

(No Model.)

E. R. MALLETT.
SWIMMING APPARATUS.

No. 468,989.

Patented Feb. 16, 1892.

Fig. 1.

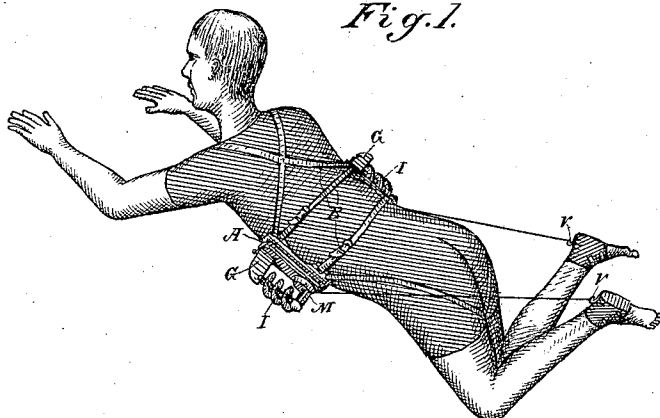
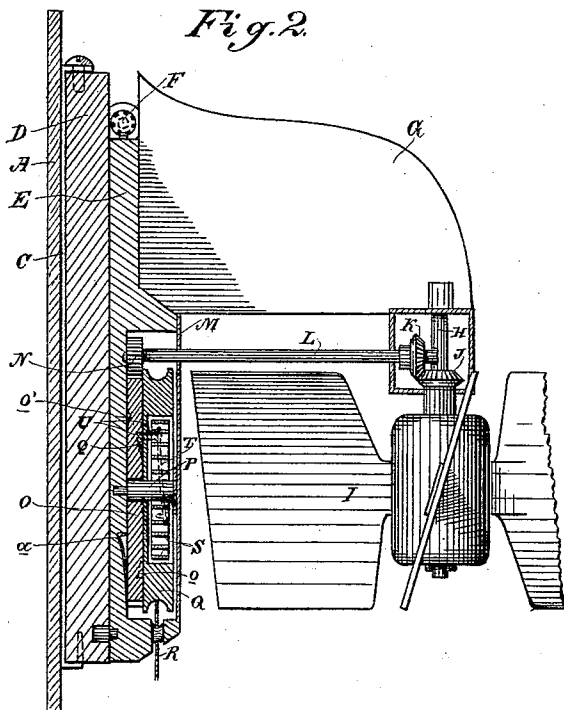
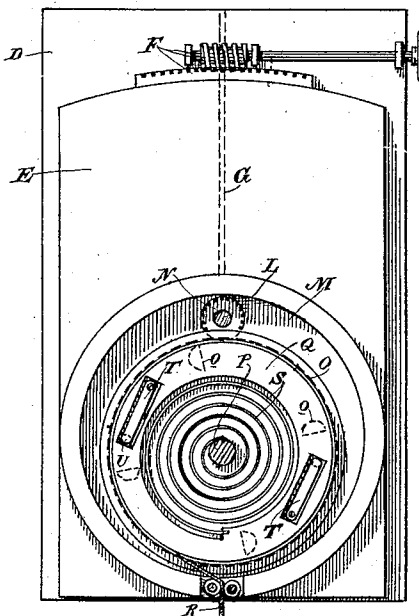


Fig. 2.



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Fig. 3.



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UNITED STATES PATENT OFFICE.

EDMOND R. MALLET, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO JOHN BAUMANN, OF SAME PLACE.

SWIMMING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 468,989, dated February 16, 1892.

Application filed June 22, 1891. Serial No. 397,139. (No model.)

To all whom it may concern:

Be it known that I, EDMOND R. MALLET, a citizen of Switzerland, residing in the city and county of San Francisco, State of California, have invented an Improvement in Swimming Apparatus; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a novel apparatus for swimming purposes.

It consists of a flexible supporting structure adapted to be fitted to the body of the individual, and rotary propellers or screws mounted on suitable frame-work and attached to this support with a mechanism by which the propellers may be rotated, and cords connecting this mechanism with the feet of the swimmer, so that by the movement of the feet the propellers are kept in operation.

It also consists in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 shows the application of my device. Fig. 2 is a vertical section through my apparatus. Fig. 3 shows the interior of the casing, the cover being removed.

A is a flexible pad or support, with suitable straps B by which it may be properly secured upon the body of the swimmer. In the present case I have shown two of these devices—one for each side of the body—the two being connected by straps so as to make the structure as light as possible. Upon these supports at each side of the body are suitable attachments C, by which the propellers or screws are secured to the supports. This is best effected by means of plates D, which are adapted to be secured to the supports, and the propellers and their adjusting-plates are mounted upon these plates.

E are the adjustable plates which carry the propellers. These plates are pivoted at one end to the plates D and have at the other end a ratchet or screw mechanism F, by which they may be moved around the pivots to stand at any desired angle with the plates D.

G are thin blades or plates which stand out at right angles from the adjustable plates E, and from the upper ends the shafts H project so as to stand parallel with the surface

of the plate E and at a sufficient distance therefrom to allow the propelling mechanism to be fixed to the plate and also to leave sufficient space for the screws or propellers to rotate upon the shaft without touching the case in which the mechanism is contained.

