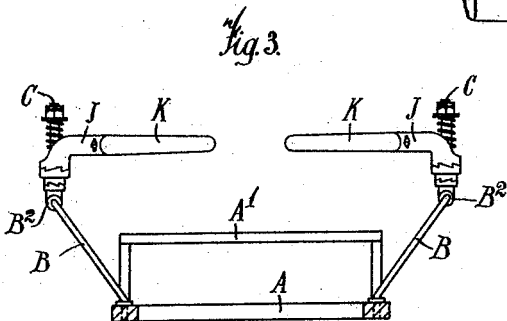
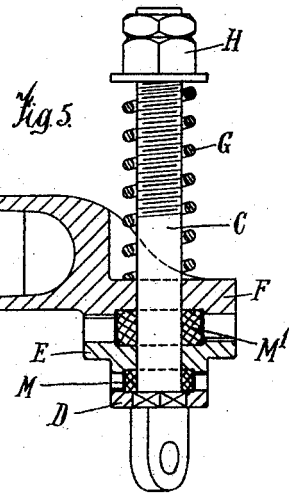
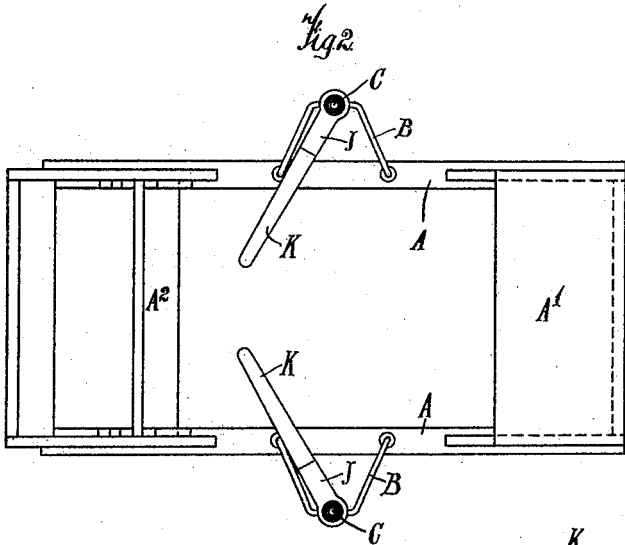
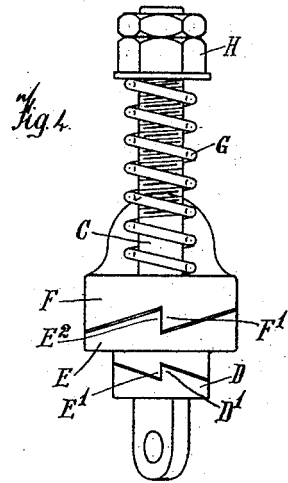
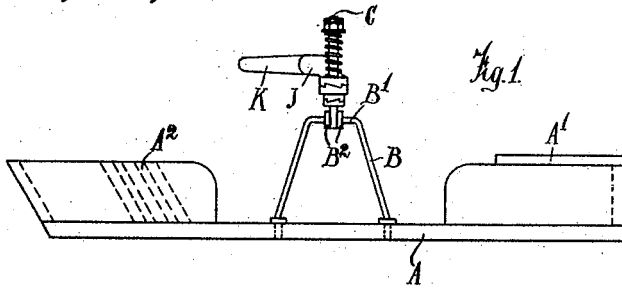


T. BRITT.
 PHYSICAL DEVELOPER ADAPTED FOR ROWING EXERCISE.
 APPLICATION FILED MAR. 5, 1920.

1,401,038.

Patented Dec. 20, 1921.



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UNITED STATES PATENT OFFICE.

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PHYSICAL DEVELOPER ADAPTED FOR ROWING EXERCISE.

1,401,038.

Specification of Letters Patent. Patented Dec. 20, 1921.

Application filed March 5, 1920. Serial No. 363,523.

(GRANTED UNDER THE PROVISIONS OF THE ACT OF MARCH 3, 1921, 41 STAT. L., 1313.)

To all whom it may concern:

Be it known that I, THOMAS BRITT, a subject of the King of Great Britain, and a resident of Langley Mill, in the county of Derby, in England, have invented certain new and useful Improvements in Physical Developers Adapted for Rowing Exercise, (for which I have filed the following application in England, March 4, 1919, No. 5295, which has resulted in Patent No. 126,599,) of which the following is a specification.

This invention relates to improvements in physical developers adapted for rowing exercise, of the kind in which two oscillating arms or levers are arranged on a base provided with a seat and stretcher, and the said arms are disposed in the same position as the inner ends of and are operated in the same manner as oars or a pair of sculls, suitable means being provided to set up the required resistance, so as to necessitate the application of force in order to move them.

