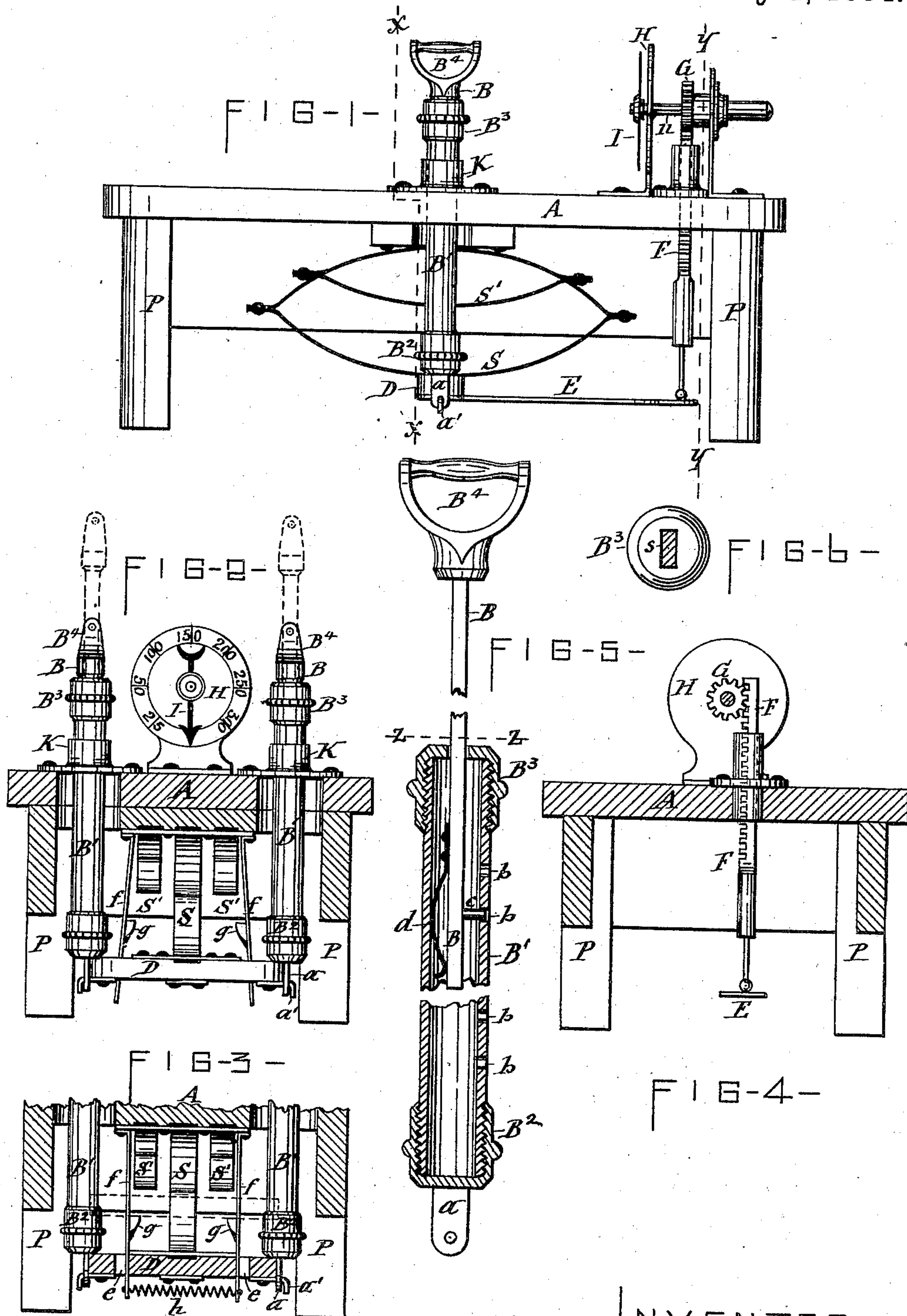


(No Model.)

LA FAYETTE STEVENS.
EXERCISING APPARATUS.

No. 301,298.

Patented July 1, 1884.



ATTEST—

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— C. Anderson —

INVENTOR—
La Fayette Stevens
per D. L. L. & H. —
his atty—

UNITED STATES PATENT OFFICE.

LA FAYETTE STEVENS, OF ELMIRA, NEW YORK.

EXERCISING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 301,298, dated July 1, 1884.

Application filed April 9, 1884. (No model.)

To all whom it may concern:

Be it known that I, LA FAYETTE STEVENS, of Elmira, in the county of Chemung, in the State of New York, have invented new and useful Improvements in Muscle-Exercising Apparatus, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of apparatus which are designed to afford physical exercise to persons by lifting heavy weights or pulling against a resisting power.

The invention consists in a novel construction and combination of the constituent parts of an apparatus which affords the greatest convenience of adjustment to the height of the operator and presents its power of resistance gradually, so that the operator is allowed to assume nearly or quite an erect position before he is subjected to the maximum strain.

The invention is fully illustrated in the annexed drawings, wherein Figure 1 is a side elevation of my invention. Fig. 2 is a vertical transverse section on line *x x*, Fig. 1. Fig. 3 is a transverse section of the lower portion of the apparatus, taken on the line *x x*, and showing more fully the means for taking up part of the play of the spring and setting the apparatus for use for a powerful person. Fig. 4 is a vertical transverse section on line *y y*, Fig. 1. Fig. 5 is an enlarged longitudinal section of the lifting-bar, and Fig. 6 is a transverse section on line *z z*, Fig. 5.

