

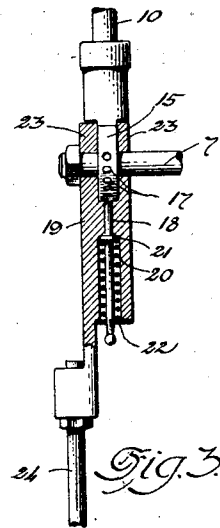
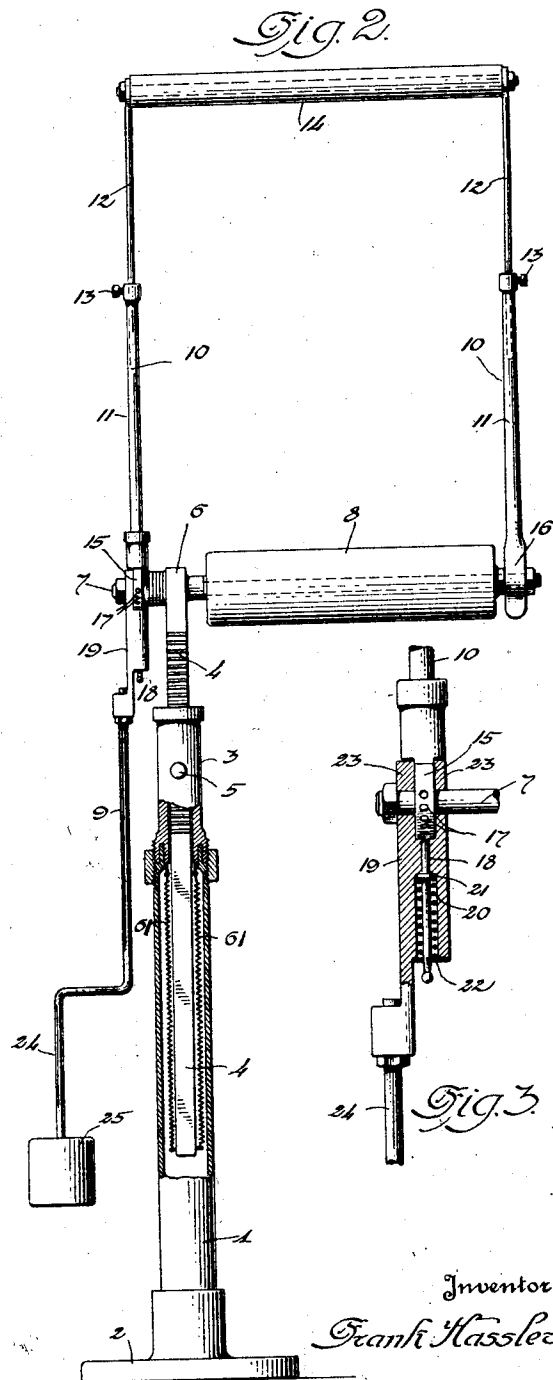
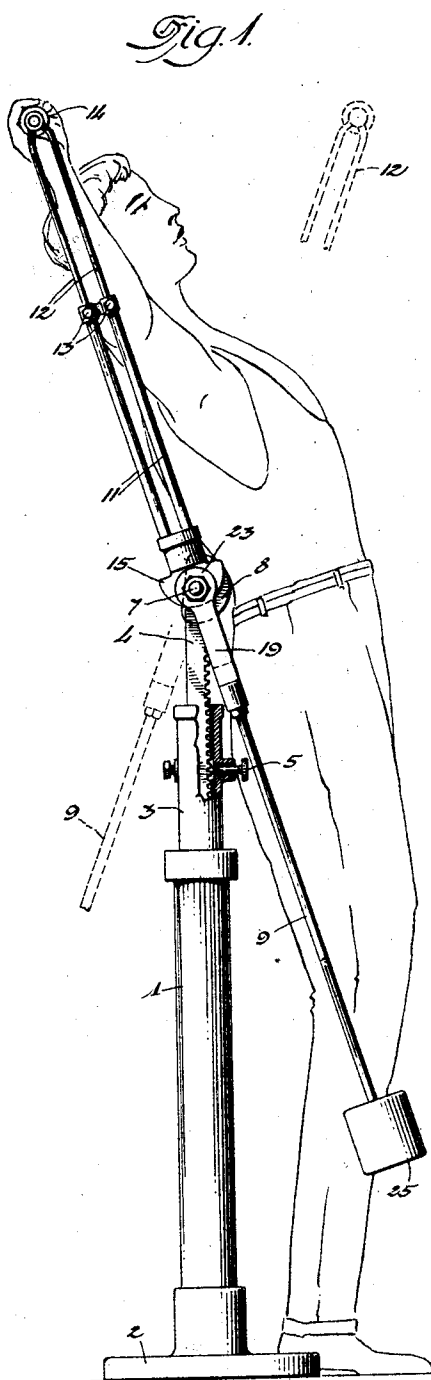
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F. HASSLER

APPARATUS FOR CORRECTING MUSCULAR DEFECTS

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Inventor:

Frank Hassler

Barthel Barthel

Attorneys.

