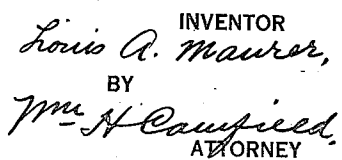


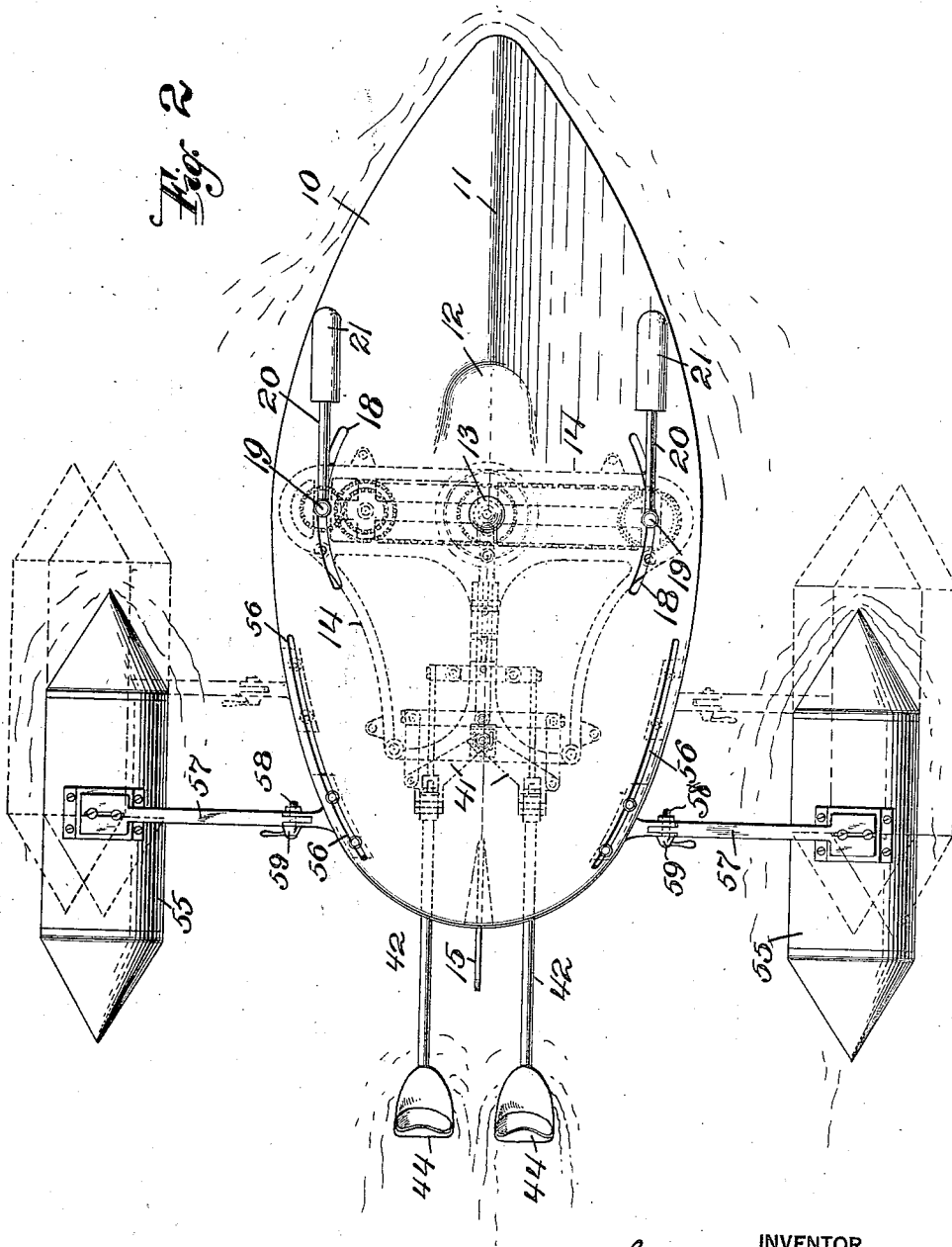
1,433,142.

