(No Model.)

3 Sheets—Sheet 1.

E. N. BOWEN.

EXERCISING MACHINE.

No. 334,635. Patented Jan. 19, 1886.

Fig. 1.

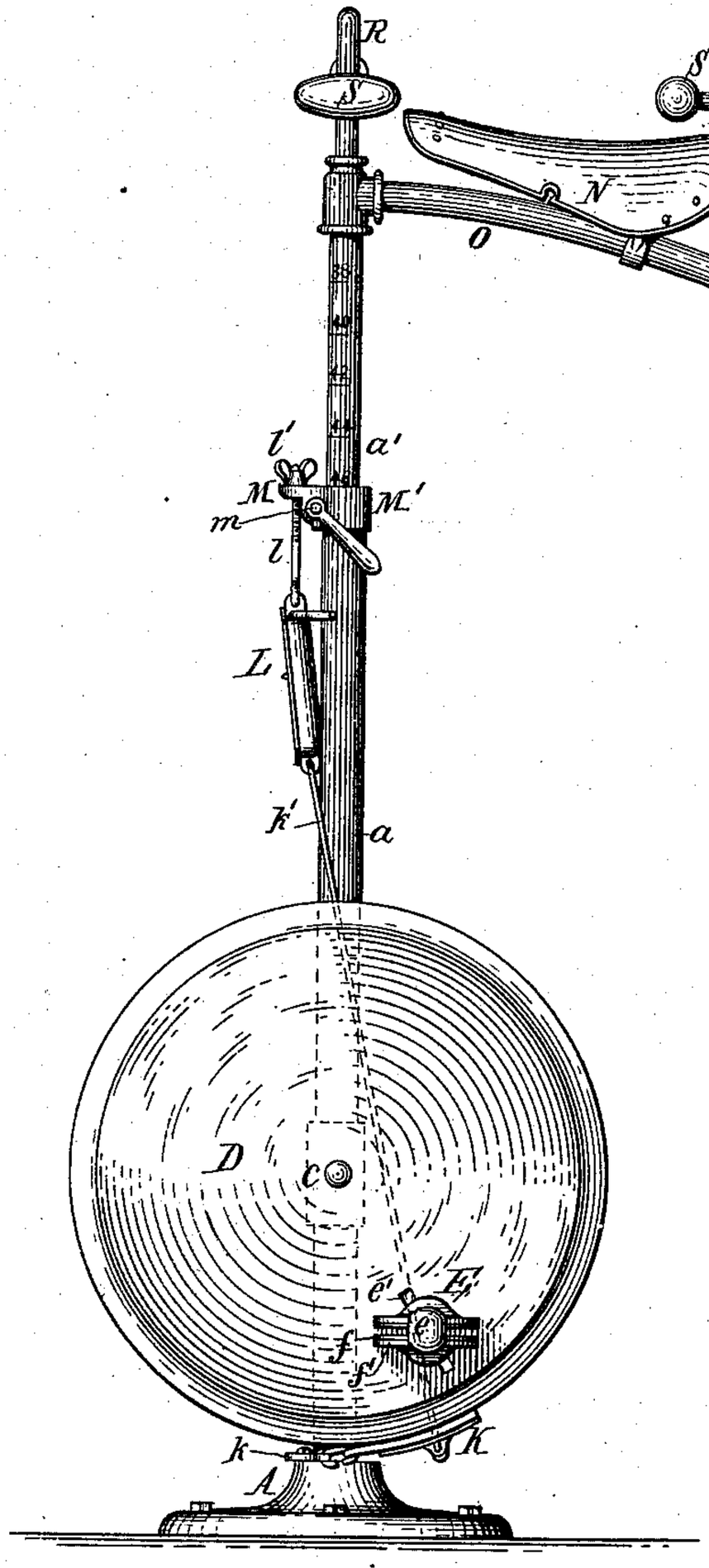
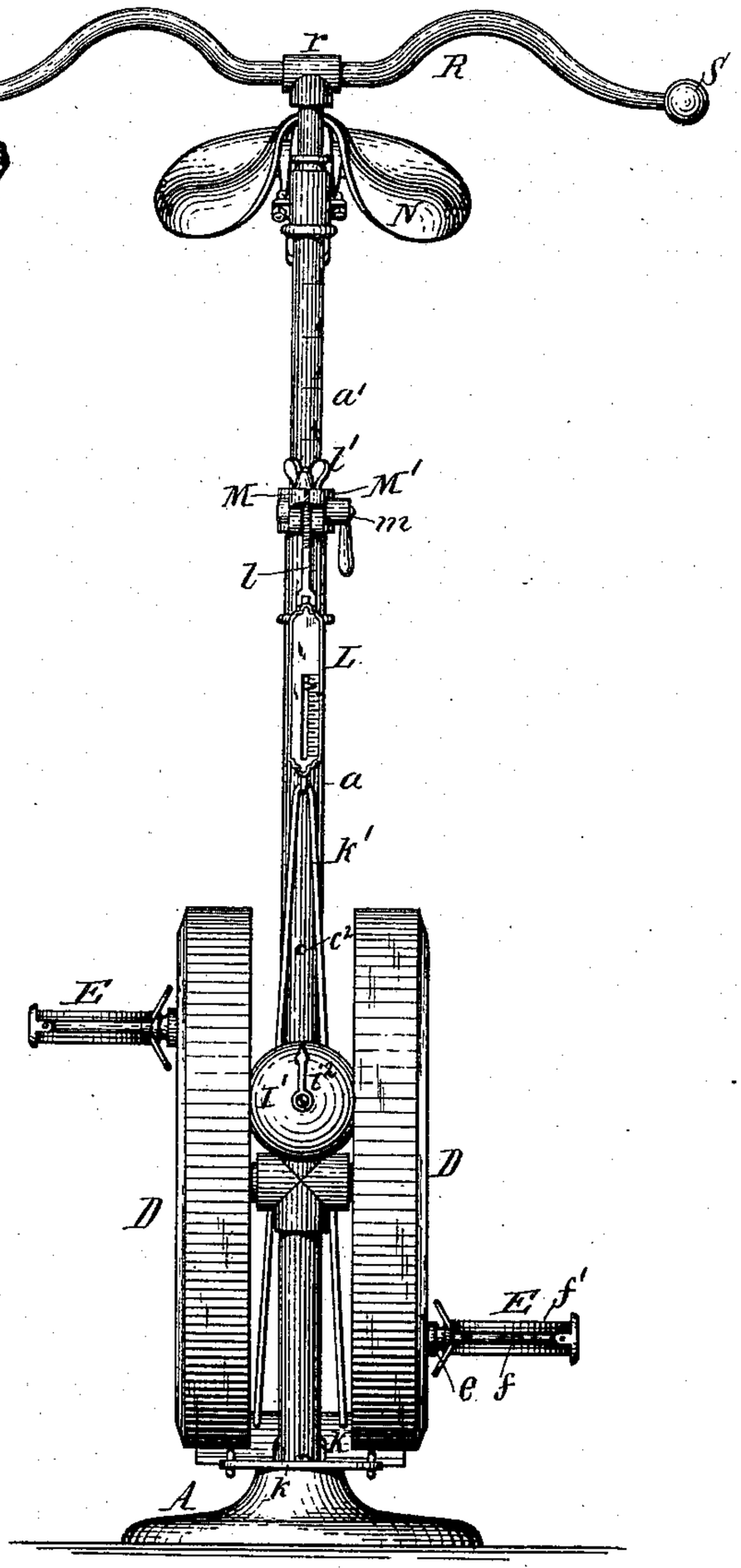