Similar letters of reference indicate corresponding parts.

A represents a platform, supported on posts P P of proper height to admit of attaching to the under side of the platform the springs S, S', and S'', which may be either of the elliptic style, as shown, or of any other suitable form, but of different lengths, so as to receive successively the bearing of the cross-bar D, which is attached to the larger and primary spring S.

B B denote the lifting-bars, which are connected with the cross-bar D and project through the platform A, and are provided above the latter with a suitable handle, B', for the manipulation by the operator of the apparatus. In order to facilitate the attachment and detachment of the lifting-bars, and also admit of a ready adjustment of the same to the height of

the operator, I form the lifting-bars of tubes B', sliding in a guide, K, secured to the platform A. The lower end is provided with a removable foot, B², which rests on top of the cross-bar D, and is provided with a strap, *a*, by which it is connected with a hook, *a'*, attached to the cross-bar D. By disconnecting the tube B' from the foot B² the latter is readily thrown off the hook *a'*, and thus liberated. The upper end of the aforesaid tube is provided with a removable cap, B³, having a slot, *s*, through which slides the lifting-bar proper, B, which is formed of a flat bar of metal, and thus prevented from turning. That portion of the bar B which is inside of the tube B' is provided on its side with a pin or projection, *c*, adapted to interlock or engage with one of a series of apertures, *b b*, in the side of the tube B. A spring, *d*, attached to the opposite side of the bar B and pressing against the interior of the tube B', serves to hold the projection *c* in engagement with the aperture *b*. This arrangement allows the operator to adjust the length of the lifting-bars by simply exerting a lateral pressure on the bar B in the direction toward the spring *d*, the latter yielding sufficiently to allow the pin *c* to withdraw from the aperture *b*. Then, by sliding the bar B up or down in the tube B', and at the proper time relieving the bar B of the lateral strain, the projection *c* enters one of the apertures *b*. The springs S' S' are shorter than the spring S, so as to be normally deprived of a bearing on the cross-bar D. In lifting on the bars B the spring S primarily presents its resistance to the movement of the cross-bar D, said resistance gradually increasing until the cross-bar encounters the secondary springs S' S', when the resistance is further augmented by the additional bearing of the said springs.

To the under side of the platform A are attached two flexible metallic straps, *f f*, which pass through slots or openings *e e* in the cross-bar D, and are provided above the latter with stirrups *g*. The straps *f f* stand normally in such position as to allow the openings *e e* to pass over the stirrups and the cross-bar D to freely rise and descend without engaging with the stirrups. By connecting to the free ends of the straps a spring, *h*, crowding the said straps in the direction toward which the stirrups *g* face, the straps *f f* are allowed to yield

laterally sufficiently to admit of raising the cross-bar D above the stirrups, and when the cross-bar is in this elevated position the stirrups engage the under side thereof and retain the cross-bar, as represented by dotted lines in Fig. 3 of the drawings. The aforesaid arrangement allows the apparatus to be set for operation by a powerful person not wishing to be subjected to the movement required to overcome the primary action of the spring S.

From the cross-bar D projects an arm, E, on the free end of which rests the lower extremity of a vertical rack, F, which engages a pinion, G, attached to an arbor, *n*, mounted on suitable supports on top of the platform A. Said arbor projects through the center of a dial, H, and is provided in front of said dial with a pointer or indicator, I, the dial being graduated to represent the number of pounds lifted by the operator. In lifting on the bars B B the cross-bar D pushes upward the rack F by means of the arm E, and in the ascent of the rack the pinion G receives a rotary motion, which is transmitted to the indicator I, and the latter serves to point out on the dial H the number of pounds lifted by the operator.

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

1. In combination with the platform A, the lifting-bars B B, cross-bar D, and springs S S', interposed between the cross-bar and platform, substantially as shown.

2. In combination with the platform A, lifting-bars B B, and cross-bar D, the primary spring S, connecting the cross-bar with the platform, and the secondary springs S', reaching part way the distance between the cross-

bar and platform, substantially as described and shown, for the purpose set forth.

3. The combination, with the platform A, of the lifting-bars B, cross-bar D, springs S S', arm E, rack F, pinion G, dial H, and indicator I, substantially as described and shown.

4. In combination with the platform A, spring S, and cross-bar D, the guide K and lifting-bar B, sliding in side guide and having the detachable foot B², resting on the cross-bar, and provided with the coupling-strap *a* and coupling-hook *a'*, attached to the cross-bar, substantially as described and shown.

5. The lifting-bar, composed of the tube B', provided with the attaching-strap *a* and apertures *b b*, and the bar B, provided with the handle B⁴, projection *c*, and spring *d*, substantially in the manner specified and shown.

6. The bar B, provided with the handle B⁴, projection *c*, and spring *d*, in combination with the tube B', provided with apertures *b b*, removable ends B² and B³, and attaching-strap *a*, substantially as shown and described.

7. In combination with the platform A, lifting-bars B, and springs S S', the cross-bar D, provided with openings *e e*, the flexible straps *f f*, provided with the stirrup *g*, and the spring *h*, substantially as and for the purpose shown and described.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 28th day of March, 1884.

LA FAYETTE STEVENS. [L. S.]

Witnesses:

C. H. DUELL,
FREDERICK H. GIBBS.