

Aug. 25, 1953

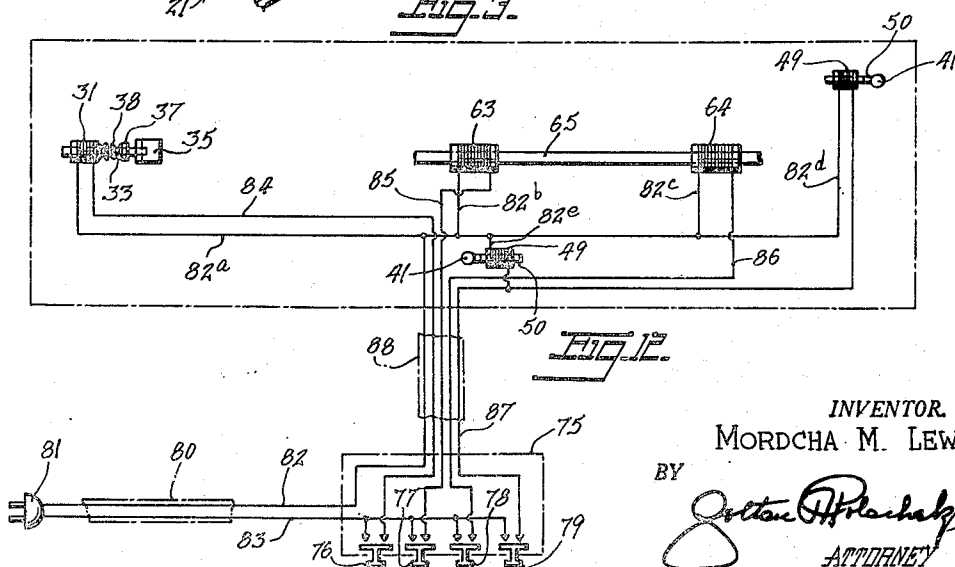
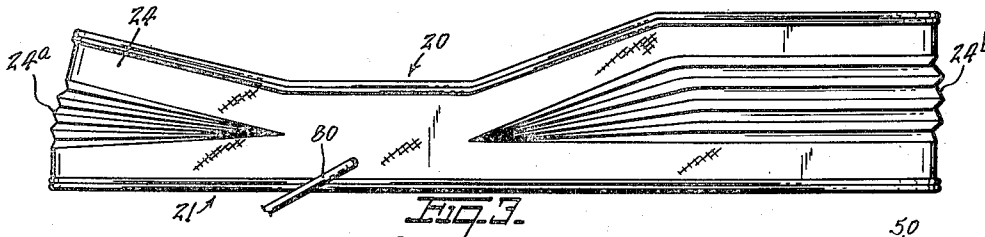
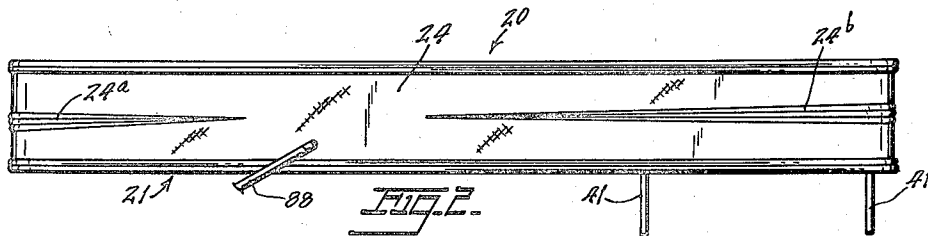
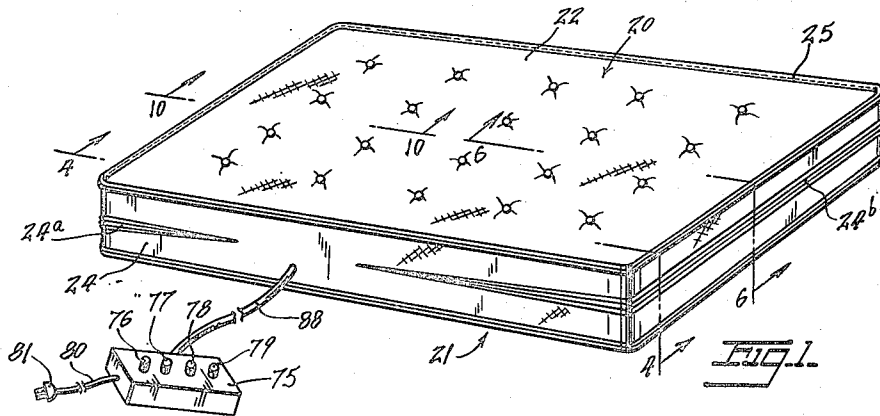
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2,649,595

