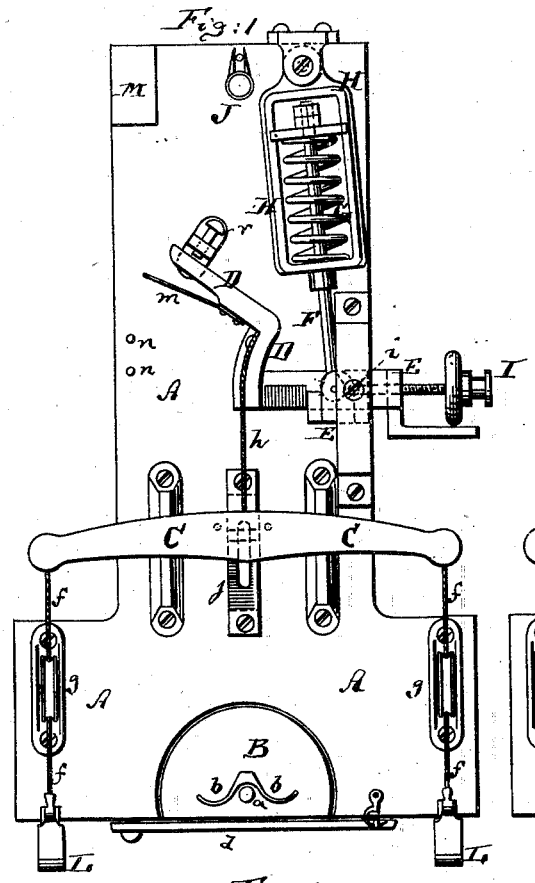
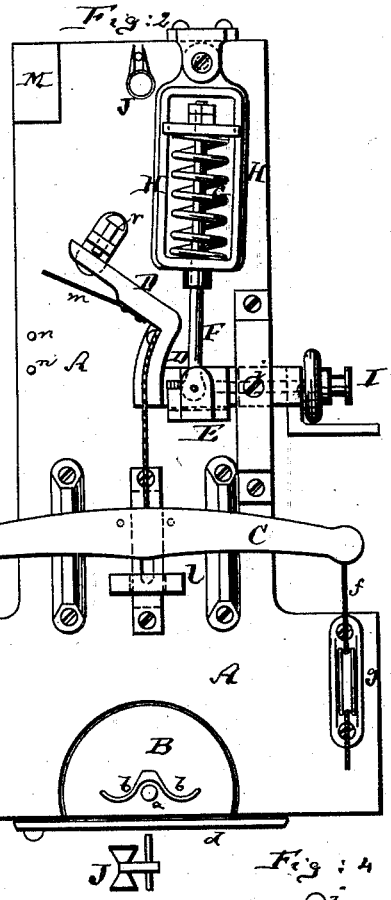
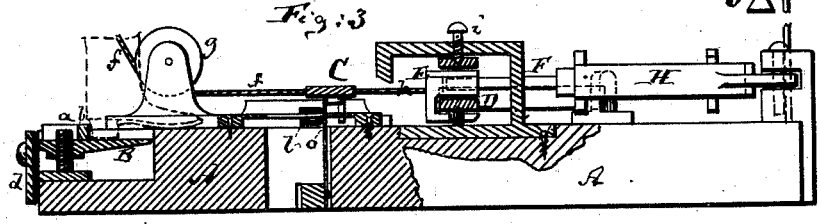
A. W. LOZIER.

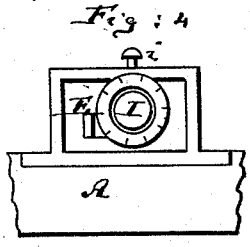
HEALTH-LIFT.

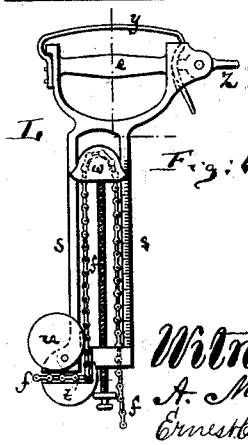
No. 190,149. Patented May 1, 1877.

