunger 49 is engaged with the corner post 54 as shown in Fig. 17, thus rigidly connecting the side rail to said post. The plunger when thus engaged with 105 the corner post is held in position to support the rail at the desired elevation by a cylindrical bar 55 which is engaged with the lower end of the post 54 and is preferably bolted or otherwise firmly secured in the 110 end of the post and forms a rigid support for the side rail of the bed.

In Fig. 18 of the drawing is shown the preferred construction of the knobs 11 for the upper ends of the head posts of the bed, 115 said knobs 11 being here shown as provided with shanks 11^a, said shanks having a series of radially projecting ribs 11^b which are sharp on their outer edges and when the shanks are driven into the upper ends of the 120 posts bite into the inner surface of the upper ends of the posts and thereby fasten the knobs in position therein.

From the foregoing description taken in connection with the accompanying draw- 125 ings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be 130

resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

Having thus described my invention, what I claim is:

1. A folding bed comprising a head section having tubular corner posts, counterbalancing springs connected at their upper ends to the upper ends of said posts, plungers slidably mounted in said posts and engaged with the lower ends of said springs, rail attaching plates secured to said plungers and projecting from said corner posts, side rails connected at their head ends to said plates, a foot section connected to the other ends of said side rails, and supporting means for the head ends of said side bars whereby the latter and said foot sections may be swung upwardly and downwardly to closed and open positions.
2. A folding bed comprising a head section having base members, tubular corner posts secured at their lower ends in said base members and having in their lower portions vertical slots, counterbalancing springs operatively arranged in said corner posts, a bed frame, means secured to the head ends of said frame and projecting through the slots in said corner posts to operatively connect said head ends with the springs in the posts, supporting links pivotally and adjustably connected at their upper ends to the head ends of said frame and having a pivotal sliding connection at their lower ends with the base members of said head section whereby the head end of the bed frame is pivotally and loosely supported in an open or closed position.
3. In a folding bed, a head section having base members comprising parallel plates having therein oppositely disposed horizontal slots, a socket formed on one end of said plates, tubular corner posts secured at their lower ends in said sockets, counterbalancing springs operatively arranged in said corner posts, a bed frame having an operative connection at its head with said springs, a mattress and pillow holding frame pivotally

connected to the head of said frame, a foot section comprising corner posts having clips to secure the same to the foot ends of said frame, leg members hingedly connected to said clips, mattress fastening rods adjustably mounted in said foot section, and supporting links pivotally and adjustably connected at their upper ends to the head ends of said side rails and having a sliding pivotal connection with the slots in the base members of said head section whereby said bed frame is supported in an open or closed position.

4. A folding bed comprising a head section having tubular corner posts, counterbalancing springs operatively mounted in said posts, side rails connected at their head ends to said springs, foot sections connected to the foot ends of said side rails, means to pivotally and loosely support the head ends of the rails in an open or closed position, a canopy and curtain support comprising standards secured at their lower ends in said head corner posts, a frame projecting forwardly from the upper ends of said standards, a curtain supporting frame pivotally connected to the upper ends of the standards and adapted to be swung downwardly and held in operative engagement with said canopy frame, curtains attached to said curtain frame whereby when the latter is swung downwardly into engagement with the canopy frame the curtain will be held into position to be draped over the folded bed, and springs to swing said curtain supporting frame upwardly above said canopy frame and standards thereby drawing the curtain up over the canopy frame and supporting the curtains in an out of the way position.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN WELSH.

Witnesses:

S. J. THOMPSON,
A. GOMPERTZ.