April 9, 1929. P. RYAN 1,708,331

PADDLE DEVICE

Filed Oct. 15, 1928

Fig. 1

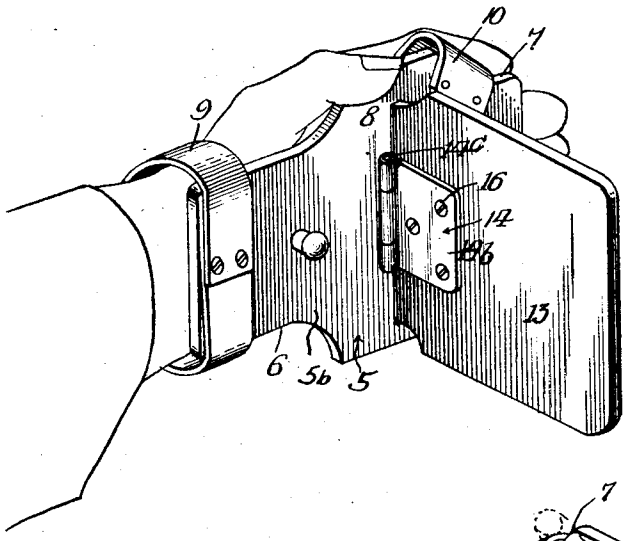


Fig. 2

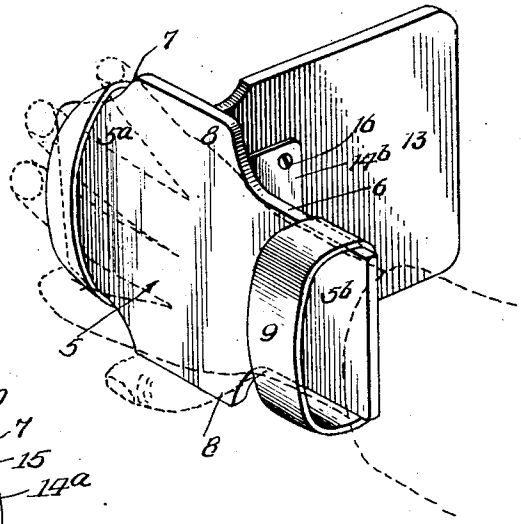


Fig. 3

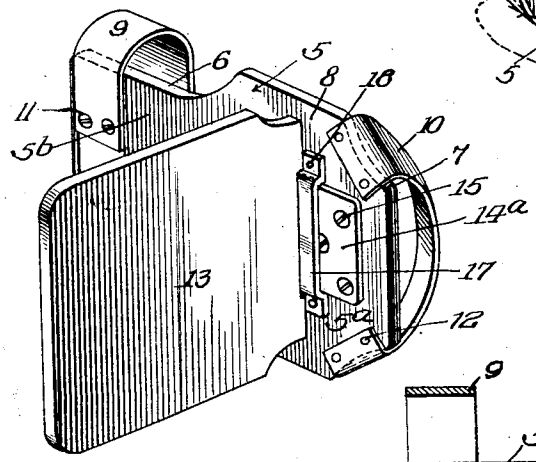
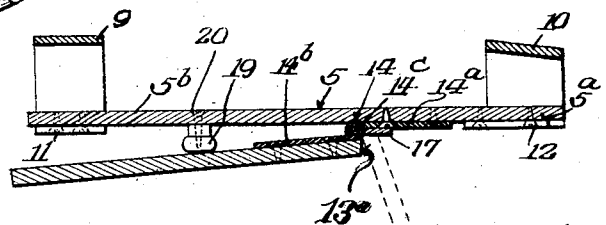


Fig 4



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UNITED STATES PATENT OFFICE.

PATRICK RYAN, OF HEBRON, INDIANA.

PADDLE DEVICE.

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The invention relates to paddles and more particularly to a paddle device of the type that fits against the palm of the hand and is operative to facilitate propulsion of the user through or on the water.