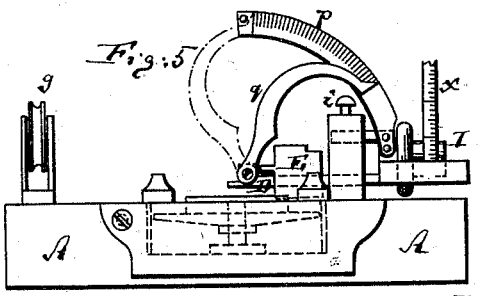


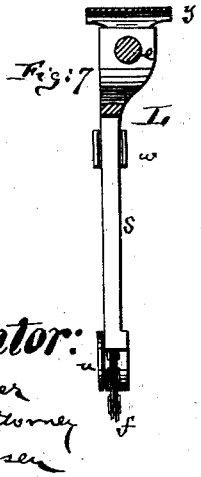












Witnesses:

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UNITED STATES PATENT OFFICE.

ABRAHAM W. LOZIER, OF ORANGE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENT, TO MRS. J. DE LA M. LOZIER, OF NEW YORK, N. Y.

IMPROVEMENT IN HEALTH-LIFTS.

Specification forming part of Letters Patent No. **190,149**, dated May 1, 1877; application filed September 29, 1876.

To all whom it may concern:

Be it known that I, ABRAHAM WITTON LOZIER, M. D., of Orange, in the county of Essex and State of New Jersey, have invented a new and Improved Health-Lift, of which the following is a specification:

Figures 1 and 2 are top views of my improved health-lift, showing the parts differently adjusted. Fig. 3 is a vertical longitudinal section of the same; Fig. 4, a detail side view of the adjusting-screw used for regulating the lifting power of the machine. Fig. 5 is a front or end view of the machine; Fig. 6, a side view, and Fig. 7 a cross-section of the handle.

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

This invention relates to various improvements in health-lifts, which are hereinafter more fully specified, and which are also applicable to machines for analogous purposes, such as machines for testing chains and other devices.

The invention consists, principally, in combining, with the handles used on such machines, a horizontally-movable equalizer-bar, and also in various ingenious devices for regulating or adjusting the position and motion of parts, in other details of improvement hereinafter more clearly pointed out.

The letter A in the drawing represents the base or bed plate of the machine. B is the heel-supporting plate of said machine, the same being placed in a recess at one end of the bed-plate A, and supported by a screw, *a*, so that it can on said screw be adjusted to a greater or less height, in order to allow it to be lowered for persons the heels of whose boots are longer than proper for a correct position in lifting—that is to say, it is intended that the operator whose feet rest upon the bed-plate A should, with the heels of his boots or shoes, stand upon the heel-plate B, as indicated by dotted lines in Fig. 3. This heel-plate is made adjustable in order to keep the feet from standing in a tilting position. For more perfectly regulating the position of the operator, I supply the said heel-plate B with guards or heel-gages *b*, against which the heels of the boots are placed. The form of the heel-plate is partly circular, as shown, it being locked by a lock or latch, *d*, after adjustment to the proper height. The heel-plate B is at liberty to turn on its screw-support *a* as soon as the latch *d* is lifted clear of the plate. A person standing on the bed-plate A, and, as stated, partly on the heel-plate B, is to grasp the handles L L, which connect with cords or chains *f*, that pass around sheaves or friction-rollers *g g*, and are attached to the ends of the horizontally-movable equalizer-bar C, said equalizer-bar extending across the surface of the bed-plate, in the manner indicated in the drawing. By a central cord or chain, *h*, the equalizer-bar C is connected with a segmental lever, D, which, by a pin, *i*, is pivoted or fulcrumed to the bed-plate, as shown. This lever carries a sliding block, E, that connects with the plunger-rod F of a spring-cushion, G, or of a weight, said spring, when used, being placed in a pivoted frame or yoke, H, as clearly shown in Figs. 1 and 2. The slide E can be adjusted, by means of a screw, I, with which it connects, to greater or less distance from the pivot *i* of the segmental lever D, Fig. 1 showing it drawn as near as possible to said pivot, and Fig. 2 showing it moved as far as possible away from said pivot. In the position shown in Fig. 1, the degree of vibration of the block E, caused by the cord or chain *h*, will be small. The resistance of the spring G, being near the fulcrum of the lever, will be reduced to a minimum. The only motion possible to the rod F will be on a small circle, owing to the proximity of the pivoted end of the rod F to the pivot *i;* but when the parts are placed as in Fig. 2, the short arm of the lever D will be lengthened—that is to say, the distance between the pivot *i* and the rod F will be increased, and the swing of the lever D will cause a far greater degree of compression of the spring G, and a consequent greater resistance to and exercise of power will be required in moving the equalizer-bar C.