Its object is to arrange the arms so that the correct sculling or rowing action can be followed, and at the same time set up a resistance both on the pull and return strokes, the same as is met with in actual rowing and sculling.

According to this invention, each arm or lever works in conjunction with a three part ratchet clutch, which is carried on an oscillating axle, the clutch members are forced together by a spring which is in conjunction with the shape of the clutch teeth, adapted to set up a considerable resistance as is required for the pull, and a reduced resistance as is required for the return stroke.

Referring to the accompanying drawings, Figure 1 is a side elevation.

Fig. 2 a plan, and

Fig. 3 a sectional elevation of a physical developer constructed according to my invention.

Fig. 4 is an elevation, and

Fig. 5 a vertical section of the spring controlled clutch resistance mechanism employed in connection with each of the oscillating arms or levers.

Like letters indicate like parts throughout the drawings.

The base A of the apparatus which is provided with a seat A' and stretcher A², has an outrigger B on each side, similar to those provided on a boat for carrying the rowlocks. Each outrigger B has an axle C at

its outer end, and the lower ends of this axle is mounted loosely on a part B' on the outrigger between the two collars B², so that it can oscillate freely in preferably a vertical plane at right angles to the length of the base A.

Mounted one above the other on each of the axles C, are three ratchet toothed clutch members D, E and F (see Fig. 4) and above these members is a spring G, which can be compressed to any required extent by means of adjustable screw nuts H on the upper ends of the axle C, so as to force the clutch members D, E and F together.

The lower clutch member D which is firmly secured to the axle C, has ratchet teeth D' on its upper face. The intermediate clutch member E, which is mounted loosely on the axle C, has teeth E' on its lower face to engage with the teeth D' on the member D, and teeth E² on its upper face. The upper member F, which is mounted loosely on the axle C, has teeth F' on its lower face to engage with the teeth E² on the intermediate member E, and said member is attached to or formed integrally with the radial socket J, adapted to admit and hold the end of the corresponding arm or lever K, which latter is free to turn in said socket J, so that a "feathering" movement of the arm or lever K is provided for.

The engaging ratchet teeth D' and E' on the members D and E, are set the reverse way to the engaging teeth F' and E² on the members E and F, and when the arm or lever K is oscillated, the ratchet teeth F' slip over the teeth E² during the pull, while the teeth E' slip over the teeth D' on the reverse stroke.

This action intermittently advances the intermediate clutch member E always in the same direction, but the clutch teeth can only slip as described by compressing the spring G, and a resistance to the said oscillating movement of the arm K is set up in both directions, which resistance can be regulated by the strength of the spring G, and the shape of the engaging ratchet teeth of the respective clutch members.

The clutch members D, E and F are preferably formed with four teeth as shown, so that only one tooth is slipped each full stroke of the arm K.

In order to prevent noise, the faces of the

clutch members D, E and F may be recessed, and springs or non-metallic rings M and M (see Fig. 2) are placed in the spaces thus provided between the clutch members. These
 5 springs or rings M M act as buffers and prevent violent contact between the clutch members, when the ratchet teeth of one member drop off those of the other, so that
 10 this action takes place without shocks and the attendant noise.

What I claim as my invention and desire to cover by Letters Patent is:—

1. In a physical developer, the combination, with a supporting axle, of a stationary
 15 clutch member arranged on the said axle, a middle and double clutch member journaled above the stationary clutch member, an upper clutch member journaled above
 20 the middle clutch member, all the clutch members having ratchet shaped teeth on their opposed faces and the teeth of the upper clutch being arranged in the opposite
 25 direction from the teeth of the lower clutch, a spring holding the teeth of the clutches in engagement, and an operating arm secured to the upper clutch member.

2. In physical developers adapted for rowing exercise, the combination of an axle

which is pivoted so that it can oscillate, three inter-engaging clutch members on said
 30 axle, the lower one of which is fixed and the intermediate and upper one free, a compression spring on the axle for forcing the clutch members together, and an arm or
 35 lever carried by the upper clutch member, substantially as described.

3. In physical developers adapted for rowing exercise, the combination of an axle
 40 which is pivoted so that it can oscillate, three inter-engaging clutch members on said axle, the lower one of which is fixed and the intermediate and upper one free, a compression spring on the axle for forcing the
 45 clutch members together, and an arm or lever carried by the upper clutch member said arm or lever being arranged to turn in the socket on the upper clutch member so
 50 as to permit of a feathering movement, substantially as described.

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

THOMAS BRITT

Witnesses:

H. C. SHELDON,
 A. FRANCE.