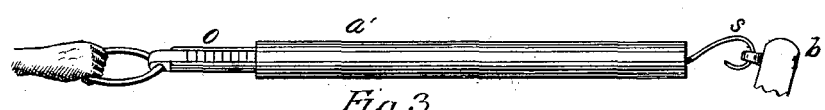
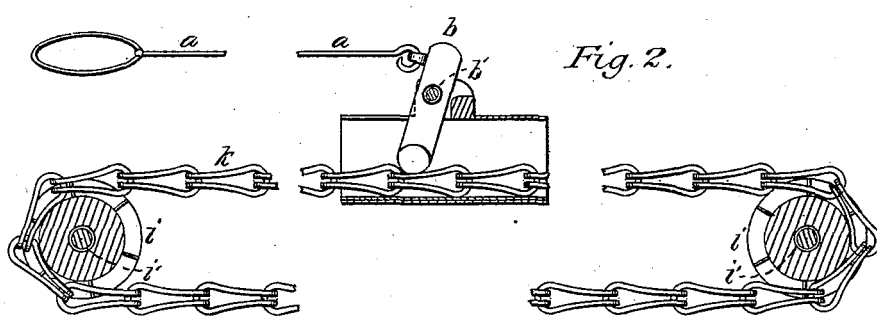
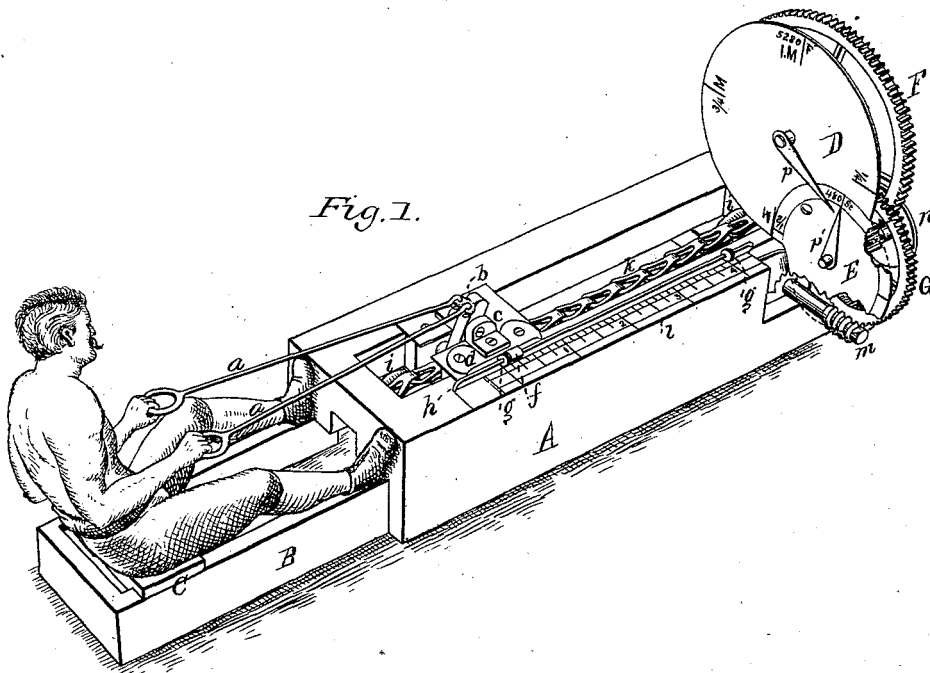


J. H. TROWBRIDGE.

MACHINE FOR EXERCISING AND DEVELOPING THE MUSCLES OF MANKIND.

No. 282,589.

Patented Aug. 7, 1883.



Witnesses,
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UNITED STATES PATENT OFFICE.

JOHN H. TROWBRIDGE, OF NEW YORK, N. Y.

MACHINE FOR EXERCISING AND DEVELOPING THE MUSCLES OF MANKIND.

SPECIFICATION forming part of Letters Patent No. 282,589, dated August 7, 1883.

Application filed September 19, 1879.

To all whom it may concern:

Be it known that I, JOHN H. TROWBRIDGE, of the city, county, and State of New York, have invented certain new and useful Improvements in Machines for Exercising and Developing the Muscles of Mankind; and I do hereby declare that the following specification, taken in connection with the drawings forming a part thereof, is a full and complete description thereof.

My invention relates to the combination of means for grasping and pulling a sliding mechanism with a frame provided with a seat, whereby the operator may be seated and perform the same or similar motions as in the act of rowing; and of the further means, in combination with the former, of scales and tension devices, whereby the tension of the pulling by the operators may be varied and the power required in the pulling may be regulated and measured or weighed.

