Feb. 7, 1928.

1,658,778

M. C. NIXON

BED OR ATTACHMENT THEREFOR

Filed Oct. 3, 1923

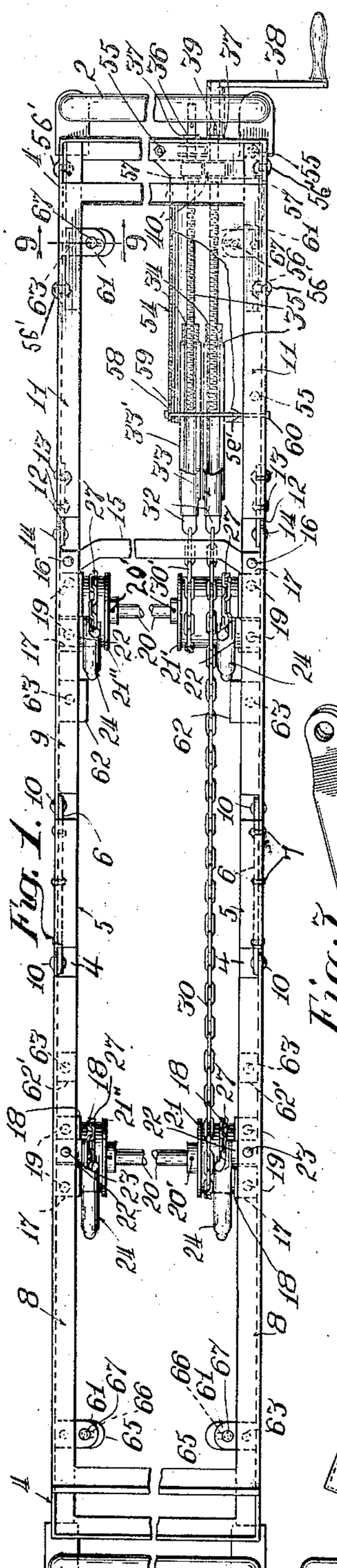

Fig. 1.

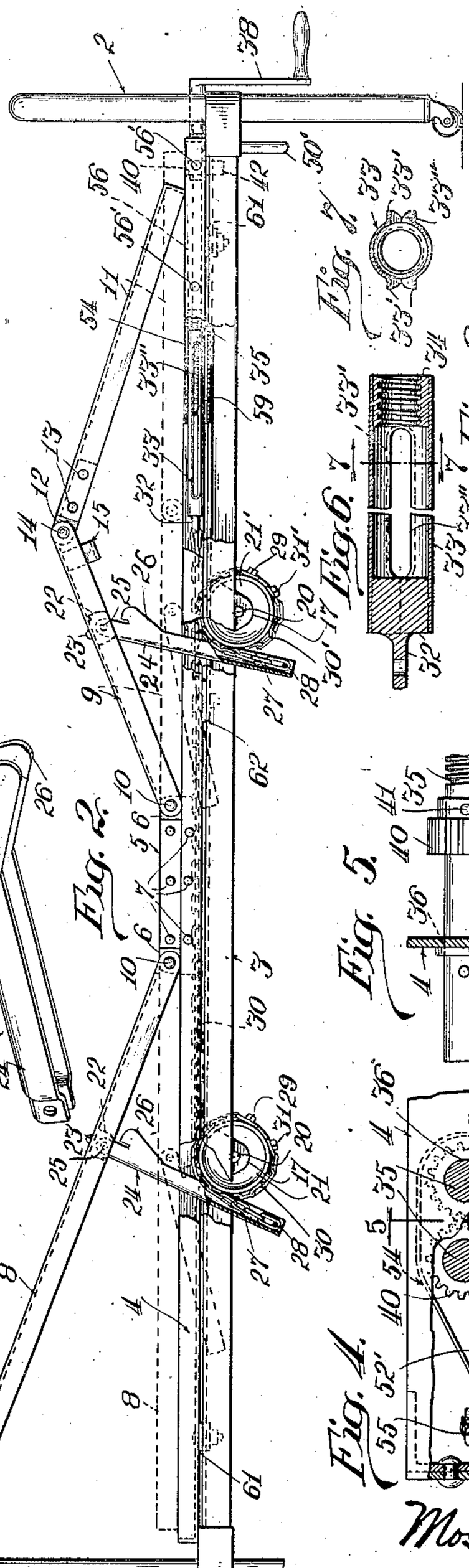

Fig. 2.



