

No. 731,998.

PATENTED JUNE 23, 1903.

L. W. GRAYSON.
ROWING MACHINE.

APPLICATION FILED MAR. 31, 1903.

NO MODEL.

Fig. 1.

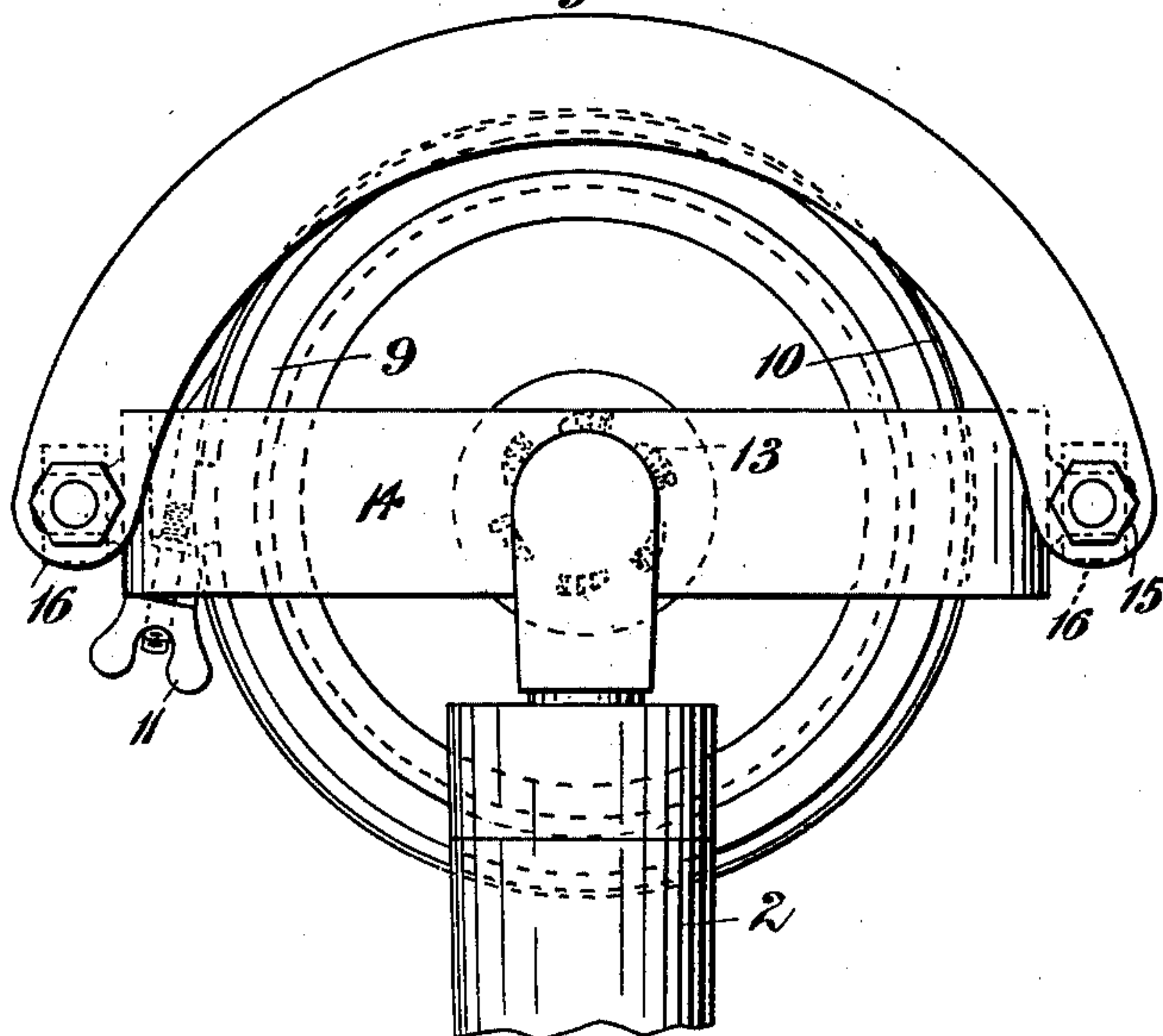


Fig. 2.

