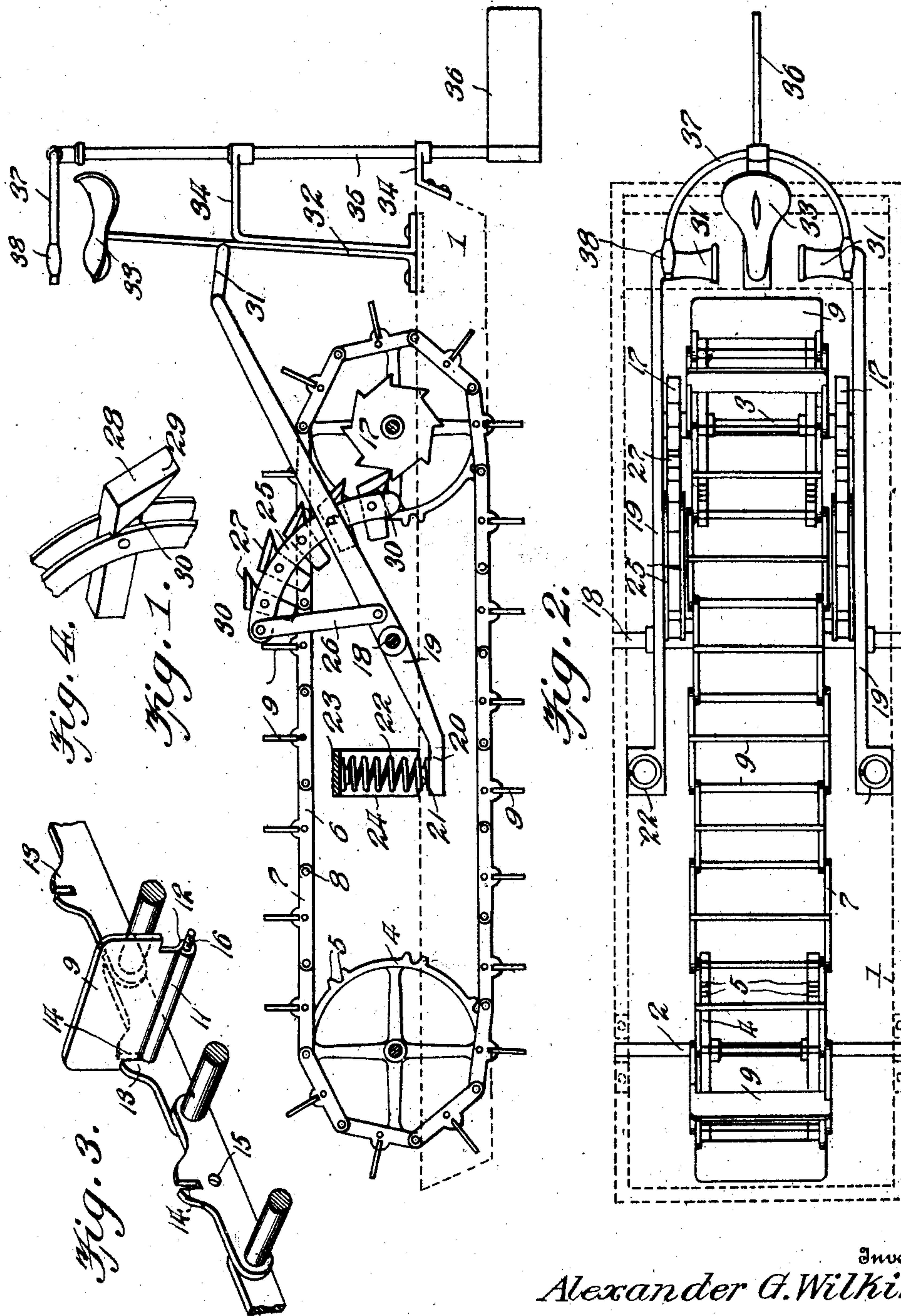


A. G. WILKINS.
BOAT PROPELLING MECHANISM.
APPLICATION FILED JULY 10, 1908.

906,978.

Patented Dec. 15, 1908



Witnesses

Frank B. Hoffman.
D. W. Gould.

Inventor
Alexander G. Wilkins

384 Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

ALEXANDER G. WILKINS, OF MEADVILLE, PENNSYLVANIA.

BOAT-PROPELLING MECHANISM.

