

Sept. 16, 1924.

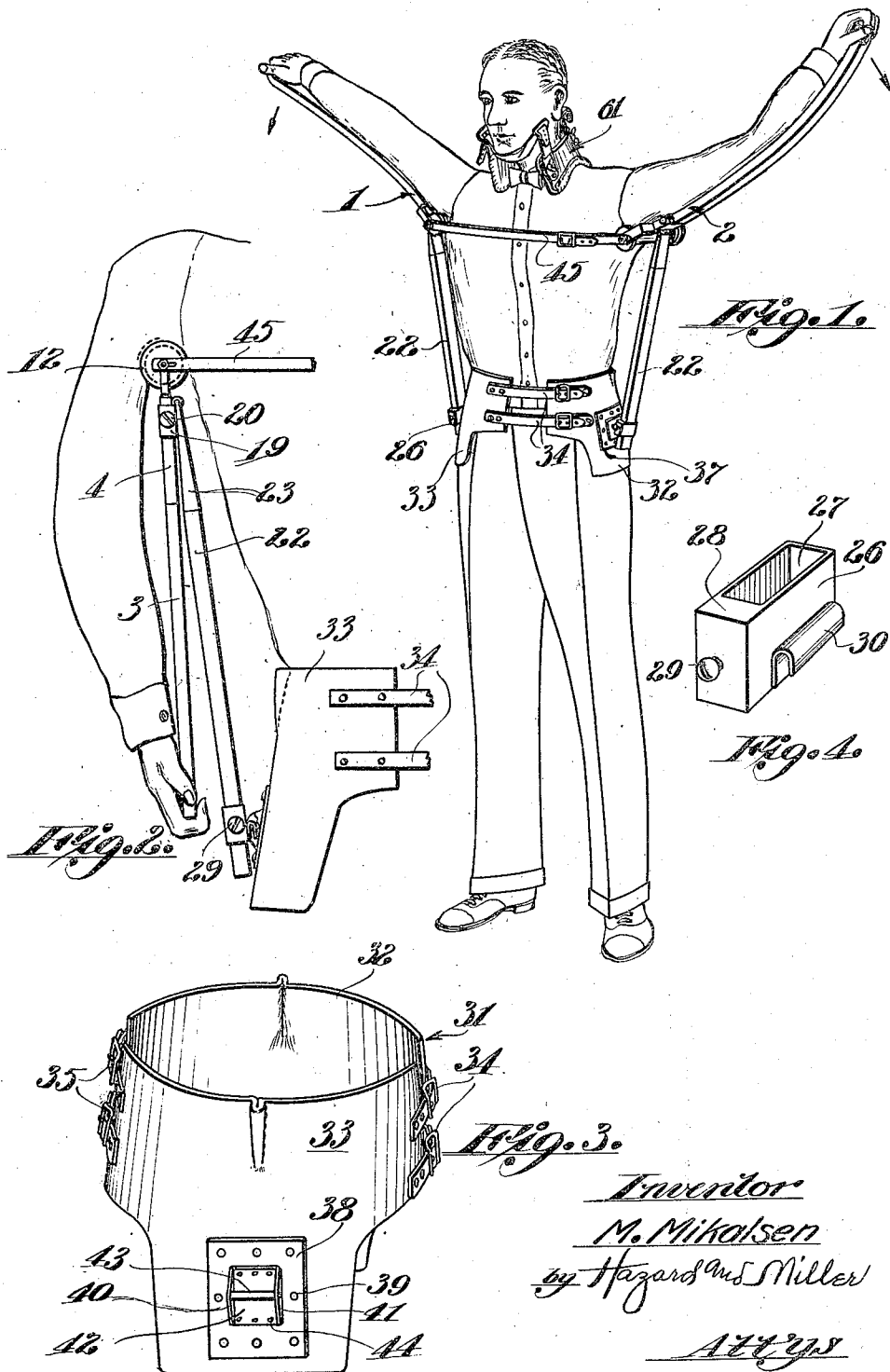
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M. MIKALSEN

EXERCISING AND SPINE STRETCHING APPARATUS

Filed Jan. 15, 1924

3 Sheets-Sheet 1



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3 Sheets--Sheet 2

Fig. 5.

