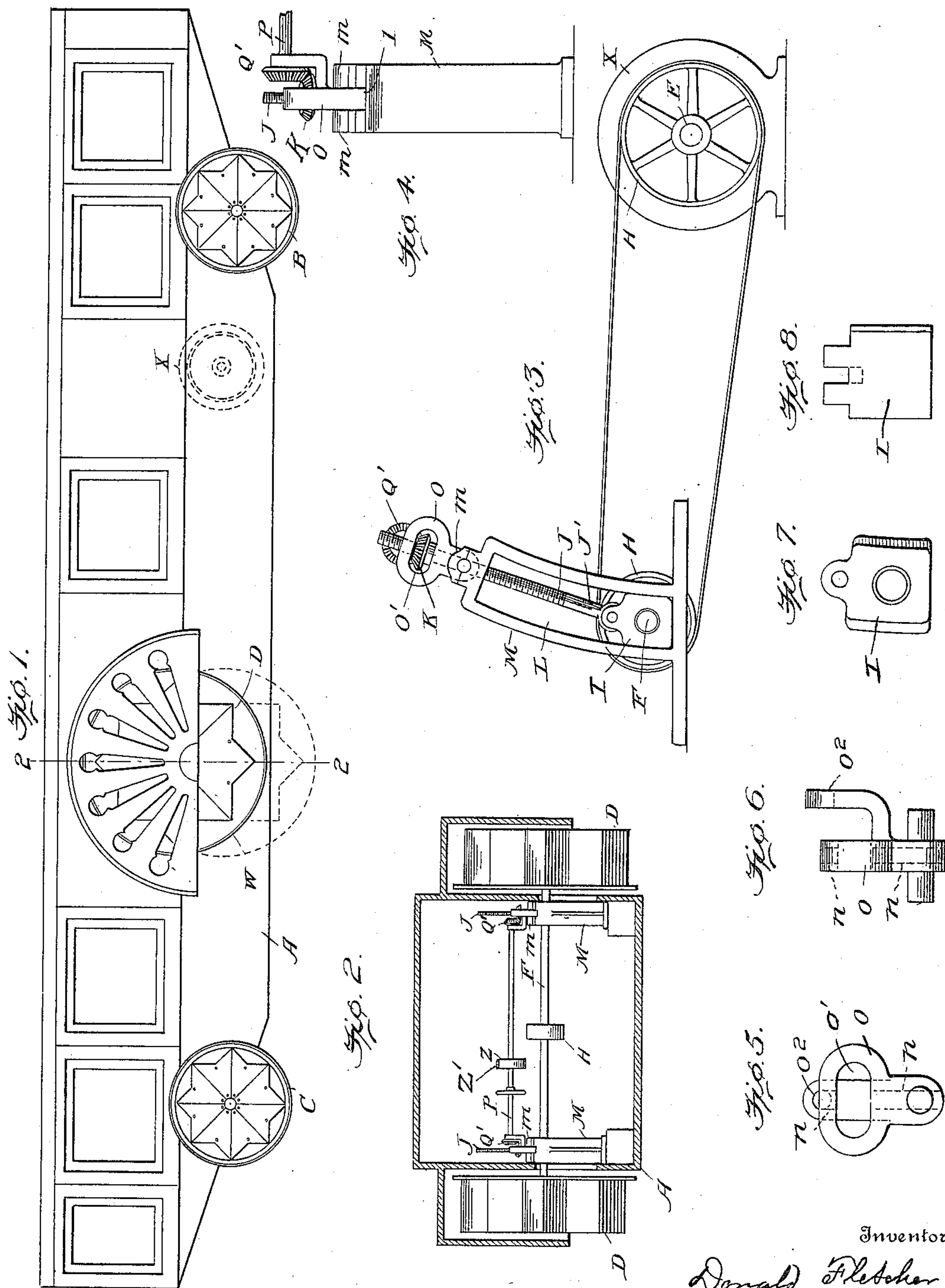


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PADDLE WHEEL VESSEL.  
APPLICATION FILED JUNE 17, 1909.

935,198.

Patented Sept. 28, 1909.



Witnesses

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# UNITED STATES PATENT OFFICE.

DONALD FLETCHER, OF TACOMA, WASHINGTON.

PADDLE-WHEEL VESSEL.

935,198.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed June 17, 1909. Serial No. 502,711.

*To all whom it may concern:*

Be it known that I, DONALD FLETCHER, a citizen of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Paddle-Wheel Vessels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is an improvement on my patent #624,318, and its chief object is to provide for raising the propulsion wheels in the middle of the boat or vessel without changing the distance of their shaft from that of the driving shaft.

In the accompanying drawings, Figure 1 represents a side elevation of the boat provided with mechanism embodying the invention; Fig. 2 represents a cross section on the line 2—2 of Fig. 1. Fig. 3 represents on a larger scale in side elevation the adjusting mechanism for the paddle wheel shaft; the driving shaft being also indicated with suitable relation thereto. Fig. 4 represents a view of the same at right angles to Fig. 3; Figs. 5 and 6 represent detail views of one of the bearing brackets for the gearing which raises and lowers the paddle wheel shaft. Figs. 7 and 8 represent similar views of one of the bearing blocks for the paddle wheel shaft.

