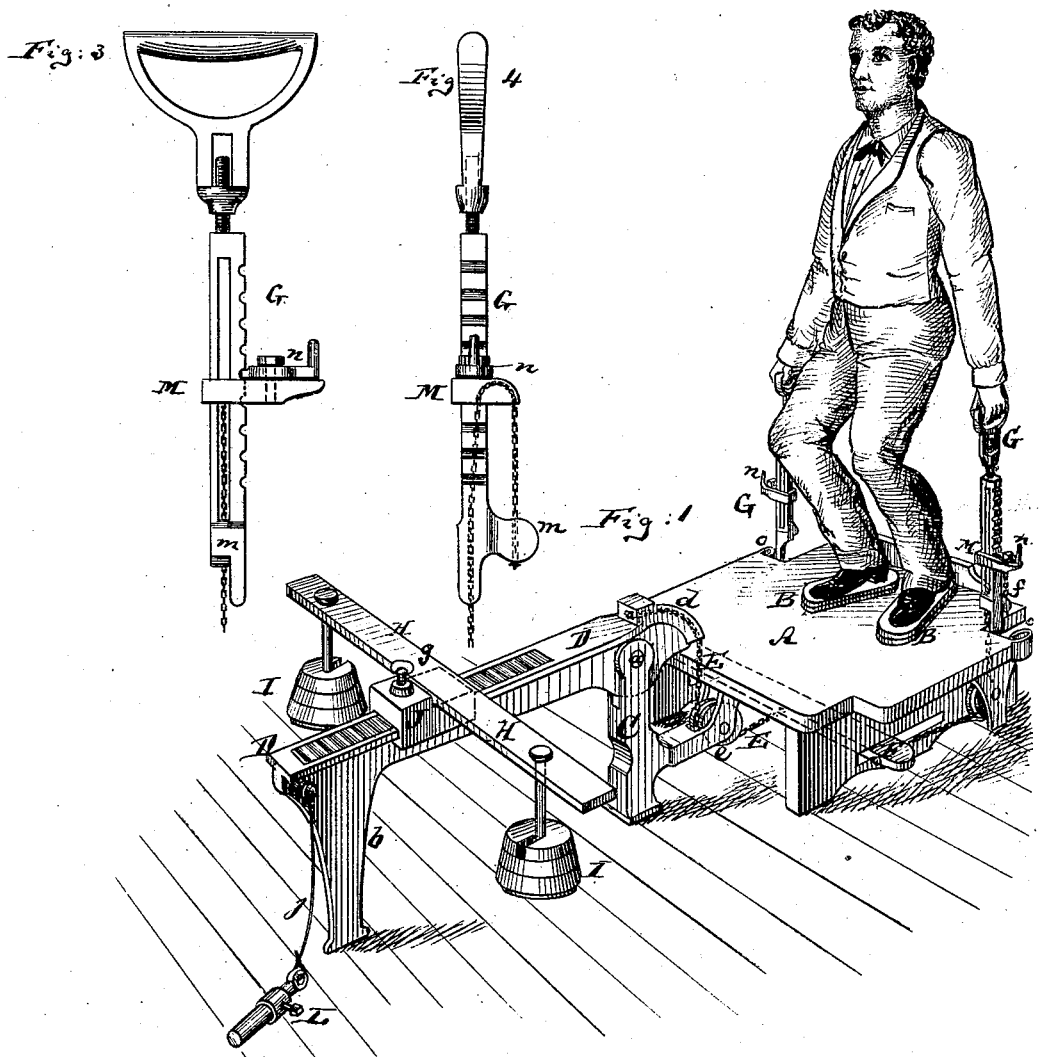
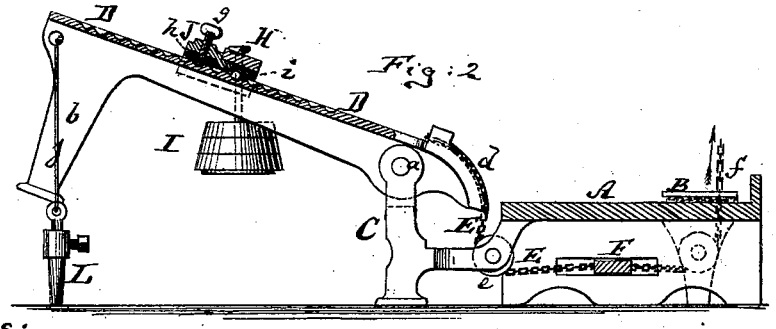
A. W. LOZIER.

EXERCISING MACHINE.

No. 190,503. Patented May 8, 1877.





Witnesses:
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UNITED STATES PATENT OFFICE.

ABRAHAM W. LOZIER, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO MRS. J. DE LA M. LOZIER, OF SAME PLACE.

IMPROVEMENT IN EXERCISING-MACHINES.

Specification forming part of Letters Patent No. **190,503**, dated May 8, 1877; application filed February 8, 1877.

To all whom it may concern:

Be it known that I, ABRAHAM W. LOZIER, of New York city, in the county of New York and State of New York, have invented a new and Improved Health-Lift, of which the following is a specification:

Figure 1 is a perspective view of my improved health-lift; Fig. 2, a side view, partly in section, of the same; Fig. 3, a detailed side view, on an enlarged scale, of the handle of the same; and Fig. 4, an edge view of said handle.

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to a new health-lift; and consists in the new construction of the balancing-lever, new method of adjusting the weight thereof, new arrangement of handle, and several other details of construction, hereinafter more clearly pointed out.