ADJUSTABLE BED MATTRESS

Filed Dec. 29, 1951

6 Sheets-Sheet 1



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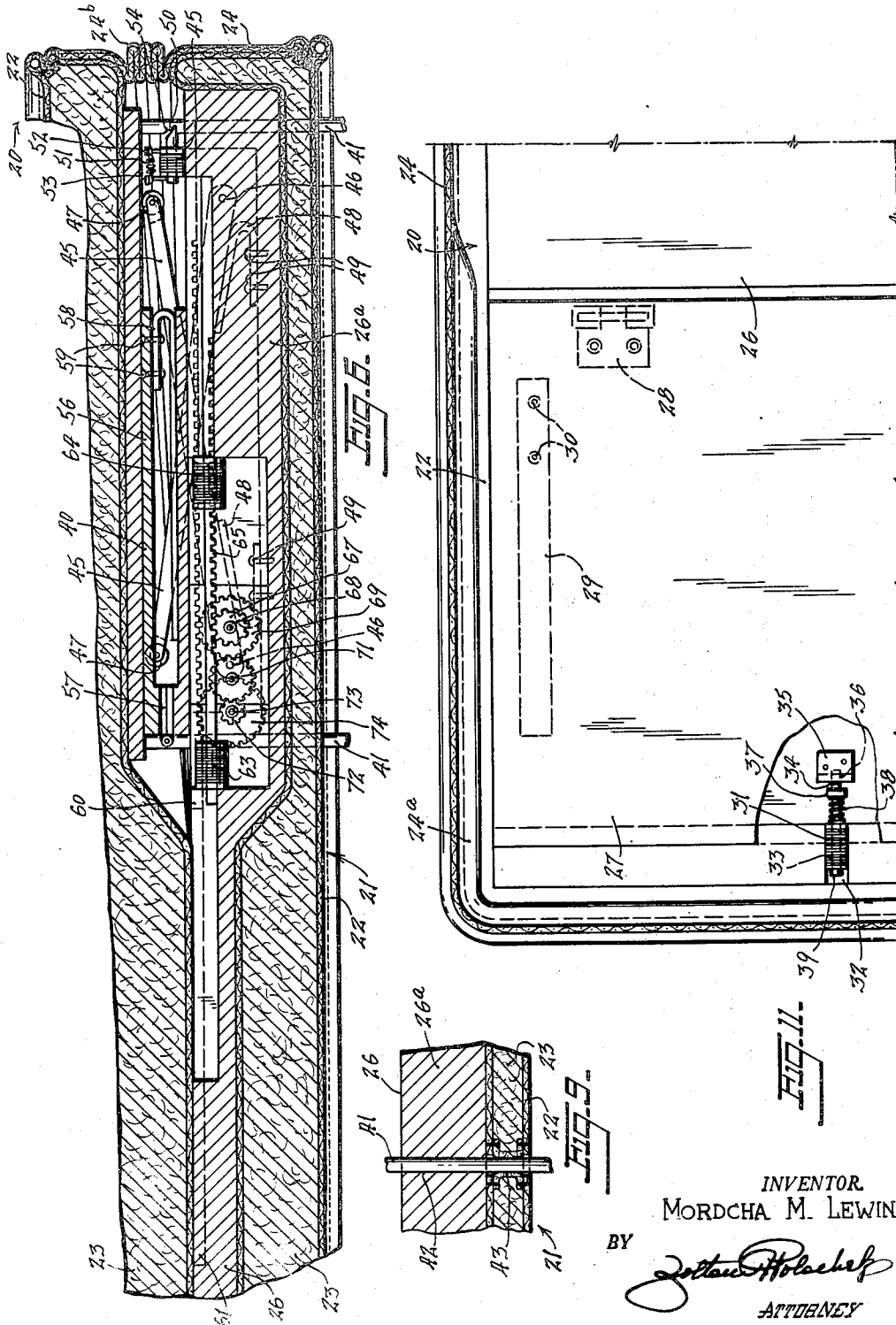
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6 Sheets-Sheet 3



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ADJUSTABLE BED MATTRESS

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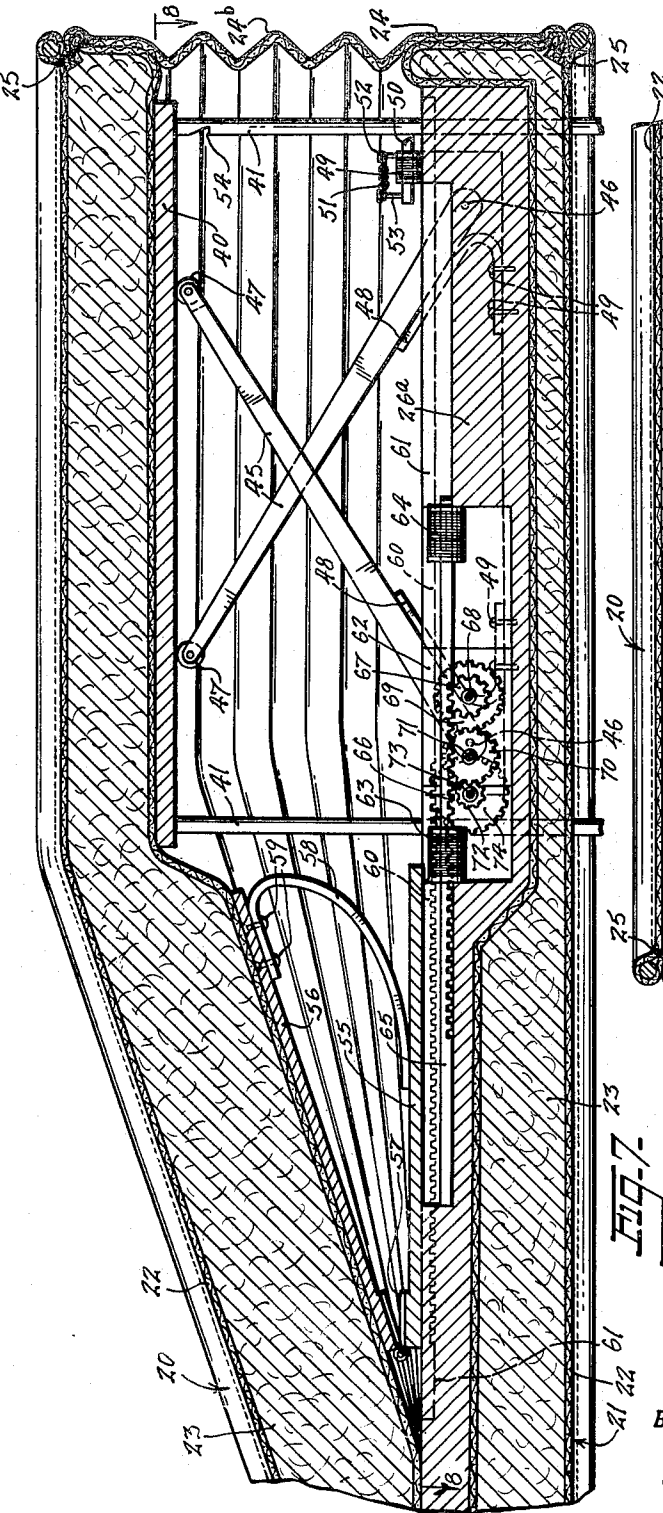