4 SHEETS—SHEET 1.



1,433,142.

Patented Oct. 24, 1922.
4 SHEETS—SHEET 2.



INVENTOR
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 DEVICE FOR SWIMMING AND EXERCISING.
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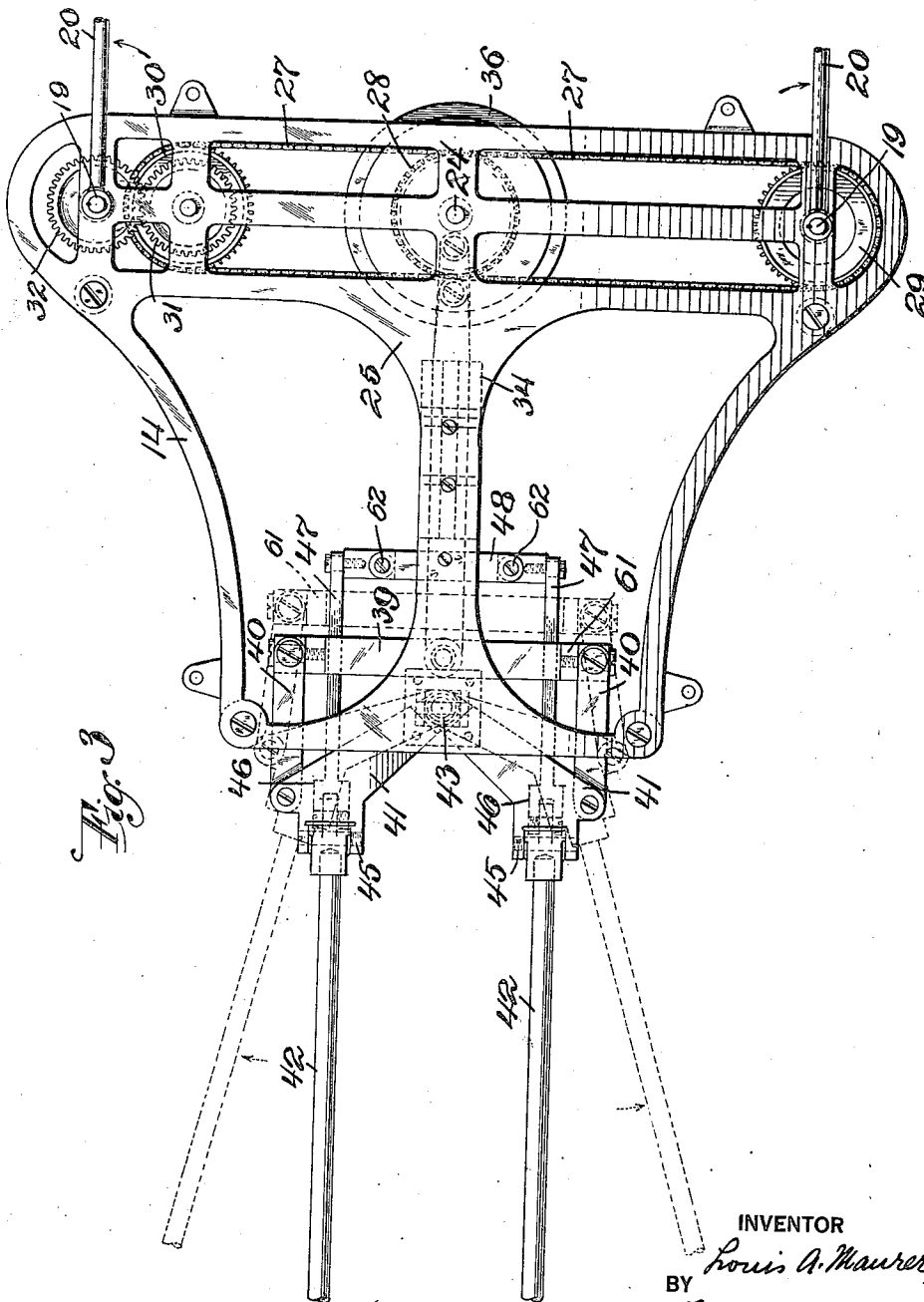


