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PATENTED APR. 28, 1908.

D. SCANLAN.
EXERCISING APPARATUS FOR OARSMEN.

APPLICATION FILED JULY 25, 1907.

2 SHEETS—SHEET 1.

Samuel Scanlon
by Chas. W. Reeder
his attorney

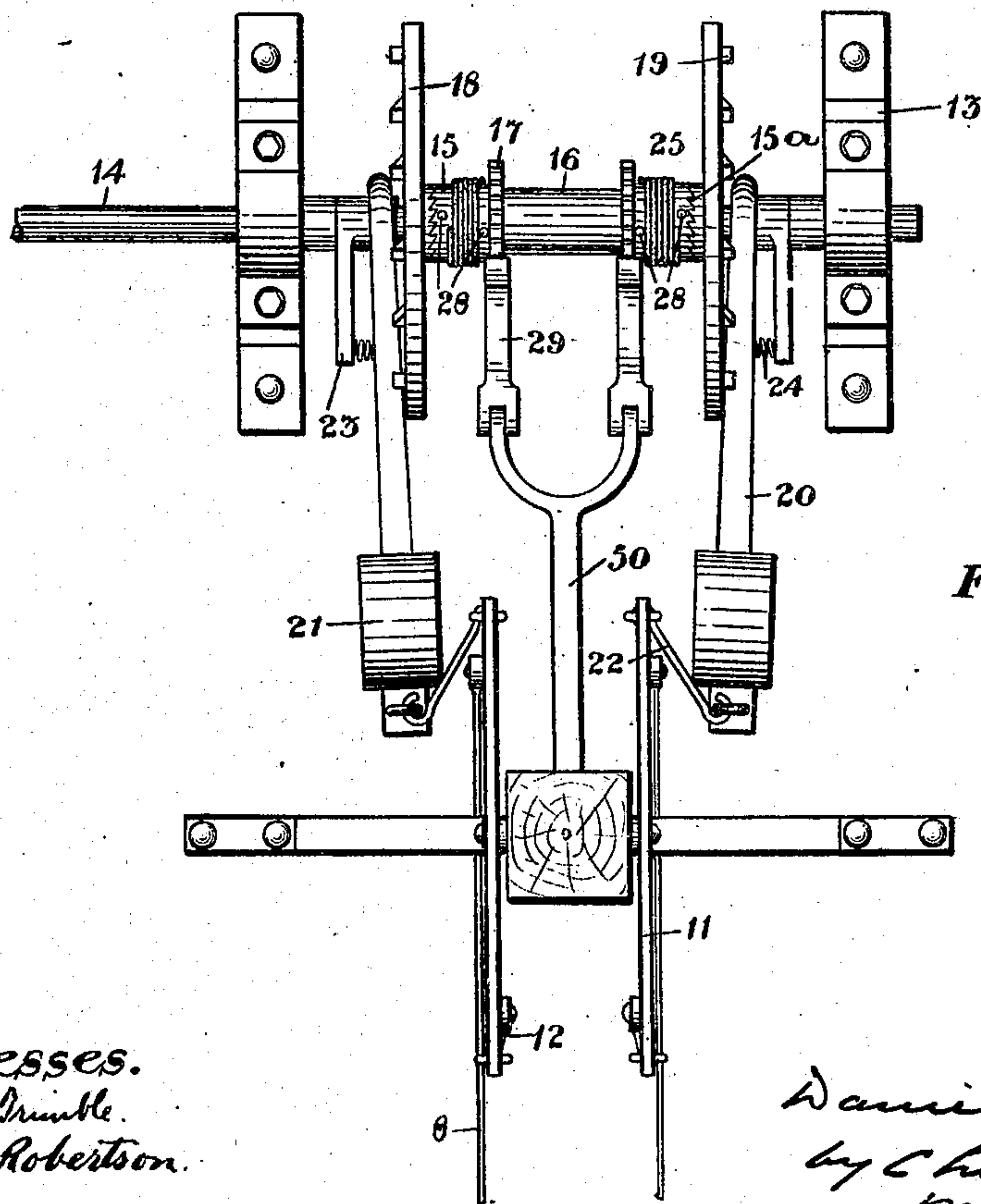
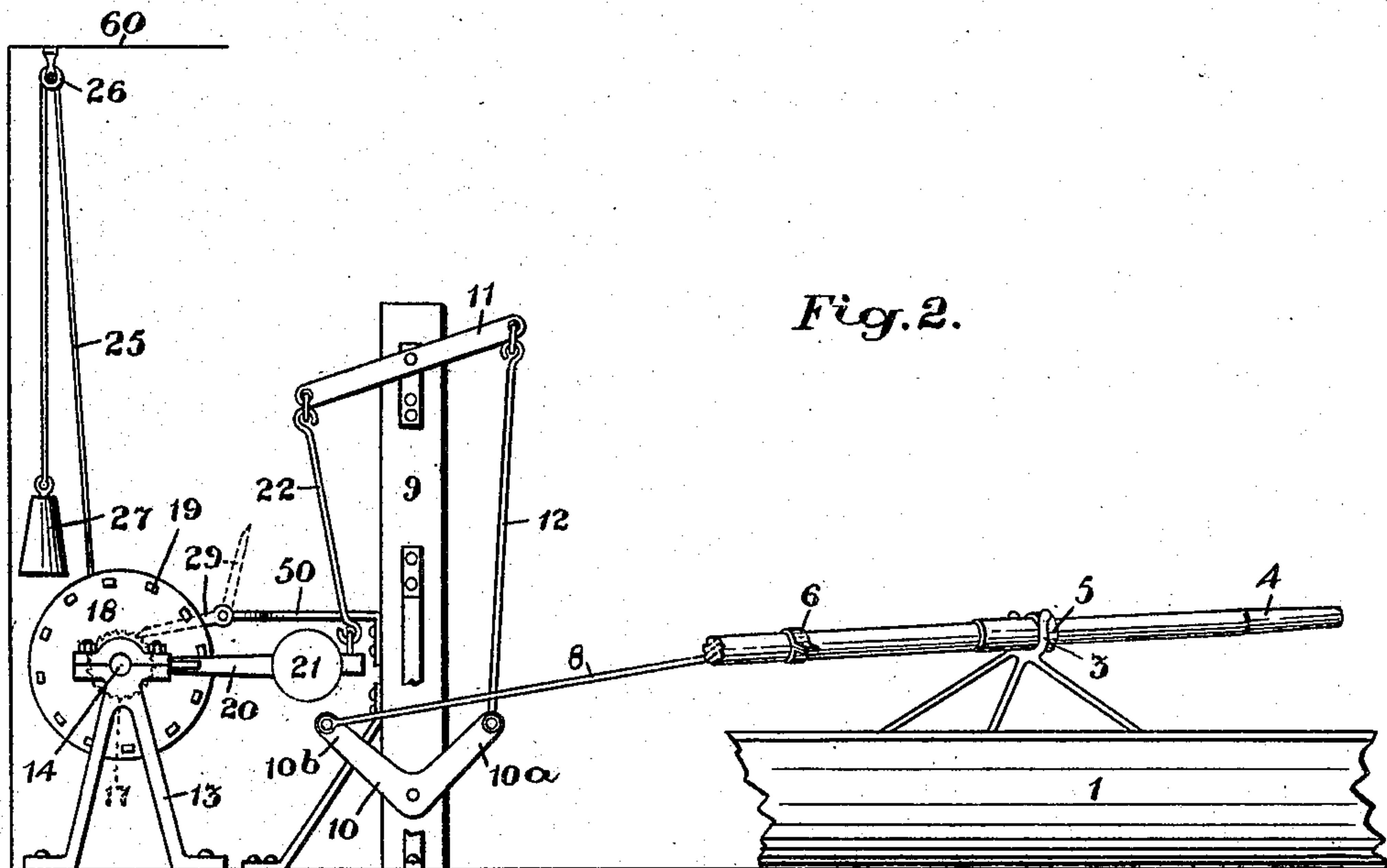
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UNITED STATES PATENT OFFICE.

