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BED BOTTOM.

APPLICATION FILED SEPT. 1, 1905.

Fig. 1.

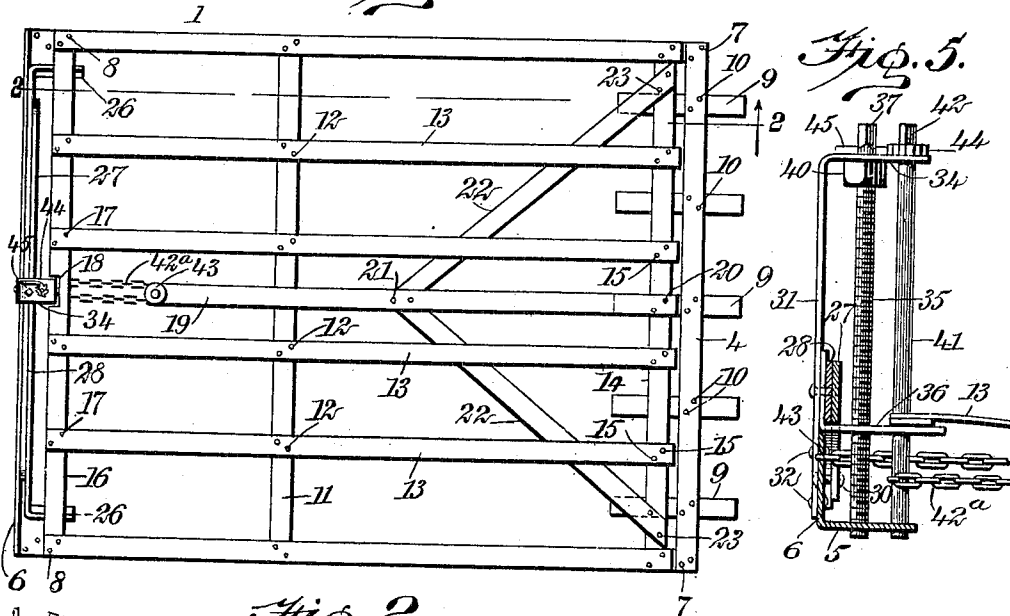


Fig. 2.

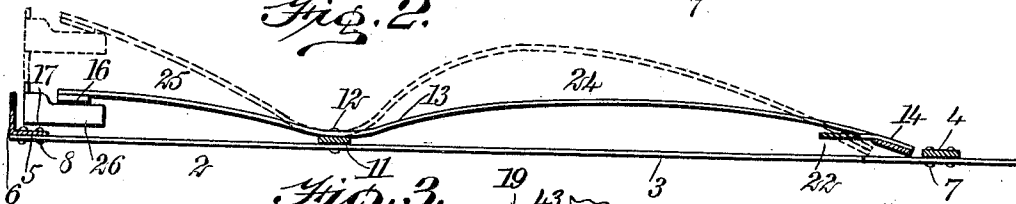


Fig. 3.

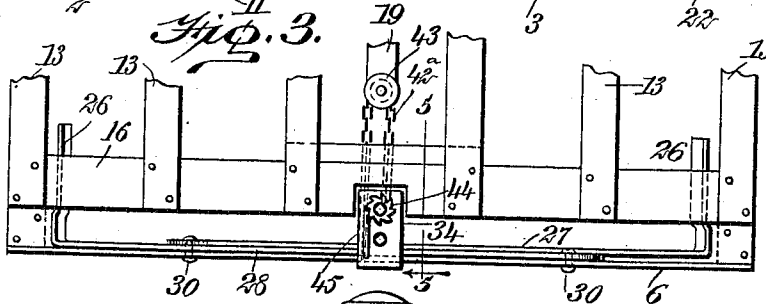


Fig. 4.