One object of the present invention is to provide an improved paddle device of this character which is adapted primarily for use in swimming, furnishes a comparatively large paddle area adjacent the hand and may be operated readily and without fatiguing the user to any appreciable extent. In general, this device consists of a plate which is adapted to fit against the palm and wrist portion of the hand and is provided with elastic strips or bands whereby it may be held fixedly in place, and a flapper-member which is pivotally connected to the front portion of the plate in such a manner that during the back operative stroke of the user it extends at substantially right angles to the hand and offers resistance to movement through the water, and during the forward inoperative stroke it extends in close proximity to the user's hand and affords practically no resistance.

Another object of the invention is to provide a paddle device of the aforementioned type in which the plate is shaped so that it may be gripped and held securely in place between the first and little fingers and the thumb to avoid displacement.

A further object of the invention is the provision of stop means which is operative to hold the flapper-member, during the user's forward operative stroke, at a comparatively small angle relatively to the plate with result that said member will be angularly held with respect to the path of movement and consequently upon the initial part of the back stroke the water will act upon the back face of the member to swing automatically and positively the latter into its operative position.

A still further object of the invention is the provision of a resilient strip which is engaged by the flapper member when it is in its operative position and forms a spring connection or cushion between said member and the plate.

Another object of the invention is to provide a paddle device which consists essentially of but a small number of parts and may be manufactured at a low cost.

Other objects will be manifest from a consideration of the following detailed description.

The invention consists in the several novel features hereinafter set forth and more particularly defined by the claims at the conclusion hereof.

In the drawing which accompanies and forms a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a perspective view of a device embodying the invention, viewed from the front side, that is, the side that embodies the flapper-member;

Figure 2 is a perspective view, viewed from the opposite or back side;

Figure 3 is a perspective view showing in detail the resilient cushion-forming strip between the flapper-member and the plate; and

Figure 4 is a longitudinal sectional view illustrating the manner in which the stop means operates to hold the flapper-member at an angle with respect to the hand-engaging plate during the forward inoperative stroke of the user.

The invention is exemplified in a device which is usable and is adapted primarily to facilitate propulsion of the user during swimming or aquatics. This device comprises a plate 5 which is preferably made from a rectangular piece of wood or other suitable light material. The front portion 5^a of the plate 5 is adapted to fit against the palm and the bases of the fingers of the user's hand as indicated in Figures 1 and 3. The back portion 5^b of said plate is adapted to fit against the wrist of the user's hand and is provided at the sides thereof with notches or recesses 6 for receiving the thumb. These notches extend from the central portion of the plate 5 to the extreme back end and operate to narrow the back portion 5^b so that the latter is of the proper shape or width to underlie the user's wrist. By having a notch 6 on either side of the plate 5 the device may be used in the right hand or the left interchangeably inasmuch as there is always available a recess for the thumb. Quadrantal pieces are cut out of the front corners of the front portion 5^a to form concave notches or recesses 7 for receiving the first and little fingers. The portions of the

plate 5 between the notches 6 and 7 form laterally projecting ears 8 which are adapted to be gripped between the first finger and thumb to avoid displacement of the device from the user's hand. The plate is held in its operative position by means of a pair of elastic bands or strips 9 and 10. The ends of the strip 9 are secured to the front face of the back portion 5^b by screws or staples 11 and the central part of said strip extends around the portion 5^b and forms a loop which is adapted to encircle the wrist of the user for the purpose of holding said back portion of the plate 5 in close proximity thereto. The ends of the strip 10 extend over and around the notches 7 and are secured to the front face of the front portion 5^a by screws or staples 12. The central portion of the strip 10 extends in the same direction as the strip 9 and forms a loop which is adapted to extend around or encircle the second and third fingers as illustrated in Figure 3. The strips 9 and 10 together with the notches 6 and 7 exemplify means of an improved character whereby the device may be held fixedly in its operative position.