Fig. 2.



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N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.)

3 Sheets—Sheet 2.

E. N. BOWEN.

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Fig. 3.

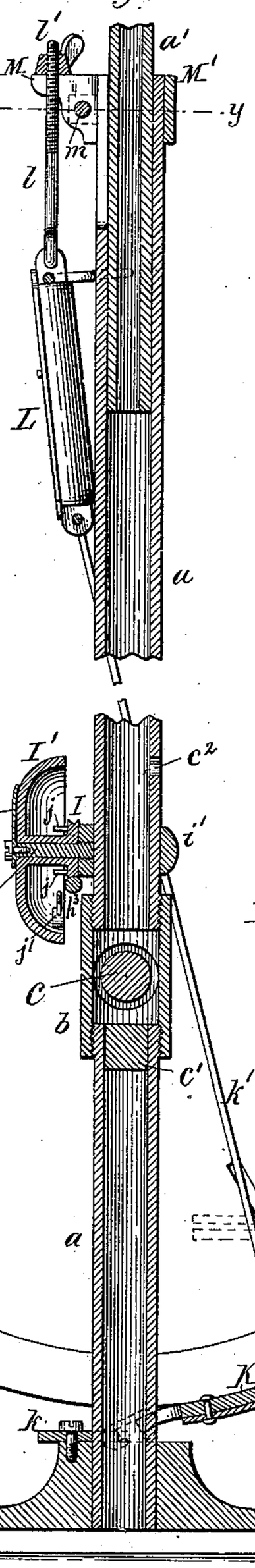


Fig. 4.

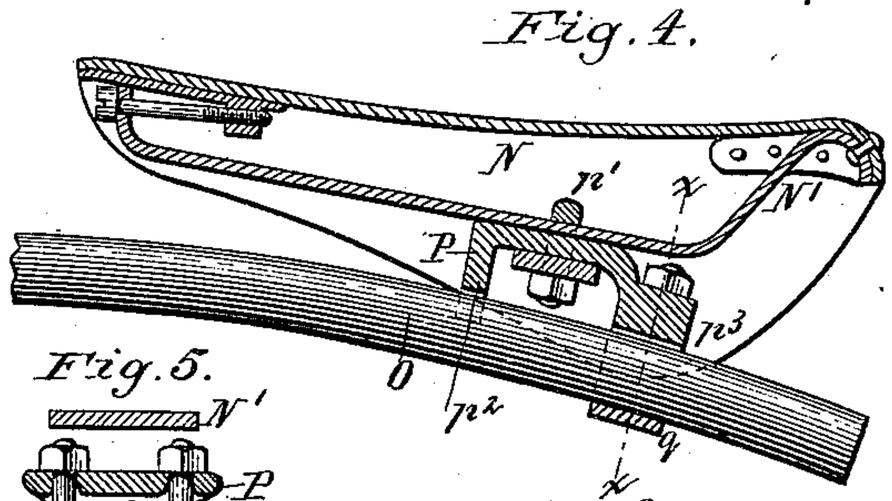


Fig. 5.

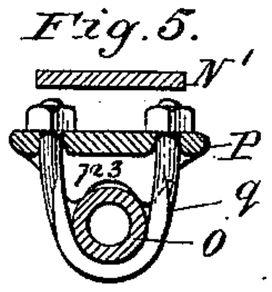


Fig. 6.

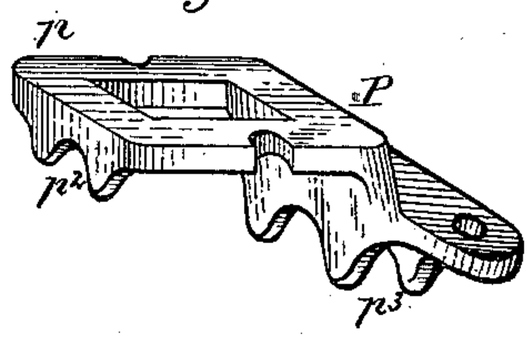


Fig. 7.

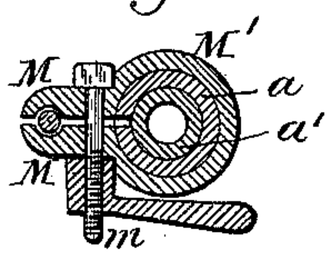


Fig. 8.