Fig. 3

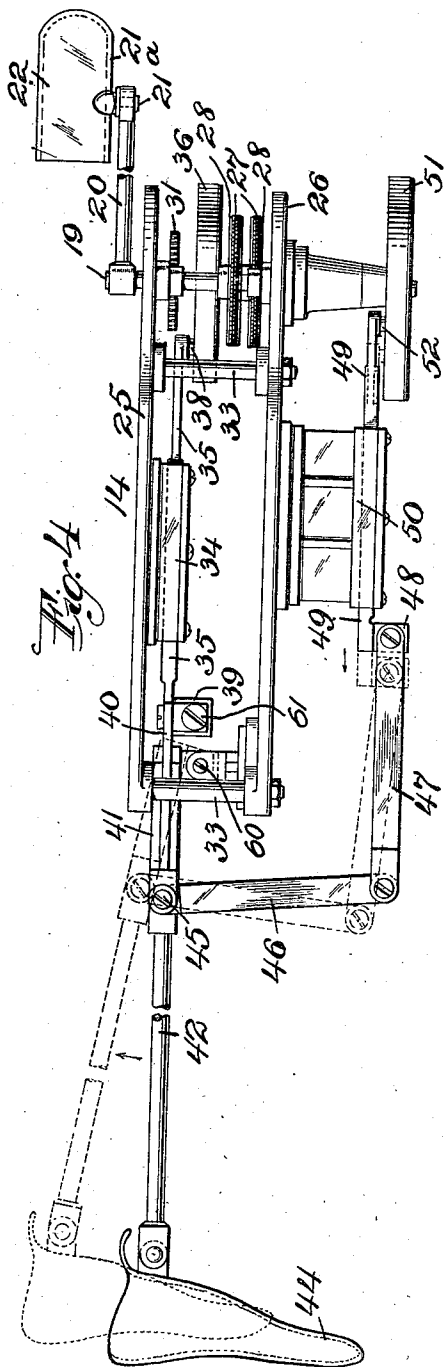
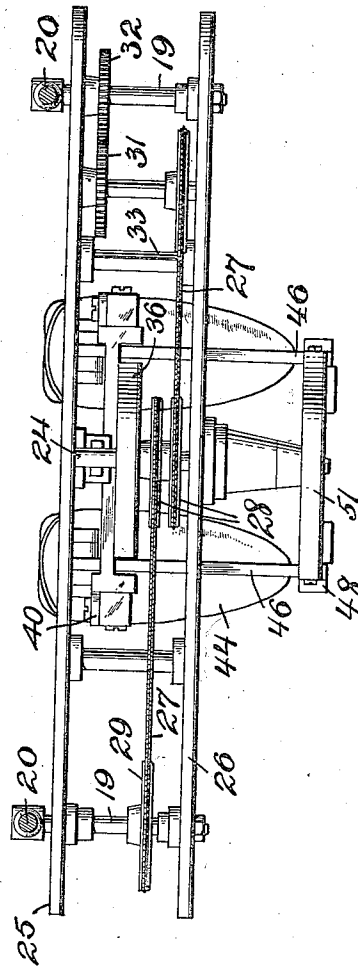
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UNITED STATES PATENT OFFICE.

LOUIS ALBERT MAURER, OF IRVINGTON, NEW JERSEY.

DEVICE FOR SWIMMING AND EXERCISING.

Application filed September 1, 1921. Serial No. 497,465.

To all whom it may concern:

Be it known that I, LOUIS A. MAURER, a citizen of the United States, and a resident of Irvington, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Devices for Swimming and Exercising, of which the following is a specification.

