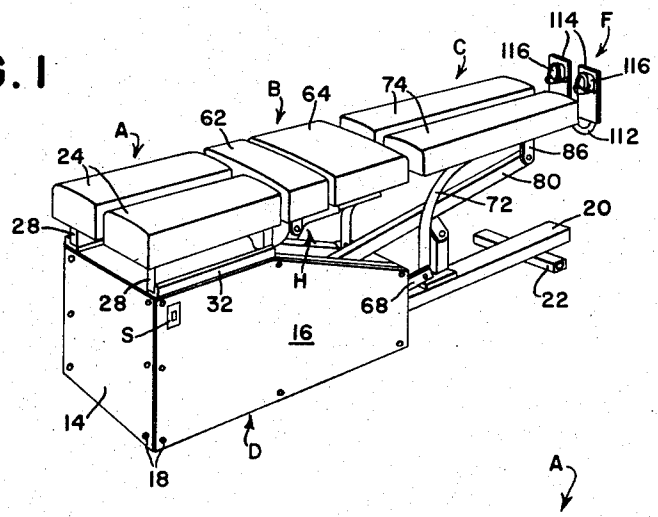
May 12, 1959 F. L. VOGTMANN ET AL 2,886,028

EXERCISING TABLE

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FIG. 1



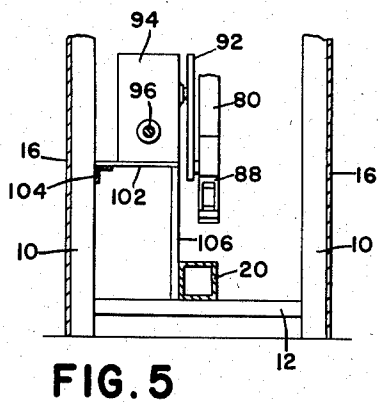


FIG. 5

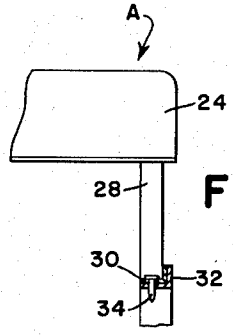


FIG. 6

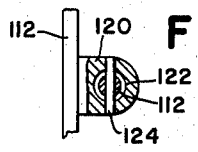


FIG. 8

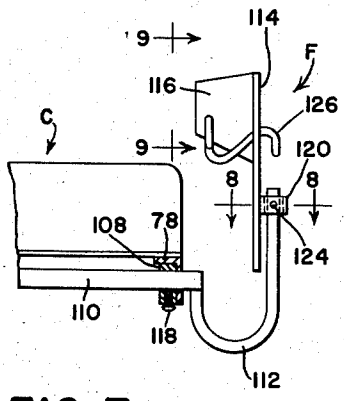


FIG. 7

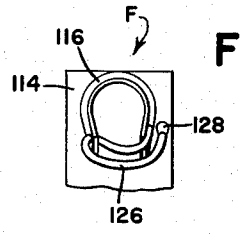


FIG. 9

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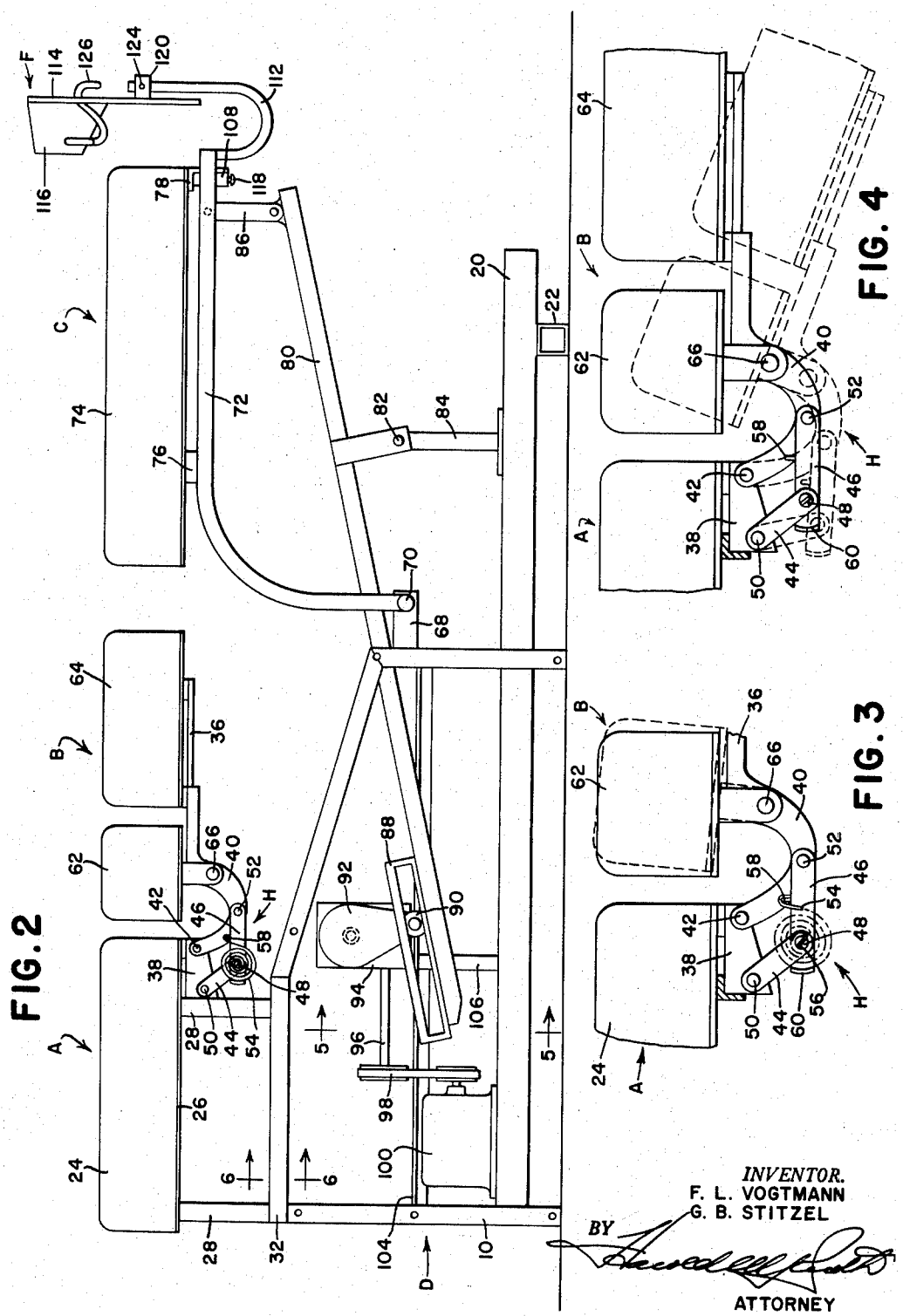


FIG. 2

FIG. 3

FIG. 4

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EXERCISING TABLE

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Application July 9, 1956, Serial No. 596,646

16 Claims. (Cl. 128—25)

This invention relates to an exercising table and more particularly to a table having a plurality of person-supporting cushion elements, certain of which are flexibly mounted and others of which are movable by a power source.

The general purpose of an exercising table, whether used by an individual or under the supervision of a physician or other licensed practitioner, is to exercise certain muscles of the body, particularly the back and abdominal muscles. According to the present invention several novel features are incorporated in a simple and inexpensive table comprising three cushion elements mounted on a base, these cushion elements being adapted to respectively support the head, thorax and legs of a person lying prone thereon. The table features resilient or yieldable mounting of the intermediate or thorax cushion element and power means for raising and lowering the leg-supporting element. It is an object of the invention to arrange these cushions so that the power actuated cushion imparts a stretching and compressing action as it moves. It is a further object of the invention to provide a design in which the main parts of the driving mechanism are enclosed. A still further object of the invention is to provide an intermediate or thorax-supporting cushion element made up of a pair of cushions, both of which are yieldably mounted relative to the head-supporting cushion, but one of which is mounted for articulation relative to the other.

The foregoing and other important objects and desirable features inherent in and encompassed by the invention will become apparent as a preferred embodiment of the invention is disclosed in detail in the ensuing specification and accompanying sheets of drawings, the several figures of which are described immediately below.

Figure 1 is a perspective of the table.

Figure 2 is a side elevation with the enclosure panels removed.

Figure 3 is an enlarged view of the means for supporting the intermediate cushion.

Figure 4 is a similar view showing the two cushions of the intermediate element and illustrating in broken lines the manner of movement of the two cushions in unison.

Figure 5 is a section on the line 5—5 of Figure 2.

Figure 6 is a section on the line 6—6 of Figure 2.