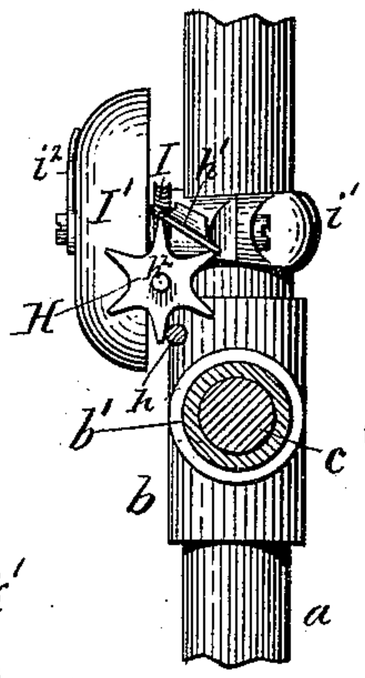


Fig. 9.

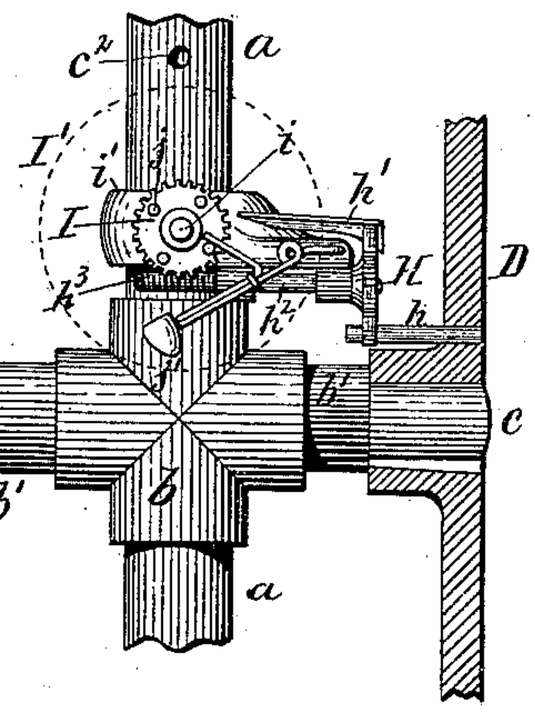
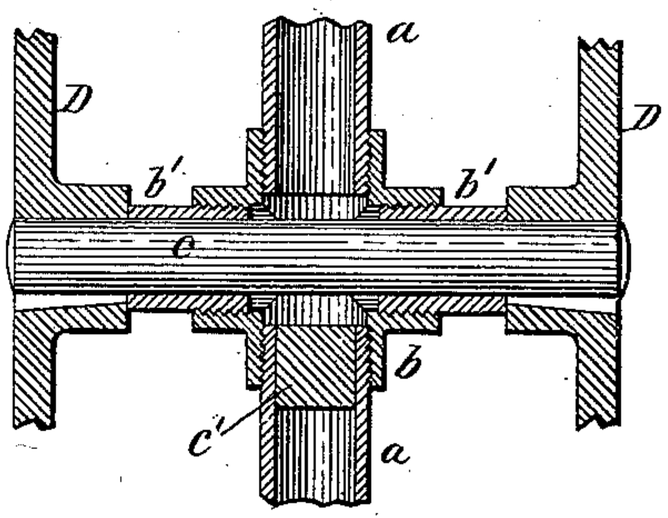


Fig. 10.



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(No Model.) 3 Sheets—Sheet 3.

E. N. BOWEN.

EXERCISING MACHINE.

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Fig. 11.

