

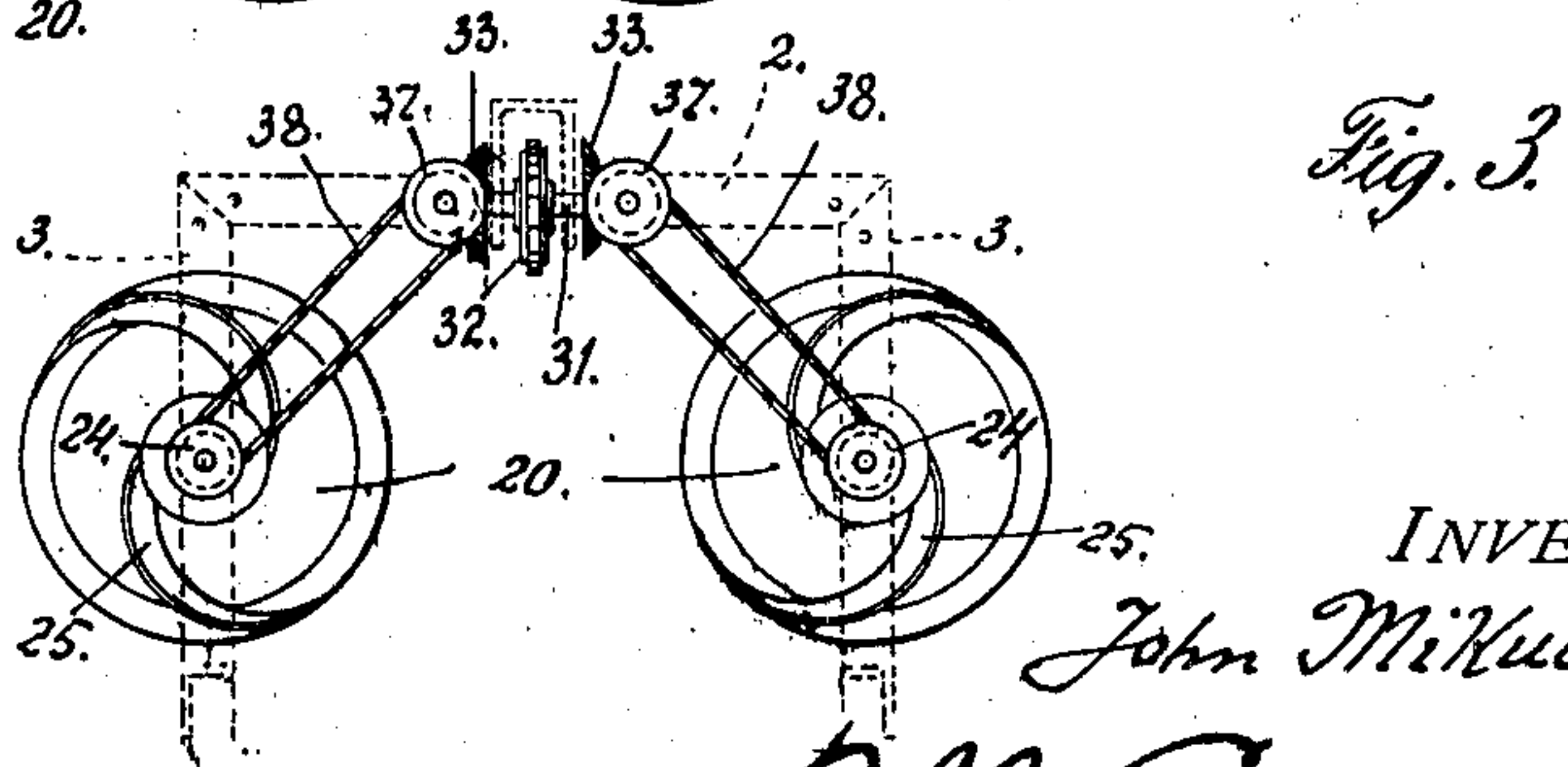
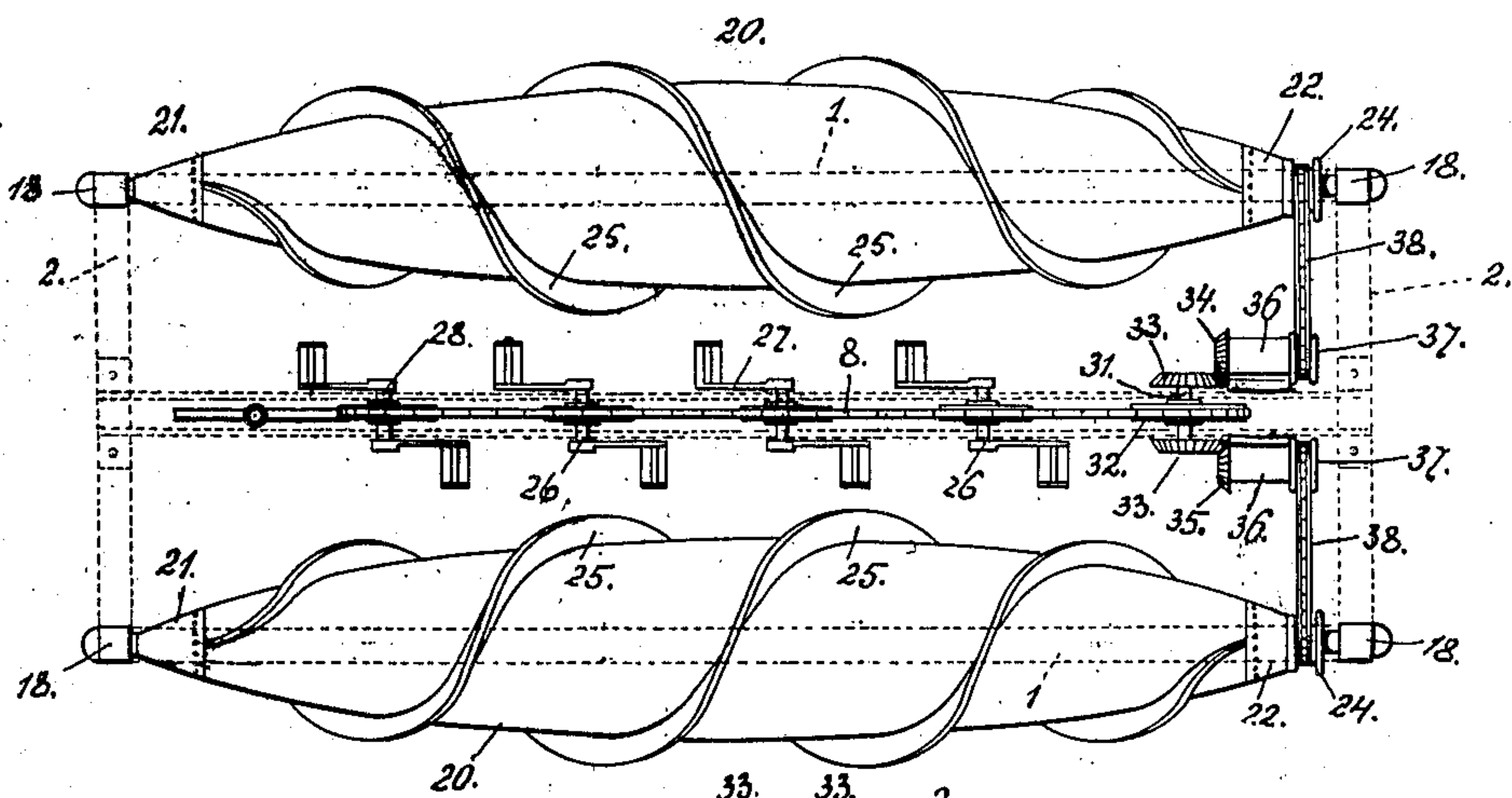
