J. P. MARSH.

HEALTH-LIFTS.

No. 183,269. Patented Oct. 17, 1876.

Fig. 1

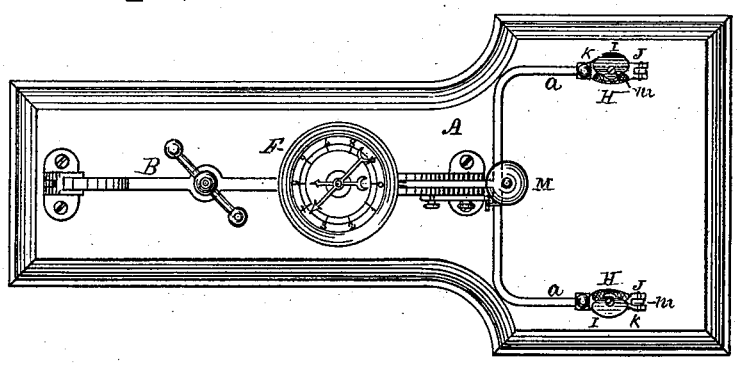


Fig. 2

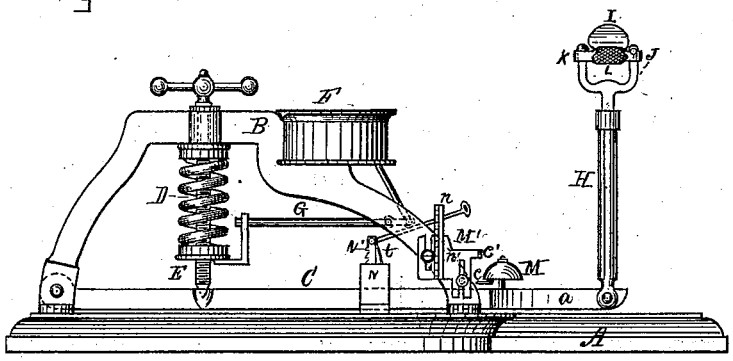


Fig. 4

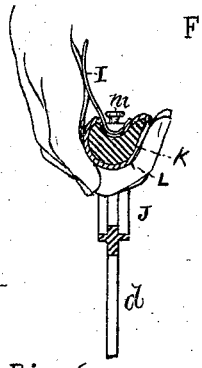


Fig. 3

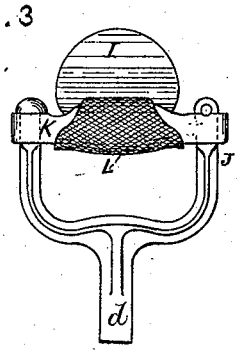


Fig. 5

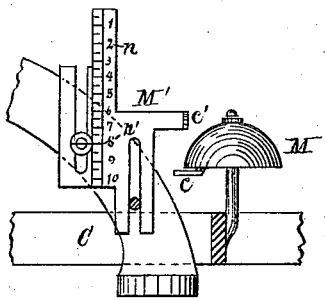
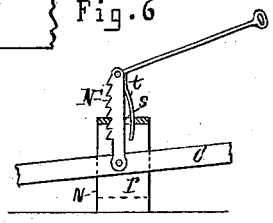


Fig. 6



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UNITED STATES PATENT OFFICE.

JAMES P. MARSH, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN HEALTH-LIFTS.

Specification forming part of Letters Patent No. **183,269**, dated October 17, 1876; application filed February 28, 1876.

To all whom it may concern:

Be it known that I, JAMES P. MARSH, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Exercising-Machines or Health-Lifts; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 represents a general plan or top view of a health-lift or exercising-machine embodying my invention. Fig. 2 represents a side elevation of the same. Fig. 3 represents an enlarged side elevation of the upper portion of one of the handles detached. Fig. 4 represents a cross-section of the same, showing the position of the hand when in the act of lifting. Fig. 5 represents an enlarged detail of the parts employed in giving the signal when the force applied to the handles reaches the limit indicated by the scale on the plate, and Fig. 6 represents an enlarged detail section of the parts employed in supporting the lifting-lever in an elevated position when force is removed from the handles.

Like letters of reference indicate like parts.

The object of my invention is to improve the exercising-machine or health-lift for which Letters Patent of the United States No. 164,574 were granted to me on the 15th day of June, 1875; and my invention consists in the combination, with the handles, of spring-pressure plates adapted to bear against and yield to the pressure of the palms of the hands when in contact therewith during the act of lifting, and thereby properly supporting the palms of the hands, and relieving the fingers from the grasping force required in the ordinary health-lift; also, in combination with a signal-bell or alarm, of an indicating-plate adjusted to correspond with the dial or register indicating the limit of the force to be applied to the handles, and so arranged as to give an alarm or signal when said limit of force is reached; and, also, in the means employed in supporting the lifting-lever against the resisting pressure at any height to which it may have been raised by the lifting force applied to the handles, as will be more fully understood from the following description.