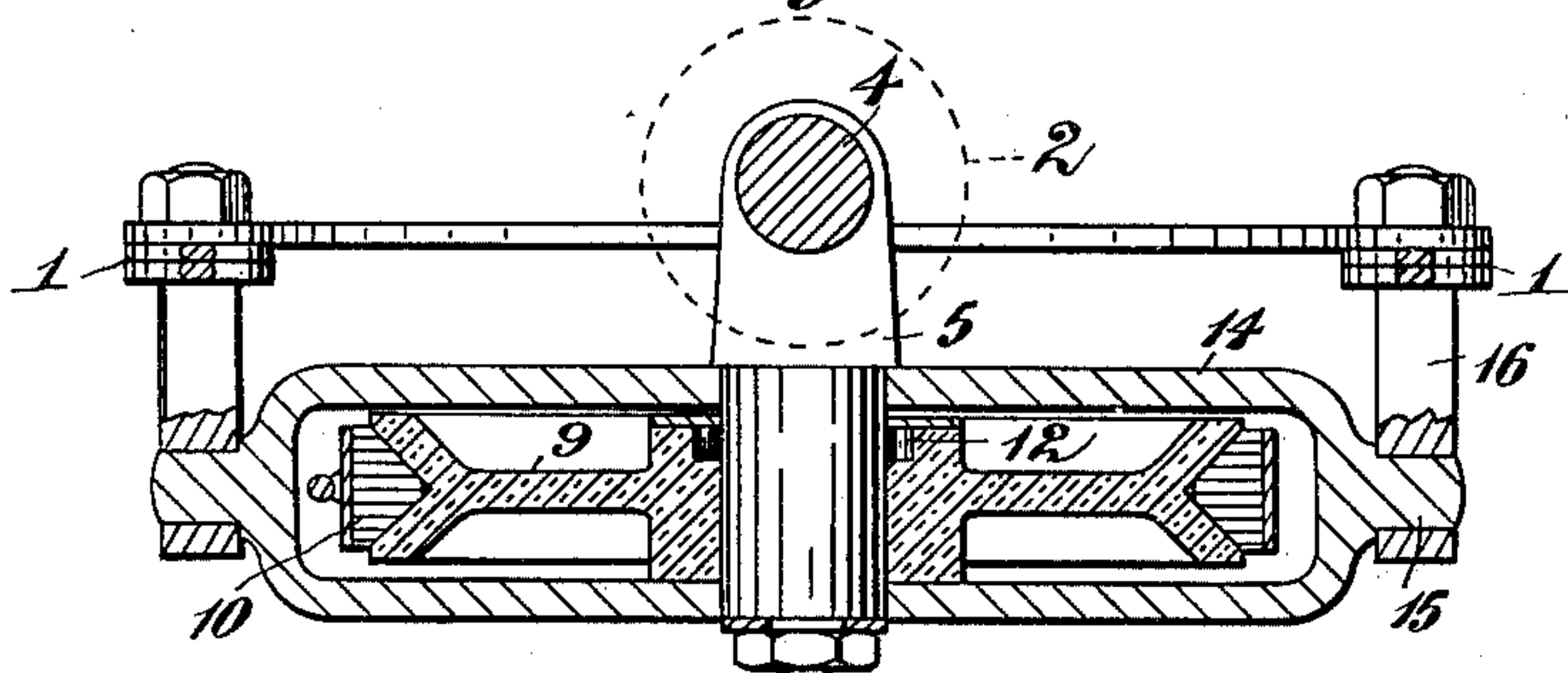
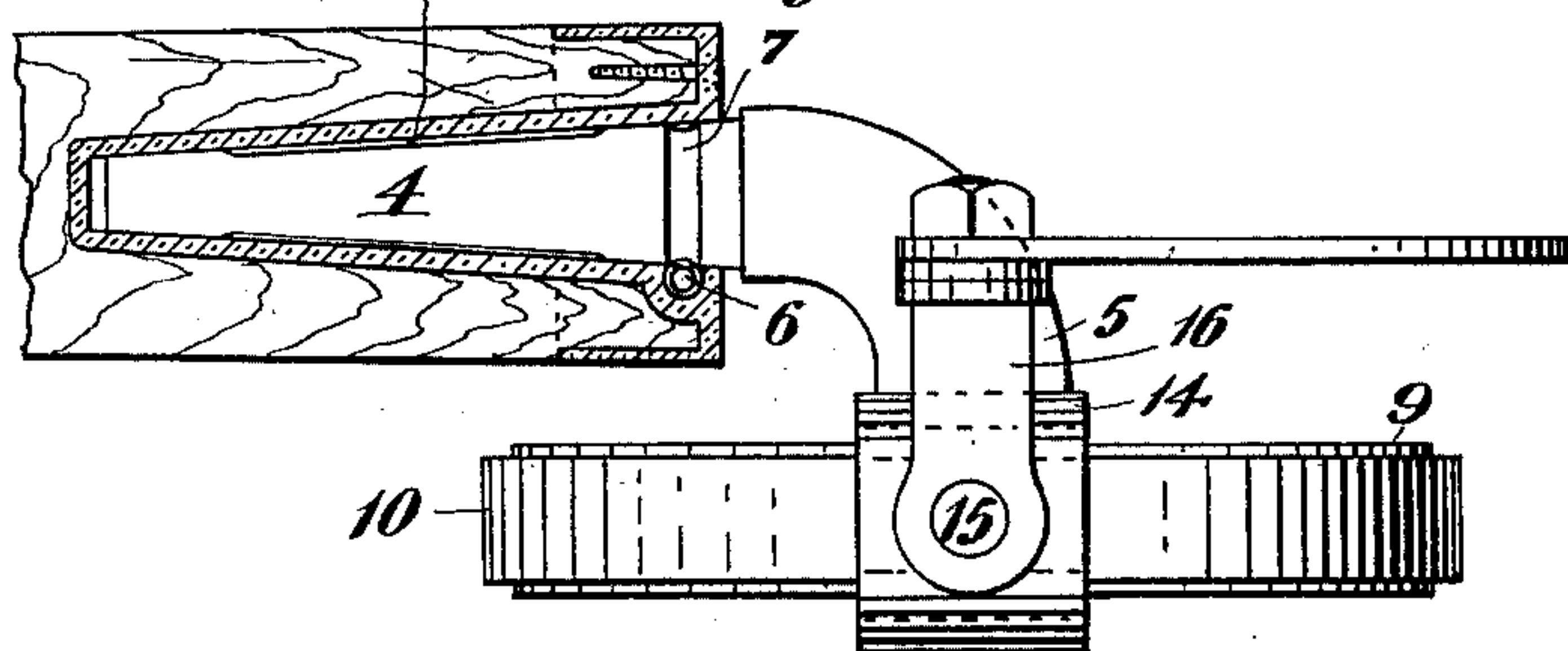