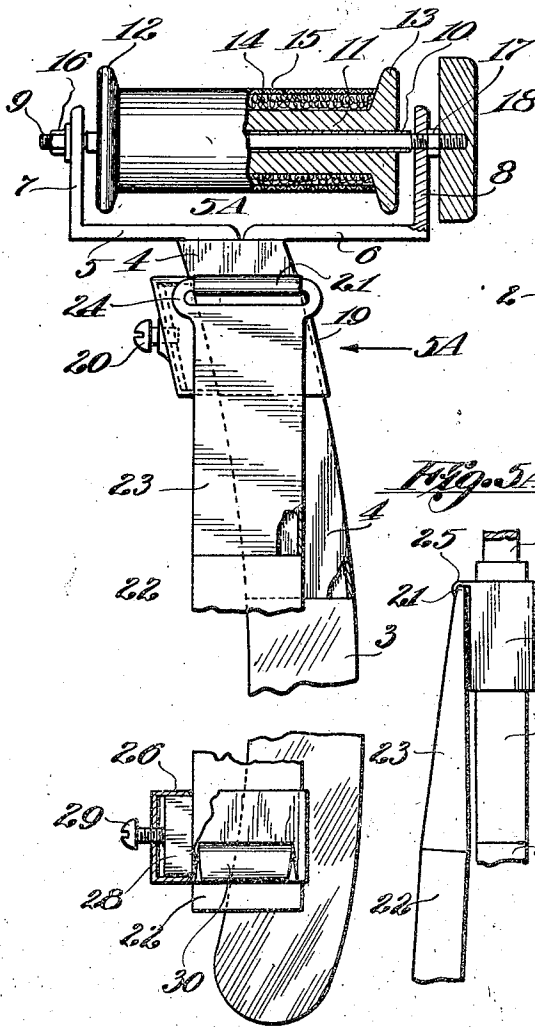


Fig. 5A.

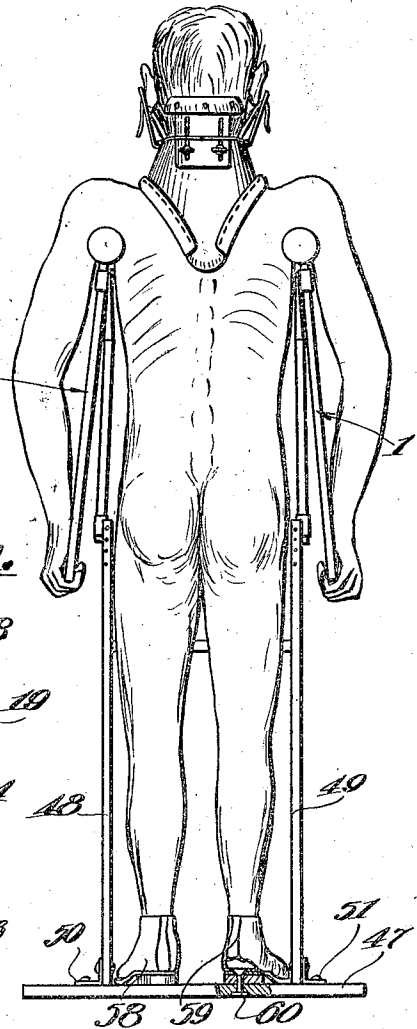
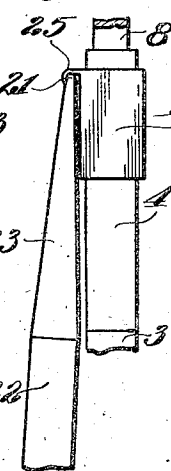
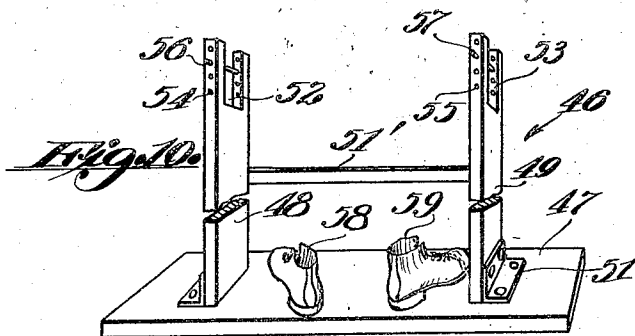


Fig. 9.



