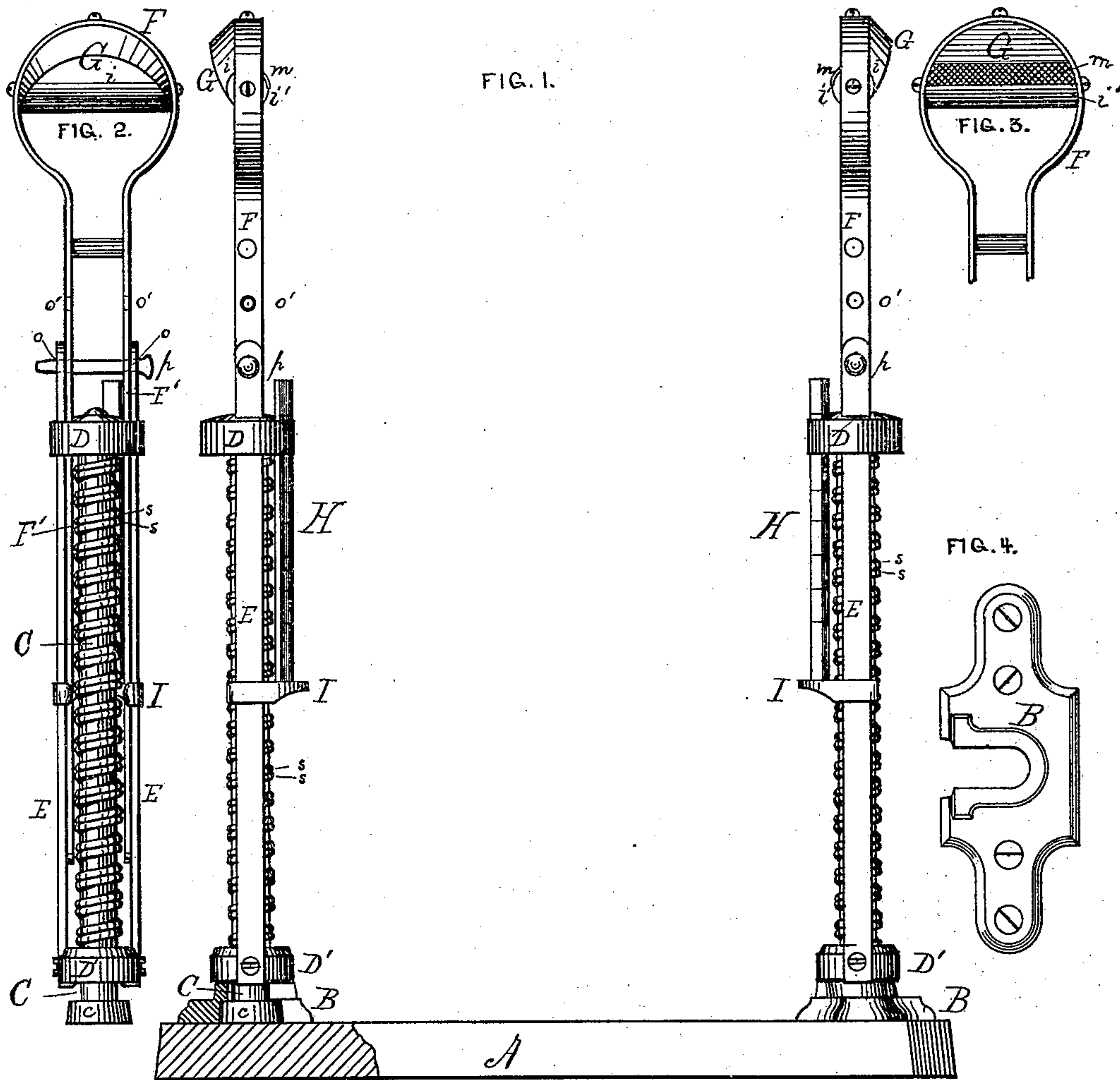


H. H. EVARTS.  
HEALTH LIFT.

No. 181,424.

Patented Aug. 22, 1876.



Witnesses:  
Ford R. Smith  
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# UNITED STATES PATENT OFFICE.

HARRY H. EVARTS, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN HEALTH-LIFTS.

Specification forming part of Letters Patent No. 181,424, dated August 22, 1876; application filed May 16, 1876.

*To all whom it may concern:*

Be it known that I, HARRY H. EVARTS, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Health-Lifts, of which the following is a specification:

This invention belongs to that class of exercising apparatus in which the lifting-force is exerted against springs; and also to that species thereof which may be properly called duplex health-lifts, in which an independent lifter is provided for each hand, each lifter having its own springs and registering devices, and being in no way connected with, and receiving no portion of, the force exerted upon the other lifter. Its nature will be fully understood from the subjoined description and accompanying drawing, constituting a part of this specification, and in which drawing—

Figure 1 is a front elevation, partly in section, of the apparatus. Fig. 2 is an outside view of one of the lifters. Fig. 3 is a view of the inside of that portion of the handle grasped by the hand of the operator; and Fig. 4 is a plan of the flanged socket-plate, by which the lifters are attached to the platform of the apparatus.

Like letters of reference made use of in the several figures indicate like parts.