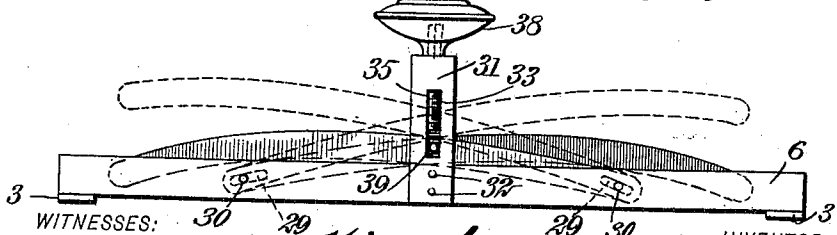
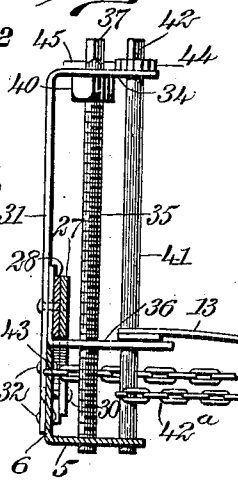


Fig. 5.



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# UNITED STATES PATENT OFFICE.

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## BED-BOTTOM.

No. 825,577.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed September 1, 1905. Serial No. 276,719.

*To all whom it may concern:*

Be it known that we, GILBERT BEZANGER and JOHN A. STEWART, subjects of the King of Great Britain, and residents of Halifax, in the Province of Nova Scotia and Dominion of Canada, have invented a new and Improved Bed-Bottom, of which the following is a full, clear, and exact description.

This invention relates to bed-bottoms; and it consists substantially in the details of construction and combinations of parts hereinafter more particularly described, and pointed out in the claims.

One of the principal objects of the invention is to provide a bed-bottom embodying all the characteristics or qualities of a mattress and which is capable of being rendered practically self-conforming to the lines and curves of the body of a person when recumbent thereon in any desired position—that is to say, the lines and curves of those portions of the body which are brought into direct contact with the supporting-surface of the structure.

A further object is to provide a bed-bottom of this kind which is comparatively simple in its construction and inexpensive to manufacture, besides being thoroughly effective and reliable in use and possessing the capacity for long and repeated service.

The above and additional objects are attained by means substantially such as are illustrated in the accompanying drawings, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a top plan view of a bed-bottom embodying our improvements. Fig. 2 is a sectional side view thereof, the dotted lines representing one of the positions to which certain members of the structure may be adjusted in use, the section being taken on the line 2 2 of Fig. 1. Fig. 3 is a top plan view of a portion of the structure shown in Fig. 1, illustrating certain of the parts on a slightly-enlarged scale. Fig. 4 is an end view showing the construction and organization of certain of the parts more clearly; and Fig. 5 is an enlarged view in sectional detail on the line 5 5 of Fig. 3, illustrating the adjusting devices for the head-rest of the structure as well as the operative connection with another part of the structure for effecting adjustments of certain elements.

Before proceeding with a more detailed de-

scription it may be stated that in the form of our improvements herein shown we employ a specially-constructed supporting-frame for the structure, combined with which is a specially-constructed head-rest on which may be placed an ordinary bolster or one or more pillows, according as may be desired, such head-rest being movably suspended upon a member of said supporting-frame, while special means are employed for adjusting the same to any desired height. Associated with the supporting-frame of the structure are a plurality of flat springs or flexible bars, like ends of which are slidable relatively to the supporting-frame, while the other ends thereof are practically supported by the head-rest, special means being employed for adjusting the main portions of said springs or bars to impart thereto corresponding bulges adapted to yield under the weight of such portions of the body of the person lying on the bed as may be brought to bear thereon. By a proper adjustment of the head-rest the remaining portions of the springs or bars may also have corresponding bulges imparted thereto, likewise adapted to yield to such portions of the body of the person as may be brought to bear thereon. The construction and organization of the parts of the structure are such as to admirably adapt the same as a bed for invalids, especially those afflicted with curvature or other diseases of the spine, while at the same time the structure possesses decided advantages for persons who are unafflicted or of normal physique and constitution.