Figure 7 is an elevation, partly in section, showing the manner of supporting one of the foot rests.

Figure 8 is an enlarged section on the line 8—8 of Figure 7.

Figure 9 is an elevation as seen along the line 9—9 of Figure 7.

The table comprises fundamentally front, intermediate and rear cushion elements A, B and C respectively, normally supported in co-level positions on a base D. The cushions are adapted to support a person lying prone (or supine) thereon, the cushion element A supporting the person's head, the cushion element B supporting the person's thorax or abdomen and the cushion element C supporting the person's legs. A pair of foot rests F are utilized to receive the person's feet.

Reference will be made to the table as having front and rear ends, the front end of the table being the head end or the left-hand end as seen in the drawings. The base comprises a pair of upright side frames 10 appropriately cross-connected or interbraced as at 12 and normally enclosed by an end panel 14 and opposite side panels 16. These panels are removed in Figure 2. Figure 1 illustrates that the panels may be held in place by any suitable removable fasteners such as shown at 18. The base further includes a fore-and-aft member 20 which projects rearwardly beyond the rear ends of the side frames 10 and is carried by a transverse supporting bar 22. The frame members are preferably welded to afford a light-weight, strong and economical construction.

The cushion element A comprises a pair of elongated, side-by-side cushions 24, spaced laterally apart to accommodate the person's nose or ear, as the case may be. These cushions are supported on a suitable plate 26 having legs 28 which are secured at their lower ends to a pair of fore-and-aft parallel angle members 30. These are in turn slidably carried for fore-and-aft movement by top members 32 of the side frame members 10. As between each pair of members 30 and 32, one may have a single aperture and the other may have a plurality of apertures spaced apart fore-and-aft and any selected pair of registering apertures may receive a lock pin 34 for maintaining the fore-and-aft position of the cushion element A on the base D (Figure 6).

The intermediate cushion element B is carried on a fore-and-aft support means 36 which is hinged at H to the support means 26—28 of the cushion element A. The hinge comprises a pair of rearwardly extending brackets 38 respectively on the rear legs 28 of the front cushion element support, arcuate extensions 40 on the support means 36 which are pivoted at 42 on a common transverse axis to the brackets 38, and links 44 and 46 pivotally interconnected by a cross shaft 48, the link 44 being pivoted at 50 to the bracket 38 and the link 46 being pivoted at 52 to the extension 40 of the support means 36. The cross shaft 48 is rigid with the links 44, preferably welded thereto, but is loose in the links 46. At each side of the hinge structure, a torsion spring 54 cooperates with the linkage to maintain the horizontal position of the cushion element B. Figure 3 best illustrates that the pivot pin or cross shaft 48 is slotted to receive one end 56 of the torsion spring 54, and the other end of the spring hooks over a lug 58 on the link 46. Thus the spring 54 tends to straighten the toggle effected by the links 44 and 46. The cushion element B as a whole may be depressed to fold the toggle against the resistance of the spring, as shown in dotted lines in Figure 4, but when pressure is released it will return to its normal level position. The forward end of the link 46 has an integral lug 60 which functions as a stop by engaging the front edge of the link 44, to prevent complete straightening of the toggle and thus to establish the level position of the cushion element B. The torsion spring has been omitted in Figure 4 in the interests of clarity.

Since the cushion element B is connected to the cushion element A by the hinge means H, it will partake of fore-and-aft adjustment by the means shown in Figure 6; although, as just described, the cushion element B is adapted to be displaced relative to the cushion element A via the hinge means. Another characteristic of the cushion element B is that it is made up of a pair of transverse cushions 62 and 64, the former of which is rockable relative to the latter by means of being pivoted at 66 to the extension 40 of the support 36. Although, for purposes of convenience, Fig. 2 shows the

cushion 62 perfectly level, it will be clear that the cushion will, when free, rock to one side or the other of a neutral position. Figure 3 illustrates in dotted lines one of the possibilities of movement of the cushion 62.

