(No Model.) 3 Sheets—Sheet 1.

R. REACH.

EXERCISING MACHINE.

No. 374,496. Patented Dec. 6, 1887.

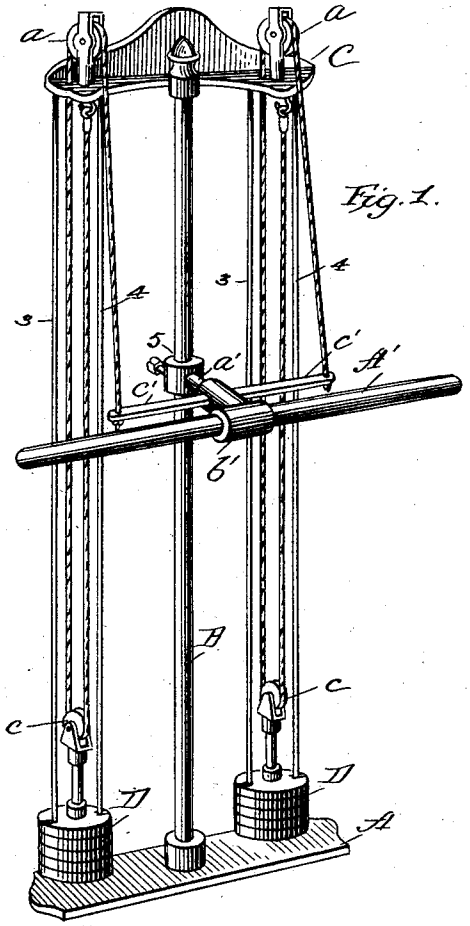


Fig. 1.

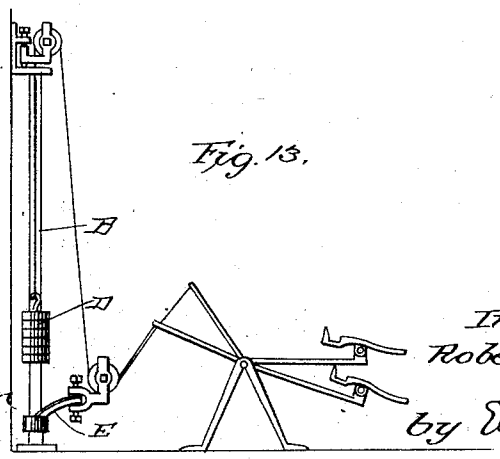


Fig. 13.

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by Ellis & Spear
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N. PETERS, Photo-Lithographer, Washington, D. C.

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EXERCISING MACHINE.

No. 374,496. Patented Dec. 6, 1887.

Fig. 2.

