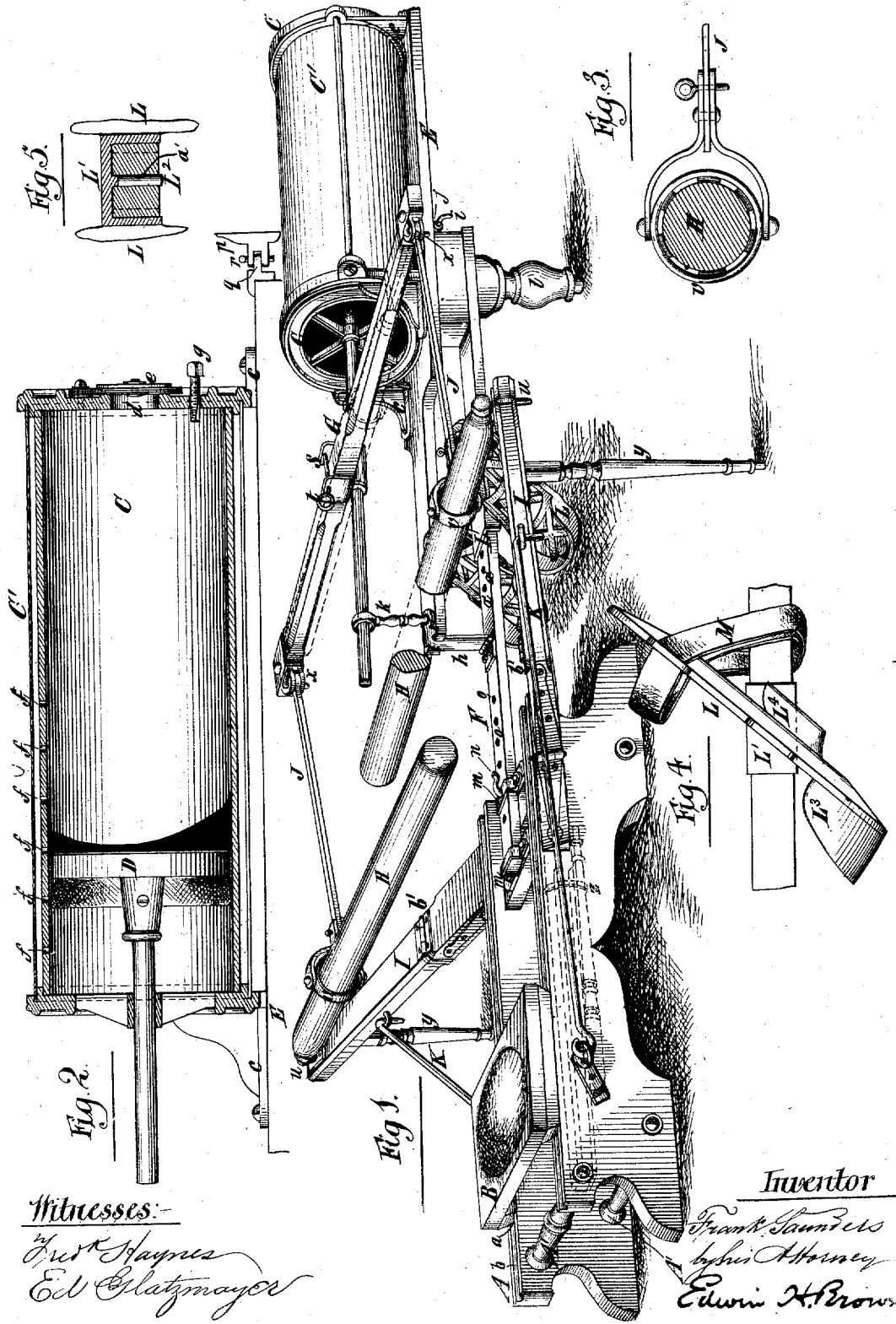


(No Model.)

2 Sheets—Sheet 1.

F. SAUNDERS.
 Exercising or Rowing Machine.
 No. 243,309. Patented June 21, 1881.



Witnesses:-
Chas. H. Hayes
Edw. Schatzmayer

Inventor
Frank Saunders
 by his Attorney
Edwin H. Brown

(No Model.)

