

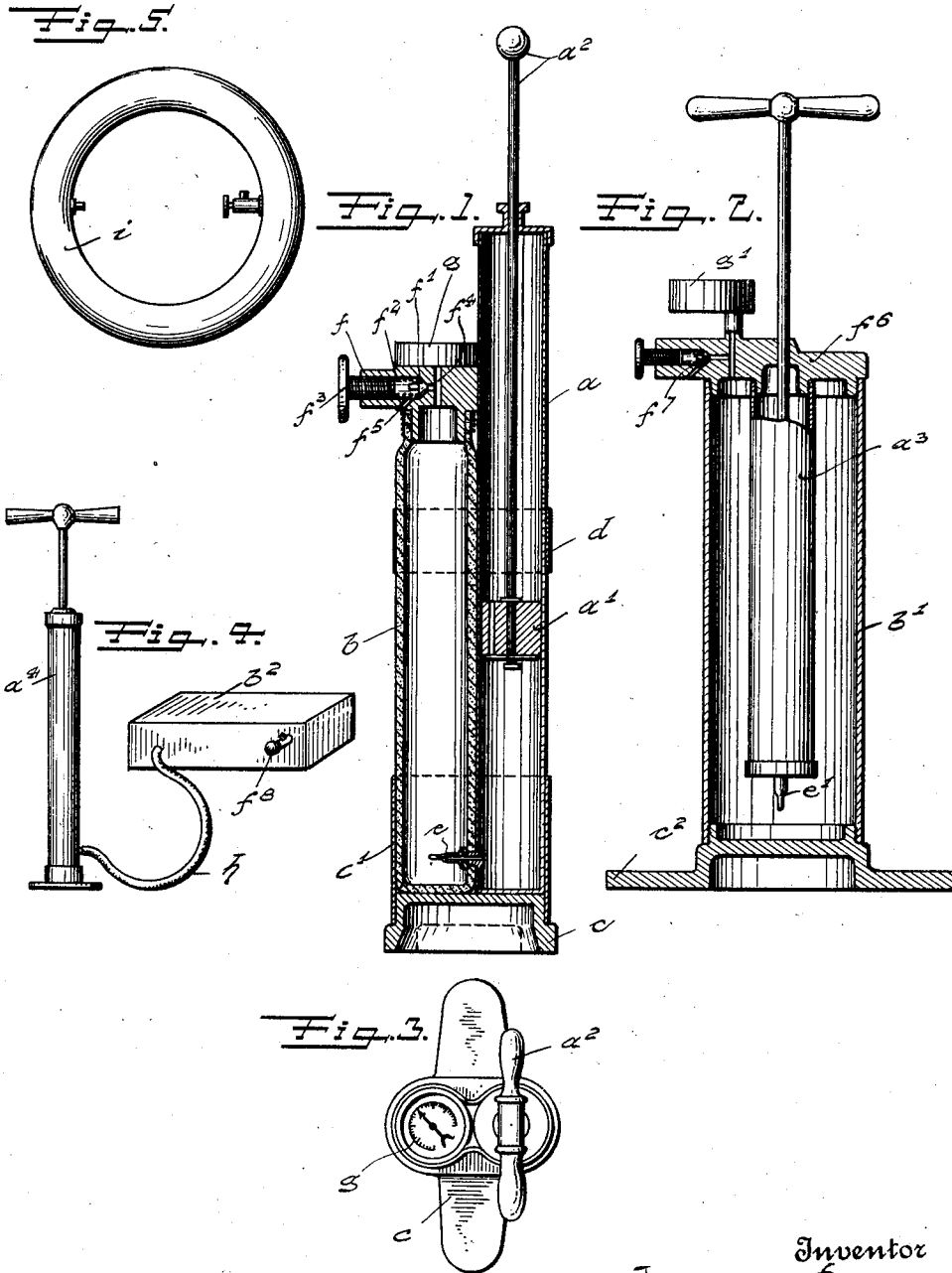
April 2, 1929.

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1,707,449

PHYSICAL EXERCISING DEVICE

Filed Jan. 7, 1928



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PHYSICAL-EXERCISING DEVICE.

Application filed January 7, 1928. Serial No. 245,245.

My invention relates to improvements in physical exercising devices specifically those intended to develop the arm and back muscles. One object of this invention is to provide a simple device to develop arm and back muscles to operate and function in such manner as not to affect any other part of the human body.