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3 Sheets--Sheet 3

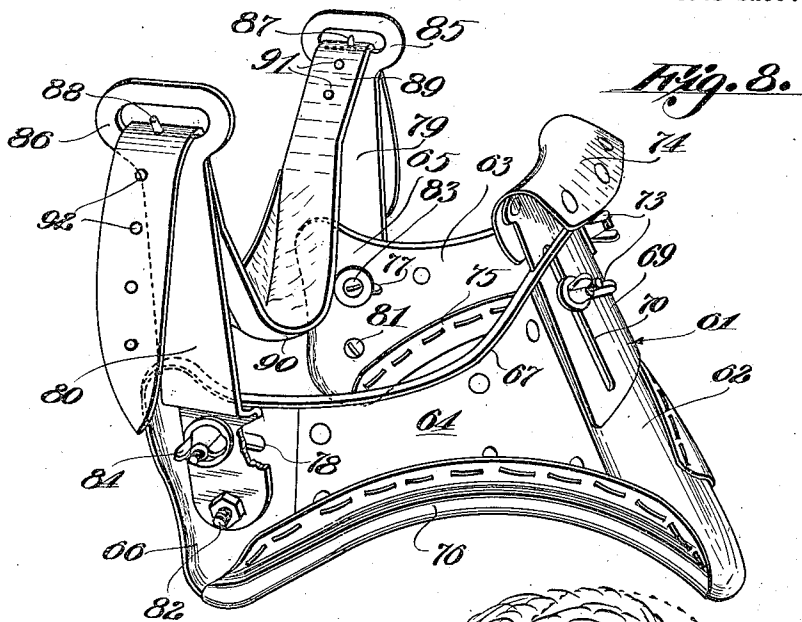


Fig. 8.

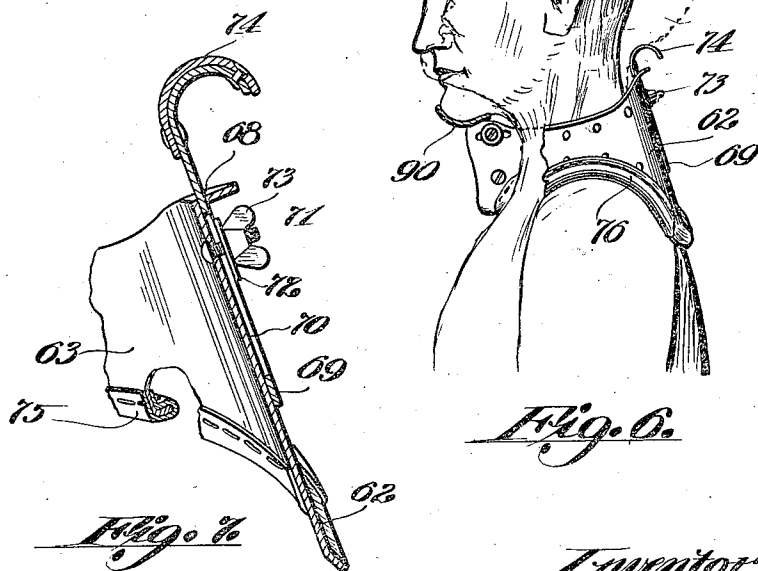


Fig. 6.

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UNITED STATES PATENT OFFICE.

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EXERCISING AND SPINE-STRETCHING APPARATUS.

Application filed January 15, 1924. Serial No. 686,255.

To all whom it may concern:

Be it known that I, MARIAN MIKALSEN, a citizen of the United States, residing at San Pedro, in the county of Los Angeles and State of California, have invented new and useful Improvements in Exercising and Spine-Stretching Apparatus, of which the following is a specification.

