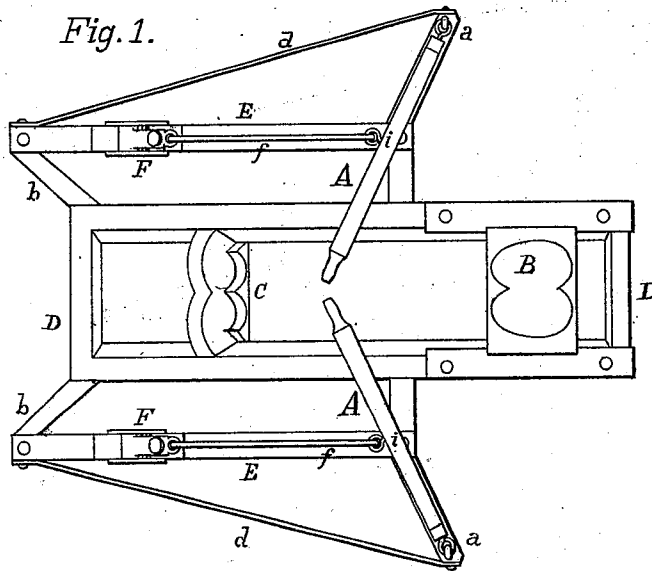
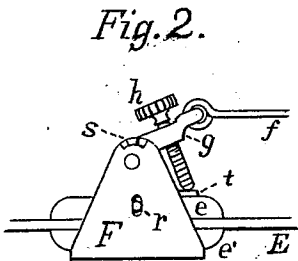
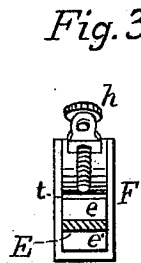
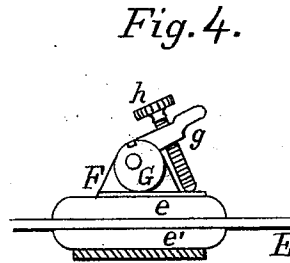


W. H. WILLCOX.
Exercising Machine.

No. 203,973.

Patented May 21, 1878.



WITNESSES:

W. H. Willcox
J. C. Burton

INVENTOR:

William H. Willcox

UNITED STATES PATENT OFFICE.

WILLIAM H. WILLCOX, OF PEEKSKILL, NEW YORK, ASSIGNOR TO J. E. WILLCOX AND J. N. TILDEN, OF SAME PLACE.

IMPROVEMENT IN EXERCISING-MACHINES.

Specification forming part of Letters Patent No. **203,973**, dated May 21, 1878; application filed May 6, 1878.

To all whom it may concern:

Be it known that I, WILLIAM H. WILLCOX, of Peekskill, in the county of Westchester and State of New York, have invented a new and useful Improvement in Rowing-Machines, which improvement is fully set forth in the following specification and accompanying drawing, in which—

Figure 1 is a plan of my rowing-machine. Fig. 2 is a side elevation of the brake. Fig. 3 is an end elevation, and Fig. 4 a sectional view of the same.

The object of my invention is to furnish a rowing-machine that will give exercise and movements exactly similar to that of real rowing.

In the drawings, D D, Fig. 1, is the main frame of the machine. B is the seat, which may be sliding or otherwise, and C is the foot-brace. A A are levers, pivoted at *a a* to outriggers from the main frame D, the levers answering to oars, and the joints *a a* to the oarlocks. The joint at *a* may be by rings and staples, ball and socket, or any form that will allow of universal vibration of the lever.

E is a bar, preferably of metal, attached to and supported by the outriggers *a* and *b*. The sides of this bar are made smooth and parallel. F is a stirrup, carrying two pieces, *e e'*, of wood or other suitable material. The lower one, *e'*, is rigidly secured to the stirrup F, and the upper one, *e*, is held in place by the short pin *r*, Fig. 2, engaging in a slot in F. This stirrup embraces the bar E, the latter passing between the plates *e e'*, which act as friction-brakes when sliding along the bar. Just above the upper block *e* lies a disk or cam, G, which is eccentrically pivoted between the sides of the stirrup, which extend upward for that purpose. This cam is so placed with relation to the blocks *e e'* that a partial revolution of the cam will cause the blocks to approach each other, and to clamp the bar E, the pressure depending on the extent of the movement of the cam. The upper part of the cam is extended into the arm *g*, by which the cam is operated.

The oar or lever A is connected with the

cam by the rod *f*, which engages with the oar at *i*, and with the cam at *g*, Fig. 2. A thumb-screw, *h*, passes through *g*, and extends down to the block, as shown, Figs. 2, 3, and 4. This screw serves to regulate the pressure of the blocks on the bar E by limiting the movement of the cam.

The operation of the whole is as follows: The motion of the oar A being imparted to the brake through the rod *f* and cam *g*, it will be seen that the forward movement (to the left) of the oar will first revolve the cam till the pin *s*, Fig. 2, which works in a notch in the stirrup, stops its revolution, thus freeing the brake *e e'*, and then the whole will move freely to the end of the forward stroke. When the movement is reversed the cam turns till the screw *h* stops it, and then the whole will move backward with more or less resistance, according to the adjustment of the screw *h*.

It will be seen, Fig. 4, that as the screw *h* determines the distance the cam may revolve, the amount of resistance to the back stroke may be varied to any extent by turning the screw up or down.

When wood blocks are used for brakes, a plate of metal, *t*, is interposed, to prevent wear by the cam.

The free joints of the oar at *a* and *i* allow of all the movements being given to it that are necessary in actual rowing.

I do not claim the use of friction-brakes in a rowing-machine to produce resistance; but, Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a rowing-machine, the friction-brake consisting of the stirrup F, blocks *e e'*, cam G, and regulating-screw *h*, substantially as shown and described.

2. In a rowing-machine, the combination of the oars A A, connecting-rods *f f*, brakes F F, and friction-bars E E, all operating together substantially as shown and described.

WILLIAM H. WILLCOX.

Witnesses:

D. F. CLAPP,
J. G. BARTON.