UNITED STATES PATENT OFFICE.

FRANK HASSLER, OF DETROIT, MICHIGAN.

APPARATUS FOR CORRECTING MUSCULAR DEFECTS.

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This invention relates to an apparatus adapted to correct muscular defects in the human body by the exercising of these muscles, and is adapted to serve several purposes by the transfer of motion to the chest muscles, as a whole or in part, by change of position, or the action may be limited to contracted or defective muscles in the regions of the diaphragm, abdomen, or pelvis.

The object of the present invention is to provide an apparatus adapted to correct defective conditions of the chest, double or single lateral curvature of the spine, abdominal or pelvic affections due to relaxed muscularity, and obesity, such correction being effected through the exercise of the body by means of the apparatus whereby the affected parts are brought into a normal condition.

A further object is to provide an apparatus which is simple in construction and which may be quickly and easily adjusted to the person using the same and to apply the motion in a manner to correct the particular defect to be overcome.

It is also an object to provide an apparatus wherein the motion is enhanced and applied to the human body in the direction and with a force particularly adapted to correct the particular defect in the body.

With the above and other ends in view, the invention consists in providing an apparatus which may be quickly adjusted to the body of the patient and which includes a weight set in motion by the patient and the force of which is correctly applied to exercise the affected muscles in a manner to correct the defect in his body.

The invention further consists in the provision of an apparatus embodying a weight in the nature of a pendulum to be set in motion by the patient and thereby apply a force to the affected parts of his body to exercise the muscles and bring them into normal condition.

The invention also consists in certain other new and useful features and in the construction and arrangement of the apparatus, all as hereinafter more fully described, reference being had to the accompanying drawing, in which

Figure 1 is a side elevation of an apparatus illustrative of the invention with parts broken away and in section to more clearly

show the construction and showing the apparatus as applied in use;

Fig. 2 is a front elevation of the apparatus with parts broken away and in section to more clearly show the construction, and

Fig. 3 is a sectional detail of an adjustable locking mechanism for a pendulum of the device.

The device or apparatus as illustrated in the accompanying drawing comprises a standard or support 1 which is tubular and has a base 2 adapted to be bolted or otherwise secured to the floor to hold the device in an upright position. Slidable within an extension member 3 of this standard, is a rack bar 4 provided with teeth at one side to be engaged by a spring actuated latch or pin 5 carried by the extension. Within the hollow standard 1 is a spring or springs 61 attached at their upper ends to the standard and at their lower ends to the lower end of the rack bar 4 to exert a force upon the rack bar to raise it within its bearing in the extension 3 when the latch 5 is released. The upper end of the rack bar provides a bearing 6 for a fixed shaft 7 extending transversely of the bar and in a horizontal position. To this fixed shaft is secured a pad 8 which extends laterally in a horizontal position to engage the body of the patient and against which the patient leans in operating the apparatus. This shaft 7 is fixed in any suitable manner within the bearing 6 and extends laterally therefrom a distance sufficient to provide a support for a pendulum 9 which is arranged to turn upon the end of the shaft 7 with a free swinging movement. A yoke 10 extends upwardly from the shaft 7 and comprises side arms 11 formed of two parts, one of which is tubular and the other a rod 12 to slide within the tubular portion so that the overall length of the yoke may be adjusted, the rods 12 being adjustably secured within the tubular portions of the side arms by means of set-screws 13. The side arms of the yoke are connected at their extreme upper ends by means of a bar 14 forming a hand grip to be grasped by the patient and the lower ends of the side arms 11 are formed, one with a segment 15 and the other with an enlarged end 16 forming a bearing to engage the free end of the shaft 7 and turn freely thereon. The segment 15 also has an open-

ing through which the shaft 7 extends so that it will turn freely upon this shaft, and is also provided with a series of holes 17 to be engaged by a locking pin 18 slidable within an enlarged upper end portion 19 of the pendulum 9. This enlarged portion 19 is bored out longitudinally to form a guide for the pin 18 and also to provide a recess for a spring 20 surrounding the pin and normally under compression between a collar 21 on the pin and a closure plate 22 for the lower end of the bore within which the pin is adapted to slide. The pin therefore is normally urged into engagement with the sector 15 to engage one of the several openings 17 therein and hold the pendulum in an adjusted position relative to the bail or loop 10. By withdrawing the pin against the action of the spring 20, the pendulum may be turned upon the shaft 7 relative to the bail or loop 10 and thus the pendulum may be quickly adjusted relative to the bail.