Fig. 3.

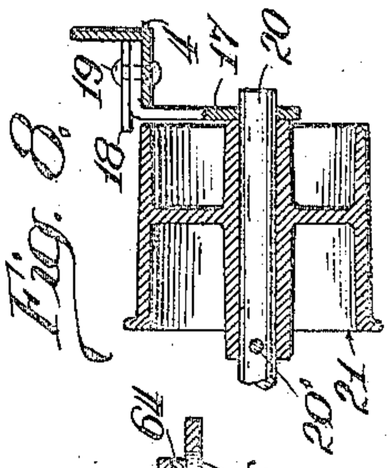

Fig. 8.

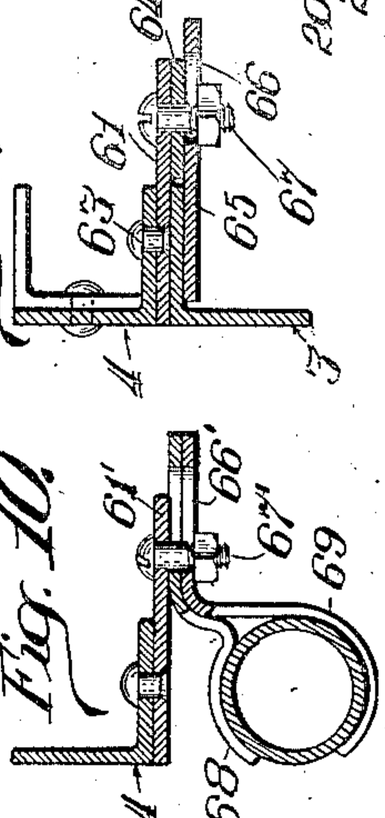

Fig. 9.



Fig. 10.



Fig. 6.