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

LAWRENCE WILLIAM GRAYSON, OF MELBOURNE, VICTORIA, AUSTRALIA,
ASSIGNOR OF ONE-HALF TO CHARLES STUART CUNNINGHAM, OF MEL-
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ROWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 731,998, dated June 23, 1903.

Application filed March 31, 1903. Serial No. 150,457. (No model.)

To all whom it may concern:

Be it known that I, LAWRENCE WILLIAM GRAYSON, mining engineer, a subject of the King of Great Britain, residing at Ludstone Chambers, 352 Collins street, Melbourne, in the State of Victoria and Commonwealth of Australia, have invented an Improved Rowing-Machine for Physical Exercise, Training, and Coaching, of which the following is a specification.

This invention has been devised in order to provide an improved machine by means of which the healthy exercise of rowing may be indulged in or practiced at home, in the gymnasium, or club-room, the movements being in every respect the same as aquatic rowing.

Referring to the accompanying drawings, Figure 1 is a plan of part of the machine, illustrating the operating mechanism; and Fig. 2 is a vertical transverse section of same. Fig. 3 is an end elevation, partly in section, showing the mechanism connected to the oar-loom.

The machine comprises a framing, (not shown in the drawings,) which may resemble a portion of a boat, with a sliding or other seat in the middle and side pieces, outriggers, or supports 1, upon which the mechanism is carried. Operating-handles 2, corresponding to the inboard part or loom of the oars, have tapered sockets 3 and are rotatably mounted upon the tapered horizontal arm 4 of a crank or spindle 5 and may, if desired, be secured thereto by means of a tapered adjustable pin 6 engaging the circumferential groove 7, while the vertical arm of said crank 5 may be formed with an eccentric adapted to force a clutch-plate against the inner periphery of a friction-wheel 9, the resistance of which is made adjustable by a brake-band 10 and thumb-screw 11.

Instead of the eccentric and clutch-plate just mentioned any suitable clutching and releasing device may be employed, and in the drawings is depicted a roller-clutch box 12, formed on the friction-wheel 9 and provided with curved recesses 13, in which the rollers are set. This clutch mechanism is well known and in common use on bicycle free-wheel de-

vices and in various other mechanical structures. By this means when the handle 2 is pulled, as in making the stroke, resistance is encountered, as if the blade of the oar were pulling in water, while on the forward motion of the body the resistance is released by the opposite movement of the clutch mechanism on the spindle, and the handle may be partially rotated, as in feathering. The "dip" of the oar or vertical adjustment is provided for by mounting the mechanism in convenient pivoted casings 14, whose trunnions 15 are journaled in bearings in the side supports 16, so that every movement of actual rowing is accurately reproduced.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a rowing-machine, the combination with a pivoted casing, of a crank-spindle having its vertical arm journaled in said casing, an oar-loom rotatably mounted at one end on the horizontal arm of the crank-spindle, a friction-wheel loosely mounted on the vertical arm of the crank-spindle, and mechanism controlled by the rotation of the crank-spindle for locking the friction-wheel to and releasing it from said crank-spindle, substantially as described.

2. In a rowing-machine, the combination with a pivoted casing, of a crank-spindle having its vertical arm journaled in said casing, an oar-loom rotatably mounted on one end of the horizontal arm of the crank-spindle, a friction-wheel loosely mounted on the vertical arm of the crank-spindle, an adjustable brake-band arranged to engage the lever of the friction-wheel, and mechanism controlled by the rotation of the crank-spindle for locking the friction-wheel to and releasing it from said crank-spindle, substantially as described.

3. In a rowing-machine, the combination with a pivoted casing, of a crank-spindle having its vertical arm journaled in said casing, an oar-loom rotatably mounted on one end of the horizontal arm of the crank-spindle, a friction-wheel loosely mounted on the verti-

cal arm of the crank-spindle, means for placing an adjustable resistance on said friction-wheel, and a roller-clutch arranged to lock the friction-wheel to and release it from said
5 crank-spindle as the oar-loom is oscillated in opposite directions, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LAWRENCE WILLIAM GRAYSON.

Witnesses:

EDWARD WATERS, Jr.,

WALTER SMYTHE BAYSTON.