The enlarged end member 19 of the pendulum is provided with ears 23 having openings through which the shaft 7 extends and these ears embrace the segment 15 so that both bail and pendulum are arranged to turn freely upon the fixed shaft 7 and are locked together by the pin 18 to turn in unison. A bent rod 24 is secured at its upper end to the member 19 of the pendulum and extends downwardly therefrom and is provided with a weight 25 at its lower end.

To correct certain defects in certain muscles of the body, the patient will stand erect at one side of the standard 1 and the vertical height of the pad 8 will then be adjusted to the proper position against the small of his back by releasing the rack bar 4 and either raising or lowering said bar with its pad and pendulum which are carried thereby. The patient will then raise his arms and grip the hand bar 14 of the bail 10, this bail being first adjusted in length by releasing the set screws 13. The patient will then, by a forward movement of his arms, set the pendulum and bail into a swinging movement and the weight of the pendulum will carry his arms backward, the pad 8 forming a support and fulcrum for the back of the patient, and over which the body is bent laterally by the force of the swinging pendulum. This force of the pendulum weight may be adjusted to suit the conditions of the particular affection by adjusting the pendulum relative to the bail, as previously described.

The particular muscles which are affected are thus exercised in a desirable manner and by a suitable force sufficient to correct the defect, the weight at the lower end of the pendulum providing a force sufficient to carry the arms of the patient well backward and the pad providing a fulcrum or point

of support at the proper place against the back of the patient to impart the desired bending movement to the body.

The apparatus may be used to correct other defects by standing the patient with his side toward the pad, when he will grasp the bail with one hand and set the pendulum swinging, thus bending the body laterally instead of forward and back, as illustrated in Fig. 1. The patient may stand with either side against the pad and operate the apparatus, thus exercising the particular muscles which are affected and with a force which may be adjusted to suit the particular case.

One of the more difficult of the movements of the body in taking prescribed exercises is that which involves the movement of the extended arms backward beyond a vertical line through the body, and yet movements such as these are especially beneficial in the relief of the abnormal conditions which the present apparatus is designed to treat. Such movements can be had without the use of apparatus, but whenever such attempts are made, the resultant action upon muscles, etc., is such as to tend to cause involuntary yielding by the patient in some part of the body, thus actually tending to prevent the true development of the desired movement and of the remedial exercise.

It is a fundamental purpose of the present invention to meet this condition. With the arms extended and restricted to a movement through a definite arc, there can be no relaxing of the arms to ease the strain, and since the cushion 8 is not movable from its position during use, it will be readily understood that the patient, able to sway the body by the movement of the arms in such definite path, is compelled to attempt the movement. The pendulum is designed to meet the condition of having the patient attempt to shorten the movement in the backward direction—since the body, in such position, is less resistant, it will be readily understood that the weight which has been set in motion by the backward sway, will carry the arms backward beyond the point which the patient would ordinarily permit, and in doing this provides the desired tensing action upon the trunk section of the body. Because the feet of the patient are on the floor, this action is possible since the patient will be unable to teeter on the support 8.

By a proper use of this apparatus over a period of time, defective muscular conditions of the chest, double or single lateral curvature of the spine, abdominal and pelvic affections due to relaxed muscularity, obesity, and other similar conditions of the human body may be effectually corrected.

Obviously, the construction and arrangement of the apparatus herein shown and de-

scribed may be varied in its construction and arrangement without departing from the spirit of the invention, and I do not, therefore, limit myself except as specifically set forth in the appended claims, to the particular construction and arrangement shown.

What I claim is:

1. In apparatus adapted for treatment of abnormal conditions within the trunk region of the human body, and wherein the treatment involves exercising of the parts to be treated by swaying of the body by movement of the upwardly-extended arms of the patient in a definite path, said apparatus including an upright standard, a transverse body engaging member arranged on said standard at a height to engage the body adjacent the waist line, and a weight set in motion by the movement of the arms of the patient in such path and arranged to react upon the patient's body to bend the same against said support.
2. In apparatus adapted for treatment of abnormal conditions within the trunk region of the human body, and wherein the treatment involves the exercising of the parts to be treated by swaying of the body by movement of the upwardly-extended arms of the patient in a definite path, said apparatus including a transverse body support to engage the patient's body adjacent the waist line, and a swinging member pivotally supported in substantially the longitudinal plane of said support and arranged to apply its centrifugal force to the patient's body to bend the same over said support, said swinging member being set in motion by movement of the arms of the patient in such definite path.
3. In apparatus adapted for treatment of abnormal conditions within the trunk region of the human body and wherein the treatment involves exercising of the parts to be treated by swaying of the body by movement of the upwardly-extended arms of the patient in a definite path, said apparatus including a horizontally disposed body support to engage the patient's body adjacent the waist-line, a pendulum weight, a hand grip member in an elevated position above said support and movable with the pendulum weight and to be grasped by the hand of the patient with his body against said support, whereby the force of the swinging weight when set in motion is applied to the patient's body to bend the same over said support.
4. In apparatus adapted for treatment of abnormal conditions within the trunk region of the human body and wherein the treatment involves exercising of the parts to be treated by swaying of the body by movement of the upwardly-extended arms of the patient in a definite path, said apparatus including an upright supporting member, a horizontally disposed body support carried by said upright supporting member, a member adapted to be grasped by the hand of the patient when his arm is extended above his head, said grip member being adapted to swing transversely of said body support, and a swinging weight arranged to swing with said grip member, to apply a force to the patient's body to bend the same over said body support.
5. An apparatus as characterized in claim 4, and wherein said means for resisting the swinging movement of said hand grip comprises a pendulum weight arranged to swing with said hand grip upon a pivot support adjacent said body support.
6. In apparatus adapted for treatment of abnormal conditions within the trunk region of the human body, and wherein the treatment involves exercising of the parts to be treated by swaying of the body by movement of the upwardly-extended arms of the patient in a definite path, said apparatus including a supporting standard, a horizontally disposed support for the human body adjustably carried by said standard and adapted to engage the human body adjacent the waist-line, a grip member adapted to swing transversely of said body support, and adapted to be grasped by the hand of the patient when his arm is extended above his head and when his body is against said body support, and a weight set in motion by the swinging of said hand grip member to enhance the swinging movement of said member and apply a force tending to bend the patient's body over said body support.
7. An apparatus as characterized in claim 6, and wherein said means for enhancing the swinging movement of said grip member comprises a pendulum weight pivotally supported adjacent said body support to swing with said hand grip member and adjustable relatively thereto.
8. In apparatus adapted for treatment of abnormal conditions within the trunk region of the human body, and wherein the treatment involves exercising of the parts to be treated by swaying of the body by movement of the upwardly-extended arms of the patient in a definite path, said apparatus including an upright standard, a horizontally disposed body support carried by said standard, and an upwardly extending bail arranged to swing transversely of said body support upon a pivot positioned substantially in the horizontal plane of said body support and having a hand grip to be grasped by the hand of the patient when his arm is extended above his head with his body against said body support, and a pendulum weight connected to said bail and extending downwardly from the pivotal support of said bail to swing therewith transversely of said body support when set

in motion by the swinging of said bail, and arranged to apply a force to bend the patient's body over said body support.

5 9. An apparatus as characterized in claim 8, and wherein said body support is adjustable for vertical height and said pendulum weight is adjustable angularly to said bail.

10 10. In apparatus adapted for treatment of abnormal conditions within the trunk region of the human body, and wherein the treatment involves exercising of the parts to be treated by swaying of the body by movement of the upwardly-extended arms
15 of the patient in a definite path, said apparatus including a tubular standard, a bar slidable within said standard and adjustable vertically therein, a horizontally disposed body support carried by the upper end
20 of said bar, a bail pivotally supported adjacent the ends of said body support to swing transversely of said body support, and a pendulum weight extending downwardly from the pivotal support of the bail to swing
25 about said pivotal support and adjustably connected to said bail to swing therewith and to be adjusted relative to said bail about said pivot.

30 11. In apparatus adapted for treatment of abnormal conditions within the trunk

region of the human body, and wherein the treatment involves exercising of the parts to be treated by swaying of the body by movement of the upwardly-extended arms of the patient in a definite path, a trans- 35 verse support adjustable vertically to form a support for the small of the back, a pivoted frame having its axis of movement in rear of the supporting surface of the support and having adjustable gripping means 40 to position the arms in extended relation to permit swaying of the trunk of the body relative to the support, and a pendulum projecting below such axis to move with and in the opposite direction to the move- 45 ment of the gripping means, whereby the length of backward movement of the arms will be increased by the motion of the pendulum produced through the backward swaying movement of the body. 50

12. Apparatus as in claim 11 characterized in that the pendulum is adjustable on its axis and relative to the arm frame, whereby the effective throw of the pendulum may be varied by the position of the 55 pendulum weight to meet particular conditions of the patient undergoing treatment.

In testimony whereof I affix my signature.

FRANK HASSLER.