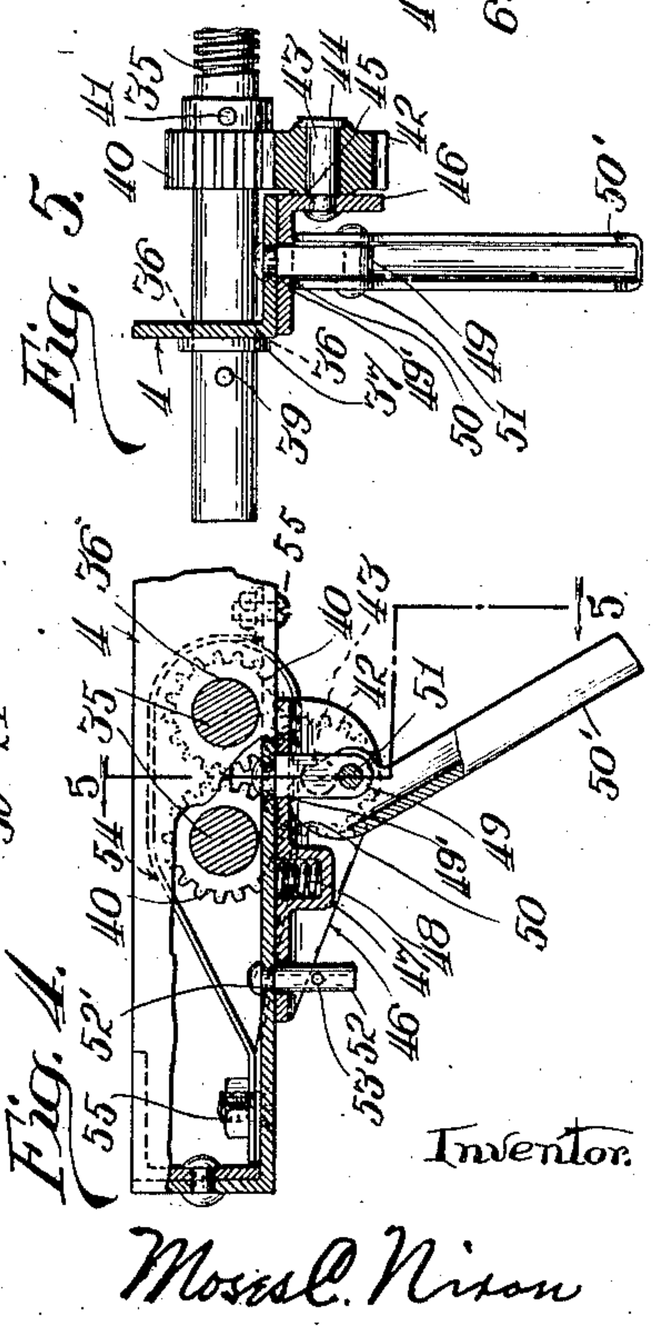

Fig. 5.



Fig. 4.

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Moses C. Nixon

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# UNITED STATES PATENT OFFICE.

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## BED OR ATTACHMENT THEREFOR.

Application filed October 3, 1923. Serial No. 666,254.

My invention relates to beds or attachments therefor, the objects being to provide an attachment that may be built either as a part of a bed, or independent thereof as a self-contained apparatus to be placed upon beds or other suitable supporting structures, mechanism for adjusting the position of the pivoted members, and such other objects as may hereinafter appear; and consists, preferably, in the construction hereinafter described.

In the drawings Figure 1 is a plan view of a bed embodying the principles of my invention, with lengthwise central portion broken out to reduce the width of the drawing, and a part of the incasement broken away to better show certain parts of the operating mechanism; Fig. 2 is a side elevation of a bed with certain parts broken away to better show certain parts of the operating mechanism; Fig. 3 is a perspective view of a pitman; Fig. 4 is a detail view of a portion of the operating mechanism on an enlarged scale; Fig. 5 is a section taken on line 5—5 of Fig. 4; Fig. 6 is a longitudinal sectional view of one of the tubular forms, showing the plugs secured in the ends thereof and elongated openings through the sides, with the central portion broken out to reduce the length; Fig. 7 is a transverse sectional view of Fig. 6 on line 7—7; Fig. 8 is a sectional view of one of the drums, longitudinally through its center; Fig. 9 is a sectional view of Fig. 1 on line 9—9, showing means for securing the attachment to a bed with angle bars as side rails, and Fig. 10 is a sectional view of a modified arrangement serving the same purpose as that shown in Fig. 9.

In the drawings similar numerals of reference indicate corresponding parts in the different views and, referring to the same, 1 and 2 denote the head and foot respectively and 3 the side rails of a bed, to which the present invention may be built as a part, or as a self-contained independent apparatus in which the frame 4, preferably of angle bars, forms a supporting base, the longitudinally extending sides thereof being adapted substantially to overlie the side rails of a bedstead, or other suitable supporting structure.

In the present case, sections of angle bars, with their horizontal angle extending inwardly, are rigidly secured to the sides of the base frame in any suitable manner, as by plates 6 and rivets 7, and form a central or seat section 5. The ends of said plates extend past said sections, and to said ends body and thigh supporting members 8 and 9 respectively are pivotally secured, as by rivets 10. To section 11 are rigidly secured plates 12, as by rivets 13, and the projecting end of said plates are pivotally secured to the thigh supporting member, as by rivets 14, thereby providing a pivotally attached leg supporting section, and a jointed frame to which the fabric (not shown) that supports the mattress may be attached thus forming a self-contained structure independent of a bedstead, but if built as a part thereof, the base frame would be eliminated and the central or seat section secured direct to the bed rails.

To prevent the sides of the thigh member from being drawn toward each other by the weight upon the fabric, a spreader 15 is provided, which is rigidly secured thereto in any suitable manner, as by rivets 16.