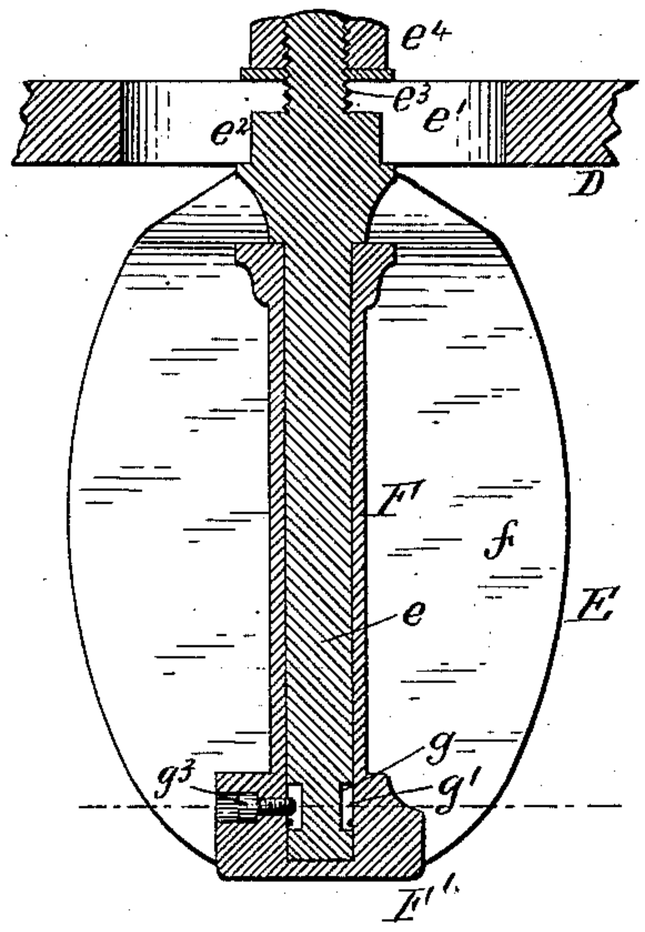


Fig. 12.

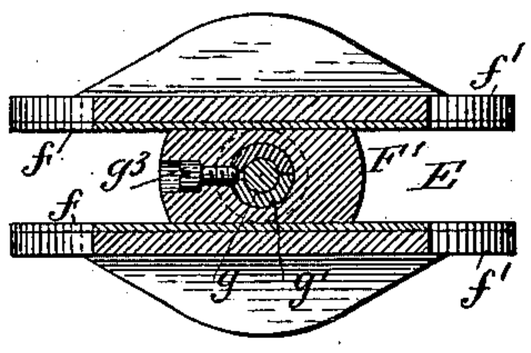


Fig. 13.

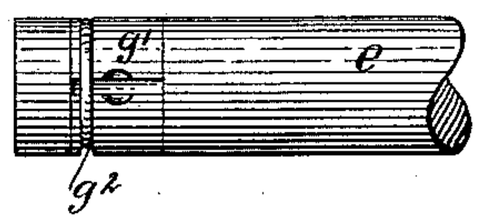


Fig. 14.

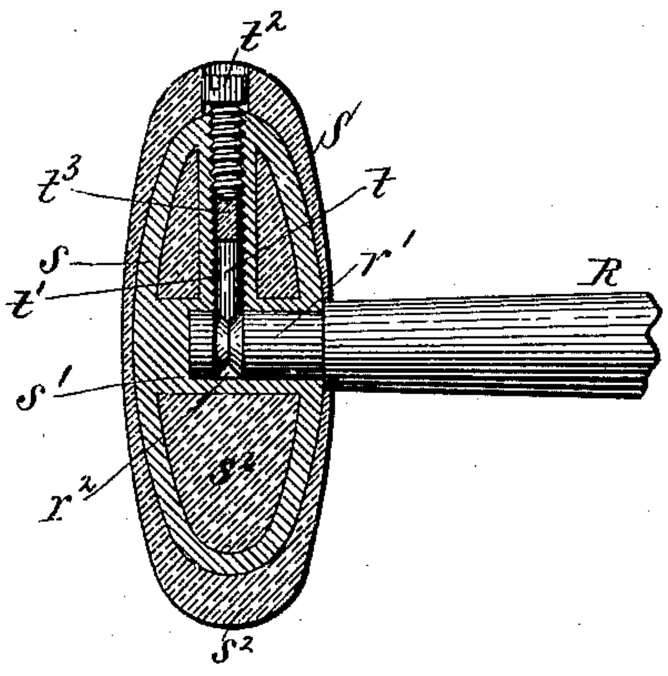
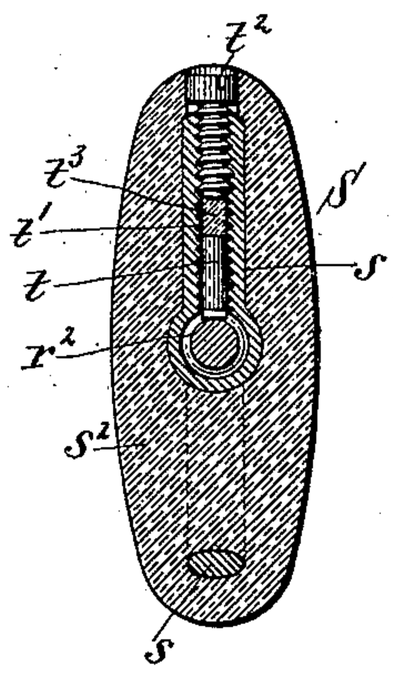