No. 906,978.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed July 10, 1908. Serial No. 442,870.

To all whom it may concern:

Be it known that I, ALEXANDER G. WILKINS, a citizen of the United States, residing at Meadville, in the county of Crawford and State of Pennsylvania, have invented new and useful Improvements in Boat-Propelling Mechanism, of which the following is a specification.

The invention relates to an improvement in boat propelling mechanism, being particularly directed to a means arranged for foot operation and adapted to impart continuous travel to an endless paddle carrier.

The main object of the present invention is the provision of an endless paddle carrier and a series of pedals arranged within convenient reach of the operator and adapted to impart movement to the paddle carrier, said carrier being constructed for the convenient reception and proper support of paddles or blades for use as propelling means.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is a view in side elevation of the improved propelling mechanism, a boat hull being shown in dotted outline. Fig. 2 is a plan of the same. Fig. 3 is a broken perspective showing the means of securing and supporting the paddles. Fig. 4 a broken perspective showing the means for mounting the operating teeth.

Referring particularly to the accompanying drawings, my improved propelling mechanism is designed for application to a boat structure 1, which for the purposes of the present invention may be in any form or of any material desired. Adjacent opposing ends of the boat structure and transversely thereof are arranged shafts 2 and 3, the ends of which are preferably supported in bearings secured to any convenient parts of the structure. On each shaft are arranged in spaced relation a pair of sprocket wheels 4, the teeth of which are arranged in spaced pairs, as at 5. Fitted to travel over the pairs of sprocket wheels alined longitudinally of the structure and including one sprocket wheel on each shaft are duplicate sprocket chains 6 made up of a series of links 7 connected by pivot rods 8. In operation the respective pivot rods are designed to fit between the teeth of each cooperating pair of teeth, whereby in the operation of either pair of sprocket

wheels the chains are caused to travel in a fixed path as shown.

The sprocket wheels are of such size and so arranged that the lower section of the chain will travel in a path below the water line, the bottom of the boat structure being preferably formed with a longitudinal opening to permit such travel of the chain. Secured centrally of each link of the chain is a propelling paddle or blade 9, preferably of proximately rectangular form, bent at the inner edge to provide a sleeve-like bearing 11, the side edges of the blade being preferably cutaway, as at 12, to form the bearing 11 of less length than the maximum width of the blade. The central portion of each link 7 is formed with an edge extension 13 in which extension there is centrally formed a slot 14 corresponding in width to the thickness of the blade 9, said slot projecting at right angles to the edge of the link and the latter being formed in alignment with the slot with an opening 15. In securing the blades in place the sleeve 11 is inserted between transversely opposing links of the respective chains, the blade proper fitting in the slots 14 of said opposing links. With the bearing member in position in alignment with the openings a securing rod 16 is passed through the openings and intermediate bearing member and secured by heading or by nuts as desired. The engagement of the blade proper in the slots 14 will maintain said blade at direct right angles to the path of travel of the particular link so that in the travel of the chains the relatively lower sections of said chains will present a series of paddles at direct right angles to the line of travel of the boat, as clearly shown in Fig. 1. Secured on the relatively rear shaft, as 3, adjacent and beyond each sprocket wheel thereon is a ratchet wheel 17, preferably of materially less diameter than the diameter of the sprocket wheel. Mounted on a fulcrum rod 18 appropriately supported in bearings fixed to the structure are operating levers 19, said levers being respectively arranged beyond and adjacent each of the ratchet wheels. The relatively forward ends of the levers are projected at an incline to the main lengths of the levers, as at 20, which part is provided on its upper edge with a stud 21 to receive the lower end of a coil spring 22, the upper end of which bears beneath the upper wall 23 of a housing 24 appropriately secured to the structure, the spring being