Hanging brackets 17 and plates 18 (see Fig. 8) are rigidly secured to the base frame in any suitable manner, as by rivets 19 (all rivets or bolt heads in the bottom of the sides of the base frame should be countersunk to avoid interference when placed upon a supporting structure), said brackets having holes therein in which shafts 20 are pivotally supported, and mounted upon said shafts are drums 21, 21′ and 21″, and secured thereto in any suitable manner, as by pins 20′.

To the body and thigh members, brackets 22 are rigidly secured, as by rivets 23, said brackets extend inwardly beyond the inner-side of said members, then downwardly to form a suitable connection with pitmen 24, which are pivotally secured thereto, as by rivets 25. These pitmen are preferably stampings, **U** shaped at their central portion, with the side next to said brackets straight at their upper end and the other side brought over against it (see Fig. 3) to form a suitable connection with said brackets. Said pitmen are provided with cams 26 which extend in a straight line with the sides of the central portion thereof, the object of these cams will be hereinafter explained. The object of plates 18 is to prevent the pitmen for working off the end of the drums.

The lower end of the several pitmen are somewhat contracted to form a better connection with their respective chains 27, which are placed within the pitmen and secured thereto, as by rivets or bolts 28. The other ends of the chains are passed upwardly and over their respective drums and are secured thereto, as by bolts 29. To drum 21 is secured one end of another chain 30, as by bolt 31, said chain is passed partly around said drum and its other end connected, in any suitable manner, with a plug 32 that projects from a tubular form 33. To drum 21′ is secured a chain 30′, as by bolt 31′, said chain being passed partly around said drum and its other end connected with another plug 32 that projects from a similar tubular form. Said plugs, and plugs 34 in the opposite end of the tubular forms, may be secured in any suitable manner, preferably by an electric spot weld. The latter plugs are bored and threaded to correspond with mating threads on rods 35, which operate in connection therewith. Said tubular forms (see Figs. 6 and 7) are preferably made of two similar stampings, each forming one-half of a tube adapted to fit around said plugs, and the edges 33′ of stampings, extending from one plug to the other, are turned outwardly to form elongated openings 33″, with flat surfaces at each side thereof, the object of which will hereinafter appear.

The unthreaded end of rods 35 may be supported in any suitable manner, as by being passed through holes 36 in the vertical angle of the base frame, immediately above the horizontal angle thereof, and held against longitudinal movement by rims 37 and gears 40 on said rods (see Figs. 4 and 5). These rods are operated by crank 38, the hub of which is tubular and adapted to slide upon the projecting end of the threaded rods, and slotted to mate with pins 39, that pass transversely through said rods, thereby forming an operating connection therewith.

Mounted upon the threaded rods are gears 40, which may be firmly secured thereto in any suitable manner, as by pins 41. Said gears are operatively connected with each other, or disconnected, by an idler gear 42. This idler is rotatably mounted upon a pin 43 and retained thereon by a head 44 on the end of said pin, the other end being reduced to provide a shoulder 45, said end being placed within a hole in the downwardly extending angle of bracket 46 and upset to secure it therein (see Figs. 4 and 5). Said bracket is preferably a stamping, and in its horizontal portion is a depression or well 47 in which is placed an expansion spring 48. This bracket and idler gear is supported by a pin 49, one end of which is reduced to form a shoulder, is passed through a hole 49′ in the base frame and upset to secure it therein. Said pin passes down through a corresponding hole in the horizontal part of the bracket, and near the lower end of this pin is pivotally secured a cam 50, as by pivot pin 51, and rigid with said cam and extending oppositely from its pivot is a lever 50′. Said cam and lever is also preferably a stamping, U shaped so that when in position it will extend upwardly on both sides of the supporting pin. To prevent displacement of the bracket and idler gear, a guide pin 52 is provided, one end of which is reduced to furnish a shoulder and this end is passed through a hole 52′ in the base frame and upset to secure it therein, and through the lower end of this pin is a transverse pin 53 to furnish a rest for the bracket when in its lowermost position.