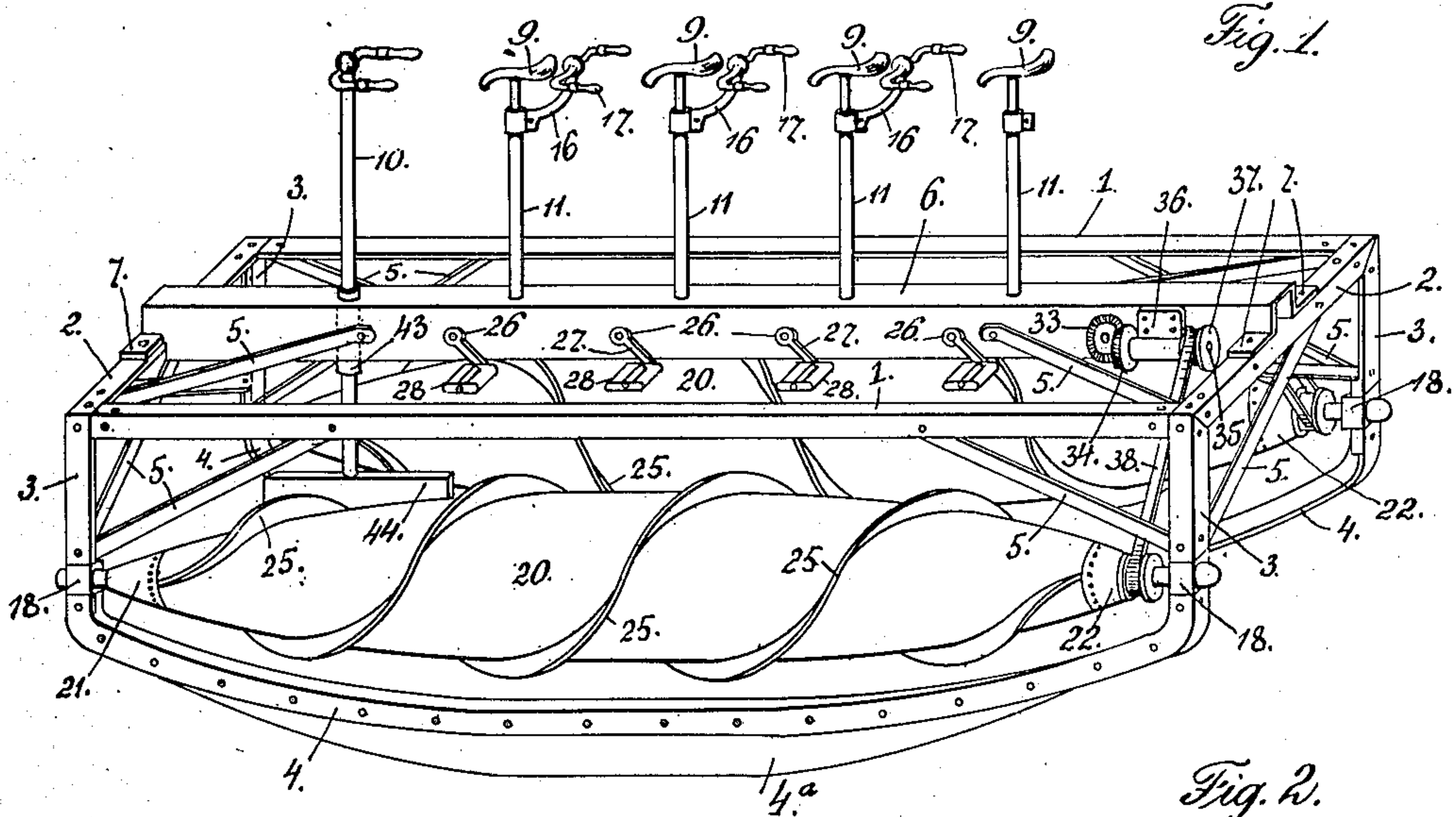
No. 872,140.