2 Sheets—Sheet 2.

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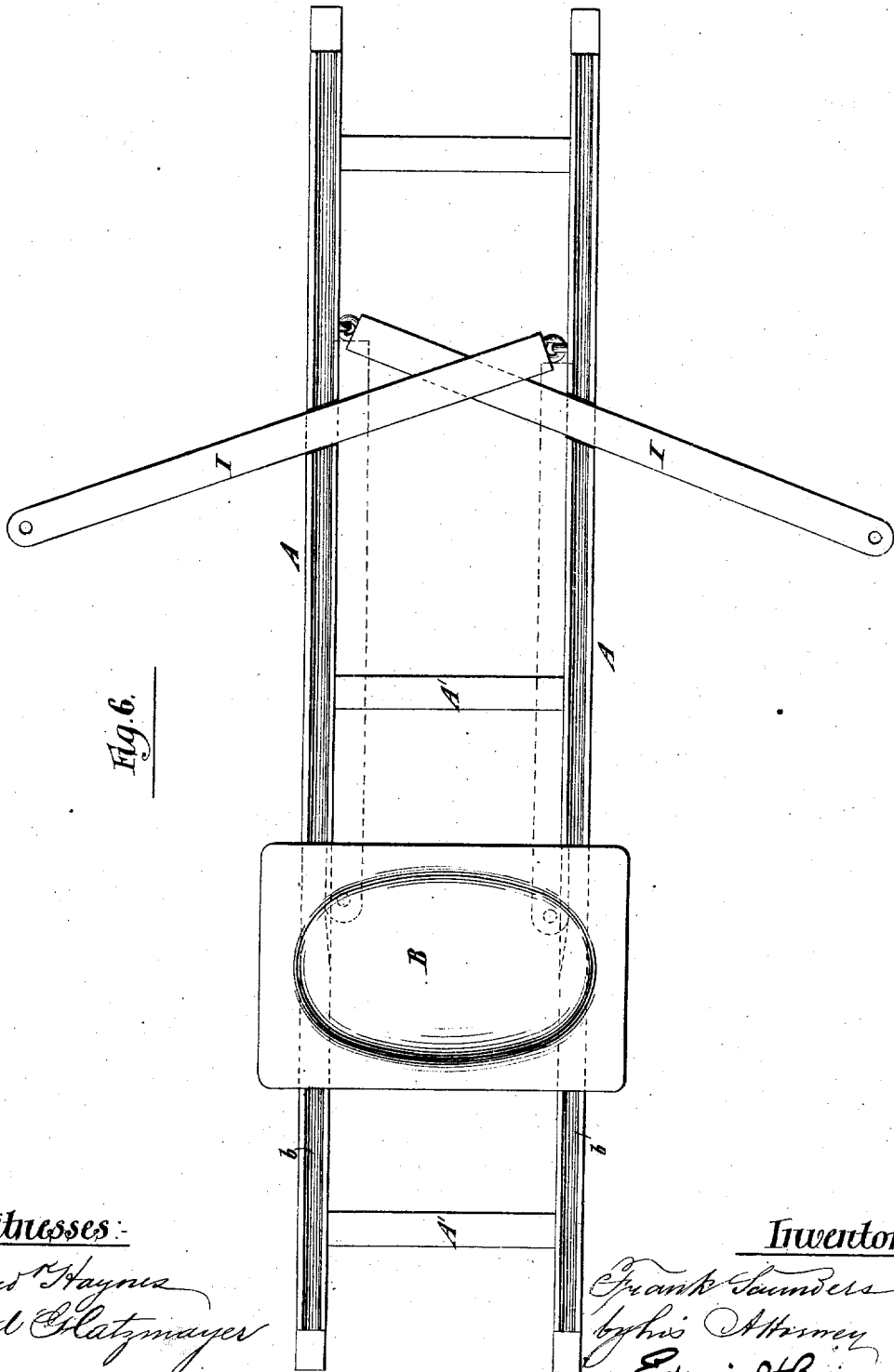


Fig. 6.

Witnesses:-

Fred Hayes
Ed Glatzmayer

Inventor:-

Frank Saunders
by his Attorney
Edwin H. Brown

UNITED STATES PATENT OFFICE.