Fig. 15.



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UNITED STATES PATENT OFFICE.

EPHRAIM N. BOWEN, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO WILLIAM S. BULL, OF SAME PLACE.

EXERCISING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 334,635, dated January 19, 1886.

Application filed June 10, 1885. Serial No. 168,176. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM N. BOWEN, of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Exercising-Machines, of which the following is a specification.

This invention relates to an improvement in that class of exercising-machines which are used by bicycle-riders, and are called "home-trainers."

These machines consist, principally, of a crank-shaft provided with pedals, a standard in which said shaft is journaled, and which carries at its upper end a handle-bar, and a saddle attached to said standard.

The object of this invention is to improve the construction of the machine in various respects, whereby it is rendered more convenient in use and better adjustable in accordance with the requirements of the rider; and my invention consists, to that end, of the improvements which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, consisting of three sheets, Figure 1 is a side elevation of my improved exercising-machine. Fig. 2 is a front elevation of the same. Fig. 3 is a fragmentary sectional elevation of the lower portion of the standard and connecting parts on an enlarged scale. Fig. 4 is a longitudinal sectional elevation of the saddle. Fig. 5 is a cross-section in line *x x*, Fig. 4. Fig. 6 is a perspective view of the saddle-support. Fig. 7 is a horizontal cross-section in line *y y*, Fig. 3. Fig. 8 is a side elevation of the registering device. Fig. 9 is a front elevation thereof, with the bell shown in dotted lines. Fig. 10 is a longitudinal sectional elevation of the shaft and supporting parts. Fig. 11 is a horizontal section of one of the pedals. Fig. 12 is a cross-section of the same. Fig. 13 is an elevation of the outer portion of the pedal-pin on an enlarged scale. Fig. 14 is a longitudinal sectional elevation of the handle. Fig. 15 is a cross-section of the same.

Like letters of reference refer to like parts in the several figures.

A represents the base or foot of the machine, which is firmly secured to the floor by screws or other fastenings.

a represents the lower stationary portion of the standard, rigidly secured, with its lower end in the base A, and *a'* is the upper movable portion of the standard, which is capable of vertical adjustment in the lower portion, *a*. The portions *a a'* of the standard are constructed of tubes, the upper portion, *a'*, being made of smaller diameter, so as to fit snugly in the bore of the lower portion, *a*. The latter is composed of two parts, which are united by a cross-piece or fitting, *b*, to which are secured short horizontal tubes *b'*, which project on both sides of the standard and form the bearings for the horizontal shaft *c*. The bore of the lower portion, *a*, of the standard is closed below the shaft *c* by a plug, *c'*, whereby the bore or cavity around and above the shaft can be utilized as an oil-reservoir, into which the oil is introduced through an opening, c^2, formed in the standard above the shaft. This oil-reservoir may be filled with sponge or other absorbent material.

