W. J. BOSANKO.

BED.

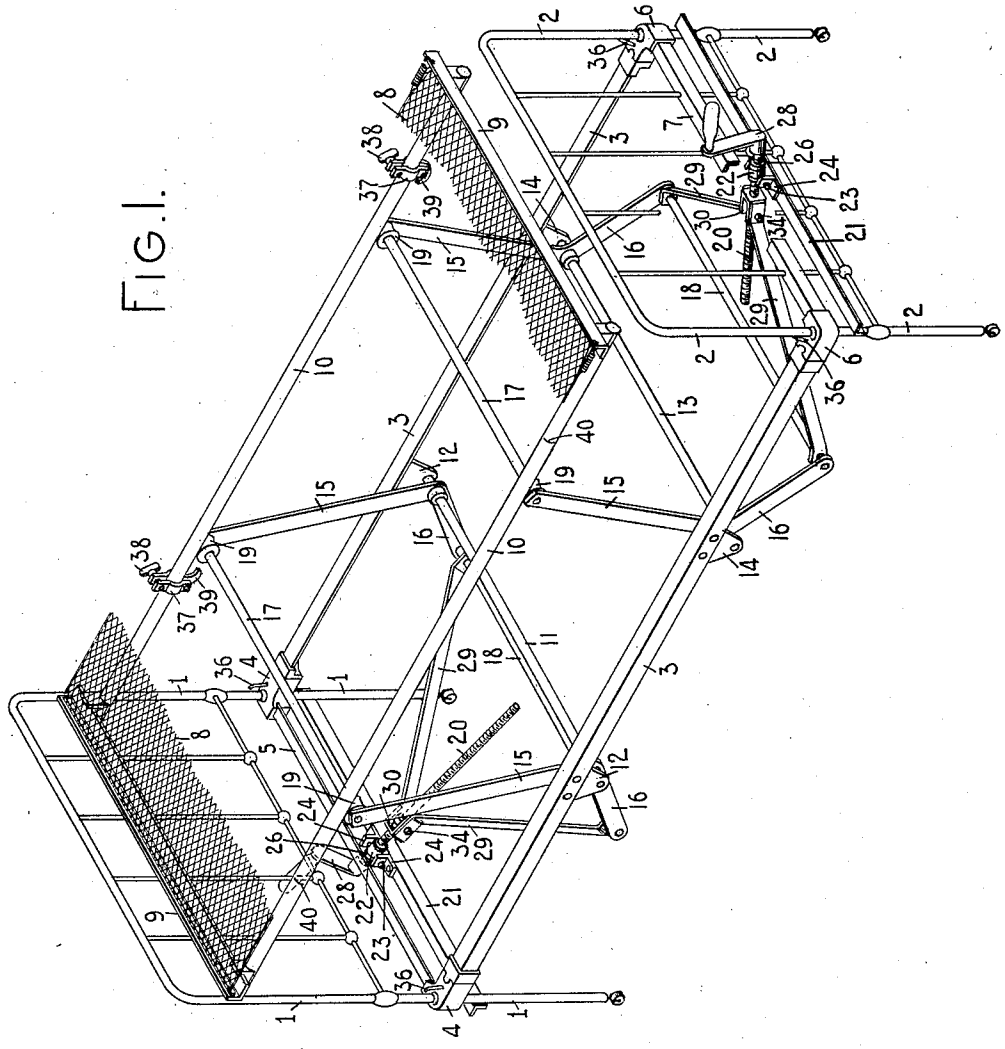
APPLICATION FILED MAR. 13, 1912.

1,037,419.

Patented Sept. 3, 1912.

2 SHEETS—SHEET 1.

FIG. 1.