The paddle device also comprises a flapper-member 13 which is preferably made from a rectangular piece of wood. This member is pivotally connected to the front portion 5^a of the plate 5 by a hinge 14 so that it may be swung from an inoperative position adjacent the back portion 5^b to a substantially right angle operative position. The hinge 14 comprises a pair of hinge-elements 14^a and 14^b which are joined together by a pivot pin or pintle 14^c. The element 14^a fits against the front face of the portion 5^a and is rigidly secured in place by screws 15. The hinge-element 14^b fits against the back face of the flapper-member 13 adjacent the latter's inner end and is fixedly secured in place by screws 16. The pivot pin 14^c, like the element 14^b, is positioned adjacent the back face of the flapper-member with the result that the inner edge 13^a of said flapper-member forms an abutment which permits the forward movement of the member 13 past its operative position. During forward stroke of the device, the flapper-member will be in its inoperative or substantially parallel position (see Figure 4) and consequently will not resist thrust or forward movement through the water. During the initial part of the user's return stroke, that is, movement of the hand toward the body, the water acting against the back face of the flapper-member 13 will cause said member to be swung into its operative outwardly extending position (see Figures 2 and 3). In this position the flapper-member will offer resistance to the return movement through the water and will operate to effect and facilitate propulsion.

In practice, it has been found that the best results are obtainable and greater leverage or resistance to the water is afforded when the flapper-member 13 extends at an angle which is in excess of 90° with respect to the wrist-engaging back portion 5^b of the plate. With this end in view, the inner edge 13^a of the flapper member is beveled, as shown in Figure 4, so that it is operative to hold the member in the desired angular portion which is slightly in excess of 90°. To eliminate noise and to form a spring cushion between the flapper-member 13 and the plate 5, a resilient strip 17 is provided. This strip is preferably formed of rubber and is interposed between the edge 13^a of the flapper-member and the element 14^a of the hinge. The ends of the strip 17 are secured in place adjacent the side edges of said hinge-element 14^a by screws 18. An advantage of utilizing a resilient strip of this character is that the flapper-member is cushioned when it is swung into its operative position and compresses the strip so that the latter exerts rearward pressure on said member and consequently results in greater leverage to the user.

A rubber stud 19 is secured to the front face of the portion 5^b of the plate 5 by a screw 20. This stud forms a stop which prevents the flapper-member 13 from being swung against the plate 15 when it is in its operative position with the result that the flapper-member is held angularly with respect to the path of movement of the user's hand and consequently upon the initial part of the back stroke, the water more readily acts upon the back face of the flapper-member to effect automatic and positive throw of the latter into its operative position.

The paddle device is applied by slipping the hand through the loop portions of the strips 9 and 10 so that the wrist is held against the back portion 5^b and the second and third fingers are held in place against the front portion 5^a. One of the ears 8 is then gripped between the thumb and the first finger so that the device is securely held against accidental displacement. As previously pointed out, during the swimming operation the flapper-member 13 abuts against the stud 19 and is positioned in close proximity to the plate 5 so that it does not offer resistance to the forward stroke of the hand. When the hand of the operative or user is pulled toward the body, the water acts to swing the flapper-member 13 into its operative position. In this latter position the member operates as a paddle and offers resistance to the water. In practice it is contemplated that the operator use one device on each hand.

The paddle device herein described consists of but a small number of parts and consequently may be manufactured at a reasonable and comparatively low cost. It is ex-

tremely efficient in operation and facilitates as well as speeds up propulsion.

Although the device has been described as being practically adapted for use in connection with swimming, it is to be understood that it may be used to propel a canoe, row boat or similar water craft. It is also to be understood that the invention is not to be restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

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

1. A paddle device of the character described, said device comprising a plate provided with means whereby it may be held against the palm of the hand, and a flapper-member movably connected to the front portion of the plate so that it may be shifted from an inoperative position adjacent the plate to an operative position substantially at right angles to said plate.

2. A paddle device of the character described, said device comprising a plate provided with means whereby it may be held against the palm of the hand, and a flapper-member pivotally connected to the front portion of the plate so that it may be swung from an inoperative position adjacent the plate to an operative position substantially at right angles to said plate.

3. A paddle device of the character described, said device comprising a plate provided with elastic loops whereby it may be held against the palm of the hand, and a flapper-member movably connected to the front portion of the plate so that it may be shifted from an inoperative position adjacent the plate to an operative position substantially at right angles to said plate.

4. A paddle device of the character described, said device comprising a plate adapted to fit against the palm of the hand, one of the side margins of said plate having formed in the back portion thereof a notch for receiving the thumb, and a flapper-member movably connected to the front portion of the plate so that it may be shifted from an inoperative position adjacent the plate to an operative position substantially at right angles to said plate.