To prevent the bedding from contacting with the gears and threaded rods and catch surplus lubricant from the latter, an incasement 54 is provided, which is secured to the base frame, as by bolts 55. The upper part of the incasement extends against the vertical angle at the end of the base frame, and of sufficient height to clear the gears but not to interfere with the free movement of the leg section when it slides upon the base frame, or supporting sections 56, which are secured to each side of the base frame, as by rivets 56′, with their horizontal angle extending inwardly, thereby forming a flat base for the end of the leg section to ride upon and prevent displacement of the same. The under portion of the incasement stops short of the idler gear, as indicated by dotted line 57. The other end of the incasement extends beyond the threaded rods, and supported in a hole 58 in the side thereof is a rod 59 that passes through an opening 59′ in the opposite side of the incasement, and is tapped into the side of the base frame with a lock-nut 60 thereon. This rod passes through elongated openings in the sides of the tubular forms and prevents the latter from being rotated by the action of the threaded rods.

It is frequently the case, that the connections between the side rails and the head and foot of beds are higher than the rails and to avoid the same or other interfering parts, plates 61, 62 and 62′ of sufficient thickness to compensate for this unevenness are preferably secured to the bottom of the base frame in any suitable manner, as by rivets 63. The plates 61 (see Fig. 9) extend inwardly from the base frame and secured to their undersides are spacers 64 of a thickness to conform with the inwardly extending angle of the side rails. Beneath these plates are adjustable plates 65 with elongated holes 66. As beds vary in width the attachment is placed upon the bed rails in position to equalize their difference and plates 65 are adjusted so one end will rest against the

inner-side of the vertical angle of the bed rails and clamped, as by bolts 67, thus securing the attachment centrally and firmly upon the bed rails.

Fig. 10 is a modification of Fig. 9, and is intended to secure the attachment to beds having tubular side rails. In this modification, plates 61′ are similar and secured in the same manner as in Fig. 9, but supports 68 rest upon and fit the tubular or other forms of rails, and clamps 69 are intended to fit against the lower side thereof, both being provided with elongated holes 66′ for adjustment to conform to the width of the beds, and are clamped to said rails, as by bolts 67′.

It is understood, of course, that the number of said plates, supports and clamps may be increased, their forms changed, and that they may be differently placed and secured to meet the variations in spacing, forms and positions of the bed rails, the intention being to provide for a standardized frame that may be adapted to the variations in the bed rails by merely changing the supports and fastenings.

In operation, the crank may be applied to the projecting end of either of the threaded rods, and clockwise rotation of said rods will cause the tubular form and chain with which it is connected to be drawn toward it, thereby rotating their respective drums and the one on the opposite end of its shaft, and through the chains connecting them with their respective pitmen impart an endwise movement of the latter, thereby raising the pivoted member with which they are connected. And to lower said members the operation is reversed, thus adjusting the position of the body and thigh members independently of each other.

To adjust said members simultaneously the gears 40, which are firmly secured to the threaded rods, are operatively connected by raising the idler gear to position shown in the drawings, which is done by depressing lever 50′ and through the action of the cam raise the bracket and idler gear to uppermost position, thereby forming an operating connection between the threaded rods, and through them and their connections, previously described, simultaneously adjust the position of the pivoted members. When the idler gear is raised, if its teeth fail to match with those of the other gears, it may be remedied by shifting their position.

To disconnect the operating gears, the cam may be released by raising the lever 50′, and if the bracket and idler gear fail to drop down upon the released cam and supporting pin 53, the spring 48 should readily depress them thereby forcing a disconnection, when the position of the pivoted members may again be adjusted independently. It is manifest that various other means may be employed to operatively connect or disconnect the operating mechanisms, and it is not the intention to limit the invention to the arrangement shown.

When the pivoted supporting members are lowered to a flat or normal position, the cams carried by the pitmen contact with their respective drums and raise the lower or free end of said pitmen to positions shown in dotted outline in Fig. 2. But it is apparent that other means may be employed to raise and support the free end of said pitmen, or they may be lifted and placed upon the inwardly extending portion of plates 62 shown in Fig. 1, or other suitable support.