DANIEL SCANLAN, OF HALIFAX, NOVA SCOTIA, CANADA.

EXERCISING APPARATUS FOR OARSMEN.

No. 885,871.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed July 25, 1907. Serial No. 385,595.

To all whom it may concern:

Be it known that I, DANIEL SCANLAN, of the city of Halifax, in the county of Halifax and Province of Nova Scotia, Canada, machinist, have invented certain new and useful Improvements in Exercising Apparatus for Oarsmen; and I hereby declare that the following is a full, clear, and exact description of the same.

10 This invention relates to an exercising apparatus for the use and training of oarsmen, by which those muscles brought into action in rowing, can be developed, strengthened and trained to the same extent, and under the
15 same conditions as if the training were performed on the water. In actual rowing the blade of the oar is moved toward the bow of the boat, and then immersed in the water and propelled toward the stern, bringing into
20 play the muscles of the fingers, wrists, arms, body, legs and feet, until the propelling stroke of the blade is completed, when the blade is lifted from the water and moved towards the bow for the next propelling stroke,
25 the power required to propel the boat varying according to the condition of the water, and the direction and force of the wind.

The object of the present invention is to construct the exercising apparatus so that
30 all the movements made in actual rowing can be attained by the use of the apparatus under substantially the same conditions of load as results from the resistance offered to the boat by the water, and by the direction and
35 force of the wind.

To carry out this object the exercising apparatus is provided with a rockable boat shell or part thereof fitted with stationary or sliding seats and outriggered oarlocks similar to those of an ordinary racing shell, with
40 handle portions of oars mounted in the outriggered rowlocks, and connected by links to an operable mechanism.