A designates the body of the vessel; B, the forward paddle wheels; C, one of the stern paddle wheels; and D the midship driving paddle-wheels, there being of course a pair of wheels in each instance and the midship wheels being larger than the others, as having the main work of propulsion. The two end pairs of wheels are largely for guiding, and may be driven either independently or by gearing of any suitable kind from the main driving shaft E, which is directly actuated by any suitable motor conventionally indicated at X.

In Fig. 1 the main paddle wheel is shown in full lines in its uppermost position, at rest, and in dotted lines in its lowest position, at full speed.

The shaft F of the midship paddle wheels D is driven by shaft E through belt gearing H or in any convenient manner. The ends of the driving shaft are journaled in white metal bushings in blocks I, preferably iron

or brass castings, which blocks are adjustable carrying said shaft up or down in guideways L, formed in strong fixed upright castings M, arranged at or near the sides of the vessel. To effect this, a screw or screw-threaded adjusting rod J is arranged obliquely upright in each casting M, longitudinally of the guideway L therein, the upper end of said casting being bored at 1 to allow the protrusion of the upper end of said rod, and the lower end J' of said rod being pivoted to the proximate block I to prevent binding. The said guide ways L are curved in the arc of a circle of which the driving shaft E is the center, so that the interval between shafts E and F is not changed by adjusting the latter. This rod is engaged by a nut K, which is also a bevel wheel. The two nuts or bevel wheels K are engaged and driven by corresponding bevel wheels or pinions Q', which are mounted on and turn with a shaft P, extending across the vessel. This shaft is provided with any convenient means for turning it, for example a hand wheel or a belt wheel Z, which may be engaged at will by a belt Z' from the driving shaft or any convenient source of power.

O designates a bifurcated bracket, having on its lower end lateral trunnions, resting in bearings m formed on the top of castings M to allow a certain amount of play to said rods, shaft and bevel gear wheels, thus preventing injurious strain. One arm or bifurcation of said bracket is expanded laterally, to afford room for a laterally elongated opening O', which receives the nut or bevel wheel K, allowing it to turn in said bracket, but preventing it from rising or falling. Said broadened arm or bifurcation is also bored at n both above and below said opening in line with the bore 1 of bracket M, to allow endwise motion of the adjusting rod J, the threads of which do not engage any part or element except the nut K aforesaid. The other bifurcation O<sup>2</sup> of said bracket affords a bearing for shaft P. This arm is presented to the left by one of the two brackets O and to the right by the other one of said brackets that is, both bifurcations O<sup>2</sup> are presented by their brackets inwardly toward each other.

The adjustment of the main paddle wheel shaft F by the above means may be very gradual and very delicate, or to a slight degree. The effect is to change the depth of



the driving paddle wheels in the water as desired, and to regulate the speed as desired within reasonable limits.

This invention is shown in the drawings, 5 as applied to and embodied in paddle wheel boats and vessels of the kind adapted to run on dry land at need, the paddles being therefore provided with suitable rims or tires W, as shown in Figs. 1 and 2; also 10 in the drawings of my patent above mentioned: but of course an impelling wheel or wheels or equivalent device, not having any provision for land travel, may be adjusted up and down in the same way by the same 15 or similar means for the same purpose and with the same result.

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

20 1. In combination with a driving shaft, a paddle wheel shaft driven thereby, bearing blocks for the latter, guideways for guiding said blocks in an arc, devices for raising and lowering said blocks in said guideways and 25 pivoted bearing brackets above said guideways allowing play of said raising and lowering devices substantially as set forth.

2. A paddle wheel shaft, in combination with a driving shaft, a bearing block for the 30 former shaft, a fixed guideway for said block, curved in an arc of a circle having the driving shaft for a center, an adjusting screw pivoted at its lower end to the end of said block, a bearing bracket pivoted on the 35 upper end of said guideway and allowing the said screw to extend up through it, a shaft mounted at one end in said bearing bracket and extending across the vessel to similar devices on the other side, means for 40 turning the latter shaft, a bevel wheel carried by said shaft and another bevel wheel

meshing therewith and carried by said bracket, this latter wheel being internally threaded to constitute an adjusting nut and engaging the said screw, substantially as set 45 forth.

3. In combination with a driving shaft and a paddle wheel shaft driven thereby, devices for adjusting said paddle-wheel shaft 50 from one position to another without changing the interval between said shafts, a pair of pivoted bifurcated brackets each of which is adapted to hold in one arm a nut and pinion comprised in said adjusting devices and has its other arm or bifurcation perforated 55 to form a bearing for the shaft of a rotary pinion engaging and driving the pinion above mentioned substantially as set forth.

4. In combination, a driving shaft, a paddle wheel shaft driven thereby, blocks in 60 which said paddle wheel shaft is mounted, guideways for guiding said blocks, an adjusting screw pivoted to said blocks, an adjusting nut for said screw, a pinion for rotating said nut, a shaft for driving said pinion, 65 means for driving said last mentioned shaft and brackets for allowing play of said screw, nut, pinion and pinion shaft, said bracket comprising a trunnion, an elongated bifurcation having an elongated opening 70 therein forming a bearing for said adjusting nut and a lateral bifurcation having a round bore therein forming a bearing for said pinion shaft as set forth.

In testimony whereof, I have signed my 75 name to this specification in the presence of two subscribing witnesses.

DONALD FLETCHER.

Witnesses:

H. W. STERLING,  
F. I. MATTINGLY.