While I have shown and described the preferred embodiment of my invention I do not wish to be limited to the details shown as it is obvious that changes may readily be made without departing from the spirit of my invention.

What I claim is:

1. In a structure of the class described, the combination of a horizontally extending frame including a central section, body and thigh supporting members with one end pivotally secured at the respective ends of the central section, operating mechanism for said members including rotatable rods, means for rotating said rods independently, a gear carried by each of said rods, an idler gear, and means for moving said idler gear into mesh with the gears on said rods whereby the latter may be connected so that when either is rotated, the other will also be rotated whereby the free ends of the body and thigh supporting members may be raised or lowered simultaneously.

2. In a structure of the class described, the combination of a horizontally extending frame including a central section, body and thigh supporting members with one end pivotally secured at the respective ends of the central section, operating mechanism for said members including rotatable rods, means for rotating said rods independently, a gear carried by each of said rods, a bracket movably carried by said frame, an idler gear mounted on said bracket, and means for moving said bracket to bring said idler gear into mesh with the gears carried by said respective rods, whereby said rods may be connected so that when either is rotated, the other will also be rotated.

3. In a structure of the class described, the combination of a horizontally extending frame including a central section, body and thigh supporting members with one end pivotally secured at the respective ends of the central section, operating mechanism for said members including rotatable rods, means for rotating said rods independently, a gear carried by each of said rods, a bracket carried by said frame, an idler gear mounted on said bracket, and cam means for moving

said bracket relatively to said frame to bring said idler gear into mesh with the gears carried by said rods whereby said rods may be connected so that when either is rotated the other will also be rotated.

4. In combination, a frame independent of and adapted to be supported by a bed or similar structure, said frame having a fixed central section secured thereto, supporting members with one end of each pivotally secured at the respective ends of the central section, another section with one end pivotally secured to the free end of one of said members, and means operated from a single end of the supporting structure for raising or lowering the free ends of said members simultaneously or each independently.

5. In combination, a frame independent of and adapted to be supported by a bed or similar structure, said frame having a central section secured thereto, supporting members with one end of each pivotally secured at the respective ends of the central section, another section with one end pivotally secured to the free end of one of said members, means carried by said frame for raising or lowering simultaneously the free ends of said members or each independently, and operating means therefor operated by a single mechanism.

6. In combination, a frame independent of and adapted to be supported by a bed or similar structure, said frame having a central section secured thereto, supporting members each having an end pivotally secured at the respective end of the central section, a pitman pivoted at one end to each of said members, means carried by the frame for moving said pitmen whereby the free ends of said members may be raised or lowered simultaneously or each independently, and a common operating member therefor.

7. In combination, a frame independent of and adapted to be supported by a bed or other similar structure, said frame having a central section secured thereto, supporting members with one end of each pivotally secured at the respective end of the central section, drums rotatably supported by said frame, rotatable means having flexible connection with said drums for rotating the latter, and means operated by said drums for raising or lowering the free ends of the supporting members.

8. In a structure of the class described, the combination of a frame having a central section secured thereto, supporting members each having an end pivotally secured at the respective ends of the central section, drums rotatably supported by said frame, longitudinally movable elements, flexible means adapted to wind upon the drums and connected with said elements, means for moving said elements backward and forward whereby the drums may be rotated, and means operated by said drums for raising or lowering the free ends of said members.

9. In a structure of the class described, the combination of a frame having a central section secured thereto, body and thigh supporting members with one end of each pivotally secured at the respective ends of the central section, drums rotatably supported by the frame, longitudinally movable elements, flexible means adapted to wind upon the drums and connected with said elements, rotatable threaded rods operatively connected with said elements whereby the drums may be rotated, and means operatively connecting the drums with said members whereby the free ends of the latter may be raised or lowered.