D represents the wheels, secured to the ends of the shaft *c* on both sides of the central standard, and E represents the pedals attached to said wheels.

e represents the pedal-pins, secured adjustably in radial slots *e'*, formed in the wheels D. Each pedal-pin is provided with a flat neck, e^2, which fits in the slot *e'*, and a screw-shank, e^3, to which is applied a screw-nut, e^4, by which the pedal-pin is secured in the slot.

F represents the sleeve, which is mounted on the pedal-pin and provided with the pedal-plates *f f'*. The plates *f* are made of sheet-steel, and secured by soldering or riveting to the flat parallel faces of the sleeve F, on opposite sides of the pin. These plates *f* are covered with plates *f'*, of rubber, which afford a strong foothold and form a light pedal. The sleeve F is open at its inner end and closed at its outer end, where it is provided with an enlargement or cap, F', which covers the outer end of the pedal-pin.

g is an annular groove formed in the pin *e* near its outer end, and *g'* is a ring which is arranged in said groove, split lengthwise, or divided into halves lengthwise, as shown in Figs. 12 and 13. The outer surface of this ring is flush with the pin *e*, and it is held together by a steel spring, g^2.

g^3 is a screw which works in a threaded

opening in the cap F', and enters with its inner end between the adjoining ends of the split ring g', so that by moving the screw toward the pin e the split ring is opened and forced against the bore of the sleeve F, thereby clamping the ring to the sleeve F, and preventing longitudinal displacement of the latter on the pin e, while permitting the sleeve to turn on the pin. In this manner the pedal is securely attached to the pin and the fastening screw released from the greater part of the strain.

H represents the star-wheel of the registering mechanism or cyclometer, which is turned by a pin, h, secured to one of the wheels D, and checked by a spring-detent, h'. The wheel H is mounted on a shaft, h^2, which is provided with a screw-thread, h^3. The latter engages with a worm-wheel, I, which makes, preferably, one revolution for every mile traveled by the circumference of the wheels. The wheel I turns loosely on a stud, i, which is secured to a collar, i', embracing the standard a. The wheel I is secured to or formed with the bell I', and the outer face of the latter is provided with a graduation, upon which the distance is read off by means of a stationary pointer, i^2, affixed to the stud i. The wheel I is provided with pins j, which operate the striking-hammer j'.

K represents the brake arranged to bear against the lower sides of the wheels D D, and hung to a plate, k, which is attached to the base A.

k' are rods which connect the brake K to the lower end of the spring-balance L, whose upper end is attached to a bolt, l. The latter is supported by a screw-nut, l', upon the jaws M of a divided ring or collar, M', so that by turning the screw-nut l' the tension on the brake can be increased or reduced. The tension applied to the brake can be read off on the graduation of the spring-scale, thus affording ready means for adjusting the resistance according to the requirements of the rider. The collar M' embraces the upper end of the lower portion, a, of the standard, which latter is also divided vertically at its upper end, so that upon tightening the screw m, which passes through the jaws M, the upper end of the lower portion, a, is tightened upon the upper portion, a', thereby holding the latter in place, while upon loosening the screw m the upper portion, a', is released, and can be raised and lowered to adjust the height of the machine to the rider. The upper portion, a', of the standard is provided with a suitable graduation corresponding with driving-wheels of various diameters, so that the rider can readily adjust the machine to correspond with a wheel of a given diameter.

N represents the saddle, and N' the metallic frame or stretcher on which the leather cover of the saddle is mounted.

O represents a curved supporting-arm or backbone projecting rearwardly from the upper end of the portion a' of the standard, and P is a metallic bracket, by which the saddle is supported on the arm O. The bracket P consists of a plate, p, to which the saddle-frame N' is attached by a clip, p', and which is provided on its underside with projections, which form a concave front bearing, p^2, and similar rear bearings, p^3, all resting upon the arm O.

q is a clip which connects the rear end of the support P with the arm O. Upon loosening the clip the saddle can be adjusted forwardly and rearwardly on the arm O.

