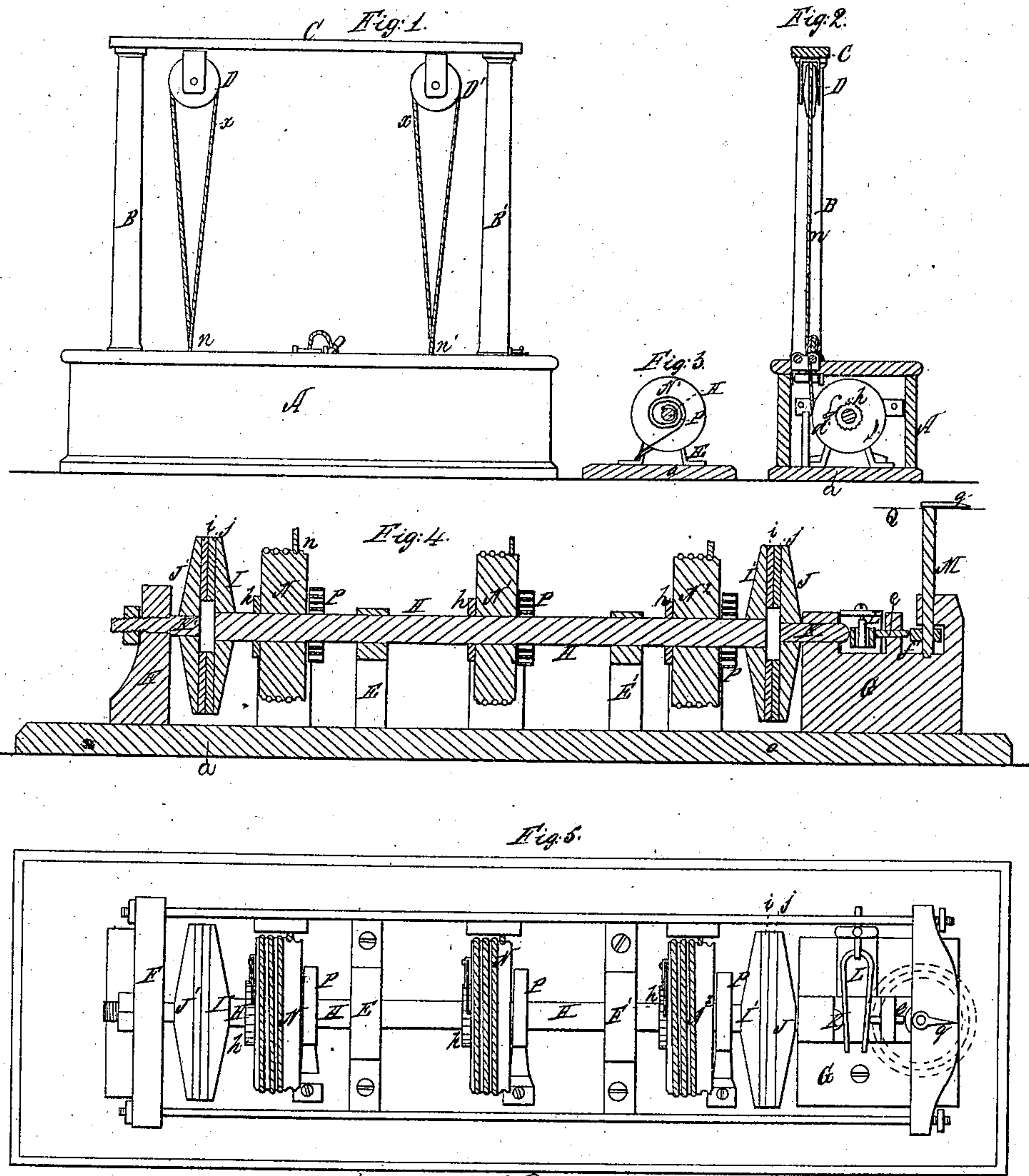


Veerkamp & Leonold

Exercising Machine

N^o 31059.

Patented Jan. 1, 1861.



Witnesses:

*Saml. Barwood
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Inventor:

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UNITED STATES PATENT OFFICE.

F. VEERKAMP AND F. LEOPOLD, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO
ROBERT A. MAXWELL, OF SAME PLACE.

GYMNASTIC APPARATUS.

Specification of Letters Patent No. 31,059, dated January 1, 1861.