For a full understanding of the invention reference is to be had to the following description and to the accompanying drawings, in which;

Figure 1 is a plan, and Fig. 2 is a side elevation of the exercising apparatus. Fig. 3 is
50 a detail of one of the winding drums.

Like characters of reference refer to like parts throughout the specification and drawings.

55 The boat shell 1, is provided with seats 2, which may be either fixed or sliding. Outriggered oarlocks 3, project from the side of the

shell slightly to the front of the seats and in the oarlocks 3 are mounted the oar handles 4, provided with the usual collars 5, to engage the oarlocks and determine the length
60 of oar handles on the inboard side of the oarlocks. Each oar handle is provided, on the outboard side of the oarlock 3, with a collar 6, having a ring 7. Standards 9 are provided at the rear and on opposite sides of the
65 boat shell 1, and pivoted to the side faces of the standards 9 are bell crank levers 10 having their diverging arms 10^a and 10^b extending upwardly, one bell crank lever being provided for each oar handle. The apparatus
70 shown in the drawings is constructed for four oar handles and four bell crank levers 10 are provided, but the number of oar handles and bell crank levers can of course be varied as
75 required. To the arm 10^b of each bell crank lever 10 is pivotally connected one end of a link 8, the other end of which is connected to the ring 7, of its respective oar handle. Pivoted to the standards 9, above the bell crank
80 levers 10 are rocking levers 11. One end of each rocking lever 11 is connected to the arm 10^a of its respective bell crank lever by a link 12. To the rear of the standards 9 are bearing standards 13 in which is mounted a
85 shaft 14.

Loosely mounted on the shaft 14 are ratchet disks 18 having ratchet teeth 19 projecting from their side faces. Oscillatingly mounted on the shaft 14, adjacent to the
90 ratchet disks 18, are actuating levers 20 having a limited lateral movement equal to the depth of the ratchet teeth 19, so that the levers can clear the ratchet teeth when assuming their initial position. Connected to the
95 shaft 14, are spring holders 23 having pressure springs 24 engaging the levers 20 and normally holding them in contact with the side faces of the ratchet disks. The levers 20, are provided with weights 21, and are connected by links 22 with their respective rock-
100 ing levers 11. Loosely mounted on the shaft 14, adjacent to the ratchet disks 18, are drums 15, having clutch members 15^a engaging with corresponding clutch members on the ratchet disks 18 so that they will revolve unitedly in
105 one direction with, and in the opposite direction independently of, the ratchet disks. Forming part of the drums 15 are ratchet wheels 17 and interposed between each adjacent pair of drums 15 is a spacing sleeve 16 to
110 prevent the lateral movement of the drums on the shaft. Projecting from the stand-

ards 9, are arms 50, and pivoted to the arms 50 are detent pawls 29, engaging the ratchet wheels 17, which permit of the rotation of the drums 15, in one direction and arrest the rotation in the opposite direction. Passing over pulleys 26 secured to the ceiling 60 are ropes 25. The ropes 25 are connected at their ends to their respective drums 15 and are arranged to be wound thereon, and are connected at their opposite ends to weights 27.

During the movement of the outboard end of each oar handle towards the bow of the boat, the link 8, lowers the arm 10^b of its respective bell crank lever 10 permitting the arm 10^a to rise and actuate the rocking lever 11 to lower and position the actuating lever 20 to engage the ratchet teeth 19 positioned to be engaged by it. The movement of the outboard end of the oar handle towards the stern of the boat lifts the arm 10^b of the bell crank lever 10 and lowers the arm 10^a causing the bell crank lever, through the agency of the link 12, to rock the rocking lever 14 and lift the actuating lever 20. The lifting movement of the actuating lever 20 revolves the ratchet disk 18 a distance proportionate to the stroke of the oar, and the revolution of the ratchet disk 18 causes the winding drum 15 to wind a corresponding length of the rope or cord 25, thus lifting the weight 27 a corresponding distance. The weight 27 can be interchanged when desired, to vary the load on the oar handle to correspond with the estimated resistance of the water and the force and direction of the wind. The unwinding movement of the drums 15 and cord 25 is prevented by the engagement of the detent pawls 29 with the ratchet wheels 17. Each movement of the oar handles winds a corresponding amount of the cord 25 on the drum 15, and if the movement of the oar handle is actuated for a sufficient time, the weight 27 will be finally raised to the ceiling. It will then be necessary to release the detent pawl 29 from the ratchet wheel 17 so that the detent pawl can revolve in the reverse direction and permit the cord to unwind. The drums 15 may be locked in pairs or series to the shaft 14 by the pins 22 and caused to revolve therewith, and the advantage of this is that when the drums and ratchet disks are revolving freely on the shaft 14 each oar is revolving its respective ratchet disk and drum and lifting its respective weight. When the drums 15 are locked to the shaft 14, the shaft will be caused to revolve with the drums locked to it, and all such drums will be operated by the one movement of the oar or oars.