FIG. 7

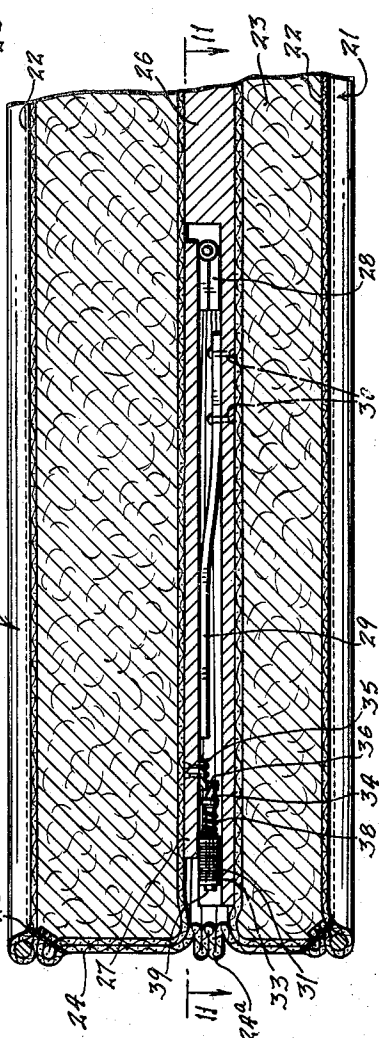


FIG. 10

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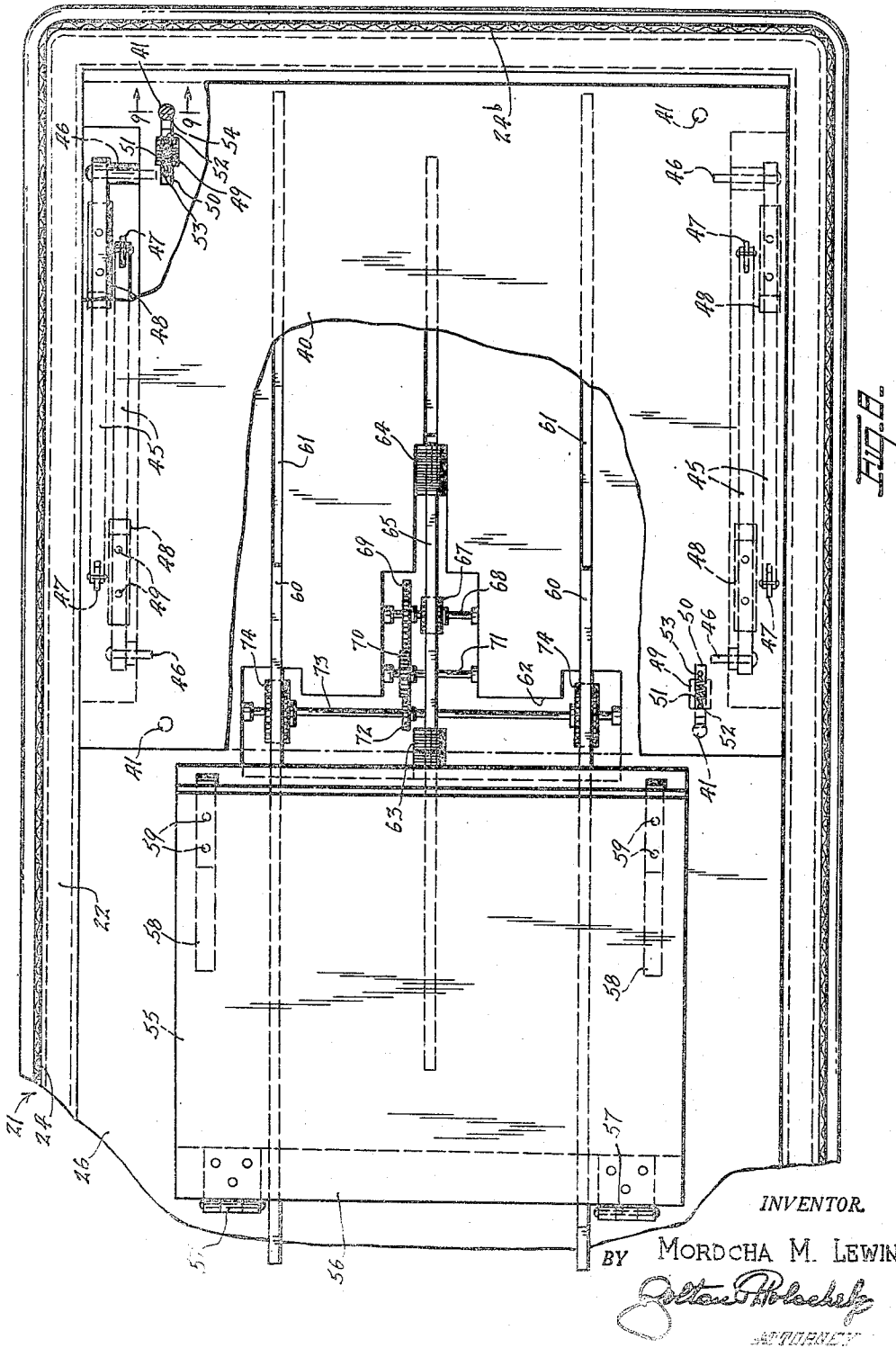
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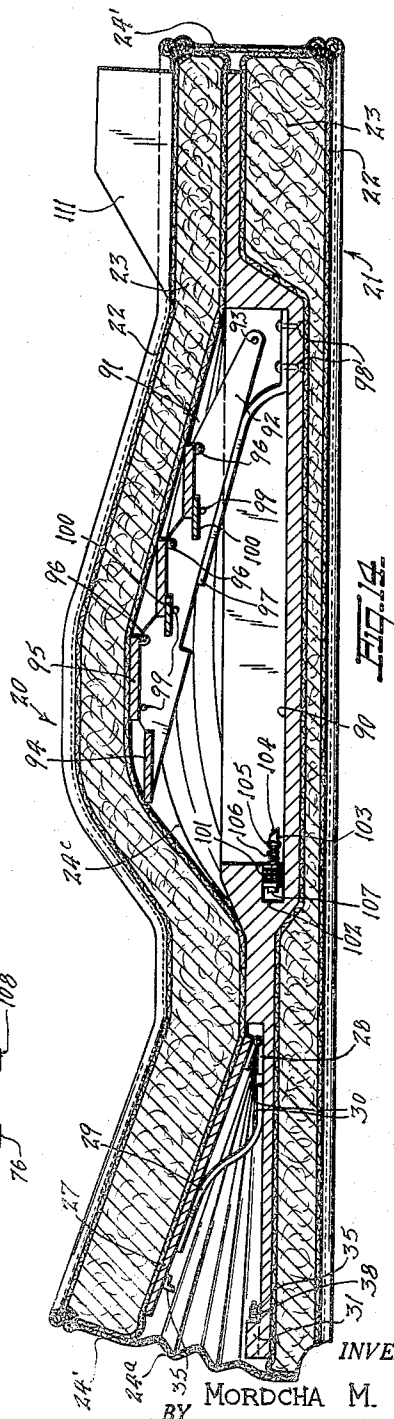
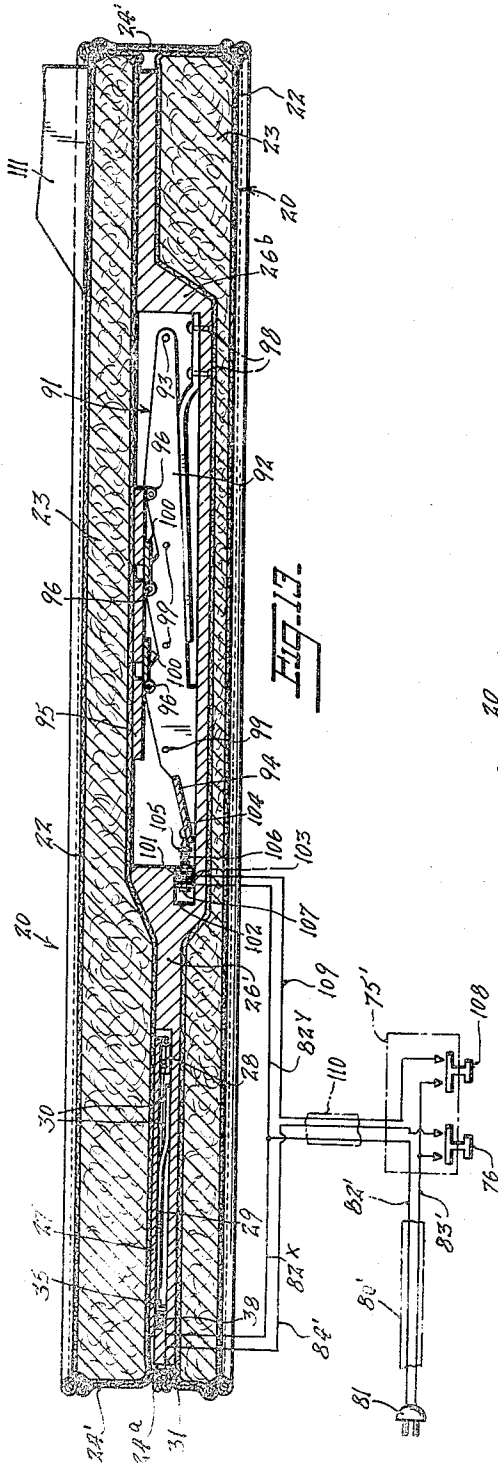
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6 Sheets-Sheet 6