Reference being had to the drawings by the designating characters thereon, 1 represents our improved bed-bottom in entirety, the same being preferably constructed of metal, although parts thereof may be formed of other material and comprising a main or supporting frame 2, which is substantially rectangular in form and provided with parallel-disposed side slats or strips 3. At one of the ends thereof the said side slats or strips 3 are connected together by means of a transversely-extending strip 4, while at the other ends the same are connected by means of another transversely-extending strip 5, provided at the outer edge thereof with an upstanding or vertically-disposed member 6, both of said transversely-extending strips 4 and 5 and the upstanding or vertically-dis-

posed member 6 reaching practically from one side of the structure to the other. The fastening of the strips 4 and 5 to the ends of the said parallelly-disposed side slats or strips 2 is effected by means of rivets 7 and 8 (as indicated most clearly in Fig. 2) or in any other suitable way. Secured, preferably, to the under side of the transversely-extending strip 4 and properly spaced apart are a plurality of short strips 9, extending beyond either edge of the strip 4 for any desired distance, these said short strips 9 being also secured to the strip 4 in any suitable way, as by means of rivets 10. Connecting the said parallelly-disposed side slats or strips 2 a suitable distance to one side of the longitudinal center of the structure is another strip 11, having secured to the upper side thereof, by means of rivets 12 or in any other suitable way, a plurality of flat springs or flexible bars 13, which are connected together at one of their ends, and preferably at the under side thereof, by still another strip 14, which it also secured thereto by means of rivets 15 or in any other suitable way. The other ends of the said flat springs or flexible bars 13 are connected together at their under sides by means of a further strip 16, riveted or otherwise secured thereto, as indicated at 17. This last-named strip 16 is preferably provided in the outer edge of the central portion thereof with a notch 18, and disposed parallel with the said side slats or strips 2 is a movable or longitudinally-slidable bar 19, preferably located substantially centrally of the transverse center of the structure, one end thereof being riveted or otherwise secured at 20 to the upper side of the strip 14, while leading from said movable bar and riveted or otherwise secured to the under side thereof at 21 are diverging members 22, having the extremities thereof riveted or otherwise secured at 23 to the upper surface of the end portions of the said strip 14, it being noted that the said diverging members 22 are located beneath the longer or main portions 24 of the said flat springs or flexible bars 13. The transversely-extending strip 14, which connects the ends of the said longer or main portions of the parallel flat springs or flexible bars 13 is slidable upon the upper surfaces of the hereinbefore-mentioned short strips 9, secured to the under side of the transversely-extending strip of the supporting or main frame, which connects together the adjacent ends of the parallelly-disposed side walls or strips 3, as will be noted.

The transverse strip 16, connecting the ends of the shorter portions 25 of the flat springs or flexible bars 13, is supported by inverted bracket members 26, formed at the ends of parallelly-disposed curved arms 27 28, each having a slot 29 at the free end portion thereof, in which is received a guide-pin 30, extending through the hereinbefore-mentioned upstanding or vertical member 6 of the transversely-extending strip 5. In this way the bracket members and said strip 16 constitute practically a head-rest for the structure which is capable of being adjusted vertically, as indicated in dotted lines in Fig. 2. To effect different adjustments of said head-rest according as may be required in the use of the structure, any suitable means may be employed; but preferably, as herein shown, we employ a vertically-disposed bracket 31, secured at 32 to the outer surface of the central portion of the said upstanding or vertically-disposed member 6 and formed therein with a vertically-elongated opening or slot 33. Said bracket is formed at the upper end thereof with an inwardly-extending branch 34, having an opening (not shown) therein, through which extends a vertically-disposed screw 35, which also extends through a corresponding threaded opening (not shown) formed in an inwardly-projecting plate 36, which is located between the inwardly-extending bracket members 26 of the said mentioned head-rest. The said transversely-extending strip 16, which connects the ends of the shorter portions 25 of the plurality of flat springs or flexible bars 13, also rests upon the said plate 36, as shown in Fig. 5, and it is apparent that on different adjustments of the head-rest the shorter portions of the springs or bars will be caused to assume corresponding changes of form. The said screw 35 is provided with an upwardly-extended squared end portion 37, to which may be applied a suitable key or wrench 38 for turning the screw in either direction desired, it being here mentioned that the said curved arms 27 and 28 are movably connected centrally thereof by means of a screw or pin 39, so as to maintain the said arms in proper relation to each other in the different movements imparted thereto in the adjustments of the head-rest, the said screw or pin extending through the said slot 33, as shown. The screw is also provided at the under side of the branch 34 of the bracket 31 with a nut 40, while disposed alongside of the said screw and suitably retained in openings therefor in the said branch 34, the plate 36, and the hereinbefore-mentioned transversely-extending strip 5 of the supporting-frame is a rod or staff 41, also having the upper end portion 42 thereof squared to receive the key or wrench 38 for the purpose of turning the same, this said rod or staff 41 having connected to the lower portion thereof, preferably beneath said plate 36, one end of a chain or cable 42<sup>a</sup>, which passes around a pulley 43 at the free end of the said mentioned centrally-disposed bar 19, the other end of the said chain or cable being secured in any suitable manner at 43 to the said upstanding or vertically-disposed member 6 of the strip 5. From the foregoing it will be seen that by applying the