This invention relates to exercising devices and especially to apparatus for stretching and straightening the human spine, and consists of the novel features herein shown, described and claimed.

An object of my invention is to provide mechanical means by which a person may stretch and straighten his or her own back.

Another object is to provide arm levers for raising the shoulders and means for holding the lower part of the body down so that when the levers are operated to raise the shoulders the spine will be stretched and straightened.

Another object is to provide a shoulder and head harness to be used in connection with the arm levers so that when the shoulders are raised the head will be raised to stretch the spine.

Another object is to provide a shoulder and head harness for exercising and straightening the neck or upper part of the spinal column.

My invention consists of arm levers, a harness for holding the lower part of the body while the shoulders are raised by the arm levers, and a harness for resting upon the shoulders and engaging the head to raise the head when the shoulders are raised.

Further objects and advantages will appear from the drawings and specifications.

The drawings represent a preferred form of the exercising and spine straightening apparatus.

Figure 1 is a front perspective view showing an exercising and spine stretching apparatus embodying the principles of my invention applied to a person and in use and showing a body harness applied to the waist and hips.

Fig. 2 is a fragmentary front elevation on an enlarged scale and showing the arm levers and hip harness.

Fig. 3 is a side perspective of the hip harness.

Fig. 4 is a perspective of the adjusting

hook which is applied to the lever braces so as to adjust the length of the braces.

Fig. 5 is an enlarged fragmentary detail of one of the arm levers and braces, parts being broken away and other parts being shown in section.

Fig. 5^A is a fragmentary sectional detail on the line 5^A—5^A of Fig. 5 and looking in the direction indicated by the arrows.

Fig. 6 is a fragmentary detail of the shoulder and head harness in position for use upon a person and adjusted for exercising and stretching the neck.

Fig. 7 is an enlarged fragmentary sectional detail of the harness at the back of the neck and on a plane parallel with Fig. 6.

Fig. 8 is an enlarged detail perspective of the shoulder and head harness.

Fig. 9 is a rear view in elevation showing the shoulder and head harness in use and showing the arm levers connected to a foot harness instead of to a hip harness, the feet being fastened in the foot harness to hold the lower part of the body down while the shoulders and head are elevated.

Fig. 10 is a perspective of the foot harness shown in Fig. 9.

The details of the arm lever mechanisms are best shown in Figs. 2, 4, 5 and 5^A, and are as follows:

The arm lever mechanisms 1 and 2 are substantially alike except that mechanism 1 is intended for the right hand and shoulder, and mechanism 2 is intended for the left hand and shoulder.

The details shown in Figs. 5 and 5^A are for the right hand arm lever mechanism, and are as follows:

The lever body 3 has a metal ferule 4 on its upper end. The arms 5 and 6 are secured at their inner ends to the upper end of the ferule 4 and extend outwardly in a line, bearing portions 7 and 8 extend in parallel positions from the outer ends of the bodies of the arms 5 and 6, and form a fork. The shaft 9 is mounted in the outer ends of the bearing portions 7 and 8, a sleeve 10 is mounted upon the shaft 9, a roller 11 is fixed upon the sleeve 10 and has flanges 12 and 13 at its ends, and has a cushion 14 covered with a cloth band 15 between the flanges 12 and 13. The collar 10 extends beyond the ends of the roller 11 to engage the bearings and hold the flanges

12 and 13 away from the bearing portions 7 and 8. The nuts 16 and 17 are screwed upon the ends of the shaft 9 against the outer faces of the bearing portions 7 and 8, and a guard wheel 18 is screwed upon the rear end of the shaft 9 against the nut 17.

An adjusting bearing block 19 is slidably mounted upon the ferule 4 and has a set screw 20 to hold the bearing in its adjusted position. A pivot bearing 21 extends inwardly along the upper part of the block 19, a brace 22 is formed of wood and has a ferule 23 upon its upper end, and a loop 24 is formed at the upper end of the ferule 23 and the upper part of the loop is straight and forms a pivot 25 which extends through the bearing 21 so as to pivotally connect the brace 22 to the lever 3. This pivot 25 is the fulcrum of the arm lever mechanism and by manipulating the set screw 20 and moving the bearing block 19 upon the ferule 4 the proportion of the leverage may be increased or diminished.