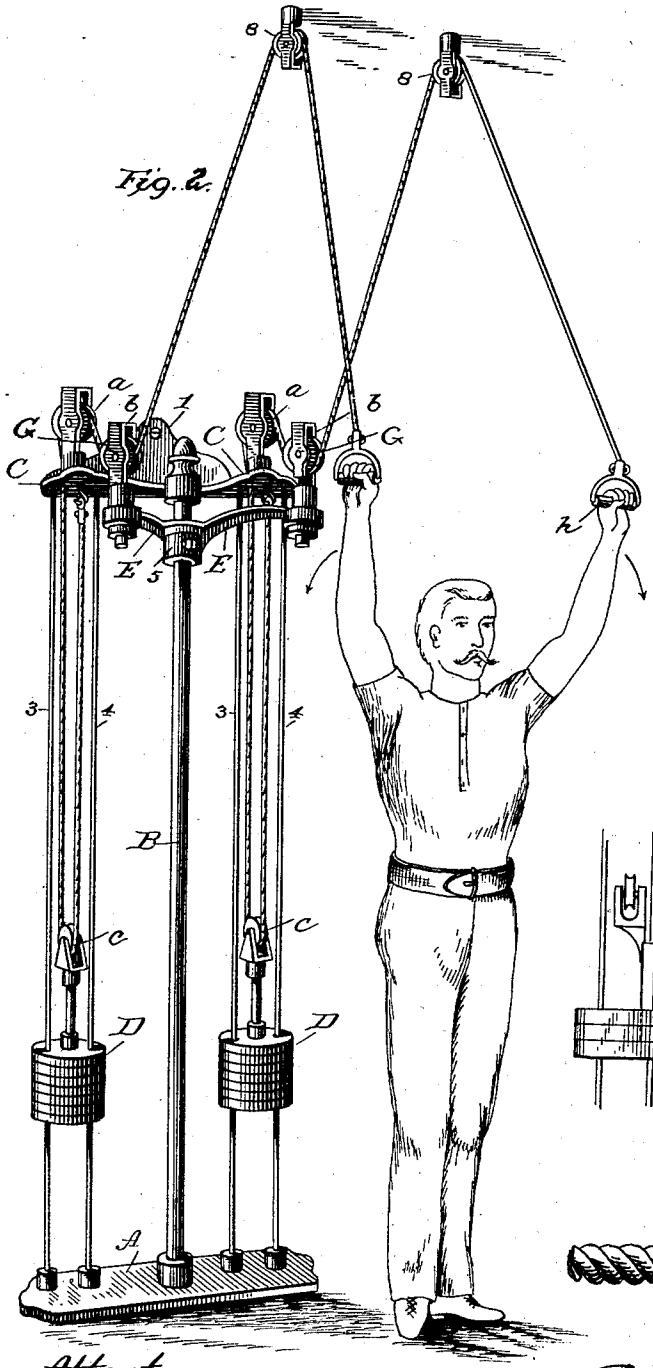


Fig. 7.

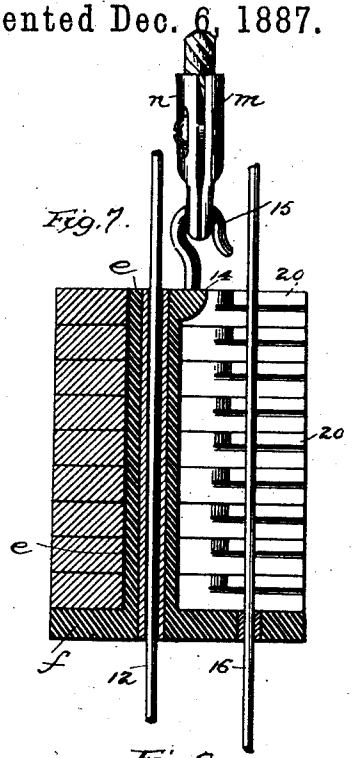


Fig. 8.

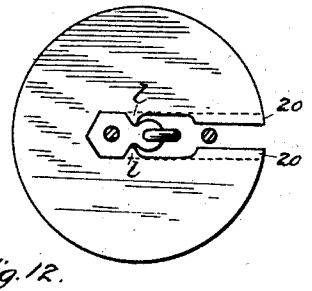


Fig. 12.

Fig. 9.

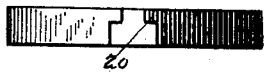


Fig. 10.

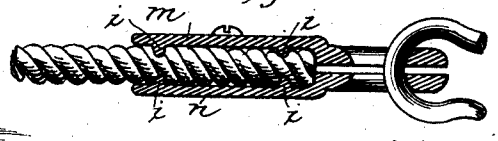
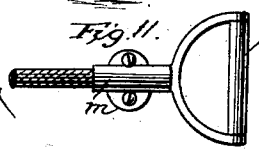


Fig. 11.



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R. REACH.

EXERCISING MACHINE.

No. 374,496. Patented Dec. 6, 1887.

Fig. 3.

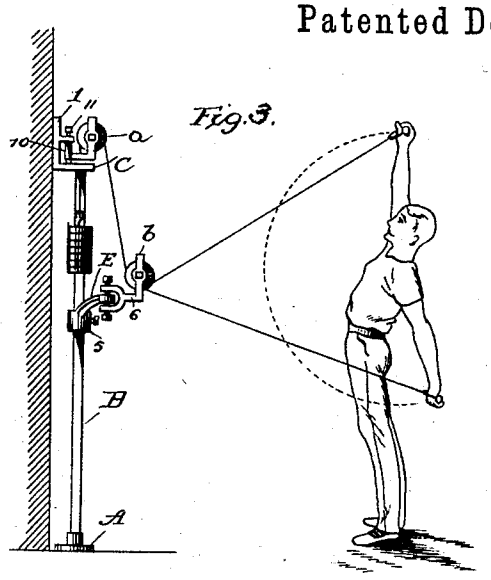


Fig. 4.