A represents the platform of the apparatus, which may be made of a single thickness of plank. Firmly secured to this platform (one at each end) are metal flanged socket-plates B B, with an opening at one side to receive the lifter, the under part of the opening being cut away, as shown in the drawing. The lifters or handles are made right and left, the only difference being in the registering devices, which are turned to face one way in one, and the opposite way in the other. Each lifter consists of a rod, C, provided with a flange or nut, c, upon its lower end, and a cap or collar, D, upon its upper end. The flange c enters the enlarged portion of the opening in the socket-plate, and so secures the lifter to the platform. Loosely encircling the rod C at its lower end is a ring, D', confined between which and the cap D are two coiled springs, s s, wound around the rod, against which springs the lift is made. Extending upward from the ring, and firmly attached thereto, are flat metal bars E E, one

upon each side, passing through appropriate openings in the cap D. F is a flat metal strap, bent around the hand-grasp G, its ends F' F' passing downward through the openings already mentioned in cap D, and along the inner side of, and parallel to, the bars E E. The handle is adjusted, as to height, by raising or lowering the strap F, whose ends are free to move through the cap D, and are secured in the desired position by a removable pin, p, which passes through openings o o in the side bars, and o' o' in the strap ends F'. To allow a wide latitude of adjustment, the strap ends are provided with openings o' at short intervals throughout a large portion of their length.

From the construction of the parts thus far described it will be seen that any upward force exerted upon the grasp G will be communicated to the springs by the intervening parts—namely, the strap F, pin p, bars E E, and ring D'—and that the parts which hold the spring down against this upward pressure are the cap D, rod C, nut c, socket-plate B, and platform A.

The hand-grasp I have shown as made of wood, as sufficient strength for ordinary lifts can be obtained in that material when it is held and inclosed by the strap F in the manner shown; and it is, moreover, cheap, light, and pleasant to the hand. The formation is somewhat peculiar, as will be noticed, the part i, to be embraced by the palm of the hand, being thick and flaring, while the other side, to be clasped by the fingers, is rounded at i', so that the fingers may return toward the palm somewhat. This will be understood by reference to the drawing.

A further peculiarity possessed by this hand-grasp lies in the attachment to that part thereof which is grasped by the ends of the fingers of a rubber strip, m. It has been customary heretofore to cover the entire grasp with rubber cloth or other friction-affording material; but I have found that the narrow piece m, when attached at the point indicated, prevents the slipping of the hand to a sufficient degree, and it moreover saves the rest of the hand from unpleasant scratching by the roughened surface.

The registering device consists of a gage, H, sliding in a slot in the cap D with suffi-



cient freedom not to add much more than its weight to the burden of the person lifting, and yet not loose enough to fall of its own weight when its supporting-plate is withdrawn. A friction-spring may be employed to accomplish this result, if desired. This gage is actuated, and the movement of the springs is imparted to it, by a plate, I, secured to the side bars and moving with them. As the amount of the compression given the springs indicates the amount of the lifting-force, and as the extent of that compression is registered by the gage, it becomes an easy matter to ascertain the number of pounds lifted by a convenient notation upon the gage, which remains in the position it is left by the rising of the plate I, until returned by manual force to its normal condition.

One or two, or even more, springs may be employed in each handle. I prefer to use two. By coiling them at different angles or leads a very desirable result is produced—namely, an easing of the first part of the lift. The reason of this is as follows: When the two coils are put together, the one wound the closer together will tend to compress the other, while the latter will, in turn, tend to distend the first. If unconfined, they would of themselves assume a position where their opposite tendencies would neutralize one another, and in any attempts to compress them the closer coil assists until it is itself brought to the point where its contrary force begins to operate; and hence the operator of my apparatus is called upon at the commencement of his lift to overcome only the resistance of the open coil-spring, less the aid afforded by the close-coil one, and this condition of things continues until the latter reaches the point where it is neither distended nor compressed, from which point he lifts against the adverse force of both coils.

The coils should be of the same diameter, and be put together so that they will appear to have been coiled alike, as shown in the drawing, and they should be confined in the machine in a state of compression, a trifle within or greater than the neutral position above mentioned. The same feature may be introduced with any greater number of springs. Desirable results are also obtained by making the springs of different sized wire; and in practice I usually make the open-coil one from the smaller wire.

The handles, as will be noticed, can be readily detached, if it is desired, to fold up the machine by taking them from out the socket-plates B. The constant pressure of the springs

when not in use operates to hold the nut *c* and ring *D'* firmly against the intervening part of the socket-plate, and to prevent the too easy withdrawal of the handle from the plate.

What I claim as new is—

1. The combination, with the spring or springs *s*, of the hand-grasp, strap *F*, pin *p*, bars *E E*, and ring *D'*, all arranged substantially as specified.

2. The combination, with the spring or springs *s*, of the cap *D*, rod *C*, passing down through said springs, and provided with the nut *c*, socket-plate *B*, and platform *A*, substantially as specified.

3. The combination, with the registering-gage of the cap *D*, provided with the slot in which such gage slides, said slot being made to fit the gage sufficiently close to prevent its fall by its own gravity, substantially as specified.

4. The combination, with the registering-gage and the spring or springs, of the ring *D'*, the bars *E E* attached to said ring, and the plate *I*, carried by said bars, said parts being constructed and arranged substantially as specified.

5. The hand-grasp *G*, in combination with the rubber strip *m*, affixed to that part only which is grasped by the ends of the fingers, substantially as and for the purpose specified.

6. The hand-grasp *G*, in combination with the metal strap *F F'*, surrounding and securing the same, substantially as set forth.

7. In a health-lift, the combination of two or more springs of different tension, coiled at the same diameter, and put together essentially as described, and for the purposes set forth.

8. The combination, substantially as specified, of the platform *A*, provided at each end with the socket-plates *B B*, and the lifting-handles, provided with the flange or nut *c*, whereby the handles are secured to the platform.

9. The combination, substantially as specified, of the socket-plate *B*, with the lifting-handle, provided at the bottom with a flange or nut, *c*, passing under the flange of the plate, a movable or sliding ring, *D'*, and a spring acting to force said ring down upon the plate, whereby the flange of the socket-plate is clasped with sufficient strength to hold the handle in an upright position, and to prevent its too easy removal from the socket-plate.

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Witnesses:

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