In the drawing, A represents the base or platform of the machine; B, the central frame, supporting the operating parts; C, the lifting-lever; D, the resisting-spring; E, the adjusting-screw; F, the dial indicating the force applied to the lever, and G the lever actuating the indicating-points, all of which are constructed substantially as shown and described in the aforesaid Letters Patent, and constitute no part of my present invention. H H are lifting-bars, and are made hollow nearly their entire length, and are hinged to the arms *a a* of the lifting-lever, as shown. J J are the handles, which are provided with depending shanks *d*, adapted to pass into the lifting-bars, and so adjusted therein as to admit of an ascending and descending movement. These shanks are provided at their lower ends with hooks, (not shown,) adapted to take into perforations formed in the bars at graduated distances one from the other, so that the handles may be adjusted to the proper height for the person lifting therewith.

K K are the grasping-pieces of the handles, which may be made of any suitable material, preferably of metal, and are sloped on the lower side to fit the fingers when in the act of lifting, and are provided upon the upper side with a spring-pressure plate, I, extending upward, and bent in proper shape to bear against the palm of the hand near the wrist, as shown in Fig. 4. The elasticity of said plates is such as to yield slightly to the pressure of the palm of the hand during the act of lifting, and are also sufficiently rigid to support the palm of the hand, thereby greatly relieving the fingers from the grasping strain ordinarily required to retain the grasping-pieces within the hand, and preventing the hand from becoming cramped. The upper surface of each of the grasping-pieces is grooved longitudinally, to receive the lower curved portion of the pressure-plate, as shown in Fig. 4.

L is the cushion, which is made of any flexible material that will admit of being wound around the grasping-pieces, and its ends pass under the pressure-plate. *m* is an adjusting-screw, passing through the plate and cushion into the grasping-piece, and holding the plate

and cushion firmly to the grasping-piece. That part of the outer surface of the cushion which comes in contact with the fingers in the act of lifting is made rough, as shown in Fig. 3, for the purpose of preventing the fingers from slipping during the act of lifting.

M is the signal-bell, secured to the lifting-lever at the center of the arms *a a*, as shown. M′ is the indicating-plate, secured to the frame B near the signal-bell, as shown, and is so arranged as to admit of being raised and lowered, and of being firmly secured at any adjusted point. The plate M′ is provided with a numerical indicating-scale, *n*, corresponding with the indicating-scale on the dial, and is so secured on the frame, relative to the normal position of the lifting-lever, that when adjusted to bring the number thereon indicating the gross number of pounds to be lifted in line with point *n′* on the frame, the arm *c* of the bell is brought in contact with the projecting arm *c′* on the plate, thereby ringing the bell and giving an alarm when the amount of lifting force is applied to the lever equal to the number of pounds indicated, and as previously adjusted, on the plate.

N is a vertical upright, permanently secured to the base A, and is provided with an elongated mortise, *r*, within which the lifting-lever freely moves. N′ is a ratchet-arm, pivoted at its lower end to the lifting-lever, and extending upward through a mortise, *s*, formed in the top of the upright. The wall of the mortise *s*, adjacent to the teeth on the arm, is beveled on its lower edge, forming a pawl adapted to engage the teeth of the arm when the lifting-lever is raised. Permanently attached to the upper end of the arm is a depending spring, *t*, adapted to bear against the wall of the mortise *s*, as shown in Fig. 6, by which means the proper degree of pressure is exerted upon the arm to hold the ratchet-teeth in contact with the pawl.

In using my said improved health-lift the resisting-spring D is adjusted, by means of the screw E, to any pressure, as indicated in pounds upon the dial, which it is desired to overcome at the beginning of the attempt to lift. The indicating-plate is then so adjusted as to bring the numeral thereon indicating the number of pounds desired to be lifted, as will be indicated on the dial, in line with the indicating-point on the frame. The operator then mounts the platform and adjusts the handles at such a height that, when grasping the handles for the purpose of lifting, his body will be in nearly an erect position, and his legs bent slightly at the knees. The lift is then made, and, until the knees are straightened, causing the lifting-lever to be drawn upward, and bringing the arm of the bell-hammer in contact with the arm on the indicating-plate, thus giving the alarm at the time the amount of lifting force applied to the lever equals the amount indicated on the plate, when the ratchet-teeth of the arm engage the pawl, holding the lifting-lever in a fixed position, and thereby relieving the operator from the force of the resisting pressure exerted on the lever.

I do not intend to limit myself to the particular arrangement of the ratchet-arm, as shown and described, for holding the lifting-lever at any given point during its upward movement, as there are various mechanical combinations that will produce the same result. For example, grasping-bars may be attached to the frame, and adapted to seize the plate on which the adjusting-spring rests, as the same is raised by the upward movement of the lifting-lever.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the spring-pressure plate I with the grasping-piece K of the handle, substantially as and for the purpose specified.

2. In combination with the spring-pressure plate I and grasping-piece K of the handle, the cushion L, substantially as specified.

3. The combination of the indicating-plate M′ with the indicating-dial F and signal-bell, substantially as and for the purpose specified.

4. The combination of the lifting-lever, pawl, and ratchet-arm, whereby the lever is held at any adjusted point against the resisting force exerted on the lever, substantially as and for the purpose specified.

JAMES P. MARSH.

Witnesses:

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