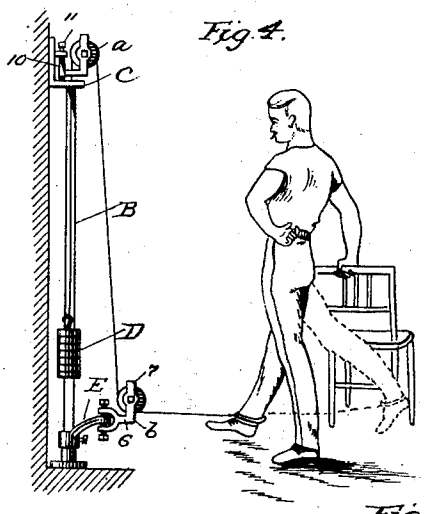


Fig. 5.

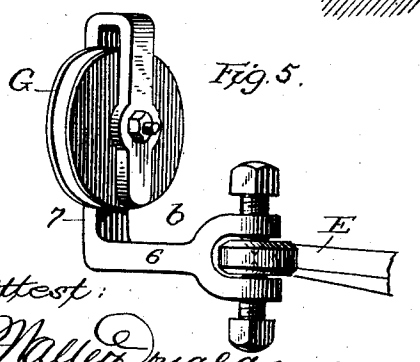
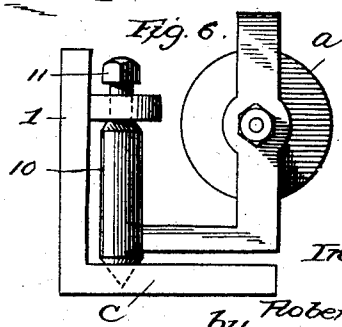


Fig. 6.



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UNITED STATES PATENT OFFICE.

ROBERT REACH, OF PHILADELPHIA, PENNSYLVANIA.

EXERCISING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 374,496, dated December 6, 1887.

Application filed September 14, 1887. Serial No. 249,685. (No model.)

To all whom it may concern:

Be it known that I, ROBERT REACH, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Exercising-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to exercising apparatus, and is an improvement upon that class of such devices known as "wall-machines," in which weights are arranged to move vertically upon suitable rods, being suspended by operating-ropes passing over pulleys to the hands of the operator. I aim to produce such a combination of parts as will enable the user to vary the exercise and to adjust the point of work or resistance up or down upon its support, so that different members may be brought into action, or different movements of the same operating member will be required to raise the weights, according as the adjustment be above or below the level of the operating members, thus bringing into play any muscle desired.

My invention consists, primarily, of a double set of weights suspended from operating-ropes and adapted to have vertical movement upon guide-rods, of pulleys for supporting said weights, and of a central post between the pair of weights, carrying the support for the operating devices.

The invention further consists of weights suspended from operating-ropes and adapted to move vertically upon guide-rods, of pulleys for supporting the weights, of a central post and a support or bracket vertically adjustable upon the post, in connection with the operating devices, the said support determining the position up or down at which the point of resistance or work will be in relation to the operator.

The invention further consists in various details of construction operating to produce an effective combination of parts and preserving the essential features of simplicity, which is so necessary to the success of the apparatus as a salable article.

In the accompanying drawings, Figure 1 is a perspective view of the complete apparatus with a swivel connection on the central post for the wrist exercise. Fig. 2 is a similar view to Fig. 1, with an adjustable pulley-supporting bracket substituted for the swivel attachment. Figs. 3 and 4 are views of the same devices as shown in Fig. 2, with the adjustable bracket shown in two different positions. Figs. 5 to 12 represent details. Fig. 13 represents the use of the apparatus with treadles connecting with the operating-ropes.

In the drawings, A represents a base-plate adapted to be secured to the floor. A boss is formed centrally of this plate, and to it is secured a central rod or post, B, extending vertically and in close proximity to the wall. At its upper end connection is made to a boss upon a supporting-plate, C, the latter being securely fastened to the walls by bolts or screws passing through an upwardly-turned flange, 1. The structure thus far described furnishes the support for all the operating parts.

Upon both sides of the central post or rod, B, and in the same vertical plane therewith, are located two rods, 3 4, extending between the plates A and C and secured to them by nuts in the well-known manner. These rods act to guide and steady the movement of the weights, (shown at D,) and also serve to bind the two plates together and prevent them from being strained out of normal position.

