

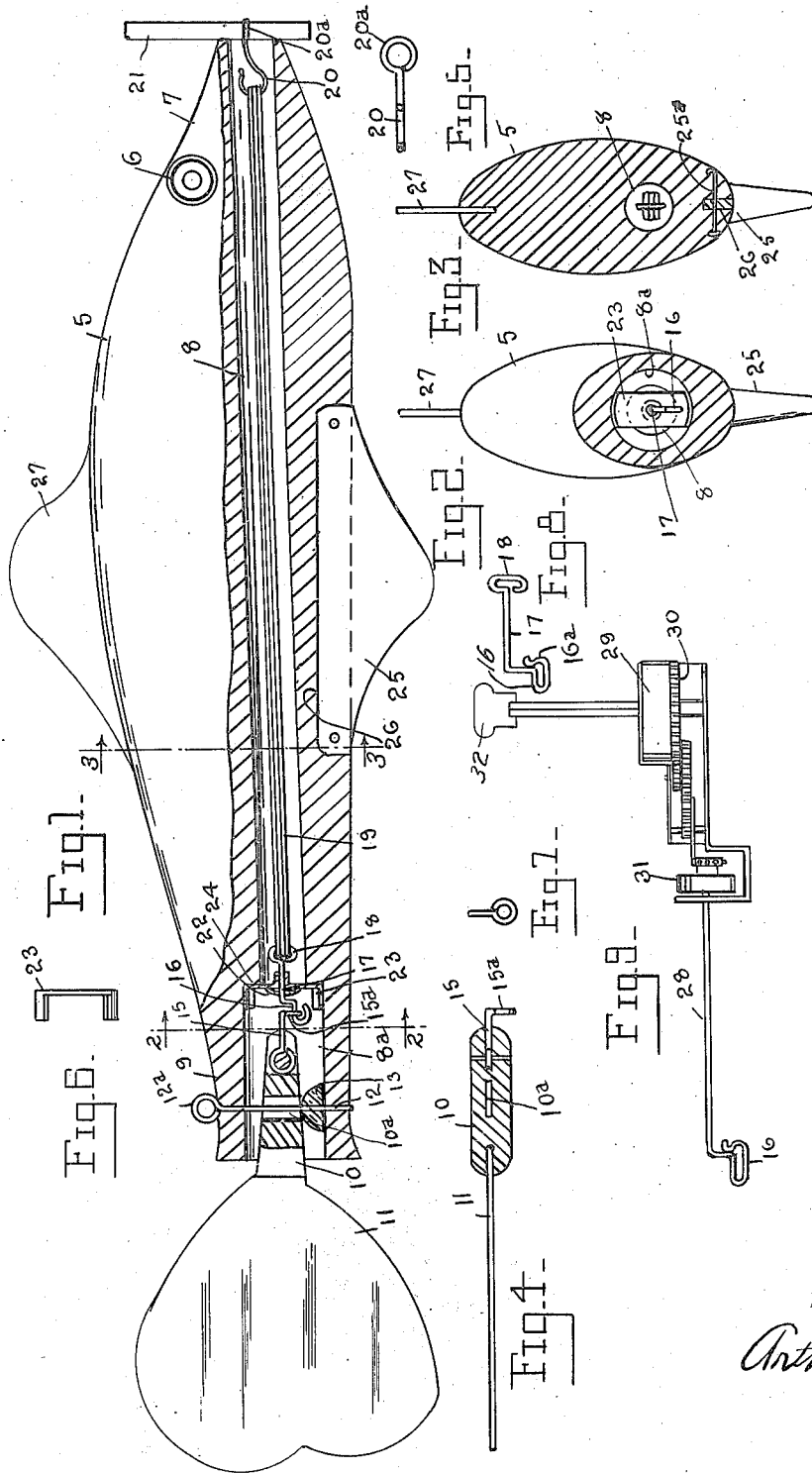
Dec. 22, 1936.

A. LEE

2,065,337

SELF PROPELLED TOY FISH

Filed Sept. 17, 1935



INVENTOR.