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UNITED STATES PATENT OFFICE

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ADJUSTABLE BED MATTRESS

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Application December 29, 1951, Serial No. 264,075

14 Claims. (Cl. 5—345)

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This invention relates to new and useful improvements in mattresses.

More specifically, the present invention proposes the construction of an improved mattress for home use in connection with a conventional bed and spring and which is provided with means for raising the head end and/or the foot end in a manner to meet the needs of the occupant or occupants of the bed.

Still further, the present invention proposes characterizing the mattress by superimposed suitably padded upper and lower mattress layers between which a substantially co-extensive rigid plate is interposed and which is provided with the means for raising the head end and/or the foot end of the upper of the mattress layers to suitably support the bodies of the occupant or occupants of the bed.

The present invention is further characterized by the fact that a headboard is pivotally mounted on the rigid plate beneath the head end of the upper mattress layer and which is resiliently urged to an inclined position in a manner to raise the head end of the upper mattress layer to support the head and shoulders of the occupant or occupants of the bed for reading or the like.

As a further object, the present invention proposes providing the rigid board adjacent the foot end thereof with means for raising the foot end of the upper mattress layer in a manner to support the legs and feet of the occupant or occupants of the bed in an elevated position.

Still further, the present invention proposes constructing the means for raising the foot end of the upper mattress layer so that it is resiliently urged to its operative position in which the foot end of the upper mattress layer will be supported in the desired raised position.

As still another object, the present invention proposes the inclusion of an electric control box suitably located adjacent the bed for operation at the discretion of the occupant or occupants of the bed for releasing the pivotally mounted headboard to raise the head end of the upper mattress layer and/or for releasing the means for raising the upper mattress layer at the foot end thereof.

Still further, the present invention proposes constructing the mattresses in two different forms characterized by different means for raising the upper mattress layer at the foot end thereof.

It is a further object of the present invention to construct mattresses of the type disclosed

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which are simple and durable, which are effective for their intended purposes and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

On the accompanying drawings forming a material part of the present disclosure:

Fig. 1 is a perspective view of a mattress constructed in accordance with the present invention.

Fig. 2 is a side elevational view of Fig. 1.

Fig. 3 is a view similar to Fig. 2, but showing the mattress with the head end and the foot end thereof in raised positions.

Fig. 4 is an enlarged longitudinal sectional view taken substantially on the line 4—4 of Fig. 1.

Fig. 5 is a view similar to Fig. 4, but showing the position of the parts with the head end and the foot end of the mattress in raised positions.

Fig. 6 is an enlarged longitudinal sectional view of the foot end of the mattress taken substantially on the line 6—6 of Fig. 1.

Fig. 7 is a view similar to Fig. 6, but showing the position of the parts with the foot end of the mattress raised.

Fig. 8 is a horizontal sectional view of the foot end of the mattress taken substantially on the line 8—8 of Fig. 7.

Fig. 9 is an enlarged partial transverse vertical sectional view taken on the line 9—9 of Fig. 8.

Fig. 10 is an enlarged longitudinal sectional view of the end of the mattress taken substantially on the line 10—10 of Fig. 1.

Fig. 11 is a partial horizontal sectional view of the foot end of the mattress taken substantially on the line 11—11 of Fig. 10.

Fig. 12 is a schematic wiring diagram of the first form of the present invention.

Fig. 13 is a view substantially similar to Fig. 4 illustrating a modification of the present invention and with a schematic wiring diagram superimposed thereon.

Fig. 14 is a view similar to Fig. 13, but showing the position of the parts with the head end and the foot end of the mattress shown in raised position.

Fig. 15 is an enlarged detailed view of a portion of Fig. 13.