About midway between the guide-rods upon either side pulleys *a a* are placed, being supported upon a swiveled bracket, as will be hereinafter particularly described.

Upon the central post, B, is fitted a collar, 5, held adjustably upon the post by means of a set-screw, as shown in Fig. 1. A stud, *a'*, projects from this collar outwardly, terminating in a head which receives the socket of an operating-bar, A'. This bar is thus swiveled upon the stud *a'* and has movement of its outer ends in the arc of a circle from the swivel-point as a center up or down. The handles of this bar are supported in a socket, *b'*, in line with the swivel-point, and they extend outward at each side. In rear of the handles, connected to the same casting or socket, is a rod or cross-piece, *c'*, which is in connection with the lifting-ropes. The operating-ropes are attached to the lower sides of the plate C, from whence they run beneath the weight-

pulleys *c*, thence upwardly through openings in the plate C, over the pulleys *a*, and thence to the ends of the cross-piece *c'*. It will thus be seen that when the handles are grasped by the hands of the operator and moved up on one side and down on the other, or vice versa, the weights are likewise moved, and exercise thus given.

In Figs. 2, 3, and 4 I have shown the cross-bar replaced by devices for exercising generally the arms and legs and different parts of the body. In these figures the collar 5 is provided with arms E, extending laterally to a point in line with the pulleys *a a*. In the ends of the arms are supported pulley-brackets *b b*, the preferred form being shown in Figs. 4 and 5. These consist of the horizontal portion 6 and the upright arms 7, the former being attached to the arm E and the latter furnishing the support for the pulley-bearings. The end of the arm 6 is bifurcated, so as to embrace the end of arm E. Screw-threaded needle-bearings are located in each end of a bifurcated arm, being fitted to suitable seats formed in the arm E. It will be noticed from this construction that the bearings of the pulleys are not in vertical line with the point of support, and a highly sensitive swiveled action is thus secured by reason of the strain being applied at the outer end of the arm 6. This allows the pulley to adjust itself to any position without binding. In this construction the operating-ropes extend in like manner as described in Fig. 1, except that after passing over pulleys *a a* they pass to the pulleys G of the arms E. The collar 5, swivel, and arms E E are all vertically adjustable on the rod B, and may be fixed in any desired position by means of set-screws shown.

In Fig. 2 the pulleys G are in their uppermost position. From here, as shown, the ropes may be run to the ceiling over suitable pulleys, 8, and thence to the operator. This arrangement necessitates a movement of the arms such as that indicated.

The advantages of the employment of the adjustable pulleys G G will be obvious from an inspection of Figs. 3 and 4 of the drawings. In the former the point of resistance of work is lowered to about a level with the user's chest, and the exercise is not only varied, but new movements are produced, exercising muscles which may have remained inactive in the movement shown in the second figure.

Fig. 4 shows the lowest position to which the point of resistance may be adjusted, and, besides different movements being here produced, different members may be called into action, or a rowing attachment may be combined with the operating-ropes. The pulleys *a* are carried by swiveled brackets in a manner similar to that described above in connection with pulley G for the same purpose—namely, the automatic adjustability of the pulley to the varying direction of movement of the operator's hands or feet.

Referring to Figs. 3, 4, and 6, the horizontal part of the bracket in this case is provided with a spindle, 10, which at one end has a needle-bearing adapted to a seat in the plate C and at the other end has a socket for the needle end of the bearing-bolt 11, projecting through a lug formed upon the back flange.

In Fig. 13 I have represented a pair of treadles with pivoted foot-rests pivoted upon a metal trestle, the rear ends being connected to the ends of the operating-ropes, being directed by the pulleys on the bracket E.

In an apparatus of this character it is necessary to provide weights formed of sections, in order that the number of pounds resistance may be increased or diminished to suit different persons or different stages of muscular development. It is also essential that the sections be securely positioned, so that the movement will not cause their displacement.