10. In a structure of the class described, the combination of a frame having a central section secured thereto, body and thigh supporting members with one end of each pivotally secured at the respective ends of the central section, drums rotatably supported by said frame, operative connections between the drums and said members, longitudinally movable tubular elements, flexible means adapted to wind upon the respective drums and connected with the tubular elements, rotatable threaded rods operatively connected with said tubular elements and adapted to impart a reciprocating movement to the latter, and means adapted to operatively connect or disconnect said threaded rods, whereby the free end of said members may be raised or lowered simultaneously or each independently.

11. In a structure of the class described, the combination of a frame including a central section, body and thigh supporting members with one end of each pivotally secured at the respective ends of the central section, drums rotatably supported by said frame, operative connections between the drums and said members, longitudinally movable tubular elements, means adapted to prevent rotation of said elements, flexible means adapted to wind upon the respective drums and connected with the tubular elements, rotatable threaded rods operatively connected with said elements and adapted to impart a reciprocating movement to the latter, and means adapted to be moved to operatively connect or disconnect the threaded rods, whereby the free ends of said members may be raised or lowered simultaneously or each independently.

12. In a structure of the class described, the combination of a frame having a central section secured thereto, body and thigh supporting members with one end of each pivotally secured at the respective ends of the central section, drums rotatably supported by said frame, longitudinally movable elements, flexible means adapted to wind upon the respective drums and connected with

said elements, rotatable threaded rods operatively connected with said elements and adapted to impart a reciprocating movement to the latter, means for operating said rods simultaneously or independently, a pitman pivotally connected at one end to each of said members, and means connecting the pitmen and said drums whereby the rotation of the latter will raise or lower the free ends of said members.

13. In a structure of the class described, the combination of a frame having a central section secured thereto, body and thigh supporting members with one end of each pivotally secured at the respective ends of the central section, and operating mechanism for said members including parallel rotatable elements, means for rotating said elements independently, and means for connecting said elements so that the rotation of either will rotate the other whereby the free ends of the supporting members may be raised or lowered simultaneously or each independently.

14. In a structure of the class described, the combination of a frame having a central section secured thereto, body and thigh supporting members with one end of each pivotally secured at the respective ends of the central section, another section with one end pivotally secured to the free end of one of said members, independent mechanisms substantially parallel with each other and operable from the end of said frame for operating said members independently and means adapted to form an operating connection between said mechanisms whereby the operation of either will operate the other to thereby raise or lower the free ends of the pivoted members simultaneously.

15. In a structure of the class described, the combination of a frame having a central section secured thereto, body and thigh supporting members with one end of each pivotally secured at the respective ends of the central section, drums rotatably supported by said frame, longitudinally movable elements, flexible means connecting said elements to their respective drums and adapted to wind thereon, means for moving said elements backward and forward whereby said drums may be rotated, a pitman pivotally connected at one end to each of said members, and means connecting the other ends of the pitmen to their respective drums whereby the rotation of the drums will move the pitmen and thereby said members.

16. In a structure of the class described, the combination of a frame including a central section, body and thigh supporting members with one end of each pivotally secured at the respective ends of the central section, drums rotatably supported by said frame, longitudinally movable elements, flexible means connecting said elements to their respective drums and wound thereon, rotatable threaded rods connected to said elements for reciprocating the same, means for operating said rods simultaneously or independently, a pitman connected at one end to each of the members, and means connecting the other ends of the pitmen to their respective drums, whereby the rotation of the drums will move the pitmen and thereby said members.

17. In combination, a frame independent of and adapted to be supported by a bed or similar structure, said frame having a central section secured thereto, body and thigh supporting members with one end of each pivotally connected at the respective ends of the central section, pitmen pivoted at one end to said members, means carried by said frame for operating said pitmen whereby the free ends of said members may be raised or lowered, said pitmen normally lying substantially in the plane of said frame when said members are in normal position, and rigid means for returning said pitmen to their initial position as said members are lowered.