This invention relates to an improved device which can be used for exercising, but which is particularly adapted for use in water, and when the occupant is in proper position therein the hands and feet are in position on the device so that they can be moved in the proper direction and with the proper sequence of movement and are so synchronized as to give the proper swimming motion to the arms and legs.

The invention is illustrated in the accompanying drawings, in which Figure 1 is a side view of the device with an occupant, showing how it is used in the water, and Figure 2 is a top view thereof without an occupant. Figure 3 is an enlarged top view with the body support removed and with the mechanism for connecting the arm and the leg elements shown on an enlarged scale. Figure 4 is a side view of the actuating mechanism. Figure 5 is a front view of the actuating mechanism with the handles shown in section. Figure 6 is a perspective view of one form of receiving grip for the handles. Figure 7 is a plan of a cam used in the device, and Figure 8 is a side view showing its adaptability as a device for teaching swimming or as an exercising device used out of water.

The device is made with a suitable body support which rests on top of the mechanism, the usual form comprising a plate or platform 10 which is usually raised at the center of the front part, as at 11, to provide a cutwater and to also give a buoyant and upward tendency at this point, the raised portion 11 being provided at its rear end with a chin support 12 on which the chin of the occupant is adapted to rest so that it assumes the proper position and in which the occupant is comfortable.

The body supporting plate is pivoted, as at 13, to a frame 14 underneath, which frame 14 holds the mechanism for coordinating the

parts to be hereinafter described, the body support having a rudder 15 at the end so that the body can be shifted to move the plate on the pivot 13 and thus cause the rudder to swing as it is attached to the plate, and in this way the device can be steered.

Other forms of body supports, of course, can be installed, as in Figure 8 the body support is shown at 16 with a chin rest 17 at the front end and being rigidly secured for purposes to be hereinafter described.

When the swinging frame shown in Figures 1 and 2 is used it is provided with slots 18 which provide for the passage of the shafts 19, these shafts being provided with handles including the arms 20 and suitable hand-receiving pockets or gloves 21 which can be of any desired form, but are usually made as shown in Figures 1 and 6 so that the hand is placed therein palm outward, so that the flat face 22 is used in the propulsion stroke and the rear side 23 is bevelled or made convergent so that it passes more freely through the water on the return stroke. This functioning is made comfortable by reason of the hand-engaging parts being swivelled, as by means of the studs 21^a, so that they can swing relative to the handles to which they are attached.

This is the type of mechanism used in the device when the breast stroke is to be taught, since the hands, when employed in the gloves to operate the handles, are rotated or swung, the breast stroke is performed and the student or occupant gets the proper position for accomplishing this. There are foot elements provided which are connected with these hand-operated elements so that they are operated synchronously, and the form illustrated for accomplishing this will now be described.

The frame 14 has a central main shaft 24 which rotates through the top plate 25 of the frame 14 and through the bottom plate 26 of the frame, and is operated by means of chains 27 passing over sprockets 28, one chain being operated directly from the sprocket 29 of one handle, and the sprocket of the other handle being driven through gears 31 and 32, the gear 32 being driven from the said second handle, so that the two chains operate the central main shaft in the

same direction, although the handles are moved in opposite directions.

The upper and lower plates of the frame are suitably braced and connected by bars 33, and between them, preferably secured to the upper plate, is a slide-way 34 in which the bar 35 slides, being actuated at its front end by a cam 36, a top view of which will be seen in Figure 7, the cam slot 37 operating a roller 38 on the end of the slide bar 35. This slide bar is connected at its rear end to a yoke 39, which is connected by links 40 to the wings 41, each wing having a rod 42 extending therefrom, these wings being pivoted, as at 43, so that they can be swung laterally.