I aim to provide a weight-section in combination with a support, whereby the removal and placing of the sections may be accomplished by any one quickly without the use of any sort of tools, and whereby the section, being in place, will be held against movement from its support. This improved form of weight and weight-section is shown in Figs. 7, 8, and 9. A supporting-plate, *f*, is formed with a sleeve, *e*, situated near its center. Through this sleeve the guide-rod 12 passes, a ferrule of wood or other material being interposed between the rod and the sleeve to take up the wear. A projection is formed upon the sleeve, as at 14, and to this is secured the hook 15 for the operating-rope. The other guide-rod passes through the plate, as at 16. The sleeve in cross-section is octagonal in form, and upon one of the corners the projection 14 is formed. Each weight-section is provided with an opening extending from the periphery to a point corresponding with the position of the boss on the supporting-plate. There an opening is formed, the sides being octagonal to correspond to the form of the boss. Upon the sides where the projection is located studs *l l* are provided, which embrace the sides of the sleeve and prevent lateral displacement. On the under side of the section the opening is of equal size throughout; but upon the top the opening is smaller near the periphery, thus forming ribs 20 20. In placing the sections the opening is made to register with the guide-rods and the section is moved laterally, the rib resting upon the top of the sleeve until the octagonal opening registers with the end of the sleeve, when the section may be dropped into proper position. It will be obvious that instead of the hook shown at 15 a pulley may be employed at this point, the rope running up to the plate C, as in Fig. 1.

I have also provided improved means for securing the operating-rope to its point of support or to the operating-handle. This consists of a clamp formed of two plates, *m n*, each having a semicircular portion, adapted when together to form a socket for the reception and retaining of the rope end. Ribs or

studs *i* may be provided on the interior to engage with the rope to securely hold the same in position. The two sections are fastened together by screws passing through suitable ears. These screws serve to put the strain upon the rope end. Upon the end of each section a ring is formed for the purpose of engaging with a suitable hook, as shown. The same form of clamp is employed at the handle, in which case the handle *h* is formed upon one of the sections instead of a ring.

I claim as my invention—

1. In an exercising apparatus, the combination of a frame, weights sliding upon suitable guides, ropes supporting said weights, a central post, operating devices, and a support carried on the post intermediate of the operating devices and weights, substantially as described.

2. In an exercising-machine, a supporting-frame, weights sliding upon suitable guides, ropes supporting said weights, pulleys *a a* for the ropes, a central post, operating devices, and a support vertically adjustable on the post, so as to determine the point of resistance in relation to the operation, substantially as described.

3. In an exercising-machine, a supporting-frame, weights sliding upon suitable guides, ropes supporting said weights, a central post, a support carried on said post, and operating devices pivotally connected to said support and in connection with the operating-rope and weights, substantially as described.

4. In an exercising-machine, a frame, movable weights, ropes supporting said weights, a central post, an adjustable support on said post, and operating devices in pivotal relation to the adjustable support, and connected also with the operating-ropes and weights, substantially as described.

5. In an exercising-machine, a frame, movable weights, ropes supporting said weights, a central post, a support secured to said post, operating-handles swiveled to said support, and an intermediate supporting device connected to the operating-ropes, substantially as described.

6. In an exercising apparatus, the combination of a frame, movable weights, ropes supporting the weights, a central post, a support on said post having a projecting stud, a socket swiveled on said stud, a cross-bar carried by said socket, to which the operating-ropes are connected, and operating-handles, also carried by said socket, substantially as described.

7. In an exercising apparatus, the combination of plates A and C, movable weights, guide-rods therefor, ropes for supporting the weights, pulleys *a* for the ropes, a central post, an adjustable support thereon, a cross-bar, and operating-handles swiveled thereon, the said cross-bar connecting with the operating-ropes, substantially as described.

8. In combination, the frame, the pulleys, the operating-ropes, the supports for the weights having the sleeve *e*, the guide-rods, the weights composed of sections, each having an opening extending from the edge to a point near the center, and the studs *l l*, formed to embrace the sleeve, substantially as described.

9. In combination, the support *f*, having sleeve *e*, the guide-rods, the weight-sections having the opening extending from the edge to a point near the center, the studs *l l*, and the ribs 20 20, substantially as described.

10. In combination, the support *f* for the weight-sections, the sleeve *e*, extending from the plate *f* through the weight-sections, forming a guide for one of the rods, and a lateral extension on the upper part of said sleeve for the attachment of the rope, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT REACH.

Witnesses:
G. A. REACH,
FRANK A. SHOEMAKER.