In the accompanying drawing, the letter A represents the bed or platform of the machine, the same having suitable foot-supports B B for the operator to stand on. This bed is intimately connected with a fixed post or bracket, C, in the upper end of which the weighted lever D is pivoted by a pivot, *a*. The weighted lever D has at its farther or free end a downwardly-projecting leg, *b*, which supports it in a nearly horizontal position whenever the apparatus is not in use. The front end of the weighted lever D, by which I mean that portion thereof which is contained between the pivot *a* and the platform A, is segmental, the segment *d* being eccentric to the pivot *a*, as clearly shown in Fig. 2, the upper portion of the segment being nearer to the pivot than the lower portion thereof. A rope or chain, E, is attached to the weighted lever D at the upper part of the segment *d*, and passes thence along the curved edge of the segment downwardly around a friction-roller, *e*, which is hung under the platform, and from said friction-roller to a cross-bar, F, with the ends of which the lifting-handles G G are connected by suitable chains or cords *f f*. The operator stands on the foot-supports B B, and, holding the handles G G, will, in elevating the said handles, draw the cross-bar F toward the handles, and thereby vibrate the weighted lever D on its pivot *a*. The labor of lifting the weighted lever will, by the eccentric form of the segment *d*, be lighter at the start than as the operation progresses, for there is more leverage applied at the lower part of the segment *d*, where the power is first caused to move the lever than toward the upper part of said segment. The object of this peculiar eccentric construction of segment *d* is to compensate, by means of the diminishing leverage up to a certain point of motion, for the loss of weight occasioned by the perpendicular movement of the center of gravity of the weights used on the lever, said center approaching the pivot *a*, and thereafter to so rapidly diminish such leverage that the power required to further raise the weight a certain specified distance may be as much more as desired. This eccentric arrangement of the segment *d* is one part of my invention, as it serves to equally subject the operator to the full power to which the weight on the weighted lever D may have been adjusted, or, by further traction, to add measurably to the work to be accomplished. The weight on the lever consists of a bar, H, which is placed across the top of the weighted lever D, and weighted at or near its ends, as shown at I I in the drawing, the weights I I being adjustable—that is, movable, removable, and replaceable in suitable manner. The bar H is connected with a box, J, which partly embraces the weighted lever D, and is lengthwise movable thereon, a set-screw, *g*, serving to clamp said box onto the lever. I prefer to place a strip of rubber, *h*, between the set-screw and the corrugated surface of the weighted lever D, so that said set-screw, by pressing said rubber against the lever, will firmly hold the box in place. A roller or ball, *i*, is also, by preference, sunk into a groove in the surface of the box J, for the purpose of rolling it along the weighted lever D.

Whenever the bar H is moved on the weighted lever D, it varies the weight which the operator has to lift, for the nearer the bar H is brought to the pivot *a* the more difficult will it be to vibrate said lever. In order to supply a gage for indicating when the weighted lever D has been raised to a certain desired extent, I suspend from the free end thereof,

by a string or chain, *j*, an expansion-weight, L, which, when it is lifted to clear the floor, will indicate that the desired position of the lever has been attained. By rendering this weight L expansible—that is, making it of two or more pieces, which are fitted one into the other, telescope fashion, as clearly shown in the drawing—the resistance of the machine may be varied without varying the position of the bar H, for with a certain given weight and position of weight on the said bar, the weighted lever may be raised more or less, as determined by the greater or less expansion of the weight L, and thus expose the operation to greater or less difficulty in arriving at the desired point, which degree of force to be put forth is also directly affected by the constantly-shortening leverage arising from the cam form of segment *d*.

The manner in which the chains or ropes *f f* are secured in the handles G G may be varied at pleasure; but I have illustrated a construction of handle for changing the length of such rope or chain, which construction constitutes also part of the present invention. It consists in applying to the shank of the handle a sliding sleeve, M, through or over which the rope or chain is drawn as it passes to its point of attachment *m*. This sliding sleeve M is vertically adjustable on the handle-shank, and is provided with a catch, *n*, which locks said sleeve in one of a series of notches that are arranged along the face of the handle-shank, in the manner clearly shown in Figs. 3 and 4. Thus the more the sliding sleeve M is elevated, the shorter will the rope or chain be made, while the farther said sleeve is lowered, the longer does the chain or rope become. When the machine is not in use the lower ends of the handles are inserted in loops *o o*, which are formed at the sides or ends of the platform A, as clearly shown in the drawing.

The machine may be used by holding the handles horizontally, in which case the operator may imitate a rowing motion.

I claim as my invention—

1. In an exercising-machine, the combination of the handles with the rope or chain E, and with the weighted lever D, which has the eccentric segment *d*, substantially as and for the purpose specified.

2. The combination of the weighted lever D with the sliding box J, which carries the weighted cross-bar H and fastening-screw *g*, substantially as and for the purpose specified.

3. The combination of the transverse roller or ball *i* with the box J, and with the weighted lever D, substantially as and for the purpose specified.

4. The weighted lever D, provided with the downwardly-projecting leg *b*, as set forth.

5. The combination of the weighted lever D with the string or chain *j*, and with the expansion-weight L, as and for the purpose set forth.

6. The handle G, provided with notched face, and combined with the sliding sleeve M and catch *n*, as and for the purpose set forth.

7. The platform A of the lifting apparatus, provided with loops *o o*, for receiving the handles in position of rest, as specified.

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Witnesses:

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