The object of my said improvements is to produce an apparatus simple, compact, and effective, which may be operated in manner similar to the act of rowing the ordinary row-boat, so that it may be useful in developing the muscles of the party desirous of preparing for contests in aquatic sports, or for other training, and which may be a useful and healthful benefit for those needing muscular exercise, useful in families, hospitals, or otherwise, and adapted to be operated by children and adults of both sexes.

Figure 1 represents a perspective view of my improved health-exercising apparatus with an operator in position for exercise. Figs. 2 and 3 represent sections of parts contained in Fig. 1.

Referring to the drawings, A represents a base or frame which supports the different parts of my combination; B, a frame upon which a sliding seat rests, to be occupied by the operator; C, a sliding or adjustable seat; D, a dial or register for indicating the distance traversed; E, a dial adapted to indicate the strokes or pulls made by the operator; F, gear-wheel for operating the hand or indicator *p*, which gear-wheel is operated by intersecting with a small pinion upon a shaft with and adjacent to the hub of the gear-wheel G, the latter being driven by the worm or screw which is secured or formed upon the end of

the shaft *i'*, which passes through or near the end of the main frame A and the chain-wheel *i*, the whole being operated by the endless chain K, stretched over two chain-wheels placed at or near each end of the frame, which chain is revolved in one direction by the engagement of a pawl, *b*, at the intersection of the links, as shown in the sectional figures, at the end of the forward thrust of the hand-levers *a a* when pulled upon in a direction toward the seat of the operator. The pawl is pivoted at *b'* to the sliding carriage C in such a manner as to allow it to slide over the surface of the chain in its thrust forward (before the pull) and firmly grip the link at its connecting intersection by pressing it against an opposing surface which is formed by contact with the under portion of the sliding carriage C, as shown in the drawings in the sectional figure thereof. The sliding or adjustable seat *c*, upon which the operator sits, enables him to adjust the same in any desired position for his greatest convenience and ease in operating the apparatus. A scale, *i*, is combined with the sliding apparatus *c* in such a manner as to indicate the length of the pull or pulls by the operator, and is represented as self-registering, which registering is effected by a projection, *f*, extending from the sliding device *c* in close proximity to a rod or vertical flange upon the scale, which is provided with two closely-fitted independently-acting movable disks, *g g*, between which the projection *f* travels in its backward and forward motion.

Isometimes apply a spring-pull, (represented in the drawings as a modification in a similar form,) consisting of a hollow tube, *a'*, and a piston-rod, *o*, which is attached to a spiral spring within the tube, which has been tested to weight, and the pound-marks indicated on the piston, as shown. This not only insures an elastic pull, and thereby avoids undue strain upon the muscles, but at the same time indicates the number of pounds exerted to pull the apparatus.

Briefly stated, the several parts of my improved apparatus consist in a horizontal bed, A and B, a sliding cross-head, C, (similar to the cross-head of a steam-engine,) a pair of pull-rods, *a a*, attached to a toggle or pawl, *b*, which engages and pulls the endless chain K, and thereby causes motion to be given the

worm-wheel *m*, from thence to the gear-wheel G, which operates the indicator-hand on the small dial E, and represents the number of strokes or pulls made and the fractions of a mile or feet traversed. The small pinion-wheel *n*, as before stated, operates the gear-wheel F and the indicator upon the large dial D. The tension to either lessen or increase the friction of the slide C, to adapt the amount of pull to the requirements of the operator, may be accomplished by loosening or tightening up the flange or shoes with which the cross-head is provided in a manner the same or similar to the adjustment of the cross-head of an engine. It is obvious, however, that the plan which I have thus set forth as a suitable construction for a pulling apparatus may be materially modified without departing from the spirit of my invention—as, for instance, knotted cord might be substituted for chain, and even the knots or other uneven surfaces may be abandoned, and the pawl may be adapted and so arranged as to firmly grasp an even or uniform surface and operate the other parts of my combination. The means also for weighing and registering may be constructed differently, and at the same time serve the same purpose as the ones set forth. So, also, I am able to construct the slide or cross-head in various other ways not particularly described herein.

Having thus set forth my invention, what I claim as new, and desire to secure by Letters Patent of the United States of America, is—

1. In an exercising apparatus, the combination, with a horizontally-arranged bed provided with an endless chain, of a cross-head or slide operated by pull-rods, substantially as and for the purpose set forth.

2. The combination, with a horizontally-arranged frame, endless chain, and hand-stirrup, for operating, of a registering apparatus, substantially as and for the purpose set forth.

3. The combination of a frame, a sliding tension device and operating connections, endless chain, and registers, whereby the body may be exercised, the power applied regulated, and the imaginary distance traversed registered, substantially as set forth.

4. A health-exercising apparatus consisting of a frame, an adjustable sliding cross-head and connections for operating the same, and an endless chain or other connections for operating a double registering apparatus, substantially as and for the purpose set forth.

JOHN H. TROWBRIDGE.

Witnesses:

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