Each side frame element 10 carries at its rear end a rearwardly extending ear or bracket 68 which affords a pivot 70 on a transverse axis for mounting support means 72 for the rear cushion element C. This cushion element is made up of a pair of fore-and-aft side-by-side cushions 74 appropriately cross-connected by transverse members 76 and 78 which are in turn secured to the rear cushion-supporting means 72. The pivot axis at 70 is rearwardly of and below the basic pivot 42 of the hinge means H, whereas it will be seen that as the cushion element C moves downwardly it also moves rearwardly or away from the cushion element B, thus increasing the length of the table upon depression and bringing the length of the table back to normal upon elevation. This movement of the cushion element C is derived from drive means including a fore-and-aft rocking beam 80 fulcrumed at 82 on an upright 84 secured to a rear end portion of the fore-and-aft center bar 20. The rear end of the beam 80 is pivotally linked at 86 to the rear end of the supporting means 72 and the forward end of the beam has a fore-and-aft slide 88 which receives a crank pin 90 of a rotatable crank 92. This crank is driven by any suitable means (not shown) contained in a gear box or reducer 94 which has a power input shaft 96 driven by a belt 98, for example, from a power source, here an electric motor 100. As best shown in Figure 2 the motor 100 is mounted at the forward end of the center bar 20. As best shown in Figure 5 the gear box 94 is supported on a mount 102 which derives its support from a fore-and-aft angle 104, secured to the left-hand upright side frame 10, and in part from a leg 106 which rises from the support or center bar 20.

As best shown in Figure 7, the cross bar 78 of the supporting means 72 for the rear cushion element C carries a pair of blocks 108, only one of which is shown, but the two of which will be readily apparent. Each block has a fore-and-aft aperture to slidably receive a fore-and-aft foot rest support rod 110, the rear end of which has a J-shaped member 112 supporting a foot plate 114 to which an anklet 116 is appropriately secured. Releasable means such as a set screw 118 is cooperative between the rod 110 and its block 108 to afford fore-and-aft adjustment of the foot rest plate 114. The foot rest plate rods are individually adjustable for obvious reasons. Each plate 114 has an ear 120 apertured at 122 so as to loosely receive the upright portion of the J-shaped rod 112. A transverse pin 124 passes through the ear 120 and the J-shaped rod so as to confine the plate 114 against vertical movement; however, the loose connection permits a desirable amount of flexibility or articulation of the foot plate. Each anklet 116 is preferably made of leather or other suitable flexible material and is adapted to receive the person's ankle. A thong or cord 126 affords means for securing the anklet about the ankle, this cord passing through an aperture 128, for example, in the foot plate to accomplish releasable securing means.

In the use and operation of the table, the person lies preferably prone on the cushions, with the aforesaid parts of his body supported on the cushion elements A, B and C. The soles of his feet rest against the foot plates 114 and the anklets 116 are secured, fore-and-aft adjustment at 110—118 and at 30—32 being previously accomplished to suit the stature of the person. The control switch S is conveniently located at a fore part of the base D for starting and stopping the drive mechanism. As previously described, the rear cushion element will be driven downwardly and rearwardly and then upwardly and forwardly respectively from and to its normal level position. As the cushion element moves downwardly and rearwardly it will of course exert a stretching action on the person, and as it moves upwardly it will exert a compressive action. Experience has shown that this type of motion is extremely beneficial in many cases. As a concomitant to this motion, the intermediate or central cushion element B flexes downwardly and returns to its normal position, thus combining with the motion of the cushion element C. If desired, the cushion element C may be adjusted to any of its positions by means of the drive mechanism and the drive mechanism then shut off to secure that position, and the patient's mid-section may be externally manipulated, utilizing to full advantage the flexible mounting of the cushion element B. Thus, it will be seen that the table is readily adapted to a variety of conditions. It is extremely simple to operate, is economically constructed and the enclosure of the main portions of the drive mechanism assure safety in its use and operation.

Features and objects not specifically enumerated herein will undoubtedly occur to those versed in the art, as will many modifications and alterations in the preferred embodiment disclosed, all of which may be achieved without departure from the spirit and scope of the invention.

What is claimed is:

1. An exercising table, comprising: a fore-and-aft base having front and rear ends; front, intermediate and rear individual cushion elements disposed over the base in normal generally co-level positions and adapted to support a person lying thereon, said cushion elements being arranged so that the head, torso and legs of such person are supported respectively on said front, intermediate and rear cushion elements; front means on the base supporting the front cushion element in its normal level position; intermediate means on the base supporting the intermediate cushion element independently of the rear cushion element for movement downwardly and rearwardly away from its normal position; means biasing the intermediate cushion element for return to its normal position; rear means on the base supporting the rear cushion element for rocking movement downward and rearwardly away from and upwardly and forwardly back to its normal position; and drive means on the base and connected to and for rocking the rear cushion element.