Another object is to provide suitable adjusting and regulating means, permitting the device to be set to reach any predetermined degree of operating energy and automatically maintain the so adjusted operating energy at a constant level. Still another object is to provide visible indicating means for the purpose of observing the amount of energy applied. These and other objects I attain by the novel design and combination of various parts and elements fully described in this specification and illustrated in the accompanying drawings in which:

Figure 1 represents a sectional view of a device of this character embodying the features of my invention.

Figure 2 represents a sectional view of a modified construction of the same device.

Figure 3 represents a plan view of Figure 1.

Figures 4 and 5 represent still more modified forms of embodiments of such devices.

The most popular and commonly used devices to strengthen and develop arm and back muscles are the well known dumbbells. There are numerous disadvantages connected with the use of dumbbells. First a number of variously sized and weighted dumbbells are required to meet the varying requirements of the individual users. Second these sizes and weights are by necessity fixed and cannot be altered or adjusted. Third dumbbells in general and especially those of overweight, unavoidably affect most of the other body muscles and not infrequently are the cause of ruptures and other serious affections.

To overcome all of these objections I devised an arm and back muscle exercising apparatus which not only is confined to develop only the arm and back muscles, but is also adjustable to meet any desired operating energy requirements and visibly indicates the amount of energy applied.

A practical embodiment of such a device is illustrated in Figure 1, and comprises the

commonly known air compressing pump *a*, and the elastic compression tank *b*. Both members are preferably held in position upon a base *c*, by means of a suitable socket *c*¹. A suitable band *d*, fastened to the air pump *a*, may loosely hold the elastic compression tank *b* in position. A suitable check valve *e* is interconnecting pump *a* and flexible compression tank *b* permitting the compressed air to enter, yet prevent the escape of air back into pump *a*. The upper portion of the elastic compression tank *b* is securely fastened to a head piece *f* provided with an air escape valve *f*¹, suitably regulated by means of a compression spring *f*² and adjusting screw *f*³. An air pressure indicating gauge *g* is also securely mounted upon head *f*. Communicating channels *f*⁴ connects elastic tank *b* with valve *f*¹ and gauge *g*, while an air escape channel *f*⁵ permits the discharge of surplus air into the open.

The device is functioning as follows: Compression plunger *a*¹ operated by means of connecting rod and handle *a*², forces the air through check valve *e* into the elastic compression tank *b*, where the desired counter pressure is gradually built up, consequently more and more energy is required to operate air pump *a*. The degree of counter pressure is determined by the pressure spring *f*² is exerting upon escape valve *f*¹, this pressure is regulated by means of screw *f*³. When the so adjusted maximum pressure is reached in tank *b*, valve *f*³ will open and permit the surplus air to escape through channel *f*⁵. Of course the air pressure developed in tank *b* may be observed at any time upon the dial of pressure gauge *g*. Compression tank *b*, I prefer to make of elastic material, as for instance rubber, to permit the device to more smoothly operate and further increase the refinement of adjustment. Of course it is not essentially necessary to make the compression tank *b* of elastic material, and in Figure 2 another convenient form embodying a rigid compression tank *b*¹ is illustrated. A centrally located air pump *a*³, and the rigid compression tank *b*¹ connect to a common head *f*⁶, upon which escape valve *f*⁷ and pressure gauge *g*¹ are mounted. Base plate *c*² is directly joined to tank *b*¹. Check valve *e*¹ may conveniently be located at the bottom of air pump *a*³. All other parts are the same as shown in Figure 1.

The functioning and operations of the various members are identical with those of Figure 1.

5 In Figure 4 still another modified form is illustrated utilizing an ordinary air pump a^1 and an independent compressing tank b^2 , in form of rectangularly shaped enclosure. Both of these members are connected by means of a flexible hose h . The air pressure valve and adjusting screw f^3 may locate in
10 any desired position. The rigid tank b^2 can be substituted by an elastic tubular ring i , to obtain the advantages of the design illustrated and pointed out in Figure 1.

15 What I claim as new and desire to secure by Letters Patent is:

In a physical exercising device of the character described, the combination of a suitable air pump, an elastic air compression

tank, said elastic air compression tank preferably made of rubber or similar material, a suitable common mounting base for said air pump and said elastic tank, a directional check valve suitably interconnecting said air pump and said elastic compression tank, an
20 automatically functioning pressure control and regulating valve arranged to form an integral part of said elastic compression tank, suitable adjusting means for said regulating valve, and a suitable visibly arranged
25 pressure indicating means suitably interconnected with said elastic tank for the purpose of observing the air pressure within said elastic tank, substantially as and for
30 the purpose set forth. 35

Signed at the city of New York in the county of New York and State of New York.

JEROME I. RODALE.