18. In a structure of the class described, the combination of a frame including a central section, body and thigh supporting members with one end of each pivotally secured at the respective ends of the central section, drums rotatably supported by the frame, means for rotating said drums, a pitman pivotally connected at one end to each of said members, means connecting the other ends of the pitmen to their respective drums whereby the rotation of the drums will move the pitmen, said pitmen normally lying substantially in the plane of the frame when said members are in normal position, and cams provided on said pitmen for returning them to their initial position as said members are lowered.

19. In a structure of the class described, the combination of a frame including a central section, body and thigh supporting members each having one end pivotally secured at the respective ends of the central section, a pitman pivotally secured to each of said members, means for operating said pitmen whereby the free ends of said members may be raised or lowered, and positive operating means carried by the pitmen for engaging a part of the structure for supporting the free ends of said pitmen in an elevated position when the members are in normal position.

20. In combination, a frame independent of and adapted to be supported by a bed or similar structure, said frame having a central section secured thereto, supporting members with one end of each pivotally secured at the respective ends of the central section, another section with one end pivotally attached to the free end of one of said members, reciprocable means connected with said members, and rotatable means carried

by said frame and adapted to impart a reciprocating movement to the reciprocable means whereby the free end of one of said members may be raised or lowered independently or both members simultaneously.

21. In combination, a frame independent of and adapted to be supported by a bed or similar structure, said frame having a central section secured thereto, supporting members with one end of each pivotally secured at the respective ends of the central section, another section with one end pivotally attached to the free end of one of said members, members secured to said frame at its respective sides and adapted to form a relatively wide base on which the free end of the attached section may ride as its attached end is raised or lowered, and means carried by said frame for raising or lowering the free ends of said members.

22. In combination, a frame independent of and adapted to be supported by a bedstead or similar structure, said frame having a central section secured thereto, supporting members with one end of each pivotally secured at the respective ends of the central section, and means carried by said frame and operable from the end thereof and adapted to raise or lower the free end of said members either simultaneously or each independently.

23. In combination, a frame independent of and adapted to be supported by a bedstead or similar structure, said frame having a central section secured thereto, supporting members with one end of each pivotally secured at the respective ends of the central section, means carried by said frame comprising tubular members with rods extending therein with threaded engagement therewith, and means adapted to drive said means whereby the free ends of said supporting members may be raised or lowered simultaneously or each independently.

24. In combination, a frame independent of and adapted to be supported by a bedstead or similar structure, said frame having a central section secured thereto, supporting members with one end of each pivotally secured to the respective ends of the central section, another section with one end pivotally attached to the free end of one of said supporting members, members secured to said frame at its respective sides and adapted to form a relatively wide base on which the free end of the attached section may ride as its attached end is raised or lowered.

25. In combination, a substantially rectangular frame independent of and adapted to be supported by a bedstead or similar structure, said frame being substantially the length of the bed rails and having a seat section secured thereto, a supporting member with one end pivotally secured to the seat section, means carried by the independent frame comprising a tubular member with a member extending therein with threaded connection therewith, said means extending and being operable from the end of said frame and operatively connected with the supporting member whereby the free end of the latter may be raised or lowered to different positions, the said means being wholly independent of and disconnected from the bedstead, said combination being thereby so arranged as to avoid interference with a bedstead when placed thereon.

26. In combination, a substantially rectangular frame independent of and adapted to be supported by a bedstead or similar structure, said frame being substantially the length of the bed rails and having a seat section secured thereto, a supporting member with one end pivotally secured to the seat section, means carried by the independent frame comprising a tubular member with a member extending therein with threaded connection therewith, said means being operable through the end of said frame and wholly independent of the bedstead and extends longitudinally therewith and is operatively connected with the supporting member whereby the free end of the latter may be raised or lowered to different positions.

27. In combination, an angle iron frame independent of and adapted to be supported by a bedstead or similar structure, said frame having a central section secured thereto, a supporting member with one end pivotally secured to said central section, another section with one end pivotally attached to the free end of the pivotally supported member, the respective sides of said frame having at their tops relatively wide bases formed thereon on which the free end of the attached section may ride as its attached end is raised or lowered.

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