To all whom it may concern:

Be it known that we, FRANCIS VEERKAMP and FRANCIS LEOPOLD, both of Philadelphia, Pennsylvania, have invented a new and Improved Gymnastic Apparatus; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

Our invention consists in the employment, for gymnastic and calisthenic exercises, of one or more pulleys with cords attached to the same, the force applied to raise the cords and turn the said pulleys being resisted by the friction caused by the contact of two surfaces which admit of being so regulated that the friction may be increased or diminished at pleasure.

Our invention further consists of two or more friction disks faced with leather or other suitable material and otherwise constructed and applied to a shaft substantially as and for the purposes described hereafter.

Our invention also consists of certain devices described hereafter whereby the cords may be wound around the pulleys when released, also in certain devices described hereafter for determining and indicating the amount of friction to be employed for resisting the raising or pulling of the cord and the turning of the shaft.

The object of our invention has been to construct a gymnastic apparatus occupying but little space and yet applicable to the practice of a variety of exercises which have hitherto required the use of separate instruments.

In order to enable others to make and use our invention, we will now proceed to describe its construction and operation.

On reference to the accompanying drawing which forms a part of this specification—Figure 1 is a front view of our improved gymnastic apparatus; Fig. 2, a transverse section of Fig. 1; Fig. 3, a detached view of part of the apparatus; Fig. 4, a longitudinal vertical section of part of the apparatus, drawn to an enlarged scale; Fig. 5, a plan view of Fig. 4, and Fig. 6 a plan view of the regulating pointer and index plate.

Similar letters refer to similar parts throughout the several views.

A is a strong box on the top of which are

erected the two standards or pillars B and B' connected together at their upper ends by a cross bar C, from which are suspended the two pulleys D and D'. Within the box A and to the bottom *a* of the same are secured the two frames E and E', the bracket F and block G. In the two frames E and E' turns the shaft H to one end of which is secured a metal disk I and to the opposite end a similar disk I'. To the latter is attached an annular strip *i* of leather coinciding with a similar strip *j* of the same material on the disk J, which is secured to a spindle K passing through and sliding, but incapable of turning, in a projection on the block G the end of the spindle bearing against one arm of a horse shoe spring L which is loosely connected to the block, and the other arm of which is acted upon by a pin *e* arranged to slide in a projection of the block G and acted on by an eccentric *f* secured to a vertical spindle M the lower end of which turns in the block and the upper end in the cover of the box A. This spindle together with the duties which it has to perform, will be more especially alluded to hereafter. The disk I on the opposite end of the shaft H has also an annular leather strip similar to that on the disk I' and this strip coincides with and bears against a similar strip on the disk J' attached to a spindle K' which is secured to the bracket F.

Although the disks J and J' are secured to their respective spindles in such a manner as to be incapable of turning thereon their fastenings should be such that they can vibrate to a limited extent, their surfaces being rendered thereby self adjusting, as though they were connected to the spindles by ball and socket joints.

Three pulleys N, N' and N² are so hung to the shaft H as to turn freely thereon each pulley having on its periphery a spiral groove for receiving a cord. Adjacent to each pulley a ratchet wheel *h* is secured to the shaft, and into the teeth of each wheel a spring dog *d*, Fig. 2, hung to the side of the pulley engages. At the opposite side of each pulley is situated a coiled spring P the inner end of which is attached to the pulley and the outer end to the bottom *a* of the box A.

A cord *n* is secured to the periphery of the pulley N, takes several turns around the

same passes through an opening in the top of the box A, upward and over the pulley D, the end of the cord being secured to the body of the same at a point a short distance above the top of the box A. A similar cord n' passes from the pulley N^2 over the pulley D' and its end is secured in the same manner as that of the cord n . A cord is also attached to the periphery of the pulley N' and passes through an opening in the top of the box, above which it is furnished with a short bar suitable for being grasped by both hands.

An index plate Q is secured to the top of the box A and through this plate passes the upper end of the spindle M previously alluded to, a pointer q being attached to the said spindle.