FRANK SAUNDERS, OF BROOKLYN, NEW YORK.

EXERCISING OR ROWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 243,309, dated June 21, 1881.

Application filed April 21, 1881. (No model.)

To all whom it may concern:

Be it known that I, FRANK SAUNDERS, of Brooklyn, in Kings county and State of New York, have invented certain new and useful Improvements in Exercising or Rowing Machines, of which the following is a specification.

My improvements consist in the combination, in an exercising-machine, of a cylinder and piston constituting a resistance device, a pair of hand-pieces susceptible of movement to and fro, and means connecting the piston with both of said hand-pieces.

They also consist in the combination, in an exercising-machine, of a cylinder and piston constituting a resistance device, a cross-head connected to the piston-rod, a pair of levers susceptible of movement like oars, and means forming a connection between said cross-head and levers.

They also consist in the combination, in an exercising-machine, of a resistance device, a cross-head connected thereto, a pair of levers susceptible of movement like oars, collars surrounding said levers and allowing of a rotary movement of the levers within them, and rods having forked or bifurcated ends embracing said collars and having a pivotal connection with them and said cross-head.

They also consist in the combination, in an exercising-machine, of a cylinder and piston constituting a resistance device arranged on a central tongue, a cross-head connected to the piston-rod, levers susceptible of movement like oars, and rods having a pivotal connection with said cross-head and levers.

They also consist in the combination, in an exercising-machine, of a cylinder and piston constituting a resistance device, a cross-head connected to the piston-rod, a pair of levers susceptible of movement like oars, rods having a pivotal connection with the cross-head and levers, and a sliding seat.

They also consist in the combination, in an exercising-machine, of a resistance device, a pair of levers susceptible of movement like oars, and collars surrounding said levers and allowing of a rotary movement of the levers within them, and rods having forked or bifurcated end pieces embracing and having a pivotal connection with the said collars.

They also consist in a resistance device, a cross-head connected thereto, a pair of levers susceptible of movement like oars and detachably connected with their fulera, and rods having a pivotal connection with said cross-head and levers, the whole being so combined and organized that the levers may be detached from their fulera, and that they and the said rods may be folded or laid parallel with the said cross-head to facilitate packing.

They also consist in a resistance device, a cross-head detachably connected thereto, a pair of levers susceptible of movement like oars and detachably connected with their fulera, and rods having a pivotal connection with the said cross-head and levers, the whole being so combined and organized that the cross-head may be disconnected from the resistance device, that the levers may be detached from their fulera, and that said levers and the rods may be folded or laid parallel with the cross-head to facilitate packing.

They also consist in the combination, in an exercising-machine, of a cylinder and piston constituting a resistance device, and means for detachably connecting the cylinder with the frame of the machine or a tongue extending so that it may be removed to facilitate packing.

They also consist in the combination, in an exercising-machine, of levers susceptible of movement like oars, and outriggers provided with fulera for the levers and hinged to the outer side of the frame of the machine, so as to be capable of being extended for use or folded against the outer side of the frame of the machine to facilitate packing.

They also consist in the combination, in an exercising-machine, of levers susceptible of movement like oars, outriggers provided with fulera for the levers and connected by hinges to the frame of the machine, so that they may be extended for use or folded against and parallel with the fulera of the machine, and supports beyond the hinges, consisting of legs hinged to the outriggers, for sustaining the outriggers when extended for use.

They also consist in the combination, in an exercising-machine, of outriggers comprising outer sections hinged to the main section so that they may be folded inward, and levers

detachably fulcrumed thereto, and when connected to the outriggers susceptible of movement like oars.

They also consist in the combination, in an exercising-machine, of a central tongue, foot-rests provided with a rest bearing on the top of the tongue, or a claw embracing the top and sides of the tongue, and means for securing them in different positions lengthwise of the tongue, the whole being so combined and organized that the said means may be engaged with and disengaged from the tongue by dropping the rest or claw on the tongue or lifting it off.

They also consist in the combination, in an exercising-machine, of a central tongue, foot-rests provided with a rest bearing on the top of the tongue, or a claw embracing the top and sides of the tongue, and having a central rigidly-affixed pin which may secure the rest or claw and foot-rests in different positions lengthwise of the tongue.