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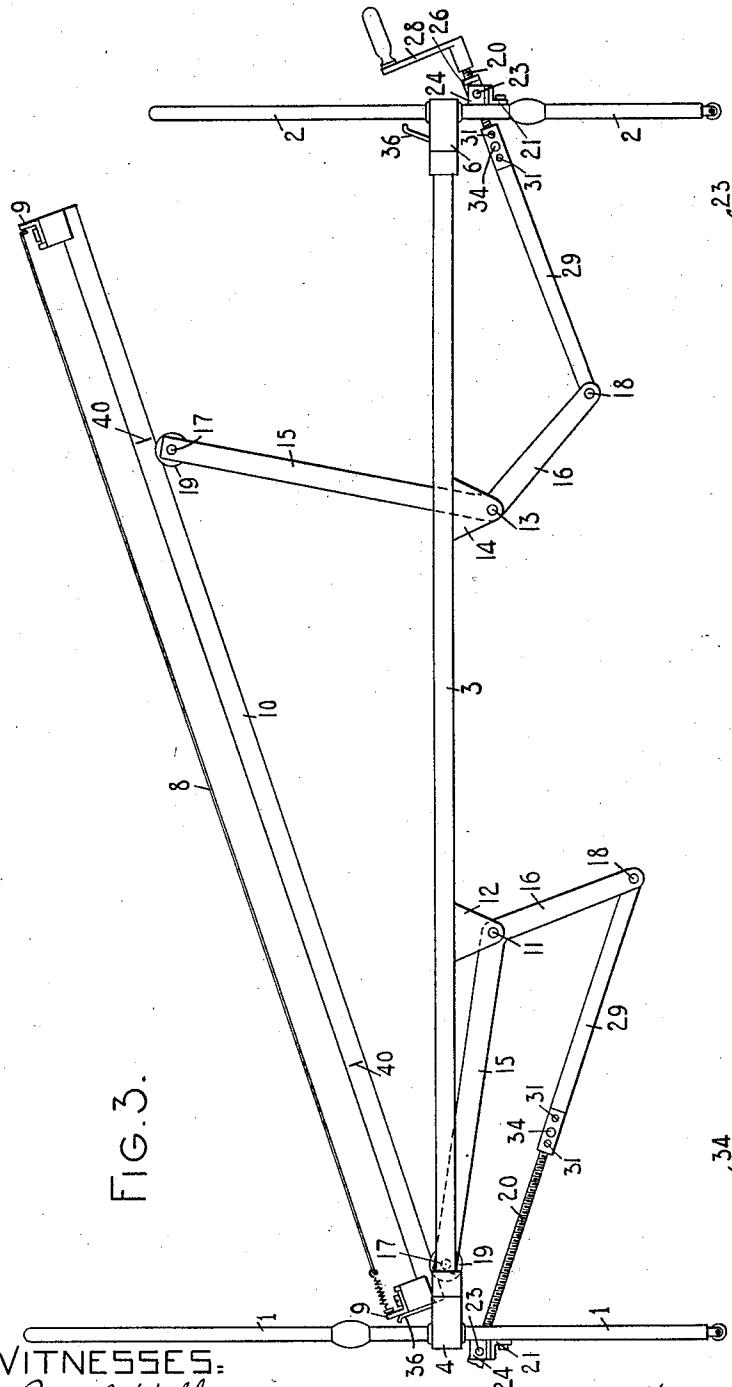

FIG. 3.

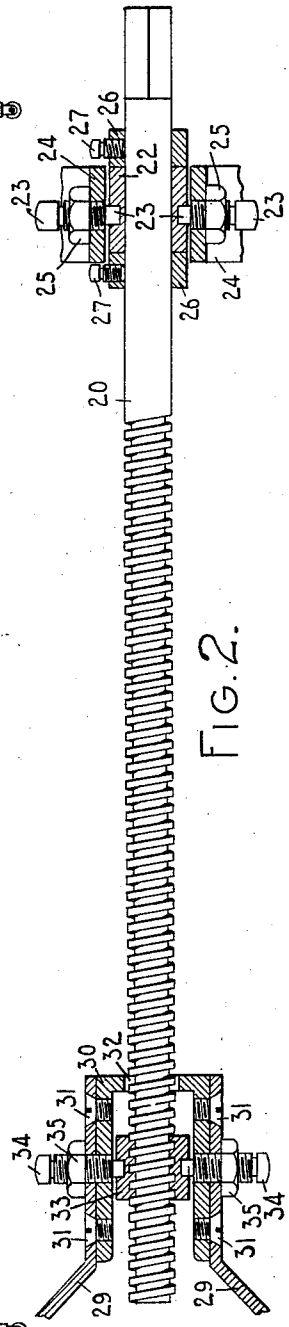

FIG. 2.

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UNITED STATES PATENT OFFICE.

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BED.

1,037,419. Specification of Letters Patent. Patented Sept. 3, 1912.

Application filed March 13, 1912. Serial No. 683,529.