The box 26 is slidably mounted upon the lower end of the brace 22, said brace extending through the opening 27 in the box, a clamping block 28 is slidably mounted in the box to engage the brace 22, and a set screw 29 is screw-seated through one end of the box and engages the block 28 to tighten the block against the brace 22 so that by manipulating the set screw 29 the box 26 may be raised or lowered upon the brace 22 to adjust the effective length of the brace, and a hook 30 is rigidly secured to the inner side of the box 26 to engage a support.

The details of the hip harness 31 are best shown in Figs. 1, 2 and 3, and are as follows:

The sections 32 and 33 are made of heavy leather and are adapted to fit the hips of a person, and the sections are connected at the rear by straps and buckles 34 and at the front by straps and buckles 35, said straps and buckles being adapted to adjust the harness to the size of the person to which it is to be applied. Brace supports 36 and 37 are secured to the sections 32 and 33 so as to be directly opposite each other when the harness is applied, and each support includes a base 38 of sheet metal secured to the leather by rivets 39, the brackets 40 and 41 formed integral with an attaching plate 42, and the supporting pins 43 rigidly fixed in the brackets 40 and 41 and spaced from the attaching plate 42, so that the hooks 30 may engage the supporting pins 43, the attaching plate 42 being rigidly secured to the base 38 by rivets 44.

When the hip harness has been properly adjusted and applied to the hips of a person, as in Fig. 1, the boxes 26 may be properly adjusted upon the braces 22 and the

hooks 30 applied to the supporting pins 43, as shown in Fig. 2, so as to support the braces, then the bearing blocks 19 may be adjusted upon the levers 3 to give the proper leverage and fit the person so that when the arm lever mechanisms are applied the levers 3 are lifted, as in Fig. 1, and the rollers 11 pressed tightly under the armpits with the levers 3 under the arms and extending to the hands, and straps 45 may be applied at the front and tightened to the desired extent to hold the rollers 11 firmly in position under the armpits and to hold the braces 22 upright.

The foot harness 46 is shown in Figs. 9 and 10. The board 47 is intended to rest upon the floor. The posts 48 and 49 are secured to the board 47 by angle pieces 50 and 51 and extend upwardly to the plane of the hips, and are connected by a cross brace 51'. The upper ends of the posts 48 and 49 have slots 52 and 53 and the prongs thus formed have a series of pin holes 54 and 55 to receive the adjusting pins 56 and 57.

The hooks 30 engage the pins 56 and 57 to support the braces 22. Shoes 58 and 59 are rigidly secured to the board 47 by bolts 60, and when a person desires to use this body harness, the feet are placed in the shoes 58 and 59 and the shoes securely laced or buttoned so as to hold the lower part of the body down when the arm levers are applied and operated to raise the shoulders, thereby raising the shoulder and head harness to raise the head and stretch and straighten the spine.

The shoulder and head harness 61 is shown in Figs. 1, 6, 7, 8 and 9. A substantial sheet metal frame consisting of the central back portion 62, a forwardly extending portion 63 and 64 and front end portions 65 and 66, is constructed. The back portion 62 extends upwardly back of the head and downwardly between the shoulders.

A rim 67 is turned outwardly all the way around and a slot 68 is formed through the rim at the upper end of the back portion 62. An adjustable member 69 is inserted downwardly through the slot 68 and has a vertical slot 70. A wing nut bolt 71 is inserted from the inside through the upper end of the portion 62 and through the slot 70. A washer 72 is applied and the wing nut 73 applied, so that the member 69 may be adjusted up and down.

The upper end of the member 69 is curved upwardly and outwardly and cushioned to form a head rest 74. The lower edges of the portions 63 and 65 and 64 and 66 are curved outwardly and transversely to form the cushions 75 and 76, said cushions extending from the lower part of the back member 62 forwardly around the neck and over the shoulders. The forward portions 65 and 66 are spaced apart so that the

harness may be placed upon the shoulders from the back, the neck of the person passing between the portion 65 and 66, and at the same time the cushions 75 and 76 fit close to the neck.

