

(No Model.)

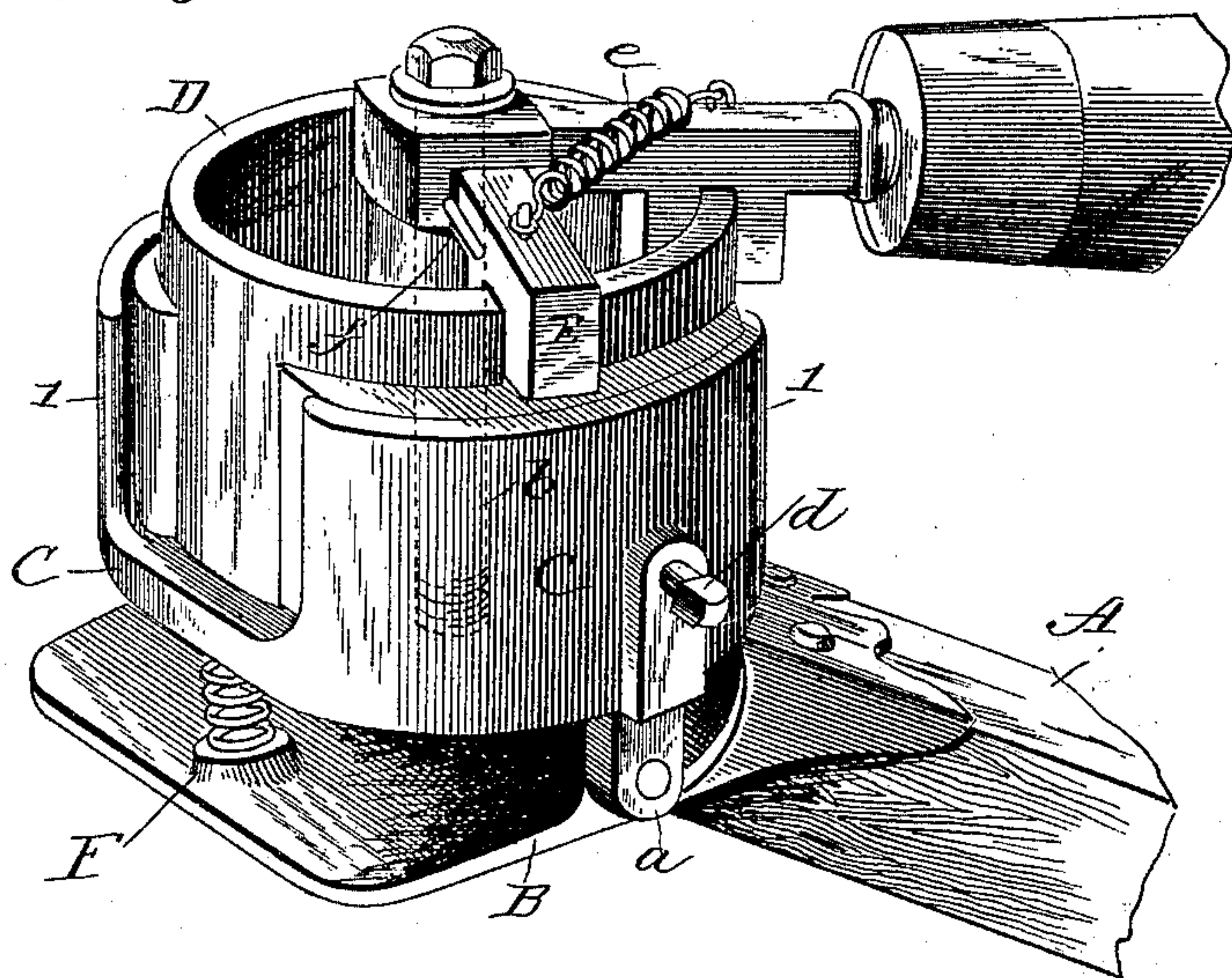
2 Sheets—Sheet 1.

R. REACH.
EXERCISE APPARATUS.

No. 397,386.

Patented Feb. 5, 1889.

Fig. 1.



Attest
Haller Donaldson
J. L. Middleton

Inventor
Robert Reach
by Ellis Spear
Atty.