They also consist in the combination, in an exercising-machine, of a central tongue, foot-rests provided with a rest or claw engaging with the tongue, means for securing the rest or claw and foot-rests in different positions lengthwise of the tongue, and straps for holding the feet in the foot-rests and passing under the tongue, so as to secure the rest or claw against being detached from the tongue while the foot-rests are in use.

They also consist in a foot-rest for an exercising machine or boat having two heel-sockets, so as to adapt the foot-rest for different-sized feet. Preferably these sockets will be arranged in different planes.

In the accompanying drawings, Figure 1 is a perspective view of an exercising-machine embodying my improvements. Fig. 2 is a longitudinal section of the cylinder, and a side view of the piston constituting the resistance device thereof. Fig. 3 is a transverse section of one of the levers, an end view of the collar fitting thereon, and a side view of the adjacent end portion of the rod connected to such collar. Fig. 4 is a side view of the foot-rest and a portion of the central tongue. Fig. 5 is a transverse section of the central tongue and the claw of the foot-rests, and Fig. 6 is a perspective view of the frame and outriggers slightly modified.

Similar letters of reference designate corresponding parts in all the figures.

A A' designate the frame of the machine, consisting of side pieces, A, united by stretchers or cross-rails A'.

B designates a seat, provided on the under side with tongues *a*, fitting in grooves *b* in the top of the side pieces, A, of the frame, and capable of sliding forward and backward in a well-known manner.

C designates a cylinder, and D designates a piston fitting therein, the two constituting a resistance device, from the operation of which exercise is afforded. This cylinder is provided

with lugs *c*, which, through the agency of screws or otherwise, are secured to a base-board, E, in front of the frame A A'. At the end nearest the frame A A' the cylinder C is open to the atmosphere, and at the other end it is provided with an opening, *d*, which has combined with it a flap-valve, *e*. When the piston D is moved away from the frame A A' it forces open this valve, and hence has a free or easy movement; but when it is moved toward the frame it causes the valve to close, and by producing a more or less perfect vacuum in the cylinder creates a resistance to its movement.

A screw, *g*, having a flaring or taper groove in its side, may be adjusted to vary the amount of air entering a passage in the head of the cylinder C, in which it fits, and hence provision is afforded for varying the resistance which is offered to the movement of the piston. From about the middle of its length toward its open end nearest the frame A A' the cylinder is provided with a series of holes, *f*, and as the piston moves past them in its movement toward the frame its motion becomes more easy, because more and more air is admitted into the cylinder behind it. Air enters these holes *f* from a space between the cylinder and a jacket, C', of wood or other suitable material, fitting at the ends in grooves in the adjacent faces of the cylinder-heads, and partly surrounding the cylinder.

The base-board E of the cylinder C, at the end nearest the frame A A', fits under a standard, *h*, and near the outer end is secured to a central tongue, F, by means of a pin, *i*, passing through eyes *j*, arranged one on the base-board and one on the tongue F. Near the upper end of the standard *h* the base-board E is provided with a guide, *k*, for the rod of the piston D. The standard *h* may be hinged to the tongue so that it may be folded down adjacent thereto when not in use.

The tongue F is supported at the outer end by a leg, *l*, and at the inner end fits in shackles or sockets *m*, arranged on stretchers of the frame A A'. It may be slid longitudinally in these sockets to adjust the cylinder C farther from or nearer to the frame A A'. A pin, *n*, passing through a hole in one of the sockets *m*, and through one of a series of holes, *o*, in the tongue, serves to retain the tongue in position.

The outer end of the base-board E of the cylinder C may be secured to a wall or to the floor by any suitable means—as, for instance, by a plate, *p*, secured to a wall or surbase, and provided with a pair of lugs embracing between them a lug, *q*, affixed to said base-board, and retained in engagement therewith by means of a pin, *r*.

G designates a cross-head, of wood or other suitable material, detachably secured to the rod of the piston D. As hereshown, the piston-rod has rigidly affixed to it a saddle, *s*, which receives the cross-head, a pin, *t*, being employed to retain the latter in place.