5. A paddle device of the character described, said device comprising a plate adapted to fit against the palm of the hand and the wrist, the side margins of said plate being cut away at the back portions thereof to form thumb-notches, and a flapper-member movably connected to the front portion of the plate so that it may be shifted from an inoperative position adjacent the plate to an operative position substantially at right angles to said plate.

6. A paddle device of the character described, said device comprising a plate adapted to fit against the palm of the hand, said plate being formed from a substantially rectangular piece of material and having the front corners thereof cut away to form notches for receiving the first and little fingers, and a flapper-member movably connected to the front portion of the plate so that it may be shifted from an inoperative position adjacent the plate to an operative position substantially at right angles to said plate.

7. A paddle device of the character described, said device comprising a plate adapted to fit against the palm of the hand, said plate being formed from a substantially rectangular piece of material and having the front corners thereof cut away to form notches for receiving the first and little fingers, an elastic strip for holding the plate in its operative position, said strip being in the form of a loop and having the ends thereof extending over the notches and secured to the front portion of the plate, and a flapper-member movably connected to said front portion of the plate so that it may be shifted from a position adjacent the plate to a position substantially at right angles to said plate.

8. A paddle device of the character described, said device comprising a plate adapted to fit against the palm of the hand, said plate having a laterally extending ear adapted to be gripped between the first finger and thumb to hold said plate against displacement when it is to be used, and a flapper-member movably connected to the front portion of the plate so that it may be shifted from an inoperative position adjacent the plate to an operative position substantially at right angles to said plate.

9. A paddle device of the character described, said device comprising a plate adapted to fit against the palm of the hand and the wrist, a pair of elastic loops for securing the plate in its operative position, one of said loops being attached to the front portion of the plate and adapted to extend around the fingers of the user, the other strip being attached to the back portion of the plate and adapted to encircle the wrist, and a flapper-member movably connected to said front portion of the plate so that it may be shifted from a position adjacent the plate to a position substantially at right angles to said plate.

10. A paddle device of the character described, said device comprising a plate provided with means whereby it may be held against the palm of the hand, a flapper-member positioned adjacent the outer face of said plate, and a hinge for connecting the flapper-member to the front portion of the plate, said hinge being arranged so that the inner edge of the flapper-member forms

an abutment which prevents said member from being shifted forwardly past a position at substantially right angles to the plate.

11. A paddle device of the character described, said device comprising a plate provided with means whereby it may be held against the palm of the hand, a flapper-member positioned adjacent the outer face of said plate, a hinge for connecting the flapper-member to the front portion of the plate, said hinge being arranged so that the inner edge of the flapper-member forms an abutment which prevents said member from being shifted forwardly past a position at substantially right angles to the plate, and a resilient strip on the plate against which the abutment-forming edge of the flapper-member engages when said member is in right angle position.

12. A paddle device of the character described, said device comprising a substantially flat plate provided with means whereby it may be held against the palm of the hand, a substantially flat flapper-member pivotally connected to the front portion of the plate so that it may be swung backwardly from an operative position at substantially right angles to the plate to an inoperative position adjacent the back portion of the plate, and stop means attached to and projecting outwardly from said plate and operative to hold the flapper-member at a comparatively small angle relatively to the plate when it is in said inoperative position.

13. A paddle device of the character described, said device comprising a substantially flat plate provided with means whereby it may be held against the palm of the hand, a substantially flat flapper-member pivotally connected to the front portion of the plate so that it may be swung backwardly from an operative position at substantially right angles to the plate to an inoperative position adjacent the back portion of the plate, and resilient stop means attached to and projecting outwardly from said plate and operative to hold the flapper-member at a comparatively small angle relatively to the plate when it is in said inoperative position.

14. A paddle device of the character described, comprising a plate provided with means whereby it may be held against the palm of the hand, a flapper-member pivotally connected to the front portion of the plate and adapted to extend at substantially right angles relatively to the plate when it is in its operative position, and resilient means attached to said front portion of the plate and forming a cushion for the flapper-member when it is in said operative position.

Signed at Hebron, Indiana, this 5th day of October, 1928.

PATRICK RYAN.