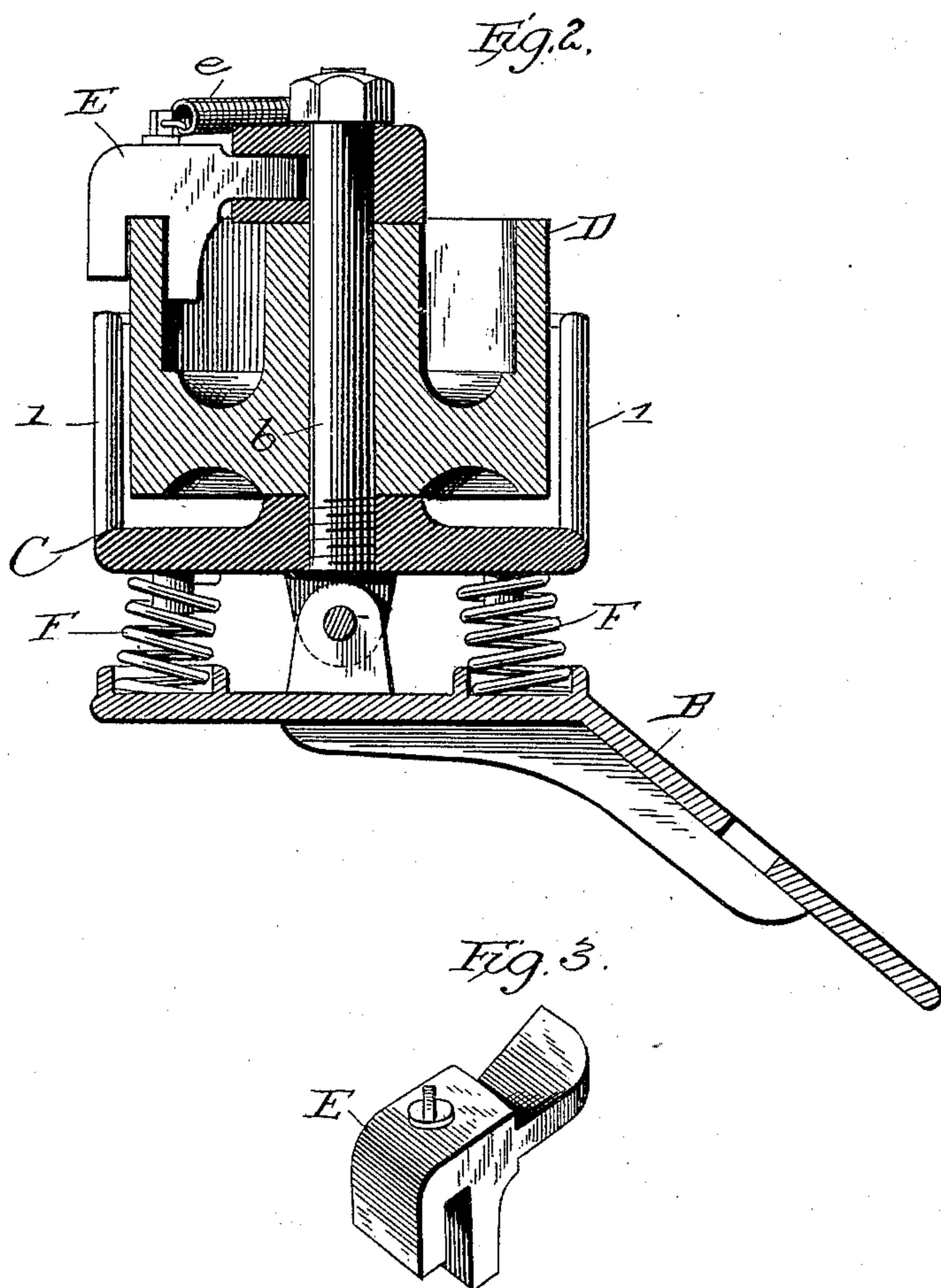
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2 Sheets—Sheet 2.

R. REACH.
EXERCISE APPARATUS.

No. 397,386.

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Attest
Walter Donaldson
Walter C. Keene.

Inventor,
Robert Reach
by Ellis Spear
Atty.

UNITED STATES PATENT OFFICE.

ROBERT REACH, OF PHILADELPHIA, PENNSYLVANIA.

EXERCISING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 397,386, dated February 5, 1889.

Application filed October 30, 1888. Serial No. 289,537. (No model.)

To all whom it may concern:

Be it known that I, ROBERT REACH, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Exercising Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is designed for use in friction exercising apparatus, and especially rowing-machines, in which the desired resistance to the movement of the oar is derived from the frictional action between some of the parts when the oar is pulled upon in the proper direction, as in rowing.

The invention consists of a pivoted bracket, which furnishes a support for the oar and the operating parts, by which the operator may simulate the "dip" of the oars in rowing. Further, it consists of a supporting-bracket, a friction shoe or shoes carried thereby, a movable friction-ring to bear upon the friction-shoe, and a clutch-connection between said ring and the oar, through which movement of the oar in one direction will cause the ring to be clutched and moved with frictional action against the wearing-shoe, while in the other direction the movement of the oar will be free.

The invention also consists in the devices and combination thereof, as hereinafter specifically pointed out.

In the drawings, Figure 1 is a perspective view of an oar, its support, and friction device. Fig. 2 is a central vertical section through the friction device and bracket. Fig. 3 is a detail view of the clutch.