R represents the handle-bar, secured to the upper end of the portion a' of the standard by a T-piece, r, or other suitable means, and S are the handles attached to the end of the bar R. Each arm of the handle-bar is provided with a neck or reduced end portion, r', upon which the handle S is mounted. Each handle S consists of an open metallic frame, s, provided with a central socket, s', and a rubber body, s^2, which is formed around the frame s and fills the open spaces thereof. The socket s' is closed at its outer end and fits snugly on the neck r' of the handle-bar. The neck r' is provided near its outer end with an annular groove, r^2, into which enters a sliding bolt, t. The latter is fitted in an opening, t', formed in the frame s, and is held into the groove r^2 of the neck r' by a screw, t^2. A spring, t^3, of rubber or other suitable material, is interposed between the screw t^2 and the bolt t. The spring t^3 equalizes the pressure which the screw t^2 exerts upon the bolt t, and the screw t^2 is so adjusted that it presses the bolt against the neck r' with sufficient force to hold the handle stationary on the neck, except when the handle is turned by the hand. The handle adapts itself easily to the position of the hand, and can be comfortably held in the hand.

I claim as my invention—

1. The combination, with the central standard, of the axle journaled in the same, two pedal-wheels mounted on said axle on opposite sides of the standard, pedals secured to said wheels, and a handle and seat secured to the upper portion of the standard, substantially as set forth.

2. The combination, with the lower tubular portion, a, of the standard, provided with the shaft c and pedal-wheels D, of the upper portion, a', adjustably secured to said lower portion and provided with a handle-bar and saddle, substantially as set forth.

3. The combination, with the lower tubular portion, a, of the standard, having its upper end slitted vertically, and the upper portion, a', made vertically adjustable in said lower portion, of the divided clamp-collar M', embracing the upper slitted end of the portion a, substantially as set forth.

4. The combination, with the lower tubular portion, a, of the standard, of the horizontal shaft c, passing through the standard and journaled in lateral bearings projecting laterally from the standard, and a plug, c', closing the bore of the standard below the shaft, whereby

an oil-reservoir is formed, substantially as set forth.

5. The combination, with the pedal-pin *e*, of the sleeve F, closed at its outer end, a split ring and expanding-screw, whereby the sleeve is attached to the pedal-pin, and pedal-plates secured to the sleeve, substantially as set forth.

6. The combination, with the pedal-pin *e*, provided with an annular groove, *g*, of the sleeve F, provided at its outer end with a closed cap, F′, an expanding-screw, g^3, attached to the sleeve, and a split ring, *g′*, seated in the groove *g*, substantially as set forth.

7. The combination, with the pedal-pin *e*, of the flat-sided sleeve F, metallic plates *f*, secured to the flat faces of the sleeve F on opposite sides of the sleeve F, and yielding plates *f′*, secured to the metallic plates *f*, substantially as set forth.

8. The combination, with the pedal-wheels and standard, of the brake K, pivoted to the standard, a spring-scale, L, attached to the brake, and the adjusting-screw *l*, connecting the spring-scale L with the standard, substantially as set forth.

9. The combination, with the backbone O, saddle N, and saddle-frame N′, of the supporting-bracket P, to which the saddle-frame is attached, and a clip, *q*, whereby the bracket is adjustably secured to the backbone, substantially as set forth.

10. The combination, with the backbone O, saddle N, and saddle-frame N′, of the supporting-bracket P, provided on its under side with concave bearings p^2 p^3, a clip, *p′*, whereby the saddle-frame is attached to the bracket P, and a clip, *q*, whereby the bracket is secured to the backbone, substantially as set forth.

11. The combination, with the handle-bar, of a handle, S, composed of an open rigid frame, *s*, and a yielding body, s^2, which envelops the frame *s* and fills the open spaces thereof, substantially as set forth.

12. The combination, with the handle-bar provided with a neck, *r′*, having an annular groove, r^2, of a handle, S, provided with a socket, *s′*, bolt *t*, screw t^2, and a spring, t^3, interposed between the bolt *t* and the screw t^2, substantially as set forth.

Witness my hand this 22d day of May, 1885.

E. N. BOWEN.

Witnesses:

EDWARD WILHELM,

OSCAR SCHAUB.