Fig. 16 is a perspective view of one of the pillows used at the foot end of the mattress shown in Figs. 13 to 15.

The mattress, according to the first form of the present invention, shown in Figs. 1 to 12, includes an upper mattress layer 20 and a lower mattress layer 21. The mattress layers 20 and 21 are co-extensive with the upper layer 20 superimposed on the lower layer 21. Each of the mattress layers 20 and 21 is alike in construction having an outer tick 22 enclosing the usual padding material 23 which may or may not include inner springs as desired. A joining strip 24, formed of the same material as the outer tick 22 of the mattress layers, is engaged about the periphery of the layers and joined thereto by the usual stitches 25 extended about the periphery of the mattress layers, see Figs. 6 and 7. The joining strip 24 functions to hold the upper mattress layer 20 superimposed on the lower mattress layer 21.

A rigid plate 26 is inserted in position between the adjacent faces of the mattress layers 20 and 21. The rigid plate 26 may, if desired, be secured to the lower mattress layer 21 to prevent shifting of the plate 26 relative to the layers 20 and 21. However, frictional contact between the plate 26 and the mattress layers is deemed sufficient to retain the plate 26 fixedly in place between the mattress layers 20 and 21. The plate 26 is preferably formed of a lightweight material such as wood, one of the lightweight non-corrosive metals or a synthetic resinous material.

The plate 26, at the head end of the mattress, is formed with an undercut top face forming a space in which a headboard 27 is located, see Figs. 4, 5, 10 and 11. At its edge nearer the foot of the bed, headboard 27 is pivotally attached to the plate 26 by means of hinges 28.

The hinges 28 have one of their leaves secured to the plate 26 and their other leaves secured to the headboard 27. The headboard 27 is formed of the same material as the plate 26. Elongated leaf springs 29 are located between the adjacent faces of the rigid plate 26 and the headboard 27 and along the outer edges of the headboard. The leaf springs 29 each have one end secured to the plate 26 by means of rivets 30. The attached ends of the leaf springs 29 are located adjacent the pivoted edge of the headboard 27. The free ends of the leaf springs 29 engage the bottom face of the headboard 27 and urge it into an upwardly inclined position supporting the head end of the upper mattress layer 20 in the inclined position shown in Figs. 3 and 5 to similarly support the head and shoulders of the occupant or occupants of the bed provided with the mattress. The joining strip 24 at the head end of the mattress is provided with a pleated area 24^a which expands when the head end of the upper mattress layer 20 is raised by the headboard 27. The pleated area 24^a can be integrally formed with the joining strip 24 or may be a separate piece of pleated material set into a slit formed in the joining strip 24, so as to expand when the head end of the upper mattress layer 20 is raised.

Electrically controlled means is provided for holding the headboard in a lowered position against the normal action of the leaf springs 29. The electrically controlled means is characterized by a single solenoid 31 fixedly mounted in a recess 32 formed in the plate 26 midway of its longitudinal side edges. The solenoid 31 is located below the free edge of the headboard 27. The solenoid 31 has a metallic core 33 arranged to slide parallel to the length of the plate 26 and provided at its free inner end with a beveled end

34 for engagement with a complementary bracket 35 secured to the bottom face of the headboard 27.

As best shown in Fig. 10, the bracket 35 has a depending portion formed with an opening 36 into which the beveled end 34 of the core 33 extends to hold the headboard 27 in the lowered position.

Adjacent its beveled end 34, the core 33 is formed with an enlarged flange 37 and is sleeved by a coil spring 38. The coil spring 38 operates between the flange 37 and the adjacent end of the solenoid 31 to hold the beveled end of the core 33 in engagement with the opening 36 of the bracket 35. The end of the core 33 remote from the beveled end 34, is formed with an enlarged head 39 to hold the core from being completely pulled out of the solenoid 31 by the action of the spring 38. Normally, the core 33 functions to hold the headboard 27 in the lowered position shown in Figs. 1, 2, 4 and 10. Circuit means, to be hereinafter described, are provided for moving the core 33 against the action of the spring 38 to move its beveled end 34 out of the opening 36. Immediately, the springs 29 function to pivot the headboard 27 upward to raise the head end of the upper mattress layer 20 to the raised position shown in Figs. 3 and 5. To again lower the headboard 27 and the head end of the upper mattress layer 20 they must be manually pushed down until the beveled end of the core 33 snaps into the opening 36 of the bracket 35.

Means is provided for raising the foot end of the upper mattress layer 20 to similarly raise the legs and thighs of the occupant or occupants of the bed equipped with the mattress. The raising means for the foot end of the upper mattress layer 20 is characterized by a flat platform 40, see Figs. 4 to 7, superimposed above a thickened foot end portion 26^a of the rigid plate 26. Depending from the bottom face of the platform 40, at the four corners thereof, there are vertical posts 41.

The posts 41 are depended slidably through complementary holes 42 and 43 formed in the plate 26 and the foot end of the bottom mattress layer 21, see particularly Fig. 9. The hole 43 of the bottom mattress layer 21 is reinforced by tubes of cloth material stitched at their top and bottom ends to the tick 22 of the lower mattress layer 21. In the lowered position of the platform 40, the posts 41 depend from the bottom face of the lower mattress layer 21 and through the openings of the spring of the bed upon which the mattress rests. If the bed is equipped with a box spring, it must be formed with suitable openings to accommodate the depending ends of the posts 41.

The outer longitudinal edges of the rigid plate 26 is formed with cutouts 44 in which pairs of arms 45 are located. The outer ends of the arms 45 are pivotally supported on trunnions 46 which extend from the material of the plate 26 into the cutouts 44. The free ends of the arms 45 are formed with rollers 47 for rolling on the bottom face of the platform 40. Stiff springs 48 are positioned within the cutouts 44 beneath each of the arms 45. Each of the springs 48 has one end secured by rivets 49 to the material of the plate 26 at the base of the cutouts 44. The other ends of the spring 48 bear against the bottom edges of the arms 45 urging the arms 45 into the upwardly inclined positions shown in Figs. 3, 5 and 7, raising the platform and the foot end of the upper mattress layer 20 horizontally. As in the case of the head end of the mattress, the

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joining strip 24 at the foot end is formed with a pleated area 24^b which permits the upward raising of the platform 40 and the foot end of the upper mattress layer 20. Such upward movement is arrested by complete expansion of the pleated area 24^b of the joining strip 24.