PATENTED NOV. 26, 1907.

J. MIKULASEK.  
WATER VEHICLE.

APPLICATION FILED MAY 27, 1907.

2 SHEETS—SHEET 1.



WITNESSES:

A. H. Rabsaig,

*H. H. Dutton*

INVENTOR

*John Mikulasek*

BY

*H. E. Everett & Co*

Attorneys

No. 872,140.

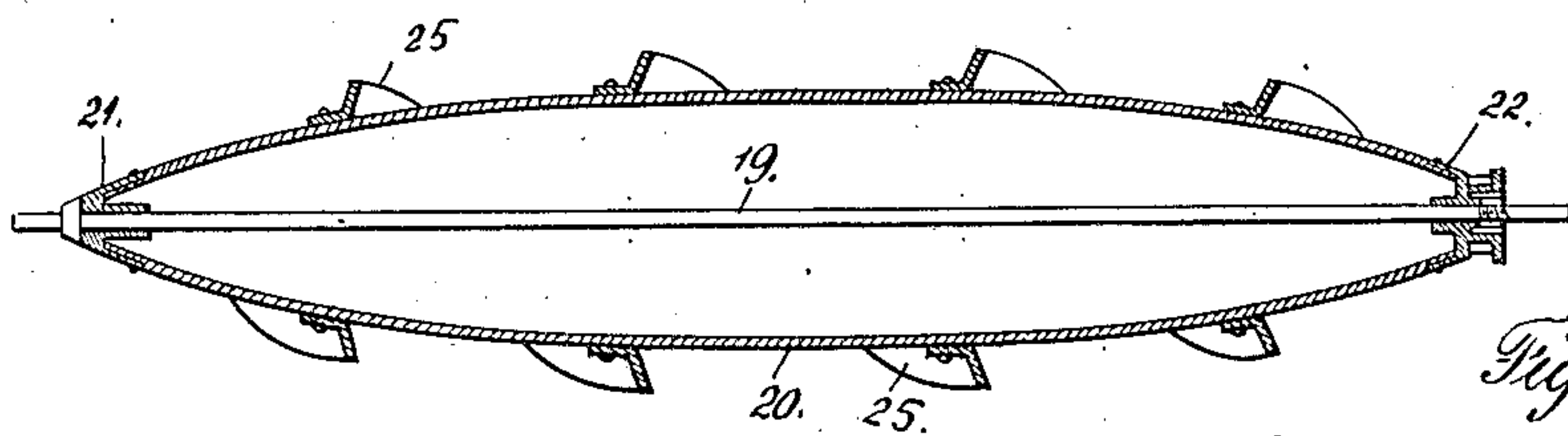
PATENTED NOV. 26, 1907.