Arthur Lee

UNITED STATES PATENT OFFICE

2,065,337

SELF PROPELLED TOY FISH

Arthur Lee, Newark, N. J.

Application September 17, 1935, Serial No. 40,896

7 Claims. (Cl. 46—92)

This invention relates to an improved mechanical fish, and one of its objects is to provide a mechanical fish having a tail and means for operating the tail so that the fish is propelled through the water entirely by the tail motion.

Another object of the invention is the provision of a mechanical fish with a tail constructed to swing laterally of the body of the toy and to move up and down, and a mechanical motion or movement adapted to be driven by a suitable power source, which will operate the tail to produce both a lateral and a vertical movement, the effect of which will be to rapidly propel the toy fish through the water.

Another object of the invention is the provision of a mechanical fish with the improved self propelling tail, and the further provision of such a toy with a toy motor which can be entirely removed from the body of the fish, by a child, to permit of the replacement of the spring member of the motor.

Another object of the invention is the provision of a mechanical toy fish with a self propelling tail, a mechanical toy motor for operating the tail, and connections between the body of the toy and the tail and motor, whereby the entire toy may be taken apart and re-assembled by an inexperienced child with little effort, and without tools.

A still further object of the invention is the provision of such a toy with parts which can be manufactured and assembled at low cost.

With the above and other objects in view, the invention consists in certain new and useful constructions, combinations and arrangements of parts clearly described in the following specification, and fully illustrated in the drawing, in which:

Fig. 1 is a side view of the improved toy, with parts shown in longitudinal section.

Fig. 2 is a transverse sectional view, taken on line 2—2 of Fig. 1, looking in the direction of the arrows.

Fig. 3 is a similar view, taken on line 3—3 of Fig. 1, looking in the direction of the arrows.

Fig. 4 is the top plan view of the tail showing the operating arm in longitudinal section.

Fig. 5 is a side view of the winding key for the spring rubber motor.

Fig. 6 is a detailed side view of a bearing for the motor shaft.

Fig. 7 is a similar view of the driven element of the mechanical movement, which is carried by the tail.

Fig. 8 is a side elevation of a driving element,

Fig. 9 is a side elevation of a modified form showing the spring motor.

Referring to the drawing illustrating the practical embodiment of my invention 5 designates the body of the improved toy, which may be made of any material which is buoyant in water, such as wood, bakelite, rubber suitably filled with air, or any other material. This body is given the shape and form of a fish, and is provided with artificial eyes 6, suitably located in the head 7 of the toy animal figure. 10

The body of the toy fish may be formed with a longitudinal passage 8, extending from the forward end of the head 7 through the rear end 9 of the body, which is reduced to correspond with the general shape of a natural fish. 15

At the rear end of the body the passage 8 is enlarged to provide a chamber 8a which receives the operating arm 10 of the tail 11. This operating arm is formed with a transverse hole or slot 10a, through which the connecting pin 12 is inserted. This pin is forced through the wall of the chamber 8a and is provided on one end with a head 12a. A small glass bead 13 or similar rounded or ball-like bearing member is mounted loosely on the pin, so that it will engage one side of the wall of the chamber 8a, and this rounded bearing member provides a rocking point on which the arm 10 of the tail works up and down laterally in both directions. 20

The inner or forward end of the tail arm 10 is equipped with a metal member or pin 15, which is provided with an eye 15a. This eye is engaged by the hook or eye 16 formed on the rear end of the driver 17, and this hook or eye is offset relative to said driver, which is in the form of a small shank or formed wire. The forward end of the wire driver 17 is formed with an eye 18, which is partly open, so that the elastic rubber bands or strands 19 may be looped through the eye. The forward ends of these rubber bands are connected to the hook 20, which is formed with an eye 20a to receive the small rod or winding bar handle 21. 25

The pin 12 supports the tail against extreme forward motion under the pull of the elastic bands, which thus form, when twisted upon themselves, an elastic or spring rubber motor. A thrust washer 22 may be placed around the driver shank to limit forward play of the driver. This driver operates through the U-shaped sheet metal bearing 23, which has a forced friction fit against the side wall of the chamber 8a, and which bears against the shoulder 24 of this chamber. 30

The fish is equipped with a weighted keel member 25, in the form of lead or other material, which is secured in the longitudinal slot 26 of the body of the fish. This keel is placed to properly weight the fish, so that it will float with its sides disposed vertically. The fish is also provided with an upstanding fin 27, which may be celluloid or other similar material, which is water proof or water resisting.