H designates levers susceptible of movement backward and forward at their inner ends, like oars. They are provided at their outer ends with pins *u*, which fit in sockets forming fulcra for them, and arranged in outriggers I, extending from the side pieces, A, of the frame A A'. These levers, a short distance from their outer ends, are provided with collars *v*, in which, as also in eyes extending from the pins *u*, they may have a rotary movement.

J designates rods having at one end a pivotal connection at *x* with the cross-head G, and provided at the other end with bifurcate or forked end pieces, which embrace and have a pivotal connection with collars *v*, surrounding the levers H. By moving the levers to and fro the piston D may be operated in the cylinder C. The seat B may be slid back and forth in unison with the movement of the levers. The levers may have a forward and backward and a rotary motion like oars in operation.

When the machine is desired to be transported from one place to another, the cylinder C and its base-board may be detached and laid between the side pieces, A, of the frame A A', and the cross-head and levers may be detached, and the latter and their rods may be folded against the cross-head, as indicated in dotted outline in Fig. 1.

The outriggers I are hinged to the side pieces, A, of the frame A A', so that they may be swung back adjacent to and against the side pieces, A, parallel therewith, so as not to occupy unnecessary space in transportation. The outriggers are supported at or near their outer ends by legs *y*, which may be hinged thereto so that they may be folded against the outriggers when the latter are folded against the side pieces, A, as shown in dotted outline in Fig. 1. An india-rubber band, *z*, may be employed to secure the legs in position when so folded. Rods K, pivoted to the side pieces of the frame, and having hooks at their outer ends, may, by means of such hooks, engage with eyes on the outriggers and brace and hold the latter in position when they are extended for use. The outriggers are shown as made of a main and outer sections, hinged together, as at *b'*, and adapted to be folded against the outer sides of the side pieces of the frame. The outriggers may be hinged to the inner side of the side pieces of the frame A A' and rest in supports consisting of recesses in the opposite side pieces, as shown in Fig. 6. They may then be lifted out of the recesses and folded parallel with the side pieces of the frame when not in use.

L designates foot-rests, which are formed by casting or otherwise, and connected with an intermediate rest or claw, L', fitting the tongue F. As shown, the claw L' embraces the top and two sides of the tongue, and is provided with a rigidly-affixed pin, L², which engages with one or another of a series of holes, *a'*, in the tongue. By lifting up the foot-rests and

claw the pin may be disengaged from the hole in which it is fitted, and may be made to engage with another hole by inserting its point in such hole and dropping the foot-rests.

In lieu of or in addition to this pin, the sides of the claw may be provided with ribs, (shown in dotted outline in Fig. 5,) engaging with grooves in the sides of the tongue.

If desirable, the sides of the claw may be omitted, leaving only a rest bearing on the top of the tongue, and the engagement of this rest with the tongue may be attained by ribs on its under side engaging with grooves in the top of the tongue, and, if desirable, also by a pin, L². As shown, the foot-strap M passes under the tongue. In this way it will serve to hold the claw or rest down on the tongue, and when the feet are not within the strap it may be slackened under the tongue, to admit of the raising of the foot-rests for a new adjustment. By unfastening the foot-strap, or by slipping the strap over the end of the tongue, the foot-rests may be entirely removed from the tongue to facilitate packing. Preferably I provide each of the foot-rests with two heel-sockets, L³ L⁴, and these will preferably be in a different plane.

It will be seen that by my improvements I produce a very simple and desirable exercising-machine, which may be easily packed for transportation. The foot-rests having the two sockets are applicable to boats as well as exercising-machines.

In lieu of hand-pieces consisting of the levers H, hand-pieces shaped like stirrups or of any other suitable shape may be connected directly to the rods K.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an exercising-machine, the combination of a cylinder and piston constituting a resistance device, a pair of hand-pieces susceptible of movement to and fro, and means connecting the piston with both of said hand-pieces, substantially as specified.

2. In an exercising-machine, the combination of a cylinder and piston constituting a resistance device, a cross-head connected to the piston-rod, a pair of levers susceptible of movement like oars, and means forming a connection between said cross-head and levers, substantially as specified.

3. In an exercising-machine, the combination of a resistance device, a cross-head connected thereto, a pair of levers susceptible of movement like oars, collars surrounding said levers and allowing of a rotary movement of the levers within them, and rods having forked or bifurcated ends embracing said collars, and having a pivotal connection with said collars and cross-head, substantially as specified.

