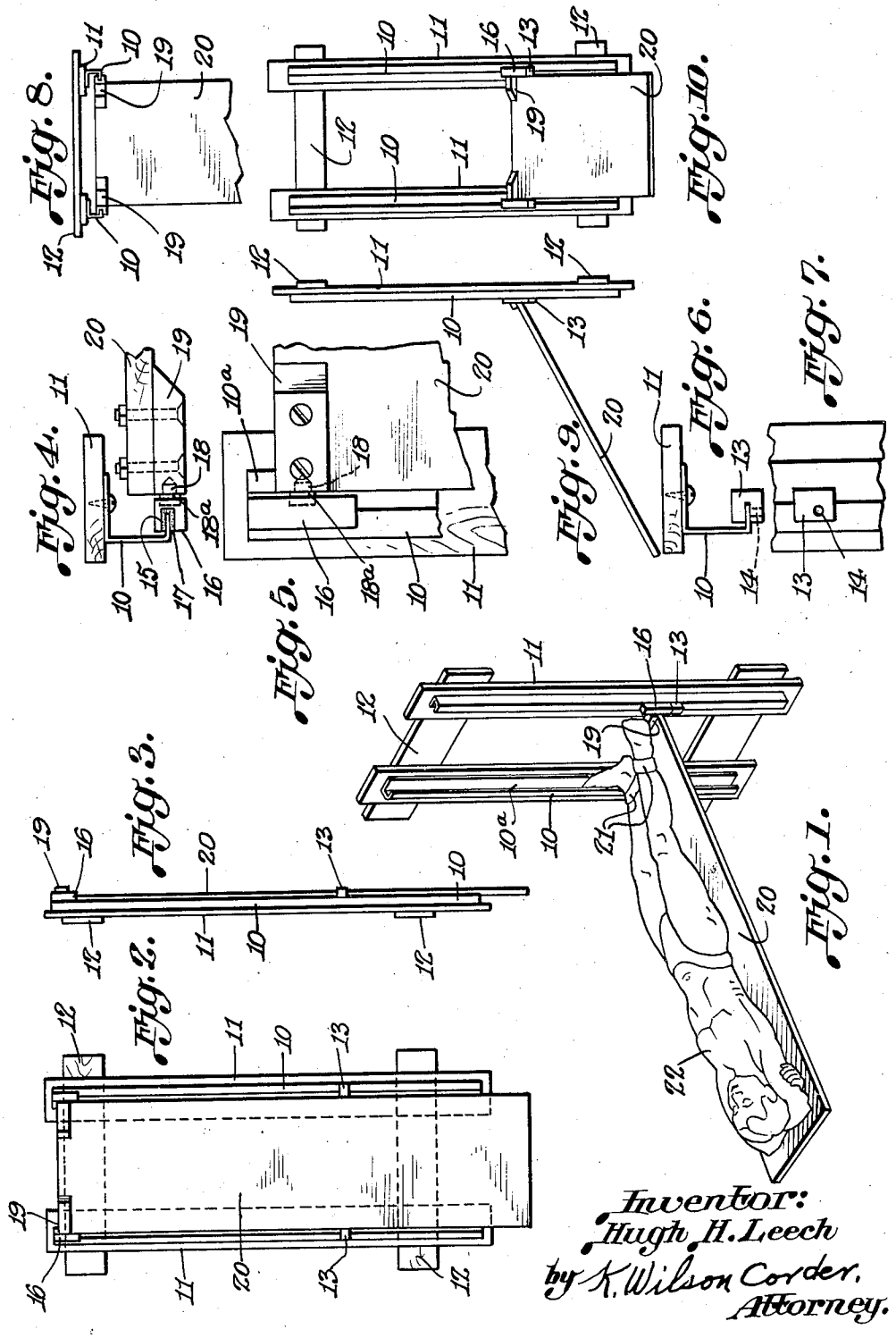
March 5, 1935. H. H. LEECH 1,993,409

EXERCISER

Filed March 7, 1932



Patented Mar. 5, 1935 1,993,409

UNITED STATES PATENT OFFICE

1,993,409

EXERCISER

Hugh H. Leech, Atlanta, Ga.

Application March 7, 1932, Serial No. 597,234

4 Claims. (Cl. 272—57)

This invention relates to gymnastic equipment, and more particularly, to a new and improved exerciser for the treatment of certain ailments, the relief of fatigue, and the general building up of the human body.

An object of the invention is to provide a means of and apparatus for treating diabetic patients and others suffering from high blood pressure.