Electrically controlled means is provided for holding the platform 40 in the lowered position shown in Figs. 1, 2, 4 and 6 against the action of the springs 48 on the bottom edges of the arms 45. That means comprises a solenoid 49 mounted on the top face of the plate 26 immediately adjacent the posts 41 at opposite corners of the platform 40. The solenoids 49 have cores 50 arranged to slide toward and away from the respective posts 41. Springs 51 operate between pins 52 extended upward from the solenoids 49 and pins 53 extended upward from the ends of the cores 50 remote from the posts 41. The springs 51 act in contraction and urge the cores 50 into contact with the respective posts 41 to extend into complementary niches 54 formed in the sides of the posts 41 to hold the platform 40 in the lowered position shown in Figs. 4 and 6. Circuit means to be hereinafter described, is provided for energizing the solenoids 49 to withdraw the cores 50 from the niches 54 against the action of the springs 51. That functions to free the platform 40 to be raised by the action of the springs 48 on the arms 45. To again lower the platform, the foot end of the upper mattress layer 20 must be manually pressed downward until the cores 50 snap into niches 54.

Support means is provided for that portion of the upper mattress layer 20 where it slopes downward from the platform 40 in the raised position thereof. The support means is characterized by a base member 55 supported to slide longitudinally on the top face of the fixed plate 26. Superimposed on the base member, there is a top member 56 pivoted to the base member 55 by means of hinges 57. Leaf springs 58 are secured to the bottom face of the top member 56 at its edge remote from the hinges 57 by means of rivets 59.

The free ends of the leaf spring 58 bear against the top face of the base member 55 urging the top member 56 into the inclined position shown in Figs. 5 and 7.

Secured to the bottom face of the base member 55, there is a pair of laterally spaced longitudinally extending racks 60. The racks 60 slide in parallel longitudinally extending grooves 61 formed in the top face of the plate 26. Between the grooves 61, the thickened foot portion 26^a of the plate 26 is formed with a hollow 62 in which electrically controlled means is provided for moving the base member 55 back and forth relative to the platform 40. The electrically controlled means is characterized by end aligned opposed solenoids 63 and 64 between which a single core 65 is slidably extended. When the solenoid 63 is energized, the core 65 is moved away from the foot end of the mattress and when the solenoid 64 is energized, the core 65 is moved toward the foot end of the mattress. The circuits for controlling the energization of the solenoids 63 and 64 will be hereinafter described.

The bottom face of the core 65 is formed with rack teeth 66 which mesh with a small pinion 67 fixed to the shaft 68 rotatively supported between the side walls of the hollow 62. Fixed on the shaft 68 to one side of the pinion 67, there is a larger pinion 69 which in turn meshes with a smaller pinion 70 mounted on a second shaft 71

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rotatively extended between the opposed walls of the hollow 62. The pinion 70 in turn drives another small pinion 72 fixed to a shaft 73 which has its ends extended beyond the racks 60 and rotatively supported on the opposed side walls of the hollow 62. Beneath each of the racks 60, the shaft 73 carries a large gear 74 which meshes with the racks 60. The gears 74 are both of the same size.

The gear train interposed between the core 65 and the racks 60 provides the solenoids 63 and 64 with a mechanical advantage for moving the base member 55 and its pivotally mounted top member 56 back and forth relative to the platform 40.

In the lowered position of the platform 40, the top member 56 is held lowered onto the base member 55 against the action of the leaf springs 58 by the same means which holds the platform 40 lowered. When the platform 40 is free to be raised by the action of the springs 48 on the arms 45, the springs 58 are also freed to raise the top member 55 relative to the base member 55. In the completely raised position of the platform 40, the solenoid 63 is then energized to move the base member 55 and the top member 56 from beneath the platform 40 and into position beneath the downwardly inclined portion of the upper mattress layer 20, as shown in Figs. 5 and 7. To move the base member 55 and the top member 56 back into position beneath the platform 40, the solenoid 64 is energized. When in position beneath the platform 40 pressures applied to the top mattress layer 20 to lower the platform against the action of the spring 48 will also lower the top member 56 against the action of the springs 58.

The electrical circuits for controlling the solenoids 31, 49, 63 and 64 are shown in the schematic wiring diagram of Fig. 12. Those circuits are operated from a single control box 75 separate from the mattress to be positioned on a night table or the like within convenient reach of the occupant or occupants of the bed. The control box 75 has one push button 76 for energizing the solenoid 31, another push button 77 for energizing the solenoid 63, another push button 78 for energizing the solenoid 64 and a last push button 79 for energizing the solenoids 49 in unison.

Extending from the control box 75 there is a lead-in wire 80 provided at its free end with a plug 81 for insertion into a conventional outlet receptacle for supplying the required electric current. The wire 80 includes the usual parallel leads 82 and 83. Each of the push buttons 76, 77, 78 and 79 has a pair of contacts and within the control box 75, the lead 83 has branches connected to one contact of each of the push-buttons. The lead 82 extends through the control box and out again into the mattress where it is sub-divided into five branches 82^a, 82^b, 82^c, 82^d and 82^e. The branch 82^a goes to one side of the solenoid 31. The branch 82^b is connected to one side of the solenoid 63 and one side of the branch 82^c is connected to one side of the solenoid 64. The branches 82^d and 82^e are connected respectively to one side of the solenoids 49.

Extended from the other contact of the push button 76, there is a lead 84 which is connected to the other side of the solenoid 31 so that when the push button 76 is pushed inward the solenoid 31 is energized to free the headboard 27. A lead 85 extends from the other contact of the push button 77 and is connected to the other side of the solenoid 63 for energizing that solenoid when the push button 77 is pressed inward to move the

base member 55 and its top member 56 out from beneath the platform 49. A lead 86 extends from the other contact of the push button 78 and is connected to the other side of the solenoid 64 for energizing that solenoid when the push button 78 is pressed inward to move the base member 55 and its top member 56 back into position beneath the platform. Extending from the other contact of the push button 79 there is a lead 87. The lead 87 is extended into the mattress and divided into branches connected to the other side of each of the solenoids 49.

Thus, when the push button 79 is pushed inward, the two solenoids 49 will be energized to withdraw their respective cores 50 to free the platform 49 to be raised by the action of the springs 48 on the arms 45.