4. In an exercising-machine, the combination of a cylinder and piston constituting a resistance device arranged on a central tongue, a cross-head connected to the piston-rod, levers susceptible of movement like oars, and

rods having a pivotal connection with said cross-head and levers, substantially as specified.

5 In an exercising-machine, the combination of a cylinder and piston constituting a resistance device, a cross-head connected to the piston-rod, a pair of levers susceptible of movement like oars, rods having a pivotal connection with the cross-head and levers, and
10 a sliding seat, substantially as specified.

6. In an exercising-machine, the combination of a resistance device, a pair of levers susceptible of movement like oars, collars surrounding said levers and allowing of a rotary
15 movement of the levers within them, and rods having forked or bifurcated end pieces embracing and having a pivotal connection with the collars, substantially as specified.

7. In an exercising-machine, a resistance device, a cross-head connected thereto, a pair of levers susceptible of movement like oars and detachably connected with their fulcras, and rods having a pivotal connection with said cross-head and levers, the whole being so combined and organized that the levers may be
20 detached from their fulcras, and that they and the said rods may be folded or laid parallel with the said cross-head, substantially as specified.

8. In an exercising-machine, a resistance device, a cross-head detachably connected thereto, a pair of levers susceptible of movement like oars and detachably connected with their fulcras, and rods having a pivotal connection with the said cross-head and levers, the whole being so combined and organized that the cross-head may be disconnected from the resistance device, that the levers may be detached from their fulcras, and that said levers
30 and the rods may be folded or laid parallel with the cross-head, substantially as specified.

9. In an exercising-machine, a pair of levers susceptible of movement like oars, and a cylinder and piston constituting a resistance device, and means for detachably connecting the cylinder with the frame of the machine, or a tongue extending therefrom, so that it may be removed to facilitate packing, substantially as
40 specified.

10. In an exercising-machine, the combination of levers susceptible of movement like oars, and outriggers provided with fulcras for the levers and hinged to the outer side of the frame of the machine, so as to be capable of
50 being extended for use or folded against the outer side of the frame of the machine, substantially as specified.

11. In an exercising-machine, the combination of levers susceptible of movement like oars, outriggers provided with fulcras for the
60 levers and connected by hinges to the frame of the machine, so that they may be extended for use or folded against and parallel with the frame of the machine, and supports beyond the hinges, consisting of legs hinged to the out-
65 riggers, for sustaining the outriggers when extended for use, substantially as specified.

12. In an exercising-machine, the combination of outriggers comprising outer sections hinged to the main sections so that they may
70 be folded inward, and levers detachably fulcrumed thereto, and when connected to the outriggers susceptible of movement like oars, substantially as specified.

13. In an exercising-machine, a central
75 tongue, foot-rests provided with a rest bearing on the top of the tongue, or a claw embracing the top and sides of the tongue, and means for securing it in different positions lengthwise of the tongue, the whole being so combined and
80 organized that the said means may be engaged with and disengaged from the tongue by dropping the rest or claw on the tongue or lifting it off, substantially as specified.

14. In an exercising-machine, a central
85 tongue, foot-rests provided with a rest bearing on the top of the tongue, or a claw embracing the top and sides of the tongue, and having a central rigidly-affixed pin, which may secure the rest or claw and foot-rests in different
90 positions lengthwise of the tongue, substantially as specified.

15. In an exercising-machine, the combination of a central tongue, foot-rests provided with a rest or claw engaging with the tongue,
95 means for securing the rest or claw and foot-rests in different positions lengthwise of the tongue, and straps for holding the feet in the foot-rests and passing under the tongue, so as to secure the rest or claw against being de-
100 tached from the tongue while the foot-rests are in use, substantially as specified.

16. A foot-rest for an exercising machine or boat, having two heel-sockets, so as to adapt the foot-rest for different-sized feet, substan-
105 tially as specified.

17. A foot-rest for an exercising machine or boat, having two heel-sockets whose bottoms are in different planes, substantially as specified.

FRANK SAUNDERS.

Witnesses:

EDWIN H. BROWN,
FREDK. HAYNES.