key or wrench to the upper end portion of the said rod or staff 41 and then turning the latter in the proper direction the said chain or cable will be caused to be wound upon the said rod or staff, thereby exerting a draft or pull upon the bar 19, and in consequence of which said bar is caused to move, carrying therewith the diverging members 22 and the transversely-connecting strip 14 for the ends of said members and the ends of the longer portions of the said plurality of flat springs or flexible bars 13. In this way the longer portions of the said springs or bars will be caused to bulge upwardly, as indicated in dotted lines in Fig. 2, and then by turning the said screw 35 in the proper direction the head-rest will be caused to be raised or lowered, thereby causing the shorter portions of the springs or bars to be flexed or have imparted thereto bulges of greater or less curvature, according as may be desired. The upper or supporting surface of the structure may, if desired, be covered with any suitable material—as canvas, for instance—and it is apparent that in the position of the parts of the structure set forth the springs or bars will be self-conforming to the lines and curves of the body of the person lying thereon, as and for the purpose hereinbefore stated.

We wish to strongly emphasize the fact that one of the chief features of the bed-bottom herein described and one for which it is designed and to which it will invariably be put is that of being placed between the ordinary supporting-bottom of any bed, whether such be of wire, iron bar, or other material, and the cloth mattress commonly employed, in which case such cloth mattress will conform to shape of inserted bottom, while the spring-mattress that may exist in the original first bottom is retained. This universal application of our inserted bottom to any bed without any material alteration of the same, yet serving all the desired effect, we consider of great importance.

In order to secure the said flat springs or flexible bars in any position to which they may be adjusted, any suitable means may be employed—such, for instance, as a toothed ratchet 44, carried by the upper projecting end portion of the rod or staff 41, and the teeth of which are engaged by a spring-pawl 45, located upon the upper surface of the said branch 34 of the bracket 31.

The structure is simple and effective for its purposes and instead of being mounted or placed within a bedstead in the ordinary way the same may be placed directly on the floor of a room, and thereby be employed as in the manner of a bed or couch.

The plate 36 is angular in form, as shown, and is practically a nut, since the same works up and down on the screw 35, according to the direction in which the latter is turned, it

being understood that the nut 40 serves as a feed for the screw for enabling the latter to carry out the intended purposes thereof, this nut being practically rigid with the branch 34 of the bracket 31.

Whenever the flat springs or flexible bars 13 have been moved or adjusted to bulge upwardly, say, from the normal position thereof shown in full lines in Fig. 2 and it is again desired to reduce the bulges to a greater or less extent, then by simply turning the screw in the proper direction said springs or bars will straighten out of their own resiliency, and which also results in carrying the head-rest downwardly by the pressure exerted thereon by the transverse strip 16, to which the ends of the shorter portions 25 of the springs or bars are secured, as already explained. In virtue of the fact that the curved bars 27 and 28 rest upon the horizontal portion of the plate 36 at the lower edges of their central portions it is apparent that as said plate is caused to move upwardly the said bars will be correspondingly lifted, thus effecting the raising of the head-rest. In the adjustments of said springs or bars 13, as explained, the transverse strip 14, connecting the ends of the longer portions thereof, moves or slides upon the upper surfaces of the short strips 9, as well as upon corresponding portions of the upper surfaces of the parallel side strips or slats 3.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A structure of the character specified, comprising a frame, a plurality of flexible elastic bars associated therewith, a head-rest supporting the ends of like portions of the bars, means for adjusting the head-rest to impart bulges to said portions, and means for adjusting other like portions of said bars to also impart bulges thereto.