The rubber bands or strands are connected with the driver, and the tail and the bearing member 23 are inserted as shown in Fig. 1. The forward ends of the rubber bands are then threaded through the longitudinal passage 8 forwardly of the forward end of the body, and held in place, while the winding key hook 20 is coupled to the rubber bands or strands. The strands or bands are preferably made of such lengths that tension is maintained on the winding key and the driver, to hold the bearing 23 in place in the chamber 8a.

By turning the winding key the rubber bands or strands will be twisted upon themselves, provided the tail is restrained against movement.

When the rubber spring motor has been placed under the desired tension the toy may be immersed or floated in water, when the expenditure of the energy stored up in the motor will start the movement of the tail, up and down and laterally, so that the toy fish will be propelled through the water.

The fish will be propelled through the water until the energy of the spring motor has been consumed. The effect of the motion of the tail is to propel the fish in a straight ahead course. By giving the tail a slight curve the fish will be caused to travel in a circular course. The tail may be made of any suitable metal or other material, and the area defined by the tail will be controlled by the energy developed by the spring motor.

The tail may be driven by a clock spring motor, in which case the rubber bands and winding key would be dispensed with. The driver would then be elongated, as shown in Fig. 9, and motion transmitted direct from such clock spring motor through the transmission shaft 28. The clock spring motor includes the power spring 29, the gear set 30, and the fly wheel 31. The spring is wound through a key 32, which is extended through an opening formed in the upper part of the body of the fish, so that the key need not be immersed in the water, and the opening of the key will always be above the water line of the immersed fish.

Having described my invention I claim:

1. A toy fish having a movable tail and means

carried by the toy fish for actuating the tail vertically and laterally to propel the fish through water in which the fish is placed.

2. A toy fish having a movable tail, and means carried by the fish for producing lateral and vertical movement of the tail to propel the same in water in which the fish is placed.

3. A toy fish having a tail mounted to move vertically and laterally of the body of the fish, and means for actuating the tail vertically and laterally.

4. A toy fish having a body and a tail pivoted thereon to move laterally and up and down relative to the body, and motor means carried by the body for actuating the tail in both directions.

5. A toy fish having a body provided with a longitudinal passage therein, a tail having an operating arm, a pin pivotally connecting the tail to the fish in line with the body, an eccentric drivable element on the inner end of the tail, a motor shaft mounted to turn in the body and having an eccentric driving element having driving engagement with the drivable element, said tail being mounted to rock vertically and swing laterally and said drivable element and said motor shaft being arranged to produce lateral and vertical movement of the tail and a spring motor for producing a prolonged turning effort on the motor shaft.

6. The construction set forth in claim 5, including a winding key mounted at one end of the body of the fish and having winding connection with the spring motor.

7. A floatable body having a rear end provided with a longitudinal opening, a bearing located in said opening, a shaft mounted to turn in said bearing and having an eccentric arm provided with an eye extending rearwardly of said bearing, a tail having an arm smaller than the opening and disposed therein and provided on its inner end with an eccentric eye having coupled driving connection with the eccentric eye of the shaft, said tail arm having a transverse opening, a bearing in said body opening for supporting said tail arm for rocking movement and engaging one end of said transverse opening, and a pin extending through the rear end of said body through the opening of said arm and through the last named bearing, said pin being considerably smaller than the transverse opening of the tail arm, and a spring motor connected with the inner end of the shaft and arranged to rotate the same, whereby the tail will be rocked vertically and shifted horizontally with reference to the body and said body will be propelled by said tail movements when floating in water.

ARTHUR LEE.