Horizontal slots 77 and 78 are formed through the upper parts of the portion 65 and 66. Posts 79 and 80 are secured at the lower ends by bolts 81 and 82 passing through the portions 65 and 66, respectively, said posts extending upwardly past the slots 77 and 78. Wing nut adjusting bolts 83 and 84 are inserted from the inside through the slots 77 and 78 and through the posts 79 and 80, so that by manipulating the nuts the posts 79 and 80 may be tipped forwardly or backwardly to the extent of the slots.

Loops 85 and 86 are formed upon the upper ends of the posts 79 and 80 and have horizontal openings with tongues 87 and 88 projecting upwardly from the lower sides of the openings to form buckles. The chin strap 89 has a central portion 90 adapted to fit the human chin and has perforations 91 and 92 in its ends, so that the chin portion 90 may be adjusted up or down by working the strap through the loops from one pin to another.

In applying the device thus constructed, the chin strap 89 may be disconnected at one end and the harness applied from the back, the neck passing between the portion 63 and 64 and the head engaging the rest 74, and then the head rest and chin rest may be adjusted reasonably tight.

The cushions 75 and 76 rest firmly upon the shoulders across the collar bone and are rigid with the adjusted head rest 74 and chin rest 90, and when the head rest and chin rest are tightly adjusted against the back of the head and under the chin, respectively, with the shoulders drooping, any elevation of the shoulders will tend to elevate the back head rest and chin rest and stretch or straighten the spine.

Power is furnished by the operation of the arm levers, and considerable power may be developed.

Usually the apparatus will be used with the person standing, but it may be used with the person lying upon a bed or other support, and the rollers 18 serve as guards to engage the bed or other support and protect the bedding from being torn or tangled with the rollers and fork.

Thus I have produced an exercising and spine stretching apparatus comprising arm levers adapted to engage the armpits and to be operated by the arms and hands, fulcrums supporting the arm levers, body harness for supporting the fulcrums and connecting the arm levers to the lower part of the body, a head and shoulder harness

adapted to rest upon the shoulders and having an adjustable head rest and an adjustable chin rest, so that by properly adjusting the apparatus with the arm levers elevated, strain may be exerted upon the spine by lowering the arm levers.

Various changes may be made without departing from the spirit of my invention as claimed.

I claim:

1. An exercising and spine-stretching apparatus comprising arm levers, fulcrums for supporting the arm levers, body harness for supporting the fulcrums, and a shoulder and head harness for raising the head when the shoulders are raised.

2. In an exercising and spine-stretching apparatus, arm levers adapted to fit below or inside of the arms and extend from the hands to the armpits, rollers in the inner ends of the arm levers to engage the armpits, adjustable bearings upon the arm levers, braces pivotally connected to the adjustable bearings, and body harness for supporting the braces.

3. In an exercising and spine-stretching apparatus, arm levers having rollers in their inner ends adapted to fit the armpits of a person, adjustable fulcrums upon the arm levers, braces connected to the fulcrums, adjustable hooks upon the lower ends of the braces, and a body harness adapted to receive the hooks.

4. An exercising and spine-stretching apparatus comprising arm levers adapted to engage the armpits, a body harness, and means for pivotally connecting the arm levers to the body harness.

5. An exercising and spine-stretching apparatus comprising arm levers, adjustable fulcrums for the arm levers, a body harness, means for connecting the adjustable fulcrums to the body harness, a head and shoulder harness having parts to engage across the shoulders and adjustable parts to engage the back of the head and chin so that when the shoulders are elevated the head will be elevated.

6. In an exercising and spine-stretching apparatus, a head and shoulder harness having parts to engage across the shoulders, a back head rest adjustably connected to the shoulder-engaging parts, and a chin support adjustably connected to the shoulder-engaging parts.

7. In an exercising and spine-stretching apparatus, arm levers, adjustable fulcrums for the arm levers, braces for the fulcrums, a hip harness having pins, and hooks upon the braces to engage the pins.

In testimony whereof I have signed my name to this specification.

MARIAN MIKALSEN.