The boat shell 1, is provided with transverse slots 30, through which project bolts 31 fitted with nuts and washers 31^a, by which the boat is rockably held. The purpose of this construction is to compel the oarsmen using the exercising apparatus to maintain

their proper balance in the boat shell, *i. e.* the same balance they will be required to maintain on the water.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. An exercising apparatus for oarsmen, comprising a boat shell, an oarlock for the boat shell, an oar handle mounted in the oarlock, a standard, a bell crank lever pivoted to the standard, a connecting link attached, at one end, to one arm of the bell crank lever, and at the other end to the oar handle beyond the oarlock, a rocking lever pivoted to the standard, a link connecting the other arm of the bell crank lever, with one end of the rocking lever, a shaft, means for supporting the shaft, a ratchet disk loosely mounted on the shaft, rearwardly inclined ratchet teeth for the ratchet disk, a drum axially secured to the ratchet disk, a weighted lever oscillatingly mounted on the shaft and engaging the teeth of the ratchet disk, a second link connecting the outer end of the weighted lever with the other end of the rocking lever, a pulley, a cord wound on the drum and passing over the pulley, and a weight attached to the cord.

2. An exercising apparatus for oarsmen comprising a boat shell, an oarlock for the boat shell, an oar handle mounted in the oarlock, a standard at the rear of the boat shell, a bell crank lever pivoted to the standard, a connecting link attached, at one end, to one arm of the bell crank lever, and at the other end, to the oar handle beyond the oarlock, a rocking lever pivoted to the standard, a link connecting the other arm of the bell crank lever with one end of the rocking lever, a shaft, means for supporting the shaft, a ratchet disk loosely mounted on the shaft, ratchet teeth for the ratchet disk, a drum axially secured to the ratchet disk, a ratchet wheel attached to the end of the drum remote from the ratchet disk, a pawl for the ratchet wheel, a weighted lever oscillatingly mounted on the shaft and engaging the teeth of the ratchet disk, a second link connecting the outer end of the weighted lever with the other end of the rocking lever, a pulley, a cord wound on the drum and passing over the pulley, and a weight attached to the cord.

3. An exercising apparatus for oarsmen, comprising a boat shell, an oarlock for the boat shell, an oar handle mounted in the oarlock, a standard at the rear of the boat shell, a bell crank lever pivoted on the standard, a connecting link attached, at one end, to one arm of the bell crank lever, and at the other end, to the oar handle beyond the oarlock, a rocking lever pivoted to the standard, a link connecting the other arm of the bell crank lever with one end of the rocking lever, a shaft, means supporting the shaft, a ratchet disk loosely mounted on the shaft, ratchet teeth

for the ratchet disk, a drum axially secured to the ratchet disk, a ratchet wheel, attached to the end of the drum remote from the ratchet disk, a pawl for the ratchet wheel, a
5 weighted lever oscillatingly mounted on the shaft and engaging the teeth of the ratchet disk, spring actuated means for flexibly holding the weighted lever in engagement with the teeth of the ratchet disk, a pulley, a cord
10 wound on the drum and passing over the pulley and weight attached to the cord.

4. An exercising apparatus for oarsmen comprising a boat shell, oarlocks for the boat shell, oar handles mounted in the oarlocks, standards at the rear of the boat shell, bell
15 crank levers pivoted to the standards, one bell crank lever being provided for each oar handle, connecting links, each attached at one end to one arm of a bell crank lever and
20 at the other end to an oar handle beyond the oarlock, rocking levers pivoted on the standard, links connecting the bell crank levers with the rocking levers, a shaft, means for supporting the shaft, ratchet disks equal to the number of oar handles loosely mounted on the

shaft, ratchet teeth for the ratchet wheel, drums axially secured to the ratchet disks, spacing sleeves between each pair of drums, a ratchet wheel fixed to each drum, pawls for the ratchet wheels, weighted levers oscillat- 30
ingly mounted on the shaft and engaging the teeth of the ratchet disks, links connecting the weighted levers with the other ends of the rocking levers, pulleys, cords wound on the drums and passing over the pulleys, and 35
weights attached to the cords.

5. An exercising apparatus for oarsmen comprising a boat shell, having a slot in the shell bottom disposed transversely to the length thereof, a bolt extending through the 40
transverse slot and rockably holding the boat shell, an oarlock for the boat shell, an oar handle mounted in the oarlock, and a load moving device actuated by the movement of the oar handle.

Halifax, July 13th, 1907.

DANIEL SCANLAN.

Signed in the presence of—

ROBERT T. MACILNETH.

A. G. CUMMINGS.