J. MIKULASEK.  
WATER VEHICLE.

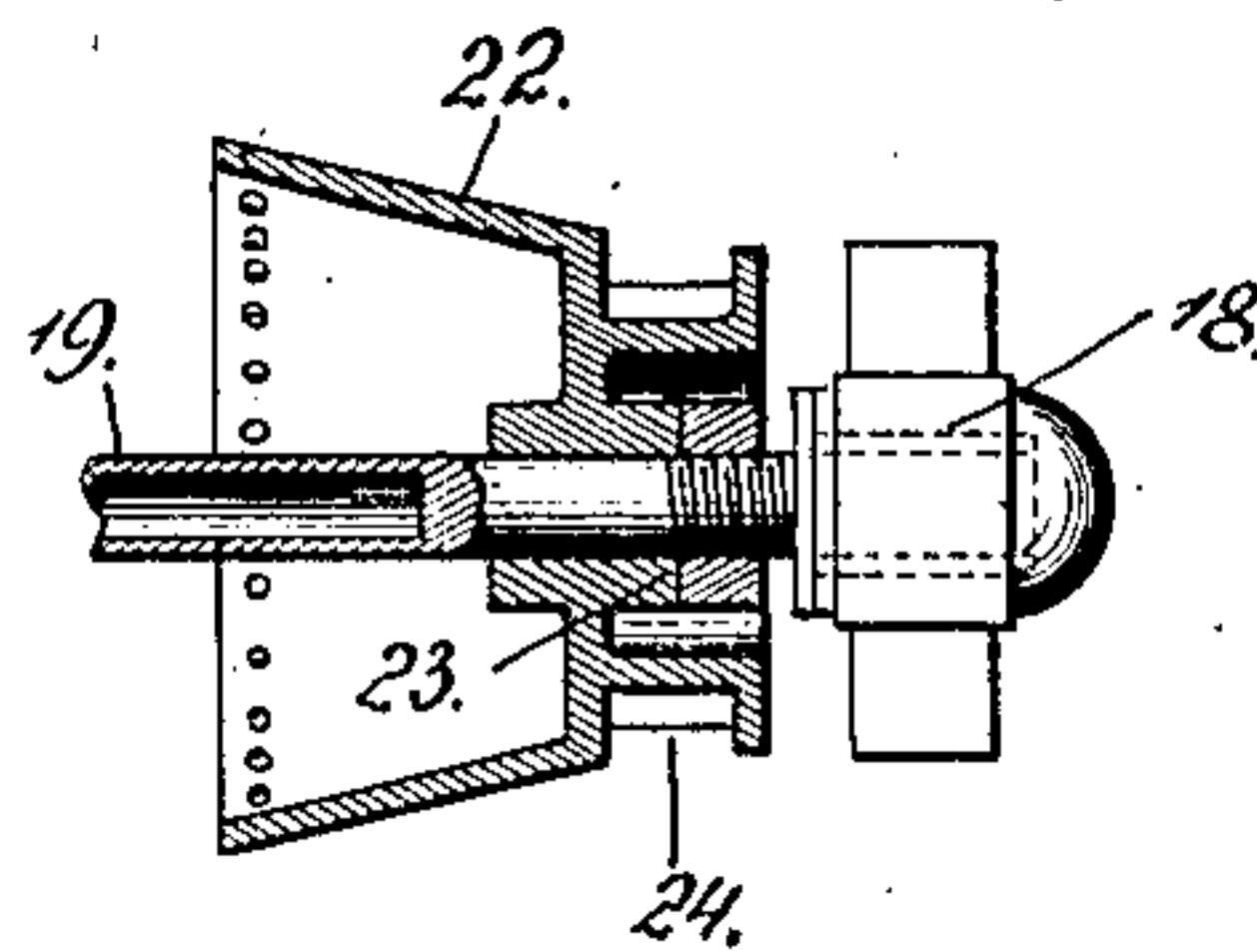
APPLICATION FILED MAY 27, 1907.