To all whom it may concern:

Be it known that I, WILLIAM J. BOSANKO, a citizen of the United States, and a resident of the borough of Brooklyn, in the county of Kings, in the city and State of New York, have invented a certain new and useful Improvement in Beds, of which the following is a full, clear, and exact description, reference being made to accompanying drawings, forming part of this specification.

This invention relates to improvements in beds which comprise means operative to raise and lower the springs and support them in various positions, when the beds are occupied, and which are thereby especially adapted for use in hospitals and elsewhere in the treatment and care of invalids, the object of the invention being to provide for the attachment to beds of apparatus that will elevate and incline the springs so as to enable doctors and nurses readily to place patients in desired positions without requiring them to exert any of their own strength or subjecting them to any strain.

The invention consists of the combination with a bedstead and bed-spring of apparatus which is hereinafter described and specified in the claims.

On the accompanying two sheets of drawings which illustrate the invention in its preferred form, and on which like reference-numerals designate like parts of different views: Figure 1 is a perspective view of the apparatus, shown in combination with a bedstead and bed-spring, some of the wire portion of the spring being omitted to avoid obscuring parts of the drawing; Fig. 2, an enlarged view of a screw which the apparatus includes, the bearing of the screw, and a nut and fragment of a link with which the screw co-acts, being shown in section; and Fig. 3, a side elevation of the bedstead, spring, and apparatus, that end of the spring which is next to the foot of the bedstead being shown elevated.

The bedstead and spring shown are of well known construction, the bedstead comprising the pair of head-posts 1, the pair of foot-posts 2, and the side-rails 3, the posts 1 extending through the blocks 4 which are fast on the posts and to which is affixed the cross-bar 5, the posts 2 extending through the blocks 6 which are fast on the posts and to which is affixed the cross-bar 7, and the rails 3 fitting at their ends in recesses in these blocks, and the spring being composed of woven wire 8 attached to the ends 9 of a frame comprising round side-rails 10.

The apparatus or attachment which is shown combined with the bedstead and spring comprises two pairs of levers, two operating-screws, two connecting links, fixed stops on the bedstead, and adjustable stops mounted on the side-rails of the spring. One of these pairs of levers is mounted on the cross-rod 11, which is supported at its ends by the hangers 12, fastened to the side-rails 3 of the bedstead, and the other pair of levers is mounted on the cross-rod 13 which is supported by the hangers 14, fastened to the rails 3. Each of these levers, they all being alike and preferably angular levers, has the arms 15 and 16, and the levers of each pair are connected together at their ends by cross-rods 17 and 18, and on the cross-rods 17 close to the arms 15 of the levers are grooved rollers 19. These rollers lie under and fit against the side-rails 10 of the spring, and when the levers are in their normal positions, namely the positions which they occupy while the spring rests at both ends, as it commonly does, on the blocks 4 and 6 of the bedstead, the arms 15 of the levers that are mounted on the cross-rod 11 extend from that rod toward and nearly to the head of the bedstead, as appears by Fig. 3, and the arms 15 of the other levers extend from the cross-rod 13 toward and nearly to the foot of the bedstead.

The operating-screws 20 are supported by cross-bars 21 fastened to the posts 1 and 2, each screw having a bearing 22 (Fig. 2) which is pivotally mounted on threaded pins 23, screwed into brackets 24 and secured therein by nuts 25, the brackets being affixed to the supporting cross-bar 21, and on each screw 20 are collars 26 that are fastened to it close to the ends of the bearing 22 by set-screws 27, and that prevent the screw from moving axially in the bearing. These screws 20 fit at their outer ends in the sockets of the hand-cranks 28, which are detachable from the screws.

Each of the two connecting-links comprises branches 29 which are secured to the sides of a block 30 by screws 31 (Fig. 2) at one end of the link, and diverge from each other nearly to its other end. The screws 20 extend through holes 32 in the blocks 30 and

through nuts 33 which are pivoted within the blocks to the sides thereof and branches of the links, each of these nuts being mounted on screw-threaded pins 34 on which are lock-nuts 35. These links are connected with the power-arms 16 of the levers by the cross-rods 18 which pass through the branches 29 of the links, as shown by Fig. 1.