The outrigger A of the machine may be of any ordinary form, as may also the general structure of the machine. At the outer end of the outrigger is secured a supporting-plate, B, and to this is pivotally secured, by means of ears *a* and pivot-pins, a bracket, C. The bracket is formed with upwardly-projecting flanges *l l* at each side, and these are curved preferably on the arc of a circle. A central screw-pin, *b*, is secured centrally of the bracket, which extends upwardly therefrom. A ring or preferably circular friction-plate, D, is held in position centrally on the bracket by means of the central pin, *b*, for which purpose the ring

or friction-plate D is formed with a hub portion, and the pin *b* extends through the opening in this hub, and thus serves as the axis about which the ring may move. Between the friction-ring and the upwardly-projecting flanges of the bracket are positioned friction wearing-shoes, which are adjustably held in place to bear upon the friction ring or plate D. The shoes are adjusted by means of screws *d d*, extending through the flanges. The pin *b* projects above the friction-ring, and on this upper end the oar is pivotally held. It is designed that the movement of the oar backward will have the effect of rotating the friction-ring against the wearing-shoes, thus creating the desired frictional resistance, while forward movement of the oar will have no effect upon the ring, thus allowing free return of the oar for a new stroke, as in the ordinary action in rowing. For accomplishing these actions a clutch, E, is provided between the oar and the ring, which is arranged to be effective on the backward stroke, but ineffective on the return or forward stroke. The oar is held in a casting pivoted on the central pin, and this is provided with a downwardly-projecting guide-stud extending within the ring. A socket is formed in the side of the casting to receive the shank of the clutch E, which is formed with two downwardly-projecting studs, and these are arranged to embrace the upper edge of the ring, one on each side. The clutch extends about at right angles to the oar. The socket is formed a little wider than the clutch-shank, so that slight lateral movement is allowed the clutch when the oar is moved. This lateral movement of the clutch is limited in one direction (viz., toward the oar) only by the side of the holding-socket, and a spring, *e*, tends constantly to draw the clutch in that direction or toward the oar, one end of said spring being connected to the clutch and the other to the oar. When in this position the downwardly-extending studs of the clutch bind against the ring, and movement of the oar will cause said studs to clutch or bind against the ring so firmly as to cause the ring to turn within the wearing-shoes as the oar is pulled backward, and, the frictional contact between the ring and shoes being properly regulated, the desired resistance will

be derived. The clutch will be thrown into action against the ring as soon as the oar is pulled upon. The lateral movement of the clutch in the opposite direction or away from the oar is limited by a suitable stop-pin, *f*, or by the wall of the socket itself, if desired, so that the clutch will be held in an intermediate position with the studs free from the ring or from binding thereagainst, and when the oar is returned or moved forward for a new stroke the clutch will be positively prevented from binding against the ring or resisting the free return of the oar. The spring allows the clutch to free itself in this movement of the oar. I do not wish to limit myself to the precise form of clutch shown, as the connection between the elements, the oar, and the friction-ring may be varied to accomplish the same action. The spring may be omitted, if desired. By pivoting the bracket which carries the oar and friction device the oarsman may simulate exactly the movements of rowing, being able thus to accomplish the dip of the oars, and in order to render the action more nearly like that of rowing a spring, *F*, may be employed, located beneath the pivoted bracket on each side, which tends constantly to keep the bracket level and to resist the downward movement of the oar-handles, as does the water in rowing. While I prefer to use the friction wearing-shoes shown and described, the wearing-surface may be changed without departing from the spirit of my invention. The oar herein shown and described represents any suitable operating-bar.

I claim as my invention—

1. In combination, the oar, the bracket pivotally supporting said oar, a support for the bracket, and a pivotal connection between said support and the bracket, adapted to permit tilting movement of the bracket, substantially as described.

2. In combination, the oar, the bracket pivotally supporting said oar, a support for the bracket, projecting ears on the support and bracket, and a connecting-rod for the two

passing through the ears, substantially as described.

3. In combination, the oar, the bracket pivotally supporting said oar, a support for the bracket, a spring acting upon the bracket, and a pivotal connection between said support and the bracket, substantially as described.

4. In combination with an oar, a friction ring or plate, wearing-shoes adapted for contact with the friction-ring, a clutch-connection between the oar and friction-ring, a bracket for supporting these parts, a support, *B*, and a pivoted connection between said bracket and support *B*, arranged to permit said bracket to have a tilting movement, substantially as described.

5. In combination, a supporting-bracket, the vertically-arranged friction-ring, the curved wearing-shoes adapted to the outer periphery thereof, the oar, and a clutch-connection between the oar and the friction-ring, substantially as described.

6. In combination, the supporting-bracket having vertical flanges, the vertically-arranged friction-ring, the wearing-shoes fixed to the outer periphery, the adjusting-screws extending through the flanges, the oar, and a clutch-connection between the oar and the friction-ring, substantially as described.

7. In combination, the bracket, the friction-ring, the oar casting having the socket, and the clutch-piece held loosely therein and provided with a stud for engaging the ring, substantially as described.

8. In combination, the bracket, the friction-ring, the oar casting having the socket, the clutch-piece held loosely therein, and the spring, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBT. REACH.

Witnesses:

M. T. MIDDLETON,
WM. J. SHETTSLINE.