2. The invention defined in claim 1, in which: the intermediate cushion element supporting means includes a rigid fore-and-aft support below the intermediate cushion element and extending from the rear of the front cushion element toward the rear cushion element, hinge means mounting the forward portion of said support on the base for movement of the support and the intermediate cushion element downwardly and rearwardly and for biased return to its normal position as aforesaid; and said intermediate cushion element includes a first cushion immediately adjacent to the rear end of the front cushion element and mounted on the support for rocking about a transverse pivot separate from the hinge means, and a second cushion on the support between said first cushion and the front end of the rear cushion element.

3. The invention defined in claim 2, in which: the hinge means comprises substantially parallel linkage including transverse pivots and affording the aforesaid movement of the support and intermediate cushion element.

4. The invention defined in claim 1, in which: the front support means mounts the front cushion means on the base for fore-and-aft adjustment relative to the intermediate cushion means.

5. The invention defined in claim 1, including foot rest means on the rear end of the rear cushion element for receiving the feet of a person lying on the cushion elements, said foot rest means including attaching devices for securing the person's feet to said foot rest means.

6. The invention defined in claim 5, in which: the foot rest means includes an upright plate portion adapted to receive the soles of the person's feet and the attaching devices are constructed to receive the person's ankles.

7. The invention defined in claim 5, in which: the foot rest means is adjustably mounted on the rear cushion element supporting means for fore-and-aft adjustment relative to said rear cushion element.

8. The invention defined in claim 5, in which: the foot rest means includes a foot rest support rigid on the rear cushion element supporting means and a foot plate articulately mounted on said foot rest support.

9. The invention defined in claim 1, in which: the intermediate means for supporting the intermediate cushion element includes hinge means comprising substantially parallel linkage including transverse pivots and affording the aforesaid movement of the intermediate cushion element.

10. The invention defined in claim 1, in which: the rear means for supporting the rear cushion element includes a fore-and-aft rear support pivoted to the base on a transverse axis and projecting rearwardly to a rear end adjacent to the rear cushion element; and the drive means includes a fore-and-aft beam having a front end adjacent to the front end of the base, a rear end adjacent and pivotally connected to the rear end of said rear support and an intermediate portion fulcrumed on the base on a transverse axis, and means connected to the front end of the beam for rocking same.

11. The invention defined in claim 10, in which: the beam-rocking means includes a power-operated mechanism comprising a rotary crank and a fore-and-aft slide on the beam and receiving the crank.

12. The invention defined in claim 10, in which: the fore part of the base is enclosed below the front cushion element to afford a compartment enclosing the front end portion of the beam and the beam rocking means.

13. The invention defined in claim 1, in which: the intermediate cushion-element supporting means includes a hinge on at least one transverse pivot below the level of the top of the front cushion element, and the rear means for supporting the rear cushion element includes a fore-and-aft rear support pivoted to the base on a transverse axis below the level of the hinge pivot and rearwardly of said hinge pivot.

14. An exercising table, comprising: a fore-and-aft base having front and rear ends; front, intermediate and rear individual cushion elements disposed over the base

in normal generally co-level positions and adapted to support a person lying thereon, said cushion elements being arranged so that the head, torso and legs of such person are supported respectively on said front, intermediate and rear cushion element; said base including a pair of upright fore-and-aft side frames spaced apart transversely and having rear portions generally below the junction between the intermediate and rear cushion elements; means rigidly cross-connecting the side frames; a central fore-and-aft rigid lower member intermediate the side frame and connected to the cross-connecting means, said member projecting rearwardly beyond the rear portions of the side frames and below the rear cushion element; a rear support for the rear cushion element and mounted on the rear portions of the side frames by means including a transverse pivot; an upstanding fulcrum member on the fore-and-aft member rearwardly of the pivot axis and affording a transverse rocking axis; a fore-and-aft beam fulcrumed intermediate its ends on the rocking axis and having a rear end pivotally connected to the rear support and a front end intermediate the side frames adjacent to the front of the base; and means on the base adjacent and connected to the front end of the beam for rocking the beam to incur rocking of the rear support and rear cushion element about said pivot axis.

15. The invention defined in claim 14, in which: the beam-rocking means includes a motor mounted on the front portion of the fore-and-aft member, and a rotor device driven by the motor and connected to the beam and mounted in part on one side frame and in part on the front portion of said fore-and-aft member.

16. The invention defined in claim 14, in which: the side frames include removable panels for enclosing the beam-rocking means.

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