The leads 82, 84, 85, 86 and 87 where they extend between the control box 75 and the mattress are embodied in a single cable 88.

The modification of the invention shown in Figs. 13 to 16 differs from the previous form in the construction of the means associated with the fixed plate 26' for raising the foot end of the upper mattress layer 20. The head end of the plate 26' is provided with the same pivotally mounted headboard 27 for raising the head end of the upper mattress layer 20.

As in the previous form of the invention, the fixed rigid plate 26' is formed adjacent the foot end thereof with a thickened portion 26^b having a hollow 90. Positioned within the hollow 90, there is a U-shaped member 91 having spaced side arms 92 positioned flat against the side walls of the hollow 90. The free ends of the side arms 92 are pivoted to the opposed side walls of the hollow 90 by end aligned pins 93 so that the U-shaped member 91 can pivot in and out of the hollow 90. The opposite ends of the side arms 92 are joined by an integral intermediate arm which forms a platform 94 which is fixed relative to the side arms 92. Extended transversely between the side arms 92 inward of the platform 94, there is a group of platforms 95. At their ends, the platforms 95 are provided with depending lugs pivotally attached to the inner faces of the side arms 92 by means of pivot pins 96 so that the platforms 95 can pivot relative to the side arms 92. Elongated leaf springs 97 are positioned within the hollow 90 beneath each of the side arms 92 of the U-shaped member 91.

The leaf springs 97 have one of their ends attached to the bottom wall of the hollow by means of rivets 98. The free ends of the leaf springs 97 bear against the bottom edges of the side arms 92 to urge the U-shaped member 91 out of the hollow 90 into the inclined position shown in Fig. 14. When the U-shaped member 91 is in the inclined position, the free edges of the platforms 95 rest on pins 99 extended inward from the inner faces of the side arms 92 of the U-shaped member. In the lowered position of the U-shaped member 91, the free edges of the platforms 95 are held from pivoting upward by ledge members 100 carried by the free edges of the two platforms remote from the fixed platform 94. In the raised position of the U-shaped member 91, the platforms 94 and 95 assume the stepped formation shown in Fig. 14 to support the foot end portion of the upper mattress layer 20, to similarly support the legs and hips of the occupant or occupants of the bed provided with the mattress. The sides of the joining strip 24', at the sides of the mattress aligned with the hollow 90 of the rigid plate 26' is formed with pleated

areas 24^c which permit the raising of the foot end portion of the upper mattress layer 20. Upward movement of the side arms 92 of the U-shaped member 91, under the influence of the springs 97, is arrested upon complete extension of the pleated areas 24^c.

Electrically controlled means is provided for holding the U-shaped member 91 in a lowered position shown in Fig. 13 against the action of the springs 97. The holding means is best illustrated in Fig. 15, and includes a solenoid 101 fixedly mounted within a recess 102 in the rigid plate 26' which opens into the hollow 90 midway of the longitudinal sides of the rigid plate 26'. The solenoid 101 supports a core 103 for sliding movement toward and away from the platform 94.

The core 103 has an upwardly faced beveled end 104 for engaging the top face of the platform 94, as shown in Figs. 13 and 15, to hold the U-shaped member 91 lowered against the action of the leaf springs 97. Adjacent its beveled end, the core 103 has an enlarged flange 105. A coil spring 106 is wound about the core 103 and operates between the flange 105 and the adjacent end of the core 103 for urging the core into its extended position in which the beveled end 104 engages the top face of the platform 94. The end of the core 103 remote from the beveled end 104 has an enlarged head 107 for holding the core 103 from being shot out of the solenoid 101 by the spring 106.

Normally, the spring 106 holds the core 103 extended, as shown in Figs. 13 and 15, to engage the top face of the fixed platform 94 to hold the U-shaped member 91 lowered against the action of the spring 106. The solenoid 101 can be energized by circuit means to be presently described, to withdraw the core 103 against the action of the spring 106 to free the U-shaped member 91 to be raised by the springs 97 to the position shown in Fig. 14 in which the foot end portion of the upper mattress layer 20 will be raised. To relower the foot end portion of the upper mattress layer 20, the same is manually pressed downward pivoting the U-shaped member 91 into the hollow 90 against the action of the springs 97. The outer edge of the fixed platform 94 will snap past the beveled end 104 of the core 103 to again maintain the U-shaped member 91 in its lowered position until the solenoid 101 is again energized.

The energizing circuit for the form of the invention illustrated in Figs. 13 to 16 is shown in conjunction with Fig. 13. The circuit includes a master control box 75' having a push button 76 and a second push button 108.

As in the previous form of the invention, each of the push buttons 76 and 108 has a pair of contacts. The electric wire 80' extending from the plug 81 to the control box 75' includes the leads 82' and 83'. Within the control box 75', the lead 83' has branches connected to one of the contacts of each of the push buttons 76 and 108. The lead 82' extends through the control box 75' into the mattress where it has separate branches 82^x and 82^y. The lead 82^x is connected to one side of the solenoid 31 which controls the release of the headboard 27. The lead 82^y is connected to one side of the solenoid 101. A lead 84' extends from the other side of the push button 76 to the other side of the solenoid 31 so that when the push button 76 is pressed inward, the solenoid 31 will be energized to free the headboard 27 to be pivoted upward. Likewise, a lead 109 extends from the other contact

of the push button 108 to the other side of the solenoid 101 to cause the solenoid 101 to be energized to release the U-shaped member 91 to pivot upward when the push button 108 is pressed inward.

The leads 82', 84' and 109, where they extend from the control box 75' to the mattress, are embodied in a single cable 110, just as in the first form of the invention.

Rested on the top face of the mattress at opposite sides of the foot end thereof, there are pillows 111. As best shown in Fig. 16, the pillows 111 are of truncated triangular shape. The pillows 111 are provided to function as guides for indicating when the occupant or occupants of the bed equipped with the mattress, have their legs located directly in the center of the mattress.

In all other respects, the form of the invention illustrated in Figs. 13 to 16 is similar to the first form and like reference numerals are used to identify like parts of the invention.

From the foregoing description, it is apparent that the mattresses of the present invention provide convenient means for raising either or both the head end or the foot end of the mattresses to similarly support the head and shoulders or the legs and hips of the occupant or occupants of the bed equipped with the mattresses. The mechanisms employed for holding the parts of the mattresses in their raised positions are resilient in their formation so that the mattresses are not rigidly supported in their raised positions but rather have certain amount of play to conform themselves to the particular needs of the occupant or occupants of the bed.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as set forth in the appended claims.