2. A structure of the character specified, comprising a frame, a plurality of flexible elastic bars associated therewith, and means for drawing the ends of the bars toward and from each other whereby to impart bulges to said bars.

3. A structure of the character specified, comprising a plurality of parallelly-disposed flexible elastic bars, and means for drawing the ends of the bars toward and from each other whereby to impart bulges thereto.

4. A structure of the character specified, comprising a frame, a connecting member for the sides thereof, a plurality of parallelly-disposed flexible elastic bars secured to said member, and means for drawing the ends of the bars toward each other whereby to impart bulges thereto.

5. A structure of the character specified, comprising a frame having side strips and a member connecting the latter intermediate of their ends, a plurality of parallelly-dis-

posed flexible elastic bars secured to said member, means for imparting bulges to portions of the bars at one side of said member, and means for also imparting bulges to the portions of the bars at the other side of said member.

6. A structure of the character specified, comprising a plurality of parallelly-disposed flexible elastic bars, and means for imparting bulges thereto, said bars having a member connecting them together at each of the ends thereof.

7. A structure of the character specified, comprising a frame, a connecting member for the sides thereof, a plurality of parallelly-disposed flexible elastic bars secured to said member, and means for imparting bulges thereto, said bars having a member connecting them together at each of the ends thereof.

8. A structure of the character specified, comprising a frame having side strips and a member connecting the latter intermediate of their ends, a plurality of parallelly-disposed flexible elastic bars secured to said member, means for imparting bulges to portions of the bars at one side of said member, and means for also imparting bulges to the portions of the bars at the other side of said member, said bars being connected together at each of the ends thereof.

9. A structure of the character specified, comprising a plurality of parallelly-disposed flexible elastic bars, and means for imparting bulges thereto, including a winding device.

10. A structure of the character specified, comprising a plurality of parallelly-disposed flexible elastic bars, and means for imparting bulges thereto, including a chain, a winding device therefor and a slidable rod having connection with the bars.

11. A structure of the character specified, comprising a frame, a plurality of flexible elastic bars associated therewith, a head-rest supporting the ends of like portions of the bars, means for adjusting the head-rest to impart bulges to said portions, and means for adjusting other like portions of said bars to also impart bulges thereto, said head-rest embodying movably-connected bars having bracket members.

12. A structure of the character specified, comprising a frame, a plurality of flexible elastic bars associated therewith, a head-rest supporting the ends of like portions of the bars, means for adjusting the head-rest to impart bulges to said portions, means for adjusting other like portions of said bars to also impart bulges thereto, said first-named

means embodying a screw, a plate movable up and down thereon, and a pawl and ratchet for holding the screw in different positions.

13. A structure of the character specified, comprising a plurality of parallelly-disposed flexible elastic bars, and means for imparting bulges thereto, including a chain, a winding device therefor and a slidable rod having connection with the bar, said rod being provided with a guide-pulley for said chain.

14. A structure of the character specified, comprising a frame having side strips, and connecting-strips therefor at the ends, one of said strips being provided with a vertical member having a bracket formed with a slot and having a branch, and the other with short strips, a plate having a pin projecting through said slot, movable arms supported by the plate and having intumed bracket members at one of their ends and formed with slots at the other ends thereof, pins extending through said slots from said vertical member, a strip connecting said bars at one end and resting upon said bracket members, still another strip connecting said bars at the other end, and slidable on the side strips and said short strips, and means for imparting bulges to said bars.

15. A structure of the character specified, comprising a frame having side strips, and connecting-strips therefor at the ends, one of said strips being provided with a vertical member having a bracket formed with a slot and having a branch, and the other with short strips, a plate having a pin projecting through said slot, movable arms supported by the plate and having intumed bracket members at one of their ends and formed with slots at the other ends thereof, pins extending through said slots from said vertical member, a strip connecting said bars at one end and resting upon said bracket members, still another strip connecting said bars at the other end, and slidable on the side strips and said short strips, and means for imparting bulges to said bars, embodying a slidable bar having diverging members having connection with the flexible elastic bars at one of their ends.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GILBERT BEZANGER.  
JOHN A. STEWART.

Witnesses:

CHAS. T. CLARK,  
WILLIAM M. ROBB.