For properly regulating the position of the slide E on the lever D, a scale may be drawn on said lever D, as indicated; or the scale may be formed on the head of the screw I, as indicated in Fig. 4; or a graduated tape-line, X,

may be applied to the screw, as indicated in Fig. 5; or other means may be employed for ascertaining the proper position of the slide E with reference to its result upon the power applied to the machine. A proper scale may also be placed under the equalizer-bar C, as indicated at *j* in the drawing, to show the extent of forward motion of said bar, or of a separate slide, *l*, (see Fig. 2,) that can be moved by said bar, and retains its position on the return of the bar.

To the segmental lever D is attached a spring-clapper, *m*, which, upon striking a suitable pin or gong, *n*, will inform the operator when the proper limit of motion of said lever has been reached; but such spring-clapper *m* may, if desired, be also placed under the equalizer-bar C, to be worked by a lug projecting therefrom, as indicated by the letter *o* in Fig. 3.

To ascertain the time properly required for lifting the handles L, or moving the equalizer-bar C, a time-glass, J, may be attached to a rod projecting from the farther end of the bed-plate, as indicated in Figs. 1, 2, and 3, which time-glass I propose to supply with a lid or gate, so that the person exercising may, from time to time, vary the amount of sand therein, and the consequent length of time required for moving the equalizer-bar. The said time-glass is adjustable on the rod that holds it, so it can be set opposite the eyes of the operator, which requires him to remain erect. Its adjustment adapts it to use by persons of all ages and sizes. A slate, M, for recording the various matters required to be recorded, may also be attached to the bed-plate.

Fig. 5 shows in form of two arches, *p* and *q*, another modification of, or means for graduating and ascertaining the position of, the slide E. If one of these arches is attached to the slide E, and the other to the lever D, they will indicate automatically the position of the slide; but when, as in the drawing, both arches are attached to the lever D, they may be set by an attendant. The backward play of the lever D and the expansion of the spring G can be controlled and more or less limited by means of a set-screw, *r*, which, in connection with the adjustable slide E, renders the apparatus absolutely adjustable as to the initial expansion of the spring, and the limit of compression thereof during operation.

Each handle L, as shown in Figs. 6 and 7, consists of a gripe-bar, *e*, and shank *s*, the latter connecting with the draft-chain *f*. The end of the chain is placed in an L-shaped groove, *t*, formed at the lower part of the shank. This groove can be closed by a suitable gate, *u*, and serves to securely confine the chain as the same is bent at a right angle. In case it is desired to make the length of the chain adjustable in the handle, I supply the latter with a vertically-adjustable screw-block, *w*, over which the chain is passed, as shown in Fig. 6, which block *w* moves along a suitable scale on the side of the shank *s*. The gripe-bar *e* is placed out of line of the vertical axis of the shank *s*, as indicated in Fig. 7, for the purpose of counteracting, by its position, the tendency of the operator to incline the handles, and thus serving as complement to said tendency for causing a proper vertical motion of the handles. Above the gripe-bar *e* I secure a rubber pad, *y*, which can be regulated as to length by an eccentric clamp, *z*, and which, by bearing upon the hand, guards it against slipping, and increases the power of the gymnast over the instrument. The L-shaped groove or recess *t* and the gate *u*, for securing the end of the chain, may for like purposes be also formed at the ends of the equalizer-bar C. The operator may pull directly on the chain *h*, and discard the equalizer-bar and double handles.

I claim as my invention—

1. In a health-lift, the combination of the bed-plate A with the vertically-adjustable heel-plate B and screw *a*, substantially as specified.

2. The adjustable heel-plate B, combined with the recessed bed-plate A, substantially as described.

3. In a health-lift, the combination of the horizontally-movable equalizer-bar C with the handles L L, cord *h*, and segmental lever D, substantially as specified.

4. The combination of the segmental lever D with the adjustable slide E and spring-plunger F, substantially as described.

5. In combination with the lever D of a health-lift, and with the vibrating clapper *m*, the fixed pin *n*, all arranged to constitute an alarm attachment, substantially as specified.

6. In combination with the segmental lever D and adjustable slide E, the adjustable stop *r*, substantially as specified.

7. The chain-fastener composed of the L-shaped recess *t* and gate *u*, substantially as specified.

8. The handle L, in combination with the adjustable block *w*, over which the chain is placed, substantially as specified.

9. In the handle L, the combination of the rigid gripe-bar *e* with the upper elastic and flexible pad *y*, substantially as specified.

10. In the handle L, the combination of the rigid gripe-bar *e* with the upper elastic and flexible pad *y* and adjustable clamp or fastener *z*, substantially as specified.

11. The vertically-adjustable time-glass J, arranged on a supporting-rod, in combination with a health-lift, substantially as described, and for the purpose specified.

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Witnesses:

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