I is the propeller or screw, which may be made of any suitable or well known form which is most convenient and effective for propulsion. This propeller is journaled loosely upon the fixed shaft H, and has a bevel-gear J, fixed to its hub. This gear engages a corresponding bevel-gear K, which is fixed upon the shaft L, and this shaft having one end journaled in the shaft H, and the other within the case M, containing the propelling mechanism, stands at right angles with the plate E. These gears are properly housed or inclosed to protect them from floating objects and from injury. The inner end of the shaft L has a pinion N fixed to it, and this engages with a gear-wheel O, which lies in the bottom of the case M, and is kept in place by a shaft P, having its lower end stepped in the bottom of the case, and the upper end extending through or into the top of the case, or a bar which extends across it, this shaft remaining stationary. Upon this shaft is journaled a drum Q, around which is wound a cord R, that extends out through one side of the case M. This drum is made hollow, and within it is a coil-spring S, one end of which is fixed to the shaft upon which the drum turns, and the other is fixed to the interior of the drum. By pulling the cord outward the drum will be rotated, and the spring will be coiled about the shaft, and when the cord is released the tension of the spring will be sufficient to turn the drum to its first position. In this way by alternately pulling the cord and releasing it the drum is rotated in opposite directions. Within this drum and around the chamber which contains the spring are one or two springs T, having projecting points or pawls U fixed to them, so that the pressure of the springs forces these pawls through the side of the drum-case. One side of the gear-wheel O, has teeth or notches cut in it, with which these pins engage, so that when the cord around the drum is pulled in one direction these pins will engage some one of the ratch-

et-teeth, and the impulse which is given to the drum will be communicated to the gear-wheel and through it to the pinion and shaft, and through the beveled gears to the propeller, thus causing it to rotate in one direction. When the drum is returned by the action of the coil-spring upon the release of the pulling-cord it is manifest that these points or teeth will pass over the ratchet-teeth in the gear-wheel, thus allowing the gear-wheel to continue its motion as far as it may with the momentum of the moving parts and independent of any action of the drum. The opposite side of this gear-wheel is also provided with ratchet-teeth *o'* and a spring-pawl *a*, fixed in the inner side of the case *M*, engages these ratchet-teeth and this prevents the gear-wheel from being rotated in the wrong direction by the return movement and frictional contact of the winding-drum. By this construction the propellers or screws which are mounted upon this apparatus are given a continuous or intermittent rotation by the action of these drums, pawls, ratchets, and gears.

In order to move the cords to operate the drums they are carried through the side of the case *M*, and extending down alongside the body of the swimmer are connected with hooks or attachments upon the feet of the swimmer, as shown at *V*. It will be seen that when the foot is drawn up the action of the coil-spring in the winding-drum will wind the cord around the drum and shorten it up correspondingly, and when the foot is pushed backward the action upon the drum will be such as to wind up the cord and thus operate the propellers or screws. The thin blades *G*, upon which the propeller-shafts are fixed, also serve as steering-plates, and when the base or support to which they are attached is turned to an angle it will assist by reason of these plates in guiding the apparatus up or down, as may be desired.

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

1. A swimming apparatus comprising wheels or propellers adapted to be supported upon the person of the swimmer with their axes in line with the direction of travel, the winding-drums, the cords connected with said drums and attachable to the feet of the swimmer, gearing between the drums and propellers for operating the latter, and means for recoiling the cords when relieved from pressure, substantially as herein described.

2. A swimming apparatus consisting of propellers, a means for securing them to the person of the swimmer with their axes in line with the direction of travel, drums having cords or chains coiled about them and connected with the feet of the swimmer, interme-

diate gears and counter-shafts whereby the motions of the drums are imparted to the propeller-wheels in one direction, a clutch mechanism whereby the drums are allowed to turn freely in the opposite direction, and springs by which the drums are returned and the cords coiled upon them when relieved from the pressure of the feet, substantially as herein described.

3. The supports or plates *A*, having the metallic locking-strips *C* fixed to them, and straps by which said supports are secured to the body of the swimmer, base-plates *D*, fitted to the supports and having the locking attachment adapted to engage the clamps upon the supports, supplemental plates pivoted to those which are fastened to the supports at one end and having a ratchet-holding mechanism whereby they may be turned to stand at an angle with said plates, propellers with an actuating mechanism mounted upon said movable plates, and cords connecting the actuating mechanism with the feet of the swimmer, together with steering plates or rudders projecting from the movable plates, the plane of said plates standing in line with the axes of the propeller-shafts and movable therewith, substantially as herein described.

4. A swimming apparatus consisting of propelling-wheels mounted upon supports, a means for attaching said supports to the body of the swimmer with the axes of the wheels in line with the direction of travel, drums mounted within a casing, cords coiled about said drums and connected with the feet of the swimmer, coiled springs secured to the drums and drum-shaft, so as to return the drums and recoil the cords when released by the drawing up of the feet of the swimmer, shafts having gears at one end by which the motion of the shafts is imparted to the propeller-wheels, pinions at the opposite ends of said shafts, and gear-wheels loosely journaled upon the drum-shafts and engaging said pinions, ratchet-teeth upon the opposite sides of said gear-wheels, spring-actuated pawls contained within the drums and engaging the ratchets upon one side of the gear-wheels, whereby the motions of the drum in one direction are imparted to the gear-wheels, and through them to the propellers, while the drums are allowed to move freely in the opposite direction, and corresponding spring-actuated pawls in the opposite side of the drum-case and engaging the ratchets in the opposite side of the gear-wheels to prevent a backward movement of the same, substantially as herein described.

In witness whereof I have hereunto set my hand.

EDMOND R. MALLET.

Witnesses:

S. H. NOURSE.

J. A. BAYLESS.