2 SHEETS—SHEET 2.

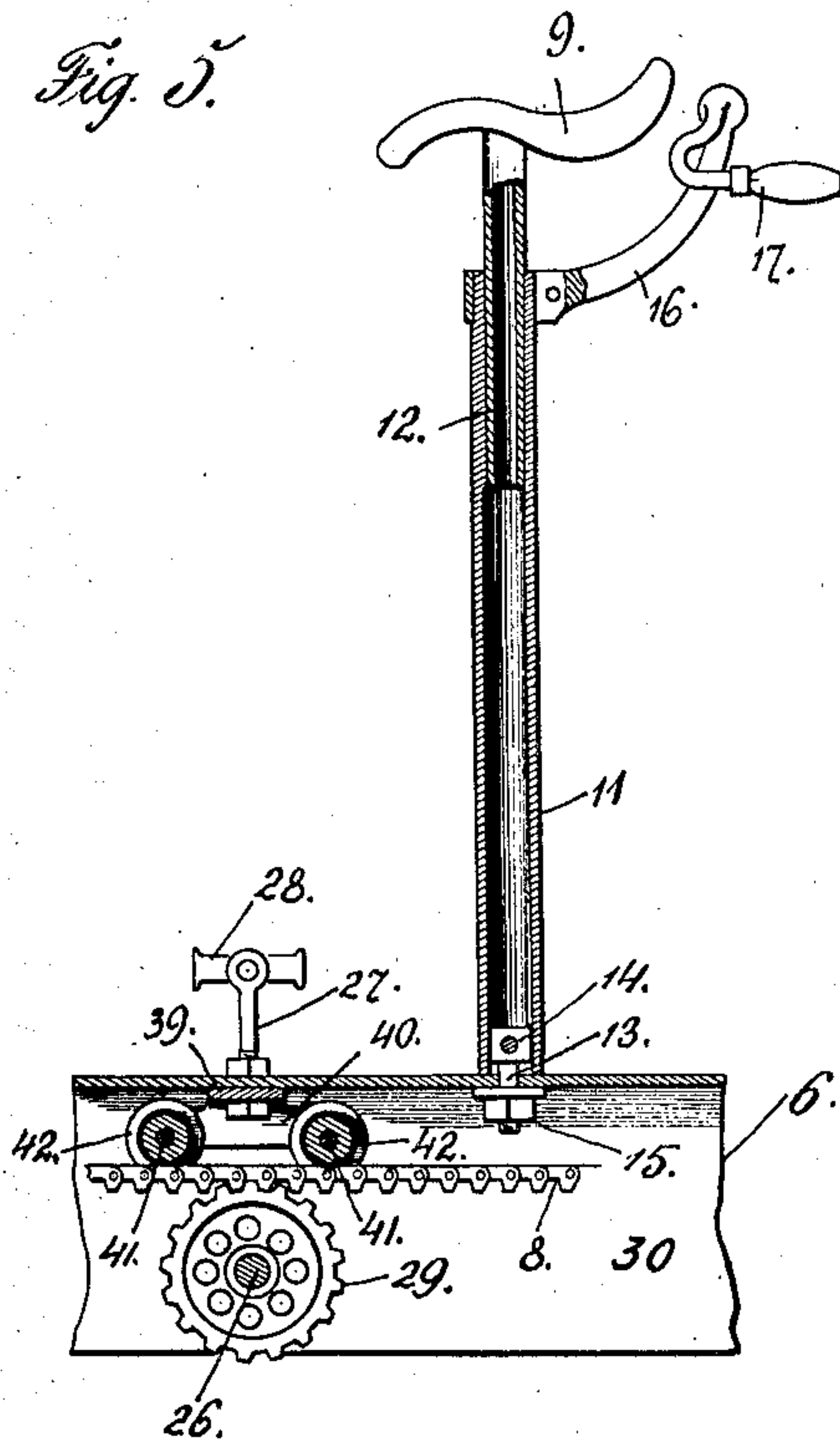
*Fig. 4.*



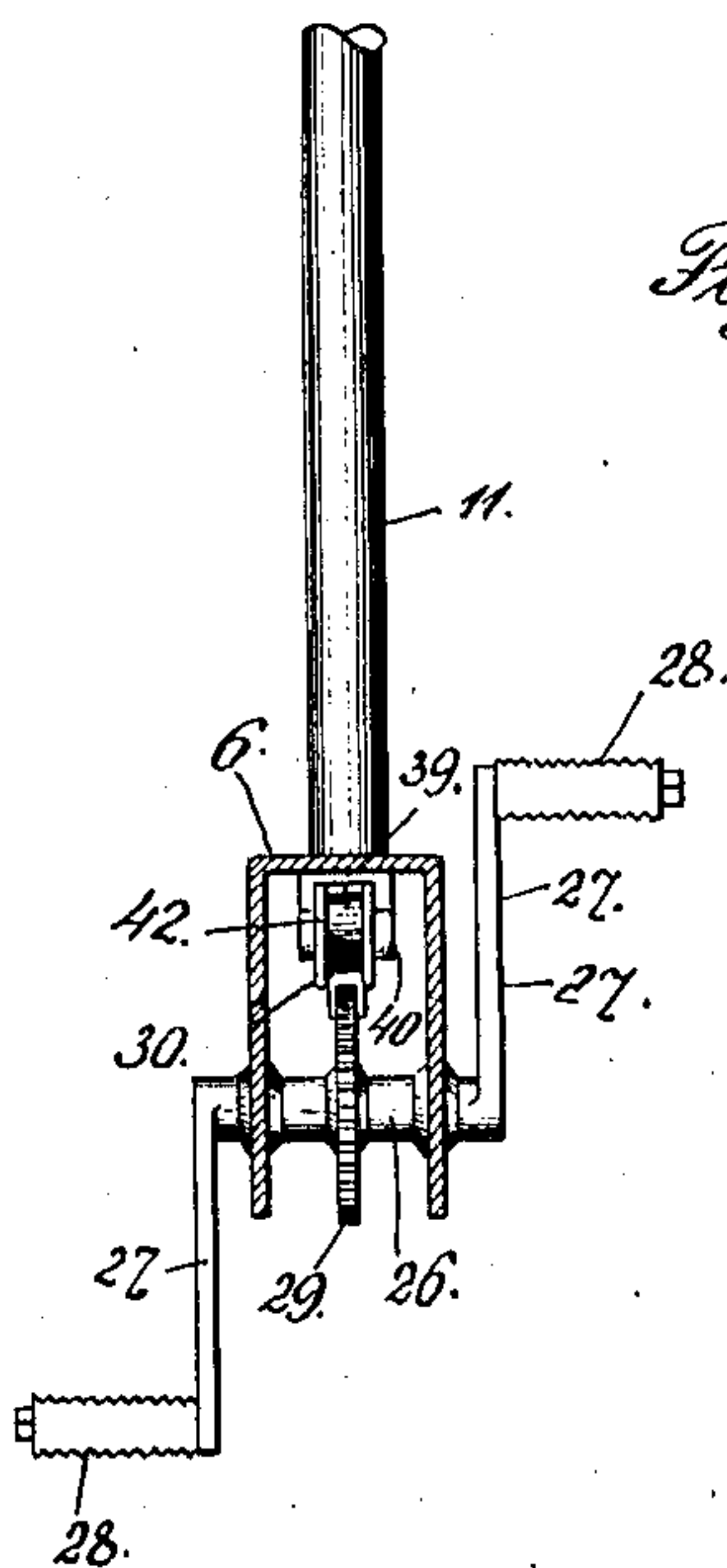
*Fig. 6.*



*Fig. 5.*



*Fig. 7.*



WITNESSES:  
*A. H. Rabsag,*

*W. H. Rutter,*

INVENTOR  
*John Mikulasek,*

BY *H. E. Everett & Co.*  
Attorneys



# UNITED STATES PATENT OFFICE.

JOHN MIKULASEK, OF GROVE CITY, PENNSYLVANIA.

## WATER-VEHICLE.

No. 872,140.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed May 27, 1907. Serial No. 375,877.

*To all whom it may concern:*

Be it known that I, JOHN MIKULASEK, a citizen of the United States of America, residing at Grove City, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Water-Vehicles, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to pedal propelled boats and its primary object is, to provide a pleasure craft adapted to be readily operated and steered in the water by the riders.

15 A further object of the invention is, to provide a vessel of the character indicated, in which rotary propellers are employed capable of driving the vessel at considerable speed.

20 With these and such other objects in view as may be disclosed as the description proceeds, the invention consists of the novel construction and combination of parts hereinafter fully described and set forth in the appended claims, in connection with the accompanying drawings which constitute a part of this specification.

25 In the drawing:—Figure 1 is a view in perspective, of a pedal-propelled vessel embodying the invention, Fig. 2 is a top plan view of the same, Fig. 3 is an elevation of the rear end of the vessel, Fig. 4 is a central longitudinal section of the propeller floats employed, Fig. 5 is a vertical sectional view taken through the central girder of the structure, and one of the seat-posts supported thereon, 30 Fig. 6 is a longitudinal section of the casting secured to the rear ends of the propeller floats, and, Fig. 7 is a transverse section of the central girder showing parts in elevation.

35 The frame of the vessel comprises parallel longitudinal bars 1, connected at their ends by cross-bars 2, depending corner supports 3 and parallel downwardly-curved guards 4 secured one at each side of the frame and to the lower ends of the adjacent corner supports 3. 40 These several parts forming the frame are preferably constructed of steel to provide a strong and substantial structure, and the frame is strengthened and reinforced by inclined braces 5.