The fixed stops on the bedstead are the pins 36 which project from the blocks 4 and 6, and the adjustable stops above mentioned are the clamps that are shown mounted on the side-rails 10 of the spring, each of these clamps 37 comprising parts between which the rail extends, a thumb-screw 38 by which these parts can be drawn toward each other and against the rail, and a hook 39 forming an extension of one of these parts.

To raise either end of the spring from its normal position on the bedstead, the screw 20 under that end which is to be raised is turned with the crank so that the connecting-link is drawn toward the crank by the action of the screw on the nut 33, and as the link pulls the lower ends of the levers to which it is connected toward the adjacent end of the bed the arms 15 of the levers act on the spring through the rollers 19 and push the end of the spring up, its other end resting against the adjacent stop-pins 36, and the rollers traveling along the rails 10 of the spring. That end of the spring which is next to the foot of the bed can be raised as described to the position shown by Fig. 2, or the other end can be raised to the corresponding position, and when either end is elevated to one of those positions or to a height less than that shown by Fig. 3, the elevated end is firmly supported by the levers acting through the connecting-link on the screw 20. The spring can be raised from its normal position to that in which it is shown in Fig. 1, by turning both screws at the same time, or by elevating the ends of the spring alternately. To change the position of the spring from that shown by Fig. 3, for example, to a horizontal elevated position: Two of the clamps 37 are adjusted on the rails 10 at the places indicated by the lines 40, between the elevated end of the spring and the supporting levers, and there tightly secured to the rails; then the elevated end of the spring is lowered so as to force the spring toward the foot of the bed; and then the other end of the spring is elevated, after the levers that act on the hooks 39 of the adjusted clamps have forced the spring to such a position that its lower end as it rises will clear the adjacent upright portion of the bedstead. The hooks of the adjusted clamps, extending under and acting on the rollers, prevent the spring from sliding after its lower end leaves the fixed stop-pins. The spring will be prevented from moving endwise, when it is in the position shown in Fig. 1, if the clamps are adjusted and secured on the rails 10 so that the hooks of the clamps engage the rollers of both pairs of levers.

It will be understood that the spring can be restored to its normal position, by lowering first one end and then the other, or both together, and that one person can raise it to the position shown by Fig. 1, as well as many other positions, and can incline it to a greater or less extent from either the head or foot of the bed. In some cases it may be desirable to provide beds with apparatus to elevate each spring at one end only, and then the attachment to be applied to each bed will consist of but one of the pairs of levers, the means described for actuating them, and two of the fixed stop-pins.

The apparatus described can be easily adapted and applied to beds of different sizes and styles, and the invention can be embodied in a combined bed, spring, and spring-elevating apparatus differing more or less in details of construction from that which has been specifically described herein.

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

1. The combination with a bedstead and bed-spring of a pair of angularly movable arms operative to raise and support one end of the spring; means comprising a device movable by hand to operate these arms, the arms and said device being connected to and supported by the bedstead, and the arms carrying devices that lie under and fit against the side-rails of the spring and that travel along those rails when the arms are operated; and a fixed stop at the other end of the spring, this stop affording an abutment on which the spring acts when the devices carried by said arms travel along the rails of the spring toward said stop.

2. The combination with a bedstead, and a bed-spring comprising a frame having round side-rails, of a pair of angularly movable arms operative to raise and support one end of the spring; means comprising a device movable by hand to operate these arms, the arms and said device being connected to and supported by the bedstead, and the arms carrying grooved rollers that lie under and fit against the side-rails of the spring and that roll on these rails when the arms are operated; and a fixed stop at the other end of the spring, this stop affording an abutment on which the spring acts when the rollers travel along the rails of the spring toward said stop.

3. The combination with a bedstead, and a bed-spring comprising a frame having round side-rails, the bedstead having posts at each end that extend above the spring, of a pair of angularly movable arms operative

to raise and support one end of the spring; means comprising a device movable by hand to operate these arms, the arms and said device being connected to and supported by the bedstead, and the arms carrying grooved rollers that lie under and fit against the side-rails of the spring and that roll on these rails when the arms are operated; and a stop on which the spring acts as the rollers travel along the side-rails thereof from its raised end, the stop being arranged and adapted to prevent the lower end of the spring from sliding against the adjacent bed-posts when the raised end is supported by the arms and rollers.