Another object is to provide a structure adapted to scientific relaxation, and useful in alleviating fatigue and resting the various parts of the body in a manner most calculated to procure speedy and wholesome relief.

A still further object is to provide an exerciser upon which those bent upon improvement of their general health or the maintenance of a high degree of physical perfection, may exercise, with special benefit to certain portions of the anatomy, particularly the abdominal muscles and those of the back.

Another object is to provide a neat and compact apparatus of the type described which may be stowed away when not in use, so as to take up the minimum amount of space, yet which is strong in structure, simple in operation, and economical to manufacture.

These and other objects made apparent throughout the further description of this invention are accomplished by means of my improved exerciser, the better understanding of which is made possible by reference to the drawing herein, in which:

Fig. 1 is a view in perspective showing my exerciser in use, the figure of a patient in the approved reclining position being illustrated in connection therewith.

Fig. 2 is a front view showing the exerciser in a closed position, folded against a wall or other structure with which it is associated, the figure being swung through an arc of 90 degrees to better accommodate the drawing space.

Fig. 3 is a side view of the structure shown in Fig. 2.

Fig. 4 is an enlarged top view, showing in detail the association of the vertical guides and sliding pieces supporting the working surface of my device.

Fig. 5 is a front view of the elements illustrated in Fig. 4.

Fig. 6 is an enlarged top view showing in detail the association of the stop means with the vertical guides.

Fig. 7 is a front view of the structure illustrated in Fig. 6.

Fig. 8 is a top view of the exerciser, showing the board in extended or working position.

Fig. 9 is a side view of the exerciser in operative arrangement; and,

Fig. 10 is a front view of the structure in the position indicated in Figs. 8 and 9.

Referring to the construction in further detail, 10 designates a vertical guide in the form of a channel member, one side 10*a* of which may be wider than the opposite portion. Member 10 is mounted on a vertical support 11, which in turn is reinforced by horizontal braces 12, which braces may be mounted on the wall of a room; or on the inside of a closet door; or otherwise as desired. Slidingly engaging member 10 is a stop 13 (Figs. 6 and 7), and a set-screw, 14, passes through one side of this element, contacting the channel member and thereby holding 13 thereon in a positive yet adjustable manner, for purposes that will be made more apparent in the further progress of this specification.

Cooperating with vertical guide 10, is a sliding piece 16, provided with a groove 15, which may be lined with a suitable insulating and sound-deadening material such as felt, indicated at 17 (Fig. 4). Pivoted to slide 15 by means of bolt 18, intermediate spacing washer 18*a*, and supporting block 19, is a flat board or other plane surface, 20, the special construction and function of which is a part of the instant invention.

While the elements up to this point have been described in the singular, it is apparent, by reference to the drawing, that each, with the exception of board 20, is duplicated in the opposite side of the structure, the present mode of description having been adopted to avoid needless duplication of numerals and explanation.

Special attention is now directed to member 20. This element may be made of wood of suitable thickness and strength to support the weight of a man. In width, it is wide enough to provide a surface upon which an individual may comfortably repose while lying flat on his back. Variations in these dimensions are, of course, permissible, depending upon the person for whom the exerciser is built; or the class of persons who will be most likely to use it, as when placed in a sanatorium or like institution. The outer or top surface of member 20 is highly polished and very smooth, this fact being of considerable importance in connection with the scientific aspects of this device. In fact, it may even be feasible to go so far as to over-lay the surface of 20 with a sheet of glass, in order to provide a surface presenting as little friction as possible. Attached

to or near the upper end of 20 is a pair of straps or other suitable foot-holding means, 21, the function of which will be explained more in detail elsewhere herein.

In operation, my device works as follows: A user, designated by the numeral 22 in the drawing (Fig. 1), having first lowered board 20 to a position such as indicated in the figure, inserts his feet through straps 21, and then lies down on the inclined surface presented by board 20. In this position, it will be noted that the body is held in the relationship most favored by nature for the promotion of health, that is, the chest is forced outwardly, the stomach and chin are drawn in, and the back is straightened, yet the position is one of relaxation and rest, and does not involve the strain that would be occasioned by requiring a person to stand in this military fashion. This effect is intensified by the fact that the surface of member 20 is highly polished so as to afford little friction between the board and the body resting thereon. Suspension occurs at the top only, through the agency of straps 21. This arrangement coupled with the downward pull of the body makes for an additional beneficial factor herein, in that the bones of the body, and particularly those of the spinal column, are thereby separated and put in a normal, relaxed position. Since fatigue, nervousness, indigestion, and certain other complaints are thought to be caused in part at least by a pinching and cramping of vital nerves between the vertebræ when these bones become forced too closely together, the imparting of an opposite tendency has been found to give great relief, fatigue, particularly, being noticeably alleviated in a short while by intelligent use of my invention.