45 The cross bars 2 of the frame are connected by a girder 6 disposed centrally between the frame side bars 1 and formed with oppositely projecting flanges 7 at its ends to facilitate its being secured to the cross-bars. 50 This central girder 6 is of channel form, and

of inverted U-shape in cross section, to adapt it to contain the main driving sprocket chain 8, and other elements of the propelling mechanism.

55 Supported upon the central girder 6 are any preferred number of supports provided with seats 9 and a steering post 10, the latter being located at the front of the vessel. Each of the seat posts consists of two hollowed telescopic sections 11 and 12, the lower end of the lower section 11 being secured to the girder 6 by a screw coupling 13 having a head 14 extending up into the port and secured thereto while its threaded body portion projects through an opening in the top portion of the girder, and is secured by a nut 15 (Fig. 5.) Adjustably secured to each of the intermediate posts is a curved arm 16 supporting the handle bars 17. 60 65 70

75 Each of the four corner supports 3, is provided with a bearing 18 in which are revolvably supported the shafts 19 of the propeller floats 20, said floats being hollow and constructed of either wood or metal with metallic covers, and having their ends tapered in opposite directions. To the forward end of each of said floats is secured a conical casting 21 having an opening for the passage of the shaft 19, and to the rear end of each of the floats is secured a casing 22 of the same general contour as the casting 21, but having an extending bearing 23 and an integral sprocket gear wheel 24. Each of the propeller floats is provided on its exterior with a spirally and slantingly disposed propeller blade or worm 25, extending throughout the length of the float, and of such pitch as to insure the maximum working action against the water. 80 85 90

95 In front of each of the seat posts, a crank-shaft 26 is supported in bearings found in the vertical sides of the central girder 6, each of said shafts having crank-arms 27 equipped with pedals 28. Upon each of the shafts 26 is mounted a sprocket wheel 29 engaging the endless sprocket chain 8 which travels within the channel 30 of the central girder as best shown in Fig. 5. 100

105 In rear of the rear seat-post a shaft 31 is mounted in bearings found in the central girder, and centrally upon this shaft within the girder is mounted a sprocket wheel 32 in alignment with the sprocket wheels upon the pedal shafts. Upon the projecting ends of the shaft 31 are mounted oppositely-dis- 110



posed bevel gears 33 meshing with bevel pinions 34 mounted upon the forward ends of longitudinally-disposed shafts 35 supported in bearings 36 at opposite sides of the end of each of the shafts 35 is a sprocket gear 37, said gears being connected by sprocket chains 38 with the sprocket gears 24 on the rear ends of the propeller floats.

To insure the engagement of the sprocket chain 8 with the sprocket gears 29, located intermediate the forward gear 29, and the rear driving sprocket 32, I employ above each of said intermediate sprockets a guard comprising a bracket 39 of inverted U-shape secured to the under side of the top portion of the girder 6, and provided with a pair of oppositely projecting arms 40 at each side having bearings for shafts 41 upon which are mounted flanged guard rollers 42 preferably provided with rubber tires.

As shown in Figs. 5 and 7 the driving chain 8 is held in working engagement with the sprocket wheels 29 and the propelling power is transmitted by said chain to the rear shaft 31 which constitutes the main driving shaft for revolving the propeller floats. The steering apparatus comprises the post 10 arranged in front of the seat posts and extending through bearings 43 supported by the girder 6, and a rudder 44 secured to the lower end of the post. The rudder post 10 is adapted to be readily turned by its handle bars 17 manipulated by the occupant of the forward seat.

The bearing employed for the revoluble parts of the mechanism are preferably ball-bearings, it being important to secure an easy revolution of the pedal shafts and propeller floats with the minimum loss by friction.

The riders seats 9 and handle-bars 17 are vertically adjustable to accommodate different riders and it will be noted that the pedal gearing and driving chain are connected and protected within the hollow central girder.

From the under side of each of the curved guards 4 depends a rib or flange 4<sup>a</sup>, said ribs preventing the circulation of water in the direction of revolution of the propeller floats, which might tend to decrease the efficiency of the revolving movement of the floats. The guards 4 protect the propeller from contact with rocks or other obstructions in the water.

The operation of the mechanism will be readily understood without further detail explanation. It is obvious that the propeller floats are revolved by the revolution of the pedal crank-shaft through the intermediacy of the gearing and chains shown and described, and the rudder is readily turned to steer the craft by the turning of the rudder-post.

I would have it understood that the invention is not restricted to all of the details

shown, but includes all such minor changes or modifications as may fall within the terms and scope of the claims.