4. The combination with a bedstead and bed-spring of two angularly movable pairs of arms operative to raise and support the spring, means comprising devices movable by hand to operate these arms, and adjustable stops connected to the side-rails of the spring, the arms and said devices being connected to and supported by the bedstead, and each pair of arms carrying devices that lie under and fit against the side-rails of the spring, these devices and the adjustable stops being adapted to coact on the spring.

5. The combination with a bedstead and bed-spring of two angularly movable pairs of arms operative to raise and support the spring, means comprising devices movable by hand to operate these arms, and clamps mounted on the side rails of the spring, the arms and said devices being connected to and supported by the bedstead, and each pair of arms carrying devices that lie under and fit against the side rails of the spring, these devices and the clamps being adapted to cooperate as described.

6. The combination with a bedstead and bed-spring of two angularly movable pairs of arms operative to raise and support the spring, means comprising devices movable by hand to operate these arms, and clamps mounted on the side rails of the spring and including hooks, the arms and said devices being connected to and supported by the bedstead, and each pair of arms carrying rollers that lie under and fit against the side rails of the spring, these rollers and the hooks of the clamps being adapted to cooperate as described.

7. The combination with a bedstead and bed-spring of a pair of levers operative to raise and support one end of the spring, and means comprising a screw to actuate these levers, the levers and screw being connected to and supported by the bedstead, the screw being connected with the power-arms of the levers by means including a pivotal connection the pivotal axis of which is cut at right angles by the produced axis of the screw, and the levers carrying devices that lie under and fit against the side-rails of the spring.

8. The combination with a bedstead and bed-spring of a pair of levers operative to raise and support one end of the spring, and means comprising a screw and link to actuate these levers, the levers and screw being connected to and supported by the bedstead, the link being pivotally connected to the levers and comprising a nut with which the screw engages and through which it extends lengthwise of the link, and the levers carrying devices that lie under and fit against the side rails of the spring.

9. The combination with a bedstead and bed-spring of a pair of levers operative to raise and support one end of the spring, and means comprising a screw and link to actuate these levers, the levers and screw being connected to and supported by the bedstead, the levers carrying devices that lie under and fit against the side rails of the spring and being connected at the outer ends of their power-arms by a cross-rod, and the link comprising branches through which said cross-rod extends and a nut with which the screw engages, the screw passing between the branches of the link.

10. The combination with a bedstead and bed-spring of a pair of levers operative to raise and support one end of the spring, and means comprising a screw and link to actuate these levers, the levers and screw being connected to and supported by the bedstead, the power-arm of each lever being connected with that of the other by a cross-rod and the other arms of the levers carrying a connecting cross-rod and rollers that are mounted thereon and lie under and fit against the side rails of the spring, and the link comprising branches through which the first-mentioned cross-rod extends and a nut with which the screw engages.

11. The combination with a bedstead and bed-spring of a pair of levers operative to raise and support one end of the spring, and means comprising a screw and link to actuate these levers, the screw having a pivotally mounted bearing which is supported by the bedstead at one end thereof and in which the screw has only a rotary movement, the link being pivotally connected to the levers and comprising a nut which is pivotally mounted between and supported by parts of the link and with which the screw engages, and the levers carrying devices that lie under and fit against the side rails of the spring.

12. The combination with a bedstead and bed-spring of a pair of levers operative to raise and support one end of the spring, and means comprising a screw and link to actuate these levers, the screw having a pivotally mounted bearing which is supported by the bedstead at one end thereof and in which the screw has only a rotary movement, the levers being mounted on a cross-

rod that is attached to the side-rails of the bedstead and being connected at their ends by other cross-rods and carrying rollers that are mounted on one of these cross-rods and that lie under and fit against the side-rails of the spring, and the link comprising branches through which the cross-rod that connects the power-arms of said levers extends at one end of the link, and comprising a nut which is pivotally mounted on the link at its other end and with which the screw engages.

13. The combination with a bedstead and bed-spring of spring-elevating apparatus, and clamps mounted on the side-rails of the spring, said apparatus including rollers that lie under and fit against said rails, and the clamps including extensions that co-act with the rollers.

14. The combination with a bedstead and bed-spring of spring-elevating apparatus, and clamps mounted on the side-rails of the spring, said apparatus including rollers that lie under and fit against said rails near their ends, and the clamps including extensions that act on the rollers, each extension being between the roller on which it acts and the adjacent end of the spring.

WILLIAM J. BOSANKO.

In presence of—
JOHN J. CHRIST,
LEONARD STOCK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."