In this regard it is to be noted that I have provided means whereby the angle of elevation of plane surface 20 may be adjusted to suit the needs and make-up of a particular individual. By means of stops 13 on guides 10 I can regulate the extent to which slides 16 carrying with them board 20, will pass down upon the guides, this factor determining the elevation of the board when in working position.

Thus the stress applied to the user may be scientifically calculated, since the pull on each joint is equal to the sine of the angle of slope times the weight of the body above that joint when in normal position, it being easily apparent, therefore, that the greater the angle of slope the greater the pull.

It might also be remarked that while no detrimental rush of blood to the head is noted in the case of an ordinary treatment given the average patient, in some cases it may be wise to vary the angle of elevation, depending upon the idiosyncrasies of a particular individual. This flexible feature is made easily possible by the construction I have disclosed herein.

Physicians have found my device extremely helpful in treating high blood pressure, particularly in the case of diabetics. Blood pressure is of two kinds, diastolic and systolic. The former is the force required to pump the blood through the system, and remains more or less constant, while systolic pressure represents the same system under stress or strain. This figure may vary rather widely, depending in part upon the strain the individual is under at the time. Excitement may raise it in an appreciable degree. If either figure is abnormally high, however, there is indicated kidney trouble, usually Bright's disease; arteriosclerosis, or other serious incapacity. This is especially true in the case of a high diastolic pressure. By use of my device it has been found that this latter has been appreciably lowered, and in one case this lowering actually amounted to fifteen points, which fact is in itself so significant as to be the cause of extensive research in connection herewith at this time.

For the gymnast, or one who by systematic exercise maintains a sound physique, my invention offers additional possibilities, as by attaching short ropes with handles thereon to uprights 11, and providing board 20 with a heel rest at its top and at right angles to the surface of the board, apparatus is afforded for extensive exercise, the difficulty of which exercise may be greatly enhanced by graduated elevation of the board. The device as shown, and without these additions, provides a structure upon which many beneficial exercises may be performed, however, particularly those giving tone and condition to the muscles of the abdomen, as by raising oneself to a sitting posture and then returning to the reclining position without the use of the hands, straps 21 providing the necessary contact with the board the while.

When not in use my device may be stored away so as to take up the minimum amount of room, by simply raising the board into vertical relationship with its supporting members. This is easily and noiselessly accomplished through the agency of insulating members 17; and thus positioned the exerciser becomes in effect a part of the wall of the room, taking up an inconsequential amount of space. If desired, board 20 may be made of hard-wood, the polished surface of which lends beauty to the surroundings in which it is placed. Should it be deemed desirable to remove the entire structure from sight when not in use, it may be attached to the inside of a closet door, and when in vertical position quickly removed by simply closing the door. Thus it is not objectionable in any way, and is always ready for instant use when wanted.

From the foregoing it is apparent that I have described a new and useful exerciser, conceived and constructed on scientific principles, adapted to benefit both the sick and the well, easy to operate, convenient to dispose of when not in use, and economical to manufacture.

Without further explanation or elaboration, the foregoing will fully explain the essence of my invention, and others may, by applying current knowledge, readily adapt the same for use under various conditions without eliminating certain features which may be said to constitute the essential items of novelty involved, which items are intended to be defined and secured to me by the following claims.

I claim:

1. In an exerciser, a highly polished board of suitable dimensions and strength to support a man in a reclining position thereon, grooved means associated with said board and slideable on a pair of parallel vertically spaced channel members, stop means associated with said chanel members, and a supporting frame-work to which said channel members are attached.

2. An exerciser comprising a supporting frame-work, channel members attached to said frame-work in spaced vertical relationship, stop means associated with the channel members, grooved sliding pieces cooperating with said members and pivoted to supporting blocks mounted on a flat highly polished board, and foot straps at one end of said board.

3. An exerciser comprising a flat highly polished board, supporting blocks mounted on said board, bolts pivoting said blocks with a pair of grooved blocks slideable along vertically spaced channel members, stop means associated with said channel members for limiting the downward movement of the blocks and board, and a supporting frame-work for said channel members.

4. An exerciser comprising a flat highly polished board, foot-straps fastened to one end of said board, supporting blocks mounted near the end of the board, means pivoting said blocks with a pair of grooved blocks slideable along vertically spaced channel members, stop means associated with said channel members for limiting the downward movement of the board, and a supporting framework for said channel members.

HUGH H. LEECH.