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

1. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof.

2. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, each of said mattress layers having a tick enclosing padding, and a joining strip engaged about the peripheries of said layers and stitched at its top and bottom edges to said upper and lower mattress layers.

3. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, each of said mattress layers having a tick enclosing padding, and a joining strip engaged about the peripheries of said layers and stitched at its top and bottom edges to said upper and lower mattress layers, said joining strip having plated areas at the head end and the foot end of said layers permitting raising of the head end and the foot end of said upper mattress layer.

4. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, said electrically controlled means comprising a solenoid connected in series in a circuit including a source of electric current, said solenoid being mounted on said plate at the free edge of said headboard, said solenoid having a slidably mounted core for engaging said headboard at its free edge when said solenoid is deenergized, and a spring for urging said core into an extended position to engage the free edge of said headboard.

5. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, said electrically controlled means comprising a solenoid connected in series in a circuit including a source of electric current, said solenoid being mounted on said plate at the free edge of said headboard, said solenoid having a slidably mounted core for engaging said headboard at its free edge when said solenoid is deenergized, and a spring for urging said core into an extended position to engage the free edge of said headboard, said circuit including a manually operable push button for energizing said solenoid to withdraw said core against the action of said latter mentioned spring.

6. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position

to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, said raising means comprising a platform on said plate beneath said upper mattress layer at the foot end thereof, posts depended from the corners of said platform and extended slidably through said plate and said lower mattress layer, resilient means for urging said platform upward, and means for holding said platform in a lowered position against the action of said resilient means.

7. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, said raising means comprising a platform on said plate beneath said upper mattress layer at the foot end thereof, posts depended from the corners of said platform and extended slidably through said plate and said lower mattress layer, resilient means for urging said platform upward, and means for holding said platform in a lowered position against the action of said resilient means, said resilient means comprising a pair of arms beneath each side of said platform, said arms being pivoted to said plate at one end thereof, rollers on the other ends of said arms engaging the bottom face of said platform, and springs mounted on said plate engaging said arms to pivot them upward to in turn urge said platform upward.

8. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, said raising means comprising a platform on said plate beneath said upper mattress layer at the foot end thereof, posts depended from the corners of said platform and extended slidably through said plate and said lower mattress layer, resilient means for urging said platform upward, and means for holding said platform in a lowered position against the action of said resilient means, said means for holding said platform in a lowered position comprising a solenoid mounted on said plate adjacent the posts depending from opposed corners of said platform, said solenoids having spring pressed cores urged toward said posts, and niches in said posts into which said cores extend for holding said platform in its lowered position.

9. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof,

5 springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, said raising means comprising a platform on said plate beneath said upper mattress layer at the foot end thereof, posts depended from the corners of said platform and extended slidably through said plate and said lower mattress layer, resilient means for urging said platform upward, and means for holding said platform in a lowered position against the action of said resilient means, said means for holding said platform in a lowered position comprising a solenoid mounted on said plate adjacent the posts depending from opposed corners of said platform; said solenoids having spring pressed cores urged toward said posts, and niches in said posts into which said cores extend for holding said platform in its lowered position; and circuit means including a manually operable push button for energizing said solenoids to withdraw said cores to free said platform to be raised.

10. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, said raising means comprising a platform on said plate beneath said upper mattress layer at the foot end thereof, posts depended from the corners of said platform and extended slidably through said plate and said lower mattress layer, resilient means for urging said platform upward, and means for holding said platform in a lowered position against the action of said resilient means, and means for supporting said upper mattress layer where it depends downward from said platform in the raised position of said platform.

11. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, said raising means comprising a platform on said plate beneath said upper mattress layer at the foot end thereof, posts depended from the corners of said platform and extended slidably through said plate and said lower mattress layer, resilient means for urging said platform upward, and means for holding said platform in a lowered position against the action of said resilient means, and means for supporting said upper mattress layer where it depends downward from said platform in the raised position of said platform, said latter supporting means

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comprising a base member beneath said platform and slidably supported on said plate to move to and fro from beneath said platform, a top member pivotally mounted on said base member, resilient means on said base member for urging said top member into an upward inclined position in the raised position of said platform, and means for moving said base member out from beneath said platform in the raised position thereof.

12. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, said raising means comprising a platform on said plate beneath said upper mattress layer at the foot end thereof, posts depended from the corners of said platform and extended slidably through said plate and said lower mattress layer, resilient means for urging said platform upward, and means for holding said platform in a lowered position against the action of said resilient means, and means for supporting said upper mattress layer where it depends downward from said platform in the raised position of said platform, said latter supporting means comprising a base member beneath said platform and slidably supported on said plate to move to and fro from beneath said platform, a top member pivotally mounted on said base member, resilient means on said base member for urging said top member into an upward inclined position in the raised position of said platform, and means for moving said base member out from beneath said platform in the raised position thereof, said latter moving means comprising an elongated solenoid core, solenoids on opposed ends of said core for moving it in one direction or the other, rack teeth formed on said core, racks mounted on the bottom face of said base member and a gear train interposed between said core and said racks.

13. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive

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with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, said raising means comprising a pivotally mounted U-shaped member on said plate, resilient means urging said U-shaped member into an inclined raised position, means for holding said U-shaped member in a lowered position against the action of said resilient means, and platforms pivotally mounted on said U-shaped member between spaced side arms thereof.

14. A mattress comprising superimposed upper and lower mattress layers, a plate co-extensive with said mattress layers and interposed therebetween, a pivotally mounted headboard on the top face of said plate at the head end thereof, springs on said plate beneath said headboard urging said headboard into an inclined position to raise the head end of said upper mattress layer, electrically controlled means for holding said headboard in a lowered position against the normal action of said springs, and means for raising the upper mattress layer at the foot end thereof, said raising means comprising a pivotally mounted U-shaped member on said plate, resilient means urging said U-shaped member into an inclined raised position, means for holding said U-shaped member in a lowered position against the action of said resilient means, and platforms pivotally mounted on said U-shaped member between spaced side arms thereof, said side arms of said U-shaped member being joined by an integral intermediate platform, said means holding said U-shaped member in a lowered position comprising a solenoid operated core engaging said integral platform.

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