Supposing the above described apparatus is required for exercise equivalent to that of repeatedly raising a given weight from the floor. Standing on the top of the box the exerciser assumes a stooping position seizes the bar on the end of the cord of the central pulley N' and raises the latter thereby turning the pulley in the direction of the arrow Fig. 2, and with it the shaft H. Owing to the spring catch d and ratchet wheel h the amount of resistance presented to the turning of this shaft is proportional to the friction caused by the disk I bearing against the disk J' and the disk I' against the disk J, and as the amount of friction depends upon the force applied to press the disks together it will be evident that by turning the spindle M and thereby causing the pin e to compress the horse shoe spring L and the latter to press the disk J against the disk I' and the disk I against the disk J' the resistance presented to the turning of the shaft H may be increased at pleasure. As it is desirable, however, for the exerciser to know the extent of this resistance and when the raising of the cord is equivalent to the raising of a given weight, the plate Q is graduated. This graduation is effected by simply carrying the cord upward over a pulley and suspending to the end of the cord a given weight, say one hundred pounds. The pointer Q, and with it the spindle M is now turned until the weight just balances the friction of the disk which will be indicated by the moving of the weight. A mark coinciding with the pointer is then made on the plate, and whenever the pointer is adjusted to this mark it will be an indication that the exerciser pulling at the cord of the pulley N' is exerting himself with a force equivalent to that of raising a weight of one hundred pounds. In like manner other points indicating the raising of a greater or less weight may be ascertained by simply increasing or diminishing the weight suspended to the cord and these points may be marked on the plate Q until it has been graduated through-

out. After the exerciser has raised the cord of the pulley N' to the height desired he lowers it and allows the coiled spring P to turn the pulley in a direction contrary to that pointed out by the arrow Fig. 2, thus (the catch d presenting no obstruction to the turning of the pulley in this direction) the cord will be wound around the pulley and take its place in the spiral groove of the same preparatory to the exerciser again raising the rope and again exerting himself to overcome the friction of the disks.

Should the exerciser desire to exert himself in a manner equivalent to that of raising a given weight by means of cords passing over pulleys, he attaches suitable instruments to the cords n and n' say at the points marked x x Fig. 1, and after adjusting the pointer so that it may indicate a friction on the disks equivalent to the desired weight he seizes the instruments on the cords, one in each hand, and pulls the same downward thereby turning the pulleys N and N^2 and with them the shaft H, with the same result as that described in reference to the exercise with the cord of the pulley N' , the pulleys being restored to their original position by means of their respective coiled springs after the cords have been released.

By increasing the friction of the disks so that the weight of the exerciser cannot turn the shaft H and by attaching suitable instruments to the cords, the above described apparatus may be used for exercising by suspending the person by the arms or legs, in fact, it will be evident that a variety of exercises which in gymnastic establishments require different instruments, may be conducted by the aid of this apparatus, with which such attachments may be connected as the nature of the exercise will readily suggest.

One great advantage of the apparatus is that the friction caused by the disks is uniform at all points to which the pulleys may be turned by raising the cords. In this respect it has the advantage of the gymnastic devices in which springs are used as a resisting medium inasmuch as the force applied to compress or expand the springs increases in proportion to the extent of the expansion or compression.

Should the apparatus be required for the exercise of children an arm t may be hinged to the index plate Q, Fig. 6, the arm having notches for receiving the end of the pointer q and being furnished with appliances by which it may be locked thereby preventing the pointer from being turned and the application of undue exertion on the part of the children obviated.

The apparatus may also be arranged for practicing what is known as the wrist exercise which consists in grasping a bar with both hands and twisting or turning it. The

shaft H may be used for this purpose the end of the shaft being allowed to project through the end of the box, two of the friction disks J' and I being dispensed with to admit of this extension of the shaft.

It will be evident that the pillars B and B' and cross bar C may be dispensed with, the pulleys B and D' being suspended from the ceiling of the room in which the apparatus is situated and that a box containing any desired number of exercising pulleys may be used without departing from the main principle of our invention.

We claim as our invention and desire to secure by Letters Patent—

1. The employment for gymnastic or calisthenic exercises of one or more pulleys with cords attached to their peripheries when the force applied to raise the cords and turn the pulleys is resisted by the frictional contact of surfaces and when the amount of the friction is regulated by the devices herein described, or their equivalents.

2. The employment of two or more friction disks faced with leather or other suitable material and constructed substantially

as described when the said disks are so combined with the shaft H as to resist the turning of the latter as set forth.

3. One or more pulleys N on the shaft H each pulley having a cord *n* and a spiral groove for receiving the same in combination with the ratchet wheel *h* and spring dog *d* the coiled spring P, and the friction disks herein before described, or their equivalents, the whole being arranged and operating substantially as set forth for the purpose specified.

4. The graduated index plate Q, pointer *q*, and spindle M in combination with the friction disks and the intervening devices, or their equivalents, by which the movement of the spindle is caused to increase or diminish the amount of friction as set forth.

In testimony whereof, we have signed our names to this specification, in the presence of two subscribing witnesses.

F. VEERKAMP.
F. LEOPOLD.

Witnesses:

CHAS. HOWSON,
ANDREW J. E. BOSWELL.