tensioned to normally maintain the forward ends of the levers at their limit of downward movement. Secured to each of the levers at a point in rear of its pivotal support is a pair of spaced parallel arcuate strips 25, the upper ends of which extend above the lever and are fixedly connected thereto by links 26, the lower ends of the strips extending below the lever and being free of direct connection with the lever at its point. Secured between each pair of strips 25 are a series of pawls 27, of approximately rectangular shape having their relatively rear edges inclined at 28 to form edges 29. The pawls are pivotally mounted between the strips and their relatively forward ends are of greater weight than their rear ends, so as to normally maintain the pawls in operative position. Immediately beyond the rear edges of the strips 25 each pawl is increased in width to provide shoulders 30, the plane of which is at an angle to the plane of the adjacent edges of the strips 25, whereby when the pawl is in normal position the upper ends of the shoulders 30 are in engagement with the adjacent edges of the strips, while the lower edges of said shoulders are spaced a considerable distance in rear of said edges, for a purpose which will presently appear. The relatively rear ends of the levers are formed with pedal extensions 31 and adjacent said pedal a standard 32 is secured to the boat structure and carries at its upper end a seat or saddle 33, the arrangement being such that the operator when seated in the saddle may conveniently depress the rear ends of the levers by obvious operation of the pedals 31. Secured in bracket arms 34 fixed to the structure is a steering rod or post 35. The post depends in rear of the boat and below the water line is provided with a rudder 36, the upper end of the post terminating adjacent the saddle and being provided with handle bars 37 which preferably curve toward and on opposite sides of the saddle, disposing hand grips 38 of said bars within convenient reach of the occupant of the saddle to provide for proper steering of the structure.

With the parts constructed and arranged as described the operation of my improved propelling mechanism is as follows: The operator by alternately depressing the levers 19 through foot engagement with the paddles will cause the pawls 27 of said levers to engage the teeth of the ratchet 17 and thereby impart a continuous rearward travel of the relatively lower section of the chains, causing the paddles carried by said section to propel the boat in a forward direction. Each lever is automatically returned to normal position through operation of the spring 22, the inoperative movement of the lever causing the pawls carried thereby to ride by the teeth of the advancing ratchet, the spacing of the relatively lower portion of the shoulder 30 of

each of said teeth permitting such movement in an obvious manner.

It will be understood that the propeller is applicable to any style of boat structure, and may be if desired mounted between spaced tubes or cylinders of ordinary construction, and that with any buoyant structure the propelling mechanism will be particularly efficient for imparting a regular and uniform speed to the structure.

Having thus described the invention what is claimed as new, is:—

1. A propelling mechanism including spaced parallel chains, means for operating said chains, each link of each chain being provided with an edge extension formed with a slot disposed at right angles to the edge, blades fitted in the slots of transversely aligned links, each blade being formed to provide bearing sleeves adapted to fit between the opposing links, and securing rods passed through said links and through the bearing sleeve of the blade.

2. A propelling mechanism including a chain, a series of paddles carried thereby, a ratchet for imparting movement to the chain, a pedal lever supported adjacent the ratchet, and a series of pawls carried by said lever and adapted to engage the teeth of the ratchet, said pawls being arranged in an arcuate plane above and below the lever and mounted for independent movement to override the teeth of the ratchet in the inoperative movement of the lever.

3. A propelling mechanism including a chain, a series of paddles carried thereby, a ratchet for imparting movement to the chain, a pedal lever supported adjacent the ratchet, a series of pawls carried by said lever and adapted to engage the teeth of the ratchet, said pawls being arranged in an arcuate plane above and below the lever and mounted for independent movement to override the teeth of the ratchet in the inoperative movement of the lever, and means for normally maintaining the lever in inoperative position.

4. A propelling mechanism including a chain, a series of paddles carried thereby, a ratchet wheel arranged to impart movement to the chain, a lever mounted adjacent the wheel, spaced arcuate strips connected to the lever, and a series of pawls mounted between the strips and arranged to engage the teeth of the ratchet wheel, the operative end of said pawls being formed with offset shoulders arranged to engage the adjacent edges of the strips when the pawls are in operative position.

5. A propelling mechanism including a chain, a series of paddles carried thereby, a ratchet wheel arranged to impart movement to the chain, a lever mounted adjacent the wheel, spaced arcuate strips connected to the lever, and a series of pawls mounted between

the strips and arranged to engage the teeth of the ratchet wheel, the operative ends of said pawls being formed with offset shoulders arranged to engage the adjacent edges of the strips when the pawls are in operative position, said shoulders being throughout the greater portion of their lengths spaced from the adjacent edges of the strips when the pawls are in operative position, whereby lim-

ited independent movement of the pawls in one direction is permitted.

In testimony whereof I affix my signature in presence of two witnesses.

ALEXANDER G. WILKINS.

Witnesses:

HARRY G. YONTS,

ARTHUR V. LEBERMAN.