The rods 42 are provided with suitable means for receiving the feet of the occupant, in the form shown these comprising sockets 44 of approximately the same shape as the forward part of the human foot so as to make a comfortable receptacle for the feet. The rods 42, at the point where they are secured to the wings 41, are pivoted, as at 45, and provided with levers 46 which are connected to links 47 which, in turn, are fastened to a cross-bar 48 and the slide bar 49 which slides in the bearing 50, the slide bar 49 being actuated by the cam 51 by reason of the roller 52 engaging the slot in the cam 51, similar to the operation of the roller 38 in the cam 36.

It will be evident from this description that this connecting mechanism causes the rods 42, and consequently the foot-receiving sockets, to be moved not only laterally, but also vertically, so that the legs and feet are spread and raised and also brought together and lowered at the proper time relative to the motion of the hands to give a natural swimming motion to the body.

The vertical movement of the wings 41 is permitted by reason of the swivel connections 60 for the pivot 43, (Figure 4), and the swivelled connections 61 (Figure 3) between the links 40 and the ends of the yoke 39. The resultant side motion of the wings 41 causes the links 47 and the connections therefrom to the wings 41 to swing laterally on the pivots or swivels 62 on the cross-bar 48.

It will be understood that while the mechanism just described is designed to perform the functions required, equivalent structures can be devised for bringing about these functions, and I do not wish to be limited to the exact form herein shown and described.

The device can be mounted, if desired, on a suitable pedestal 53 and can be tilted by means of an adjustable pivotal connection 54, and is thus adapted for teaching the swimming motions in a gymnasium or in any other place out of water, or can, if desired, be mounted in water, but if the de-

vice is used in water as a floating or buoyant machine, suitable air chambers or pontoons 55 are installed, being connected preferably to the body plate, and can be made adjustable at the front or rear in the slot 56 so as to vary the inclination of the machine in the water to suit different occupants, and can also be raised and lowered relative to the body support, since the arms 57 to which the pontoons are secured can be pivoted, as at 58, and the lock nut 59 can be employed to lock them in position so that when they are raised or lowered the amount of submersion of the occupant can be regulated, thus making it possible to teach these swimming strokes with the occupant raised out of the water slightly above the normal, and when the student is more familiar and is more confident, the pontoons can be raised and the body support thus permitted to rest deeper in the water.

The body support is free and unimpeded for the occupant, and he is not strapped or otherwise secured in position, being free to withdraw hands and feet at any time to swim or practice without the device, and it will also be noted that the body support acts as a shield between the occupant and the mechanism in the frame to prevent injury.

I claim:

1. A swimming device comprising a body support, swinging handles, foot sockets, rods on which the sockets are mounted, and means operated from the handles for moving the rods laterally and vertically.

2. A swimming device comprising a body support, a frame on which the support is pivoted, a rudder on the support, handles for operation by the hands of an occupant, rods to which foot sockets are attached, and means connecting the handles and rods to swing the handles and to move the rods laterally and vertically.

3. A swimming device comprising a body support, rotatable handles on the top of the support, rods pivoted to the rear of the support so that they are movable laterally and vertically, a frame secured to the bottom of the support, and means on the frame for connecting the handles and the rods so that they move synchronously.

4. A swimming device comprising a body support, rotatable handles on the top of the support, rods pivoted to the rear of the support so that they are movable laterally and vertically, a frame secured to the bottom of the support, a bar sliding in the frame to cause the lateral movement of the rods, a slide bar on the frame to cause the vertical movement of the rods, and means operated from the handles to slide the bar and the slide bar.

5. A swimming device comprising a body support, rotatable handles on the top of the

support, rods pivoted to the rear of the support so that they are movable laterally and vertically, a frame secured to the bottom of the support, a bar sliding in the frame
5 to cause the lateral movement of the rods, a slide bar on the frame to cause the vertical movement of the rods, cams for operating

the bar and the slide bar, and means for rotating the cams by the handles.

In testimony that I claim the foregoing, 10
I have hereto set my hand, this 27th day of August, 1921.

LOUIS ALBERT MAURER.