Having fully described my invention what I claim and desire to secure by Letters Patent, is,

1. In a pedal propelled boat, the combination with a supporting frame having a centrally disposed hollow girder, of corner supports depending from said frame and provided with shaft bearings, shafts mounted in said bearings, propeller-floats mounted on said shafts, guards secured to said corner supports and extending below said floats, pedal shafts having a bearing in said girder, riders-seats supported on said girder, and belts and gearing for revolving said floats from said pedal shafts.

2. In a pedal propelled boat, the combination with a supporting frame, of a central girder of inverted U-shape in cross-section, seat and rudder posts supported above said girder, propeller-floats mounted upon shafts having bearings in said frame, pedal shafts supported in bearings formed in the sides of said girder, sprocket wheels mounted on said pedal-shafts within said girder, a driving shaft also mounted in bearings of the girder, a sprocket wheel on said driving shaft, a sprocket chain engaging said sprocket wheels, and connections between said driving shaft and propeller floats for revolving the latter.

3. In a pedal-propelled boat, the combination with a supporting frame, of a central girder of inverted U-shape in cross-section, seat and rudder posts supported above said girder, propeller floats mounted upon shafts having bearings in said frame, pedal shafts supported in bearings formed in the sides of said girder, sprocket wheels, mounted on said pedal-shafts within said girder, a driving shaft also mounted in bearings of the girder, a sprocket wheel on said driving shaft, a sprocket chain engaging said sprocket wheels, and connections between said driving shaft and propeller floats for revolving the latter, said connections comprising bevel gears on the ends of the driving shaft, parallel shafts supported on opposite sides of the girder, bevel pinions on the front ends of said parallel shafts, sprocket wheels on the rear ends of said parallel shafts, a sprocket on each of the propeller shafts, and chains connecting the propeller shaft sprockets with the sprockets on said parallel shafts.

4. In a pedal propelled boat, the combination with a supporting frame, comprising parallel longitudinal bars, transverse bars and depending corner supports provided with shaft bearings, of downwardly curved guards connected at opposite sides of the frame to the corner supports, a centrally-disposed longitudinal girder of inverted U-shape in cross section, seat and rudder-posts carried



by said girder, pedal shafts and a driving shaft mounted in bearings of the girder, sprockets on said shafts, propeller-floats mounted upon shafts supported in the bearings of said corner-supports, sprocket gear connections between said driving shaft and the shafts of the propeller floats, a chain connecting said sprockets and means for maintaining the pedal-shaft-sprockets in engagement with said chain.

5. In a pedal propelled boat, the combination with a supporting frame, comprising parallel longitudinal bars, transverse bars and depending corner supports provided with shaft bearings, and shafts mounted in said bearings of downwardly curved guards connected at opposite sides of the frame to the corner supports, a centrally disposed longitudinal girder of inverted U-shape in cross-section, seats and rudder posts carried by said girder, pedal shafts and a driving shaft mounted in bearings of the girder, sprockets on said shafts, propeller floats mounted upon the shafts supported in the bearings of said corner-supports, sprocket gear connections between said driving shaft and the shafts of the propeller floats, a chain connecting said sprockets, and means for maintaining the pedal shaft sprockets in engagement with said chain, said means comprising brackets secured within the girder, and rollers supported by said brackets and bearing upon said chain.

6. In a pedal propelled boat, the combination with a supporting frame, of a longitudinal girder arranged centrally of the frame, pedal shafts, and a driving shaft mounted in bearings of said girder, sprockets

on said shafts, a sprocket chain connecting said sprockets, propeller floats mounted upon shafts having bearings in the frame, one on either side of said central girder, bevel gears on the ends of the driving shaft, parallel shafts mounted in bearings on opposite sides of the girder, bevel gears on the front ends of said shafts meshing with the gears of the driving-shaft, sprocket wheels on the rear ends of said parallel shafts, conical castings on the rear ends of the propeller floats and each formed with a sprocket gear, and chains connecting the sprockets on said parallel shafts, with the sprockets on said castings.

7. In a pedal-propelled boat, the combination with a frame comprising longitudinal bars, transverse bars connecting the ends of said longitudinal bars and depending corner supports or guards connecting the lower ends of said corner supports at each side of the structure, of a propeller float revolubly supported in bearings above each of said guards, a centrally-disposed girder of inverted U-shape in cross-section supported upon said transverse bars, a rudder post supported in a bearing on said girder, a rudder secured to said post between the propeller-floats, pedal shafts having bearings in said girder, and sprocket gearing carried by said girder for revolving said propeller floats from said pedal shafts.

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

JOHN MIKULASEK.

Witnesses:

ALONZO W. WOLCOTT,  
M. P. BLACK.